

FIELD LOG

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
157							SP	@ 157.0' MED TO COARSE-gr SAND						
158							SP-SM	SOME GRAVELS & 1/4" d						
	31		3.0 5.0				NCR	@ 157.8' SP-SM						
159								NCR @ 158.0' to 160.0'						
160								MED gr SAND GRADES INTO						
161							SP	MED TO COARSE SAND @ 161.0'						1421 ± 15.0' OF 1448 SAND HEAT WHILE ATTEMPT TO PUT SAMPLER IN
162			2.0 5.0				SP							
	32						SC	@ 161.8' SC						
163								NCR @ 162.0' to 165.0'						CHATTER @ ± 163'
164														
165								INTO MED gr SAND (SP) SOME COARSE						
166			2.0 5.0				SP	SANDS & Lr. GRAVELS & 1/4" d						1450 START TEST 10:20:15 0955 0845-0900 TG 0900-0915 TC 0915-0930 SB 0930-0945 RIB
167							SP-SM	@ 166.8' SILTY Lr-gr SAND & SANDY SILT						T9C22 @ 1005 TRIE @ 140' GRAVEL LAYER 1' KNICKED OUT OF ALIGNMENT 2. MOVE OVER ± 2' 1' REDD AS T9C22
168							NCR	NCR @ 167.0' to 170.0'						
169														@ 1010 - CO. 10 H2S: 0.0 LCL: 0 02:20.9
170							SP	@ 170.0' to 170.6' Lr-gr SANDY SILT						0959 1029 CHANGING ROCKS 1029 & ATTEMPT
171							SP-SM	TO SILTY SAND, TRACE CLAY						
172			5.0 5.0				SP	@ 170.6' to 171.5' Lr to med-gr SAND						
173								@ 171.5' SILT DARK GRAY (SY 4/1) WITH Lr-gr SAND LENSES DARK YELLOWISH BROWN (10YR 4/6) MOTTLED.						

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B12

Sheet 11 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.23k

Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
173													
174	34	16	(100)				@ 174.0' SP-SM GRADATIONAL SANDY SILT TO SILTY CLAY @ 174.5' SANDY SILT TO SILTY CLAY VERY DARK GREENISH GRAY (10GY 3/1) TO GREENISH BLACK (10GY 2.5/1) WITH SOME SANDY LENSES & COARSE OCCASIONAL BLACK "BLEBS" & COARSE SAND GRAINS. MASSIVE TO SLIGHTLY WHERE SAND LENSES OCCUR @ 176.6' TO 177.0' VERY FINE SANDY SILT TO SILTY FINE SAND ML-CL (AS ABOVE)					1031 1056	
175													
176			5.0										
177	35		(100)										
178													
179													
180	17						@ 180.0' SILTY FINE SAND TO SANDY SILT WITH SOME CLAYS LENTICULAR MOTTLED AND MASSIVE LIKE CLAYEY					1059 1123	
181													
182	36		4.5				@ 182.0' GRAVEL TO PEBBLES < 1.0" Ø						
183			(90)										@ 1130 HEADSPACE REMOVED LO: 0 H2S: 0 O2: 20.9
184													
185							NEAR 184.5' TO 185.0'						1127 1145-1330 PULL ANCHORS 1335-1400 CIP OUT B/P 1400-1430 CLEANING & CONC. PATCH 1355-1415 SBE 2 DRUMS 1430-1500 TC
186							TOTAL DEPTH 185.0'						
187													
188													
189													

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## Log of Soil/Core Boring T9812

Sheet 12 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.231



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
0								ASPH 0-4" ASPHALT						0830-0845 TG
1								CONC 4" to 10" CONCRETE						0900-0910 TC
2								10" to 6.5' Fine, silty clayey silty sand to clayey silt. Some rock fragments						0910-0930 SB
3								DRY BROWN TO BROWN						0920-0940 RIG
4														0940-1005 ASP + CONC + HA (0-6.5')
5														
6								6.0' Cal (SP-SM)						1010
7								Silty fine sand to sandy silt layers occasional coarse grain sand to						
8								fine-grained $\leq \frac{1}{4}" \phi$						
9								DARK YELLOWISH BROWN (10YR 4/4-3/4)						
10														1011
11														1019
12														
13														

DATE(S) DRILLED: 10-21, 22, 23-15

DRILL METHOD: CONTINUOUS DRY CR

DRILL EQUIPMENT: CME 75

DRILL CONTRACTOR: MARTINI DRILLING

BIT SIZE / TYPE: 8"  $\phi$  / HQ3

HOLE COMPLETION:

LOGGED BY: M.A. ESPINOZA

CHECKED BY:

HOLE INCLINATION: 90°

GROUND ELEVATION:

TOTAL DRILLED DEPTH: 185.4

GROUNDWATER LEVEL: +45.0'

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Log of Soil/Core Boring 19B13Sheet 1 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.24a

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
13														
14	2	1					GW SP SM	@ 13.2' to 13.4' GRAVELS						
15							NCR	NCR @ 14.7' to 15.0'					1020 1027	
16							SP SM							
17	3		4.5 5.0				SP SM	@ 16.7' THIN SAND & LOOSE LAYER						
18							SP SM	@ 17.8' INCREASE GRAVEL CONTENT AND SIZE, $\leq 1.5" \phi$						
19														
20	2						NCR	NCR @ 19.5' to 20.0'					1028 1034	
21								SILTY FINE-GRAINED SAND & SANDY SILT WITH TRACE CLAY & SOME GRAVELS $\leq 1/4" \phi$						
22		4	4.6 5.0				SP SM							
23							GW	GRAVELS @ $\pm 23.0'$ $\leq 1/2" \phi$						
24							SP SM							
25							NCR	NCR @ 24.6' to 25.0'					1035 1043	
26			5.0 5.0					@ 26.0' GRAVELS <del>SM</del> INTER						
27	5	3					SP SM	SILTY FINE-GRAINED SAND AND SANDY SILT WITH TRACE CLAYS						
28														
29								@ $\pm 28.5'$ INCREASE FINES						

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## Log of Soil/Core Boring T9813

Sheet 2 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.24b



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
29														
30							SP -SM						1044 1051	
31		3					SP	C 30.9' to 31.6' f-gr SANDS SOME SILT FROX STAINING						
32			4.7 5.0				ML	C 31.6' SILT WITH THIN SAND LENSES FROX W/ MORE SAND						
33							SP -GW	C 32.6' $\pm$ 30-40" CONTACT MED TO COARSE SANDS WITH GRAVELS						
34							SP CL SP NCR	C 33.6' GRADES INTO f-gr SAND WITH SOME SILT C 34.4 to 34.5' CLAY, NCR 34.7' to 35.0'						
35							SP	f to COARSE SANDS					1053 1104	
36			3.5 5.0											
37							SP	C 36.5' f to f-fine gr SAND						
38		7					SP -GW	MED $\pm$ COARSE SANDS WITH CLAY $\pm$ GRAVELS $\leq$ 2.5" $\phi$						
39							NCR	NCR 38.5' to 40.0'						
40		4											1105 1117	
41							SP -GW	ALTERNATE f - COARSE SANDS AND GRAVELS $\leq$ 1.5" $\phi$ SOME SILT, TRACE CLAYS.						
42		8	4.0 5.0											
43														
44							NCR	NCR 44.0' to 45.0'						
45													1119	

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### Log of Soil/Core Boring T9813

Sheet 3 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.24c

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	RQD, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
45							SP	145.0'					1133	
46							-GW	to COARSE GRAINED SANDS & GRAVELS TO CORRIETS TRACE SILT						
47	9		1.5 3.0					NCR @ 46.5' to 50.0'						
48							NCR							CLATTER
49							No							+ 48'
50	5						SAMPLING						1135 1147	PULLED OFF & BLIND DRILL, NO SAMPLING FOR 2.0'
51							SP	@ 50.0'						
52			5.0 5.0				-GW	COARSE SANDS, GRAVELS						
53	10		(100)				SP	@ 50.5' SILTY SAND - SANDY SILT NOTTED						
54							-SM							
55							SP	@ 51.8' to 52.2' SANDS & GRAVELS						
56							-GW	SILT @ 52.2' to 52.4'						
57							ML	COARSE SANDS @ 52.4' to 52.6'						
58							SP							
59							-SM							
60	6		2.5 5.0				SP	@ 54.0' GRADES INTO FINE SAND TRACE SILT					1148 1159	
61							SP							
62							-GW	@ 56.2' SANDS & GRAVELS						
63	11						SP	@ 56.6' SILTY FINE SAND & SANDY SILT, SL LAMINATED TO NOTTED						
64							-SM	@ 57.6' GRADES INTO FINE SAND						
65							SP	NCR 57.5' to 60.0'						
66							NCR							
67														
68														
69														
70														
71														
72													1200 1213	

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## Log of Soil/Core Boring T9B13

Sheet 4 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.24d



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type	Number				
61							SP	fn - COARSE SANDS & GRAVELS TO COBBLES $\leq 4.0"$ $\phi$						
62	12		2.5				GW							
63			2.5				NO	@ 62.5' TO 65.0' NO SAMPLING DUE TO ABUNDANT CHATTER						@ 62.5' NO SAMPLING CHATTER
64			(100)				SAMPLING	ie GRAVELS & COBBLES?						
65		6					SP	MED TO fn-gr SAND					1214 1228	
66			1.0				SP	COBBLE IN SHOE @ 66.0' COBBLES "BLOCKED" ? SAMPLER						
67	13		5.0				NK							NOTE: BAG SAMPLE RETAINED NOT IN BOX
68														
69														
70							SP	@ 70.0' fn-gr SANDY SILT TO SILTY SAND MOTTLED TO SL.					1229 1240	
71			5.0				SM	LAMINATED						
72	14		5.0											
73							SP GW	@ 72.4' SAND & GRAVELS						
							SP	@ 72.8' fn-med SAND						@ 73.0' MUD/WATER RETURN
74							SP SM	@ 73.5' ALTERNATING SILTY fn-gr SAND TO SANDY SILT TO CLAYEY SILTY SAND						
75							SC	MOTTLED. SOME GRAVELS TO PEBBLES					1241 1255	
76	15	7					SP	@ 76.2' TO 76.6' MED TO COARSE SAND & PEBBLES						
77														

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## Log of Soil/Core Boring T9B13

Sheet 5 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.24e

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
77							SP -SM	@ 76.6' SP-SM some clay mottled						
78							SP	@ 77.7' in sand & gravels						
79	15		5.0 5.0				SP -SM -SL	@ 78.2' silty fine gr sand to sandy silt and clayey silty fine gr sand.						
80													1256 1308	
81	7		5.0				SP -SM -SL	AS ABOVE CLAYY SILTY V. L. SAND AND SILTY SAND AND SANDY SILT mottled						
82	16		5.0 5.0					DARK GRAYISH BROWN (2.5Y 4/2) TO OLIVE BROWN (2.5Y 4/4) AND OLIVE GRAY (5Y 4/2)						
83														
84														
85							SP -GW	@ 85.1 TO 85.5' SAND & GRAVEL (SP-GW)					1309 1329	
86							SP -SM -SL	@ 85.5' SLATY SILTY SAND TO SILTY SAND & SANDY SILT (AS ABOVE) mottled some laminar R-SAND						
87	17		5.0 5.0											
88														
89														
90	8												1330 1345	
91							SP -SM -SL	SP-SM-SL (AS ABOVE) occasional black blibs						
92	18		5.0 5.0											
93														

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### Log of Soil/Core Boring T9B13

Sheet 6 of 12

Westside Purple Line Extension - Section 2  
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Project No. 4953-11-1423

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Figure  
A-1.3.24f



Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
93													
94	19	8	100				SP SM SC						
95												1347 1359	
96							SILTY FINE SAND TO SANDY SILT AND CLAYEY SILTY SAND (AS ABOVE) MOTTLED						
97													
98	19		5.0 5.0				CL						
99			100				SP SM SC						
100	9						SP-SM-SC (AS ABOVE)					1401 1441	
101													
102	20		5.0 5.0				SP SM SC						ABUNDANT MUD RETURN
103													
104													
105													
106			5.0 5.0				SP SM						
107	21	10					SILTY FINE SAND TO SANDY SILT LESS FINES AS IN FROM ABOVE MOSTLY SANDS. MOTTLED	0949	0840 0700 0910 0915	0850 TG 0910 TC 0955 SB DOUBLE UP 0945 RISE SET		1443	END OF WED ID-21 PARTIC. FOR TRIN TEST, OF EFFECTIVELY
108													
109													

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## Log of Soil/Core Boring T9B13

Sheet 7 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.24g

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
109														
110							SP SM SC	@ 107.2 INCREASE LINS TO (SC)					0951 1010	
111	10						SP SM	GRADING INTO SILTY FINE GR SAND TO SANDY SILT TO SAND WITH SOME SILT.					1000 Co: 0 H <sub>2</sub> S: 0.0 LO: 0 O <sub>2</sub> : 20.9	
112			4.5 5.0											
113	22						SP							
114							SP	GRADES INTO FINE MED-GR SAND						ABUNDANT DRILL MUD RETURN
115							NQR	NQR @ 114.5' to 115.0'					1011 1035	ONE DRUM FILLED ALREADY
116			2.5 5.0				SP	FIN TO MED-GR SANDS (SP) OCCASIONAL PEBBLE $\pm \frac{1}{2}$ " OLIVE BROWN (2.5Y 4/3-4/4)						
117														
118	23						NQR	NQR 117.8' to 120.0' DUE TO SANDS FALLING OUT (?) WHILE DIFFICULT SAMPLER EXTRACTION (?)						CLATTER @ $\pm 118'$
119														
120	11						SP						1037 1103	
121			2.5 5.0				SP SM SC	GRADES INTO ALTERNATING (SP-SM-SC) WITH SOME GRAVELS $\pm \frac{1}{2}$ " SUB HORIZONTAL LAYERING						
122	24													1108-1130 FIGHTING TO EXTRACT SAMPLER TIGHT AT DEPTH
123							NQR	NQR 122.5' to 125.0'						
124														
125													1105	

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## Log of Soil/Core Boring T9 B13

Sheet 8 of 12

Westside Purple Line Extension - Section 2  
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Project No. 4953-11-1423

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Figure  
A-1.3.24h



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type	Number	Blows per 6 inches	Strength		
125								SANDS (AS ABOVE)					1147	
126							SP							1152-1235
127	25	11	4.5 5.0				SP	MED TO COARSE SANDS						SAME ISSUE WITH DIFFICULT SAMPLE EXTRACTION
128							SP SM	SANDS & GRAVEL, SOME SILT/CLAY Silty L - gr SAND & SANDY SILT						± 50 ft of WATER HEAD COLLECTED BY 5 GAL BUCKET
129							SC	CLAYEY GRAVELY SAND						ADDITIONALLY, SANDS ARE INSIDE ANCHOR LOADING SAMPLER TO WALLS
130							NQR	NQR 129.5' to 130.0'						1149 1301
131							SP	L - gr SAND						
132	26		2.7 5.0				SC	GRADES INTO CLAYEY SILTY GRAVELY SAND						
133							SP	MED TO COARSE - gr SANDS. SOME GRAVELS						
134							NQR	NQR 132.7' to 135.0'						1308-1313 SAMPLER DIFFICULT TO EXTRACT
135	12						SP	SP (AS ABOVE)					1302 1348	
136			2.5 5.0											
137							SC	CLAYEY SILTY GRAVELY SANDS						
138	27						NQR	NQR 137.5' to 140.0'						
139														
140	28												1351 1422	1409-1420 FIGHTING TO PUT SAMPLER AT BOTTOM
141														

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## Log of Soil/Core Boring T9B13

Sheet 9 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.24i

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
141														
142	28	12	10				NCR	NCR ENTIRE RUN 28						
143								SAMPLE FELL OUT WHILE RETREATING SAMPLER?						
144														1425 - 1445 FIGHTING TO PULL SAMPLER OUT AGAIN!
145													1423 1450	
146							SP	to med-gr SAND (SP) WITH OCCASIONAL COARSE GR SAND & GRAVEL $\frac{1}{4}$ " $\phi$ TRACE SILT.						
147	29		3.0 5.0											
148														
149							NCR	NCR @ 148.0' to 150.0'						1455 - FIGHT TO EXTRACT SAMPLER ...
150							SP SM	@ 150.0' SILTY FINE-GR SAND TO SANDY SILT ALTERNATING LAYERS					1453 0940-0850 TG 0900-0910 TC 0915-0930 SB 0915-0940 RIG & SETUP	START FR 10-23-15
151			3.2 5.0				SP ML	@ 151.0' to 151.2 FINE-GR SAND SOME SILT @ 151.2' SILT WITH SOME FINE-GR SAND LENSES. TRACE CLAY SILT OLIVE (SY 4/3) SAND DARK YELLOWISH BROWN (OYR 4/6)						
152	30													
153								NCR @ 153.2'						
154							NCR							
155		13					SP SM	SILTY FINE-GR SAND to SANDY SILT (SP-SM)					0950 1012	
156	31		4.5 5.0				SP SM ML SC	SILT (ML) OLIVE (SY 4/3) SILTY FINE-GR SAND (SP-SM) CLAY SILTY SAND fin to COARSE GRAINING (SC)						
157														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B13

Sheet 10 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.24j



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
157							SC							
158	31	13					ML	CLAYEY SILT TO SILT WITH SAND LENSES OLIVE (SY 4/3) WHEN SAND DARK YELLOW BROWN (OYR 4/6)						
159							SP	SAND WITH SILT						
160							NCR	NCR C 159.5' TO 160.0'						
161							ML	SILT WITH SOME SP-SM TO SP LENSES, TRALE CLAY					1015 1038	
162			5.0				SP							
162			5.0				ML							
163	32		100				SC	CLAYEY SILTY GRAVELY SAND (SC)						
164							SP SM	SILTY SAND TO SANDY SILT						
165		14					SP	CL-G SAND. SOME SILT?					1041 1114	
166							SP SM	SILTY CL-G SAND TO SANDY SILT						
167	33		4.5 5.0				ML	SILT (ML)						
168							SC	CLAYEY, SILTY GRAVELY SAND (SC)						
169							SP	CL-COARSE SANDS						
170							ML	SILT TO CLAYEY SILT						
170							SP	MED TO COARSE SANDS						
171							SP	ALTERNATING, SILTY CL-G SAND TO SANDY SILT						
171							NCR	NCR 169.5' TO 170.0'					1116 1138	
172	34	15					NCR	NCR 170.0' TO 172.5' POSSIBLY SAND WASHED OUT?						
173							SP	SAND WITH SILT AND SILTY SAND						

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## Log of Soil/Core Boring T9B13

Sheet 11 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.24k

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
173							SP	SAND DARK YELLOWISH BROWN (10YR 4/4)						
174	34						ML	SILT WITH (SP-SM) & (SP) LENSES AND SOME CLAY GREENISH BLACK (10GY 2.5/1)						
175	15						SP	@ 174.5' SAMPLED TO Fm?						
							ML	CLAYEY SILT TO SILTY CLAY GREENISH BLACK (10GY 2.5/1)					1141	
							CL	GREENISH BLACK (10GY 2.5/1)					1206	
176							SP	ALTERNATING SILTY V.F. SAND TO SANDY SILT						
177	35						CL	CLAY WITH SILT, SOME SAND.						
178							ML	SILT WITH V.F. - gr SAND LENSES?						
179								@ 178.8' OCCASIONAL CARBONATE						
180							SP	SILTY CLAY SAND & SANDY SILT FECK WHERE SANDIER SOME CARBONATE					1209	
							SM	NCR 177.8 TO 1180.0					1234	
181							ML	GRADED INTO (ML) SILT WITH (CL) CLAY & (SP-SM)						
182	36						ML	CARBONATE THROUGHOUT NCR						
							CL	FECK WHERE SANDIER						
183														
184														
185														
186														
187														
188														
189														

1250-1420 TRIP  
1425-1530 AUGERS  
GRABOUT B/F  
CLEANUP  
CEMENT  
PATCH  
1500-15 SB  
1530-1600 TL  
1237

TD 185.4'

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B3

Sheet 12 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.241



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
0								ASPH 0" to 4" ASPHALT						
1								CONC 4" to 10" CONCRETE						0830-0845 TG 0900-0935 TL 0935-0945 SB 0945-1000 RIG + ASP/CONC + HA 0-6.0'
2								10" to 6.0' of Fill						
3								CLAYEY SILTY TO SANDY CLAY						
4								with some ROCK FRAGMENTS						
5								± 1.0" Ø DARK BROWN						
6														
7								6.0' to 1.0'						
8								Silty fine to sandy SILT TO						
9								SAND CLAYEY SANDS LIGHT BROWN						
10								TO BROWN. (SP-SM)						
11								SOME GRAVELS ± 1.0" Ø						
12														
13														

DATE(S) DRILLED: 10-27, 28, 29-15

DRILL METHOD: CONTINUOUS DRY CORE

DRILL EQUIPMENT: CME 75

DRILL CONTRACTOR: MARTINI DRILLING

BIT SIZE / TYPE: 8" Ø / PQ

HOLE COMPLETION:

LOGGED BY: MA ESPINOZA

CHECKED BY:

HOLE INCLINATION: 90°

GROUND ELEVATION:

TOTAL DRILLED DEPTH: 200.0 ft bgs

GROUNDWATER LEVEL: ± 35.0 ft bgs

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Log of Soil/Core Boring 79814

Sheet 1 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25a

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
13														
14	2	1	(100)				SP - SM	SILTY CLAYEY SAND TO SANDY SILT. (SP-SM)						
15							SP-GW	SAND & GRAVELS ≤ 1.5" Ø					1012 1016	
16							SP - SM							
17	3		5.0 5.0				SP	SAND (SP)						
18			(100)				SP - SM							
19							SP - SM							
20	2												1017 1023	
21							SP	GRAVELLY SAND fin-gr SAND (SP) occasional gravel/pebbles						
22	4		5.0 5.0				SP - SM							
23			(100)				ML - CL	GRAVELLY SAND CLAYEY SILT (ML-CL) TO SANDY SILT						
24														
25							SP - GW	GRAVELLY SAND					1024 1030	
26							SP	@ 25.5' SAND fin-gr. (SP)						
27	5	3	4.0 5.0				ML - SP - SM	silt silt/fin-gr SAND						
28							SP							
29														

FIELD LOG

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B14

Sheet 2 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25b



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
29														
30		3					SP SL	SAND FINE GRAINED (SP) CLAYEY SILTY SAND					1031 1038	
31			4.8 5.0				SP -GW	GRANULAR SILTY SAND (SP-GW)						
32							SP -SM	SILTY CLAYEY SAND SL LAMINATED TO MOTTLED.						
33							SL							
34														
35								BELONGS WITH ± 34.0'					1039 1047	
36			5.0 5.0				SP -SM	SILTY FINE SAND (SP-SM)						
37							SL -GW	CLAYEY GRANULAR SAND SOME SILT						
38		7												
39														
40		4											1048 1055	
41							SP	241.0' GRADUALLY SILTY FINE SAND TO SAND (SP)						
42			5.0 5.0				SL -GW	241.5' CLAYEY GRANULAR SAND.						
43		8					SP -SM	242.8' LAMINATED SILTY FINE SAND TO SANDY SILT. FOLY WHITE SANDIER.						
44														
45													1055	

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## Log of Soil/Core Boring T9B14

Sheet 3 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25c

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
45														
46							SP	GRADES WITH FINE SAND SOME SILT					1103	
47	9		5.0 5.0				GW	GRAVEL WITH (SP. SM)						min. chatter at 47.0'
48			100				SP	FINE SAND WITH SILT TO SANDY SILT						
49							SP	FINE TO COARSE (SP. GW) SAND & GRAVELS (WET)					1104 1113	
50	5						GW							
51			4.8 5.0											SOME CHATTER at 52.0'
52														
53	10						SC	@ 52.2' SILTY CLAYEY SAND WITH OCCASIONAL SP. SM LENSSES (?)						
54														
55								NEW 54.8' TO 55.0'						
56							SP	GRADES WITH SP. SM MOSTLY FINE SAND LENSSES.					1114 1123	
57	11		5.0 5.0				SM	FLOX WITH SAND LIKE DARK OLIVE BROWN (2.5Y3/3) TO OLIVE BROWN (2.5Y4/3)						
58			100				SP	@ 57.6' COLOR CHANGE TO (10GY 2.5/1) GREENISH BLACK						
59							SM							
60								@ 60.2'					1124 1132	
61	12						SP	COLOR CHANGE TO OLIVE BROWN (2.5Y 4/3-4/4)						

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# Log of Soil/Core Boring T9B14

Sheet 4 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25d



Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches	Strength			
61													
62			5.0 5.0										
63	12		100				GRADES INTO SILT WITH (SP-SM) & (SP) LENSES.						
64													
65							GRADES INTO ALTERNATING (SP-SM) & (ML-CL) THIN LAYERS					1137 1143	
66													
67	13		5.0 5.0										
68			100										
69													
70	7						GRANULAR SAND WITH CLAYEY SAND					1144 1154	
71													
72	14		5.0 5.0				SILT & SAND TO SANDY SILT ALTERNATING WITH CLAY TO SILT TO CLAYEY SILT LAYERS						
73			100										
74							73.5' SAND WITH SILT						
75												1155 1207	
76	15		100										ABNOT AND RETEN @ 72.0'
77													

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## Log of Soil/Core Boring T9B14

Sheet 5 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25e

Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
77													
78	15		5.0 5.0				ML CL SILTY CLAY TO CLAY SILT						
79			100										
80	8						SP SM FINE SANDY SILT TO SILTY SAND SOME CLAY MOTTLED TO SL. LAMINATED					1208 1221	
81	16		5.0 5.0				CL SP CLAY						
82			100										
83							ML CL SILTY CLAY TO CLAYEY SILT WITH SAND LENSES						
84													
85												1223 1233	
86							SP SM @ 85.4' L. q. SANDY SILT TO SILTY SAND INTERMEDIATE LAYERS TO CONTAIN OCCASIONAL GRAVEL $\leq 1/2$ "						
87	17	9	5.0 5.0										
88			100				SP SM @ 87.0' SAND TO SILTY SAND WITH GRAVELS.						
89							SP SM						
90							SP GRADES INTO L. SAND WITH SOME SILT					1235 1246	
91			5.0 5.0										
92	18		100				ML CL SILTY CLAY TO CLAYEY SILT						
93							SP L. SAND @ 92.5' V. F. SAND @ 92.8'						

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## Log of Soil/Core Boring T9B14

Sheet 6 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25f



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
93														
94	18	900					SP							
95							ML	SILTY CLAY TO CLAYEY SILT WITH SAND LENSES						
96								fin to med-gr sand					1248 1320	
97			3.8				SP							
98	19	10	5.0					298.4' GRAVELS						
99							ML	298.6' TO 98.8' SILTY CLAY						
100							NUP	NUP 298.8' to 100.0'					1321 1334	
101			5.0				SP	fin-gr sand						
102	20		5.0				SP	SILTY fin-gr sand to sandy silt ALTERNATING LAYERS						
103		100					ML	GRAVELS INTO fin-gr sand.						
104							ML	SILT WITH SOME CLAY THINLY LAMINATED						
105							ML	SILTY CLAY TO CLAYEY SILT						
106							CL	TRACE SANDS & COARSE GRAINS THINLY LAMINATED						CHATTER @ 103' to 104'
107	21		5.0				SC	CLAYEY SILTY SAND WITH SOME GRAVELS $\leq 1/4"$ $\phi$ SOME SAND LENSES NOTED					1336 1351	
108	11						SC	INCREASE GRAINS ABUNDANCE						
109							SC	CL (AS ABOVE)						

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## Log of Soil/Core Boring T9B14

Sheet 7 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25g

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
109														
21		11	100				SC	INCREASE GRAVEL						
110							GW						1354	
							SP						1407	
111							SM							
							SC							
112								2112.0' INCREASE GRAVEL						
22			5.0				SC	CONTENT						
			5.0				GW							
113							SP							
							SC	INCREASE SILTY CLAY CONTENT						
114							GW	2114.0'						
							SC	SILTY CLAYEY SAND AND GRAVEL						
							GW							
115													1409	
													1423	
116														
			4.3											
117			5.0				SP	2117.0'						ABUNDANT
23							SM	SILTY FINE SAND TO SANDY						ILD RETURN
								SILT LAYERS WITH SOME						2116.0'
118								COARSE SANDS TO GRAVELS						
								1/4"φ						
119														
								NCR NCR 2 119.3' TO 120.0'						
120		12						2120.0'					1426	
								fr. to med-gr SANDS, TRAC					1446	
								SILT						
121							SP							
			4.0											
122		24	5.0											1505-1520
														CLEANUP SITE
														TEMP ASPH.
														PATCH
123														1520-1545 SB
														5 DRUMS
														1545-1630 TC
124							SC	2123.8' CLAYEY SILTY SAND						1449-1453
							NCR	NCR 124.0' TO 125.0'						DIFFERENT
														PULLING
														NO SAMPLER
125													1448	
								END OF TUES, 11-27						

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B14

Sheet 8 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25h



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches			
125													
126								fine-medium SAND (AS ABOVE)					
127	25		2.5 5.0					SP ML CL SILTY CLAY TO CLAYY SILT (ML-CL) 2126.7' to 126.8' SAND (SP) NCR 127.5' to 130.0'					START WED 10-28 0830-0845 TG 0910-0920 TC 0915-0930 SB 0925-0950 RIG 1/2 SET UP 0956 @ 1010 CO:0 H2S:0.0 LE:0 O2:20.7
128								NCR					0959-1003 DIFFICULT PULLING UP SAMPLER
129													1020-1030 DIFFICULT LOWERING IN SAMPLER
130	13							SP SAND (SP) AS ABOVE					0957 1031 ± 120'-131'
131			1.5 5.0					CL ML 2131.2' to 131.5' CLAYY SILT SAND NCR 131.5' to 135.0' 1/2 GRAVEL					
132	26							NCR					1035-1038 DIFFICULT PULLING SAMPLER
133													
134													
135								SP SM SILTY fine-gr. SAND TO SANDY SILT NOTED SOME SILTY CLAY					1033 1053
136			2.0 5.0					ML CL SILTY CLAY TO CLAYY SILT WITH COARSE SAND GRAINS OLIVE GRAY (SY 4/2) TO LIGHT DARK GREENISH GRAY (10Y 4/1) THIN LAYER OF (SP-SM) FINE OX WITHIN (ML-CL) NCR 137.0' to 140.0'					1057-1120 DIFFICULT PULLING SAMPLER
137	27												
138	13												
139													
140													
141	28							SP SM ML CL					1056 1136

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Log of Soil/Core Boring T9B14

Sheet 9 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25i

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
141														
142	28	13	2.3 5.0					SC SILTY CLAYEY SANDS TO SANDY CLAY. SOME GRAVELS $\leq 1.0"$ $\phi$ SANDS @ $\pm 141.8'$ NCR NCR 142.3' TO 145.0'						
143														
144														
145								SC CLAYEY SILTY SAND & GRAVELS $\leq 1.0"$ $\phi$ NOTED.					1138 1156	
146			3.0 5.0											
147								ML @ 146.7' (ML-CL) SILTY CLAY TO CLAYEY SILT - OCCASIONAL SILTY SAND LENSES.						
148	29							NCR NCR 148.0' TO 150.0'					1201-1205 DIFFICULT PULLING UP SAMPLER	
149														
150	14							SP FINE TO COARSE SAND (Rising up SEQ) OLIVE BROWN (2.5Y 4/3 - 4/4)					1159 1224	
151			5.0 5.0					SP SILTY FINE SAND TO SANDY SILT ALTERNATING LAYERS.						
152	30		100					ML THINLY LAMINATED SILT TO CLAYEY SILT AND SILTY CLAY. SAMPLERS FM (?) @ 152.5' NOTE: MORE LIKELY TRANSITION SILT WITH V. FINE SAND LENSES - VERY DARK GREENISH GRAY (10Y 3/1) @ 153.4' TO GREENISH BLACK (10Y 2.5/1) SC SLOTTED CLAYEY SAND						
153								ML SILTY CLAY TO CLAYEY SILT @ 154.4' GRADUAL INTO SILTY FINE SAND TO SANDY SILT WITH OCCASIONAL COARSE SAND GRAINS					1225 1245	
154														
155														
156	31	15						ML SILTY CLAY TO CLAYEY SILT						
157														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Log of Soil/Core Boring T9B14Sheet 10 of 13

Westside Purple Line Extension - Section 2

Beverly Hills, California

Project No. 4953-11-1423

amec foster wheeler

Figure  
A-1.3.25j



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
157														
158	31		5.0 5.0				ML -CL -SP-SM	± 158.0' GRADES INTO SILTY CLAY TO CLAYEY SILT WITH V. F. SANDY LENSES TO SILTY V. F. SAND TO SANDY SILT MOTTLED OCCASIONAL CARBONATE						
159			(100)				SP -SM							
160		15						SOME SILT AND CLAY THIN LAYERS, SOME COARSE GRAINS MOTTLED.					1249 1313	
161														
162	32		5.0 5.0				SP -SM							
163			(100)											
164														
165							SP -SM	SILTY FINE SAND TO SANDY SILT (AS ABOVE) CARBONATE THROUGHOUT					1316 1339	
166														
167	33		5.0 5.0											
168		16												1355-1445 CLEAN UP 1430-1445 PATCH 1500-1515 SB 1520-1600 TC
169							ML -CL	@ 168.4' CLAYEY SILT TO SILTY CLAY WITH OCCASIONAL COARSE GRAINS CARBONATE THROUGHOUT						
170													END OF WED 10-28 START THURS 10-29	1341 1006
171			4.5 5.0				ML -CL	TD 170.3' SILTY F. SAND TO SILT AND SILTY CLAY WITH V. F. SAND LENSES/LAYERS. SOME CARBONATE					0845-0900 TG 0900-0930 TC W/BH. 0915-0930 SB 0930-0955 RIG & SET UP	
172	34	17												
173														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

# Log of Soil/Core Boring T9B14

Sheet 11 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25k

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
173														
174	34						ML CL	SP-SM "SANDIER" @ ± 173.5' to 173.7'						
175							NCR	NCR 174.5' to 175.0'					1008 1032	
176			50				ML CL	CLAY/SILT to SILTY CLAY WITH SOME SANDIER SILT LENSES BLACK (5Y 2.5/2) occasional CARBONATE						
177	35		50					PALEOSOL(?)						
178							SP SM	@ 177.6' INCREASE SANDS TO (SP-SM) & (SM) Silty fine sand to sandy silt up to 1/4" Ø						
179							SM	DARK OLIVE GRAY occasional CARBONATE (5Y 3/2)						
180													1034 1100	
181								ALTERNATE SILTY FINE SAND TO SANDY SILT AND CLAY/SILT						
182	36		50				SP SM	occasional COARSE SAND GRAIN TO 1/4" Ø occasional CARBONATE MOTTLED. OLIVE (5Y 4/3) TO OLIVE GRAY (5Y 4/2)						
183														
184														
185	18							ALTERNATE (SP-SM) to (SM) some fine-grained 1/2" Ø SOME CARBONATE (AS ABOVE) SL. MOTTLED TO MASSIVE					1103 1132	
186			50				SP							
187	37		50				SM	DARK OLIVE BROWN (2.5Y 3/3) WHERE SANDIER & DARK GREENISH GRAY (5GY 4/1) WHERE SILTY/CLAYEY						
188														
189														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B14

Sheet 12 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.251



Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
189													
190	37	18					2189.5' fin-gr to coarse-gr SAND WITH SOME SILT					1137 1204	
191													
192	38		5.0 5.0				CLAYEY SILT TO SILTY CLAY, PARCHMENT? WITH V. fine SANDY SILT THIN LENSES/LAYERS OCCASIONAL CARBONATE, SL. LAYERED TO MOTTLED FINE WHITE SANDIER.						
193													
194	19						GRAY/BROWN (2.5Y 5/2) TO OLIVE BROWN (2.5Y 4/3) AND DARK GREENISH GRAY (10Y 4/1)					1206 1238	
195													
196													
197	39		5.2 5.0				SILTY CLAY TO CLAYEY SILT (AS ABOVE) WITH SANDIER & SILTY LENSES. OCCASIONAL CARBONATE AND COARSE SAND TO FINE GRAVEL						
198													
199													
200													
201													
202													
203													
204													
205													

TD 200.0 ft + 6 yds.

1243 END OF 10-29-05

1255-1540 TRIP OUT AUGERS  
1505-1540 GRAB B/F, CLEAN  
UP SITE & CEMENT CAP  
1520-1545 SB & 2 DRUMS  
1545-1645 TC

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE  
CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE  
CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY  
DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE.  
TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Log of Soil/Core Boring T9B14

Sheet 13 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.25m

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength			
0							ASP	0-4" ASPHALT						0840-0850 TG
							CON	4"-10" CONCRETE						0900-0920 TC
1								10" to 6.0' of fine						0915-0930 SB
								clayey silt to silty clay						0940-1040 650/15
2							of	with some sands & rock						1050-1105 R16
								fragments $\leq 2.0"$						1115-1120 RSP.
3								dark brown to brown						+ color.
4														1120-
5														
6													1145	
7			5.0				SP	silty fine sand to sandy						
			5.0				sm	silt with silt to trace						
8								clays, some gravels $\leq 1/2"$						
								brown to orange brown						
9														
10													1145	
													1148	
11			5.0				SP	silty fine sand (at above)						
			5.0				sm	increase silts with depth						
12								@ $\pm 13.0'$						
13														

DATE(S) DRILLED: 10-30 & 11-02-15  
 DRILL METHOD: DRY CONR. CORE  
 DRILL EQUIPMENT: CME 85  
 DRILL CONTRACTOR: JDR  
 BIT SIZE / TYPE: 8"  $\phi$  / H  $\phi$   
 HOLE COMPLETION:

LOGGED BY: MA Espinoza  
 CHECKED BY:  
 HOLE INCLINATION: 90°  
 GROUND ELEVATION:  
 TOTAL DRILLED DEPTH:  
 GROUNDWATER LEVEL:

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9 B15

Sheet 1 of \_\_\_\_

Westside Purple Line Extension - Section 2  
 Beverly Hills, California  
 Project No. 4953-11-1423

amec foster wheeler



Figure  
 A-1.3.26a



Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches	Strength			
13													
14	2		100				SP SM						
15												1148 1152	
16													
17			4.0 5.0										
18	3						SP SM NCR						
19							SP SM NCR						
20							SP SM NCR					1154 1158	
21													
22													
23													
24													
25													
26													
27													
28													
29													

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## Log of Soil/Core Boring T9B15

Sheet 2 of \_\_\_\_

**Westside Purple Line Extension - Section 2**  
**Beverly Hills, California**  
**Project No. 4953-11-1423**

amec foster wheeler



**Figure**  
**A-1.3.26b**

Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
29							Gravels @ ± 29' to 30'						
30													
31													
32													
33													
34													
35													
36													
37													
38							Gravels? @ ± 38'-39'						
39							NET @ ± 38'						
40													
41							Gravels? @ ± 40'-45'						
42													
43													
44													
45													

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B15

Sheet 3 of \_\_\_\_

**Westside Purple Line Extension - Section 2**  
**Beverly Hills, California**  
**Project No. 4953-11-1423**

amec foster wheeler



**Figure**  
**A-1.3.26c**



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength			
45														
46														
47								INTERMITTENT GRAVELS From 45' to 55'						
48														
49														
50														
51														
52														
53														
54														
55								END BLIND DRILL						
56								SP Bu. fr. - fgy SAND WITH SILT					1241	
57	4		3.5 5.0					SP 256.8' SP-SM WITH GRAVELS ≤ 1/8"φ						
58								GP 257.3' CLAYGY GRAVELS						
59								NOR 58.5' TO 60.0'						
60	2		4.0 5.0										1243	
61	5												1251	CRAP! DRILLERS DID NOT NOTIFY ME REGARDING DEPTH OR NOT BEING SAMPLED Should be 55.0'

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## Log of Soil/Core Boring T9B15

Sheet 4 of \_\_\_\_

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.26d

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
61							SP							
62	5		3.8 5.0				SM	fine SAND with SILT to v. fine SAND MOTTLED DARK OLIVE BROWN (2.5Y 3/3) S. FeOx with SANDIER						
63							SP	@ 63.0' GRADES INTO						
64							GW	fin to med. gr SAND with						
65	2						NCR	GRAVELS NCR @ 63.8' to 65.0'					1293 1303	60.0'
66			3.0 5.0				GW	GRAVELS						
67							SP	SANDS & GRAVELS						
68	6						GW	CLAY SILTY GRAVELS						
69							NCR	NCR @ 68.0' to 70.0'						
70							SP	SANDS & GRAVELS.					1309 1319	65'
71			3.8 5.0				SP	@ 71.1' fine SAND						
72	7						SM	v. DARK GREENISH GRAY (5GY 3/1)						
73							SP	@ 72.2' GRADES INTO SILTY v. fine SAND TO SANDY SILT (SP-SM)						
74							SP	med to coarse SANDS & GRAVELS ≤ 1.0" φ						
75	3						NCR	NCR @ 73.8' to 75.0'						
76	8		4.0 5.0				SP	SANDS & GRAVELS					1320 1328	70'
77							SP	@ 75.6' ALTERNATING SILTY fine SAND TO SANDY SILT SAND IS BROWN (10YR 4/3) SILTY SAND IS DARK GREENISH GRAY (10Y 4/1)						

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## Log of Soil/Core Boring T9B15

Sheet 5 of \_\_\_\_

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.26e



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength			
77							SP SM							
78	8		4.0 5.0				ML-LL	@ 77.7' SILTY CLAY TO CLAY SILT DARK GREENISH GRAY (10.44/1)						
79							SC	@ 78.0' GRADES INTO CLAYEY SILTY SAND (SC)						
80								MASSIVE TO MOTTLED. NCR NCR @ 79.0' TO 80.0'						
81	3						ML-CL	CLAYEY SILT TO SILTY CLAY					1329 1336	75'
82			5.0 5.0				SP SM	V. FINE SAND WITH SANDY SILT MOTTLED.						
83	9						ML-CL	@ 83.2' GRADES INTO CLAYEY SILT TO SILTY CLAY WITH SOME V. FINE SAND						
84							SP SM	PALEOSOL(?) SP-SM (AS ABOVE)						
85								BEING DRILL FROM 85' TO 100'					1338	80'
86														
87														
88														
89														
90														
91														
92														
93														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9815

Sheet 6 of \_\_\_\_

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.26f

FIELD LOG

Depth, feet	SOIL/ROCK CORE							Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number				Type Number	Blows per 6 inches					
93																
94																
95																
96																
97																
98																
99																
100									END BLIND DRILL 9						1343	
81									SILTY f.-g. SAND TO f.-g. SAND TRACE SILT.						1348	
82									SP SM MOTTLED. DARK OLIVE GRAY (SY 3/2)							
83									@ 102.2' TO 103.1' V. f.-g. SAND WITH SOILS TO TRACE SILT OLIVE BROWN (SY 4/3)							
84									ML CLAYEY SILT TO SILTY CLAY @ 103.1' TO 104.0' OLIVE (SY 4/3-4/4)							
85									SP V. f. g. SAND. NER 104.5' TO 105.0'							
86									BLIND DRILL FROM 85' TO 100'						1350	
87															1410	
88																
89																

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Log of Soil/Core Boring T9B15

Sheet 7 of \_\_\_\_

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.26g



FIELD LOG

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength			
173														
174														
175														
176														
177														
178														
179														
180								END BLIND DRILL						
181								SP SAND						
182								ML SILT WITH SOME FINE SAND						
183														
184														
185														
186														
187														
188														
189														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B15

Sheet 12 of

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.26h

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength			
109	11	4	100							1510-1535				CLEAN UP & COOLD PATCH SB + 5 DRUMS TC
110								Build Drilling From 110.0' to 150.0'		1530-1555				1130
111								JDK USING SAMPLER AS PUDLEY & THEREFORE MAKING FOR SLOW ADVANCEMENT...		1555-1630				
112										1040-1125				
113										0885-0915				
114										0900-1030				
115										0845-0915				
116										0910-0925				
117														
118														
119														
120														
121														
122														
123														
124														
125														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B15

Sheet 8 of \_\_\_\_

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.26i



Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
141													
142													
143													
144													
145													
146													
147													
148													
149													
150							END BURIED DRILL 110.0' to 150.0'					1335	
151							SILTY FINE SAND WITH SILT AND SANDY SILT, SOME CLAYEY SILT TO SILTY CLAY?					1348	
152	12		5.0 5.0				MOTTLED OLIVE TO OLIVE BROWN DARK GREENISH GRAY (10YR 4/1) & BROWN (10YR 4/3) TO DARK BROWN (10YR 3/3)						
153													
154													
155	5											1350	
156	13		5.0 5.0									1400	
157													

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## Log of Soil/Core Boring T9815

Sheet 10 of \_\_\_\_

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.26j

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
157								CLAY SILTY SAND WITH SILT SOME GRAVELS & 1/2" Ø						
158	13		5.0											
159								SAND & GRAVELS SOME SATY CLAY						
160							SP GW							
161								TD 160.4'						
162	14								1420-1350 TRIP OUT AUGERS				14/0	
163									1550-1635 CLEANUP					
164									1635-1645 CLEANUP					
165									1630-1655 SB					
166									1650-1730 TC					
167														
168	15													
169														
170														
171														
172	16													
173														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

### Log of Soil/Core Boring 19B15

Sheet 11 of \_\_\_\_

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.26k



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength			
0								ASPHALT						
1								CONC 4" x 10" CONCRETE						
2								10" to 5.0' 2f. fill						
3								DARK BROWN TO DARK SANDY						
4								SILTY CLAY, AS NOT RX						
5								FRAGS.						
6														
7			4.5											
8			5.0											
9														
10														
11			4.3											
12			5.0											
13														

DATE(S) DRILLED: 11-03, 04, 05-15

DRILL METHOD: DRY CONT. CORE

DRILL EQUIPMENT: CME 85.

DRILL CONTRACTOR: JDC DRILLING

BIT SIZE / TYPE: 8" / HØ 2.5"

HOLE COMPLETION:

LOGGED BY: M. ESPINOZA

CHECKED BY:

HOLE INCLINATION: 90°

GROUND ELEVATION:

TOTAL DRILLED DEPTH: 185.0 ft bgs

GROUNDWATER LEVEL: ± 40 ft bgs ?

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Log of Soil/Core Boring T9816

Sheet 1 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27a

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
13														
14	2						SP SM							
15								NCR 14.8' to 15.0'					1205 1210	
16	1						SP SM	(SAND)						
17			4.8 5.0											
18	3													
19														
20													1212 1215	
21			3.8 5.0											
22	4							GRADES INTO SILTY CLAY TO CLAYEY SILT						
23							ML CL							
24								NCR 23.5' to 25.0'						
25	2												1218 1223	
26			3.5 5.0				SP SM	GRADES INTO v.f. g. Sand (SP)						
27	5						SP							
28							ML CL	(ML-CL) SILTY CLAY, DARK BROWN BLACK						
29								NCR 28.5' to 30.0'						

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## Log of Soil/Core Boring T9B16

Sheet 2 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27b



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength			
29	5						NCR							
30		2					SP	Silty fine SAND to SANDY SILT					1224	
31							SM	SOME CLAYS SOME GRAVELS					1230	
32			4.3 5.0					SOME GRAVELS @ 32.0' $\leq$ 1.0" $\phi$ @ 33.2'						
33	6						ML	SILT WITH SANDS & GRAVEL						
34							SP SM	MOTTLED SILTY fine SAND						
35							NCR	NCR 34.3' to 35.0'					1232	
36							SP SM	GRADES INTO (SP-GW) SANDS & GRAVELS					1243	
37			5.0 5.0				SP GW	V. fine SAND						
38	7													
39							SP GW	WET @ 38.0' INCREASE GRAVELS @ 38.0'						
40													1246	
41	3												1258	
42			4.5 5.0				SC	Silty SANDY CLAY WITH GRAVELS $\leq$ 1.5" $\phi$						
43	8													
44							SP GW SC	CLAY CYSTIDS NCR 44.5' to 45.0'						
45							NCR						1360	

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## Log of Soil/Core Boring T9B16

Sheet 3 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27c

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
45														
46	9	3	3.7				SL	CLAYEY SILTY SANDS & GRAVELS WET, GRAINS $\leq 2.0"$ SUBANGULAR TO SUBROUNDED.					1309	MAJOR CHATTER $\approx 46.0'$ TO $50.0'$
47			5.0											
48														
49							NGP	NR 48.8' to 50.0'						
50							SP	Silty f.-gr SAND.					1312	
51							SM						1318	
52			5.0				SP							
53	10		5.0				ML	GRADES IN TO SILT WITH SOME SAND						
54							ML	CLAYEY SILT TO SILTY CLAY VERY DARK GREENISH GRAY (SGY 3/1)						
55	4						CL	OCCASIONAL GRAVEL TO COARSE SAND $\approx 58.0'$ MASSIVE AND MOTTLED					1320	
56								SANDIER LENSES(?) F.C.O.R.					1329	
57			5.0											
58	11		5.0											
59							ML							
60							SP	SAND (SP) SILTY f.-gr SAND TO SANDY SILT LAYERS (SP-SM)					1330	WATER AND HOLE
61	12						SM						1339	

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring TPB16

Sheet 4 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27d



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
61														
62							SP -SM							
63	12	4	5.0 5.0					occasional GRAVEL $\leq 1.0"$ $\phi$ & CLAYEY LOAMS/LAYER						
64														
65													1341 1354	
66			2.8 5.0				SP -SM	Q 65.8' v. fine-gr SAND WITH SOME SILT & GRAVELS $\leq 1/2"$ $\phi$						
67							SP -SM							
68							SP -SM	very fine-gr sand to sandy silt mottled						
69	13													
70													1357 1407	
71														
72	14		5.0 5.0				SP -SM	Silty fine-gr sand & sandy silt ALTERNATING LAYERS/LENSES LOX WHERE SANDIER DARK GREENISH GRAY WHERE SILTIER (10Y 4/1) MOTTLED APPEARANCE. OCCASIONAL COARSE SAND TO A GRAVEL						
73														
74														
75														
76	15		5.0 5.0				SP -SM	Silty fine-gr sand to sandy silt (AS ABOVE)					1408 1419	
77														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring F9B16

Sheet 5 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27e

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type	Number	Blows per 6 inches			
77														
78	15	5	100				SP -SM							
79														
80								Silty f-f gr sand to sandy silt to silty clay layers					1421 1432	
81	16						SP -SM							
82			5.0				SP -SM	Silty sand @ 82.0' to 82.5'						
83			5.0				SP -SM	SILTY SAND @ 83.0' to 83.6'						
84							SP -SM							
85							ML	Silt with sand lenses					1434 1451	
86							ML							
87	17		5.0				SP -SM							
88							ML	Silt with sand lenses & occasional gravel @ 1.0" dia massive & unstratified. increases clay with depth					1302 LEAKAGE SITE & ASPHALT PATCH	
89							ML							
90							ML	Silt with sand					1452 1014	END TUES. 11-03-15
91	18						SP -SM							0830-0840 TG 0900-0910 TC 0910-0920 SR 0920-0955 RINS MTR RINS + JDR
92							SP -SM							
93							SP -SM	f-f med gr sand & gravels						

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## Log of Soil/Core Boring T9816

Sheet 6 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27f



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
93														
94	18	6	5.0 5.0 (100)				SP	fin - v. f. - gr sand (SP) some silt med to fine sand mottled +						
95							SP	v. fine-gr to fine-gr sand with silt trace clays. mottled.					1016 1029	
96														
97	19		2.0 5.0					@ 97.0' to 100.0' SAMPLE FELL OUT OF SAMPLER SANDS? (ATTEMPT TO RETRIEVE FISH IT OUT NO LUCK)						
98														
99														
100													1032 1054	
101	7							Silty fine-gr sand to sandy silt with several (ML-CL) clayey silt to silty clay layers ± 2.0" thick						
102	20		5.0 5.0				SP -SM	occasional GRAVELS @ ± 101.5' mottled FCK where sandy						
103														
104														
105													1057 1112	
106			5.0 5.0					Silty fine-gr sand with sandy silt and interbedded with some clayey silt layers ± 2.0" thick.						
107	21						SP -SM							
108														
109														

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## Log of Soil/Core Boring T9B16

Sheet 7 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.27g

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
109	21	7	7				ML -CL	E = 109.0' INTERFUSE TO LUGS SILTY CLAY - CLAYEY SILT						
110													1115 1129	
111								SILTY FINE SAND TO SANDY SILT MOTTLED. SOME CLAY						
112			5.0 5.0				SP -SM							
113	22		(100)											@ 1140 HEADSPACE READING + T.O.H. CO:0 H <sub>2</sub> S:0.0 LE:10 O <sub>2</sub> :20.9
114							ML -CL	CLAYEY SILT TO SILTY CLAY SOME SILT TO FINE SAND LENSES.					1132 1147	
115														
116	8													
117	23		5.0 5.0					GRAVELS & 1/2" @ 117.5' @ 117.5' SILTY FINE SAND WITH SILT						
118			(100)				SP -SM							
119														
120							SP-SM ML-CL	@ 117.5' INTERBEDDED (SP-SM) + (ML-CL)					1149 1211	
121	24		37 5.0				SP	Long SAND						
122														
123							SP -SM	GRAVELLINED SILTY FINE SAND. SOME COARSE SANDS						
124								NUR 123.7' + 125.0'						
125													1216	

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## Log of Soil/Core Boring T9816

Sheet 8 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27h



FIELD LOG

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
125														
126			2.3 5.0					SP fine SAND, trace silt						1235
127	25							INCREASES <sup>SILTS</sup> DENSITY WITH DEPTH @ 126.8'						
128								NUR 127.3' TO 130.0'						
129														
130														
131	9		5.0 5.0					ML CL Silty clay to clayey silt occasional v. fine-grained lenses of gravel $\leq 1/4"$ FLOX where sandier					1239 1300	
132								CL 132.0' to 133.0' SILTS with DEPRESSURED CLAYS AND INCREASE C-1 SANDS						
133	26							ML SILTY SAND fine-COARSE SAND MOTTLED some SILT & CLAY						
134								SP SM SC						
135														BREAKTHROUGH 1302 1315-1340 1356
136			5.0 5.0											
137	27													
138								ML CL Silty clay to clayey silt with SANDIER LENSES FLOX where sandy.						
139								SP SM ML CL Silty fine-grained						
140														
141	28	10	9.0 5.0					GRADES INTO SILTY SAND SP-SM WITH ABNDT COARSE GR SAND					1359 1418	

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Log of Soil/Core Boring T9816

Sheet 9 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27i

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
141														
142	28						SP	OCCASSIONAL GRAVEL $\leq 1/2"$ $\phi$						
143							SM	MOTTLED						
144							SP	GRADUALLY INTO SANDS SOME SILT T GRAMS						
145	10						CL	CLAY					1421 1441	
146							SP	SANDS WITH SOME SILT & COARSE GRAINS						
147	29		5.0				ML	SILT WITH SOME SAND						
148							SC	CLAYEY SILTY SAND & GRAVELS						
149							SP	fn - COARSE SANDS						
150							SC						END MFD 11-04-15 1449	
151							SP	GRADUALLY $\&$ v. fn gr SAND WITH SOME SILT & GRAVELS $\leq 1/4"$ $\phi$					0840-0845 TG 0845-0915 TC 0915-0920 SB 0920-1000 TOW CAR C 79817 RHS 0920-1020	1025
152	30		5.0											
153							SP	BECOMES LESS SILTY						1045 T.O.H. + HEADSPACE CO:0 H2S:0 L62:0 02:20.9
154														
155							SP	BECOMES fn - MED GR SAND						
156	31		4.7										1029 1053	
157							SP-SM	v. fn gr SAND TO SILTY SAND						

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# Log of Soil/Core Boring T9816

Sheet 10 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27j



Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
157													
158	31		4.7				SP - MED TO FINE SAND (SP)						
159			5.0				SP - SILTY FINE SAND TO SANDY SILT MOTTLED & LAMINATED						
160	11						NUR - NUR 159.7' to 160.0'					1057 1125	
161			3.3				SP -						
162	32		5.0				SP - FINE SANDS GRADUALLY MED GR SANDS & GRAVELS DENSE						
163							NUR - NUR 163.3' to 165.0'					1132 1137	BECAME HARD, SO SWITCHED TOOLS
165							SP - FINE SAND					1140 1208	
166			5.0				ML - CLAYEY SILT TO SILTY CLAY WITH OCCASIONAL SAND LENSES						
167	33		5.0				SP - SILTY FINE SAND TO SANDY SILT FE OX WHERE SANDIER						
168							SP - MED GR SAND FE OX						
169							ML - CLAYEY SILT						
170							SP - GRADUALLY SANDY SILT					1212 1231	
171			5.0										
172	34	12	5.0				SP - FINE SANDS						
173							SP - SILTY FINE SAND TO SANDY SILT WITH SOME GRAVELS & 1/2" CP TRACE CLAYS						

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring 79B16

Sheet 11 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.27k

FIELD LOG

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
173														
174	34	12	(100)					SP med GRAND SC silty clayey sands some GRAVELS						1245 ± 1315 PAUL ELLIOTT SITE VISIT
175														1236 1308
176								SP fine SAND						
177	35		5.0 5.0					ML silt GW GRAY SP SAND SP-SM silty fine SAND SANDY SILT GW GRAVELLY SP -SM						
178			(100)					SP SAND COARSENING UP						
179								SP silty fine SAND TO SANDY SILT -SM SOME CLAY						
180		12												1311 1340
181														
182	36		5.0 5.0					ML silt with clay and v. fine SAND SP SAND FCOX fine ML -CL silty clay TO clayey silt SOME SP-SM TO SP LENSES						
183			(100)											
184								SP v. fine SAND SP clayey silty SAND TO SANDY SILT -SM						
185								TO 185.0'						1343 TRIP OUT AVERAGES 1350-
186														
187														
188														
189														

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## Log of Soil/Core Boring T9B16

Sheet 12 of 12

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.271



Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
0													Start Drill 9 50
1							Fill						
2							Silty Sand Sand is fine to medium brown moist						
3													
4													
5													
6							2CL Silty Clay Sand is fine to medium brown moist + stiff						Start R1 10 03
7													
8													
9													End R1 10 05
10													Start R2 10 08
11													
12													
13							2 grad w/ LSSCL						

DATE(S) DRILLED: 11-04, 05, 06-15

DRILL METHOD: DRY CONTINUOUS CORE

DRILL EQUIPMENT: CME 75

DRILL CONTRACTOR:

BIT SIZE / TYPE: 8"  $\phi$  / PQ 3.3"

HOLE COMPLETION:

LOGGED BY: A. PELIO &amp; MA ESPINOZA

CHECKED BY:

HOLE INCLINATION: 90°

GROUND ELEVATION:

TOTAL DRILLED DEPTH: 200.0 ft by S

GROUNDWATER LEVEL:  $\pm$  40.0 ft by S

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

Log of Soil/Core Boring T9-B17

Sheet 1 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28a

Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
13	2	1											
14							2 Grad. Siltier Silty Silt Silty fine to brown moist fine						End R2 1010
15	2	1											R3 1015 start
16	3	2											
17	3	2											
18	3	2					3M Silty Sand Silty fine-coarse brown moist fine grain 4 to 2.0 mm						
19	3	2					2BP Silty fine brown Silty Silt Silty						End R3 1017 R-4 start 1020
20	4	2											
21	4	2											
22	4	2											
23	4	2					2M/CL Silty Silt Silty fine brown v moist soft						
24	4	2					2BM fine mod.						R4 End 1023 R5 start 1027
25	4	2											
26	5	3					2CL Silty Clay Silty fine stiff						
27	5	3											
28													
29	5	3											

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## Log of Soil/Core Boring T9-17

Sheet 2 of 3

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28b



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
29	5	3						2CL Sandy clay Sandy fine med brown most stiff						
30	6	3												R-5 End 1030 R6 start 1038
31														
32	6	3												
33														
34	6	3												
35	6	3												R6 End 1041 Start R7 1043
36	7	4												
37	7	4												
38														
39	7	4												End R7 1045
40														R8 Start 1050
41	8	4												
42	8	4						4" wafer seal slight water seepage						
43														
44	8	4						2 rocky seal						
45														

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring I9-17

Sheet 3 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28c

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
45	95							2 <sup>EL</sup> Silty clay Alt. w. 3 inch layers - Sand. 3 ft. L to 10 ft. moist stiff						Start R-9 1117
46														
47	95													
48														
49	95													End R-9 1120
50	105							2 <sup>EL</sup> Silty sand Alt. w. silt Sand. 3 ft. med L to 10 ft. 9.9% moist						Start R-10 1125
51								2 <sup>EL</sup> 3/8" gravel up to 10% med gray moist stiff						
52	105													
53														
54	105													
55														
56	116													
57	116							2 <sup>EL</sup> Less clay Slightly silty						
58								2 <sup>EL</sup> 3/8" Alt. Sand. 3 ft. med. Some coarse.						
59	116													
60								2 <sup>EL</sup> 12 Top 12" 3m 3/4 off						
61	126													

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## Log of Soil/Core Boring T9-17

Sheet 4 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28d



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
61	12	6					2SP	Sand & fine brownish grey & mottled						
62							2CL	clay brownish orange & gray moist stiff						
63	12	6												
64														
65	12	6												End Run 12 61/50
66	13	7												
67														
68	13	7												
69	13	7												
70	13	7												R-13 End 12/10
71	14	7												
72														
73	14	7					2SP	Sand & fine - med. L to brown & gray & moist & silt						
74	14	7					2CL	roughly clayey Sandy clay						
75	15	8					2SP	fine L to brown moist						R-14 End 12/19
76							2CL	roughly 2"						
77	15	8					2SW	Sand & fine - coarse gravel up to 15%+						

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Log of Soil/Core Boring T9-B17

Sheet 5 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28e

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
77														
78	15	8						Alt. Fine coarse layers.						
79														
80	15	8						2CL w/CL lenses						run 16 start 1240
81	16	8						2CL Clay w/ sandy or clays. Silty fine-grained becomes stiff						
82														
83	16	8												
84	16	8												run 17 start 1301
85	17	9												
86														
87	17	9						Some sandy clay sandy.						
88														
89	17	9												
90	18	9												run 18 start 1315
91														
92	18	9						25 slightly sandy.						
93														

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## Log of Soil/Core Boring T9-B17

Sheet 6 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28f



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type	Number	Blows per 6 inches	Strength		
93	18	9												
94														
95	18	9						2 sm Silty Sand / silty silt lt brown moist						2R-19 start 1331
96	19	10						2 run 19 66% recovery						
97	19	10						2 sm Silty Sand lt w/ siltier / clayier loose fine-med						
98														
99	19	10												
100	19	10						2 sm fine-med fine coarse						R-20 start 1402
101	20	10												
102	20	10						R-20 33% recovery CL Silty clay / massive coarse silty silt / brown m.p. silt						
103														
104	20	10												
105	20	10						2 sm Silty Sand silt silt fine.						R-21 start 1421
106	21							R-21 46% recovery small clay lenses						
107	21													
108														
109	21													

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Log of Soil/Core Boring T9-B17

Sheet 7 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28g

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type	Number	Blows per 6 inches			
109	21	11					/	2" CL at bottom of run 21						R-22 Start 1037 11-5-15 Start Drill 1:8 C1040 Compacted on Boring Unit
110	22	11					/	(CL) Sandy Clay Silty siltstone etc. brownish gray moist stiff						
111	11						/	24 boran						
112	22				100%		/							
113	11						/	w/sg grout.						
114	22						/							run 23 start 1050
115	11						/							
116	23	12					/							
117					100%		/							
118	23	12					/							
119	23	12					/							R-24 Start 1115.
120							/							
121	24	12					/							
122	24	12			100%		/							
123							/							
124	24	12					/							(SW) Sandy Gravel Fine coarse gravel 15-20% L'becan moist Dec
125							/							

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Log of Soil/Core Boring T9-B-17

Sheet 8 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28h



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength		
125	25	13						2 SW Soil. 3 fine-coarse L+Horn Part Dune Gravel up to 8000±					R-25 Start 1132
126								2 SPW fine coarse					
127													
128	25	13						2 SC clayey silty fine-coarse gravel 10-15%±					
129													
130	25	13						2 SP SW Silty siltstone A+H w/Gr gravel 5%±					R-26 Start 1150
131	26	13											
132													
133	26	13						2 w/3 in clay					
134													
135	26	13						2 SP silty sandy.					run 27 start 1225
136	27	14						2 SM lign silty silt					
137								2 ML silty siltstone sandy					
138	27	14						2 CL fine silty sand lign.					
139													
140	27	14											R-28 Start 1243
141	28	14						2 SC/BM Silty siltstone L+Horn gravel 2-5%±					

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## Log of Soil/Core Boring T9B17

Sheet 9 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28i

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
141	2814						28C	Clayey Sand Subs. to 10' - 12' Brown clay Sand.						
142					38%									
143	2814													
144														
145	2814						2CL	Subs. to 10' - 12' Brown - brown gr. - grey OCC / 2" Sand Layer						R-29 Start 1320
146	2915													
147					48%									
148	2915													
149														
150	2915													
151	3015													R-30 Start 1335
152					80%		2sm3C	Sand 3 ft. to 10' - 12' Brown & grey Gravel up to 10% ±						
153	3015													
154														
155	3015													
156	3116				28%									R-31 Start 1400 hr.
157	3116													

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## Log of Soil/Core Boring T9-B17

Sheet 10 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28j



Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
157	3116						2SC clayey soft Grout. Sands fine - coarse Lithology - g. y. sm. st Dene						
158					28%								
159	3116												
160	3216												R-32 start 1420
161													
162					25%±								
163	3216												
164													
165	3216 3316												R-33 start 1440
166													
167							2CL sandy clay sandy fine dry stiff						
168	3316				66%								
169													
170	3316						Not 170.0' to 173.5' ACR "SANDS WASHED OUT" - J.F.						
171			1.5 5.0										START Fri 08:01 0958 11-06-15 -0845 TC 0800-0910 TC 0910-0920 SB 0920-0950 Rm
172	3417												
173													

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## Log of Soil/Core Boring T9-B-17

Sheet 11 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28k

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
173							NOR							
174	34		1.5				SC	CLAYEY SAND, med gr						
175			5.0				ML CL	CLAYEY SILT TO SILTY CLAY VERY DARK GREENISH GRAY (SGY 3/1) TO GREENISH BLACK (SGY 2.5/1) SLT LAMINATED TO MASSIVE					1000	
176	17						SP	MAY BE SLOUGH FROM ABOVE fin-gr SANDS					1032	21010 60.0 H <sub>2</sub> S:0.0 LEL:0 O <sub>2</sub> :20.9
177			4.5				ML CL	SILTY fin-gr SANDS TO SILT TO SILT CLAY, MOTTLED OLIVE GRAY (SY 4/2) TO DARK OLIVE GRAY (SY 3/2)						
178	35		5.0				CL	0178.0' CARBONATE STRINGERS GRADES INTO MORE SILTY CLAY TO CLAY						1037-1115 DIFFICULTY RETRIEVING SAMPLER
179							NOR							
180							SP SM	SILTY fin-gr SAND TO SANDY SILT ALTERNATING, SOME CARBONATE					1034 1140	
181			4.5											
182	36		5.0				SC ML	GRADUALLY CLAYEY SILTY SAND AND SILT, SOME CARBONATE						1148-1200 DIFFICULTY RETRIEVING SAMPLER
183							CL	GRADES INTO SILTY CLAY TO CLAY WITH SOME V. large sandy LENSES						
184							NOR	NOR 184.5' to 185.0'						
185	18						SP SM	ALTERNATING SILTY fin-gr SAND TO SANDY SILT AND CLAYEY SILT TO SILTY CLAY SOME CARBONATE WHERE CLAYEYIER					1146 1227	
186	37		5.0				ML CL							
187			5.0											
188														
189														

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## Log of Soil/Core Boring T9B17

Sheet 12 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.281



Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
189	37	18	100										
190							ML -CL					1130 1251	
191							+ GRADES INTO SANDIER SILT AND SILTY FINE SAND SOME CLAY						
192	38		5.0 5.0				SP -SNA						
193			100										
194							-CL @ 192.5' CLAY SILTY SAND TO SLIMY SAND AND SOME GRAVELS $\frac{1}{4}" \phi$						
195	19											1253 1324	
196			5.0				SL -SP						
197	39		5.0				+ML -CL ALTERNATING SILTY FINE SAND TO SANDY SILT AND CLAYEY SILT TO SILTY CLAY, SOME SILTSTONE PEBBLE FRAGMENTS @ $\pm 197.5' \pm 1.0" \phi$ CARBONATE OCCASIONALLY THROUGHOUT RUN					1328 1332	ABUNDANT MUD RETURN
198			100										
199													
200							TD 200.0' ft by S					1334	
201												TRIPOUT AUGERS 1345-1535 1535-1630 CLEANUP & 1545-1600 SB & 4 DRUMS CONCRETE PAVEMENT	
202													
203													
204													
205													

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## Log of Soil/Core Boring T9817

Sheet 13 of 13

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.28m

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
0														
1								0-4" ASPHALT CONCR 4 1/2" 8" CONCRETE 8" to 6.6" CLAYEY SILT TO SANDY SILT Fill, of DARK BROWN TO BROWN, ABUNDANT RF FRAGMENTS.					0915-0850 TG 0900-0930 TC 0920-1045 (GEOVISION) UTILITY CLEAR 0930-1015 RIG 1 & RIG 2 STOP 1040-1050 H A 10"-65'	
2														
3														
4														
5								NCR DUE TO HAND NGER NCR 10" to 6.5'					1054	
6														
7			4.0 5.0					Silty f.g. SAND TO SANDY SILT SOME ROCK FRAGMENTS GRAVELS $\pm \frac{1}{2}" \phi$ BROWN TO LIGHT BROWN						
8														
9														
10													1055 1103	
11			4.2 5.0											
12														
13														

DATE(S) DRILLED: 11-11-15, 11-12-15 & 11-13-15  
 DRILL METHOD: CONTINUOUS DRY CORE  
 DRILL EQUIPMENT: CME 75  
 DRILL CONTRACTOR: MARTINI DRILLING CORP  
 BIT SIZE / TYPE: 8" Ø / PQ 3.3" Ø  
 HOLE COMPLETION:

LOGGED BY: MA. ESPINOZA  
 CHECKED BY:  
 HOLE INCLINATION: 90°  
 GROUND ELEVATION:  
 TOTAL DRILLED DEPTH: 200 ft bgs  
 GROUNDWATER LEVEL:  $\pm 41$  ft bgs

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### Log of Soil/Core Boring T9B18

Sheet 1 of 13

Westside Purple Line Extension - Section 2  
 Beverly Hills, California  
 Project No. 4953-11-1423

amec foster wheeler



Figure  
 A-1.3.29a



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type	Number				
13														
14	2	1	4.2 5.0				SP SM NCR	SP-SM AS ABOVE NCR 14.2' to 15.0'						
15													1104 1113	
16			4.1 5.0				SP SM							
17	3													
18							SP SM NCR	@ 18.0' to 18.2' MED - COARSE SAND TO fine GRAVEL NCR 19.1' to 20.0'					1115 CO:0 H <sub>2</sub> S:0.0 CEL:0 02:20.9	
19														
20	2							Silty fine SAND to SANDY CLAY SOME TRACE CLAYS.					1114 1121	
21			5.0 5.0				SP SM							
22	4													
23							SP	GRAY MED-GRAINED @ 23.0' SAND TO 24.5'						
24							SP	@ 24.0' 2" $\phi$ PCL PIPE @ 25° to 30° DIP					"TIE BACK" MINUS STEEL ?	
25							SP SM	GRADES 1-10 SC SILTY CLAYEY SANDS & GRAVELS @ 1.5" $\phi$ ORANGE BROWN TO BROWN					1122 1130	
26														
27	5	3	5.0 5.0											
28														
29														

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## Log of Soil/Core Boring T9B18

Sheet 2 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.29b

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
29	5		100				SC							
30							ML	GRADUALLY CLAYY SILT TO SILTY CLAY					1133 1141	
31	3						CL							
32			5.0 5.0				SP SM	GRADUALLY SP-SM						
33	6		100				SP ML CL	ALTERNATING SP-CL ML-CL f <sub>n</sub> - MED GR SAND WITH SOME SILT						
34							SP ML-CL							
35							SP						1143 1152	
36							ML	SILTY CLAY TO SILT						
37	7		5.0 5.0				SC	CLAYEY SAND TO SANDY CLAY						
38			100				SP SM	ALTERNATING v. f <sub>n</sub> GR SAND TO SANDY SILT AND SILTY SAND SOME GRAVELS ≤ 1/2" φ						
39							SC	CLAYED LAYERS. SUBHORIZONTAL						
40	4												1153 1207	
41														
42			4.7 5.0				SP GW	241.2' to 42.9' f <sub>n</sub> to COARSE SAND & GRAVELS, WET,						
43	8						SP	SILTY f <sub>n</sub> GR SAND TO SANDY SILT						
44							SM	SOME CLAY, SOME GRAVELS						
45							NCR	NCR 44.7' to 45.0'					1209	

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## Log of Soil/Core Boring T9218

Sheet 3 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.29c

Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
45												1215	
46							SC ML						
47	9		4.5 5.0				SP WITH SOME SILTY FINE SAND LAYERS & GRAVELS $\leq 1.0"$ $\phi$ WET						
48			(90)				@ 48.0' SILT WITH SOME CLAY? V. FINE GR SAND LENSES/LAYERS.						
49							ML MOTTLED FeOx WHERE SANDY						
50	5						SP WET 49.5' to 50.0'					1216 1226	
51													
52			5.0 5.0										
53	10		(100)				SP SM GRADES INTO SILTY FINE SAND TO SANDY SILT WITH SOME CLAY						
54							SM CLAY GRAVELS @ 53.9' TO 54.0' SP SAND @ 54.0' SOME SILT						
55												1227 1237	
56							@ 55.8' GRADES INTO FINE GR SAND & GRAVELS						
57	11		5.0 5.0				SP SM ML @ 56.2' SILTY FINE SAND TO SANDY SILT TO SILT. MOTTLED						
58			(100)										
59	6						SP SM @ 58.5' GRADES INTO V. FINE SAND TO SILTY SAND FeOx INCREASES.					1240 CO:0 H <sub>2</sub> S:0.0 LO:0 O <sub>2</sub> :20.9	
60												1238 1249	
61													

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B18

Sheet 4 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure

A-1.3.29d



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
61							SP	26.10' V-Fn-g SAND AND SUBANGULAR						
62							- GW	GRAVELS						
63	12	6	45				SP	GRADES INTO FINE COARSE GR SAND SOME GRAVELS & SILT						
64			50				SP	GRADES INTO FINE-G SAND						
65							NCR	NCR 64.5' TO 65.0'					1250 1307	
66							SP	Amg upwards sand						
67			3.0				- SW							
68	13		5.0					BASTU MED TO COARSE SAND & GRAVELS						
69							NCR	NCR 68.0' TO 70.0'						
70	7						SC	SILTY CLAYEY SAND WITH GRAVELS. CORRESPONDING UPWARDS SEQUENCE					1308 1318	
71			4.5											
72			50											
73	14						ML	GRADES INTO SILTY CLAY TO CLAY/SILT						
74							- CL							
75							NCR	NCR 74.5' TO 75.0'					1320 1333	
76	15	8	5.0				ML							
77			5.0				- CL	GRADES INTO SP-SM						

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## Log of Soil/Core Boring T9B18

Sheet 5 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.29e

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	RQD, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
77							SP							
78	15		100				SM	MOTTLED SOME GRAVEL						1345 CO:0 H <sub>2</sub> S:0.0 LO:0 O <sub>2</sub> :0.9
79							SP	GRADES into F-mid GR SAND WITH SOME SILT, SOME GRAVEL ≤ 1/2"φ						C1335-1336 ADD WATER TO HOLE
80	8						SP SM						1334 1348	
81							SP SP SM	F-mid SAND @ 81.2 ± 81.8'						
82	16		5.0 5.0				SP SP SM	@ 82.1' Silty F-mid SAND TO SANDY SILT @ 82.9						
83			100				SP	MED - COARSE SAND						
84							ML LL	CLAYEY SILT TO SILTY CLAY WITH V. F-mid SAND LENSES FeOx						1349 1403
85														
86			4.5 5.0				SP SM ML	ALTERNATING SILTY F-mid GR SAND TO SANDY SILT AND CLAYEY SILT TO SILTY CLAY FeOx WHERE SANDIER						
87	17						ML LL	MOTTLED, OCCASIONAL GRAVEL ≤ 1/4"φ						
88			90											
89														
90	9						NCR SP	NCR @ 89.5' TO 90.0' F-mid SAND						1404 1419
91			5.0 5.0				SP SM	Silty F-mid SAND TO SANDY SILT SOME GRAVEL ≤ 1/2"φ MOTTLED						
92	18													
93							ML LL	Silty CLAY TO CLAYEY SILT SOME SANDY SILT						

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## Log of Soil/Core Boring T9218

Sheet 6 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure

A-1.3.29f



Depth, feet	SOIL/ROCK CORE					Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
93													
94	18	9	100				ML -LL SP -SM MOTTLED ALTERNATES WITH CLAYEY SILT TO SILTY CLAY MOTTLED. OCCASSIONAL GRAVEL $\leq \frac{1}{2}" \phi$					1420 1433	
95													
96													
97			5.0 5.0										
98	19		100										
99													
100													
101													
102	20		5.0 5.0										
103													
104													
105													
106			5.0 5.0										
107	21	11	100										
108													
109													

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## Log of Soil/Core Boring T9818

Sheet 7 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure

A-1.3.29g



Depth, feet	SOIL/ROCK CORE					Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
109													
21							SP SM						
110							SP					957 1016	
111	11		2.7 5.0				ML-CL SILTY CLAY TO CLAYEY SILT GRADES INTO SILTY CLAYEY SAND						
112	22						SC C ± 111.9' SC INCREASES IN SANDS AND SOME GRAVELS ≤ 1/4" φ						
113							NCR NCR 112.7' to 115.0'						
114													
115							SP SAND (SLOUGH?)					1018 1036	
116			4.0 5.0				SC (AS ABOVE) ABUNDANT GRAVELS ≤ 1.0" φ SUBANGULAR						
117	23						SC + GW						
118													
119							NCR NCR 119.0' to 120.0'						
120	12						SP V.F. - COARSE SANDS & GRAVELS					1038 1057	
121							SC C 121.0' & 122.0' SILTY CLAYEY SAND						
122	24		4.4 5.0				SP - GW						
123							SC SP - GW						
124							SP - SM						
							C 123.4' SILTY FINE SAND & SANDY SILT						
							NCR NCR 124.4 to 125.0'					1100	
125													

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Log of Soil/Core Boring T9B18Sheet 8 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure

A-1.3.29h

Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
125													
126							SP - GW Silty fine-gr SAND TO SANDY SILT INTERBEDDED WITH SILT GRADES INTO SILT TO SANDY SILT Fe OX WHERE SANDIER GRADES INTO SILTY CLAYEY SAND & GRAVELS $\leq 1/2"$ $\phi$ MOTTLED					1119	HARD DRILLING C $\pm$ 125-126'
127	25		5.0 5.0										
128			(100)										
129		13											
130							SC + GW C $\pm$ 131.0' GRAVELS INCREASE IN SIZE $\leq 1.5"$ $\phi$					1121 1141	
131													
132	26		3.5 5.0										
133							SP - GRADES INTO SANDS NCR 133.5' to 135.0' NCR (SP FELL OUT OF SAMPLER)						
134													
135							SP - fine-gr to med gr SAND SOME COARSE GR SAND & OCCASIONAL GRAVEL SUBROUND SLATE AND SUBANGULAR QUARTZ GRANITIC $\leq 1/2"$ $\phi$					1143 1207	
136			4.2 5.0										
137													
138	27						SC C $\pm$ 138.2' clayey silty SAND & GRAVELS $\leq 1.5"$ $\phi$ MOTTLED NCR NCR @ 139.2' to 140.0'						
139		14											
140							SC C $\pm$ 140.0' v fine-gr SAND C $\pm$ 140.5' fine-gr med gr SAND & SOME GRAVEL					1269 1230	
141	28												

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Log of Soil/Core Boring T9B18Sheet 9 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.29i



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
141								SP -SM						
142	28	14	5.0					SP -SM						
143			5.0					SP						
144								SP						
145								SP						
146			4.6					ML						
147	29		5.0					SP						
148								SP						
149								SP						
150	15							SP						
151			2.5					SP						
152	30		5.0					SP						
153								SP						
154								SP						
155								SP						
156	31	16	5.0					SP						
157								SP						

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# Log of Soil/Core Boring T9B18

Sheet 10 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.29j

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
157														
158	31						SP	2 158.5'						
							-SM	SAND						
159							SP	SILTY FINE SAND GRADES						
							-SM	INTO SILTY CLAYEY SAND						
160							SC	& GRAVELS FILL WHERE SANDIER					1408	
	16												1429	
161			4.0				SP							
			5.0				-SM							
162	32													
163							SP	GRADES INTO V.F. FINE SAND &						
							-SM	GRADES INTO V.F. FINE SANDY						
164								SILT TO SILTY SAND.						SB + 3 DRUMS
165							NUP	NUP 164.0' to 165.0'						
								(SHOE FELLOUT OF SAMPLER)						
166							SP							
							SC	GRADES INTO SILTY CLAYEY SANDY						
							-GW	GRAVELS ≤ 1.5" Ø						
167			1.5											
			5.0				NUP	NUP 166.5' to 170.0'						
168	33													
169														
170	17						SP	SAND (AS ABOVE)						
171			2.0											
			5.0				SC	SILTY CLAYEY SAND & GRAVEL (SL)						
172	34													
							NUP	NUP 172.0' to 175'						
173														

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# Log of Soil/Core Boring T9B18

Sheet 11 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

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Figure  
A-1.3.29k



FIELD LOG

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
173														
174	34						NUR						1025	1022 CO: 0 H <sub>2</sub> S: 0.0 LEL: 0 O <sub>2</sub> : 20.9
175							SC	CLAYEY SILTY FINE SAND					1026 1050	
176	17						SP SC	fin-gr to coarse gr SAND @ 176.1 & 176.5'						
177	35		4.5 5.0				SP MV LL	@ 177.0' CLAYEY SILT TO SILTY CLAY WITH SOME V. FINE SANDY LENSES. DARK OIVE GRAY (SY 3 1/2) TO BLACK (SY 2.5 1/2) SL. MASSIVE & MOTTLED NUR 179.5' to 180.0'						
178														
179														
180							SP	fin-med gr SAND					1052 1116	
181								ALTERNATELY SILTY & fin-gr SAND TO SANDY SILT WITH SOME SILTY CLAY TO CLAYEY SILT LAYERS MOTTLED						
182	36		5.0 5.0				SP SM							
183														1121 - 1130 DIFFICULTY RETRIEVING SAMPLER
184														
185	18												1118 1201	
186														
187	36		4.3 5.0				SP SM	SILTY v. fin SAND TO SANDY SILT WITH OCCASIONAL CLAYEY SILT TO SILT AND CARBONATE NODULES. MOTTLED						
188														
189														

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## Log of Soil/Core Boring T9B18

Sheet 12 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.291

Depth, feet	SOIL/ROCK CORE						MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number		Type Number	Blows per 6 inches				
189													
190	3618						NUR @ 189.3' TO 190.0'					1206 1230	
191							SP FINE SAND & GRAVEL, SOME SILT						
192	37		5.0 5.0				GRADES WITH SILTY FINE SAND TO SANDY SILT ALTERNATING LAYERS SOME GRAVELS $\leq 1/4"$ SOME CARBONATE NODULES						CHATTER @ $\pm 191.0'$
193			(100)				ML CLAYEY SILT TO SILTY CLAY WITH SOME SANDIER LENSES/LAYERS.						
194							SOME CARBONATE NODULES AND SOME GRAVELS $\leq 1/2"$						CHATTER, @ $\pm 194-194.5'$
195	19						SP GRADES WITH SILTY FINE SAND & SANDY SILT TO SILT LENSES.					1236 1301	
196													
197	38		5.0 5.0				SOME GRAVELS CLAYEY SILT TO SILTY CLAY WITH SOME SILTY SAND LAYERS/LENSES & OCCASIONAL GRAVEL $\leq 1/4"$ MOTTLED						MINOR CHATTER @ $\pm 198.0'$
198			(100)										
199													
200												1307	
201													1315-1450 TRIP OUT ANDERS
202													1450-1530 CLEANUP & GROUT B/F
203													& CEMENT
204													1455-1520 SET PATCH
205													1530-1600 TC 3 DRUMS

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## Log of Soil/Core Boring T9B18

Sheet 13 of 13

Westside Purple Line Extension - Section 2  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.29m



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type	Number	Blows per 6 inches	Strength		
0								ASPH 0' to 4"						TC 0845-0915
								CONCRETE 4" to 8"						TC: 0900-0915
1								8" to 16" Fill of						SB: 0915-0925
2							zf							PLATE/SUPPORT 0845 0930
3														Pin SETUP 1010-1025
4														ASPH/CONC: 1025-1030
5														HA 1033-1045
6														0-6.5'
7	1		4.0 5.0					NEA H.A. 5'-16.0 x 6.5'						C 1046
8							SP	Silty f. gr. sand to sandy silt						CO: 0 H2S: 0.0
9							-SM	some clay some rock						LET: 0 02:20.9
10							-LL	fragments < 1.0" d						
11								BROWN to ORANGE BROWN						
12	2		5.0 5.0				SP	(AS ABOVE)						1109
13							-SM							1113
							-LL							

DATE(S) DRILLED: 11/18-11/20 &amp; 11/23/15

DRILL METHOD: HSA CONT. DRILL CORE

DRILL EQUIPMENT: CME 85 - 11/18, 11/19, 11/20 &amp; CME 95 - 11/23

DRILL CONTRACTOR: CASCADE DRILLING

BIT SIZE / TYPE: 8"  $\phi$  / HQ 2.5"  $\phi$ 

HOLE COMPLETION:

LOGGED BY: MA ESPINOZA

CHECKED BY:

HOLE INCLINATION: 90°

GROUND ELEVATION:

TOTAL DRILLED DEPTH: 245 ft bgs

GROUNDWATER LEVEL:

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## Log of Soil/Core Boring T9B19

Sheet 1 of \_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30a

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
13														
14	2													
15													1116 1120	
16	1		4.5 5.0				SP -SM							
17	3		90					@ ± 18.0' INCREASE fines WITH DEPTH						
18							SM							
19														
20							NCP	NCP 19.5' to 20.0'					1123 1130	
21			3.5 5.0				SP -SM	(AS ABOVE) SOME MORE GRAVELS						
22	4		70					≤ 1.5" Ø @ ± 23.5'						SOME CHATTER @ ± 23.0'
23							GW							
24							NCP	NCP 23.5' to 25.0'						
25	2							Silty clayey sands & GRAVELS					1123 1137	
26			5.0 5.0				SC -GW							CHATTER HARD SAND @ ± 27.0' to 30.0'
27	5		100											
28														
29														

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## Log of Soil/Core Boring T9219

Sheet 2 of \_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30b



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
29	5		100				SC - GW							
30													1145 1152	
31	2						ML - CL	GRADES in CLAY/SILT						
32			4.4 5.0											
33	6		85				SP - SM	GRADES in SILTY SAND/SAND SILT SOME GRAVELS						
34							SP - NCR	GRAVEL (WET) NCR 34.4' to 35.0'						1158-1203 SAMPLER FELL OFF LEAD POD : FISH OUT
35							SC	SILTY CLAY/SAND SOME GRAVELS					1155 1208	
36														
37	7		5.0 5.0				SC - GW	GRAVELS in CLAY/SAND ± 1.5" Ø						
38	3		100				SP - SM	SILT FINE SAND TO SANDY SILT SOME GRAVELS SL. MOTTLED						
39							SP	MED-COARSE SAND						
40							SC	SILT CLAY/SAND WITH OCCASIONAL GRAVEL ± 1.5" Ø					1210 1221	
41							SP - GW	C 40.6' to 42.5' FINE MED GR SAND, SOME GRAVELS						
42	8		2.5 5.0				SP - SM	SILT FINE SAND TO SANDY SILT SL. LAMINATED						
43			50				SP - GW	NCR 42.5' to 45.0'						
44							NCR							
45													1224	

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## Log of Soil/Core Boring T9B19

Sheet 3 of \_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30c

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES			Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength			
45							SP						1231	
46							GW							
47	9	3	4.4 5.0				ML	MOTTLED CLAY SILT TO SILTY CLAY WITH FEW V. FINE SANDY LENSES						
48							CL							
49							SP	GRADES INTO SILTY FINE SAND & SANDY SILT WITH TRACE CLAY						
50							SM	& SOME GRAVELS $\pm 1/2"$						
51							NCR	NCR 49.4' to 50.0'						1235 1245-1305 1307 LUNCH BREAK
52	10		3.5 5.0				SP							
53							GW	SILT WITH SAND & COY LENSES SOME GRAVELS $\pm 1/2"$ MOTTLED.						C1240 6:00 H-5:00 10:00 02:20
54							ML							
55							NCR	NCR 53.5' to 55.0'						
56							SP	ALTERNATING SILTY FINE SAND TO SANDY SILT						1310 1316
57	11	4	3.5 5.0				SM							
58							SP	SAND GRAY TO GREEN BLACK						
59							SP	SAND & GRAVELS						
60	12						GW							1319 1326
61							NCR	NCR 58.5' to 60.0'						

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B19

Sheet 4 of \_\_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30d



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
61														
62							SC	SILT CLAYEY SAND						
63	12	4	48 5.0				SP -GM	SAND & GRAVELS						
64			(96)				ML	GRADES INTO SILT TO SANDY SILT SOME GRAVELS.						
65							NUR ML	NUR @ 64.8' to 65.0'					1331 1339	
66			1.5 5.0				SC	SILT GRADES INTO SILTY CLAYEY SANDS & GRAVELS						
67	13		(30)				NUR	NUR 66.5' to 70.0'						
68														
69														
70													1342 1357	MUD RETURN
71	5						SP -SM	ALTERNATING SILTY SAND SAND TO SANDY SILT, SOME CLAYS, MOTTLED FR. OF WHITE SANDSTONE						
72			5.0 5.0											
73	14		(100)											
74														
75							SP -SM	(AS ABOVE) SOME CLAYIER LAYERS / LENSES .SL LAYERED TO .SL MOTTLED					1359 1411	
76	15		5.0 5.0											
77														

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## Log of Soil/Core Boring T9 B19

Sheet 5 of \_\_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30e

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
77														
78	15	5	(100)											
79														
80													1414	
81							SP	Silty clayey sand & silty fine sand to sandy silt					1424	
82			5.0				SC	SOME GRAVELS $\leq \frac{1}{2}" \phi$						
83	16		5.0				SM	GRAVELS INTO SILTY FINE SAND MOTTLED FCOY WHERE SANDIER						
84														
85													END MED 11-18-15 CLEARANCE = 1435- SB & 4 DRUMS 1430- 1530-1600 TC	
86							SP	GRAVELS INTO FINE SAND SOME GRAVELS	0830-0845 TG 0900-0920 TC 0915-0925 SB 0930- R16 + SETUP START TH. 11-11-15			1427		
87	17		3.5				GN						1007	
88	6		(70)				SC-GN	CLAYEY SAND WITH GRAVELS						
89							GN	NOR BR. 5' TO 10'						
90													1020	
91	18		5.0				GN	GRAVELS					1027	
92			5.0				SC	SILTY CLAYEY SAND, SOME COARSE- gr SAND						
93							SC-GN	GRAVELS INTO MORE GRAVELS $\leq \frac{1}{2}" \phi$						

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## Log of Soil/Core Boring T9B19

Sheet 6 of \_\_\_\_\_

Westside Purple Line Extension - Section 11  
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Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30f



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
93														
94	18	6	100					GRADES INTO LESS GRAVELS BUT STILL PROMINENT 1/2" $\phi$ in size						ABSENT PERMANENT, SO DRILLER ADDED GROUT INTO HOLE TO THICKEN
95							SC						1034 1053	
96														
97	19		5.0											
98			5.0											
99			100				SC	GRADES INTO EVEN LESS GRAVELS						
100							SP GM	MOTTLED GREEN GRAY SILTS/CLAYS FLOX WHERE SANDIER SANDS & GRAVELS, SOME SILT					1057 1108	
101	20		3.2				SP SM	SILTY F.F.G. SAND TO SANDY SILT, TRACE CLAY @ 101.5 TO 101.8' SOME COARSE SANDS & GRAVELS						
102	7		5.0											
103			64				SC GC	SILTY CLAYEY SAND WITH GRAVELS						
104							NUR	NUR 103.2' to 105.0'						
105							SM	GRADATIONAL ALTERNATING BETWEEN V. F.F.G. SAND - SILTY V. F.F.G. SAND AND SANDY SILT TO SILT					1111 1133	
106			3.6				ML SM							
107	21		5.0				ML SM ML SM ML SM ML							
108			72				NUR	NUR @ 108.6' to 110.0'						
109														

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## Log of Soil/Core Boring T9B19

Sheet 7 of \_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30g

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
109	21	7					NCR	NCR 108.6' to 110.0'						
110							ML CL	ALTERNATING SILT TO CLAYEY SILT TO SILTY CLAY WITH SOME V. FINE SAND LENSES					1137 1151	
111														
112			3.8 5.0				SP SM	GRADES INTO SILTY V. FINE SAND TO SANDY SILT						
113	22						SP SC	GRADES INTO V. FINE TO FINE SAND CLAYEY SILTY SAND WITH GRAVELS, DENSE						
114							NCR	NCR 113.8' to 115.0'						
115							ML CL	CLAYEY SILT TO SILTY CLAY WITH INTERBEDS OF					1154 1211	
116			4.0 5.0				SC	SILTY CLAYEY SANDS WITH SOME GRAVELS $\leq \frac{1}{2}" \phi$						
117	23						ML CL	SOME GRAVELS $\leq \frac{1}{2}" \phi$ SUB-ROUNDED & SUB-ANGULAR						
118	8						SC							
119														
120							NCR	NCR 119.0' to 120.0'						
121							SP SM	ALTERNATING BETWEEN SILTY V. FINE SAND TO SANDY SILT AND SILTY CLAYEY SAND TO SILT					1216 1233	01220 CO:0 H <sub>2</sub> S:0 LEL:0 02:24.1
122	24		5.0 5.0				SC ML							
123							SP GW	LI-MED G. SAND WITH GRAVELS $\leq \frac{1}{2}" \phi$						
124							SP SM							
125													1236	

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## Log of Soil/Core Boring T9B19

Sheet 8 of \_\_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30h



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
125							SC	SILTY CLAYEY SAND WITH GRAVELS					1254	
126							SP	SILTY FINE SAND TO SANDY SILT						
127	25		3.6 5.0				SM	SOME GRAVELS DECREASE WITH DEPTH						
128							ML	GRADES INTO SILT TO SANDY SILT						
128			(72)				SP	SAND. v. f. - f. - g. SAND. SOME GRAVELS = 11/4						
129							NCR	NCR 128.6' to 130.0'						
130	9						SP	SAND & GRAVEL					1301	
131							SC	SILTY CLAYEY SAND					1321	
132	26		2.8 5.0				ML	SILTY SAND TO SILT						
133							SC							
133			(56)				NCR	NCR 132.8' to 135.0'						
134														
135													1324	
136	9						SP	SILTY v. f. - g. SAND TO SANDY SILT MASSIVE					1349	
137	27		4.5 5.0				SM							
138							SP	GRADES INTO f. - med g. SAND						
139							SP	SILTY v. f. - g. SAND TO SANDY SILT MASSIVE						
140							NCR	NCR 139.5' to 140.0'						
141	28 10						ML	SILTY CLAY TO CLAYEY SILT SOME v. f. - g. SANDS					1353	
141							ML						1411	

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## Log of Soil/Core Boring T9B19

Sheet 9 of \_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30i

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
141														
142	28	10	1.7 5.0				ML -CL NUP	NUP 141.7' to 145.0'						
143			(34)											
144														
145								BLIND DRILL FROM 145.0' to 190.0'						
146														
147														
148														
149														
150														
151														
152														
153														
154														
155														
156														
157														

FIELD LOG

END TH 11-19-15  
1430-1515 R 192 CLEAN UP  
1510-1530 TEMP REP CAP  
1530-1600 TB SB 2 D WMS  
FRI 11-20-15  
0940-0850 TG  
0900-0915 TC  
0910-0920 SB  
0920-0945 P19  
SETUP  
1414  
0956

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B19

Sheet 10 of \_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30j



Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type	Number	Blows per 6 inches			
189														
190								END BLIND DRILL 145.0' to 190.0'						
191	29							SLUGGY 140.0' to 190.9' SLOUGH?					1443	
192			3.6					C 190.9' to 193.5						
193			5.0					SILTY SAND, TRAIL CLAY AND SOME COARSE-GRAINED SAND FEW CARBONATE NODULES. $\leq 1/16"$						
194			72					ML C 192.5' to 192.8' SILT WITH SOME V. FINE SAND LENSES						1500-1545 TRIP BACK IN HOLE HOT ASP CAP CLEANUP
195	10							SP C 193.3' to 193.6 GRAVEL SILTSTONE $\leq 1.5"$						1530-1545 SB + 4 DRUMS
196								NUR 193.5' to 195.0'						1545-1630 TC
197	30		2.0					SP BLIND DRILL FROM 145.0' to 210.0'					1453	
198			5.0					SM SANDS & ABANDT GRAVELS $\leq 2.0"$					1017	
199								SP SANDS & ABANDT GRAVELS $\leq 2.0"$						
200								NUR 147.0' to 200.0'						@1030 CO: 0 H <sub>2</sub> S: 0.0 REL: 0 O <sub>2</sub> : 20.9
201								BLIND DRILL FROM 200.0' to 210.0'					1020	
202													1051	
203														
204														
205														

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## Log of Soil/Core Boring T9219

Sheet 13 of \_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.30k

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Strength	Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches				
205														
206														
207														
208														
209														
210								BLIND DRILL FROM 205.0' TO 210.0'					1125	
211							ML CL	CLAYEY SILT TO SILTY CLAY SOME SAND OR SLOUGH?					1130	
212	31		3.5 5.0				SP SM	SILTY SAND TO SANDY SILT SOME COARSE SANDS, GRAVEL $\frac{1}{2}$ " MOTTLED.						
213														
214							MR	NIP 213.5' TO 215.0'						
215	10							BLIND DRILL 215.0' TO 240.0'					1135	
216								#10 TO DRIVE TO HARD (SANDS). TO GET MORE ROSS. 1155-1220					1158	
217														
218														
219							MR	NIP 218.5'						
220														
221														

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Log of Soil/Core Boring T9B19

Sheet 14 of \_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

amec foster wheeler



Figure  
A-1.3.301

Depth, feet	SOIL/ROCK CORE						Lithology	MATERIAL DESCRIPTION	SOIL SAMPLES		Cementation	Drill Time, 24-hr [Drill Rate, ft/hr]	FIELD NOTES
	Run No.	Box No.	Recovery, %	Fracture per Foot	R Q D, %	Frac. Dwg. Number			Type Number	Blows per 6 inches	Strength		
221													
222													
223													
224													
225													
226													
227													
228													
229													
230													
231													
232													
233													
234													
235													
236													
237													

THIS LOG IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## Log of Soil/Core Boring T9B19

Sheet 15 of \_\_\_\_

Westside Purple Line Extension - Section 11  
Beverly Hills, California  
Project No. 4953-11-1423

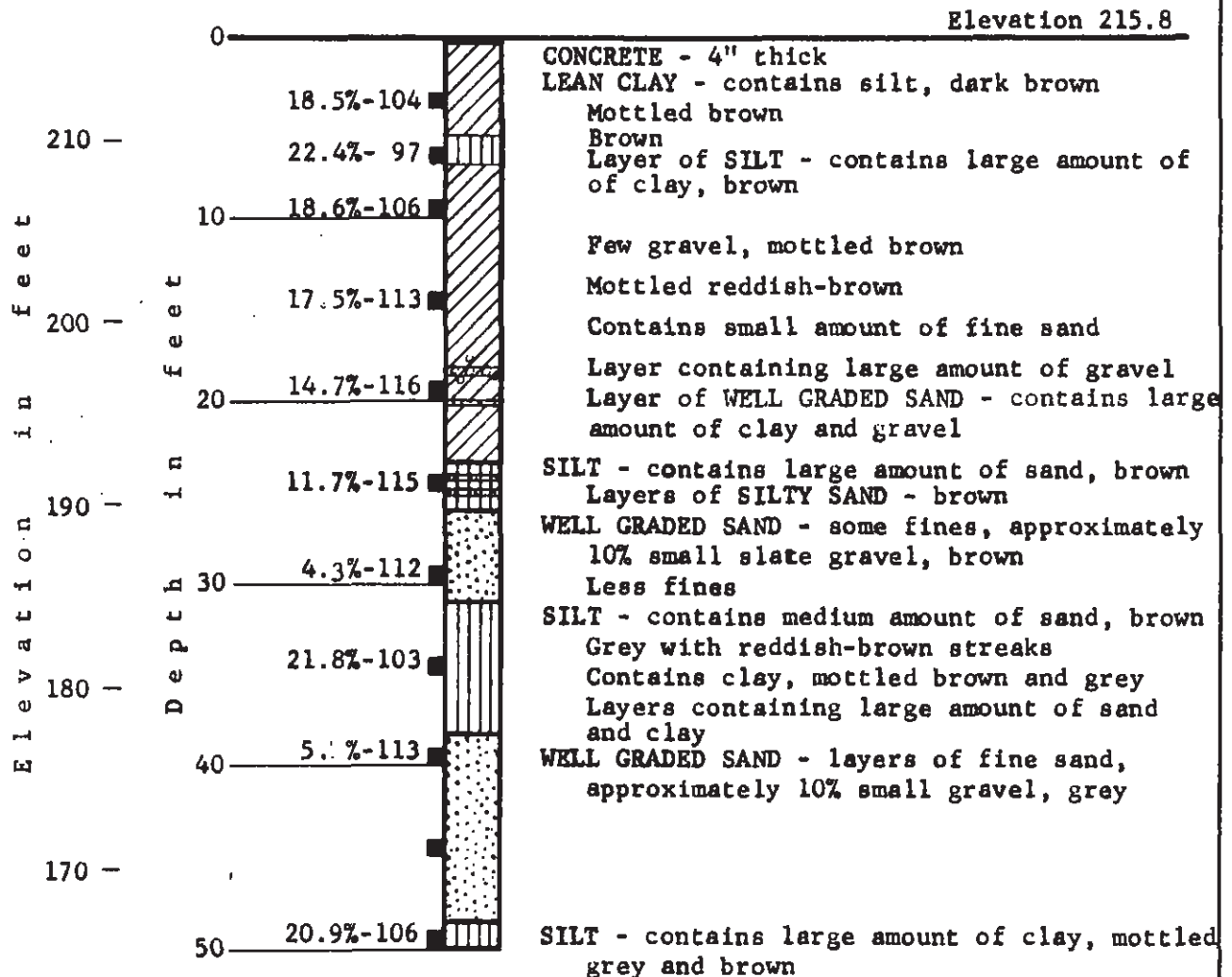
amec foster wheeler



Figure  
A-1.3.30m



LOG OF BORING 3  
18"-Diameter Rotary Bucket Hole  
Drilled June 15, 1961

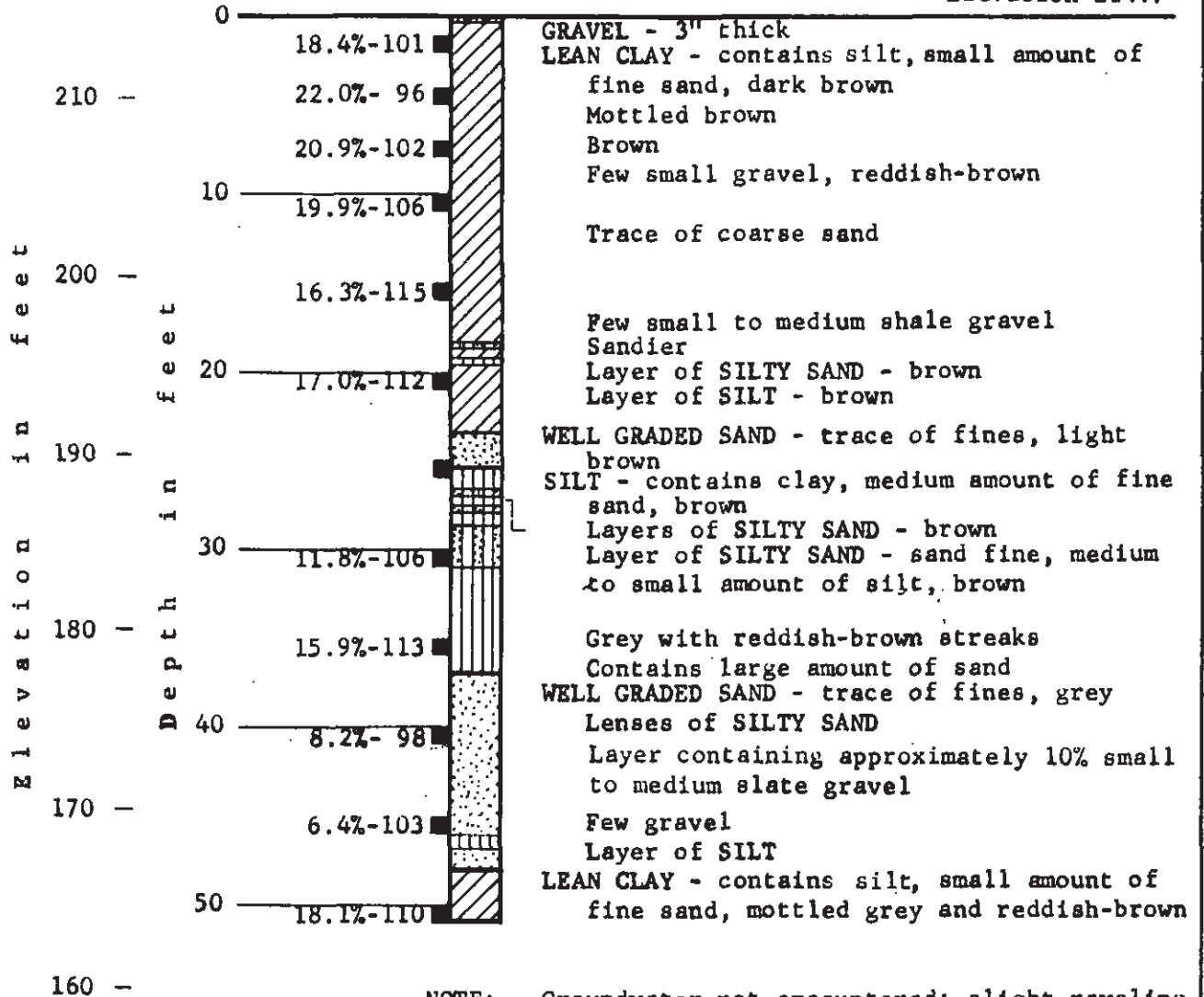


NOTE: Groundwater not encountered; no caving.

JOB 61276 DATE 6/23/61 BY BAC

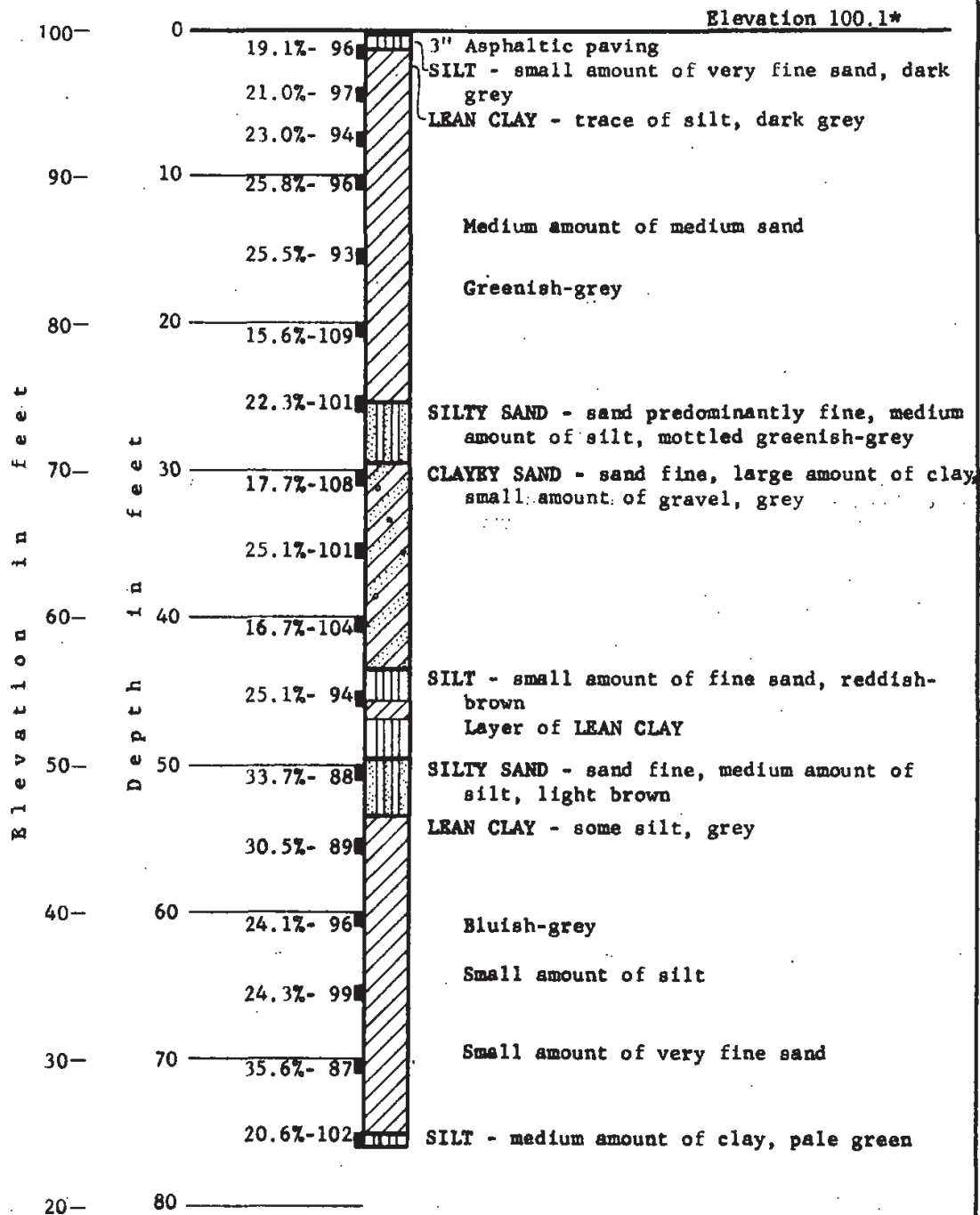
LOG OF BORING 5  
18"-Diameter Rotary Bucket Hole  
Drilled June 13, 1961

Elevation 214.7



NOTE: Groundwater not encountered; slight raveling from 37' to 48' (from 18" to 20" diameter).

LOG OF BORING 1  
6½"-Diameter Rotary Wash Hole  
Drilled May 2, 1962



NOTE: Water level measured at 10' at 7 A.M., May 3, 1962 and at 9' at 11 A.M., May 5, 1962. Drilling mud used throughout.

KEY:

- 20.6%-102 — Indicates depth at which undisturbed sample obtained  
— Dry density in pounds per cubic foot  
— Field moisture content in percent of dry weight

Soils classified in accordance with the Unified Soil Classification System.

\* Elevations refer to assumed datum, (see Plot Plan for location of benchmark).

LEROY CRANDALL & ASSOCIATES

DATE 5-14-62

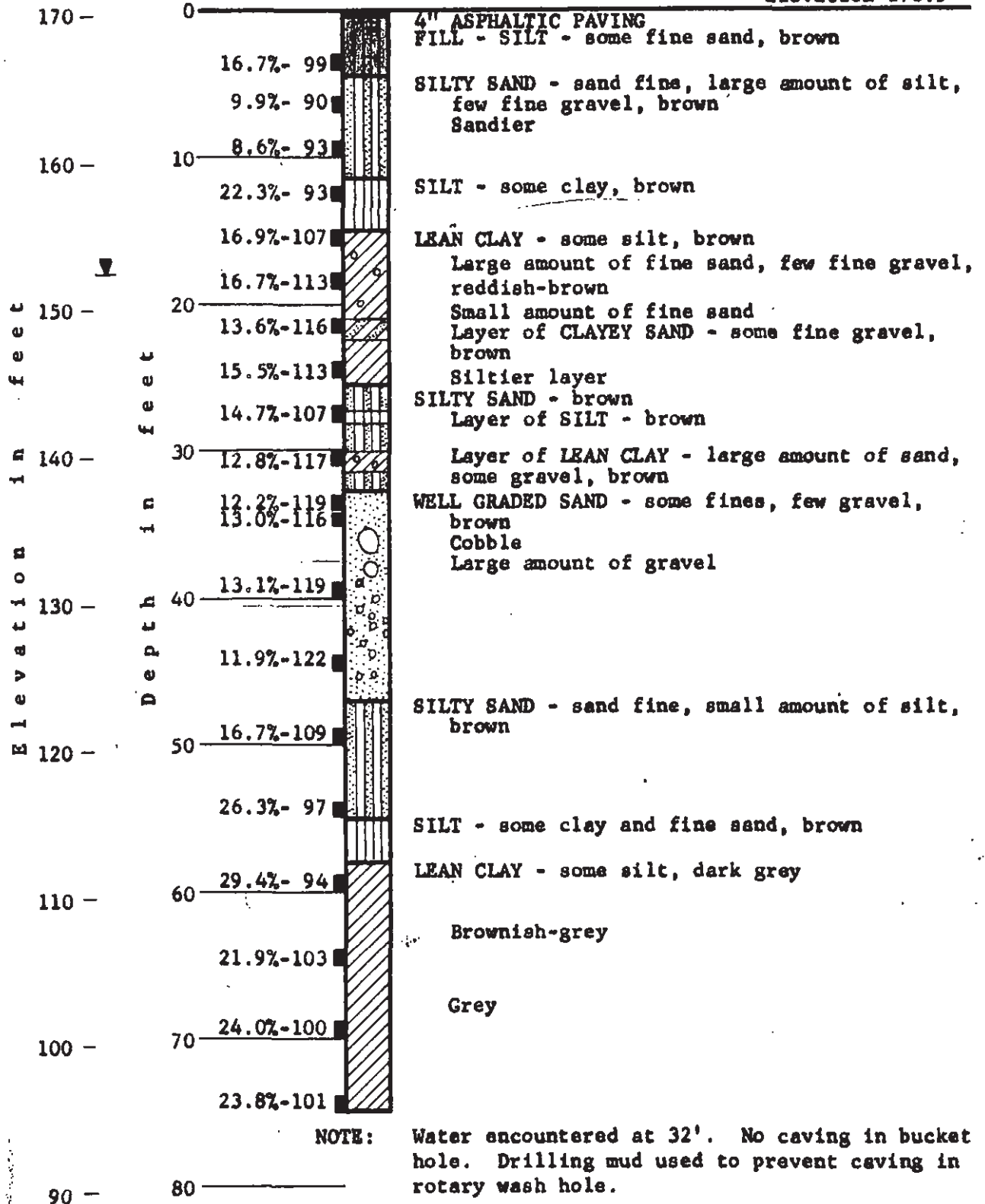
DATE 5-14-62

DATE 5-14-62



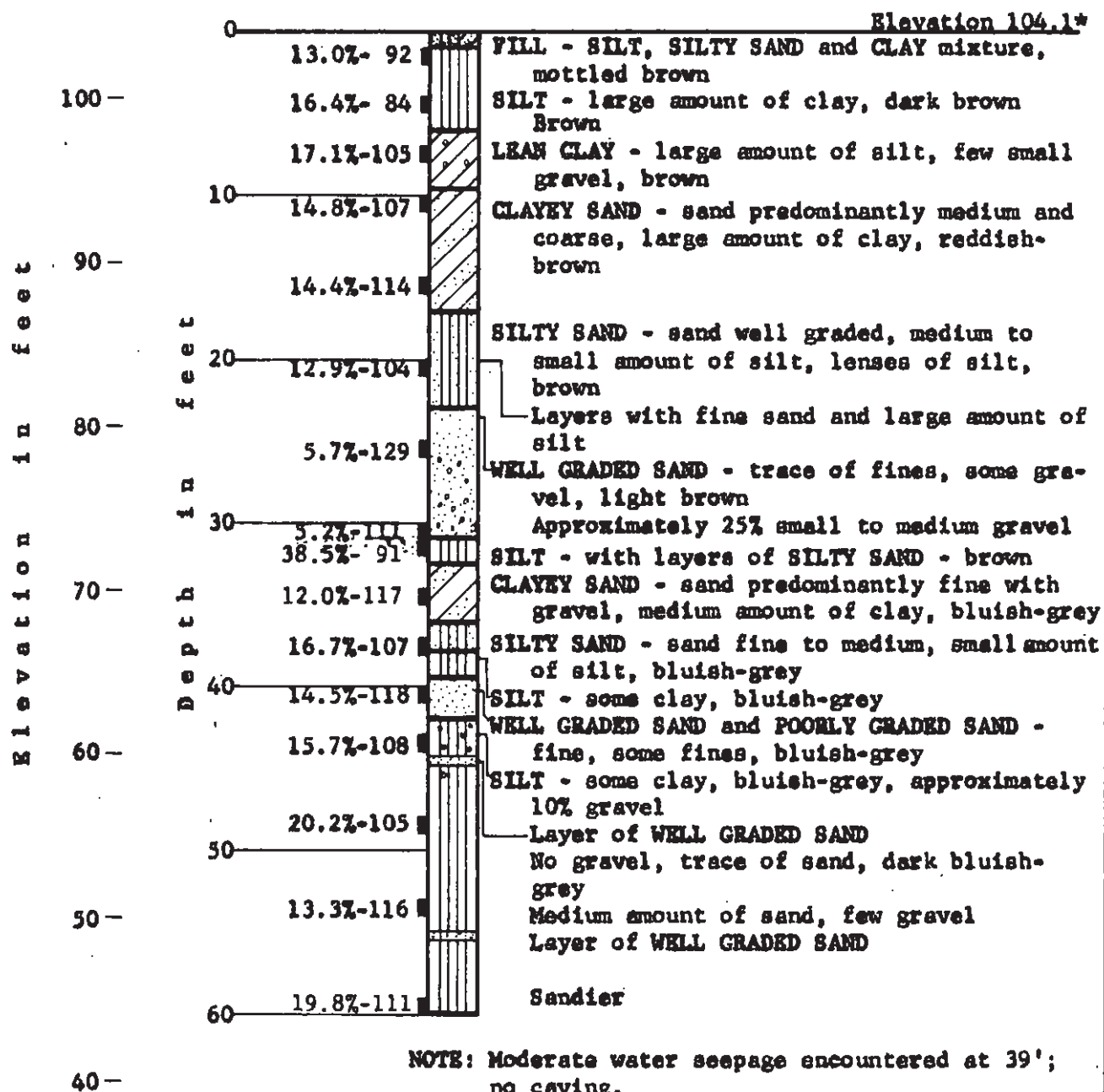
LOG OF BORING 3  
 18"-Diameter Rotary Bucket Hole to 34'  
 6"-Diameter Rotary Wash Hole below 34'  
 Drilled June 7 and 27, 1962

Elevation 170.5



LEROY CRANDALL &amp; ASSOCIATES

LOG OF BORING 1  
18"-Diameter Rotary Bucket Hole  
Drilled August 9, 1962



## KEY:

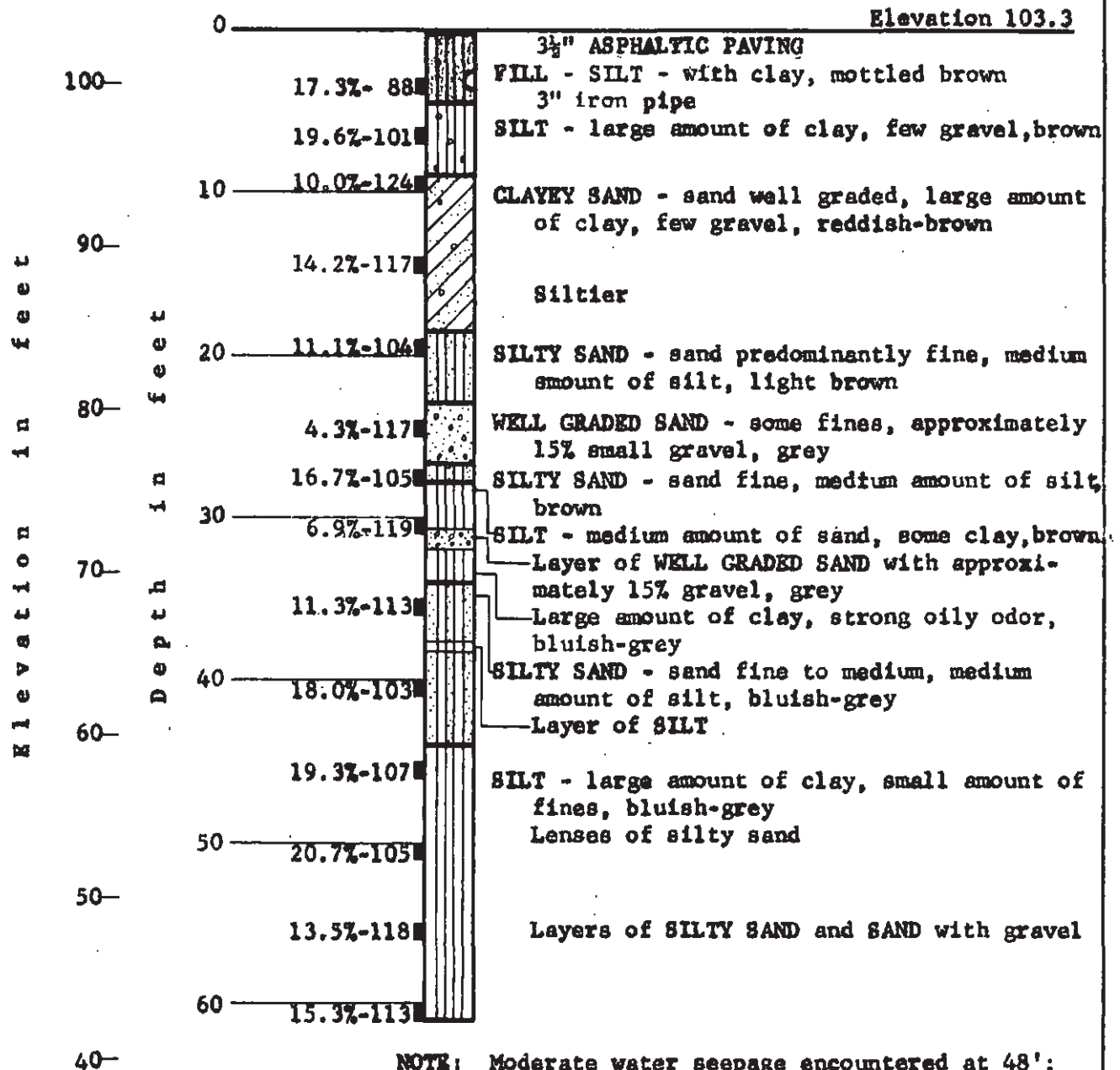
- 19.8%-111 — Indicates depth at which undisturbed sample obtained  
 — Dry density in pounds per cubic foot  
 — Field moisture content in percent of dry weight

Soils classified in accordance with the Unified Soil Classification System.

\* See Plate 1 for location and elevation of benchmark.

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**LOG OF BORING 2**  
**18"-Diameter Rotary Bucket Hole**  
**Drilled August 11, 1962**



**NOTE:** Moderate water seepage encountered at 48'; no caving.



## BORING 3

DATE DRILLED: July 13, 1964

EQUIPMENT USED: 18"-Diameter Bucket

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	SAMPLE	
ELEVATION 105.7					
	14.0	112		ML	2" ASPHALTIC PAVING; 10" BASE CLAYEY SILT - dark brown
100	12.8	121		CL	CLAY - silty and sandy, contains few gravel, brown Sandy
	8.2	108			
10	8.0	123			Layer of SILTY SAND - fine, contains few gravel, brown
	16.4	109			Sandy, contains 10% to 15% gravel
90	9.2	116		SM	SILTY SAND - medium, slightly silty, contains few gravel, greyish-brown
20	14.2	124			
	13.7	111			Lens of SANDY SILT
80	10.3	115			
	3.4	129			
30	9.9	113			Lens of SANDY SILT
	5.8	116			
70	6.5	109			Lens of SAND Siltier
	14.1	114			
40	14.8	113			
					▽ WATER LEVEL (7-13-64)
60	23.2	102		ML	SILT - grey
				SM	SILTY SAND - fine, slightly silty, bluish-grey
50	21.2	106		ML	CLAYEY SILT - contains few gravel, bluish-grey
					Sandy
50	17.0	113			
60	20.7	110			No sand, contains cemented lumps, bluish- grey with white streaks
40	17.8	111			
70	19.9	108			
30	20.0	108			
80					

NOTE: Water at a depth of 43'; raveling from 9½' to 11½' and from 23' to 28' (to 24" in diameter).

## LOG OF BORING

LEROY CRANDALL &amp; ASSOCIATES

PLATE A-1C

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs / cu ft.)	SAMPLE	
DATE DRILLED: July 16, 1964					
EQUIPMENT USED: 18"-Diameter Bucket					
ELEVATION 100.8					
100	17.1	117		CL	6" ASPHALTIC PAVING; 9" BASE
	13.4	121			CLAY - silty and sandy, dark brown
	6.6	122			Sandy, contains few gravel, brown
90	10	6.9	127		Contains 10% to 15% gravel
	9.5	108			
	3.8	116		SC	CLAYEY SAND - fine, contains few gravel, brown
80	20	6.5	110		Layer containing 20% to 25% gravel
	5.2	118			
	8.1	107		ML	SANDY SILT - brown
	15.7	105			
70	30	13.9	110		Layer containing 15% to 20% gravel
	13.2	116			
	9.4	119			Lens of SAND - brown
				SM	SILTY SAND - fine, slightly silty, brown
60	40	13.7	119		WATER LEVEL (7-16-64)
	15.4	116			Bluish-grey
				ML	SANDY SILT - bluish-grey
50	50	17.2	111		
	21.4	106			
40	60	19.8	109		Contains cemented lumps, bluish-grey with white streaks
	16.1	113			
30	70	20.6	110		
	18.1	111			No cemented lumps, bluish-grey
20	80	21.2	108		
	23.1	101			
90					

NOTE: Water at a depth of 40'; heavy caving from 38' to 44' (to 72" in diameter).

## LOG OF BORING

BORING 1

DATE DRILLED : November 25, 1969  
EQUIPMENT USED : 18"-Diameter Bucket

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lb <sub>s</sub> /cu ft.)	SAMPLE	ELEVATION 113.0*
110	13.6	114		CL	SANDY CLAY - few gravel, dark brown
105	13.3	117			
100	12.8	122			Greyish-brown
95	14.6	115			
90	17.3	111			10% to 20% gravel
85	10.5	119			No gravel
80	22.5	104			
75	10.0	116			
70	16.0	112			Layer of Silty Sand - fine, 10% to 20% gravel, brown Lens of Silty Sand
65	6.6	110		SW	SAND - well graded, few gravel, light brown
60					Layer of Sandy Silt - brown
55	5.2	105			10% gravel
50	26.1	101		ML	SANDY SILT - some clay, brown
45	14.7	117		SP	SAND - fine, 10% gravel, brown
40	16.4	114		SM	SILTY SAND - fine, few gravel, bluish-grey

NOTE: Water seepage encountered at 39'. Water level measured at 45' at completion of drilling; water level measured at 42' 15 minutes after completion of drilling. Caving from 42' to 47' (to 24" in diameter).

\* Elevations refer to datum of reference survey; see Plate 1 for benchmark.

Soils classified in accordance with the Unified Soil Classification System.

## LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

Figure A-1.4a DATE A-1



## BORING 6

DATE DRILLED December 6, 1969

EQUIPMENT USED: 18"-Diameter Bucket to 45'  
6"-Diameter Rotary Wash below 45'

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt)	DRY DENSITY (lbs./cu. ft.)	SAMPLE	
ELEVATION 242.5					
240	8.0	107		ML	3" Asphaltic Paving - 9" Silt and Sand SANDY SILT - some clay, dark brown 10% to 15% gravel
230	25.1	94		ML	CLAYEY SILT - streaks of alkali, light brown
220	19.3	98		ML	
	10.6	108		ML	SANDY SILT - 10% to 15% gravel, light brown
210	15.1	107		CL	SILTY CLAY - some sand, 10% to 15% gravel, reddish-brown
	7.8	123		SM	SILTY SAND - well graded, 15% to 25% gravel, brown
	14.7	118		CL	SANDY CLAY - few gravel, brown Some well graded sand and 10% to 20% gravel
200	21.2	102		ML	CLAYEY SILT - some sand, brown Layer of Sandy Silt - brown
	10.0	118			
	27.7	93			Few gravel
	25.4	101			
	19.6	112			
	20.9	108		CL	SILTY CLAY - some sand, brown
190	18.9	112		ML	SANDY SILT - brown
	23.2	104			Layer of Clayey Silt - brown
	19.9	109			Very sandy
180	20.1	109		CL	SILTY CLAY - some sand, brown
	22.7	104			
170	18.1	110			More sand, few gravel
80	19.4	111			

NOTE: Water level at a depth of 42' 15 minutes  
after completion of bucket hole. No caving  
in bucket hole; drilling mud used in rotary-  
wash hole.

## LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

## BORING 6

DATE DRILLED April 5, 1970

EQUIPMENT USED .18"-Diameter Bucket to 51'  
6"-Diameter Rotary Wash below 51'

ELEVATION (ft.)		DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	SAMPLE	
						ELEVATION 245.5
240	10	18.4	106		CL	4" Asphaltic Paving - 6" Concrete SILTY CLAY - some sand, brown
		12.9	103		ML	SANDY SILT - brown
		22.8	100		ML	CLAYEY SILT - some sand, brown
230	20	18.3	105		CL	SILTY CLAY - brown
		10.1	110		SM	SILTY SAND - fine, few gravel, light brown
		20.0	106		CL	SILTY CLAY - brown
220	30	16.2	113			
		26.0	93			
		18.1	102			
210	40	16.8	108		SM	SILTY SAND - fine, brown
		22.8	101			
		18.6	104		ML	SANDY SILT - brown
200	50	20.3	104		CL	SANDY CLAY - greyish-brown
		15.1	109			Few gravel
		12.5	122			About 15% gravel
190	60	18.0	112			
		17.7	112			
		14.4	120			
180	70	13.3	122		ML	SANDY SILT - about 20% gravel, reddish-brown
170					CL	SILTY CLAY - some sand, reddish-brown
80		13.5	121			

NOTE: Water seepage encountered at a depth of 44' in bucket hole. No caving in the bucket hole. Drilling mud used in the rotary wash hole.

## LOG OF BORING

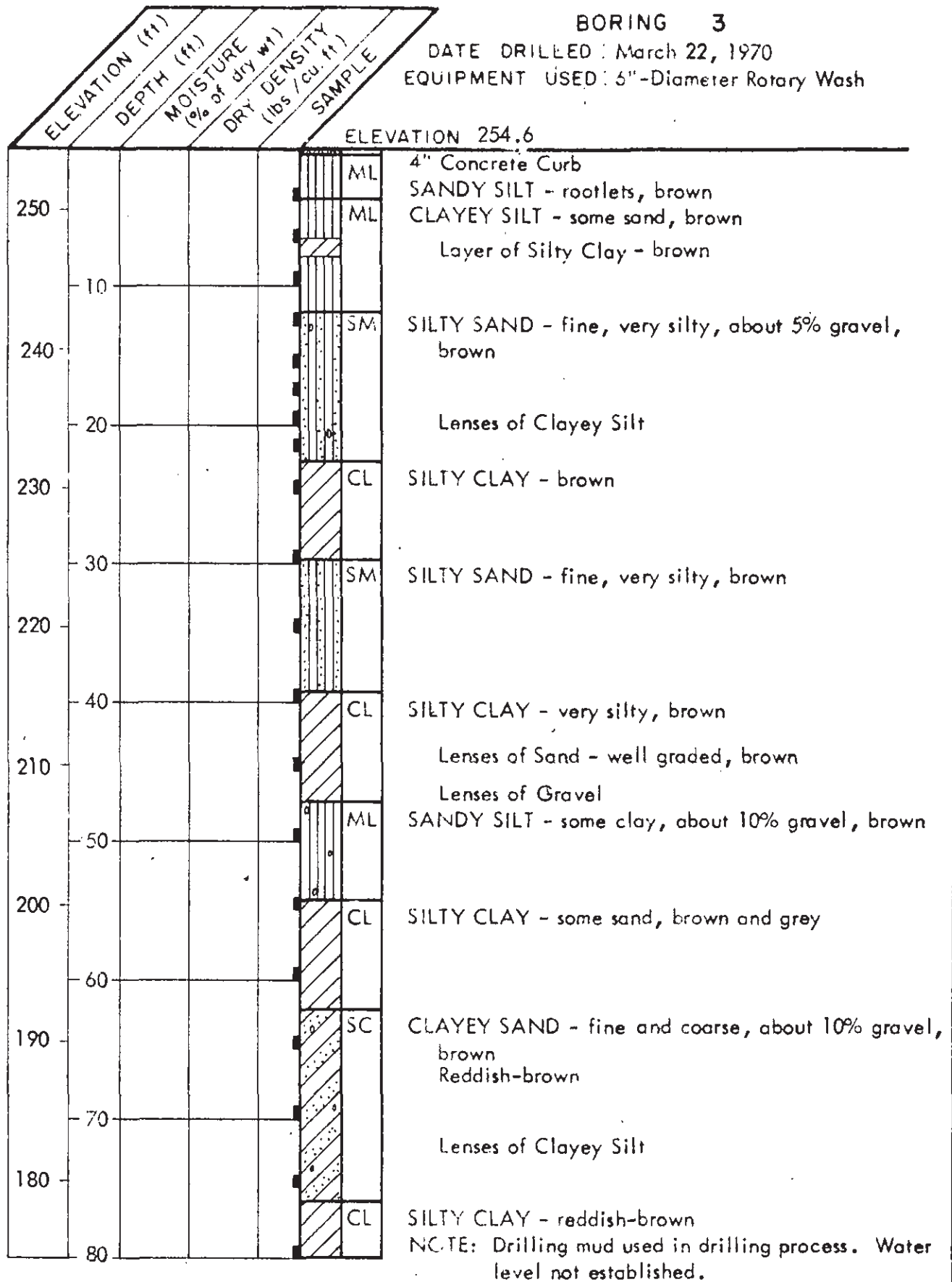
LEROY CRANDALL AND ASSOCIATES

PLATE A-6

## BORING 3

DATE DRILLED: March 22, 1970

EQUIPMENT USED: 5"-Diameter Rotary Wash



## LOG OF BORING

LEROY CRANDALL AND ASSOCIATES



JOB A-79162 DATE 6-26-79 DR. HEM

W.P. K. CHKD

# M A-79162-B2 (1 OF 2)

## BORING 2

DATE DRILLED: June 9 and 16, 1979  
EQUIPMENT USED: 24"-Diameter Bucket 0-20'  
5"-Diameter Rotary Wash below 20'

ELEVATION 100.0

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft. - kips/ft.)	SAMPLE LOC.
95	5	24.6	98	2			CL
90	10	25.6	95	2			
85	15	21.0	102	3			
		23.2	103	<1			SM
80	20	29.1	93	6			CL
75	25	33.2	87	5			
							ML
70	30	31.6	91	5			

3" Asphaltic Paving - 3" Crushed Rock and Sand Base  
SILTY CLAY - dark greyish-brown  
Brown  
Some calcareous streaks  
Dark greyish-brown  
Petroleum odor  
SILTY SAND - fine, brown  
SILTY CLAY - greyish-brown  
Few calcareous lumps  
CLAYEY SILT - greyish-brown

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

**BORING 2 (CONTINUED)**

DATE DRILLED: June 9 and 16, 1979  
EQUIPMENT USED: 24"-Diameter Bucket 0-20'  
5"-Diameter Rotary Wash below 20'

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
			18.8	112	8	CL
65	35					SM
			13.7	121	17	
60	40		22.6	105	10	ML
			25.3	100	19	SW
55	45					
50	50					SM
			14.9	116	22	
45	55					
			18.3	110	13	
60	60					

SILTY CLAY - few gravel, dark grey

SILTY SAND - fine, few gravel, dark grey

SANDY SILT - grey

SAND - well graded, about 20% gravel, grey  
Layers of Silt

SILTY SAND - fine, few gravel, grey  
Lenses of Silt

CLAYEY SILT - grey

NOTE: Water seepage encountered below 14.7'.  
Drilling mud used in drilling process  
of rotary wash hole.

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

JOB A-79162 DATE 6-26-77 DR. Kern C.E. W.P. GCHKD Y/C

## BORING 6

DATE DRILLED: June 23, 1979

EQUIPMENT USED: 24"-Diameter Bucket

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	ELEVATION	82.2
							ML		2" Asphaltic Paving
80		9.3	114	8			SC		SANDY SILT - light brown CLAYEY SAND - fine, brown
	5	5.8	110	8			SW		SAND - well graded, about 10% gravel, brown
75		11.2	120	10			SC		CLAYEY SAND - well graded, about 30% gravel, brown
	10	14.3	115	6			CL		SANDY CLAY - brown
70		17.7	110	6			CL		SILTY CLAY - brown
	15	20.3	108	6					
65		10.2	119	8			CL		SANDY CLAY - few gravel, brown
	20	11.3	124	11					
60		11.5	119	10			CL		SILTY CLAY - grey
	25	6.7	118	10			SW		SAND - well graded, few gravel, grey
55							SM		SILTY SAND - few gravel, grey
	30						CL		SILTY CLAY - grey
50		18.3	104	6					
45									
40									

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES



## BORING 6 (CONTINUED)

DATE DRILLED: June 23, 1979

EQUIPMENT USED: 24"-Diameter Bucket

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
40		17.1	111	6		
45		22.2	100	8		
50		23.8	101	6		
55		16.9	111	8		CL
60		4.1	105	17		SP
65		3.4	101	13		
70		7.3	116	18		
75		4.7	107	20		
80						

SANDY CLAY - grey

SAND - fine, light grey

Few gravel

NOTE: Water not encountered. No caving.

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

JOB A80025 DATE 2/15/80 DR JCHD W.P. H. CHKD YK

Form 123

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

M A-80025-B1 (1 OF 2)

BORING 1

DATE DRILLED: February 1, 1980  
EQUIPMENT USED: 24"-Diameter Bucket to 18 1/2'  
5"-Diameter Rotary Wash to 75'

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE	DRY DENSITY	DRIVE ENERGY	SAMPLE LOC.	
			(% of dry wt.)	(lbs./cu. ft.)	(ft.-kips/ft.)			
100		20.3	99	3			ML	1" ASPHALTIC PAVING SANDY SILT - brown
	5							
95		25.1	97	4			CL	SILTY CLAY - brown
	10							Dark brown
90		28.1	93	4			CL	SANDY CLAY - some gravel, light brown
	15	22.4	103	4				
85		15.2	116	8			ML	SANDY SILT - some Clay, layers of Silty Sand and gravel, brownish-grey Layers of Silty Sand, about 20% gravel
	20							
80		23.5	101	6			CL	SILTY CLAY - few gravel, greyish-brown
	25							*Elevations refer to datum of reference survey ; see Plate 1.
75		28.7	94	7				
	30	21.6	105	6			ML	SANDY SILT - few gravel, brown
70		24.0	101	8				
	35							Layers of fine and medium Silty Sand, some gravel
65		21.2	105	10				
	40	22.6	104	8			CL	SILTY CLAY - greyish-brown

(CONTINUED ON FOLLOWING PLATE)

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

DATE DRILLED: February 1, 1980

EQUIPMENT USED: 24"-Diameter Bucket to 18½'  
5"-Diameter Rotary Wash to 75'

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
60							SW
	45	15.5	116	18			
55							ML
	50	27.7	96	10			
50							
	55	24.8	100	6			
45							CL
	60	31.8	91	11			
40							
	65	28.6	94	14			
35							
	70	21.7	104	10			
30							CL
	75	24.3	100	13			

SAND - well graded, about 20% gravel, brown

SANDY SILT - brown

Dark grey

SILTY CLAY - grey

## NOTE:

Bucket Boring - Water seepage at 12' and 17'. Water level measured at 15' 20 minutes after completion of drilling. Caving and sloughing below 15'.

Rotary Wash Boring - Drilling mud used in drilling process. Drilling mud removed to about 25'. Water level measured at 10' 4 days after removal of drilling mud.

SANDY CLAY - light brown

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES



JOB A-20025 DATE 2/18/80 DR. JAMES O.E.B. E.V. W.P. R. CHKD. Y.A.

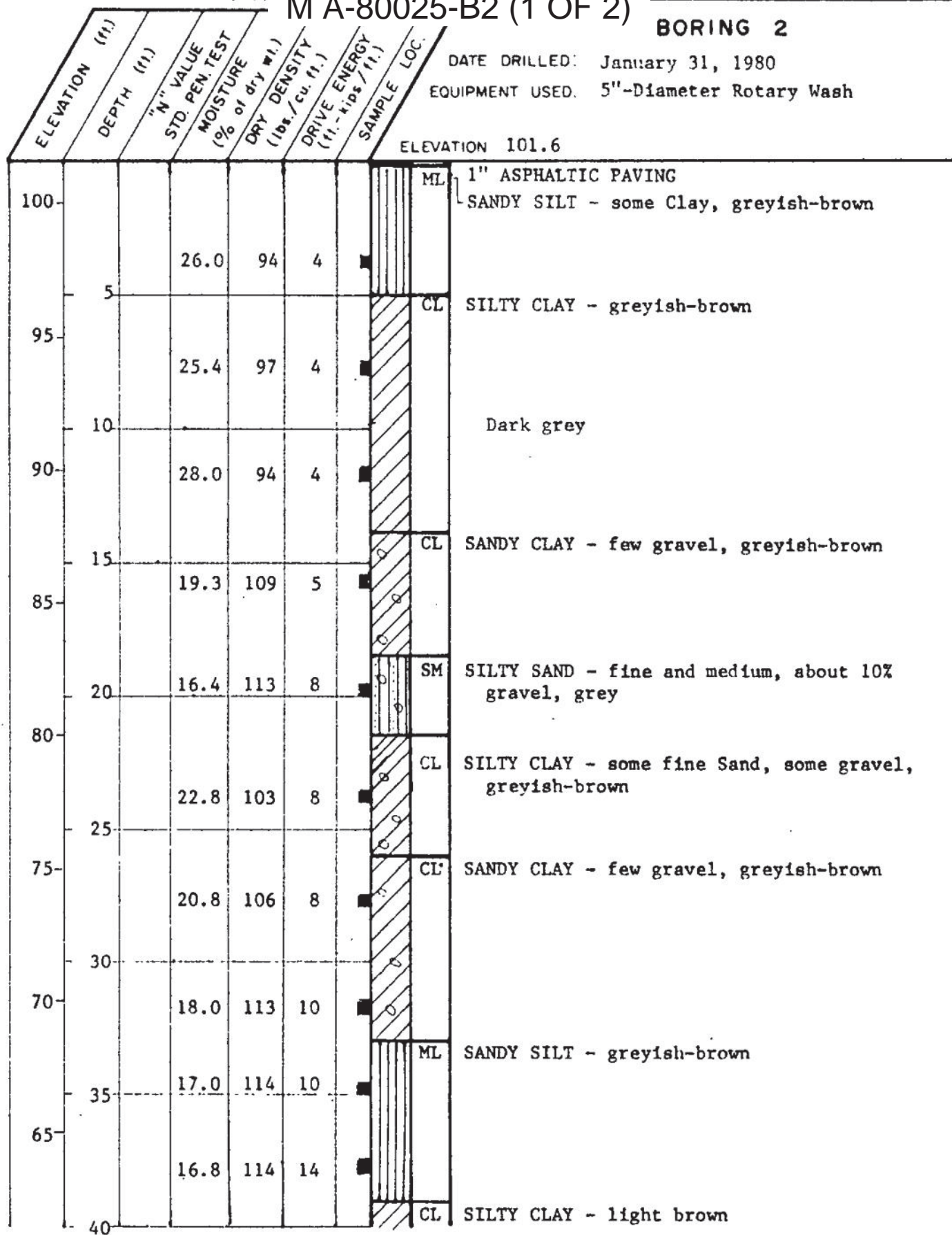
Form 123

# M A-80025-B2 (1 OF 2)

## BORING 2

DATE DRILLED: January 31, 1980  
EQUIPMENT USED: 5"-Diameter Rotary Wash

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

DATE DRILLED: January 31, 1980

EQUIPMENT USED: 5"-Diameter Rotary Wash

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
60		23.9	102	12			
	45						ML
55		26.6	99	11			
	50						
50		25.4	99	14			
	55						CL
45		28.6	95	18			
	60						
40		28.6	95	14			
	65						
35		31.3	92	12			
	70						
30		30.4	93	8			
	75						
25		27.0	95	8			
	80						

NOTE: Drilling mud used in drilling process.  
Drilling mud removed to about 25'. Water  
level measured at 9' 5 days after removal of  
drilling mud.

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES



DATE DRILLED: January 31, 1980

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 101.0

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
100						ML	1" ASPHALTIC PAVING SANDY SILT - roots, brown
	5	12.4	100	7			
95		24.3	98	6		CL	SILTY CLAY - greyish-brown
	10	25.1	97	4			
90						CL	SANDY CLAY - greyish-brown
	15	17.6	113	4			
85							Traces of organic matter, some Shale fragments, grey
	20	20.0	107	6		SM	SILTY SAND - well graded, about 20% gravel, grey
80		22.9	103	8		CL	SILTY CLAY - some fine Sand, some gravel, brown and grey
	25	20.5	107	8			
75						SM	SILTY SAND - fine and medium, about 5% gravel, dark grey
	30	13.0	121	14		CL	SANDY CLAY - some gravel, brown and grey
70		16.0	115	10			
	35	20.2	109	15		ML	CLAYEY SILT - some fine Sand, patches of Silty Clay, few gravel, brown
65		23.9	102	10			
40							

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES



JOE A80025 DATE 2/19/80 DR JOEN O.E. BY W.P. CKO YK

M A-80025-B4 (2 OF 2)

BORING 4 (CONTINUED)

DATE DRILLED: January 31, 1980

EQUIPMENT USED. 5"-Diameter Rotary Wash

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
60							
		28.0	96	11			
55	45						
		27.9	93	18			ML
50	50						ML
		41.7	79	8			
45	55						CL
		30.4	87	8			
40	60						
		29.0	95	8			
35	65						
		27.6	97	11			
30	70						CL
		18.4	112	25			
25	75						

SANDY SILT - dark grey

CLAYEY SILT - layers of Sandy Silt and Silty Sand, grey

SILTY CLAY - grey

SANDY CLAY - grey

SAND - well graded, grey

NOTE: Drilling mud used in drilling process. Drilling mud removed to about 25'. Water level measured at 9' 21 hours after removal of drilling mud and at 9½' 5 days later.

LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES

# M A-82144-B2 (1 OF 2)

## BORING 2

DATE DRILLED: May 24, 1982  
EQUIPMENT USED 5"-Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE	DRY DENSITY	DRIVE ENERGY	SAMPLE LOC.	
(ft.)	(ft.)		(% of dry wt.)	(lbs./cu ft.)	(ft.-kips/ft.)			
ELEVATION 214.0								
210	5		20.2	99	4		CL	2" Asphaltic Paving SILTY CLAY - brown
205	10		16.6	110	5		CL	SANDY CLAY - few gravel, brown
200	15		16.5	115	15			
195	20		15.1	118	11		SW	SAND - well graded, about 20% gravel, some fines, brown About 30% gravel
190	25		23.6	103	11		SM	SILTY SAND - fine, some gravel, brown
185	30		13.1	108	15		SW	SAND - well graded, about 20% gravel, layers of Sandy Silt and Silty Sand, brown

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

DATE DRILLED: May 24, 1982

EQUIPMENT USED: 5"-Diameter Rotary Wash

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lb./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC
180	35	11.6	123	29			CL
175	40	19.4	109	12			
170	45	12.4	121	24			CL
165	50	27.7	97	10			
160	55	24.6	103	11			
155	60	23.6	104	13			
150	65	24.0	102	13			CL
145	70	16.1	118	45			
		24.3	104	17			SM

SANDY CLAY - grey

Layer of coarse Sand and gravel, brown

About 20% gravel

SILTY CLAY - grey

Layer of coarse Sand and gravel,  
light brown

NOTE: Drilling mud used in drilling process. Removed mud to about 40'. Water level measured at 38' 20 minutes after removal of mud and at 43' eight days later.

SANDY CLAY - brown

SILTY SAND - fine, brown

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

PLATE 2-D



## BORING 6

DATE DRILLED: November 16, 1987  
EQUIPMENT USED: 5" - Diameter Rotary Wash

ELEVATION 96.4

ELEVATION (ft.)	DEPTH (ft.)	N' VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
95						ML SM	FILL - SANDY SILT and SILTY SAND - fine, brown
	5		9.1	123	10	ML	SANDY SILT - about 10% Gravel, brown
90							Some Clay
	10		11.1	119	13	SM	SILTY SAND - fine, some Gravel, light brown
85			13.9	112	4	ML	CLAYEY SILT - brown
	15					CL	SANDY CLAY - brown
80			16.8	118	13		
	20		17.8	113	8		Some Gravel
75							
	25		17.3	115	9		
70						SM	SILTY SAND - fine, about 10% Gravel, light brown
	30		10.5	120	12		
65			7.2	136	36		
	35					SW	SAND - well graded, about 30% Gravel, brown
60			8.2	133	30		
40							

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

PLATE 2 - C

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

A-86396-B

DATE 12/1/87

F.T. TC

DR. umh

O.E.

MS

W.P.

dmh

CHKD

%

JOE

**BORING 6 (Continued)**

DATE DRILLED: November 16, 1987  
EQUIPMENT USED: 5" - Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
55			12.4	127	26	
			14.4	126	10	
45						
50			20.3	111	12	
			19.7	112	18	
50						
45			27.8	98	9	
55						
40						
60			24.5	104	9	
35						
65			28.1	97	11	
30						
70			22.1	107	10	
25						
75			27.5	99	8	
20						
80						

SC CLAYEY SAND - fine, some Gravel, brown

SM SILTY SAND - fine to medium, greyish brown

ML SANDY SILT - brown

CL SILTY CLAY - light greyish brown

Grey

Bluish grey

Greyish brown

CL SANDY CLAY - some Gravel, light grey

NOTE: Drilling mud used in drilling process. Mud removed after completion of drilling. Water level measured at a depth of 38' 3 hours after removal of mud.

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE 2 - D

**BORING 3**

DATE DRILLED: December 16, 1986

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lb./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
99.9							ML
95	5	9.7	103	1			
		15.1	112	2			
90	10	8.6	106	2			SM
		12.2	120	10			CL
85	15	15.6	116	9			
		13.8	114	10			
80	20	19.0	110	8			
75	25	6.0	130	27			SW
		22.6	103	9			ML
70	30	10.7	124	18			CL
65	35	9.8	127	33			SC
		6.4	115	33			
60	40	11.7	115	18			SW

5" Asphaltic Paving

SANDY SILT - some Clay, few Gravel, light brown

SILTY SAND - fine, light brown

SANDY CLAY - some Gravel, brown

SAND - well graded, about 30% Gravel, light brown

SANDY SILT - some Gravel, light brown

SANDY CLAY - about 20% Gravel, light brown

CLAYEY SAND - fine to medium, about 20% Gravel, light brown

SAND - well graded, about 20% Gravel, light brown

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LEROY CRANDALL AND ASSOCIATES

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

JOE A. E. 86396  
DATE 12/16/86  
DR. JOHN N.  
W.P.  
121



**BORING 3 (CONTINUED)**

DATE DRILLED: December 16, 1986

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
55	45	16.2	118	23			
		13.4	122	23			
50	50	24.4	102	13			ML
		23.4	104	8			CL
45	55	24.4	100	10			
40	60	21.0	108	9			
35	65	29.0	95	14			
30	70	20.3	110	22			
25	75	22.7	106	13			
20	80						

SANDY SILT - layers of Silty Sand, some  
Gravel, light brown

SILTY CLAY - light greyish brown

Few layers of Sandy Silt

Brownish grey

NOTE: Drilling mud used in drilling process.  
Water level not established.**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

dmh

W.P.

DR

18

ATE

86396

25

JC

124

# BORING 3

DATE DRILLED: December 12, 1986

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 99.9

3" Asphaltic Paving - 3" Base Course

SILTY CLAY - few Gravel, brown

SANDY CLAY - about 10% Gravel, brown

Layers of clayey Sand, about 30% Gravel

SAND - well graded, about 30% Gravel,  
light grey

SANDY SILT - some clay, light brown

Layers of Sand and Gravel

About 10% Gravel

SAND - well graded, about 30% Gravel,  
light brown

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lb./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
95	5	9.3	124	6			CL
90	10	15.9	119	14			CL
85	15	16.0	116	11			CL
80	20	8.5	120	32			SW
75	25	10.8	114	14			ML
70	30	17.9	103	10			ML
65	35	20.4	106	8			SW
60	40						SW

CHKD

W.P.

O.E.

DR. JOHN

DATE 12/18/86

JOB ADE-86397

DATE 12/18/86

JOB ADE-86397

DATE 12/18/86

JOB ADE-86397

DATE 12/18/86

JOB ADE-86397

**BORING 3 (CONTINUED)**

DATE DRILLED: December 12, 1986

EQUIPMENT USED: 5"-Diameter Rotary Wash

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-lbs./ft.)	SAMPLE LOC.
		7.5	127	32			
55	45	6.0	117	54			
50	50	20.2	111	41			
45	55	20.9	106	25			CL
40	60	19.3	114	30			SC
35	65	19.3	111	21			CL
30	70						SC
25	75	17.0	118	46			CL
20	80	27.7	98	11			

Layers of Sandy Silt

SILTY CLAY - some Sand, bluish grey

CLAYEY SAND - fine, about 10% Gravel, bluish grey

SILTY CLAY - some Sand, bluish grey

CLAYEY SAND - fine to medium, large amounts of Gravel, bluish grey

SANDY CLAY - some Gravel, bluish grey

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES



**BORING 3 (CONTINUED)**

DATE DRILLED: December 12, 1986

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-lbs./ft.)	SAMPLE LOC.
15	85		23.7	103	23		
10	90		27.5	97	14		
5	95						
0	100		29.6	94	24		

NOTE: Drilling mud used in drilling process. Water level not established. Installed 2" diameter PVC pipe to a depth of 100' for downhole seismic survey. Annular space around outside of pipe backfilled with pea gravel.

**LOG OF BORING**

LEROY CRANDALL AND ASSOCIATES

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Form 124  
JOB ADE-86397  
DATE 12/18/86  
DR. JOHN O.E.  
W.P.  
CHKD  
YK

**BORING 5\***

DATE DRILLED: December 11, 1986

EQUIPMENT USED: 5"-Diameter Rotary Wash

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lb./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	ELEVATION
100						CL	102.4
						CL	3" Asphaltic Paving - 3" Base Course SILTY CLAY - some Gravel, brown
	5	13.6	104	5		CL	SANDY CLAY - some Silt, few Gravel, light brown
95		9.1	119	5		SC	CLAYEY SAND - fine to medium, about 10% Gravel, light brown
	10	8.8	121	8		CL	
90		13.5	123	13		CL	SILTY CLAY - some Sand, few Gravel, light brown
	15	16.6	108	9		ML	SANDY SILT - some Gravel, slightly clayey, light brown
85		15.8	109	8		SW	
	20	7.5	109	23		SW	SAND - well graded, about 20% Gravel, light greyish brown
80		8.2	125	23		SM	
	25	23.1	103	10		SW	SILTY SAND - fine, about 10% Gravel, light brown
75		10.2	115	14		SW	
	30	8.6	115	36		SW	SAND - well graded, about 10% Gravel, light greyish brown
70		7.9	123	23		SM	
	35	12.9	110	16		SM	SILTY SAND - fine, some Gravel, light brown
65							
40							

\*Boring 4 deferred due to the existing structure on the site.

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

## BORING 5 (CONTINUED)

DATE DRILLED: December 11, 1986

EQUIPMENT USED: 5"-Diameter Rotary Wash

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-lbs./ft.)	SAMPLE LOC.
60		10.9	115	27			
45		12.2	121	16			
55		22.2	105	20			
50		23.6	103	10			CL
50		21.4	107	13			
45							
60		20.2	110	14			
40							
65		18.0	111	15			
35							CL
70		15.4	123	30			
30							
75		16.4	117	25			

Layers of Sand and Gravel

SILTY CLAY - bluish grey

SANDY CLAY - some Gravel, bluish grey

NOTE: Drilling mud used in drilling process.  
Mud removed after completion of drilling.  
Water level measured at a depth of 48½'  
on 12/18/86.

## LOG OF BORING

LEROY CRANDALL AND ASSOCIATES



**BORING 7**

DATE DRILLED: December 11, 1986

EQUIPMENT USED: 18"-Diameter Bucket

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lb./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	ELEVATION 101.2
100		17.1	110	4		CL	3" Asphaltic Paving - 2 1/2" Base Course
						CL	FILL - SILTY CLAY - pieces of brick and asphaltic paving, brown
							SILTY CLAY - slightly sandy, some Gravel, brown
5		10.9	113	2			
95						SM	SILTY SAND - fine, about 20% Gravel, brown
10		17.4	115	8			
90						CL	SILTY CLAY - some Gravel, brown
						SM	SILTY SAND - fine, about 20% Gravel, brown
15		11.0	103	8			
85							About 30% Gravel
20		4.6	117	11			
80							Thin layers of Gravel
25		6.8	115	10			
75						ML	SANDY SILT - about 10% Gravel, brown
30		18.7	92	2			
70						SC	CLAYEY SAND - fine to medium, lenses of Silty Sand, about 30% Gravel, brown
35							

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

CHKD

W.P.

O.E.

DR. JOHN

DATE 12/19/86

JOB ADE-86397

Form 123

**BORING 7 (CONTINUED)**

DATE DRILLED: December 11, 1986

EQUIPMENT USED: 18"-Diameter Bucket

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE	DRY DENSITY	DRIVE ENERGY	SAMPLE LOC.
(ft.)	(ft.)		(% of dry wt.)	(lbs./cu. ft.)	(ft.-kips/ft.)		
65		6.7	111	6			
40		18.6	105	6			SM
45		11.1	117	15			
50		11.1	116	48			
55		24.2	102	5			CL

SILTY SAND - fine, some Gravel, brown

SANDY CLAY - some Silt, bluish grey

NOTE: Water level measured at a depth of 55' at completion of drilling and at 54' 30 minutes later. Raveling from 19' to 24' (to 2' in diameter). Caving and sloughing below 54'.

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

**BORING 4**

DATE DRILLED: December 12, 1986

EQUIPMENT USED: 18"-Diameter Bucket

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
99.3							
		1.7	119	5			CL
95	5	18.6	94	<1			CL
90	10	16.1	117	10			
85	15	12.4	104	5			SM
80	20	18.2	108	3			ML
75	25	6.2	107	2			SW
70	30	7.6	113	11			
65	35	6.5	113	12			
60	40	15.9	115	6			ML CL
55	45						

3½" Asphaltic Paving - 1½" Base Course  
FILL - SILTY CLAY - pieces of asphaltic  
paving, brown

SANDY CLAY - brown

Few Gravel

SILTY SAND - fine to medium, about 20%  
Gravel, brown

SANDY SILT - few Gravel, brown

SAND - well graded, about 30% Gravel, brown

NOTE: Water level measured at a depth of  
39' at completion of drilling and  
at 36½' 20 minutes later. Caving  
and sloughing below 39'.

SANDY SILT - brown

SANDY CLAY - few Gravel, bluish grey

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES



**BORING 5**

DATE DRILLED: December 12, 1986

EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION 100.2

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
100							CL
		17.2	104	7			
95	5						
		21.2	76	2			
90	10						
		17.8	109	5			
		16.3	103	4			
85	15						CL
		12.0	121	11			
		13.7	116	9			
80	20						
		12.9	120	12			
75	25						
		21.2	104	6			
		26.8	100	7			SC
70	30						CL
		20.2	106	7			
		28.1	99	8			
65	35						
		25.6	101	11			
40		15.5	117	14			

4" Asphaltic Paving - 2" Base Course  
SILTY CLAY - brown

SANDY CLAY - few Gravel, brown

Brown to grey

CLAYEY SAND - fine, brown to grey

SANDY CLAY - bluish grey

Layer of Silty Clay

Some Gravel

Layer of Silty Sand

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE A-1.5a

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

**BORING 5 (CONTINUED)**

DATE DRILLED: December 12, 1986

EQUIPMENT USED: 5"-Diameter Rotary Wash

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE	STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
60							
		15.0		115	8		
55	45	21.3		110	11		
		21.7		103	7		CL
50	50	23.7		102	10		
		20.5		112	21		SM
45	55						
							CL
40	60	19.3		112	12		
35	65	15.3		118	21		
30	70	27.7		99	12		CL
							CL
75		20.7		109	11		

SILTY CLAY - bluish grey

SILTY SAND - fine, some Gravel, bluish grey

SANDY CLAY - bluish grey

Some Gravel

SILTY CLAY - bluish grey

SANDY CLAY - bluish grey

NOTE: Drilling mud used in drilling process.  
Mud removed at completion of drilling.  
Water level measured at a depth of 42'  
on 12/18/86.

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

**BORING 1**

DATE DRILLED: January 27, 1987  
EQUIPMENT USED: 20" - Diameter Bucket

ELEVATION 99.5 \*

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
95	5	14.1	117	5		SP ML CL 2" Asphaltic Paving FILL - SAND and SILT - rootlets, pieces of brick, brown SILTY CLAY (POSSIBLY FILL) - rootlets, brown
						CL SANDY CLAY - few Gravel, brown
		10.1	127	10		
90	10	10.9	118	8		ML SANDY SILT - some Clay, few Gravel, brown
85	15	12.0	114	8		
						SM SILTY SAND - fine, few Gravel, brown
		16.5	112	6		ML SANDY SILT - some Clay, few Gravel, brown
80	20					SM SILTY SAND - fine and medium, about 5% Gravel, brown
		5.6	129	13		SM SILTY SAND to SAND - well graded, about 10% Gravel, brown with grey
						SW
75	25	24.4	103	5		CL SANDY CLAY - brown
						SM SILTY SAND - fine, few Gravel, brown
70	30	16.3	109	4		CL SANDY CLAY - brown
65	35	12.1	119	6		SM SILTY SAND - fine, about 5% Gravel, brown and grey
		7.8	122	10		SM SILTY SAND to SAND - well graded, about 5% Gravel, brown
						SW
60	40					

\* Elevations refer to assumed datum; see Plate 1 for location and elevation of bench mark.

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE 2 - A



**BORING 1 (Continued)**

DATE DRILLED: January 27, 1987  
EQUIPMENT USED: 20"- Diameter Bucket

ELEVATION (ft.)	DEPTH (ft.)		MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
55	45		6.1	112	10	
			7.0	111	10	
50	50		12.5	114	12	
45	55					



About 10% Gravel and Cobbles (to 6" in size)

CLAYEY SILT - some Sand, bluish grey

NOTE: Water seepage encountered at a depth of about 53'. Trace of water at the bottom of boring 10 minutes after completion of drilling. No caving.

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE 2 - B

**BORING 1**

DATE DRILLED: October 24, 1987  
EQUIPMENT USED: 24" - Diameter Bucket

ELEVATION 96.6 \*

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
95		17.2	102	5		CL 1-1/2" Asphaltic Paving FILL - SILTY CLAY - dark brown
	5	10.6	101	2		CL SANDY CLAY - few Gravel, brown
90						SC CLAYEY SAND - fine to medium, lenses of Silty Sand, brown
	10	7.1	98	5		CL SILTY CLAY - few Gravel, brown
85						
	15	11.7	120	5		SM SILTY SAND - fine to medium, few Gravel, thin layers of Sandy Silt, brown Layer of Sandy Clay
80		12.0	109	6		
	20	16.2	111	6		
75						SW SAND - well graded, layer of Silty Sand, about 30% Gravel, brownish grey
	25	7.2	131	11		
70						
	30	8.3	111	11		
65						
	35	7.7	112	10		Slightly cemented
60		19.4	88	11		SM SILTY SAND - fine to medium, some Clay, few Gravel, brownish grey
40		11.3	104	6		

\* Elevations refer to assumed datum; see Plate 1  
for location of bench mark.

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE 2.1

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

A-87429 DATE 10/28/87 F.T. LS DR. dmh O.E. MS W.P. dmh CHKD

**BORING 1 (Continued)**

DATE DRILLED: October 24, 1987  
EQUIPMENT USED: 24" - Diameter Bucket

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
55		8.0	109	5	
45		12.0	99	6	
50		22.3	106	4	
45					
55					



SAND - well graded, layers of Silty Sand, some Gravel, brownish grey

Slightly cemented  
SILTY CLAY - bluish grey

NOTE: Water seepage encountered at a depth of 47'. Water level measured at 47'-1/2' 15 minutes after completion of drilling. No caving.

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE 2.2



**BORING 3-A**

DATE DRILLED: January 21, 1987  
EQUIPMENT USED: 5" Diameter Rotary Wash

ELEVATION 214.0

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
210	5	18.6	104	6		CL 3" Asphaltic Paving - 3" Base Course SILTY CLAY - brown
		15.9	98	3		
205	10	15.1	101	5		CL SANDY CLAY - brown
		11.4	128	19		
200	15	16.0	117	12		SM SILTY SAND - fine, slightly Clayey, some Gravel, brown
		10.1	131	18		
195	20	18.9	114	11		CL SILTY CLAY - brown
		6.8	124	19		SM SILTY SAND - fine, few Gravel, brownish grey
190	25	13.6	123	23		
185	30	10.9	117	27		SW Layer of Clayey Silt SAND - well graded, some Gravel, brownish grey
		6.4	123	36		
180	35	14.0	120	12		CL SANDY CLAY - few Gravel, greyish brown
		18.6	111	12		ML SANDY SILT - some Clay, few Gravel, greyish brown
175	40					SM SILTY SAND - fine, brown

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE A - 1.4a

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

JOB A-87015 DATE 2/3/87 F.T. TC DR. dmh O.E. MS MS W.P. dmh CHKD *Me*

**BORING 3-A (Continued)**

DATE DRILLED: January 20, 1987  
EQUIPMENT USED: 5"- Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
		10.8	123	12	
170	45	27.6	98	7	
		26.6	100	10	
165	50	21.4	106	7	
		17.0	114	19	
160	55	21.0	108	14	
		23.9	105	12	
155	60	22.6	105	14	
		17.1	118	15	
150	65				
145	70				
		18.8	112	16	
140	75				
		21.6	109	16	
135	80				

CL SILTY CLAY - greyish brown  
CL SANDY CLAY - greyish brown  
CL SILTY CLAY - greyish brown  
Brown  
CL SANDY CLAY - some Gravel, brown  
ML SANDY SILT - some Gravel, brown  
CL SILTY CLAY - brown  
Thin layers of Sand  
CL SANDY CLAY - few Gravel, brown  
More Sand

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE A - 1.4b

**BORING 3-A (Continued)**

DATE DRILLED: January 21, 1987  
EQUIPMENT USED: 5"- Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
130	85	19.3	112	15	ML
					CL
125	90	13.9	125	54	SM
120	95	26.5	98	13	CL
115		19.3	112	17	
100					

SANDY SILT - some Clay, brown

SANDY CLAY - brown

SILTY SAND - fine, few Gravel, brown

SILTY CLAY - bluish grey

NOTE: Drilling mud used in drilling process. Mud removed after completion of drilling. Water level measured at a depth of 44' on 1/28/87.

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE A - 1.4c



**BORING 3-B**

DATE DRILLED: January 21, 1987  
EQUIPMENT USED: 16" Diameter Bucket

ELEVATION 214.6

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
						3" Asphaltic Paving - 3" Base Course SILTY CLAY - brown
210	5					Few Gravel, some Sand
205	10					SANDY CLAY - some Gravel, brown
200	15					SANDY SILT - slightly Clay, some Gravel, brown
195	20					SANDY CLAY - few Gravel, brown
190	25					SILTY SAND - fine, about 20% Gravel, brown
185	30					SAND - well graded, about 30% Gravel, brownish grey
180	35					About 40% Gravel
175	40					

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE A - 1.5a

**BORING 3-B (Continued)**

DATE DRILLED: January 21, 1987  
EQUIPMENT USED: 16"- Diameter Bucket

ELEVATION (ft.)	DEPTH (ft.)		MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
170	45					
165	50					
160	55					



SILTY CLAY - brown

NOTE: Water seepage encountered at a depth of 45'. Water level measured at 48' after completion of drilling and at 45-1/2' 20 minutes later. No caving.

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

**LOG OF BORING**

LEROY CRANDALL AND ASSOCIATES

PLATE A - 1.5b

DATE DRILLED: December 23, 1987  
EQUIPMENT USED: 5" - Diameter Rotary Wash

ELEVATION 34.0

**Note:** The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

BORING 6						
ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
						DATE DRILLED: December 23, 1987 EQUIPMENT USED: 5" - Diameter Rotary Wash
						ELEVATION 34.0
30	5	16.2	111	3		CL 3" Concrete Slab SILTY CLAY - some Gravel, brown
25	10	22.6	99	3		Light brown
20	15	25.2	97	3		ML CLAYEY SILT - some Sand, light brown
15	20	17.9	108	3		
10	25	17.5	109	3		
5	30	20.2	97	3		SM SILTY SAND - fine, brown
0	35	14.2	115	7		
-5	40	20.3	110	7		CL SILTY CLAY - some Sand, brown
		16.6	117	11		
		10.7	118	27		SW SAND - well graded, about 10% Gravel, light brown

(CONTINUED ON FOLLOWING PLATE

# LOG OF BORING

LEROY CRANDALL AND ASSOCIATES

PLATE A - 1.6a



**BORING 6 (Continued)**

DATE DRILLED: December 23, 1987  
EQUIPMENT USED: 5" - Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
-10	45	19.8	110	17	
-15	50	33.7	89	5	
-20	55	15.0	119	17	
-25	60	22.4	107	12	
-30	65	13.6	125	18	
-35	70	22.4	107	6	
-40	75	26.8	104	22	
-45	80	24.3	102	17	
		14.9	121	20	
		13.9	125	27	



Layer of Silty Clay

Thin layer of Clayey Sand

SILTY CLAY - light brown

SAND - well graded, some Gravel, light brown

SILTY CLAY - light brown

Some Gravel

SANDY CLAY - some Gravel, light brown

SILTY CLAY - reddish brown

SANDY CLAY - some Gravel, light brown

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LEROY CRANDALL AND ASSOCIATES

PLATE A - 1.6b

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

CHKD

dmh

W.P.

MS

O.E.

dmh

DR

GMC

F.T.

1/11/88

DATE

AEF-87428

JOB

**BORING 6 (Continued)**

DATE DRILLED: December 23, 1987  
EQUIPMENT USED: 5" - Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
-50	85	16.8	117	34	
-55	90				
-60	95				

NOTE: Drilling mud used in drilling process. Mud removed after completion of drilling. Water level measured at a depth of 48-1/2' on 12/29/87.

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE A - 1.6c

**BORING 2**

DATE DRILLED: June 8, 1987  
EQUIPMENT USED: 5"-Diameter Rotary Wash  
ELEVATION 36.2

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
35		19.2	89	2	CL
	5				
30		18.0	109	4	
	10				
25		25.0	95	4	
	15				
20		22.6	103	4	
	20				
15		16.0	106	5	
	25				
10		15.3	111	7	SM
	30				
5		4.6	103	16	SP
	35				
0		4.9	116	20	SW
	5				
35		5.3	113	21	
	35				
0		6.5	112	18	
	40				
		17.2	101	6	

3" Asphaltic Paving  
SILTY CLAY - dark brown

Brown  
Some Gravel

Layer of Silty Sand, some Gravel

SILTY SAND - fine, few Gravel, brown

Layer of Silty Clay

SAND - fine to medium, about 10% Gravel, light brown

SAND - well graded, about 20% Gravel, brown

About 30% Gravel, some Cobbles

Layers of fine Sand

Layer of Silty Sand

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

(CONTINUED ON FOLLOWING PLATE)

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE A - 1.2a



## BORING 2 (Continued)

DATE DRILLED: June 8, 1987  
EQUIPMENT USED: 5"-Diameter Rotary Wash

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
-5					
	45	7.1	119	18	
-10					
	50	13.5	124	26	
-15					
	55	22.6	106	14	
-20					
	60	19.8	116	15	CL
-25					
	65	22.1	107	7	
-30					
	70	25.6	101	11	
-35					
	75	22.1	108	13	

Layer of Clayey Silt

Layer of Silty Clay

SILTY CLAY - some Gravel, reddish brown

NOTE: Drilling mud used in drilling process. Water level not established.

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

PLATE A - 1.2b

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

MS

CHKD

dmh

BW

O.E.

dmh

DR.

GMC

F.T.

6/18/87

DATE

AE-87197

JOB

# M L-89380.ADEB-B2 (1 OF 3)

JB

CHKD

pb

W.P.

MS

O.E.

pb

DR.

F.T.

DATE 9/4/90

DATE

JOB L89380.ADEB

JOB

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

						BORING 2	
						DATE DRILLED: September 24, 1990	
						EQUIPMENT USED: 5" - Diameter Rotary Wash	
						ELEVATION 242.7	
ELEVATION	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		
240		14.6	92	3		ML	SANDY SILT - some Clay, few Gravel, dark brown
	5						Brown
235		22.6	97	5		CL	SILTY CLAY - brown
230	10						(LL = 42%; PI = 20%)
	15	20.3	103	5			
225		14.7	117	17			Some Gravel
220	20						
	25	14.6	120	18			
215		16.1	113	8		ML	SANDY SILT - some Clay, few Gravel, brown
	30						
210		12.7	120	9		CL	SANDY CLAY - some Silt, brown
	35					SM	SILTY SAND - fine to coarse, about 20% Gravel, greyish brown
205		13.4	115	12			
40							

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

PLATE A -1.2a

## BORING 2 (Continued)

DATE DRILLED: September 24, 1990  
EQUIPMENT USED: 5" - Diameter Rotary Wash

ELEVATION	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
200		19.2	109	5		ML SANDY SILT - brown
45						ML CLAYEY SILT - brown
195		22.3	107	9		CL SILTY CLAY - brown
50						ML SANDY SILT - brown
190		16.8	114	10		
55						ML CLAYEY SILT - some Gravel, brown
185		19.4	114	11		
60		22.4	105	9		CL SILTY CLAY - brown
180						ML CLAYEY SILT - some Sand, few Gravel, brown
65						
175		15.1	120	20		
70		25.9	100	16		Thin layer of Silty Clay
170						CL SANDY CLAY - brown
75		15.1	119	15		
165						ML CLAYEY SILT - some Sand, brown
80		16.0	117	22		

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

PLATE A -1.2b



# M L-89380.ADEB-B2 (3 OF 3)

## BORING 2 (Continued)

DATE DRILLED: September 24, 1990  
EQUIPMENT USED: 5" - Diameter Rotary Wash

Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated. It is not warranted to be representative of subsurface conditions at other locations and times.

ELEVATION	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
160					
	85	12.6	122	22	SM
155					
	90	21.5	108	16	ML
150					
	95				ML
145		21.1	108	14	SM
140					
	100				
135					
	105	20.5	109	15	CL
130					
	110				
125		21.5	106	16	
	115				
120		17.6	117	42	ML

SILTY SAND - fine, brown

CLAYEY SILT - some Sand, grey

SANDY SILT - brown

SILTY SAND - fine to medium, brown

SILTY CLAY - some Sand, brown

NOTE: Drilling mud used in drilling process. Mud removed after completion of drilling. Water level measured at a depth of 49' 15 minutes after removal of mud. Boring backfilled with bentonite and concrete to form a seal.

SANDY SILT - some Gravel, brown

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

PLATE A-1.2c

# M L-89380.ADEB-B3 (1 OF 4)

## BORING 3

DATE DRILLED: August 26, 1990  
EQUIPMENT USED: 5" - Diameter Rotary Wash  
ELEVATION 239.8

ELEVATION	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
235	5	17.2	99	2	ML CL
		19.2	93	2	ML
		23.7	97	5	CL
230	10	18.9	106	5	CL
		12.2	116	9	SM
225	15	19.5	110	8	CL
		22.6	104	10	CL
220	20	17.8	111	10	CL
215	25	15.9	97	6	ML
		16.9	112	6	ML
210	30	21.7	103	6	CL
205	35				CL
200	40				CL

2" Concrete Slab - 6" Base Course  
FILL - SANDY SILT and CLAY - few Gravel, brown

SANDY SILT - some Clay - some rootlets, brown

SILTY CLAY - some Sand, brown

SANDY CLAY - brown

SILTY SAND - fine, few Gravel, brown  
Lenses of Clayey Sand

SANDY CLAY - brown

SILTY CLAY - some Sand, brown

SANDY SILT - some Clay, brown

CLAYEY SILT - brown

SILTY CLAY - greyish brown

SANDY CLAY - some Gravel, greyish brown

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

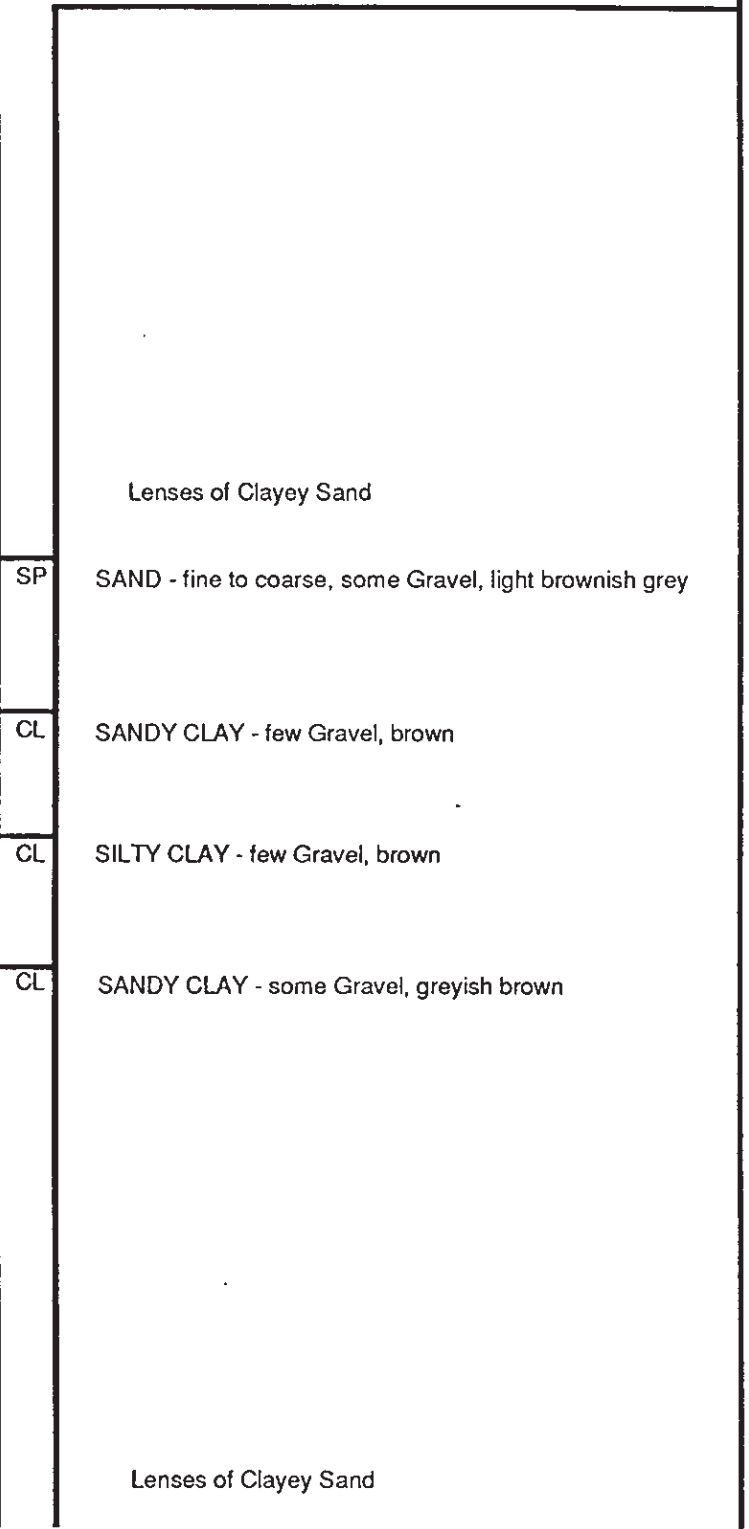
PLATE A -1.3a

# M L-89380.ADEB-B3 (2 OF 4)

## BORING 3 (Continued)

DATE DRILLED: August 26, 1990  
EQUIPMENT USED: 5" - Diameter Rotary Wash

ELEVATION	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
195	45	14.5	117	6	
		16.7	114	8	
190	50	23.0	102	6	
		16.9	115	11	
185	55	15.1	115	23	
180	60	19.6	109	7	
		24.2	102	7	
175	65	17.3	114	10	
170	70	19.5	109	8	
165	75	16.0	116	10	
160	80	12.7	124	26	



Note: The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

PLATE A -1.3b



JB

CHKD

lk

W.P.

MS

O.E.

lk

DR.

F.T.

9/4/90

DATE

L89380.ADEB

JOB

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

## BORING 3 (Continued)

DATE DRILLED: August 26, 1990  
EQUIPMENT USED: 5" - Diameter Rotary Wash

ELEVATION	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
155	85	17.4	111	11		Lenses of Silty Sand
					SP	SAND - fine to coarse, some Gravel, light greyish brown
150	90	20.4	107	20		SANDY CLAY - brown
					CL	
145	95	12.2	117	34		SAND - fine to coarse, some Gravel, light brownish grey
					SP	
					CL	SILTY CLAY - brownish grey
140	100	25.5	101	19		SAND and GRAVEL - fine to coarse, light brownish grey
					SP GP	
135	105	11.4	118	34		
130	110	10.2	130	34		
					CL	SANDY CLAY - few Gravel, brown
125	115	14.6	122	12		
120	120	19.9	113	28		SILTY SAND - fine, few Gravel, light brownish grey
					SM	

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LeROY CRANDALL AND ASSOCIATES

PLATE A -1.3c

**BORING 3 (Continued)**

DATE DRILLED: August 26, 1990  
EQUIPMENT USED: 5" - Diameter Rotary Wash

ELEVATION	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
115	125	15.5	118	34	
110	130	14.7	121	28	
105	135				

Fine to medium

SAND - fine to coarse, some Gravel, light brownish grey

NOTE: Drilling mud used in drilling process. Mud removed after completion of drilling. Water level measured at a depth of 52-1/2' after removal of mud. Boring backfilled with a mixture of bentonite and concrete to form a seal.

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

JOB L89380.ADEB DATE 9/4/90 F.T. DR. lk O.E. MS *MS* W.P. lk CHKD

**LOG OF BORING**

LeROY CRANDALL AND ASSOCIATES

PLATE A -1.3d

JOB L91078.AEC DATE 7/31/92 F.T. G.M.C. DR. ph O.E. MS W.P. ph CHKD

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

							<b>BORING 1</b>	
							DATE DRILLED:	March 21 & 22, 1991
							EQUIPMENT USED:	5" - Diameter Rotary Wash
							ELEVATION	243.6 *
ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.		
240	5	3	25.8	78	1	CL	2-1/2" Asphaltic Paving SILTY CLAY - massive, dark brown	
235	10		19.8	105	4	CL	More Silt, light brown	
230	15	8				ML	CLAYEY SILT - massive, light brown	
225	20	23	21.2	102	3	CL	SILTY CLAY - some Gravel, massive, light brown	
220	25		18.3	111	13	CL	SANDY CLAY - some Gravel, light brown	
215	30	30					Some Silt	
210	35	85	12.1	102	7		Layers of Silty Sand	
205	40					SW GW	SAND and GRAVEL - well graded, Gravel (to 1-1/4" in size), massive, greyish brown	

\* See Plate 1 for location and elevation of bench mark.

(CONTINUED ON FOLLOWING PLATE)

## LOG OF BORING

LAW / CRANDALL, INC.



PLATE A - 1.1a



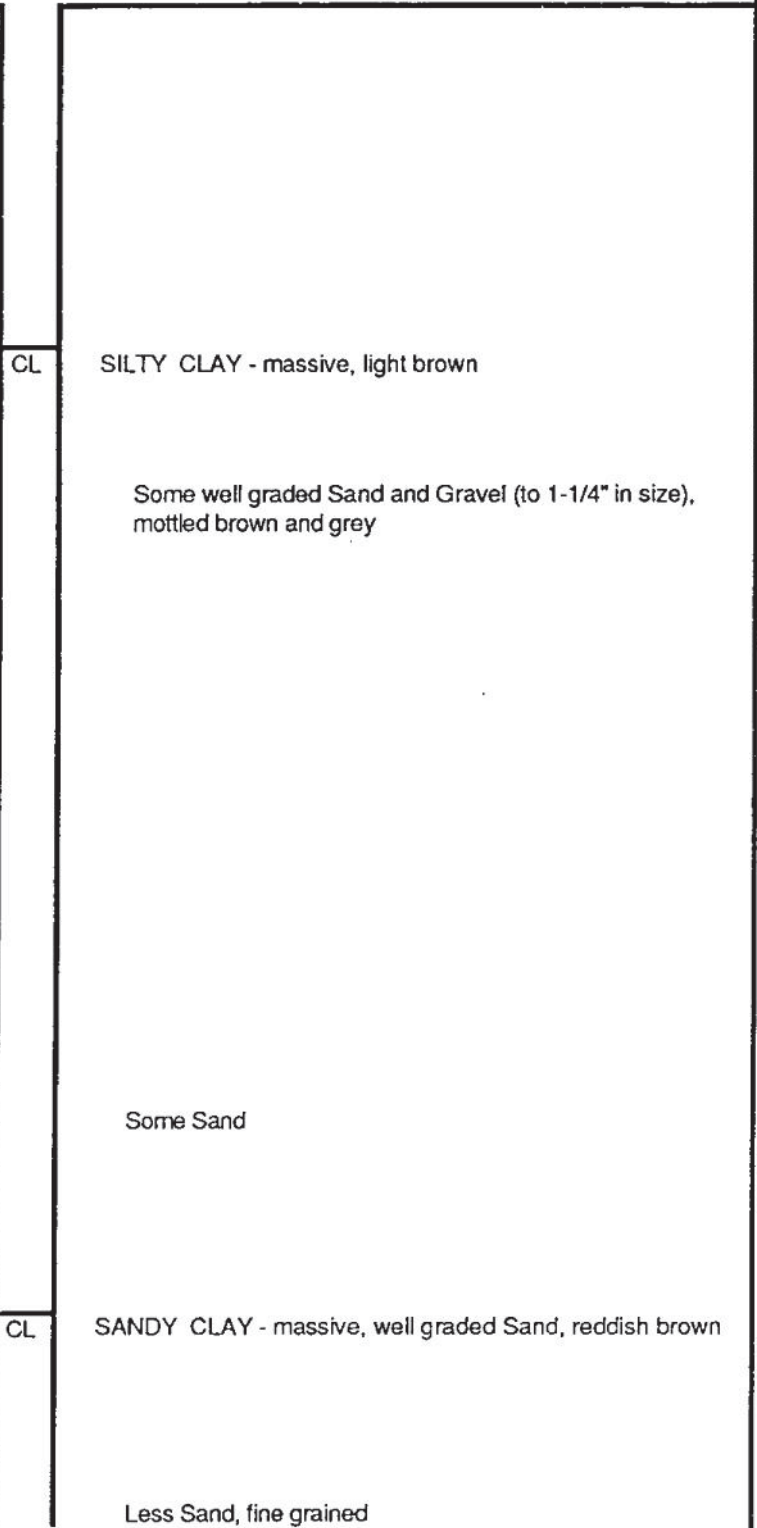
JOB L91078.AEC DATE 7/31/92 F.T. GMC DR. ph O.E. MS W.P. ph CHKD

# **BORING 1 (Continued)**

DATE DRILLED: March 21 & 22, 1991  
EQUIPMENT USED: 5" - Diameter Rotary Wash

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
200	45		9.1	128	30	
195	50		22.8	106	6	
190	55	29				
185	60		18.3	112	15	
180	65	23				
175	70		17.5	112	15	
170	75					
165	80		18.4	113	13	



(CONTINUED ON FOLLOWING PLATE)

## **LOG OF BORING**

LAW / CRANDALL, INC.



PLATE A - 1.1b

JOB L91078.AEC DATE 7/31/92 F.T. GMC DR. ph O.E. MS W.P. ph CHKD

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

ELEVATION (ft.)	DEPTH (ft.)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
160			25.0	101	11	
85						
155						
90			20.5	108	10	
150						
95						
145						
100						

## BORING 1 (Continued)

DATE DRILLED: March 21 & 22, 1991  
EQUIPMENT USED: 5" - Diameter Rotary Wash

Some Silt

Trace of organic matter

Well graded Sand

SAND - well graded, massive, light brown  
Layer of Silty Clay

NOTE: Drilling mud used in drilling process. To obtain future water level measurement and sampling, installed 2" - diameter PVC pipe to 90'. Pipe perforated between depths of 40' and 80'. Backfilled with Sand to within 32' of ground surface and grouted with cement above 27'. A bentonite plug placed between depths of 27' and 32'. Top is capped. Water level measured in the pipe at depths of 49-1/2' and 49' on 3/28/91 and 4/8/91 respectively.

LOG OF BORING

LAW / CRANDALL, INC.



PLATE A - 1.1c

**BORING 4**

DATE DRILLED: April 19, 1995  
EQUIPMENT USED: 8" - Diameter Auger

ELEVATION 98.7

ELEVATION (ft.)	DEPTH (ft.)	MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.	
						SM FILL - SILTY SAND - fine to medium, brown
						CL SILTY CLAY - brown
95	5	16.6	110	3		
						CL SANDY CLAY - some Gravel, light brown
90	10	14.1	116	8		
						SC CLAYEY SAND - fine to coarse, some Gravel, light brown
						Layers of Sandy Clay
85	15	13.0	114	7		
						SW SAND - well graded, some Gravel, light brown
80	20	7.2	114	10		
75	25	14.0	115	5		SM SILTY SAND - fine to medium, some Gravel, light brown
						Layer of Sandy Silt
						SC CLAYEY SAND - fine to medium, about 20% Gravel, light brown
70	30	7.8	118	17		
						Greyish brown
						SM SILTY SAND - fine, light brown
						SC CLAYEY SAND - fine to medium, some Gravel, light brown
65	35	11.3	124	18		
						SW SAND - well graded, some Gravel, light brown
60		6.3	114	19		
40		7.9	122	18		

(CONTINUED ON FOLLOWING FIGURE)

**LOG OF BORING**

LAW/CRANDALL, INC.



FIGURE A - 1.4a



**BORING 4 (Continued)**

DATE DRILLED: April 19, 1995  
EQUIPMENT USED: 8" - Diameter Auger

ELEVATION (ft.)	DEPTH (ft.)		MOISTURE (% of dry wt.)	DRY DENSITY (lbs./cu. ft.)	DRIVE ENERGY (ft.-kips/ft.)	SAMPLE LOC.
55						
	45		4.8	124	29	
50						
	50		18.8	115	38	
45						
55						

NOTE: Water level measured at a depth of 47' 10 minutes after completion of drilling. No caving.

Note : The log of subsurface conditions shown hereon applies only at the specific boring location and at the date indicated.  
It is not warranted to be representative of subsurface conditions at other locations and times.

**LOG OF BORING**

LAW/CRANDALL, INC.



FIGURE A - 1.4b

**BORING 2**

DATE DRILLED: April 19, 2001  
 EQUIPMENT USED: Rotary Wash  
 HOLE DIAMETER (in.): 4 7/8  
 ELEVATION: \*\*

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.	
		9	23.5	89	3	ML	2" thick asphalt, 4" thick concrete SANDY SILT - with some Clay, fine Sand, some Gravel, light brown
	5	21	14.3	111	11	CL-ML	SANDY CLAY - with Silt, some fine Sand and Gravel, stiff
	10	13	24.0	97	10		Boulders Some Gravel, damp, firm, light brown
	15	15	11.2	114	16	SW	SAND - well graded with Gravel, medium dense
	20	10				ML	SANDY SILT - fine Sand, medium dense, light brown
	25	62	18.8	115	26	CL-ML	SILTY CLAY - with Gravel, very stiff, firm, brown
	30	37	15.5	109	32		Less Gravel 1' of sandier
	35	34			17	SM	SILTY SAND - with Gravel, dense, firm, brown
	40	24				CL	Sandier with Gravel SANDY CLAY - light brown
	45						Thin layers of Silty Sand and Sand

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: GMC  
 Prepared By: MM  
 Checked By: *MM*

Lefevre Corporation

9748-9766 Wilshire Blvd., Beverly Hills

**LAW** Crandall  
 LAWGIBB Group Member

**LOG OF BORING**

Project: 70131-1-0132

Figure: A-1.2a

**BORING 2 (Continued)**

DATE DRILLED: April 19, 2001  
 EQUIPMENT USED: Rotary Wash  
 HOLE DIAMETER (in.): 4 7/8  
 ELEVATION: \*\*

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	MOISTURE (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	SAMPLE LOC.
					22	CL-MI
	50	28				
	55				23	
	60	44				
	65		13.9	125	60	SW
	70	49				CL-MI
	75				37	
	80		16.2	115	32	
	85					
	90					

CL-MI SILTY CLAY - damp, very stiff, light grey with light brown

Few small wet Sand and Gravel layers

Some Gravel

SW SAND - well graded with Gravel, dense, light brown to light grey

CL-MI SILTY CLAY - few Gravel, very stiff, light grey to brown.

END OF BORING AT 81'

NOTES: Mud used in the drilling process. Water bailed to a depth of 50 feet. Water measured at a depth of 39.1 feet after bailing and 38.2 feet ten minutes later. Boring drilled out and cement/bentonite grouted.

Field Tech: GMC  
 Prepared By: MM  
 Checked By: *MC*

Lefevre Corporation  
 9748-9766 Wilshire Blvd., Beverly Hills

**LAW** Crandall  
 LAWGIBB Group Member

**LOG OF BORING**  
 Project: 70131-1-0132 Figure: A-1.2b



## LEIGHTON

CORE BORING LOG										BORING NO. CB - 6	
PROJECT: Beverly Hills High School										PAGE 1 OF 5	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603314-008	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 1 of 5	
EQUIPMENT USED: CME 75, Continuous Core										ELEVATION: 271 Feet	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION			CORE BARREL		DATE START: 1/4/2012	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 1/5/2012		
01/05/12	ATD	40.8				HORIZONTAL	SIZE	3.0" I.D.	DRILLER: Martini		
01/05/12	ATD	83				INCLINED	Bit (Feet)		PREPARED BY: JRoe		
					0	BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
						ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
271	0	0-5	Box 1	5	100		<b>Artificial fill (Af)</b> <b>Terraced Lawn Area</b> @0' to 2': Silty Clayey SAND to Sandy CLAY (SC-CL), with layers of sandy gravel with cobbles, porous, voids lined with water				
							<b>Quaternary older alluvial and fluvial deposits (Qoaf):</b> @2' to 9.5': Silty Clayey SAND to Sandy CLAY (SC-CL), with layers of sandy gravel with cobbles from approx. 3' to 4.5', porous, voids lined with water				
266	5	5-10	Box 1	5	100		@9.5' to 10': Silty CLAY (CL), orange brown, very moist, trace fine sand, moderately plastic, trace pinhole voids (1-2mm), becomes Sandy CLAY (CL <sub>s</sub> ) @10' to 15': Sandy CLAY (CL <sub>s</sub> ), brown, soft, very moist, fine sand with occasional slaty angular rock fragments, becomes wet at 14' to 15', pockets of silty fine sand retaining water				
261	10	10-15	Box 1	5	100						
256	15	15-20	Box 2	5	100		@15' to 15.7': Becomes Silty SAND (SM), soft, moist, light brown to brown, grades to @15.7' to 21.2': Silty SAND (SM-SC), brown, very moist, very fine sand with occasional slaty rock fragment @ 19.6', trace subrounded SILTSTONE rock fragment, <b>@16': Depth of Fault Trench FT-2 @Station 0+59</b>				
251	20	20-25	Box 2	5	100		@21.2' to 23.4': Sandy CLAY (CL <sub>s</sub> ), hard, olive brown, moist, well developed blocky structure, clay lined faces, <b>Marker Bed 1: Paleosol</b>				
246	25						@23.4' to 25': Grades to Sandy CLAY (CL <sub>s</sub> ) with gravel, fine to coarse sand, fine subangular slaty gravel, weakly developed blocky structure, well oxidized, thin bed of slaty to SILTSTONE gravel @24'				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES		V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120"		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
Fe = Iron Oxide Mn = Manganese Oxide											

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.67


## LEIGHTON

CORE BORING LOG										BORING NO. CB - 6		
PROJECT: Beverly Hills High School										PAGE 2 OF 5		
CLIENT: Beverly Hills Unified School District										JOB NO.: 603314-008		
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 5		
EQUIPMENT USED: CME 75, Continuous Core										ELEVATION: 271 Feet		
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE START: 1/4/2012		
DATE	HRS AFT	COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 1/5/2012		
01/05/12	ATD	▽	40.8				HORIZONTAL	SIZE	3.0" I.D.	DRILLER: Martini		
01/05/12	ATD	▽	83				INCLINED	Bit (Feet)		PREPARED BY: JRoe		
		▽				0	BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
		▽					ANG. FROM VERT.	Total (Feet)				
FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS												
The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.												
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY Feet	%	GRAPHIC LOG							
246 25	25-30	Box 2	5	100		@25' to 30': Silty Sandy CLAY (CL <sub>s</sub> ), hard, reddish brown, moist, fine sand, trace coarse subangular gravel and occasional, elongated well rounded, slaty gravel						
241 30	30-35	Box 3	5	100		@30' to 35': Silty Sandy CLAY (CL <sub>s</sub> ) with gravel, moderately hard, brown, moist, fine coarse sand and subangular to rounded gravel						
236 35	35-40	Box 3	5	100		@35' to 35.7': Sandy Clayey SILT (ML), soft, dark brown, moist, fine sand, trace black slaty fine gravel @35.7' to 36.6': Silty CLAY (CL), mottled dark reddish brown to grayish brown, moist, grades to @36.6' to 36.9': Silty SAND (SM), dark brown, very moist, fine grained @36.9' to 40.8': Silty Sandy CLAY (CL <sub>s</sub> ), dark brown, moderately indurated, moist, poorly developed blocky structure						
231 40	40-45	Box 3	5	100		@40.8' to 41.3': Perched groundwater encountered @40.8' to 41.3': Silty SAND (SM), dark brown, loose, fine grained, quartz, feldspar, slaty fine sand grains, wet, grades to Silty CLAY (CL) @41.3' to 45': Silty CLAY (CL), hard, mottled, grayish brown to orange brown, moderately oxidized, some fine sand, homogeneous						
226 45	45-50	Box 4	5	100		@45' to 45.9': Silty CLAY (CL), hard, mottled, grayish brown to orange brown, moderately oxidized, some fine sand, homogeneous @45.9': Perched groundwater encountered @45.9 to 46.5': Gravely SAND (SP <sub>g</sub> ) with clay, loose, dark brown, wet, fine to coarse sand, fine subrounded gravel, grades to Silty CLAY (CL) @46.5' to 55': Silty CLAY (CL), mottled orange brown to gray brown, very moist, fine sand matrix, trace gravel (SILTSTONE rock fragment) @49': Perched groundwater encountered						
221 50												
FIELD HARDNESS			BEDDING			ATTITUDE AND ANGLE			JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES			V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"			HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)			V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120"		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE	
Fe = Iron Oxide Mn = Manganese Oxide												

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*




# CB-6 (3 OF 5) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 6</b>	
PROJECT: <b>Beverly Hills High School</b>										PAGE 3 OF 5	
CLIENT: <b>Beverly Hills Unified School District</b>										JOB NO.: <b>603314-008</b>	
CONTRACTOR: <b>Martini Drilling Corporation</b>										PAGE NO.: <b>3 of 5</b>	
EQUIPMENT USED: <b>CME 75, Continuous Core</b>										ELEVATION: <b>271 Feet</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE START: <b>1/4/2012</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.	DATE FINISH: <b>1/5/2012</b>		
01/05/12	ATD	▽ 40.8				INCLINED	Bit (Feet)		DRILLER: <b>Martini</b>		
01/05/12	ATD	▽ 83				BEARING	Barrel (Feet)	5	PREPARED BY: <b>JRoe</b>		
		▽			0	ANG. FROM VERT.	Total (Feet)		LOCATION: <b>See Plate 1</b>		
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
-221	50						<b>@46.5' to 55': Silty CLAY (CL), mottled orange brown to gray brown, very moist, fine sand matrix, trace gravel (SILTSTONE rock fragment)</b> <b>@50.2' to 50.4': Silty SAND (SM), homogeneous, moderate blocky structure, free water on poorly formed soil faces</b>				
		50-55	Box 4	5	100						
-216	55						<b>@55' to 59.4': Silty Sandy CLAY (CL<sub>s</sub>), mottled, reddish brown to orange brown and gray brown, gleying along poorly developed blocky structure, fine to coarse sand, fine subrounded-subangular gravels, oxidized on soil faces,</b> <b>Marker Bed 2</b>				
		55-60	Box 4	5	100						
-211	60						<b>@59.4' to 60': Becomes Sandy CLAY (CL<sub>s</sub>), mottled orange brown to gray brown, moist, hard, oxidized, "paprika like" charcoal fragments</b> <b>5th Jan 2012 groundwater measured at 43.6' 0815hrs</b> <b>@60' to 62.2': Sandy SILT (ML), hard, mottled orange brown to olive brown, very moist, poorly developed blocky structure, manganese development</b>				
		60-65	Box 5	5	100						
	▽						<b>@62.2': Perched groundwater encountered</b> <b>@62.2' to 62.5': Grades to coarse grained, loose, SAND (SP), fine to coarse sand, fine subrounded gravels, fluvial origin, wet, yellow brown</b> <b>@63.5': Abrupt contact, becomes Silty CLAY (CL), orange brown, hard, moist, olive to brown, Mn within matrix</b>				
-206	65										
		65-70	Box 5	5	100		<b>@67.6': Grades to Clayey SAND to Silty SAND (SC-SM), unconsolidated, orange brown to olive brown, moist, fine to medium sand, trace coarse sand to fine gravel, size subrounded black slate</b> <b>@68.7' to 70.6': Grades to Sandy CLAY (CL<sub>s</sub>), dark brown Paleosol, hard, moist, fine grained, becomes Silty CLAY (CL), well developed blocky structure,</b> <b>Marker Bed 3: Paleo Surface</b>				
-201	70										
		70-75	Box 5	5	100		<b>Carbonate Package</b> <b>@70.6' to 73.3': Paleosol-carbonaceous Silty CLAY (CL), whitish gray, blocky to hackly structure, moderately cemented with coarse sand size CaCO<sub>3</sub> concretions, mild Mn development on broken soil faces, some water on soil fracture faces, carbonatization lessens with depth, erosional contact with above,</b> <b>@73.3' to 74.6': Becomes Silty Clayey SAND (SC-SM), mottled orange brown to olive brown, very moist, moderately indurated, fine grained, oxidized</b>				
-196	75										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES		V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120"		FRESH V. SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
						Fe = Iron Oxide    Mn = Manganese Oxide					

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.69

## LEIGHTON

CORE BORING LOG										BORING NO. CB - 6	
PROJECT: Beverly Hills High School										PAGE 4 OF 5	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603314-008	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 4 of 5	
EQUIPMENT USED: CME 75, Continuous Core										ELEVATION: 271 Feet	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE START: 1/4/2012	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.	DATE FINISH: 1/5/2012		
01/05/12	ATD	40.8				INCLINED	Bit (Feet)		DRILLER: Martini		
01/05/12	ATD	83				BEARING	Barrel (Feet)	5	PREPARED BY: JRoe		
					0	ANG. FROM VERT.	Total (Feet)		LOCATION: See Plate 1		
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
196	75	75-80	Box 6	3.9	78		@74.6' to 75': Silty SAND (SM), loose, orange brown, wet, fine grained, @75' to 76.1': No Recovery, wet sand in barrel @76.1' to 78.1': Clayey SAND (SC), wet, predominantly fine grained olive brown to grayish white thin layers of olive gray sand and silt @74.6' to 78': Perched groundwater encountered @78.1' to 79.5': Sandy SILT (ML) with clay, hard, olive gray to dark orange brown, moist, fine grained @79.5' to 80': Becomes Sandy CLAY (CL <sub>s</sub> ), very hard, heavily oxidized, dark orange brown to dark blackish brown, slightly moist, fine grained San Pedro Formation (Qsp) @80' to 82.5': No Recovery, wet sand in barrel				
		80-85	Box 6	2.5	50		@82.5' to 85': SAND (SP), unconsolidated, wet, olive brown to orange brown, fine grained, homogeneous, moderate oxidation in pockets @83': Local groundwater table encountered				
186	85	85-90	Box 6	3.1	62		@85' to 86.9': No Recovery @86.9' to 90': SAND (SP), unconsolidated, moist, bluish green, fine grained, poorly graded @89': Gravel, fine to coarse, rounded, flattened black slaty gravel, siliceous, volcanic dark green, and siliceous quartz, gravels @89.9' to 90': Cemented sand, overlies cobble >3 inches in size, cobble wedged in sampler head @90' to 91.1': Sandy GRAVEL (GP <sub>s</sub> ), fine to coarse sand, gravel subrounded to rounded consists of phyllitic slate, granitic clasts, some slaty gravel, small well rounded cobbles, in fine to coarse sandy matrix, wet, well graded, loose @91.1' to 95': Sandy SILT to Silty SAND (ML-SM), loose, olive brown, wet, very fine grained with occasional coarse sand lense, becomes well oxidized to orange brown, @94.6', oxidation as pockets of medium sand				
181	90	90-95	Box 7	5	100						
176	95	95-100	Box 7	3.4	68		@95' to 96.6': No Recovery @96.6' to 100': SAND (SP), unconsolidated, olive brown to orange brown, wet, fine grained, oxidized, poorly graded in pockets and as lenses of medium sand, experienced heave in augers				
171	100										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH			
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT			
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT			
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE			
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE			
								V. SEVERE			
								COMPLETE			

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.70



# CB-6 (5 OF 5) LEIGHTON


CORE BORING LOG										BORING NO. <b>CB - 6</b>	
										PAGE   5   OF   5	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>5 of 5</b>	
CONTRACTOR: <b>Martini Drilling Corporation</b>										ELEVATION: <b>271 Feet</b>	
EQUIPMENT USED: <b>CME 75, Continuous Core</b>										DATE START: <b>1/4/2012</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE FINISH: <b>1/5/2012</b>		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL INCLINED BEARING	TYPE SIZE Bit (Feet) Barrel (Feet) Total (Feet)	Split Sleeve 3.0" I.D.	DRILLER: <b>Martini</b>		
01/05/12	ATD	40.8							PREPARED BY: <b>JRoe</b>		
01/05/12	ATD	83						5	LOCATION: <b>See Plate 1</b>		
					0	ANG. FROM VERT.					

ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS
			Feet	%		
171   100	100-105	Box 7	5	100	•••••	<p>@96.6' to 100': SAND (SP), unconsolidated, olive brown to orange brown, wet, fine grained, oxidized, poorly graded in pockets and as lenses of medium sand, experienced heave in augers</p> <p>@100' to 105': SAND (SP), yellowish brown, massive, homogeneous, poorly graded, predominantly quartz sand with trace slaty fine sand</p>
166   105	105-110	Box 8	4.6	92	•••••	<p>@105' to 105.4': No Recovery</p> <p>@105.4' to 109.8': SAND (SP), loose, light brown, wet, fine sand, poorly graded, some silt and fine sand sized to fine gravel sized slaty fragments, subrounded, flattened slaty gravel, homogeneous, massive</p>
161   110	110-115	Box 8	2.3	46		<p>@109.8' to 110': Laminated gray brown Silty CLAY (CL) with sand laminations, dark orange brown, moist</p> <p>@110' to 112.7': No Recovery, wet sand in barrel</p> <p>@112.7' to 115': Sandy SILT to Silty SAND (ML-SM), loose, orange brown, very moist, trace clay and sea shells</p>
156   115	115-120	Box 8	3.4	68		<p>@115' to 116.6': No Recovery</p> <p><b>San Pedro Formation: Marine (Qsg):</b></p> <p>@116.6' to 116.8': Concretionary Sandy SILT (ML), micaceous with sea shells</p> <p>@116.8': Sandy SILT (ML), hard, dark gray, wet, very fine marine sand,</p>
151   120						<p>Total depth of coring: 120' bgs</p> <p>Perched groundwater encountered @40.8'-41.3', 45.9', 49', 62.2', and 74.6'-78' bgs</p> <p>Local groundwater table encountered @83' bgs</p> <p>Boring backfilled with bentonite and soil cuttings upon completion of drilling and logging</p> <p>Excess soil cuttings disposed of in D.O.T. approved drums and disposed offsite</p>
146   125						


FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
								V. SEVERE	
								COMPLETE	



\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.71

# CB-8 (1 OF 5) LEIGHTON


CORE BORING LOG										BORING NO. <b>CB - 8</b>	
										PAGE   1   OF   5	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>1 of 5</b>	
CONTRACTOR: <b>Gregg Drilling</b>										ELEVATION: <b>252 Feet</b>	
EQUIPMENT USED: <b>M-12, Continuous Core</b>										DATE START: <b>12/19/2011</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE FINISH: <b>12/19/2011</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.	DRILLER: <b>Gregg</b>		
12/19/11	ATD	20				INCLINED	Bit (Feet)		PREPARED BY: <b>AWS</b>		
12/19/11	ATD	65				BEARING	Barrel (Feet)	5	LOCATION: <b>See Plate 1</b>		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
252	0						<b>Artificial fill (Af)</b> @0' to 2': Sandy CLAY (CL <sub>s</sub> ), dark brown, very moist, fine grained with rootlets  <b>Quaternary older alluvial and fluvial deposits (Qoaf):</b> @2' to 4': Sandy CLAY (CL <sub>s</sub> ), dark brown, fine grained  @4' to 5': Sandy Silty CLAY (CL <sub>s</sub> ), brown, moist, fine grained, trace fine gravel				
247	5										
		5-10	Box 1	4.1	82		@5' to 5.9': No Recovery  @5.9' to 6.6': Sandy CLAY (CL <sub>s</sub> ), dark brown, very moist, fine grained with rootlets @6.6' to 7.5': Sandy CLAY (CL <sub>s</sub> ), mottled dark brown, light orange brown, very moist, fine grained sand with rootlets @7.5' to 8.5': Clayey SAND (SC), orange brown, moist, medium sand, porous @8.5' to 10': Sandy CLAY (CL <sub>s</sub> ), mottled olive brown to olive green, moist, fine sand, Mn stains and Mn nodules, blocky structure, <b>Marker Bed 1: Paleosol</b> @10' to 14.5': Sandy CLAY (CL <sub>s</sub> ), mottled, olive brown, moist, fine sand, subangular pebbles, blocky structure, moderate clay development along soil faces  <b>@12': Depth of Fault Trench FT-2 @Station 1+90</b>  @13.8': Abundant white SILTSTONE rock clasts (rock-line) @14.5' to 15': Sandy CLAY (CL <sub>s</sub> ), mottled orange brown, moist, fine sand, subangular slaty gravel @15' to 16.8': Sandy CLAY (CL <sub>s</sub> ), mottled olive, orange brown, moist, fine sand, subangular pebbles, blocky structure  @16.8' to 17.5': Clayey SAND (SC), mottled red brown, moist, medium sand, angular gravel and angular pebbles @17.5' to 20': No Recovery				
242	10	10-15	Box 2	5	100						
237	15	15-20	Box 3	2.5	50		@20' to 22.5': Perched groundwater encountered @20' to 22.5': Gravelly SAND (SP <sub>g</sub> ), dark brown, wet, coarse grained, subrounded pebbles and gravels, subangular pebbles and gravels  @22.5 to 25': No Recovery				
		20-22.5	Box 3	2.5	100						
		22.5-25	Box 4	0	0						
227	25										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2° 2°-12° 12°-36° 36°-120° >120°	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2° 2°-12° 12°-36° 36°-120° >120°	FRESH V. SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE				
										Fe = Iron Oxide    Mn = Manganese Oxide	

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.72



# CB-8 (2 OF 5) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 8</b>	
										PAGE 2 OF 5	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>2 of 5</b>	
CONTRACTOR: <b>Gregg Drilling</b>										ELEVATION: <b>252 Feet</b>	
EQUIPMENT USED: <b>M-12, Continuous Core</b>										DATE START: <b>12/19/2011</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE FINISH: <b>12/19/2011</b>		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.	DRILLER: <b>Gregg</b>		
12/19/11	ATD	20				INCLINED	Bit (Feet)		PREPARED BY: <b>AWS</b>		
12/19/11	ATD	65				BEARING	Barrel (Feet)	5	LOCATION: <b>See Plate 1</b>		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
227	25	25-27.5	Box 4	2.5	100		<b>@25' to 25.5': Sandy CLAY (CL<sub>s</sub>), mottled orange to olive, very moist, Mn staining, Fe staining</b> <b>@25.5' to 25.7': Clayey SAND (SC), mottled orange to olive, very moist, coarse grained, Mn and Fe stains</b> <b>@25.7' to 28.2': Sandy CLAY (CL<sub>s</sub>), mottled, orange to olive, very moist, fine sand, Mn nodules, Fe stains</b> <b>@28.2' to 30.5': Sandy CLAY (CL<sub>s</sub>), mottled olive with orange, very moist, fine to medium sand, Fe stains, subangular gravel</b>				
		27.5-30	Box 4	2.5	100						
222	30	30-32.5	Box 5	2.5	100		<b>@30.5' to 31.1': Sandy CLAY (CL<sub>s</sub>), mottled olive with orange, very moist, fine to medium sand, Fe stains, Mn nodules, subangular pebbles</b> <b>@31.1' to 33.4': Clayey SAND (SC), olive brown, fine grained, very moist, Fe staining</b>				
		32.5-35	Box 5	2.5	100						
217	35	35-37.5	Box 6	2.5	100		<b>@33.4': Perched groundwater encountered</b> <b>@33.4' to 33.5': Clayey SAND (SC), dark brown, coarse grained, wet</b> <b>@33.5' to 35': Sandy CLAY (CL<sub>s</sub>), moist, red brown, fine grained, Mn nodules, subangular pebbles, Fe staining, blocky structure</b> <b>@35' to 36.1': Perched groundwater encountered</b> <b>@35' to 36.1': SAND (SP), dark brown, wet, medium grained, poorly graded</b> <b>@36.1' to 36.9': SAND (SP), red brown, medium grained, poorly graded, wet, with subangular pebbles, upward fining sequence</b> <b>@36.9' to 37.5': Sandy CLAY (CL<sub>s</sub>), mottled olive, orange, fine sand, moist, Fe stains</b> <b>@37.5' to 38.5': Clayey SAND (SC), brown, moist, very fine to fine grained, Fe stains, moderate blocky structure, paleosurface, oxidized along soil faces</b> <b>@38.5' to 40': Clayey SAND (SC), mottled olive to dark brown, moist, fine to very fine sand, Mn nodules, Fe stains, subangular pebbles,</b> <b>Marker Bed 2</b>				
		37.5-40	Box 6	2.5	100						
212	40	40-42.5	Box 7	2.5	100		<b>@40' to 44.3': Sandy CLAY (CL<sub>s</sub>), mottled olive to orange, fine sand, moist, subangular pebbles, angular gravel, Mn nodules, Fe staining along soil faces</b>				
		42.5-45	Box 7	2.5	100						
207	45	45-47.5	Box 8	2.5	100		<b>@44.3' to 44.8': CLAY (CL), olive light brown, moist, Mn nodules, Fe staining</b> <b>@44.8' to 46': Sandy CLAY (CL<sub>s</sub>), mottled olive to orange, moist, fine sand, Mn nodules and Fe staining</b> <b>@46' to 47': Perched groundwater encountered</b> <b>@46' to 47': Gravelly SAND (SP<sub>g</sub>), dark brown, wet, subangular pebbles and gravels</b> <b>@47' to 47.5': Sandy CLAY (CL<sub>s</sub>), olivebrown Paleosol, moist, fine sand, Mn nodules and Fe staining, well developed blocky structure</b> <b>@47.5' to 50': No Recovery</b>				
		47.5-50	Box 8	0	0						
202	50										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD HARD MOD. HARD SOFT V. SOFT	- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES	V. THIN THIN MEDIUM THICK V. THICK	<2" 2"-12" 12"-36" 36"-120" >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE	<2" 2"-12" 12"-36" 36"-120" >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE				

ROCKLOG2012 BHHS LOGS.GPJ ROCKLOG2012.GDT 12/24/12

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Figure A-1.4.73



# CB-8 (3 OF 5) LEIGHTON


CORE BORING LOG										BORING NO. <b>CB - 8</b>	
										PAGE   3   OF   5	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>3 of 5</b>	
CONTRACTOR: <b>Gregg Drilling</b>										ELEVATION: <b>252 Feet</b>	
EQUIPMENT USED: <b>M-12, Continuous Core</b>										DATE START: <b>12/19/2011</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE FINISH: <b>12/19/2011</b>		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.	DRILLER: <b>Gregg</b>		
12/19/11	ATD	20				INCLINED	Bit (Feet)		PREPARED BY: <b>AWS</b>		
12/19/11	ATD	65				BEARING	Barrel (Feet)	5	LOCATION: <b>See Plate 1</b>		
					0	ANG. FROM VERT.	Total (Feet)				

ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG		FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS
			Feet	%			
202    50	50-52.5	Box 8	2.5	100			<b>Carbonate Package</b> @50' to 50.9': Sandy CLAY (CL <sub>s</sub> ), brown, moist, fine sand, Mn nodules, CaCO <sub>3</sub> stringers, <b>Marker Bed 3</b> @50.9' to 51.9': Sandy CLAY (CL <sub>s</sub> ), olive brown, moist, fine sand, Mn nodules, CaCO <sub>3</sub> stringers, Fe staining @51.9' to 52.5': Clayey SAND (SC), olive, moist, fine sand, CaCO <sub>3</sub> stringers, Fe staining and sharp contact with below @52.5' to 53.4': Clayey SAND (SC), dark olive brown, moist, fine sand, CaCO <sub>3</sub> nodules, and Fe staining,
	52.5-55	Box 9	2.5	100			@53.4' to 54': Clayey SAND (SC), olive brown, moist, fine sand, CaCO <sub>3</sub> nodules, and Fe staining @54' to 55': Clayey SAND (SC), olive brown, moist, fine grained, Fe staining, angular pebbles <b>San Pedro Formation (Qsp)</b> @55' to 55.5': Silty SAND (SM), olive brown, moist to very moist, fine sand to medium sand, massive @55.5' to 56.1': Silty SAND (SM), olive brown, moist, fine sand, massive, Fe staining @56.1' to 57.5': Silty SAND (SM), red brown, moist, fine sand, massive, Fe staining @57.5' to 60': Silty SAND (SM), red dark brown, moist, fine sand, massive, Fe staining @60' to 61': Silty SAND (SM), red brown, moist to very moist, massive @61' to 62.5': Silty SAND (SM), yellowish brown, moist, massive, Fe staining @62.5' to 63.3': Silty SAND (SM), moist, yellowish orange brown, fine sand, massive, Fe stains 63.3' to 65': SAND (SP), light brown to brown, very moist, medium sand, massive <b>@65': Local groundwater table encountered</b> @65' to 65.7': SAND (SP), yellowish dark gray, very moist to wet, fine to medium sand, upward fining @65.7' to 66.2': SAND (SP), yellowish gray, very moist to wet, fine sand, massive Fe staining @66.2' to 67.5': SAND (SP), greenish blue, very moist to wet, fine sand, Fe staining, massive @67.5' to 70': No Recovery, wet barrel
	60-62.5	Box 10	2.5	100			@70' to 72': SAND (SP), olive gray, wet, fine to medium sand, Fe staining, massive, poorly graded @72' to 72.2': Gravelly SAND (SP <sub>g</sub> ), orange, olive, fine to coarse sand with Fe stains, angular pebbles @72.2' to 76.7': Gravelly SAND (SP <sub>g</sub> ), red light brown, wet, Fe stains, subangular to subrounded gravels and pebbles
192    60	62.5-65	Box 11	2.5	100			
	65-67.5	Box 11	2.5	100			
	67.5-70	Box 12	0	0			
182    70	70-72.5	Box 12	2.5	100			
	72.5-75	Box 12	2.5	100			
177    75							

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	MODERATE	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MOD. SEVERE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	V. SEVERE COMPLETE	



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Figure A-1.4.74



# CB-8 (4 OF 5) LEIGHTON

CORE BORING LOG												BORING NO. <b>CB - 8</b>	
												PAGE   4   OF   5	
PROJECT: <b>Beverly Hills High School</b>													
CLIENT: <b>Beverly Hills Unified School District</b>													
CONTRACTOR: <b>Gregg Drilling</b>													
EQUIPMENT USED: <b>M-12, Continuous Core</b>													
GROUNDWATER:		DEPTH TO (Feet):				ORIENTATION		CORE BARREL				DATE START: <b>12/19/2011</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve			DATE FINISH: <b>12/19/2011</b>		
12/19/11	ATD	20				HORIZONTAL	SIZE	3.0" I.D.			DRILLER: <b>Gregg</b>		
12/19/11	ATD	65				INCLINED	Bit (Feet)				PREPARED BY: <b>AWS</b>		
					0	BEARING	Barrel (Feet)	5			LOCATION: <b>See Plate 1</b>		
						ANG. FROM VERT.	Total (Feet)						
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS <small>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</small>						
				Feet	%								
177	75						<b>@72' to 72.2': Gravelly SAND (SP<sub>g</sub>), orange, olive, fine to coarse sand with Fe stains, angular pebbles</b> <b>@76.7' to 78.2': Silty SAND to Sandy SILT (SM-ML), fine sand, olive brown, wet, Fe stains prevalent</b> <b>@78.2' to 78.7': Silty SAND (SM), olive dark brown, wet, fine sand, subrounded gravel and subangular gravel</b> <b>@78.7' to 80': Silty SAND to Sandy SILT (SM-ML), olive, wet, massive, fine to very fine sand, Fe stains</b> <b>@80' to 81.2': SAND (SP), olive brown, wet, well graded, massive, subangular pebbles</b> <b>@81.2' to 82.5': Silty SAND (SM), olive red brown, wet, fine sand, Fe staining prevalent</b> <b>@82.5' to 83.8': Silty SAND (SM), brown, wet, massive fine sand</b> <b>@83.8' to 85': Silty SAND (SM), mottled olive to orange brown, wet, Fe stain prevalent</b>						
	75-77.5	Box 13	2.5	100									
	77.5-80	Box 13	2.5	100									
172	80						<b>@85' to 90': No Recovery</b> <b>@90' to 92.5': No Recovery</b> <b>@92.5' to 93.2': Silty SAND to Sandy SILT (SM-ML), orange brown, wet, fine grained, Fe stains</b> <b>@93.2' to 93.5': Sandy SILT (ML), orange brown, wet</b> <b>@93.5' to 95': No Recovery</b> <b>@95' to 95.3': Silty SAND (SM), red brown, wet, fine sand, Fe staining, Mn nodules</b> <b>@95.3' to 96.3': Silty SAND (SM), olive, orange, wet, fine sand, Fe stains and Mn nodules</b> <b>@96.3' to 97.5': No Recovery</b> <b>@97.5' to 99.9': Sandy SILT to Silty SAND (ML-SM), olive red brown, wet, fine sand, Mn nodules and Fe staining</b>						
	80-82.5	Box 14	2.5	100									
	82.5-85	Box 14	2.5	100									
167	85						<b>@92.5' to 93.2': Silty SAND to Sandy SILT (SM-ML), orange brown, wet, fine grained, Fe stains</b> <b>@93.2' to 93.5': Sandy SILT (ML), orange brown, wet</b> <b>@93.5' to 95': No Recovery</b> <b>@95' to 95.3': Silty SAND (SM), red brown, wet, fine sand, Fe staining, Mn nodules</b> <b>@95.3' to 96.3': Silty SAND (SM), olive, orange, wet, fine sand, Fe stains and Mn nodules</b> <b>@96.3' to 97.5': No Recovery</b> <b>@97.5' to 99.9': Sandy SILT to Silty SAND (ML-SM), olive red brown, wet, fine sand, Mn nodules and Fe staining</b>						
	85-87.5	Box 15	0	0									
	87.5-90	Box 15	0	0									
162	90						<b>@92.5' to 93.2': Silty SAND to Sandy SILT (SM-ML), orange brown, wet, fine grained, Fe stains</b> <b>@93.2' to 93.5': Sandy SILT (ML), orange brown, wet</b> <b>@93.5' to 95': No Recovery</b> <b>@95' to 95.3': Silty SAND (SM), red brown, wet, fine sand, Fe staining, Mn nodules</b> <b>@95.3' to 96.3': Silty SAND (SM), olive, orange, wet, fine sand, Fe stains and Mn nodules</b> <b>@96.3' to 97.5': No Recovery</b> <b>@97.5' to 99.9': Sandy SILT to Silty SAND (ML-SM), olive red brown, wet, fine sand, Mn nodules and Fe staining</b>						
	90-92.5	Box 15	0	0									
	92.5-95	Box 15	2.2	88									
157	95						<b>@92.5' to 93.2': Silty SAND to Sandy SILT (SM-ML), orange brown, wet, fine grained, Fe stains</b> <b>@93.2' to 93.5': Sandy SILT (ML), orange brown, wet</b> <b>@93.5' to 95': No Recovery</b> <b>@95' to 95.3': Silty SAND (SM), red brown, wet, fine sand, Fe staining, Mn nodules</b> <b>@95.3' to 96.3': Silty SAND (SM), olive, orange, wet, fine sand, Fe stains and Mn nodules</b> <b>@96.3' to 97.5': No Recovery</b> <b>@97.5' to 99.9': Sandy SILT to Silty SAND (ML-SM), olive red brown, wet, fine sand, Mn nodules and Fe staining</b>						
	95-97.5	Box 15	1.3	52									
	97.5-100	Box 15	2.5	100									
152	100						<b>@92.5' to 93.2': Silty SAND to Sandy SILT (SM-ML), orange brown, wet, fine grained, Fe stains</b> <b>@93.2' to 93.5': Sandy SILT (ML), orange brown, wet</b> <b>@93.5' to 95': No Recovery</b> <b>@95' to 95.3': Silty SAND (SM), red brown, wet, fine sand, Fe staining, Mn nodules</b> <b>@95.3' to 96.3': Silty SAND (SM), olive, orange, wet, fine sand, Fe stains and Mn nodules</b> <b>@96.3' to 97.5': No Recovery</b> <b>@97.5' to 99.9': Sandy SILT to Silty SAND (ML-SM), olive red brown, wet, fine sand, Mn nodules and Fe staining</b>						
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING					
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES	V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120"	FRESH V. SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE									
Fe = Iron Oxide    Mn = Manganese Oxide													

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.75

# CB-8 (5 OF 5) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 8</b>	
										PAGE 5 OF 5	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>5 of 5</b>	
CONTRACTOR: <b>Gregg Drilling</b>										ELEVATION: <b>252 Feet</b>	
EQUIPMENT USED: <b>M-12, Continuous Core</b>										DATE START: <b>12/19/2011</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE FINISH: <b>12/19/2011</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.	DRILLER: <b>Gregg</b>		
12/19/11	ATD	20				INCLINED	Bit (Feet)		PREPARED BY: <b>AWS</b>		
12/19/11	ATD	65				BEARING	Barrel (Feet)	5	LOCATION: <b>See Plate 1</b>		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
152	100						<p><b>San Pedro Formation: Marine (Qsp):</b>  @99.9' to 107': Sandy SILT to Silty SAND (ML-SM), dark gray, massive, very fine marine sands with sea shells, bivalves, abrupt horizontal contact with above</p> <p>@107' to 108.5': Sandy SILT to Silty SAND (ML-SM), dark gray, massive, fine sand, sea shells prevalent</p>				
	100-102.5	Box 16	2.5	100							
	102.5-105	Box 16	2.5	100							
147	105										
	105-107.5	Box 17	2.5	100							
	107.5-108.5	Box 17	1	100							
142	110						<p>Total depth of coring: 108.5' bgs  Perched groundwater encountered @20'-22.5', 33.4', 35'-36.1', and 46'-47' bgs  Local groundwater table encountered @65' bgs  Boring backfilled with bentonite and soil cuttings upon completion of drilling and logging  Excess soil cuttings disposed of in D.O.T. approved drums and disposed offsite</p>				
137	115										
132	120										
127	125										


FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)		V. CLOSE	<2"	FRESH	
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)		CLOSE	2"-12"	V. SLIGHT	
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)		MOD. CLOSE	12"-36"	SLIGHT	
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)		WIDE	36"-120"	MODERATE	
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)		V. WIDE	>120"	MOD. SEVERE	
								V. SEVERE	
								COMPLETE	

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.76



# CB-20 (1 OF 6) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 20</b>	
										PAGE   1   OF   6	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>1 of 6</b>	
CONTRACTOR: <b>Martini Drilling Corporation</b>										ELEVATION: <b>246 Feet</b>	
EQUIPMENT USED: <b>CME-75, Continuous Core</b>										DATE START: <b>3/22/2012</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE FINISH: <b>3/22/2012</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.	DRILLER: <b>Martini</b>		
03/22/12	ATD	37				INCLINED	Bit (Feet)		PREPARED BY: <b>JRoe</b>		
03/22/12	ATD	71.3				BEARING	Barrel (Feet)	5	LOCATION: <b>See Plate 1</b>		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS					
			Feet	%		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.					
246    0	0-5	Box 1				<b>Artificial fill (Af):</b> @0' to 5': Grass; Silty CLAY (CL), dark brown, very moist with trace fine sand and SILTSTONE rock fragments, abundant rootlets, flattened tabular SILTSTONE rock fragments					
241    5	5-10	Box 1	5	100		<b>Quaternary mudflow (Qmf):</b> @5' to 7.1': Sandy CLAY (CL <sub>s</sub> ) with silt, hard, moist, dark brown, fine sand, poorly developed blocky structure, minor gleying along soil faces  @7.1' to 9': Grades to Sandy CLAY (CL <sub>s</sub> ), moderately hard, brown, moist, fine sand, with SILTSTONE and slaty rock fragments, occasional granitic pebbles, subrounded, decomposed, becomes Silty CLAY (CL)					
236    10	10-15	Box 1	5	100		<b>Quaternary alluvium (Qal):</b> <b>Benedict Canyon Drainage</b> @9' to 10': Massive thin bed of yellow brown Sandy SILT (ML) @10' to 11': Sandy Silty CLAY (CL <sub>s</sub> ) with gravel, hard, dark brown, moist, coarse slaty gravel @10.6, SILTSTONE rock clast, mechanically broken @11' to 11.1' @11.1' to 13': Sandy CLAY (CL <sub>s</sub> ), soft, orange brown, very moist, predominantly fine grained with trace slaty rock fragments, grades to Silty SAND (SM) @13' @13' to 14.5': Silty SAND (SM), moderately indurated, brown, moist, very fine grained, trace slaty fine gravels					
231    15	15-20	Box 2	4	80		@14.5' to 15.4': Gravelly SAND (SP <sub>s</sub> ), brown to orange brown, moist, fine to coarse sand, fine to coarse slaty to SILTSTONE gravels, some clay and silt in matrix @15.4' to 16.7': Gravelly CLAY (CL <sub>g</sub> ), soft, brown, very moist, some fine sand, fine to coarse scattered subangular slaty gravels, some mica @16.7' to 17.9': Grades to Clayey SAND (SC), soft, brown, moist, fine to coarse slaty sand, fine slaty gravels, massive @17.9' to 19': Becomes Sandy SILT (ML) with trace clay, soft, moist, very fine grained with fine grained sandy laminations, trace slaty gravels @19' to 20': No Recovery					
226    20											
FIELD HARDNESS			BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING		
V. HARD    - KNIFE CAN'T SCRATCH HARD       - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT        - GROVES V. SOFT     - CARVES			V. THIN     <2" THIN        2"-12" MEDIUM    12"-36" THICK       36"-120" V. THICK    >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE     <2" CLOSE        2"-12" MOD. CLOSE 12"-36" WIDE          36"-120" V. WIDE      >120"		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE		
							Fe = Iron Oxide    Mn = Manganese Oxide				

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.77



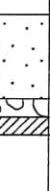




## LEIGHTON

CORE BORING LOG										BORING NO. CB - 20	
PROJECT: Beverly Hills High School										PAGE 2 OF 6	
CLIENT: Beverly Hills Unified School District										JOB NO.: 603314-008	
CONTRACTOR: Martini Drilling Corporation										PAGE NO.: 2 of 6	
EQUIPMENT USED: CME-75, Continuous Core										ELEVATION: 246 Feet	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE START: 3/22/2012		
DATE	HRS AFT	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL	TYPE	Split Sleeve	DATE FINISH: 3/22/2012		
03/22/12	ATD	▽ 37				HORIZONTAL	SIZE	3.0" I.D.	DRILLER: Martini		
03/22/12	ATD	▽ 71.3				INCLINED	Bit (Feet)		PREPARED BY: JRoe		
		▽				BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
		▽			0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.				
226	20	20-25	Box 2	4.6	92		@20' to 20.4': Sandy SILT (ML) with trace clay, soft, moist, very fine grained with fine grained sandy laminations, trace slaty gravels @20.4' to 22.6': SAND with silt and gravel (SP-SM), loose, brown, moist, fine to medium sand, pebbly to fine subrounded slaty gravels, unconsolidated (channel gravels), well graded @22.6' to 24.6': Abrupt transition, erosional contact, Sandy Silty CLAY (CL-ML), hard, brown, moist, massive, predominantly very fine sand and scattered fine subangular slaty and SILTSTONE gravels, gradational changes from proportions of sands and silts				
221	25	25-30	Box 2	5	100		@24.6' to 25': No Recovery @25' to 26.1': Silty SAND (SM), loose, brown, moist, fine to medium sand, with pebbly fine subrounded slaty gravels, unconsolidated, poorly graded @26.1' to 28': Abrupt change, erosional contact, Clayey SILT (ML), soft, reddish brown, micaceous @28' to 28.6': Becomes laminated, very fine grained, yellow brown, micaceous sand @28.6' to 30': Becomes coarser grained as sandy thin beds <1/2" thick, with rounded to subrounded pebbly gravels within Sandy CLAY (CL <sub>s</sub> ) massive matrix				
216	30	30-35	Box 3	5	100		@30' to 31.6': Sandy SILT (ML), brown to orange brown, moist, fine grained, micaceous, with trace subrounded gravels, oxidized at contact with channel gravels below @31.6' to 32.5': Fluvial gravels, SAND (SP), reddish brown to yellow brown, dry, fine to coarse sands, pebbly to fine subrounded slaty gravels, unconsolidated, erosional contact with below @32.5' to 32.9': Thin bed of very fine grained Silty SAND (SM) @32.9' to 36.9': Sandy GRAVEL (GP <sub>s</sub> ), brown to reddish brown, dry, fine to coarse sands and pebbly fine to coarse subrounded to rounded gravels, coarse sand and fine rounded slaty gravels @35' to 36.9'				
211	35	35-40	Box 3	5	100		@37' to 55': Perched groundwater encountered, erosional contact with below @37.1' to 38.4': Clayey Sandy SILT (ML), gray brown, very moist, very fine grained, micaceous @38.4' to 40': Sandy GRAVEL (GP <sub>s</sub> ), brown to yellow brown, wet, fine to coarse sand, fine to coarse subrounded to rounded slaty to heavily weathered siliceous gravels, well graded, unconsolidated				
206	40										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD HARD MOD. HARD SOFT V. SOFT		V. THIN THIN MEDIUM THICK V. THICK		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES		<2° 2°-12° 12°-36° 36°-120° >120°				<2° 2°-12° 12°-36° 36°-120° >120°					
Fe = Iron Oxide Mn = Manganese Oxide											

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

# CB-20 (3 OF 6) LEIGHTON


CORE BORING LOG										BORING NO. <b>CB - 20</b>	
										PAGE   3   OF   6	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>3 of 6</b>	
CONTRACTOR: <b>Martini Drilling Corporation</b>										ELEVATION: <b>246 Feet</b>	
EQUIPMENT USED: <b>CME-75, Continuous Core</b>										DATE START: <b>3/22/2012</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE FINISH: <b>3/22/2012</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.		DRILLER: <b>Martini</b>	
03/22/12	ATD	▽ 37								PREPARED BY: <b>JRoe</b>	
03/22/12	ATD	▽ 71.3					BEARING	Barrel (Feet)	5	LOCATION: <b>See Plate 1</b>	
		▽			0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
206	40	40-45	Box 3	5	100		<b>@40' to 45': Sandy GRAVEL (GP<sub>s</sub>), dark brown to blackish brown, wet, bedded fine to coarse sands and gravels with sandy matrix, trace silt, becomes oxidized @42.6', subrounded to rounded slaty gravels with occasional SILTSTONE, quartz, and granitic gravels</b>				
201	45	45-50	Box 4	2.9	58		<b>@45' to 47.9': Sandy GRAVEL (GP<sub>s</sub>) with lenses of coarse sand, wet, coarse sand predominantly subrounded quartz with occasional feldspars and dark red weathered micaceous SILTSTONE clasts</b>  <b>@47.9' to 50': No Recovery</b>				
196	50	50-55	Box 4	1.7	34		<b>@50' to 51.4': SAND (SP), loose, gray brown, wet, fine to coarse sand, subrounded to rounded quartz and feldspar grains</b>  <b>@51.4' to 51.7': Sandy GRAVEL (GP<sub>s</sub>) and cobbles, gray brown, trace clay in matrix, basal cobbles and gravels</b>  <b>@52' to 55': No Recovery, Cobble wedged in tip</b>				
191	55	55-60	Box 4	5	100		<b>Quaternary older alluvial and fluvial deposits (Qoaf):</b> <b>@55' to 60': Erosional contact, channel gravels over Sandy CLAY (CL<sub>s</sub>), olive green to dark brown, moist, fine sand with occasional coarse slaty sand to fine pebble,</b>				
186	60										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD    - KNIFE CAN'T SCRATCH HARD       - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT        - GROVES V. SOFT     - CARVES		V. THIN     <2" THIN        2"-12" MEDIUM    12"-36" THICK       36"-120" V. THICK   >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE     <2" CLOSE        2"-12" MOD. CLOSE 12"-36" WIDE          36"-120" V. WIDE      >120"		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
						Fe = Iron Oxide    Mn = Manganese Oxide					

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.79




# CB-20 (4 OF 6) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 20</b>					
PROJECT: <b>Beverly Hills High School</b>										PAGE <b>4 OF 6</b>					
CLIENT: <b>Beverly Hills Unified School District</b>										JOB NO.: <b>603314-008</b>					
CONTRACTOR: <b>Martini Drilling Corporation</b>										PAGE NO.: <b>4 of 6</b>					
EQUIPMENT USED: <b>CME-75, Continuous Core</b>										ELEVATION: <b>246 Feet</b>					
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE START: <b>3/22/2012</b>					
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.		DATE FINISH: <b>3/22/2012</b>					
03/22/12	ATD	▽ 37								DRILLER: <b>Martini</b>					
03/22/12	ATD	▽ 71.3								PREPARED BY: <b>JRoe</b>					
		▽			0	ANG. FROM VERT.	Total (Feet)			LOCATION: <b>See Plate 1</b>					
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS								
				Feet	%		<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p>								
186	60						<p><b>Carbonate Package</b>  @60' to 61.3': Sandy CLAY (CL<sub>s</sub>), olive green, hard, moist, well developed blocky structure, Fe stains along soil faces, CaCO<sub>3</sub> as stringers and nodules, massive  @61.3' to 62.2': Sandy CLAY (CL<sub>s</sub>), olive green to orange brown, moist, fine grained  <b>@62.2': Perched groundwater encountered</b>  @62.2' to 62.4': SAND bed (SP-SC), olive green, wet, fine to coarse sand  @62.4' to 65': Sandy CLAY (CL<sub>s</sub>), olive green Paleosol, hard, moist, fine sand, well developed blocky structure, few clay lining along faces, oxidized, laminated, thin bands of Sandy CLAY (CL<sub>s</sub>) approximately 1" thick</p>								
181	65	60-65	Box 5	5	100		<p>@65' to 67.5': Sandy CLAY (CL<sub>s</sub>), hard, mottled olive brown to orange brown, moist, fine sand, well developed blocky to hackly structure, abundant Fe stains and Mn on soil faces, very moist</p>								
		65-70	Box 5	5	100		<p>@67.5' to 68.6': Soil crack, &lt;1/8" wide, clay lined becomes heavily carbonaceous Sandy CLAY (CL<sub>s</sub>), near vertical (60-65°), irregular CaCO<sub>3</sub> veins, 1/4" wide max. and within and along soil faces  @68.6' to 69.1': Color change to bluish gray Sandy CLAY (CL<sub>s</sub>) with CaCO<sub>3</sub>  @69.1' to 70.4': Clayey SAND (SC), olive brown to orange brown, moist, fine sand laminated with CaCO<sub>3</sub> along laminations to thin beds</p>								
176	70						<p>@70.4' to 71.3': Clayey SAND (SC), bluish gray, very moist, fine sand with thinly bedded olive green sands and dark reddish brown, very fine sandy laminations</p>								
		70-75	Box 5	5	100		<p><b>San Pedro Formation (Qsp):</b>  <b>@71.3': Local groundwater table encountered</b>  @71.3' to 75': SAND with silt (SP-SM), bluish gray to light gray, wet, fine grained quartz sand, homogeneous, massive sands, becomes loose @73.6'</p>								
171	75						<p>@75' to 77.4': SAND (SP), bluish gray to light gray, wet, fine grained</p>								
		75-80	Box 6	5	100		<p>@77.4' to 79.3': SAND (SP), mottled bluish gray, yellow brown to orange brown, wet, fine grained, oxidized, massive, unconsolidated</p>								
166	80						<p>@79.3' to 79.7': Heavily oxidized, reddish brown, fine grained sand, with quartz</p>								
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING							
V. HARD HARD MOD. HARD SOFT V. SOFT		- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES		V. THIN THIN MEDIUM THICK V. THICK		<2" 2"-12" 12"-36" 36"-120" >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE		<2" 2"-12" 12"-36" 36"-120" >120"		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE	
Fe = Iron Oxide    Mn = Manganese Oxide															

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*




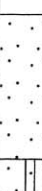


# CB-20 (5 OF 6) LEIGHTON

CORE BORING LOG										BORING NO. CB - 20	
										PAGE 5 OF 6	
PROJECT: Beverly Hills High School										JOB NO.: 603314-008	
CLIENT: Beverly Hills Unified School District										PAGE NO.: 5 of 6	
CONTRACTOR: Martini Drilling Corporation										ELEVATION: 246 Feet	
EQUIPMENT USED: CME-75, Continuous Core										DATE START: 3/22/2012	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL		DATE FINISH: 3/22/2012		
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.	DRILLER: Martini		
03/22/12	ATD	37				INCLINED	Bit (Feet)		PREPARED BY: JRoe		
03/22/12	ATD	71.3				BEARING	Barrel (Feet)	5	LOCATION: See Plate 1		
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
166	80	80-85	Box 6	1.1	22	•••••	and feldspar grains, massive, unconsolidated @79.7' to 80': No Recovery @80' to 80.8': SAND (SP), loose, brown to light brown, wet, fine to medium sands, quartz and feldspar grains @80.8' to 81.1': SAND (SP), hard, yellow brown to orange brown to gray brown, laminated, heavily oxidized @81.1' to 85': No Recovery				
161	85	85-90	Box 6	3.7	74	•••••					
						•••••					
						•••••					
156	90	90-95	Box 7	3	60	•••••	@85': Encountered gravel and cobbles during drilling @85' to 87.3': Gravelly SAND (SP <sub>g</sub> ), mottled yellow brown, orange brown to black, fine to coarse sand, wet, some clay, well rounded siliceous fine gravels to rounded and flattened black slaty gravels @87.3' to 88.7': Sandy SILT (ML), light brown to orange brown, very moist, fine grained sand, homogeneous, quartz sand, trace feldspar grains, becomes coarse grained and gravelly @88.7' @88.7' to 90': No Recovery @90' to 90.4': SAND with gravel (SP <sub>g</sub> ), moderately indurated, light brown to reddish brown, wet, fine to coarse sand, fine subrounded to rounded gravels @90.4' to 93': SAND with silt (SP-SM), loose, yellow brown, wet, predominantly fine grained with pockets of coarse sand and fine subrounded and flattened gravels, quartz and feldspar gravels, heavy oxidation with dark reddish brown, Fe stains @93' to 95': No Recovery				
						•••••					
						•••••					
						•••••					
151	95	95-100	Box 7	3.3	66	•••••	@95' to 96.3': SAND (SP), loose, light brown, wet, fine to medium sand, unconsolidated @96.3' to 98.1': SAND with clay (SP-SC), orange brown to yellow brown, wet to 97.8', heavily oxidized @97.8': Laminated fine grained oxidized sands overlying gravels, gravels not recovered @98.3' to 100': Missing, driller states gravel and cobbles over this interval				
						•••••					
						•••••					
						•••••					
146	100					•••••					
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD HARD MOD. HARD SOFT V. SOFT		V. THIN THIN MEDIUM THICK V. THICK		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES						Fe = Iron Oxide   Mn = Manganese Oxide					

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.81

# CB-20 (6 OF 6) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 20</b>	
										PAGE 6 OF 6	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>6 of 6</b>	
CONTRACTOR: <b>Martini Drilling Corporation</b>										ELEVATION: <b>246 Feet</b>	
EQUIPMENT USED: <b>CME-75, Continuous Core</b>										DATE START: <b>3/22/2012</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE FINISH: <b>3/22/2012</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.		DRILLER: <b>Martini</b>	
03/22/12	ATD	71.3				INCLINED	Bit (Feet)			PREPARED BY: <b>JRoe</b>	
03/22/12	ATD					BEARING	Barrel (Feet)	5		LOCATION: <b>See Plate 1</b>	
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
146	100	100-105	Box 7	2.7	54		<p>@100' to 102': SAND (SP), loose, brown, wet, fine to medium grained sand</p> <p>@102' to 102.7': Laminations, fine sand and black silt, becomes hard, oxidized and slightly moist, fine grained laminated Sandy SILT (SM)</p> <p>@102.7' to 105': No Recovery</p>				
141	105										
		105-110	Box 8	4.4	88		<p>@105' to 107.4': Poor Recovery, SAND (SP), loose, light brown, wet, fine grained, micaceous</p> <p>@107.4' to 109.4': SAND with Silt (SP-SM), hard, brown to orange brown, moist, fine sand, @109' to 109.4' becomes laminated with reddish brown, oxidized fine sand to dark black fine to coarse sand</p> <p>@109.4' to 110': No Recovery</p>				
136	110										
		110-115	Box 8	3.3	66		<p>@110' to 112.3': SAND with gravel (SP<sub>g</sub>), loose, yellow brown to reddish brown, wet, fine sand, fine to coarse rounded gravels, black slaty to siliceous to granitic gravels</p> <p><b>San Pedro Formation: Marine (Qsp):</b></p> <p>@112.3' to 113.3': Abrupt transition, SAND with Silt (SP-SM), dark gray, fine grained, shell debris @113'</p> <p>@113.3': Onset of gravels, partial cementation of fine grained sands</p> <p>@113.3' to 115': No Recovery, abundant gravels encountered during drilling over this interval</p>				
131	115										
126	120						<p>Total depth of coring: 115' bgs</p> <p>Perched groundwater encountered @37'-55' and 62.2' bgs</p> <p>Local groundwater table encountered @71.3'</p> <p>Boring backfilled with bentonite and soil cuttings upon completion of drilling and logging</p> <p>Excess soil cuttings disposed of in D.O.T. approved drums and disposed offsite</p>				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD - KNIFE CAN'T SCRATCH HARD - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT - GROVES V. SOFT - CARVES		V. THIN <2" THIN 2"-12" MEDIUM 12"-36" THICK 36"-120" V. THICK >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE <2" CLOSE 2"-12" MOD. CLOSE 12"-36" WIDE 36"-120" V. WIDE >120"		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
										Fe = Iron Oxide    Mn = Manganese Oxide	

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.82



# CB-20 (6 OF 6) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 20</b>	
										PAGE 6 OF 6	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>6 of 6</b>	
CONTRACTOR: <b>Martini Drilling Corporation</b>										ELEVATION: <b>246 Feet</b>	
EQUIPMENT USED: <b>CME-75, Continuous Core</b>										DATE START: <b>3/22/2012</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE FINISH: <b>3/22/2012</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.		DRILLER: <b>Martini</b>	
03/22/12	ATD	71.3				INCLINED	Bit (Feet)			PREPARED BY: <b>JRoe</b>	
03/22/12	ATD					BEARING	Barrel (Feet)	5		LOCATION: <b>See Plate 1</b>	
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
146	100	100-105	Box 7	2.7	54		<p>@100' to 102': SAND (SP), loose, brown, wet, fine to medium grained sand</p> <p>@102' to 102.7': Laminations, fine sand and black silt, becomes hard, oxidized and slightly moist, fine grained laminated Sandy SILT (SM)</p> <p>@102.7' to 105': No Recovery</p>				
141	105										
136	110										
		105-110	Box 8	4.4	88		<p>@105' to 107.4': Poor Recovery, SAND (SP), loose, light brown, wet, fine grained, micaceous</p> <p>@107.4' to 109.4': SAND with Silt (SP-SM), hard, brown to orange brown, moist, fine sand, @109' to 109.4' becomes laminated with reddish brown, oxidized fine sand to dark black fine to coarse sand</p> <p>@109.4' to 110': No Recovery</p>				
131	115										
126	120										
		110-115	Box 8	3.3	66		<p>@110' to 112.3': SAND with gravel (SP<sub>g</sub>), loose, yellow brown to reddish brown, wet, fine sand, fine to coarse rounded gravels, black slaty to siliceous to granitic gravels</p> <p><b>San Pedro Formation: Marine (Qsp):</b></p> <p>@112.3' to 113.3': Abrupt transition, SAND with Silt (SP-SM), dark gray, fine grained, shell debris @113'</p> <p>@113.3': Onset of gravels, partial cementation of fine grained sands</p> <p>@113.3' to 115': No Recovery, abundant gravels encountered during drilling over this interval</p>				
							<p>Total depth of coring: 115' bgs</p> <p>Perched groundwater encountered @37'-55' and 62.2' bgs</p> <p>Local groundwater table encountered @71.3'</p> <p>Boring backfilled with bentonite and soil cuttings upon completion of drilling and logging</p> <p>Excess soil cuttings disposed of in D.O.T. approved drums and disposed offsite</p>				
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD HARD MOD. HARD SOFT V. SOFT		V. THIN THIN MEDIUM THICK V. THICK		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE CLOSE MOD. CLOSE WIDE V. WIDE		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
- KNIFE CAN'T SCRATCH - SCRATCHES DIFFICULT - SCRATCHES EASILY - GROVES - CARVES		<2" 2"-12" 12"-36" 36"-120" >120"				<2" 2"-12" 12"-36" 36"-120" >120"					
						Fe = Iron Oxide    Mn = Manganese Oxide					






\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.82




## Figure A-1.4.83

# CB-21 (2 OF 6) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 21</b>				
										PAGE   2   OF   6				
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>				
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>2 of 6</b>				
CONTRACTOR: <b>Martini Drilling Corporation</b>										ELEVATION: <b>246 Feet</b>				
EQUIPMENT USED: <b>CME 75, Continuous Core</b>										DATE START: <b>3/21/2012</b>				
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE FINISH: <b>3/21/2012</b>				
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.		DRILLER: <b>Martini</b>				
03/21/12	ATD	43.6				INCLINED	Bit (Feet)			PREPARED BY: <b>AWS</b>				
03/21/12	ATD	70				BEARING	Barrel (Feet)	5		LOCATION: <b>See Plate 1</b>				
					0	ANG. FROM VERT.	Total (Feet)							
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS							
				Feet	%									
221	25	25-30	Box 2	5	100		<p>@25' to 26.5': Silty SAND (SM) with clay, brown, moist, very fine grained, subangular slaty pebbles</p> <p>@26.5' to 27.6': CLAY (CL) with sand, brown, moist to very moist, very fine grained, subangular slaty pebbles</p> <p>@27.6' to 28.8': Clayey SAND (SC), brown, moist, fine grained with coarse grained sand, subangular slaty pebbles increasing in concentration with depth</p> <p>@28.8' to 30.75': Gravelly SAND (SP<sub>g</sub>), gray brown, moist, medium to coarse grained, subangular pebbles and gravels</p>							
216	30	30-35	Box 2	3	60		<p>@30.75' to 33': Gravelly SAND (SP<sub>g</sub>), dark gray brown, moist, medium to coarse grained, subangular gravels, pebbles, and cobbles</p> <p>@33' to 35': No Recovery</p>							
211	35	35-40	Box 3	5	100		<p>@35' to 37': Gravelly SAND (SP<sub>g</sub>), dark gray brown, very moist, medium to coarse grained, angular pebbles and gravels</p> <p>@37' to 37.55': Silty SAND (SM) with clay, red brown, very moist, very fine grained, subangular slaty pebbles</p> <p>@37.55' to 38.6': Silty SAND (SM), orange brown, very moist, very fine grained, Fe stains, mica</p> <p>@38.6' to 39.3': Silty SAND (SM), orange brown, very moist, fine grained, Fe stains</p>							
206	40	40-45	Box 3	5	100		<p>@39.3' to 40': CLAY (CL) with silt, red brown, very moist, Fe stains</p> <p>@40' to 41.4': Sandy CLAY (CL<sub>s</sub>), orange olive, very moist, fine grained, Fe stains, Mn stains, mica</p> <p>@41.4' to 42.2': Sandy CLAY (CL<sub>s</sub>), orange olive, very moist to moist, fine grained, Fe stains, mica</p> <p>@42.2' to 43.6': Silty SAND (SM), orange olive, very moist to moist, fine grained, Fe stains, mica</p>							
201	45	45-50	Box 3	4	80		<p>@43.6' to 55': Perched groundwater encountered</p> <p>@43.6' to 44.1': Gravelly SAND (SP<sub>g</sub>), dark gray red, wet, medium to coarse grained, angular weathered gravels and pebbles, Fe stains</p> <p>@44.1' to 44.8': SAND (SP) with silt, orange brown, wet, fine to medium grained, Fe stains, mica</p> <p>@44.8' to 45.7': SAND (SP), red brown, wet, medium grained, Fe stains</p> <p>@45.7' to 47': Silty SAND (SM), orangish olive, wet, fine to medium grained, Fe stains, Mn banding @45.85' to 46'</p> <p>@47' to 48.8': Gravelly SAND (SP<sub>g</sub>), orange olive, wet, fine to medium grained, Fe stains, subangular gravels and pebbles</p> <p>@48.8' to 49': SAND (SP), dark red, wet, medium to coarse grained, subangular gravels and pebbles</p>							
196	50													

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								COMPLETE	

Fe = Iron Oxide    Mn = Manganese Oxide

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.84



# CB-21 (3 OF 6) LEIGHTON

CORE BORING LOG												BORING NO. CB - 21	
PROJECT: Beverly Hills High School												PAGE 3 OF 6	
CLIENT: Beverly Hills Unified School District												JOB NO.: 603314-008	
CONTRACTOR: Martini Drilling Corporation												PAGE NO.: 3 of 6	
EQUIPMENT USED: CME 75, Continuous Core												ELEVATION: 246 Feet	
GROUNDWATER:		DEPTH TO (Feet):				ORIENTATION		CORE BARREL				DATE START: 3/21/2012	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.				DATE FINISH: 3/21/2012	
03/21/12	ATD	▽ 43.6					INCLINED	Bit (Feet)				DRILLER: Martini	
03/21/12	ATD	▽ 70					BEARING	Barrel (Feet) 5				PREPARED BY: AWS	
		▽			0	ANG. FROM VERT.	Total (Feet)				LOCATION: See Plate 1		
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS						
				Feet	%		The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.						
196	50	50-55	Box 4	5	100		@49' to 50': No Recovery @50' to 50.7': Gravelly SAND (SP <sub>g</sub> ), dark gray brown, wet, medium to coarse grained, subrounded gravels and pebbles, Fe stains @50.7' to 51.6': Silty SAND (SM), orangish olive, wet, fine grained, Fe stains <b>Quaternary older alluvial and fluvial deposits (Qoaf):</b> @51.6' to 51.9': Clayey SAND (SC), orange brown, wet, fine grained, Fe stains, subangular slaty pebbles @51.9' to 52.7': Silty SAND (SM), gray brown, wet, fine grained, subangular pebbles @52.7' to 55': Clayey SAND (SC), orange brown, wet, fine grained, subangular pebbles @55' to 56.4': CLAY (CL) with sand, olive brown, moist, fine grained, Fe stains, subangular pebbles @56.4' to 57.5': CLAY (CL), olive brown, moist, Fe stains, Mn nodules @57.5' to 58': CLAY (CL), olive, moist, Fe stains @58' to 61.9': Sandy CLAY (CL <sub>s</sub> ), olive brown, moist, fine grained, Fe stains, few Mn nodules, subangular slaty pebbles, massive						
191	55												
186	60	60-65	Box 4	5	100		@61.9' to 64': (Sharp contact with above), CLAY (CL), olive orange gray, laminated, moist, Fe stains, Mn nodules prevalent  <b>@64' to 66.2': Perched groundwater encountered</b> @64' to 65': CLAY (CL), olive, wet, Fe stains, Mn nodules, well developed Paleosol, MB-3 equivalent @65' to 65.8': Sandy CLAY (CL <sub>s</sub> ), orange olive, wet, fine grained, Fe stains @65.8' to 66.2': CLAY (CL), olive, wet, Fe stains @66.2' to 66.55': CLAY (CL), olive, very moist, Fe stains, Mn nodules prevalent @66.55' to 66.8': CLAY (CL), orange olive, moist, Fe stains @66.8' to 67.6': CLAY (CL), olive, moist, Fe stains <b>Carbonate Package</b> @67.6' to 67.8': Sandy CLAY to Clayey SAND (CL-SC), light olive orange, moist, fine grained, Fe stains, CaCO <sub>3</sub> stringers (horizontal) @67.8' to 68': Sandy CLAY to Clayey SAND (CL-SC), olive orange, moist, fine grained, Fe stains @68' to 68.7': Clayey SAND (SC), olive, moist, fine grained, Fe stains <b>San Pedro Formation (Qsp):</b> @68.7' to 70': Silty SAND (SM), olive, very moist to wet, fine grained, massive @70': Local groundwater table encountered @70' to 71.3': Silty SAND (SM), olive brown, wet, fine grained, massive @71.3' to 75': No Recovery						
▽													
181	65	65-70	Box 5	5	100		@64' to 66.2': Perched groundwater encountered @64' to 65': CLAY (CL), olive, wet, Fe stains, Mn nodules, well developed Paleosol, MB-3 equivalent @65' to 65.8': Sandy CLAY (CL <sub>s</sub> ), orange olive, wet, fine grained, Fe stains @65.8' to 66.2': CLAY (CL), olive, wet, Fe stains @66.2' to 66.55': CLAY (CL), olive, very moist, Fe stains, Mn nodules prevalent @66.55' to 66.8': CLAY (CL), orange olive, moist, Fe stains @66.8' to 67.6': CLAY (CL), olive, moist, Fe stains <b>Carbonate Package</b> @67.6' to 67.8': Sandy CLAY to Clayey SAND (CL-SC), light olive orange, moist, fine grained, Fe stains, CaCO <sub>3</sub> stringers (horizontal) @67.8' to 68': Sandy CLAY to Clayey SAND (CL-SC), olive orange, moist, fine grained, Fe stains @68' to 68.7': Clayey SAND (SC), olive, moist, fine grained, Fe stains <b>San Pedro Formation (Qsp):</b> @68.7' to 70': Silty SAND (SM), olive, very moist to wet, fine grained, massive @70': Local groundwater table encountered @70' to 71.3': Silty SAND (SM), olive brown, wet, fine grained, massive @71.3' to 75': No Recovery						
176	70												
171	75	70-75	Box 5	1.3	26		@68' to 68.7': Clayey SAND (SC), olive, moist, fine grained, Fe stains <b>San Pedro Formation (Qsp):</b> @68.7' to 70': Silty SAND (SM), olive, very moist to wet, fine grained, massive @70': Local groundwater table encountered @70' to 71.3': Silty SAND (SM), olive brown, wet, fine grained, massive @71.3' to 75': No Recovery						

FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING	
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2"	HORIZONTAL (0-5°)	V. CLOSE	<2"	FRESH		
HARD	- SCRATCHES DIFFICULT	THIN	2"-12"	SHALLOW OR LOW ANGLE (5-35°)	CLOSE	2"-12"	V. SLIGHT		
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12"-36"	MODERATELY DIPPING (35-55°)	MOD. CLOSE	12"-36"	SLIGHT		
SOFT	- GROVES	THICK	36"-120"	STEEP OR HIGH ANGLE (55-85°)	WIDE	36"-120"	MODERATE		
V. SOFT	- CARVES	V. THICK	>120"	VERTICAL (85-90°)	V. WIDE	>120"	MOD. SEVERE		
								V. SEVERE	
								COMPLETE	

Fe = Iron Oxide    Mn = Manganese Oxide

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.85



# CB-21 (4 OF 6) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 21</b>	
										PAGE   4   OF   6	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>4 of 6</b>	
CONTRACTOR: <b>Martini Drilling Corporation</b>										ELEVATION: <b>246 Feet</b>	
EQUIPMENT USED: <b>CME 75, Continuous Core</b>										DATE START: <b>3/21/2012</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE FINISH: <b>3/21/2012</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.		DRILLER: <b>Martini</b>	
03/21/12	ATD	43.6					INCLINED	Bit (Feet)		PREPARED BY: <b>AWS</b>	
03/21/12	ATD	70					BEARING	Barrel (Feet)		LOCATION: <b>See Plate 1</b>	
					0	ANG. FROM VERT.	Total (Feet)				

ELEVATION & CORE DEPTH (Feet)	CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS
			Feet	%		
171    75						<p>@75' to 79.1': Silty SAND (SM), brown, wet, fine grained, massive, Fe stains, homogeneous, unconsolidated</p>
	75-80	Box 5	5	100		
166    80						<p>@79.1' to 80': Silty SAND (SM), red brown, wet, fine grained, massive, Fe stains</p> <p>@80' to 81': Silty SAND (SM), brown, wet, fine grained, massive, homogeneous, unconsolidated</p> <p>@81' to 82': Silty SAND (SM), orange, wet, fine grained, Fe stains, massive</p> <p>@82' to 82.6': Silty SAND (SM), mottled dark brown to olive orange, wet, fine grained, Fe stains</p> <p>@82.6' to 85': No Recovery</p>
	80-85	Box 6	2.6	52		
161    85						<p>@85' to 87.3': Silty SAND (SM), brown, wet, fine grained, massive, homogeneous, unconsolidated, few subrounded highly-weathered pebbles and gravels</p> <p>@87.3' to 87.55': Silty SAND (SM), mottled brown to light gray orange, wet, fine grained</p> <p>@87.55' to 88.1': Sandy SILT (ML), orange olive, wet, very fine grained, Fe stains</p> <p>@88.1' to 90': No Recovery</p>
	85-90	Box 6	3.1	62		
156    90						<p>@90' to 90.35': Silty SAND (SM), brown, wet, fine grained</p> <p>@90.35' to 90.8': Silty SAND (SM), orange brown, wet, fine grained, Fe stains</p> <p>@90.8' to 91.7': Silty SAND (SM) with clay, orange olive, wet, very fine grained, Fe stains, angular slaty pebbles and granitic gravel</p> <p>@91.7' to 92.2': Silty SAND (SM), orange, wet, fine grained, Fe stains</p> <p>@92.2' to 95': No Recovery</p>
	90-95	Box 6	2.2	44		
151    95						<p>@95' to 95.7': SAND (SP), brown, wet, fine grained, massive, homogeneous, unconsolidated</p> <p>@95.7' to 96.2': Silty SAND (SM) with clay, orange brown, wet, very fine grained, laminated, subangular slaty pebbles</p> <p>@96.2' to 100': No Recovery</p>
	95-100	Box 7	1.2	24		
146    100						

FIELD HARDNESS	BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD    - KNIFE CAN'T SCRATCH HARD       - SCRATCHES DIFFICULT MOD. HARD   - SCRATCHES EASILY SOFT        - GROVES V. SOFT     - CARVES	V. THIN     <2" THIN        2"-12" MEDIUM    12"-36" THICK       36"-120" V. THICK   >120"	HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)	V. CLOSE     <2" CLOSE        2"-12" MOD. CLOSE   12"-36" WIDE          36"-120" V. WIDE       >120"	FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE

Fe = Iron Oxide    Mn = Manganese Oxide

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.86

# CB-21 (5 OF 6) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 21</b>	
PROJECT: <b>Beverly Hills High School</b> CLIENT: <b>Beverly Hills Unified School District</b> CONTRACTOR: <b>Martini Drilling Corporation</b> EQUIPMENT USED: <b>CME 75, Continuous Core</b>										PAGE 5 OF 6	
										JOB NO.: <b>603314-008</b> PAGE NO.: <b>5 of 6</b> ELEVATION: <b>246 Feet</b> DATE START: <b>3/21/2012</b> DATE FINISH: <b>3/21/2012</b> DRILLER: <b>Martini</b> PREPARED BY: <b>AWS</b> LOCATION: <b>See Plate 1</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL				
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.			
03/21/12	ATD	43.6				INCLINED	Bit (Feet)				
03/21/12	ATD	70				BEARING	Barrel (Feet)	5			
					0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
146	100	100-105	Box 7	2.6	52		@100' to 102.6': SAND (SP), brown, wet, fine grained, massive, homogeneous, unconsolidated  @102.6' to 105': No Recovery				
141	105	105-110	Box 7	1.3	26		@105' to 105.5': SAND (SP), brown, wet, fine grained, massive, homogeneous, unconsolidated @105.5' to 106.3': Silty SAND (SM), orange brown, wet, very fine grained, Fe stains @106.3' to 110': No Recovery				
136	110	110-115	Box 8	2	40		@110' to 112': Silty SAND (SM), orange brown, wet, very fine grained, Fe stains, few Mn stains  @112' to 115': No Recovery				
131	115	115-120	Box 8	2.1	42		@115' to 116.35': Silty SAND (SM), orange brown, wet, very fine grained, Fe stains, few Mn nodules @116.35' to 116.4': Silty SAND (SM), olive gray, wet, very fine grained, laminated <b>San Pedro Formation: Marine (Qsp):</b> @116.4' to 116.9': Silty SAND (SM), dark gray, wet, fine grained, Mn nodules @116.9' to 117.1': Silty SAND (SM), light gray, wet, fine grained, cemented @117.1' to 120': No Recovery				
126	120	120-125	Box 8	1.5	30		@120' to 120.7': Silty SAND (SM), gray brown, wet, fine grained, massive @120.7' to 121.1': Silty SAND (SM), dark gray with brown, wet, very fine grained, massive @121.1' to 121.5': Silty SAND (SM), dark gray, wet, very fine grained, massive, with sea shells @121.5' to 125': No Recovery				
121	125										

FIELD HARDNESS		BEDDING	ATTITUDE AND ANGLE	JOINTS / SHEAR / FRACTURE	WEATHERING
V. HARD	- KNIFE CAN'T SCRATCH	V. THIN	<2°	HORIZONTAL (0-5°)	V. CLOSE
HARD	- SCRATCHES DIFFICULT	THIN	2°-12°	SHALLOW OR LOW ANGLE (5-35°)	CLOSE
MOD. HARD	- SCRATCHES EASILY	MEDIUM	12°-36°	MODERATELY DIPPING (35-55°)	MOD. CLOSE
SOFT	- GROVES	THICK	36°-120°	STEEP OR HIGH ANGLE (55-85°)	WIDE
V. SOFT	- CARVES	V. THICK	>120°	VERTICAL (85-90°)	V. WIDE
					<2°
					2°-12°
					12°-36°
					36°-120°
					>120°
					FRESH
					V. SLIGHT
					SLIGHT
					MODERATE
					MOD. SEVERE
					V. SEVERE
					COMPLETE


Fe = Iron Oxide    Mn = Manganese Oxide

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.87



# CB-21 (6 OF 6) LEIGHTON

CORE BORING LOG										BORING NO. <b>CB - 21</b>	
										PAGE   6 OF   6	
PROJECT: <b>Beverly Hills High School</b>										JOB NO.: <b>603314-008</b>	
CLIENT: <b>Beverly Hills Unified School District</b>										PAGE NO.: <b>6 of 6</b>	
CONTRACTOR: <b>Martini Drilling Corporation</b>										ELEVATION: <b>246 Feet</b>	
EQUIPMENT USED: <b>CME 75, Continuous Core</b>										DATE START: <b>3/21/2012</b>	
GROUNDWATER:		DEPTH TO (Feet):			ORIENTATION		CORE BARREL			DATE FINISH: <b>3/21/2012</b>	
DATE	HRS AFT COMP	WATER	BOT. OF CASING	BOT. OF HOLE	X	VERTICAL HORIZONTAL	TYPE SIZE	Split Sleeve 3.0" I.D.		DRILLER: <b>Martini</b>	
03/21/12	ATD	▽ 43.6				INCLINED	Bit (Feet)			PREPARED BY: <b>AWS</b>	
03/21/12	ATD	▽ 70				BEARING	Barrel (Feet)	5		LOCATION: <b>See Plate 1</b>	
		▽			0	ANG. FROM VERT.	Total (Feet)				
ELEVATION & CORE DEPTH (Feet)		CORE DEPTH RANGE (Feet)	BOX NUMBER	RECOVERY		GRAPHIC LOG	FIELD CLASSIFICATION, REMARKS, AND LIMITATIONS				
				Feet	%						
121	125						<p>The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.</p> <p>Total depth of coring: 125' bgs  Perched groundwater encountered @43.6'-55' and 64'-66.2' bgs  Local groundwater table encountered @ 70' bgs  Boring backfilled with soil cuttings upon completion of drilling and logging  Excess cuttings disposed of in D.O.T. approved drums and disposed offsite</p>				
116	130										
111	135										
106	140										
101	145										
96	150										
FIELD HARDNESS		BEDDING		ATTITUDE AND ANGLE		JOINTS / SHEAR / FRACTURE		WEATHERING			
V. HARD    - KNIFE CAN'T SCRATCH HARD       - SCRATCHES DIFFICULT MOD. HARD - SCRATCHES EASILY SOFT       - GROVES V. SOFT    - CARVES		V. THIN    <2" THIN       2"-12" MEDIUM   12"-36" THICK      36"-120" V. THICK   >120"		HORIZONTAL (0-5°) SHALLOW OR LOW ANGLE (5-35°) MODERATELY DIPPING (35-55°) STEEP OR HIGH ANGLE (55-85°) VERTICAL (85-90°)		V. CLOSE    <2" CLOSE       2"-12" MOD. CLOSE 12"-36" WIDE        36"-120" V. WIDE     >120"		FRESH V. SLIGHT SLIGHT MODERATE MOD. SEVERE V. SEVERE COMPLETE			
						Fe = Iron Oxide    Mn = Manganese Oxide					

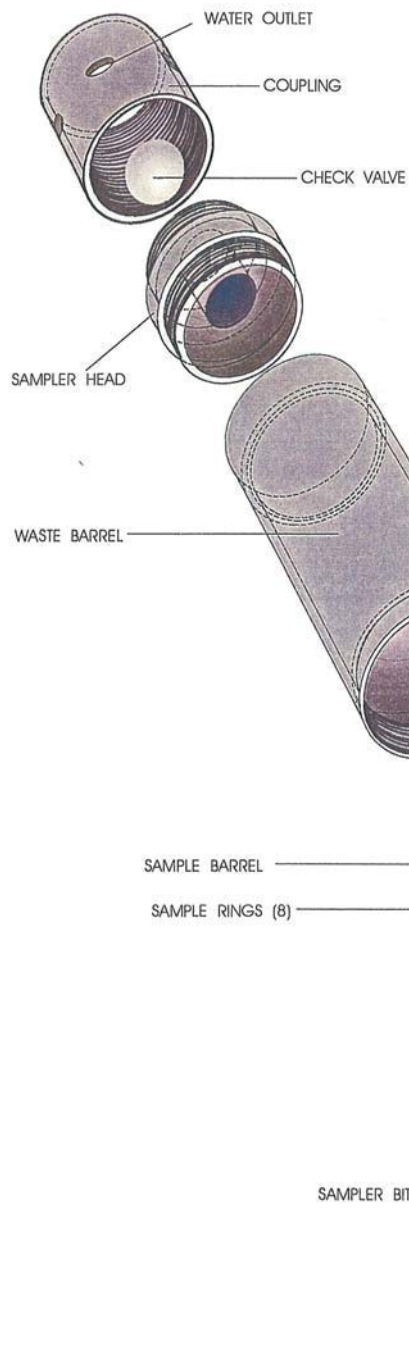
ROCKLOG2012 BHHS LOGS.GPJ ROCKLOG2012.GDT 12/24/12

\*\*\* This log is a part of a report by Leighton and should not be used as a stand-alone document. \*\*\*

Figure A-1.4.88



# CRANDALL SAMPLER



CRANDALL SAMPLER

	Length	ID	OD
Assembled Sampler	22.5"	2.625"	3.187"
Coupling	3.5"	2.0"	3.0"
Sampler Head	3.0"	1.125"	3.125"
Waste Barrel	10.0"	2.625"	3.125"
Sample Rings	1.0"	2.625"	2.750"
Sample Barrel	8.0"	2.750"	3.125"
Sampler Bit	3.0"	2.625"	3.187"

Corel Draw • Drawn by Juliana M • Date August 7, 1995



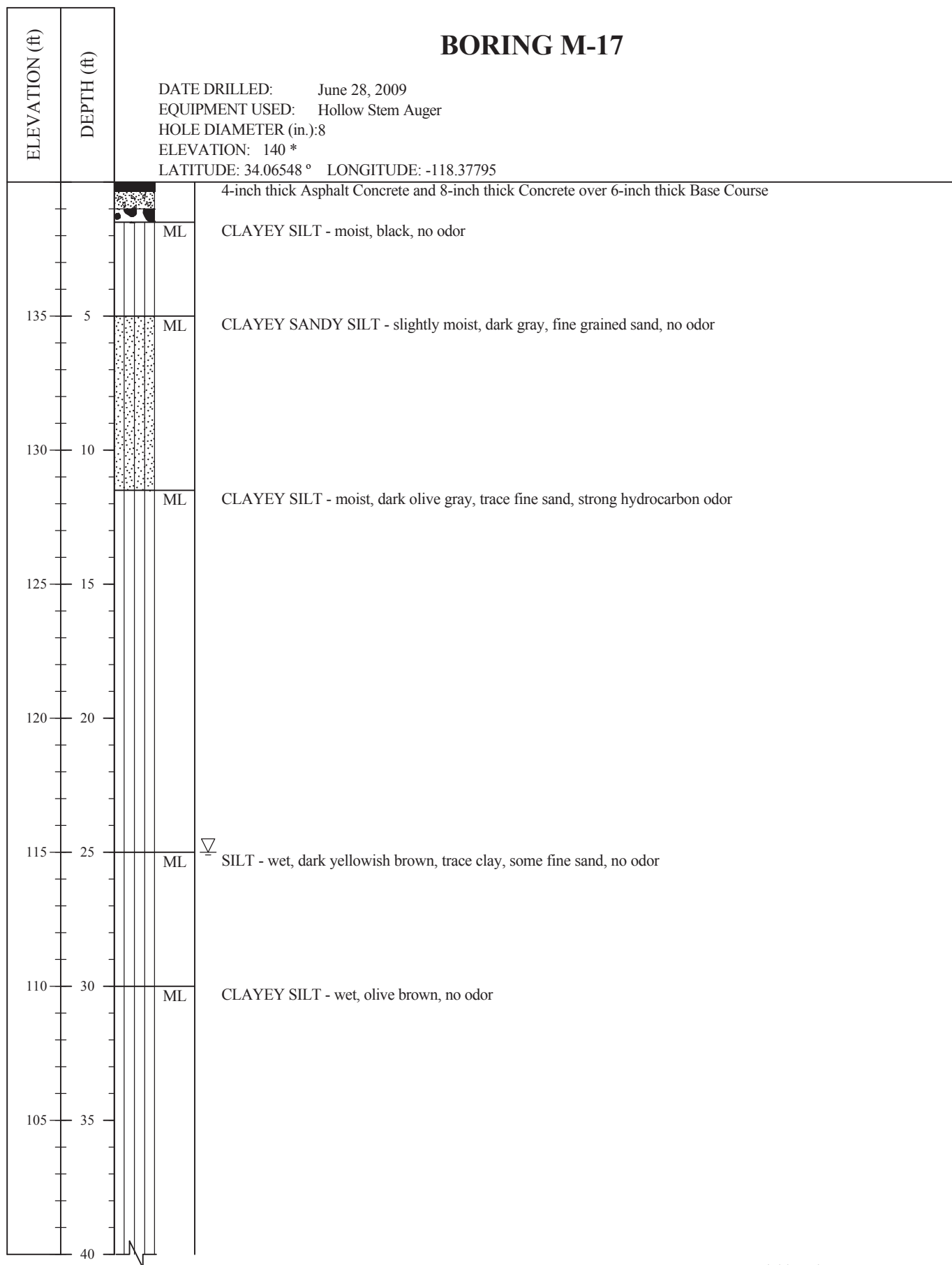
AMEC ENVIRONMENT & INFRASTRUCTURE  
5628 E. SLAUSON AVE. • LOS ANGELES, CALIFORNIA 90040  
(323) 889-5300 • fax (323) 889-5398

FIGURE A-1.5 - Crandall Sampler

JOB NO.: 4953-11-1421	REVISIONS:
DATE: 12-11-09	
SCALE:	
DRAWN BY: NH	
CHECKED BY: MKT	

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.



(CONTINUED ON FOLLOWING FIGURE)

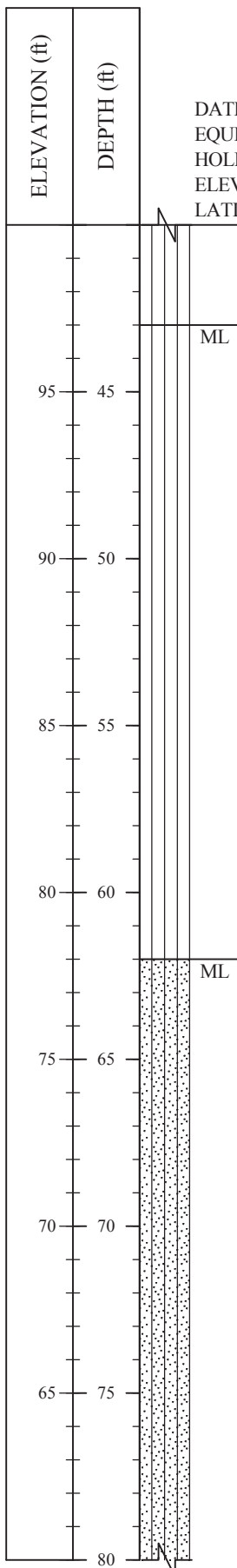
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Prepared By: NH  
Checked By:

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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

# BORING M-17 (Continued)

DATE DRILLED: June 28, 2009  
EQUIPMENT USED: Hollow Stem Auger  
HOLE DIAMETER (in.): 8  
ELEVATION: 140 \*  
LATITUDE: 34.06548 ° LONGITUDE: -118.37795



SILT - wet, olive, some clay, weak hydrocarbon odor

Dark greenish gray

SANDY SILT - wet, dark greenish gray, fine grained sand, no odor

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK  
Prepared By: NH  
Checked By:

MTA Westside Subway Extension  
Los Angeles, California



LOG OF BORING  
Project: 4953-10-1561 Figure: A-2.1b

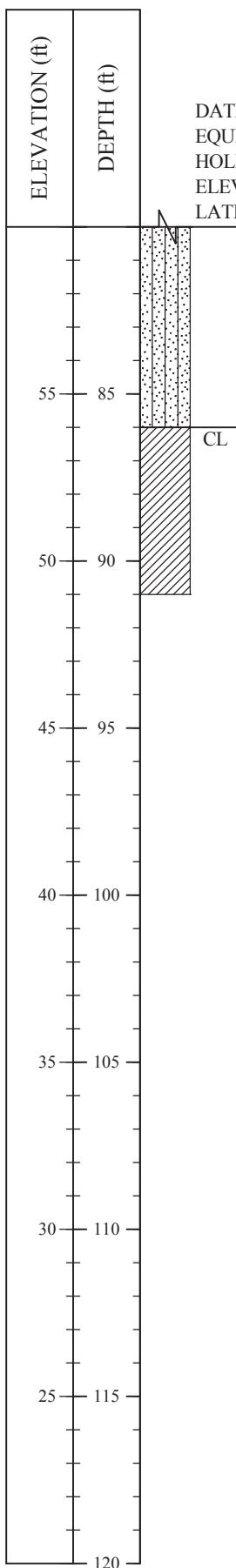


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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## BORING M-17 (Continued)

DATE DRILLED: June 28, 2009  
EQUIPMENT USED: Hollow Stem Auger  
HOLE DIAMETER (in.): 8  
ELEVATION: 140 \*  
LATITUDE: 34.06548 ° LONGITUDE: -118.37795



LEAN CLAY - wet, dark greenish gray

END OF BORING AT 91 FEET

### NOTES:

Soil logged from cuttings only.  
Ground water encountered at 25 feet.  
Installed nested soil vapor probes at 15 feet (green), 25 feet (red), 65 feet (blue), and 90 feet (yellow). See well construction diagram for M-17.

Field Tech: PK  
Prepared By: NH  
Checked By:

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

DRILLING COMPANY/DRILLING EQUIPMENT										BORING NO.
Martini Drilling / CME-75										M-402
DRILLING METHOD					BOREHOLE LOCATION					
Hollow-Stem Auger					Sta 587+75, Lt 17.9 feet					
DATES DRILLED					HOLE DIAMETER					GROUND EL.
10/19/2015 - 10/20/2015					8"					146 feet
GROUNDWATER READINGS										
Groundwater encountered at 50' during initial drilling. See monitoring data in GDR.										
ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	
145										10 1/4-inch thick Asphalt Concretes over 6-inch Concrete over 6-inch Base
										<b>ARTIFICIAL FILL [Af]</b>
										SILTY CLAY - dark gray, moist, fine sand
5			0.5	25.5	97	15				LEAN CLAY - stiff, dark gray/brown with zones of light gray or light brown, moist, fine sand, PP=3.5 tsf (possible artificial fill)
140										
		8	1.0	28.2						medium stiff, dark gray with light gray mottles
135										<b>YOUNGER ALLUVIUM [Oal]</b>
										SILT with SAND- medium stiff, pale brown, moist, fine to coarse sand, PP=2.25 tsf
15										
130			0.4	22.9	103	8				SANDY LEAN CLAY/CLAYEY SAND - medium stiff, light olive and olive brown mottled, moist, fine to coarse sand, trace slate gravel up to 1/2" in dia
										<b>OLDER ALLUVIUM [Oalo]</b>
		7	5.6	17.5						SILTY SAND/CLAYEY SAND- loose, light brown, moist, fine to coarse sand, trace slate gravel up to 1/2" in dia, subangular to angular
20										
125										SILTY SAND grades to SANDY SILT- mottled olive and dark yellow brown, moist, fine sand, trace angular gravel up to 1/2" in dia, PP=4 tsf
			0.1	18.4	110	14				
25										thin interbedded layers of clayey sand, fine to medium, sandy silt and silt with fine sand, olive and dark olive gray, moist, trace fine gravel
120										
		9	0.2	20.7						SANDY LEAN CLAY - stiff, olive brown with zones of dark greenish gray, moist, layers of clayey fine to medium sand, PP>4.5 tsf
35			0.2	19.3	109	22				
110										Groundwater seepage encountered from 38' to 40'
40										

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: AR  
Prepared/Date: KO 10/27/2015  
Checked/Date: DP 12/08/2015

MTA Westside Subway Extension  
Los Angeles, California

amec foster wheeler

LOG OF BORING  
Project No.: 4953-11-1423 Figure: A-2.2a

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

										DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										Martini Drilling / CME-75		M-402 (Continued)
										DRILLING METHOD	BOREHOLE LOCATION	
										Hollow-Stem Auger	Sta 587+75, Lt 17.9 feet	
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										10/19/2015 - 10/20/2015	8"	146 feet
										GROUNDWATER READINGS		
										Groundwater encountered at 50' during initial drilling. See monitoring data in GDR.		
ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS			
105		9	0.2	25.4							CL	
											LEAN CLAY with SAND - stiff, olive gray, moist, fine to medium sand, with lenses of sandy lean clay sandier zones are dark yellowish brown	
45			0.1	26.8	95	23					ML	
											SILT - stiff, olive gray with light gray mottling, moist, trace fine sand, some lenses of silty clay, PP>4.5 tsf	
100												
50											SM	
											SILTY SAND - medium dense, olive gray, moist to wet, fine sand, with some lenses of clayey sand	
95		27	0.3	22.7								
55			0.2	29.6	92	21					CL	
											SAN PEDRO FORMATION [Osp] LEAN CLAY - stiff, very dark grayish olive to very dark greenish gray, moist, medium plasticity, PP>4.5 tsf	
90												
60		14	0.1	23.8							CH	
											FAT CLAY - stiff, dark grayish olive to dark greenish gray, moist, trace fine sand, (LL=51, PI=34)	
85												
65			0.1	23.6	97	11						
											stiff, some FeOx mottles, PP=2 tsf	
80												
70		56	0.1	17.6			54				CL	
											grades sandier SANDY LEAN CLAY- hard, light gray to light grayish olive, moist, fine to coarse sand, some carbonate cemented nodules, PP=3 tsf	
75			0.2	19.9	108	9						
											medium stiff, dark olive gray, alternates with siltier layers	
75												
70		16	0.1	17.9							CL	
											LEAN CLAY with SAND - stiff to very stiff, olive gray to dark greenish gray, moist, fine to medium sand, PP>4.5 tsf, (LL=32, PI=20)	
80			0.2	17.6	110	21	71					
											increase in fine to medium sand content, dark grayish olive	

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: AR  
Prepared/Date: KO 10/27/2015  
Checked/Date: DP 12/08/2015

MTA Westside Subway Extension  
Los Angeles, California

amec foster wheeler

LOG OF BORING  
Project No.: 4953-11-1423 Figure: A-2.2b



THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										DRILLING METHOD	BOREHOLE LOCATION	M-402 (Continued)
										Hollow-Stem Auger	Sta 587+75, Lt 17.9 feet	
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										10/19/2015 - 10/20/2015	8"	146 feet
GROUNDWATER READINGS Groundwater encountered at 50' during initial drilling. See monitoring data in GDR.												
65		14	0.2	23.3								LEAN CLAY with SAND (continued from previous)
												LEAN CLAY with SAND - stiff, olive and olive gray, moist, fine to medium sand, some carbonate zones
85			0.4	19.5	108	15	63					SANDY LEAN CLAY, stiff, mottled olive and yellowish brown, moist, fine to medium sand, PP=2.5 tsf, (LL=32, PI=17)
60		42	0.2	7.3								SANDY LEAN CLAY to CLAYEY SAND - hard, olive brown, moist, fine to coarse sand, trace gravel up to 3/4" in dia, sand layers are saturated
90		26	0.2	22.7								LEAN CLAY with SAND, olive brown, fine sand, lenses of silty sand and clayey sand
55			0.5	10.1	126	22						trace subangular gravel up to 1" in dia, PP=1.5 tsf
95		20	0.2	19.9			32					CLAYEY SAND - medium dense to dense, dark greenish gray to greenish black, moist, fine to coarse sand, trace to little fine gravel, some lenses of silty sand, PP=1.5 tsf (LL=38, PI=22)
50		40	0.7	18.4			42					lenses of lean clay, trace fine sand
100			0.7	14.6	122	41						POORLY GRADED SAND with SILT - dark greenish gray, moist, fine to coarse sand
45												SANDY LEAN CLAY - dark greenish gray, moist, fine to medium sand, PP=1.3 tsf
105												CLAYEY SAND - dense, greenish black, wet, fine to coarse sand
40		65	0.1	15.7								SANDY LEAN CLAY - dark greenish gray, moist to wet
												SILTY SAND - very dense, greenish gray, wet, fine to coarse sand, trace fine gravel up to 1/2" in dia, subangular to angular
110			0.1	13.2	117	27	22					LEAN CLAY with SAND - stiff, vary dark greenish gray, moist to wet, fine sand, PP=1.8 tsf
35												
115		20	0.1	19.9			72					very stiff, moist, thin lenses/layers of sandy silt, (LL=31, PI=11)
30												
120			0.1	18.1	113	43						

(CONTINUED ON FOLLOWING FIGURE)


Field Tech: AR  
Prepared/Date: KO 10/27/2015  
Checked/Date: DP 12/08/2015

MTA Westside Subway Extension  
Los Angeles, California

amec foster wheeler

LOG OF BORING  
Project No.: 4953-11-1423 Figure: A-2.2c

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										DRILLING METHOD	BOREHOLE LOCATION	M-402 (Continued)
										Hollow-Stem Auger	Sta 587+75, Lt 17.9 feet	
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										10/19/2015 - 10/20/2015	8"	146 feet
GROUNDWATER READINGS Groundwater encountered at 50' during initial drilling. See monitoring data in GDR.												
25										 <p>hard, dark greenish gray, lenses of clayey sand, fine to medium sand, PP&gt;4.5 tsf LEAN CLAY with SAND (continued from previous)</p> <p>very stiff</p>		
125	23	0	30.3									
20										<p>END OF BORING AT 125.5 FEET</p> <p>NOTES: Hand augered upper 5 feet to avoid damage to utilities. Borehole backfilled with hydrated bentonite chips with sand filter opposite well screened zones per well construction schedule.</p> <p>Vapor probes installed at 23.5', 72.5', and 89.5'. Groundwater monitoring wells screened at intervals 50' to 55' and 100' to 105'. Refer to GDR for Well Construction Details.</p> <p>"N" Value Standard Penetration Test: Number of blows required to drive the SPT sampler 18 inches using a 140 pound automatic hammer falling 30 inches *Number of blows required to drive the Crandall Sampler 12 inches using a 140 pound hammer falling 30 inches. Hammer Energy Transfer Ratio (ERi) = 70% (Calibrated 04/09/2015)</p> <p>**Photo Ionization Detector used for OVA readings.</p>		
130												
15												
135												
10												
140												
5												
145												
0												
150												
-5												
155												
-10												
160												

Field Tech: AR  
Prepared/Date: KO 10/27/2015  
Checked/Date: DP 12/08/2015

# BORING E-123

DATE DRILLED: 8/4/2011  
EQUIPMENT USED: Kehoe CPT Direct Push Rig  
HOLE DIAMETER (in.): 2  
ELEVATION: 140.9 feet\*\*

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
	5			
	10			
	15			
	20			
	25			
	30		3.0	CL
	35			
	40			

6-inch thick Asphalt Concrete over 8-inch thick Portland Cement Concrete

CLAY - grayish brown, moist, fine grained sand

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS  
Prepared By: LH/APR/YN  
Checked By:







Metro Westside Subway Extension  
Los Angeles, California



LOG OF BORING  
Project: 4951-10-1561 Figure: A-3.1.1a



THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-123 (Continued)					
ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	
			2.1		CL CLAY - firm, moist, dark grayish brown
	45				
	50		2.1		CL CLAY - very dark greenish gray, stiff
	55		2.0		CL SANDY CLAY - stiff, greenish gray, fine to medium grained sand
	60		0.0		CL CLAY - very stiff, very dark greenish gray, with patches of light greenish gray sandy silt, fine to medium grained sand
	65		0.0		CL SANDY CLAY - very dark greenish gray, with patches (pockets) of light greenish gray, fine to coarse grained sand
	70		0.0		CL SANDY CLAY - very dark greenish gray, with patches (pockets) of light greenish gray, fine grained sand
					END OF BORING AT 70 FEET
	75				NOTES:  Hand augered upper 10 feet to avoid damage to utilities. Ground-water sample collected at the shallowest depth of 30 feet below the ground surface. Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.
	80				

Field Tech: DDS  
Prepared By: LH/APR/YN  
Checked By:

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

# BORING E-124

DATE DRILLED: 7/19/2011  
EQUIPMENT USED: Gregg CPT Direct Push Rig  
HOLE DIAMETER (in.): 2  
ELEVATION: 143.4 feet\*\*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA(ppm)	SAMPLE LOC.	DATE EQUIP HOLE ELEV
	5				
	10				
	15				
	20				
	25				
	30				
	35				
	40				

4-inch thick Asphalt Concrete over 16-inch Portland Cement Concrete

CLAYEY SILT - black, moist, stiff, no odor

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK  
Prepared By: LH/APR/YN  
Checked By:

# Metro Westside Subway Extension Los Angeles, California









LOG OF BORING

Project: 4951-10-1561	Figure: A-3.1.2a
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THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## BORING E-124 (Continued)

DATE DRILLED: 7/19/2011  
EQUIPMENT USED: Gregg CPT Direct Push Rig  
HOLE DIAMETER (in.): 2  
ELEVATION: 143.4 feet\*\*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	
45					
50			0.0		ML CLAYEY SILT - dark olive gray, moist, very stiff, no odor
55			0.0		ML CLAYEY SILT - dark olive gray, moist, very stiff, no odor
60			2.6		CL-ML SILTY CLAY - dark yellowish brown, moist, very stiff, no odor
65			2.8		ML/ SM SANDY SILT/ SILTY SAND - fine grained sand, greenish gray, wet, medium dense, no odor, 1 inch gravel fragment, interbedded clayey silt lense
70			2.3		SP POORLY GRADED SAND - fine to medium grained sand, some silt, wet, dark greenish gray, medium dense, no odor
75			1.2		ML SILT - some fine grained sand, dark greenish gray, moist to wet, no odor
80					END OF BORING AT 75 FEET

### NOTES:

Hand augered upper 7½ feet to avoid damage to utilities.  
Ground-water sample not collected.  
Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.

Field Tech: PK  
Prepared By: LH/APR/YN  
Checked By:



THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
	5			
	10			
	15			
	20			
	25			
	30	0.3		
	35			
	40			

DATE DRILLED: 8/5/2011  
EQUIPMENT USED: Kehoe CPT Direct Push Rig  
HOLE DIAMETER (in.): 2  
ELEVATION: 181 feet\*\*

## BORING E-125

4-inch thick Asphalt Concrete over 8-inch thick Portland Cement Concrete

SANDY SILT - stiff, very dark brown, fine to medium grained sand, with rocks

SILTY CLAY - stiff, very dark brown, fine to medium grained sand

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: DDS  
Prepared By: LH/APR/YN  
Checked By:

Metro Westside Subway Extension  
Los Angeles, California



LOG OF BORING  
Project: 4951-10-1561 Figure: A-3.1.3a

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## BORING E-125 (Continued)

DATE DRILLED: 8/5/2011  
EQUIPMENT USED: Kehoe CPT Direct Push Rig  
HOLE DIAMETER (in.): 2  
ELEVATION: 181 feet\*\*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.	
				CL-ML	SANDY SILTY CLAY - wet, very dark brown, fine to coarse grained sand
	45				
	50		0.0	CL-ML	SILTY CLAY - firm, greenish black, fine to medium grained sand, moist
	55		0.0	SM	SILTY SAND - wet, greenish black, fine to medium grained sand, rock
	60		0.0	ML	CLAYEY SILT - very stiff, very dark grayish green, with pockets of bluish gray sandy silt, fine to medium grained sand
	65		0.0	ML	CLAYEY SILT - very stiff, very dark grayish green, with pockets of bluish gray sandy silt, fine to medium grained sand
	70		0.0	ML	SANDY CLAYEY SILT (ml) - very dark grayish green, with bluish gray sandy silt, fine to medium grained sand
	75		0.0	ML	SANDY CLAYEY SILT - very dark grayish green, with bluish gray sandy silt, fine to medium grained sand
					END OF BORING AT 75 FEET
	80				

### NOTES:

Hand augered upper 8 feet to avoid damage to utilities.  
Ground-water sample collected at the shallowest depth of 42 feet below the ground surface.  
Borehole grouted with cement-bentonite slurry and

Field Tech: DDS  
Prepared By: LH/APR/YN  
Checked By:

(CONTINUED ON FOLLOWING FIGURE)

**Metro Westside Subway Extension**  
**Los Angeles, California**



**LOG OF BORING**

Project: 4951-10-1561

Figure: A-3.1.3b

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
	85			
	90			
	95			
	100			
	105			
	110			
	115			
	120			

## BORING E-125 (Continued)

DATE DRILLED: 8/5/2011  
EQUIPMENT USED: Kehoe CPT Direct Push Rig  
HOLE DIAMETER (in.): 2  
ELEVATION: 181 feet\*\*

patched with quick setting concrete.

Field Tech: DDS  
Prepared By: LH/APR/YN  
Checked By:



THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
	5			SM ML
	10			CL-ML
	15			
	20			
	25			
	30			
	35			
	40			

## BORING E-127

DATE DRILLED: 8/18/2011  
EQUIPMENT USED: Gregg HSA Rig  
HOLE DIAMETER (in.): 8  
ELEVATION: 226 feet\*\*

5-inch thick Asphalt Concrete over 6-inch thick Portland Cement Concrete

**FILL [af]**

SILTY SAND - moist, light yellowish brown

SILT - moist, dark yellowish brown, trace fine sand

CLAYEY SILT - moist, dark yellowish brown, no odor

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK  
Prepared By: LH/APR/YN  
Checked By:

Metro Westside Subway Extension  
Los Angeles, California



LOG OF BORING  
Project: 4951-10-1561 Figure: A-3.1.4a

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
	45			
	50			
	55			
	60		0.2	ML
	65			
	70			
	75			
	80			

## BORING E-127 (Continued)

DATE DRILLED: 8/18/2011  
EQUIPMENT USED: Gregg HSA Rig  
HOLE DIAMETER (in.): 8  
ELEVATION: 226 feet\*\*

SILT - very stiff, moist, strong brown (7.5YR 4/4) with olive gray, some clay, trace fine gravel, discoloration, no odors



(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK  
Prepared By: LH/APR/YN  
Checked By:

**Metro Westside Subway Extension**  
**Los Angeles, California**



**LOG OF BORING**  
Project: 4951-10-1561 Figure: A-3.1.4b

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

## BORING E-127 (Continued)

DATE DRILLED: 8/18/2011  
EQUIPMENT USED: Gregg HSA Rig  
HOLE DIAMETER (in.): 8  
ELEVATION: 226 feet\*\*

ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.
			1.4	CL-ML
	85			
	90			
	95			
	100		0.0	SM
	105			
	110		0.0	SM
	115			
	120			

SILTY CLAY - dark brown (7.5YR 3/3), damp to wet, very stiff, no odors

SILTY SAND - strong brown (7.5YR 4/4), damp, dense, fine to coarse, trace fine gravel




SILTY SAND - dense, wet, strong brown (7.5YR 4/4), fine to coarse, trace fine gravel, iron oxide staining

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: PK  
Prepared By: LH/APR/YN  
Checked By:



THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

BORING E-127 (Continued)					DATE DRILLED: 8/18/2011 EQUIPMENT USED: Gregg HSA Rig HOLE DIAMETER (in.): 8 ELEVATION: 226 feet**	
ELEVATION (ft)	DEPTH (ft)	SAMPLE ID	OVA (ppm)	SAMPLE LOC.		
			0.0		ML	CLAYEY SILT - dark yellowish brown (10YR 4/4), damp to wet, some fine sand, no odor
	125		0.0		ML	CLAYEY SILT - dark yellowish brown (10YR 4/4), damp to wet, some fine sand, no odor
	130		0.0		CL-ML	SILTY CLAY - dark yellowish brown (10YR 4/4), wet, no odors
						END OF BORING AT 130 FEET
						NOTES:  Hand augered upper 7½ feet to avoid damage to utilities. Ground-water sample collected at the shallowest depth of 70 feet below the ground surface. Borehole grouted with cement-bentonite slurry and patched with quick setting concrete.
	135					
	140					
	145					
	150					
	155					
	160					

Field Tech: PK  
Prepared By: LH/APR/YN  
Checked By:

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

								DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
								Martini Drilling / CME-75		<b>E-126A/ M-404</b>
								DRILLING METHOD	BOREHOLE LOCATION	
								Hollow-Stem Auger	Sta 637+15, Lt 17.3 feet	
								DATES DRILLED	HOLE DIAMETER	GROUND EL.
								10/01/2015 - 10/02/2015	8"	217 feet
								GROUNDWATER READINGS		
								Overnight groundwater measured at 60.6'. Groundwater seepage at 55.5'. See monitoring data in GDR.		
ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	
215										9-inch thick Asphalt over 6-inch Concrete over 6-inch base course
										<b>ARTIFICIAL FILL [Af]</b>
										SANDY SILT - medium brown, moist, fine sand
										<b>YOUNGER ALLUVIUM [Qal]</b>
										SANDY LEAN CLAY - medium stiff, dark brown, moist, fine sand, PP>4.5tsf
210	5		0.1	17.6	95	10				
										LEAN CLAY with SAND - stiff, brown, moist, fine sand
205	10	14	0.9	18.4						<b>OLDER ALLUVIUM [Qalo]</b>
										LEAN CLAY with SAND - stiff, brown, moist, fine sand
200	15		0	18.1	108	33				very stiff, light brownish orange and gray, PP>4.5tsf
195	20	25	0.1	14.0						brown, fine to coarse sand, some decomposed/fragmented slate gravel
190	25		0	15.3	107	25				PP=4tsf
										SILTY SAND - medium dense, light brown to brown, moist, fine to coarse sand, few to little gravel
185	30	33	6.9	11.6						dense, grades less silty
180	35		0.2	22.6	99	17	75			LEAN CLAY with SAND - stiff, brown with iron oxide mottles, moist, fine to coarse sand, trace gravel up to 3/8" in dia, PP=3.5tsf, (LL=37, PI=20)
40										SILTY SAND - dense, brown, moist, fine to coarse sand, few gravel up to 3/4" in dia

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: AR  
Prepared/Date: KC 11/10/2015  
Checked/Date: DP 12/4/2015

**MTA Westside Subway Extension**  
**Los Angeles, California**

**amec foster wheeler**

**LOG OF BORING**  
Project No.: 4953-11-1423 Figure: A-3.2.1a

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

										DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.	
										Martini Drilling / CME-75		E-126A/ M-404 (Continued)	
										DRILLING METHOD	BOREHOLE LOCATION		
										Hollow-Stem Auger	Sta 637+15, Lt 17.3 feet		
										DATES DRILLED	HOLE DIAMETER	GROUND EL.	
										10/01/2015 - 10/02/2015	8"	217 feet	
GROUNDWATER READINGS													
Overnight groundwater measured at 60.6'. Groundwater seepage at 55.5'. See monitoring data in GDR.													
ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS				
175		31	0.1	9.0			27	☒			SILTY SAND (continued from previous)		
45			0	3.4		39	14	☒		SW- SM	WELL GRADED SAND with SILT - medium dense, gray, moist, fine to coarse sand, trace gravel up to 3/8" in dia		
170													
50		32	0	0.6				☒			dense		
165													
55			0	19.9	108	52	73	☒		SM	SILTY SAND with GRAVEL - dense, brown to dark brown with some iron oxide stains, moist to wet, fine to coarse sand, groundwater seepage at contact with clay layer below		
160										CL	LEAN CLAY with SAND - hard, light gray, moist to wet, fine to medium sand, PP>4.5tsf		
60		22	0	16.7				☒		CL	▼ LEAN CLAY - very stiff, brown and orange, moist, trace fine sand		
155											groundwater seepage at 63.5'		
65			0	23.9	101	20	89	☒			stiff, brown and orange with gray streaking, wet, PP=4.25tsf, (LL=49, PI=33)		
150													
70		23	0	17.3				☒			moist to wet, trace fine to coarse sand		
145													
75			0	14.4	121	30	32	☒		SC/ SM	PP=3.5tsf SILTY SAND/CLAYEY SAND - medium dense, light brown to brown, moist, fine to coarse sand, few subangular gravel up to 1" in dia		
140													
80													

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: AR  
Prepared/Date: KC 11/10/2015  
Checked/Date: DP 12/4/2015

MTA Westside Subway Extension  
Los Angeles, California

amec foster wheeler

LOG OF BORING  
Project No.: 4953-11-1423 Figure: A-3.2.1b



THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										Martini Drilling / CME-75		E-126A/ M-404 (Continued)
										DRILLING METHOD	BOREHOLE LOCATION	
										Hollow-Stem Auger	Sta 637+15, Lt 17.3 feet	
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										10/01/2015 - 10/02/2015	8"	217 feet
<b>GROUNDWATER READINGS</b> Overnight groundwater measured at 60.6'. Groundwater seepage at 55.5'. See monitoring data in GDR.												
135		35	0					☒		SILTY SAND (continued from previous) dense, brownish orange, moist, trace gravel		
85			0	11.6	108	47	16	☒	SM	SILTY SAND with GRAVEL - dense, light gray, wet, fine to coarse sand, subrounded to angular gravel up to 1" in dia thin clay layer or lens		
130												
90		49	0	8.3				☒	SM	SILTY SAND - dense, light brownish orange, moist, fine to coarse sand, occasionally with gravel		
125												
95			0.1	17.7	114	49		☒	CL	SANDY CLAY - hard, light brown to brown, moist, fine to coarse sand		
120												
100		80/11"	0	11.2			38	☒	SC	CLAYEY SAND - very dense, light brown, moist, fine to coarse sand, trace subrounded to subangular gravel up to 1" in dia (LL=27, PI=13)		
115												
105			0.2	19.2	109	69		☒	CL	layer of wet clean sand (SP) above clay contact below SANDY LEAN CLAY - hard, brown, moist, fine to coarse sand, trace to few subrounded to subangular gravel up to 1/2" in dia		
110												
105		28	0.2	19.8				☒		grades slightly sandier, dark brown to dark red-brown		
115												
115			-	15.0	116	61		☒	SC/ SM	SILTY SAND/CLAYEY SAND - dense, moist, fine to coarse sand		
100									SC/ CL	CLAYEY SAND to SANDY LEAN CLAY - hard, olive, moist, fine to coarse sand, trace fine gravel up to 1" in dia		
120												

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: AR  
Prepared/Date: KC 11/10/2015  
Checked/Date: DP 12/4/2015

MTA Westside Subway Extension  
Los Angeles, California

amec foster wheeler

LOG OF BORING  
Project No.: 4953-11-1423 Figure: A-3.2.1c

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										Martini Drilling / CME-75		E-126A/ M-404 (Continued)
										DRILLING METHOD	BOREHOLE LOCATION	
										Hollow-Stem Auger	Sta 637+15, Lt 17.3 feet	
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										10/01/2015 - 10/02/2015	8"	217 feet
<b>GROUNDWATER READINGS</b> Overnight groundwater measured at 60.6'. Groundwater seepage at 55.5'. See monitoring data in GDR.												
95		44	0.1	17.0				☒		CL		LEAN CLAY with SAND - hard, olive gray, moist, fine to coarse sand CLAYEY SAND to SANDY LEAN CLAY - dense, olive gray, moist, fine to coarse sand, trace fine gravel up to 1/2" in dia  SANDY LEAN CLAY - hard, olive gray, moist, fine to coarse sand, trace subrounded to angular fine gravel  PP=4tsf, (LL=33, PI=19), mottled olive gray and yellow brown  SANDY LEAN CLAY with GRAVEL - hard, olive gray to dark brown, moist, fine to coarse sand, subrounded to subangular gravel up to 3/4" in dia, predominantly slate gravel, some granites END OF BORING AT 131.5 FEET NOTES: Hand augered upper 5 feet to avoid damage to utilities. Borehole backfilled with hydrated bentonite chips with sand filter opposite well screened zones per well construction schedule.  Groundwater monitoring wells installed with screened intervals at 77' to 87' and 100' to 105'. Vapor probes installed at 30', 40', and 50'. Refer to GDR for Well Construction Details.  "N" Value Standard Penetration Test: Number of blows required to drive the SPT sampler 18 inches using a 140 pound automatic hammer falling 30 inches *Number of blows required to drive the Crandall Sampler 12 inches using a 140 pound hammer falling 30 inches. Hammer Energy Transfer Ratio (ERi) = 70% (Calibrated 04/09/2015)  **Photo Ionization Detector used for OVA readings.
125			0	15.9	112	76		☒		SC/CL		
90										CL		
130		66	0	11.0				☒		CL		
85												
135												
80												
140												
75												
145												
70												
150												
65												
155												
60												
160												

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

								DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
								Martini Drilling / CME-75		<b>E-126B/ M-405</b>
								DRILLING METHOD	BOREHOLE LOCATION	
								Hollow-Stem Auger	Sta 644+41, Lt 17.2 feet	
								DATES DRILLED	HOLE DIAMETER	GROUND EL.
								10/10/2015 - 10/11/2015	8"	226.6 feet
								GROUNDWATER READINGS		
								Groundwater encountered at 60.6' during initial drilling. See monitoring data in GDR.		
ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	
225										9-inch thick Asphalt Concretes over 7-inch Concrete
										<b>ARTIFICIAL FILL [Af]</b>
										SANDY SILT - dark brown, moist, fine sand
										<b>YOUNGER ALLUVIUM [Qall]</b>
										SANDY LEAN CLAY - hard, brown with gray, moist, fine sand, PP>4.5 tsf
220	5		0	15.4	113	12				grades sandier
215	10	9	2.8	21.6						LEAN CLAY with SAND - stiff, brown, moist, fine sand
210	15		0.1	15.4	110	10	65			SANDY LEAN CLAY - medium stiff, dark yellow brown, moist, fine to coarse sand, trace fine gravel, PP=4 tsf
										(LL=34, PI=19)
205	20	25	3.0	9.7						<b>OLDER ALLUVIUM [Qalo]</b>
										SANDY LEAN CLAY grades to CLAYEY SAND - very stiff, brown, moist, fine to coarse sand, fine gravel up to 3/4", subangular to angular slate, siltstone, and sandstone fragments
200	25		0.1	9.6	127	25				decreased gravel content, PP>4.5 tsf
195	30	10	0.7	17.6			70			stiff, fine to medium sand, (LL=35, PI=20), thin layer of sandy silt
190	35		0	20.5	102	14				SILTY SAND - medium dense, light brown, moist, fine sand
40										SANDY LEAN CLAY - stiff, light brown, moist, fine to medium sand, PP=4.25 tsf

(CONTINUED ON FOLLOWING FIGURE)

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Checked/Date: DP 12/07/2015

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**LOG OF BORING**  
Project No.: 4953-11-1423 Figure: A-3.2.2a



THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

								DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
								Martini Drilling / CME-75		<b>E-126B/ M-405 (Continued)</b>
								DRILLING METHOD	BOREHOLE LOCATION	
								Hollow-Stem Auger	Sta 644+41, Lt 17.2 feet	
								DATES DRILLED	HOLE DIAMETER	GROUND EL.
								10/10/2015 - 10/11/2015	8"	226.6 feet
								GROUNDWATER READINGS		
								Groundwater encountered at 60.6' during initial drilling. See monitoring data in GDR.		
ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	
185		23	1.1	11.2				☒		SM
	45									
180			0	6.6	118	48	24	☒		
	50									CL
175		20	0	16.4				☒		
	55									CL
170			0	18.3	111	28	76	☒		
	60									CL
165		20	0	14.3				☒		
	65		-	-		49		☐		
160										CL
	70	23	0.1	20.0				☒		
155										
	75		0	18.6	111	44	76	☒		CL
150										
80										

SILTY SAND - dense, dark yellow brown, moist, fine to coarse sand, fine subrounded to angular gravel up to 3/4"

increased gravel size to 1"

SANDY LEAN CLAY - very stiff, dark brown, moist, fine to medium sand, trace fine gravel up to 3/4", subangular to angular, predominantly slate, some shale fragments

LEAN CLAY with SAND - very stiff, dark brown, moist  
PP>4.5 tsf, (LL=33, PI=18)

LEAN CLAY - very stiff, dark brown, moist, fine to medium sand with trace coarse, trace fine gravel up to 1/2"

(No Recovery), hard

LEAN CLAY with SAND - very stiff, dark yellowish brown with secondary olive gray mottles, moist, fine sand, trace fine gravel up to 1/2"

PP>4.5 tsf, (LL=39, PI=24)  
SANDY LEAN CLAY - very stiff, dark yellowish brown, moist, fine to medium sand with trace coarse

(CONTINUED ON FOLLOWING FIGURE)

Field Tech: AR  
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**LOG OF BORING**  
Project No.: 4953-11-1423 Figure: A-3.2.2b

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD. PEN. TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
										DRILLING METHOD	BOREHOLE LOCATION	E-126B/ M-405 (Continued)
										DATES DRILLED	HOLE DIAMETER	GROUND EL.
										10/10/2015 - 10/11/2015	8"	226.6 feet
GROUNDWATER READINGS Groundwater encountered at 60.6' during initial drilling. See monitoring data in GDR.												
145		25	0	18.3				☒				SANDY LEAN CLAY - very stiff, brown, moist, fine to medium sand with trace coarse, trace gravel up to 1/2"
	85								SM			SILTY SAND - very dense, dark yellow brown with strong brown mottles, moist, fine to coarse sand, trace gravel up to 1/2"
140			0.1	15.0	119	71	30	☒				
	90								SC			CLAYEY SAND - dense, moist, fine to coarse sand, trace gravel up to 1/2", some siltier seams
135		46	0	12.1				☒				
	95								SM			SILTY SAND with GRAVEL - very dense
130			-	-		50/6"		☐				(No Recovery)
	100								CL			SANDY LEAN CLAY - hard, olive brown, moist, fine to coarse sand, angular to subrounded gravels up to 1/2", predominantly slate, some granitic and shale fragments
125		38	0	12.3				☒				
	105								CL			LEAN CLAY with SAND - very stiff, olive to olive gray, moist
120			-	21.4	110	30		☒	SM			PP=2.7 tsf SILTY SAND - dark yellowish brown, moist, fine to coarse sand, subangular to angular gravel up to 1-1/2"
	110											<b>SAN PEDRO FORMATION [Qsp]</b>
115		33	0.6	21.8				☒	CL/ SC			SANDY LEAN CLAY grades to CLAYEY SAND - hard, olive gray, moist, fine to medium sand grades dark greenish gray with zones of strong brown
	115											mottled olive brown and yellowish brown, PP>4.5 tsf (LL=36, PI=22)
110			0	20.9	109	35	67	☒	SC/ SM			SILTY SAND/CLAYEY SAND - dense, dark greenish gray, moist, fine sand with trace medium sand
120												

(CONTINUED ON FOLLOWING FIGURE)

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LOG OF BORING  
Project No.: 4953-11-1423 Figure: A-3.2.2c

THIS RECORD IS AN INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. LATITUDE AND LONGITUDE OF BORING LOCATION SHOWN ON LOGS ARE APPROXIMATE. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BETWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

								DRILLING COMPANY/DRILLING EQUIPMENT		BORING NO.
								Martini Drilling / CME-75		<b>E-126B/ M-405 (Continued)</b>
								DRILLING METHOD	BOREHOLE LOCATION	
								Hollow-Stem Auger	Sta 644+41, Lt 17.2 feet	
								DATES DRILLED	HOLE DIAMETER	GROUND EL.
								10/10/2015 - 10/11/2015	8"	226.6 feet
								GROUNDWATER READINGS		
								Groundwater encountered at 60.6' during initial drilling. See monitoring data in GDR.		
ELEVATION (ft)	DEPTH (ft)	"N" VALUE STD.PEN.TEST	OVA (ppm)**	MOISTURE CONTENT (% of dry wt.)	DRY DENSITY (pcf)	BLOW COUNT* (blows/ft)	PERCENT PASSING No. 200 SIEVE	SAMPLE LOC.	DOWNHOLE TESTS	
105		46	0	9.7				<input checked="" type="checkbox"/>		SILTY SAND/ CLAYEY SAND - dense, dark greenish gray, moist, fine to coarse sand, trace subrounded to subangular fine gravel up to 3/4", predominantly slate, some shale fragments
125			0	15.1	111	37	48	<input checked="" type="checkbox"/>		dark greenish gray
130		36	0	17.6				<input checked="" type="checkbox"/>		very dark greenish gray, alternates with siltier seams
135										END OF BORING AT 131.5 FEET
140										NOTES: Hand augered upper 5 feet to avoid damage to utilities. Borehole backfilled with hydrated bentonite chips with sand filter opposite well screened zones per well construction schedule.
145										Groundwater monitoring wells installed with screen intervals at 42' to 47' and 85' to 95'. Vapor probes installed at 34.5', 83.5' and 105.5'. Refer to GDR for Well Construction Details.
150										"N" Value Standard Penetration Test: Number of blows required to drive the SPT sampler 18 inches using a 140 pound automatic hammer falling 30 inches *Number of blows required to drive the Crandall Sampler 12 inches using a 140 pound hammer falling 30 inches. Hammer Energy Transfer Ratio (ERi) = 70% (Calibrated 04/09/2015)
155										**Photo Ionization Detector used for OVA readings.
160										

Field Tech: AR  
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**LOG OF BORING**  
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