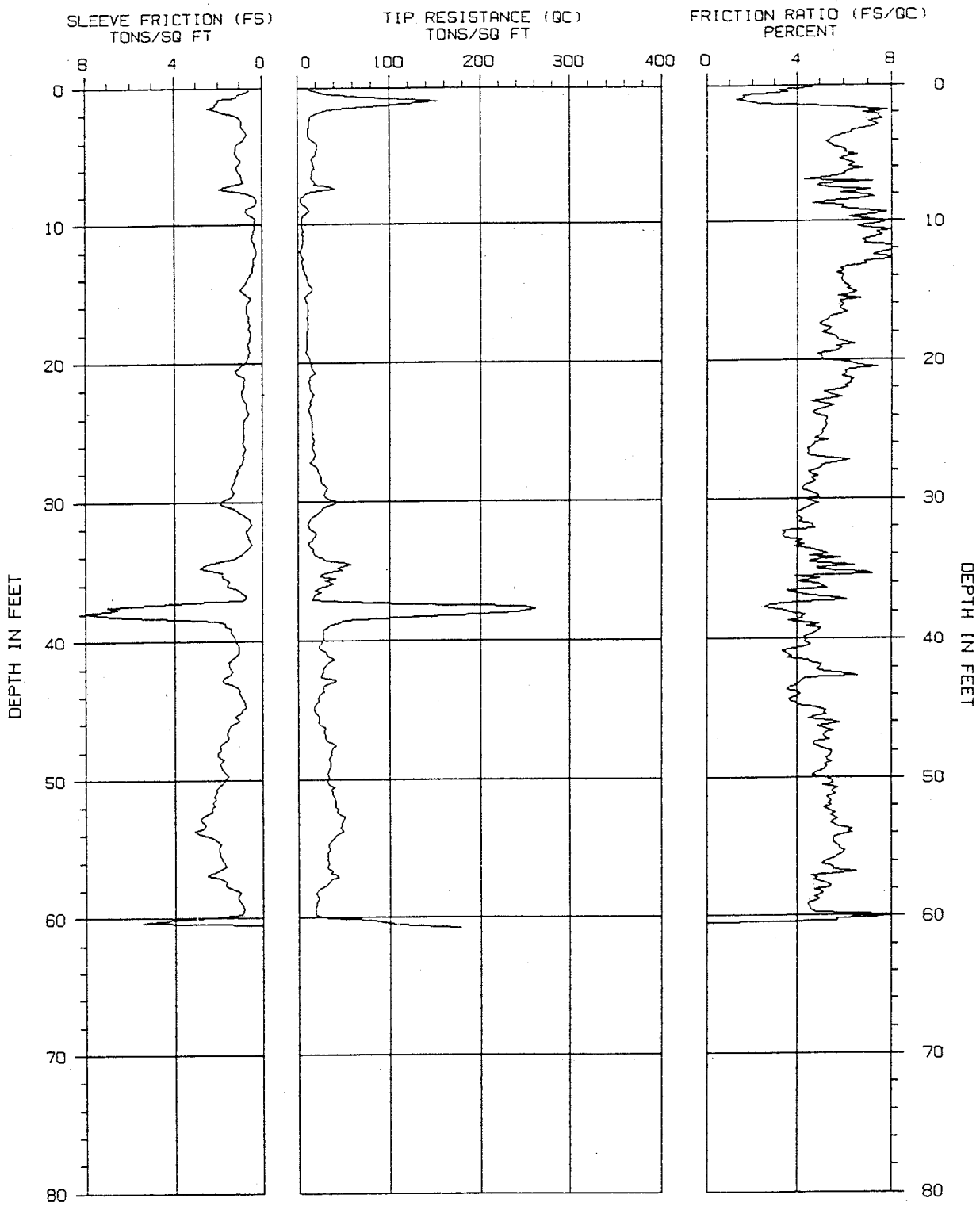


TIP RESISTANCE NOT CORRECTED FOR END AREA EFFECT

CONE PENETRATION TEST

SOUNDING NUMBER: HLA-6

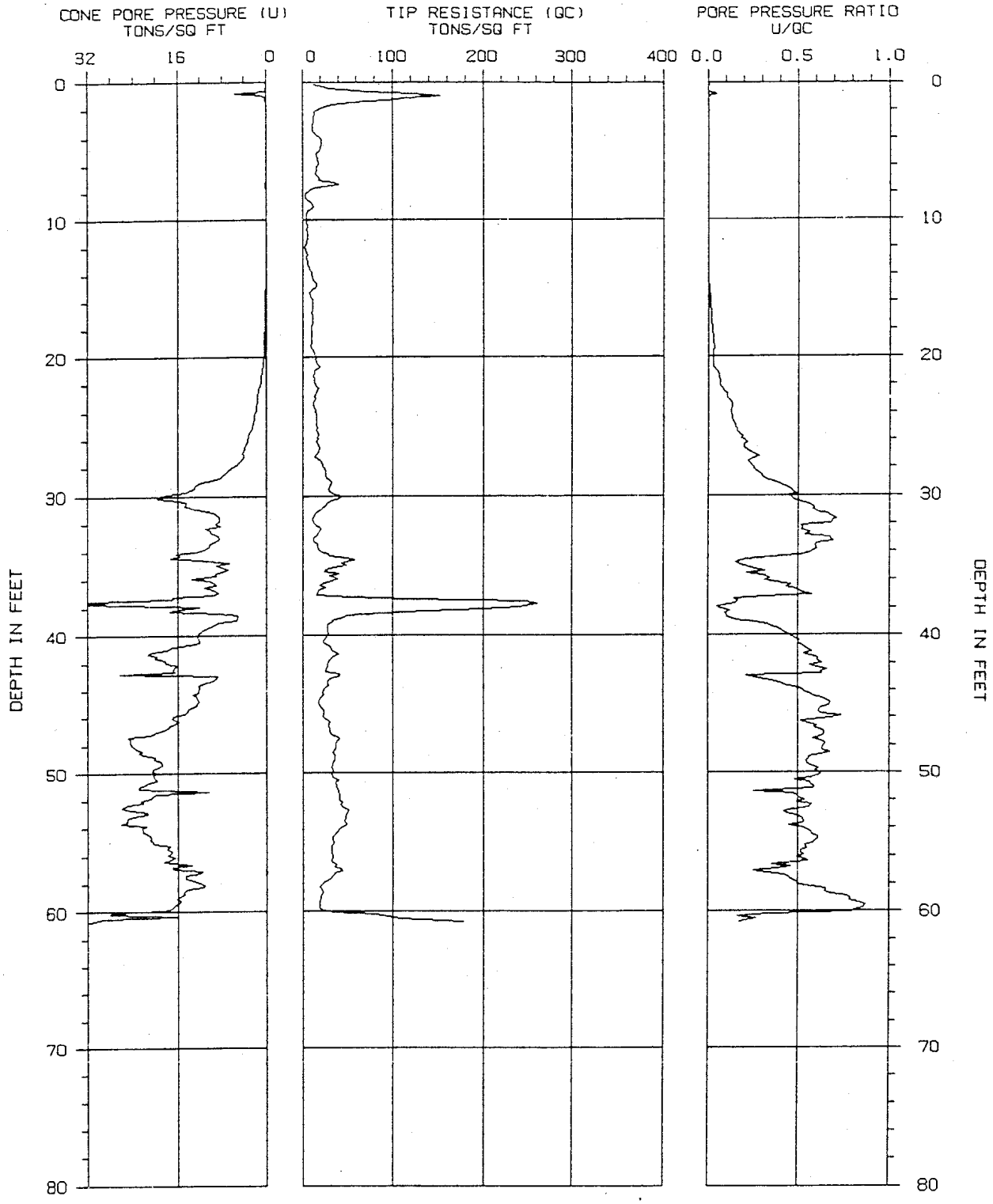
PROJECT NAME : HLA/BISHOP RH 1

PROJECT NUMBER : 50044.1

CONE/RIG : 491/BH.V0/R#4

DATE/TIME: 04-13-00 11:55

HFA



TIP RESISTANCE NOT CORRECTED FOR END AREA EFFECT

CONE PENETRATION TEST

SOUNDING NUMBER: HLA-6

PROJECT NAME : HLA/BISHOP RH 1

PROJECT NUMBER : 50044.1

CONE/RIG : 491/BH.V0/R#4

DATE/TIME: 04-13-00 11:55

HFA

CPT INTERPRETATIONS

SOUNDING : HLA-6
PROJECT : HLA/BISHOP RH 1
DATE/TIME: 04-13-00 11:55

PROJECT No.: 50044.1
CONE/RIG : 491/BH,VO/R#4

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
.150	.49	30.61	3.59	CLAYEY SILT to SILTY CLAY	15	24		2.0	
.300	.98	151.96	1.32	SAND to SILTY SAND	38	61	88		
.450	1.48	54.64	4.58	CLAY to SILTY CLAY	36	58		3.2	
.600	1.97	18.63	6.82	CLAY	19	30		1.2	
.750	2.46	12.51	7.59	CLAY	13	20		.8	
.900	2.95	11.83	7.27	CLAY	12	19		.8	
1.050	3.44	11.41	6.31	CLAY	11	18		.7	
1.200	3.94	19.31	5.44	CLAY	19	31		1.3	
1.350	4.43	21.67	5.49	CLAY	22	35		1.3	
1.500	4.92	19.33	6.05	CLAY	19	31		1.1	
1.650	5.41	16.89	5.80	CLAY	17	27		1.1	
1.800	5.91	18.23	6.20	CLAY	18	29		1.2	
1.950	6.40	16.17	6.06	CLAY	16	26		1.1	
2.100	6.89	19.46	4.32	CLAY	19	31		1.3	
2.250	7.38	40.39	4.88	CLAY to SILTY CLAY	27	42		2.4	
2.400	7.87	6.84	5.85	CLAY	7	10		.4	
2.550	8.37	4.02	6.47	CLAY	4	6		.2	
2.700	8.86	11.98	6.01	CLAY	12	17		.8	
2.850	9.35	6.42	7.79	CLAY	6	9		.4	
3.000	9.84	4.91	6.92	CLAY	5	7		.3	
3.150	10.33	5.48	6.57	CLAY	5	7		.3	
3.300	10.83	5.97	7.37	CLAY	6	8		.4	
3.450	11.32	6.05	6.78	CLAY	6	8		.4	
3.600	11.81	3.87	8.01	ORGANIC MATERIAL	4	5		.3	
3.750	12.30	4.42	7.47	CLAY	4	5		.2	
3.900	12.80	4.78	8.37	ORGANIC MATERIAL	5	6		.4	
4.050	13.29	7.35	6.12	CLAY	7	9		.4	
4.200	13.78	10.20	5.69	CLAY	10	12		.6	
4.350	14.27	13.00	5.92	CLAY	13	15		.8	
4.500	14.76	15.66	6.26	CLAY	16	18		1.0	
4.650	15.26	8.63	6.26	CLAY	9	10		.5	
4.800	15.75	11.47	5.84	CLAY	11	13		.7	
4.950	16.24	12.02	5.82	CLAY	12	14		.7	
5.100	16.73	10.92	5.86	CLAY	11	12		.7	
5.250	17.22	11.49	5.13	CLAY	11	13		.7	
5.400	17.72	10.81	5.46	CLAY	11	12		.7	
5.550	18.21	10.37	5.59	CLAY	10	11		.6	
5.700	18.70	10.73	6.06	CLAY	11	12		.6	
5.850	19.19	9.79	5.92	CLAY	10	11		.6	
6.000	19.69	13.41	5.07	CLAY	13	15		.8	
6.150	20.18	15.38	6.18	CLAY	15	17		1.0	

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 110 pcf
ASSUMED DEPTH OF WATER TABLE = 12.3 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

HOLGUIN, FAHAN & ASSOCIATES, INC.

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : HLA-6

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
6.300	20.67	19.10	6.23	CLAY	19	20		1.1	
6.450	21.16	13.49	5.93	CLAY	13	14		.8	
6.600	21.65	13.32	6.31	CLAY	13	14		.8	
6.750	22.15	16.46	5.77	CLAY	16	17		1.0	
6.900	22.64	14.51	5.93	CLAY	15	15		.9	
7.050	23.13	14.17	5.08	CLAY	14	15		.9	
7.200	23.62	13.19	4.78	CLAY	13	14		.8	
7.350	24.11	15.44	5.31	CLAY	15	16		.9	
7.500	24.61	16.10	5.28	CLAY	16	16		1.0	
7.650	25.10	16.57	5.07	CLAY	17	17		1.0	
7.800	25.59	17.72	4.74	CLAY	18	18		1.1	
7.950	26.08	16.32	4.78	CLAY	16	16		1.0	
8.100	26.57	19.18	4.54	CLAY	19	19		1.2	
8.250	27.07	16.15	5.39	CLAY	16	16		1.0	
8.400	27.56	21.12	5.07	CLAY	21	21		1.2	
8.550	28.05	25.13	4.50	CLAY to SILTY CLAY	17	16		1.4	
8.700	28.54	26.47	4.65	CLAY	26	26		1.5	
8.850	29.04	32.27	4.37	CLAY to SILTY CLAY	22	21		1.8	
9.000	29.53	29.08	4.54	CLAY to SILTY CLAY	19	19		1.6	
9.150	30.02	44.15	4.35	CLAY to SILTY CLAY	29	28		2.5	
9.300	30.51	27.89	4.66	CLAY	28	26		1.5	
9.450	31.00	19.89	3.97	CLAY to SILTY CLAY	13	13		1.2	
9.600	31.50	12.56	4.22	CLAY	13	12		.7	
9.750	31.99	13.47	4.68	CLAY	13	13		.8	
9.900	32.48	19.59	3.47	CLAY to SILTY CLAY	13	12		1.2	
10.050	32.97	12.58	4.21	CLAY	13	12		.7	
10.200	33.46	17.29	3.88	CLAY to SILTY CLAY	12	11		1.0	
10.350	33.96	21.75	5.33	CLAY	22	20		1.2	
10.500	34.45	49.14	4.62	CLAY to SILTY CLAY	33	30		2.8	
10.650	34.94	49.46	4.85	CLAY to SILTY CLAY	33	30		2.8	
10.800	35.43	25.07	7.18	CLAY	25	23		1.4	
10.950	35.93	38.98	4.03	CLAYEY SILT to SILTY CLAY	19	18		2.2	
11.100	36.42	19.67	5.29	CLAY	20	18		1.2	
11.250	36.91	16.66	4.62	CLAY	17	15		1.0	
11.400	37.40	117.55	4.16	*VERY STIFF FINE GRAINED	100	100			
11.550	37.89	240.66	3.51	*SAND to CLAYEY SAND	100	100			
11.700	38.39	89.40	4.16	CLAYEY SILT to SILTY CLAY	45	39		5.1	
11.850	38.88	33.89	4.93	CLAY	34	30		1.9	
12.000	39.37	28.28	4.95	CLAY	28	25		1.5	
12.150	39.86	28.72	4.32	CLAY to SILTY CLAY	19	17		1.6	
12.300	40.35	23.69	4.56	CLAY	24	20		1.4	
12.450	40.85	31.59	3.32	CLAYEY SILT to SILTY CLAY	16	14		2.0	
12.600	41.34	40.03	3.55	CLAYEY SILT to SILTY CLAY	20	17		2.5	
12.750	41.83	30.06	5.06	CLAY	30	26		1.6	
12.900	42.32	27.55	5.23	CLAY	28	23		1.5	
13.050	42.81	41.38	4.35	CLAY to SILTY CLAY	28	23		2.3	
13.200	43.31	28.13	3.95	CLAY to SILTY CLAY	19	16		1.7	
13.350	43.80	25.45	4.05	CLAY to SILTY CLAY	17	14		1.5	
13.500	44.29	23.33	3.64	CLAY to SILTY CLAY	16	13		1.4	
13.650	44.78	18.63	4.03	CLAY to SILTY CLAY	12	10		1.1	

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 110 pcf
ASSUMED DEPTH OF WATER TABLE = 12.3 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

SOUNDING : HLA-6

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	SOIL BEHAVIOR TYPE	N(60)	N1(60)	Dr (%)	Su (tsf)	PHI (Degrees)
13.800	45.28	21.95	5.15	CLAY	22	18		1.1	
13.950	45.77	23.60	4.49	CLAY	24	19		1.4	
14.100	46.26	30.74	4.91	CLAY	31	25		1.7	
14.250	46.75	30.06	5.26	CLAY	30	25		1.6	
14.400	47.24	32.25	5.40	CLAY	32	26		1.7	
14.550	47.74	38.50	4.91	CLAY	39	31		2.1	
14.700	48.23	37.07	5.48	CLAY	37	30		2.0	
14.850	48.72	35.42	5.28	CLAY	35	29		1.9	
15.000	49.21	34.91	5.30	CLAY	35	28		1.9	
15.150	49.70	33.16	4.73	CLAY	33	27		1.8	
15.300	50.20	32.40	5.46	CLAY	32	26		1.7	
15.450	50.69	37.48	5.74	CLAY	37	30		2.0	
15.600	51.18	39.37	5.66	CLAY	39	31		2.2	
15.750	51.67	41.60	5.48	CLAY	42	33		2.3	
15.900	52.17	44.74	5.16	CLAY	45	35		2.5	
16.050	52.66	51.03	5.41	CLAY	51	40		2.8	
16.200	53.15	48.23	5.52	CLAY	48	38		2.7	
16.350	53.64	49.12	6.35	CLAY	49	38		2.7	
16.500	54.13	40.54	5.92	CLAY	41	31		2.2	
16.650	54.63	34.08	5.58	CLAY	34	26		1.8	
16.800	55.12	34.40	5.81	CLAY	34	26		1.8	
16.950	55.61	32.82	5.73	CLAY	33	25		1.8	
17.100	56.10	33.18	5.15	CLAY	33	25		1.8	
17.250	56.59	37.82	5.55	CLAY	38	29		2.0	
17.400	57.09	44.49	4.61	CLAY to SILTY CLAY	30	22		2.4	
17.550	57.58	31.78	5.29	CLAY	32	24		1.7	
17.700	58.07	21.86	4.76	CLAY	22	16		1.2	
17.850	58.56	22.82	4.78	CLAY	23	17		1.2	
18.000	59.06	20.44	4.50	CLAY	20	15		1.1	
18.150	59.55	18.91	4.60	CLAY	19	14		1.0	
18.300	60.04	34.29	8.78	CLAY	34	25		1.8	
18.450	60.53	109.39	*****		0	0			.0

*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 110 pcf
ASSUMED DEPTH OF WATER TABLE = 12.3 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)
N1(60) = OVERBURDEN NORMALIZED EQUIVALENT SPT VALUE (60% Energy)
Dr = OVERBURDEN NORMALIZED EQUIVALENT RELATIVE DENSITY
Su = OVERBURDEN NORMALIZED UNDRAINED SHEAR STRENGTH
PHI = OVERBURDEN NORMALIZED EQUIVALENT FRICTION ANGLE

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0					CH	Black, silty clay, roots, medium stiff, dry, desiccated.
	113.2	15.2	26	1-2		
5			18	1-5	ML	Brown, clayey sandy silt, medium dense, dry, caliche, small seep holes.
10			20	1-10		
15			20	1-15	CL	Brown to dark brown, silty clay, stiff, damp.
20			23	1-20		
25			20	1-25	SM	Brown to light brown, silty sand, caliche, medium dense, damp. Silty clay between 28 - 31 ft.
30			21	1-30		Bottom of boring at 30 ft.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF BORING NO. B-1

PROJECT NO. B-1109-1

PLATE

A-2

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0					CH	Black, silty clay, desiccated, roots to 3 ft, dry, stiff.
			35	2-2		
5	105.1	16.8	16	2-5	ML	Brown, sandy clayey silt, dense, dry, caliche.
10	111.1	5.0	23	2-10	SM	Brown, silty sand, fine to medium grained, medium dense, dry, with fine gravel.
15	98.5	23.5	18	2-15	CL/CH	Dark brown, mottled gray, silty clay, medium stiff, damp.
20			18	2-20		
25			21	2-25		Color change to greenish gray.
30			22	2-30		Bottom of boring at 30 ft.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF BORING NO. B-2

PROJECT NO. B-1109-1

PLATE
A-3

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0					CH	Black, silty clay, dry, desiccated roots, stiff.
			26	3-2		
						Brown, clayey sandy silt, dry, caliche, medium dense.
5	95.3	17.6	16	3-2		
10			33	3-10	ML/CL	
15	87.4	9.3	18	3-15		Fine sand lenses with gravel at 15 ft.
						Black, silty clay, damp, medium stiff.
20			25	3-20	CL	▼ Color changes to dark brown.
25			21	3-25	CL	Brown, clayey sandy silt, moist, medium dense.
					CL	Black, silty clay, stiff, damp. Color changes to greenish gray.
30			18	3-30		Bottom of boring at 30 ft.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF BORING NO. B-3

PROJECT NO. B-1109-1

PLATE
A-4

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0	101.9	10.6	26	6-2	CH	Black, silty clay, dry, roots, desiccated, stiff.
5			30	6-5	ML	Brown to light brown, clayey silt, medium dense, dry. 6 inches sand lense at 6 ft.
10			24	6-10		
15	96.9	14.9	19	6-15	CL	Brown to gray, silty clay, stiff, dry.
20			19	6-20		Sand lenses at 24 ft.
25			20	6-25		Wet at 25½ ft.
30			18	6-30	CL	Dark gray, silty clay, stiff, moist.
						Bottom of boring at 30 ft.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF BORING NO. B-6

PROJECT NO. B-1109-1

PLATE
A-7

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0					CL	Black, silty clay, desiccated, dry, stiff.
						Dark brown to brown, sandy clayey silt, caliche, stiff,dry.
5			19	17-5		
10	101.4	18.3	25	17-10	ML	
15			36	17-15		
						With pebbles.
20	91.3	30.4	16	17-20	SC	▼ Brown, clayey sand, medium dense, wet.
					CH/CL	Dark grey, silty clay, medium stiff to stiff.
25	99.5	26.4	17	17-25		Color change to greyish brown.
30	110.3	19.0	40	17-30		
35						

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF BORING NO. B-17

PLATE A-18

PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

PROJECT NO. B-1109-1

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
35			27	17-35		Brown, fine sand with trace of clay.
40			32	17-40	SM	Sand and gravel at 41-43 ft.
45			34	17-45		
50			38	17-50		Bottom of boring at 50 ft.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF BORING NO. B-17 (con't)

PLATE A-18.1

PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

PROJECT NO. B-1109-1

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0					CH	Black, silty clay, stiff, dry, dessiccated.
5			11	19-5	ML	Brown, sandy clayey silt with pebbles, medium dense, dry.
10			10	19-10		Sand at 10½-11½ ft. moist.
15			18	19-15		
20			21	19-20		
25	108.0	20.5	19	19-25	CL	Dark brown, sity clay, medium stiff dry to damp. Color change to grey brown.
30			25	19-30		
35					SM	Brown, clayey fine sand medium dense.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF BORING NO. B-19

PLATE A-20

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81
PROJECT NO. B-1109-1

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
35			30	19-35	SM	Brown, fine sand and gravel, wet.
40						
45						
					GP	Brown, sand and gravel with clay.
50			37	19-50	CL	Grey-brown, sandy clay with gravel, stiff.
						Bottom of boring at 50 ft.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF BORING NO. B-19 (con't)

PROJECT NO. B-1109-1

PLATE A-20.1

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0			22	20-2	CH	Black, silty clay, stiff, roots, dry, desiccated.
5			21	20-5	ML	Brown, sandy clayey silt, dry dense, grading change to sandy silt/ silty sand with fine gravel, caliche.
10			13	20-10		
15	97.1	24.4	15	20-15	CL	▼ Brown to dark brown, silty clay, medium stiff, damp.
20			20	20-20		
25			20	20-25	ML	Brown, sandy clay silt, damp to moist, medium dense.
30			17	20-30		Bottom of boring at 30 ft.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF BORING NO. B-20

PROJECT NO. B-1109-1

PLATE
A-21

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0					CH	Black, silty clay, desiccated, dry, stiff.
				22-2		Brown, silty clay, caliche, medium stiff, dry.
5				22-5		
10	108.0	33.0		22-10	CH	Trace of sand.
						▼
15				22-15		Color change to dark brown with sand.
20				22-20		Bottom of boring at 20 ft.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF BORING NO. B-22

PLATE
A-23

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

PROJECT NO. B-1109-1

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0				Bulk	CH	Black, silty clay, desiccated dry stiff.
					CL	Dark brown to brown, silty clay, stiff, trace of sand and pebbles below 8 ft.
5						
10						Bottom of boring at 10 ft. NFWE

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CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF BORING NO. B-23

PLATE A-24

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

PROJECT NO. B-1109-1

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0				Bulk	CL	Black silty clay, dry, desiccated, caliche, stiff.
5					ML	Light brown, sandy clayey silt. caliche trace of gravel, dry.
10						Bottom of boring at 10 ft. NFWE

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GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF BORING NO. B-26

PROJECT NO. B-1109-1

PLATE

A-27

DEPTH IN FEET	DRY DENSITY lb/ft³	MOISTURE CONTENT % DRY WEIGHT	BLOW COUNT	SAMPLE	USCS	DESCRIPTION
0					CH	Black to dark brown, silty clay, dry, stiff caliche, disiccated.
			14	27-2		
5			19	27-5	ML	Light brown, sandy clayey silt, trace of gravel at 6½,grading to med. sand at 9-10'.
10			13	27-10	CL ML	Mottled brown-grey, silty clay, medium stiff.
15			16	27-15		Grading to clayey silt.
20			15	27-20	SM	Brown, sand, wet.
					CL	Black, silty clay, stiff, damp.
25			16	27-25		Color change to greenish grey.
30						Bottom of boring at 25 ft.

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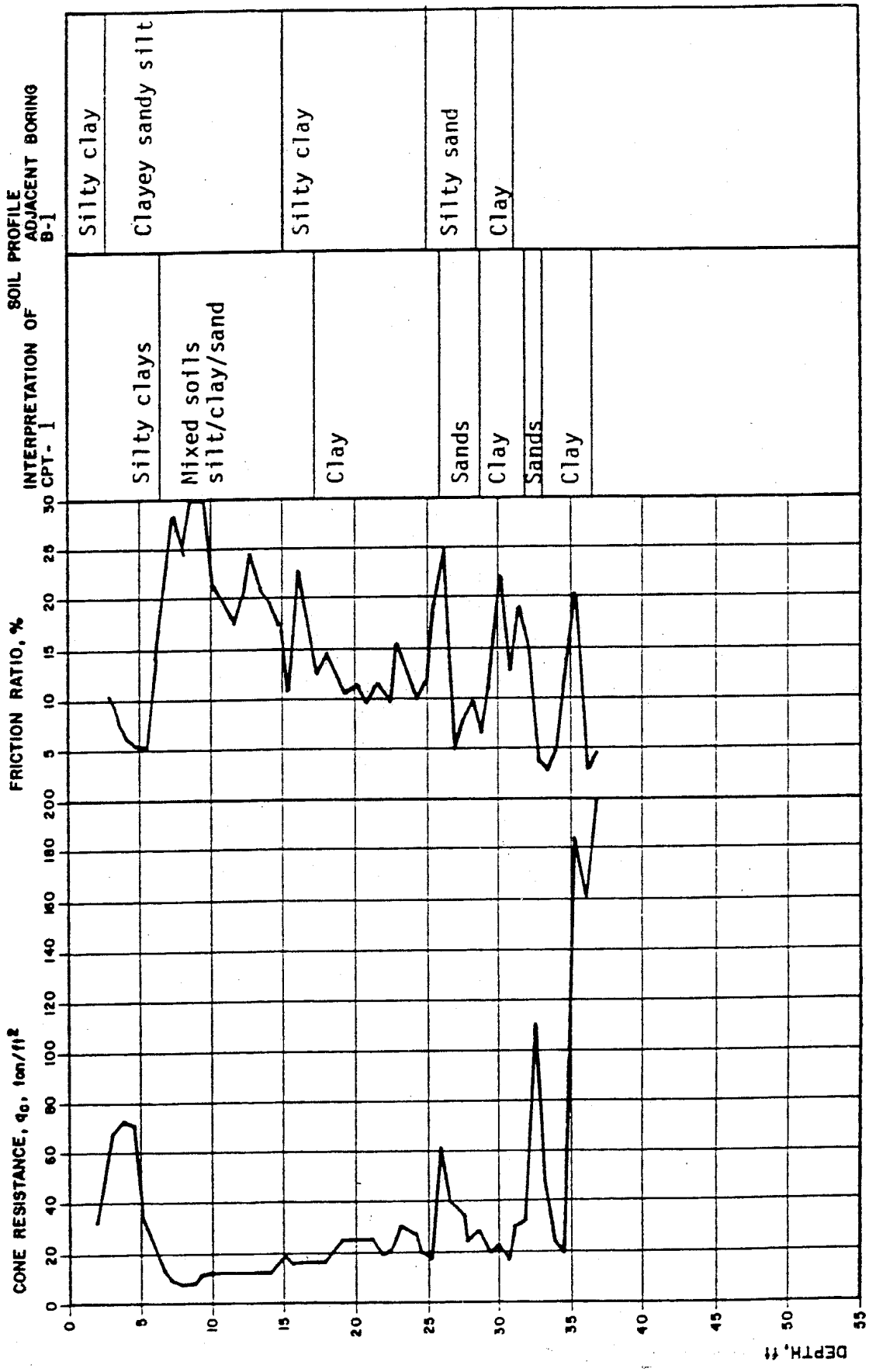
PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF BORING NO. B-27

PROJECT NO. B-1109-1

PLATE
A-28



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CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF CPT - 1

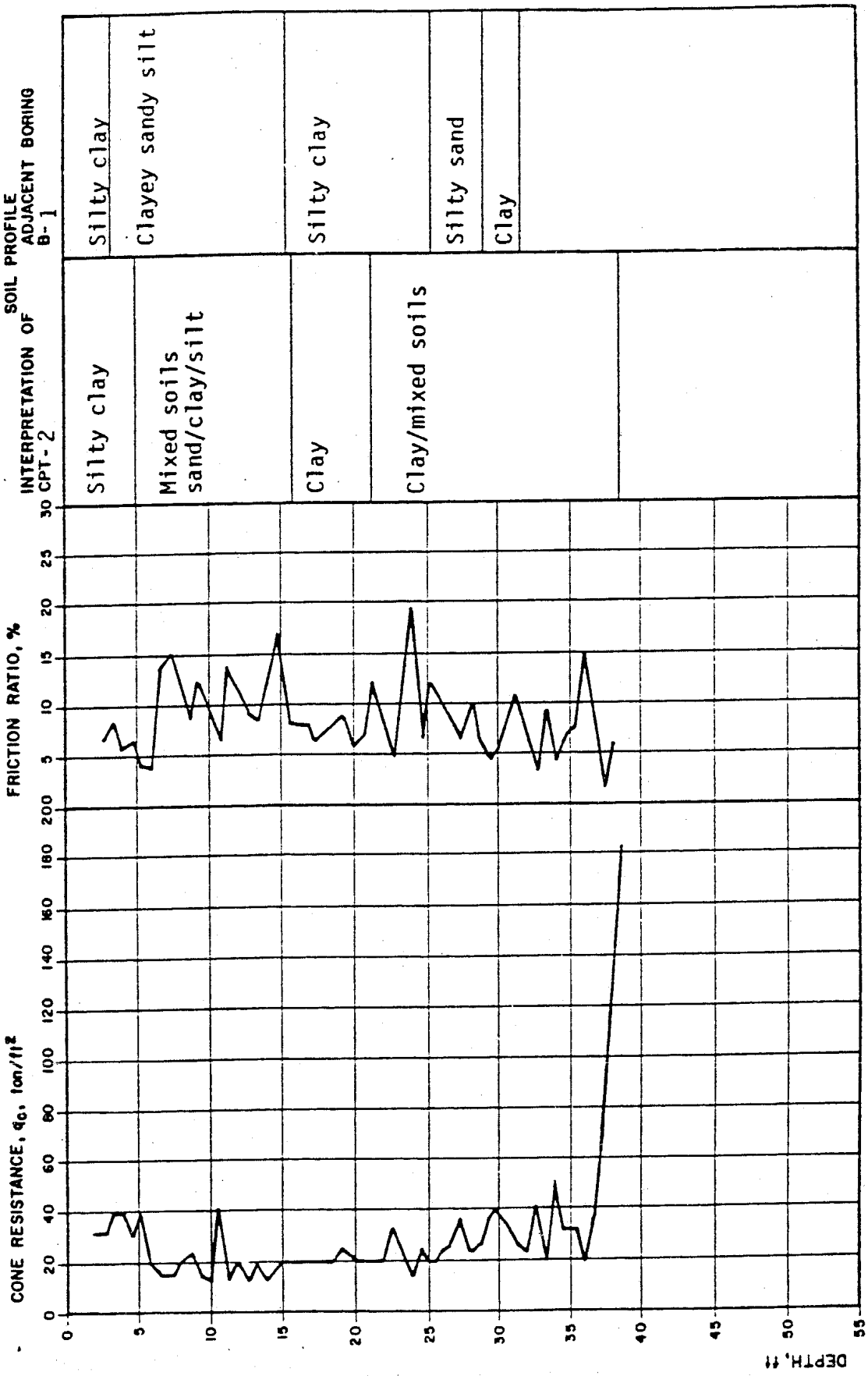
PLATE

B-3

PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

PROJECT NO. B-1109-1



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PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

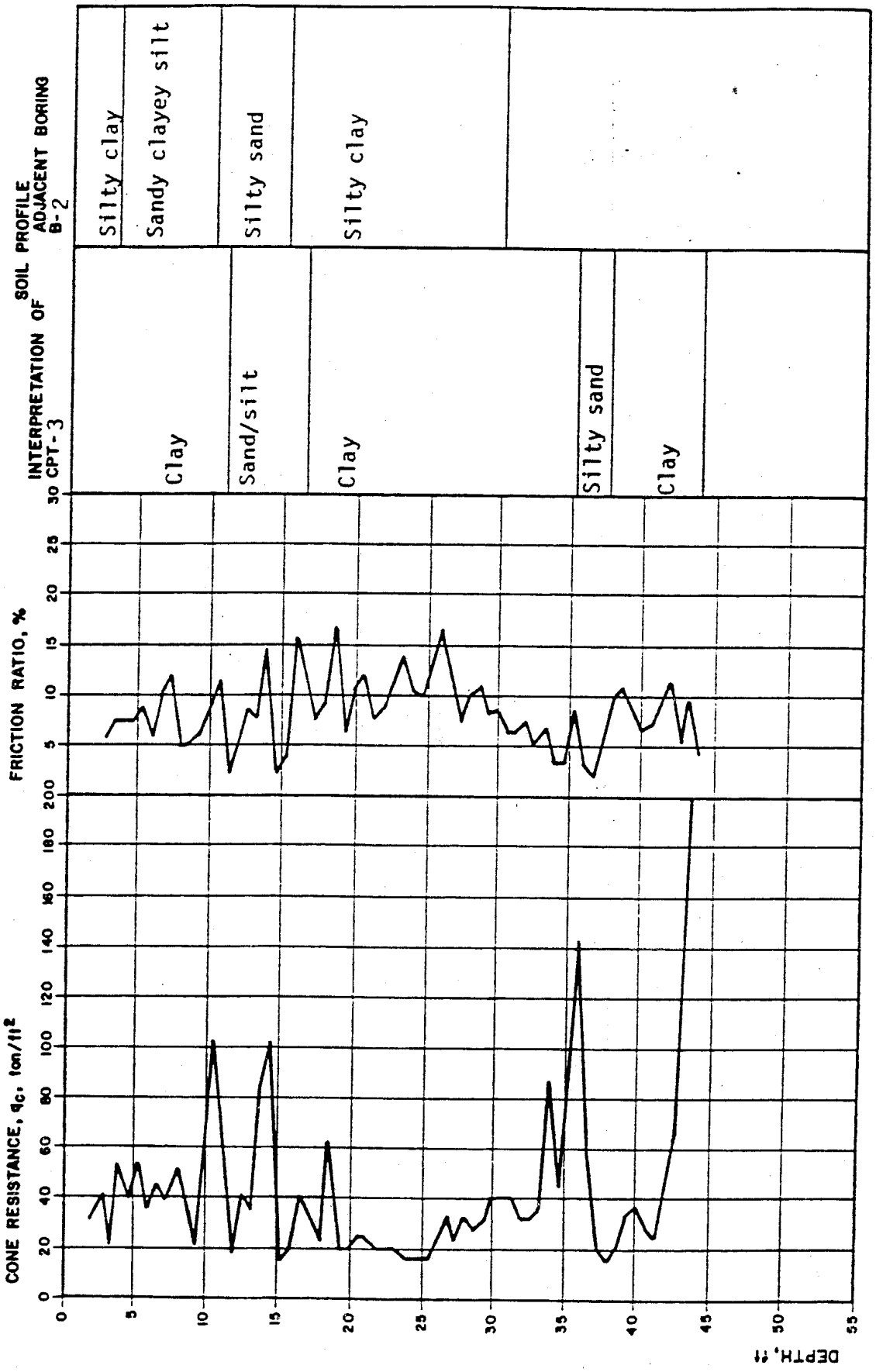
CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF CPT-2

PROJECT NO. B-1109-1

PLATE

B-4



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PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

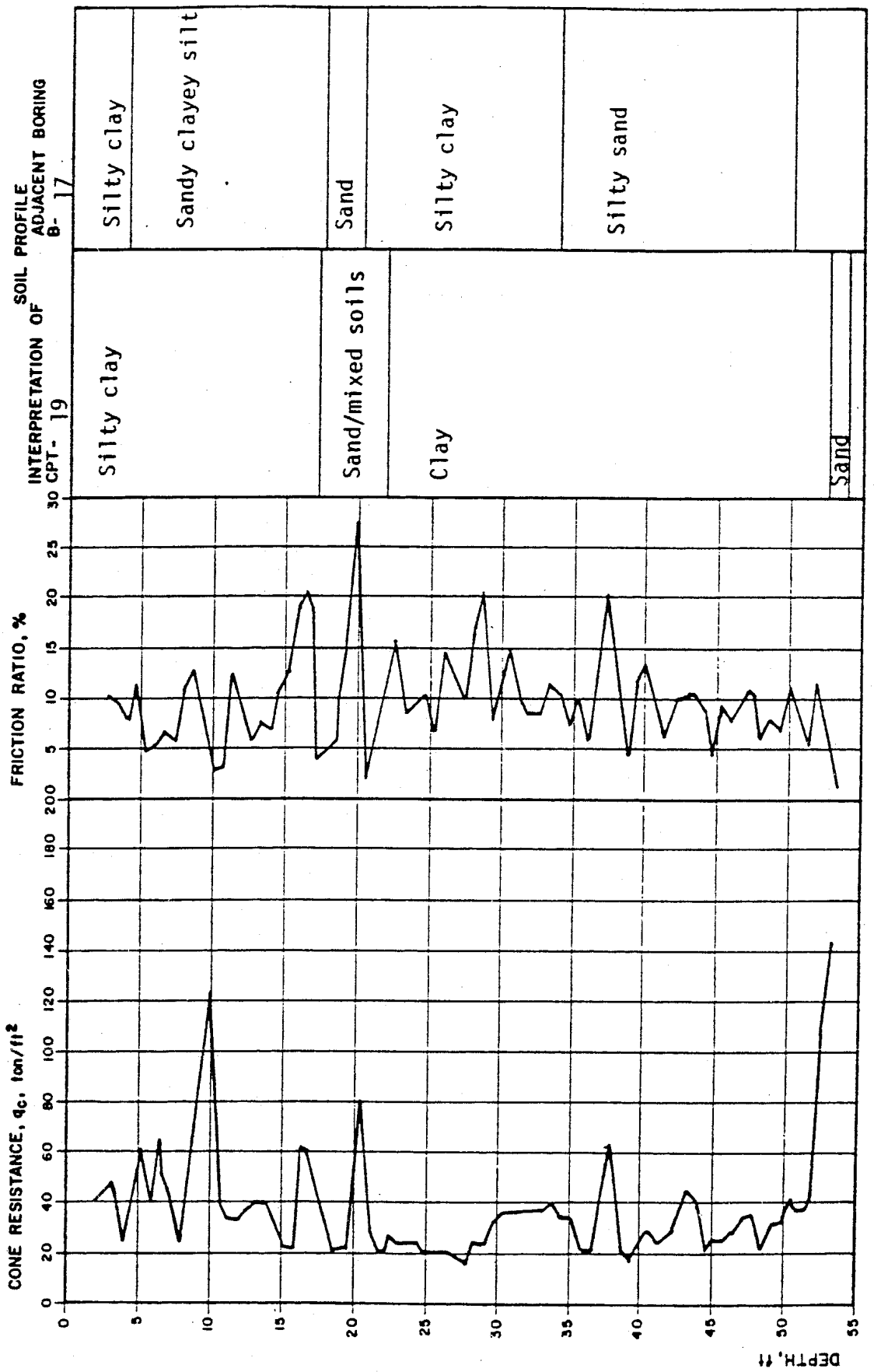
CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF CPT - 3

PROJECT NO. B-1109-1

PLATE

B-5



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PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

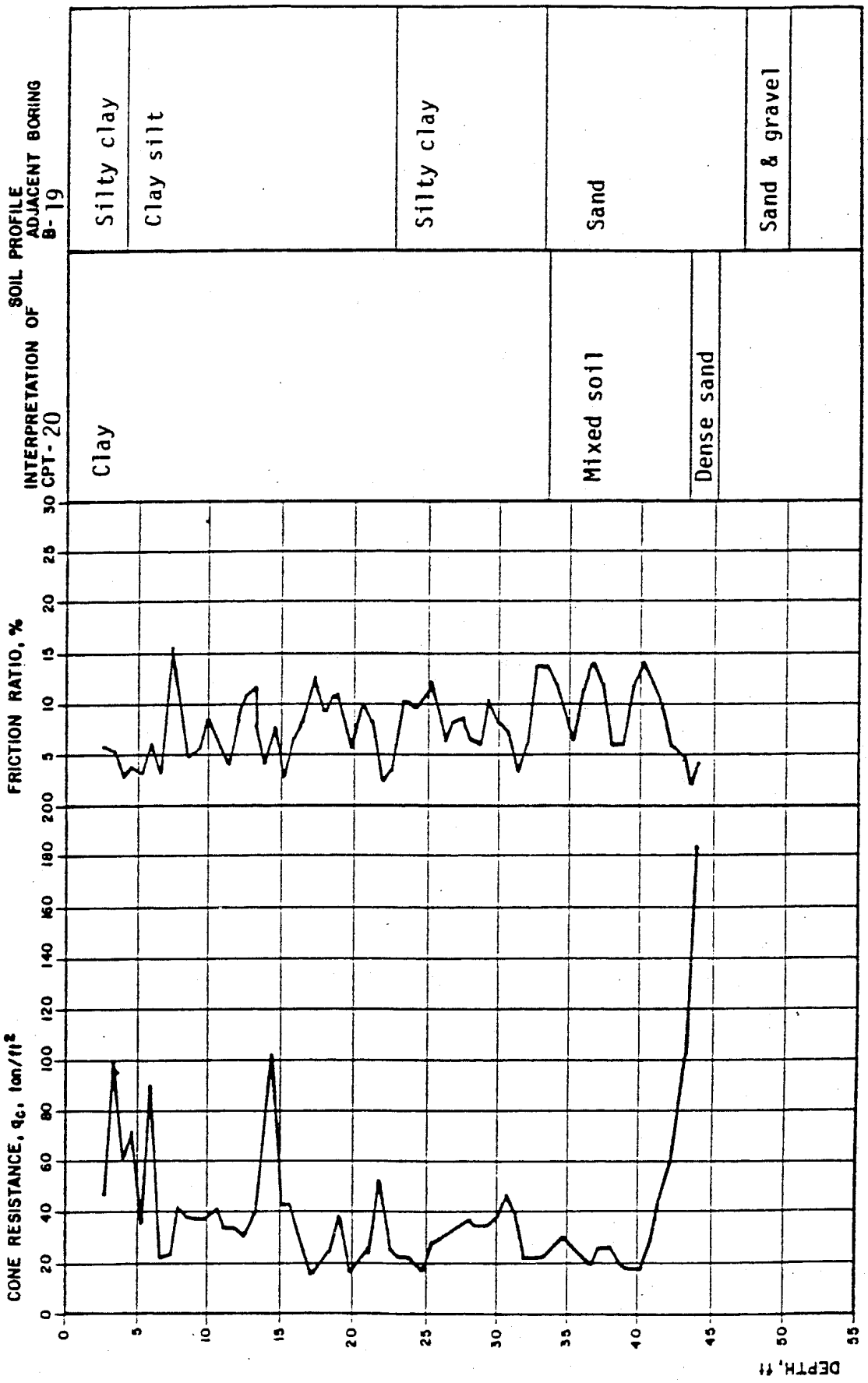
CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF CPT-19

PROJECT NO. B-1109-1

PLATE

B-21



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GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

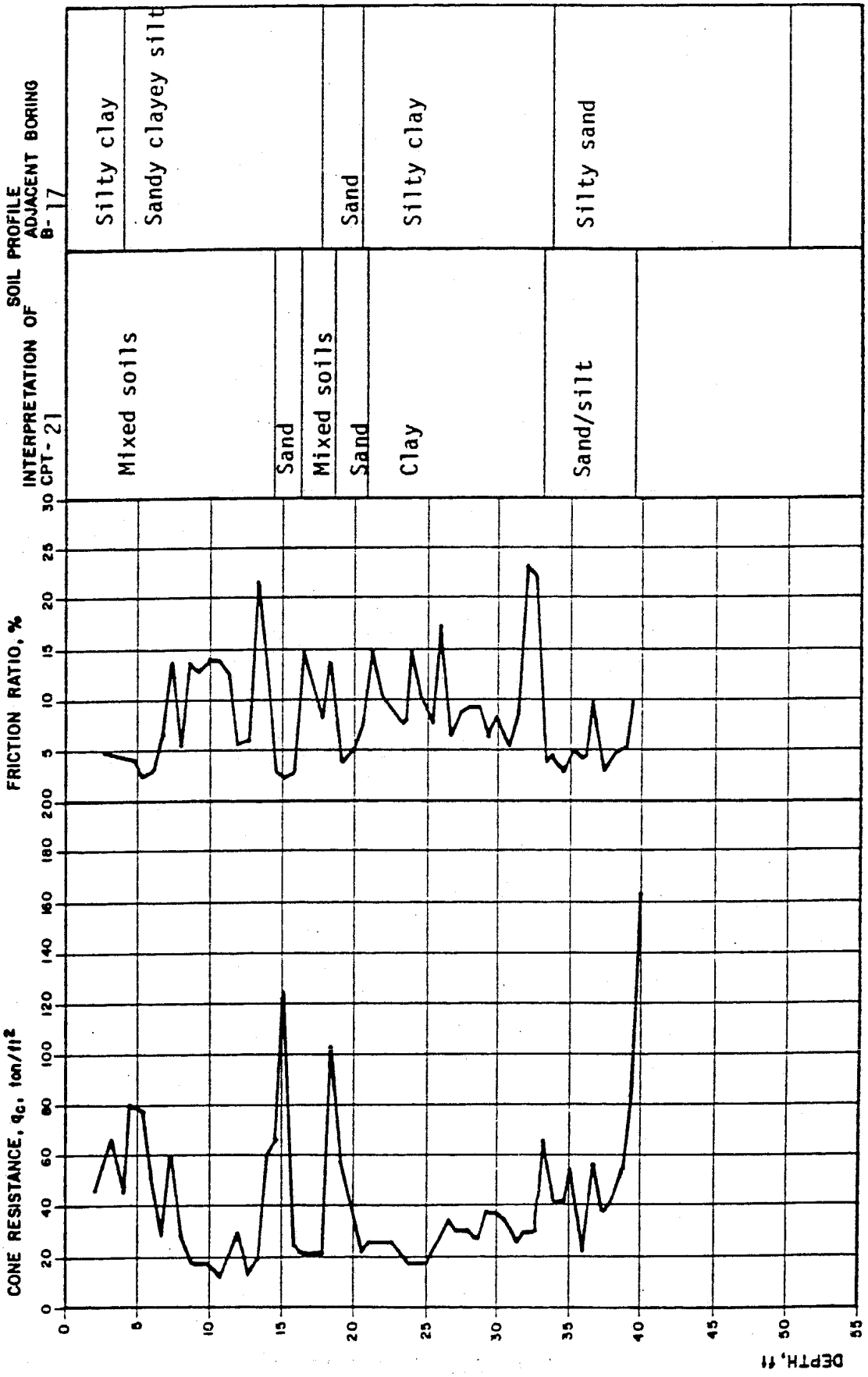
CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF CPT-20

PROJECT NO. B-1109-1

PLATE

B-22



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GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81

CHECKED BY: DCM DATE: 8/81

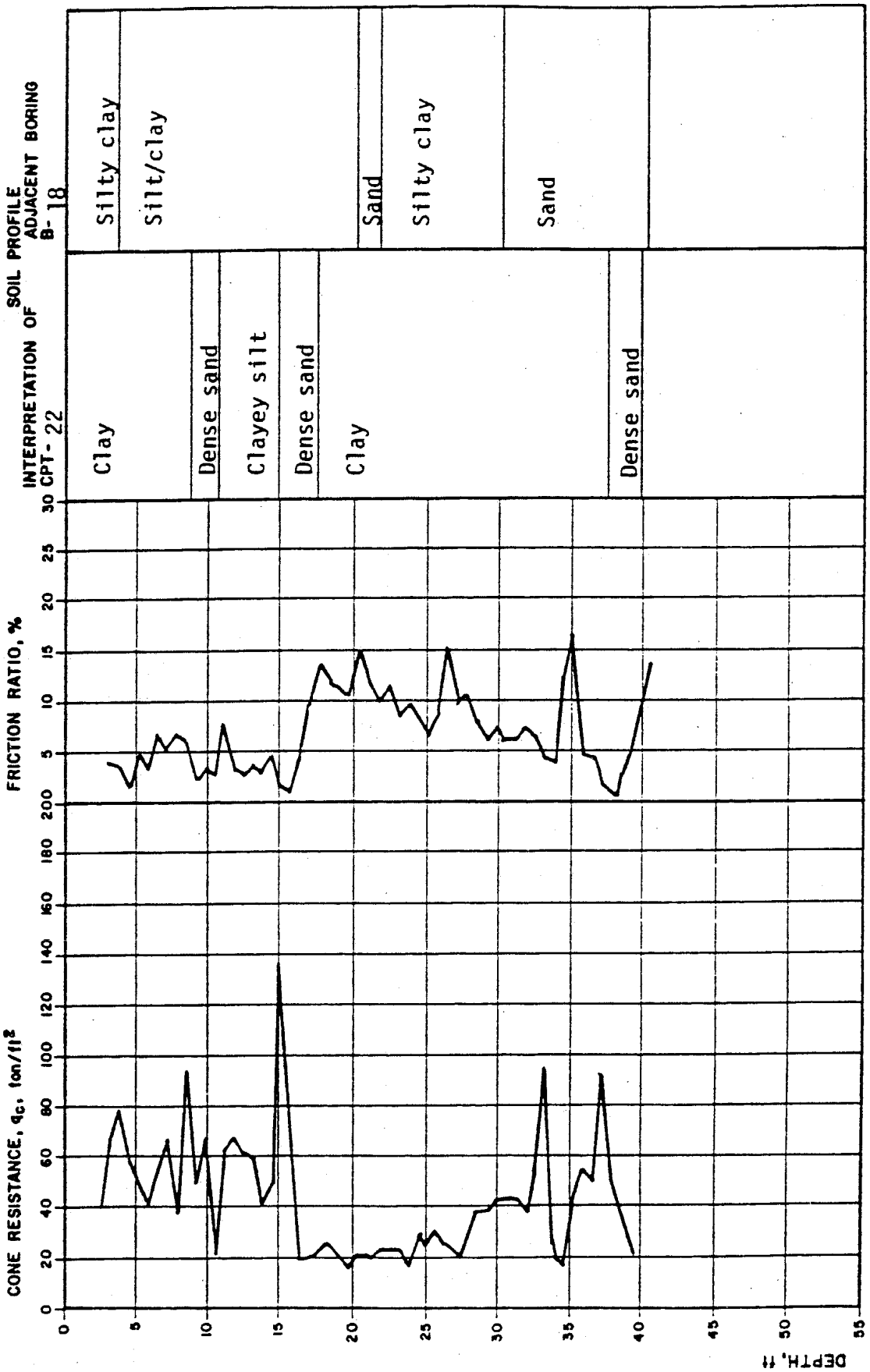
CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF CPT-21

PROJECT NO. B-1109-1

PLATE

B-23



J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

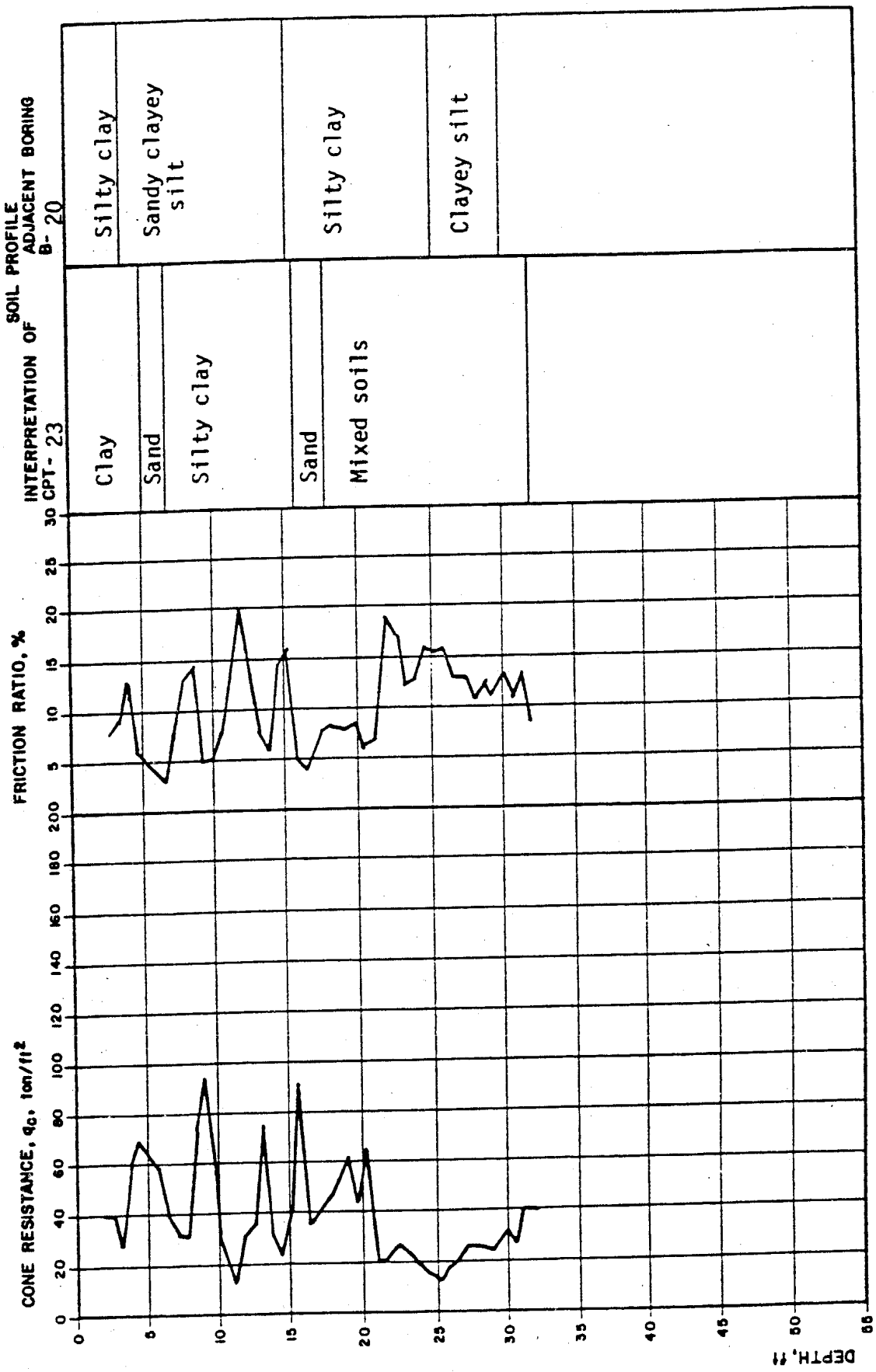
CHEVRON PARK
SAN RAMON, CALIFORNIA

LOG OF CPT - 22

PROJECT NO. R-1109-1

PLATE

B-24



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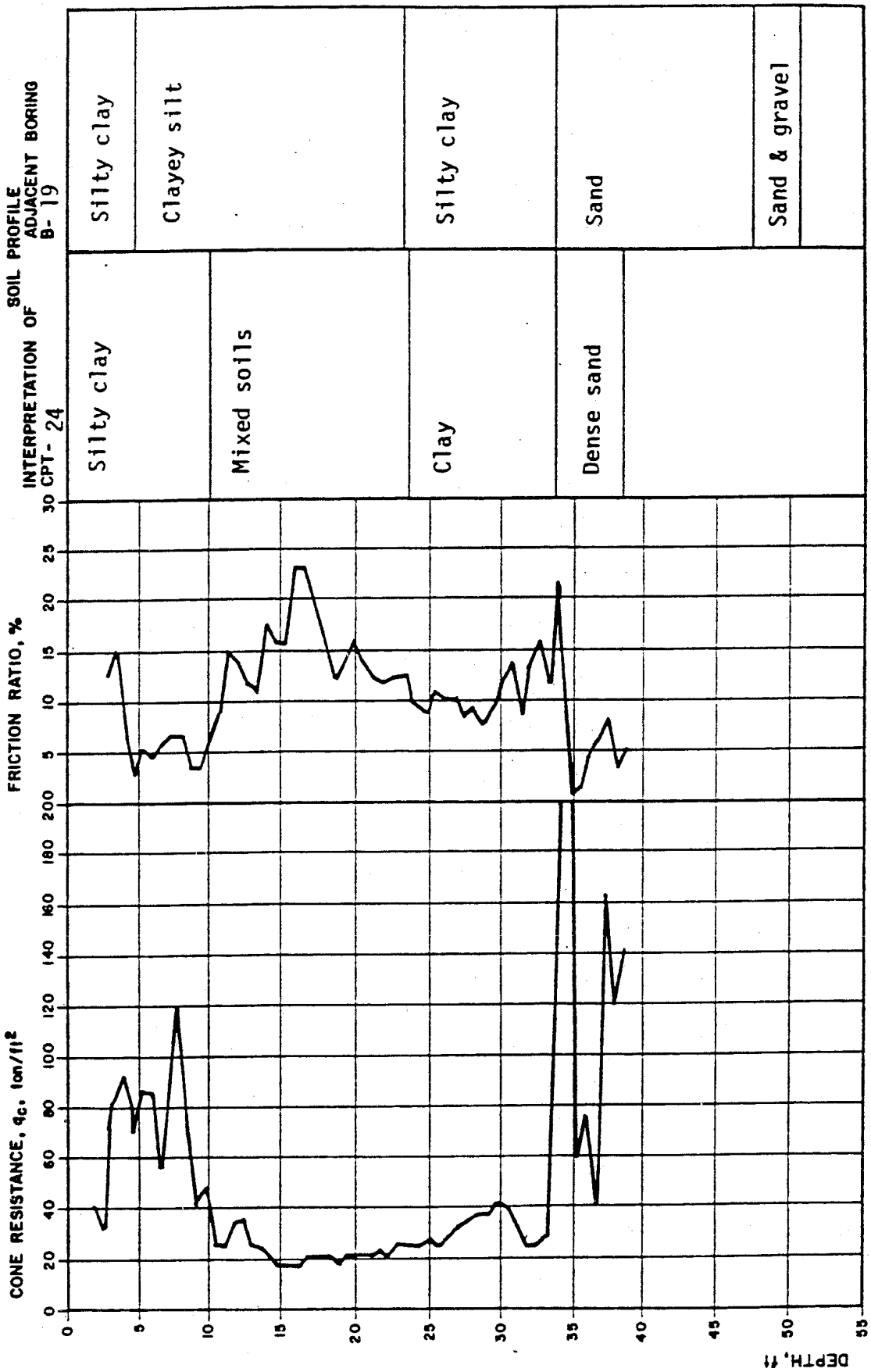
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF CPT - 23

PROJECT NO. B-1109-1

PLATE
B-25



J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PREPARED BY: PLC DATE: 8/81
CHECKED BY: DCM DATE: 8/81

CHEVRON PARK
SAN RAMON, CALIFORNIA
LOG OF CPT - 24

PROJECT NO. B-1109-1

PLATE
B-26

Geotechnical Investigation, Bishop Ranch 1 Development, Bishop Ranch Business Park, San Ramon, California, prepared for Sunset Development Company, prepared by Harding Lawson Associates (HLA), HLA Project 8294,019.03, dated October 6, 1986

Equipment 6" Solid Auger

Elevation 438.5 Feet** Date 7/8/86

Laboratory Tests	Blows/foot*	Moisture Content (%)	Dry Density (pcf)	Depth (ft) Sample	
				0	BLACK SILTY CLAY (CH) hard, dry, desiccated, presence of organics
	25	14	119		
					LIGHT BROWN CLAYEY SILT (ML) very stiff, moist, presence of sand
TxUU 3025 (420) (Plate 14)	20	21	103	5	
	10				BROWN SILTY CLAY (CL) stiff, moist, presence of sand
				10	
					8/12/86
	11	34	89		wet
				15	
TxUU (S) 910 (850)	8				
				20	
	16				stiff at 24.0 Feet
				25	
					MOTTLED GREY-BROWN SANDY CLAY (CL) very stiff, moist, presence of rock fragments
	20	20	112		
				30	
	18				white streaks at 34.0 Feet
				35	
	19	19	111		
				40	Bottom of Boring 39.5 Feet

*Blow counts have been converted to Standard Penetration Test (SPT) values (N-values).

**Elevations estimated from Site Plan, Plate 1.

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LOG OF BORING 1
Bishop Ranch 1
San Ramon, California

PLATE 2

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AC	8294,019.03		8/86		

Equipment 6" Solid Auger

Elevation 438.0 Feet Date 7/8/86

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
LL=64; PI=47 (Plate 10)				0		BLACK SILTY CLAY (CH) hard, dry, desiccated, presence of organics
	16			5		BROWN CLAYEY SILT (ML) very stiff, moist, presence of sand
	12					LIGHT BROWN SANDY CLAY (CL) stiff, moist.
	20			10		Bottom of Boring 10.5 Feet
				15		
				20		
				25		
				30		
				35		
				40		

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LOG OF BORING 2
Bishop Ranch 1
San Ramon, California

PLATE 3

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AC	8294,019.03		8/86		

Equipment 6" Solid Auger

Elevation 439.0 Feet Date 7/8/86

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) hard, dry, desiccated, presence of organics
	24					
	14			5		LIGHT BROWN CLAYEY SILT (ML) very stiff, dry, presence of sand
MA (Plate 11)	11					BROWN CLAYEY SAND (SC) medium dense, wet, presence of gravel
				10		BROWN SANDY CLAY (CL) medium stiff to stiff, moist
	8					
				15		GREY-BROWN SILTY CLAY (CL) very stiff, moist
	15					
				20		
	15					
				25		
	13					
	25			30		MOTTLED GREY-BROWN SILTY CLAY (CL) very stiff to hard, moist
						Bottom of Boring 31.5 Feet
				35		
				40		

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LOG OF BORING 3
Bishop Ranch 1
San Ramon, California

PLATE 4

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AC	8294,019.03		8/86		

Equipment 6" Solid Auger

Elevation 440.0 Feet Date 7/8/86

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) hard, dry, desiccated, presence of organics
	16	13	113			
	16			5		LIGHT BROWN CLAYEY SILT (ML) very stiff, dry
38% < No. 200 Sieve	19	20	112	10		BROWN SILTY SAND (SM) medium dense, moist, fine-grained, trace gravel and clay
						BROWN SILTY CLAY (CL) medium stiff to stiff, moist, trace sand
TxUU 986 (750) (Plate 15)	8	35	88	15		GREY SILTY CLAY (CL) stiff to very stiff, moist
	13			20		
	20			25		very stiff at 24.0 Feet
	26			30		GREY-BROWN SILTY CLAY (CL) very stiff, moist
	34			35		hard at 34.0 Feet
				40		Bottom of Boring 35.5 Feet

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LOG OF BORING 4
Bishop Ranch 1
San Ramon, California

PLATE 5

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AC	8294,019.03		8/86		

Equipment 6" Solid Auger

Elevation 441.5 Feet Date 7/8/86

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) hard, dry, desiccated, presence of organics
	26			5		DARK BROWN SILTY CLAY (CL) hard, dry, desiccated
	18					BROWN CLAYEY SILT (ML) stiff, moist, sandy
	18			10		BROWN SANDY CLAY (CL) stiff, moist
						becoming medium stiff at 12.0 Feet
	10			15		
						GREY-BROWN SILTY CLAY (CL) very stiff, moist
	14			20		
	10			25		
	23			30		Bottom of Boring 29.5 Feet
				35		
				40		

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LOG OF BORING 5
Bishop Ranch 1
San Ramon, California

PLATE 6

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AC	8294,019.03		8/86		

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	LOG OF BORING 6 Equipment 6" Solid Auger Elevation 442.5 Feet Date 7/8/86
				0		BLACK SILTY CLAY (CH) hard, dry, desiccated, presence of organics
	22					
				5		BROWN CLAYEY SILT (ML) stiff, moist
	18					
						medium stiff, sandy at 8.0 Feet
	8					
				10		Bottom of Boring 9.5 Feet
				15		

Depth (ft)	Sample	LOG OF BORING 7 Equipment 6" Solid Auger Elevation 440.0 Feet Date 7/3/86
0		BLACK SILTY CLAY (CH) hard, dry, desiccated, presence of organics BROWN SILTY CLAY (CL) hard, dry, desiccated,
		19
5		BROWN CLAYEY SILT (ML) stiff, moist, presence of sand lenses
		11
10		medium stiff at 10 Feet
		8
		Bottom of Boring 11.5 Feet
15		

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LOG OF BORINGS 6 & 7
Bishop Ranch 1
San Ramon, California

PLATE
7

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AC	8294,019.03		8/86		

Equipment 6" Rotary Wash

Elevation 440.0 Feet Date 7/17/86

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
				0	BLACK SILTY CLAY (CH) hard, dry, desiccated, presence of organics
				5	BROWN SILTY CLAY (CL) hard, dry
TxUU 516 (420) (Plate 16)	*	20	104		BROWN SANDY CLAY (CL) stiff, moist
					with concretions of well-cement calcareous nodules at 8.5 Feet presence of sand lenses
				10	
Consol (Plate 13) MA (Plate 12)	*	29	94		
	*			15	
				20	BROWN-GREY SILTY CLAY (CL) stiff to very stiff, moist, presence of clayey sand lenses
	*			25	
				30	
	25				hard at 32.0 Feet
					presence of calcareous nodules
				35	
				40	

*Samples obtained with a Pitcher barrel.

(Continuation of Log)

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Description
TxUU(S) 1370 (1400)	*			40	sandy
				45	
				50	
	36				
				55	
				60	
	57				
				65	
				70	trace gravel
	*				
					Bottom of Boring 73.0 Feet
				75	
				80	

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LOG OF BORING 8
Bishop Ranch 1
San Ramon, California

PLATE **8**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AC	8294,019.03		8/86		

MAJOR DIVISIONS				TYPICAL NAMES
COARSE - GRAINED SOILS MORE THAN HALF IS LARGER THAN NO. 200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN No. 4 SIEVE SIZE	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL - SAND-CLAY MIXTURES
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL-GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND-SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND-CLAY MIXTURES
FINE - GRAINED SOILS MORE THAN HALF IS SMALLER THAN NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50% OR LESS		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50%		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM 2487-85)

Perm	—	Permeability
Consol	—	Consolidation
LL	—	Liquid Limit (%)
PI	—	Plastic Index (%)
G_s	—	Specific Gravity
MA	—	Particle Size Analysis
■	—	"Undisturbed" Sample
⊠	—	Bulk or Classification Sample

	Shear Strength (psf)	Confining Pressure		
TxUU (FM) or (S)	3200	(2600)	—	Unconsolidated Undrained Triaxial Shear (field moisture or saturated)
TxCU (P)	3200	(2600)	—	Consolidated Undrained Triaxial Shear (with or without pore pressure measurement)
TxCD	3200	(2600)	—	Consolidated Drained Triaxial Shear
SSCU (P)	3200	(2600)	—	Simple Shear Consolidated Undrained (with or without pore pressure measurement)
SSCD	3200	(2600)	—	Simple Shear Consolidated Drained
DSCD	2700	(2000)	—	Consolidated Drained Direct Shear
UC	470		—	Unconfined Compression
LVS	700		—	Laboratory Vane Shear

KEY TO TEST DATA

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SOIL CLASSIFICATION & KEY TO TEST DATA
Bishop Ranch 1
San Ramon, California

PLATE 9

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
AC	8294,019.03		8/86		

Soil Investigation, Bollinger Business Center, Bishop Ranch, San Ramon, California, prepared for Sunset Development Company, prepared by Harding Lawson Associates (HLA), HLA Project 8294,009.03, dated April 6, 1982

Equipment Solid Stem Auger

Elevation 442 feet ** Date 3/17/82

Laboratory Tests	Blows/foot *	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
Atterberg Limits LL = 54 PL = 20 PI = 34	5			0		DARK GRAY SILTY CLAY (CH) medium stiff, wet
	17			5		LIGHT BROWN SANDY CLAY (CL) very stiff, moist
						LIGHT BROWN CLAYEY SILT (ML) stiff, moist
	11			10		
	11			15		
				20		Ground water not encountered
				25		
				30		
				35		
				40		

NOTES:

*Blows/foot have been converted to Standard Penetration Test "N-values"

**Elevations referred to Subdivision Map 5967, Bishop Ranch by Bryan & Murphy Assoc., Inc., dated October 14, 1980.

Datum is Mean Sea Level

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Log of Boring 1
Bollinger Business Center
San Ramon, California

PLATE **2**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
M.Rice	8294,009.03	tc	3/17/82		

Equipment Solid Stem Auger

Elevation 442 feet Date 3/17/82

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	
				0		BLACK SILTY CLAY (CH) very stiff, moist
	18	24.3	99			
						LIGHT BROWN CLAYEY SILT (ML) stiff, moist
	12					
				5		
	10	23.0	99			
				10		
						layer of BROWN SILTY SAND (SM) from 12.5 feet to 13.0 feet
	18	21.4	101			
				15		
	11	25.2	96			
				20		Ground water not encountered
				25		
				30		
				35		
				40		

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Log of Boring 2
Bollinger Business Center
San Ramon, California

PLATE **3**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
M.Rice	8294,000.03	tc	3/17/82		

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	LOG OF BORING 3
						Equipment Solid Stem Auger
						Elevation 444 feet Date 3/17/82
				0		BLACK SILTY CLAY (CH) stiff, moist
Atterberg Limits LL = 50 PL = 20 PI = 30	17					
						LIGHT BROWN CLAYEY SILT (ML) stiff, moist
	12	17.8	105	5		
	9			10		
	14			15		
						Ground water not encountered

				Depth (ft)	Sample	LOG OF BORING 4
						Equipment Solid Stem Auger
						Elevation 447 feet Date 3/17/82
				0		BLACK SILTY CLAY (CH) stiff, moist
	9					LIGHT BROWN CLAYEY SILT (ML) very stiff, moist
	16			5		
TXUU 700 (750)	9	24.8	96	10		becomes medium stiff
	30			15		becomes SANDY, cemented, clay content decreases
						Groundwater not encountered

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Log of Boring 3,4
Bollinger Business Center
San Ramon, California

PLATE **4**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
M.Rice	8294,009.03	tc	3/17/82		

LOG OF BORING 5

Equipment: Solid Stem Auger

Elevation: 448 feet Date: 3/17/82

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	Description
				0		DARK BROWN SILTY CLAY (CH) stiff, moist
TXUU 2050 (250)	13	21.6	104			
Atterberg Limits LL = 37 PL = 18 PI = 19	14			5		BROWN SANDY SILT (ML) stiff, moist, interbedded with layers of BROWN SILTY CLAY (CL)
	12			10		
	22	20.5	104	15		becomes very stiff below 14 feet, with some gravel at 14.0 feet-14.5 feet

Ground water not encountered

LOG OF BORING 6

Equipment: Solid Stem Auger

Elevation: 444 feet Date: 3/17/82

Laboratory Tests	Blows/foot	Moisture Content (%)	Dry Density (pcf)	Depth (ft)	Sample	Description
				0		BLACK SILTY CLAY (CH) stiff, moist
TXUU 1660 (500)	13	18.2	109			
	13			5		LIGHT BROWN SANDY CLAYEY SILT (ML) stiff, moist
	10					sand content decreases below 6 feet
	14			10		sand content increases below 11 feet
	35			15		becomes hard, cemented

Ground water not encountered

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Log of Boring 5,6
Bollinger Business Center
San Ramon, California

PLATE **5**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
M.Rice	8294.009.03	tc	3/17/82		

RF3A

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN #200 SIEVE)	GRAVELS (MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE)	CLEAN GRAVELS WITH LITTLE OR NO FINES	GW	WELL GRADED GRAVELS, GRAVEL - SAND MIXTURES
			GP	POORLY GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH OVER 12% FINES	GM	SILTY GRAVELS, POORLY GRADED GRAVEL - SAND - SILT MIXTURES
			GC	CLAYEY GRAVELS, POORLY GRADED GRAVEL - SAND - CLAY MIXTURES
	SANDS (MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE)	CLEAN SANDS WITH LITTLE OR NO FINES	SW	WELL GRADED SANDS, GRAVELLY SANDS
			SP	POORLY GRADED SANDS, GRAVELLY SANDS
		SANDS WITH OVER 12% FINES	SM	SILTY SANDS, POORLY GRADED SAND - SILT MIXTURES
			SC	CLAYEY SANDS, POORLY GRADED SAND - CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN #200 SIEVE)	SILTS AND CLAYS (LIQUID LIMIT LESS THAN 50)		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS, OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50)		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			Pt	PEAT AND OTHER HIGHLY ORGANIC SOILS

UNIFIED SOIL CLASSIFICATION SYSTEM

Consol — Consolidation
LL — Liquid Limit (in %)
PL — Plastic Limit (in %)
G_s — Specific Gravity
SA — Sieve Analysis
■ "Undisturbed" Sample
⊠ Bulk Sample

	Shear Strength, psf	Confining Pressure, psf	
*Tx	320	(2600)	Unconsolidated Undrained Triaxial
TxCU	320	(2600)	Consolidated Undrained Triaxial
DS	2750	(2000)	Consolidated Drained Direct Shear
FVS	470		Field Vane Shear
*UC	2000		Unconfined Compression
LVS	700		Laboratory Vane Shear

Notes: (1) All strength tests on 2.8" or 2.4" diameter samples unless otherwise indicated.

(2) * indicates 1.4" diameter sample.

KEY TO TEST DATA

Harding Lawson Associates
Engineers, Geologists & Geophysicists

Soil Classification Chart & Key to Test Data
Bollinger Business Center
San Ramon, California

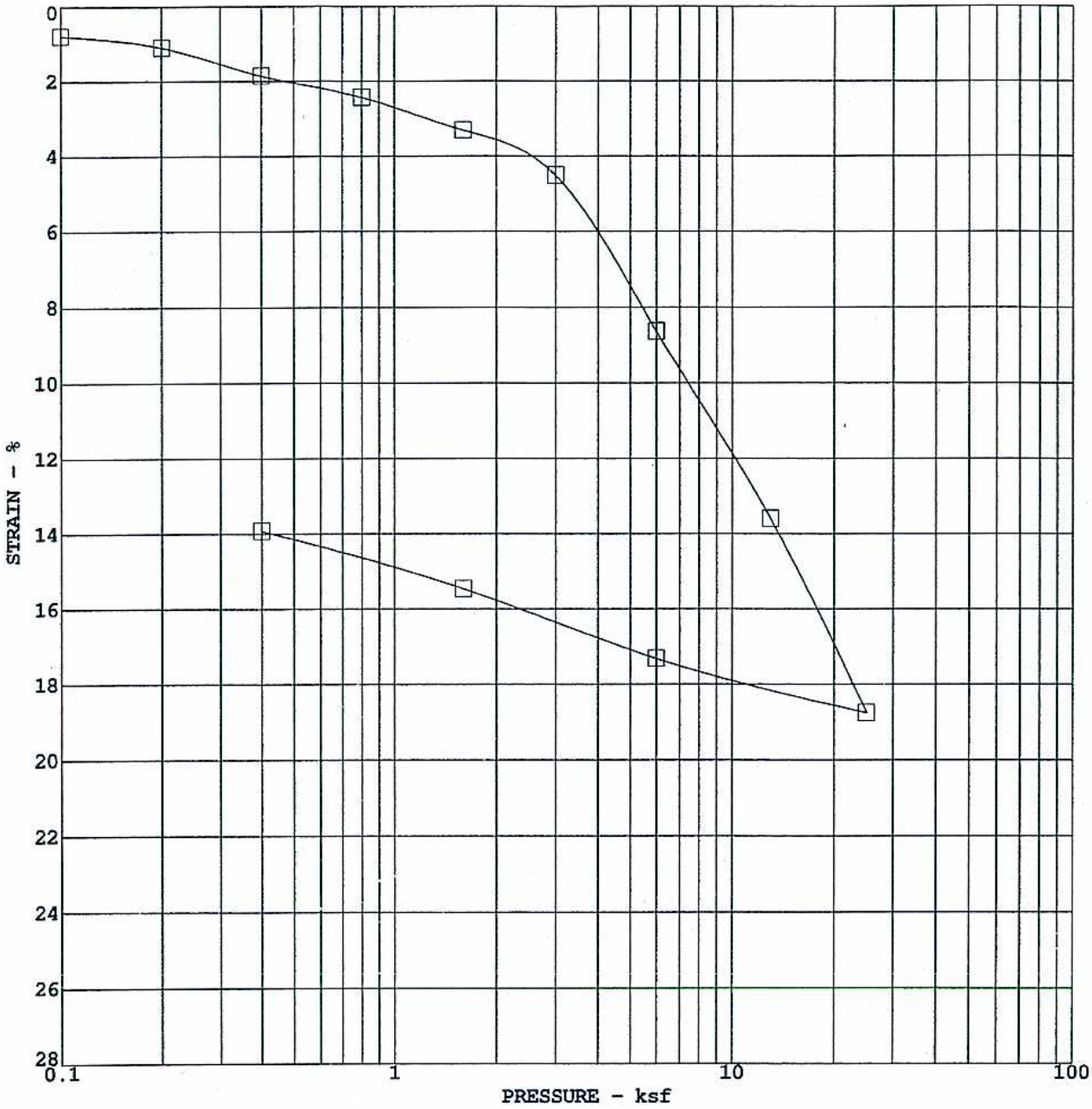
PLATE **6**

DRAWN	JOB NUMBER	APPROVED	DATE	REVISED	DATE
M.Rice	8294.009.03	tc	3/17/82		

APPENDIX B

SELECT LABORATORY RESULTS FROM PRIOR INVESTIGATIONS

Geotechnical Investigation at Chevron/Texaco Campus Lots 16, 20 and 21 of the Bishop Ranch Business Park, San Ramon, California, prepared for Watry Design, prepared by Kleinfelder, Inc., Kleinfelder Project 53512/Geo, dated June 9, 2005



BORING NO. KB-1

DEPTH 21.0

DESCRIPTION Light Brown Fat Clay

PRECONSOLIDATION PRESSURE 3.20 ksf

COMPRESSION RATIO= $C_c/1+e_o$ **0.170**

RECOMPRESSION RATIO= $C_r/1+e_o$ **0.013**

LL = _____ PL = _____

	INITIAL	FINAL
DRY DENSITY, lb/ft^3	92.5	105.6
WATER CONTENT, %	26.6	24.5
SAMPLE HEIGHT, in.		

KLEINFELDER

PROJECT NO. 53512-GEO

CONSOLIDATION TEST

CHEVRON/TEXACO INVESTIGATION
CHEVRON-TEXACO WAY
SAN RAMON, CALIFORNIA

PLATE

-B-1

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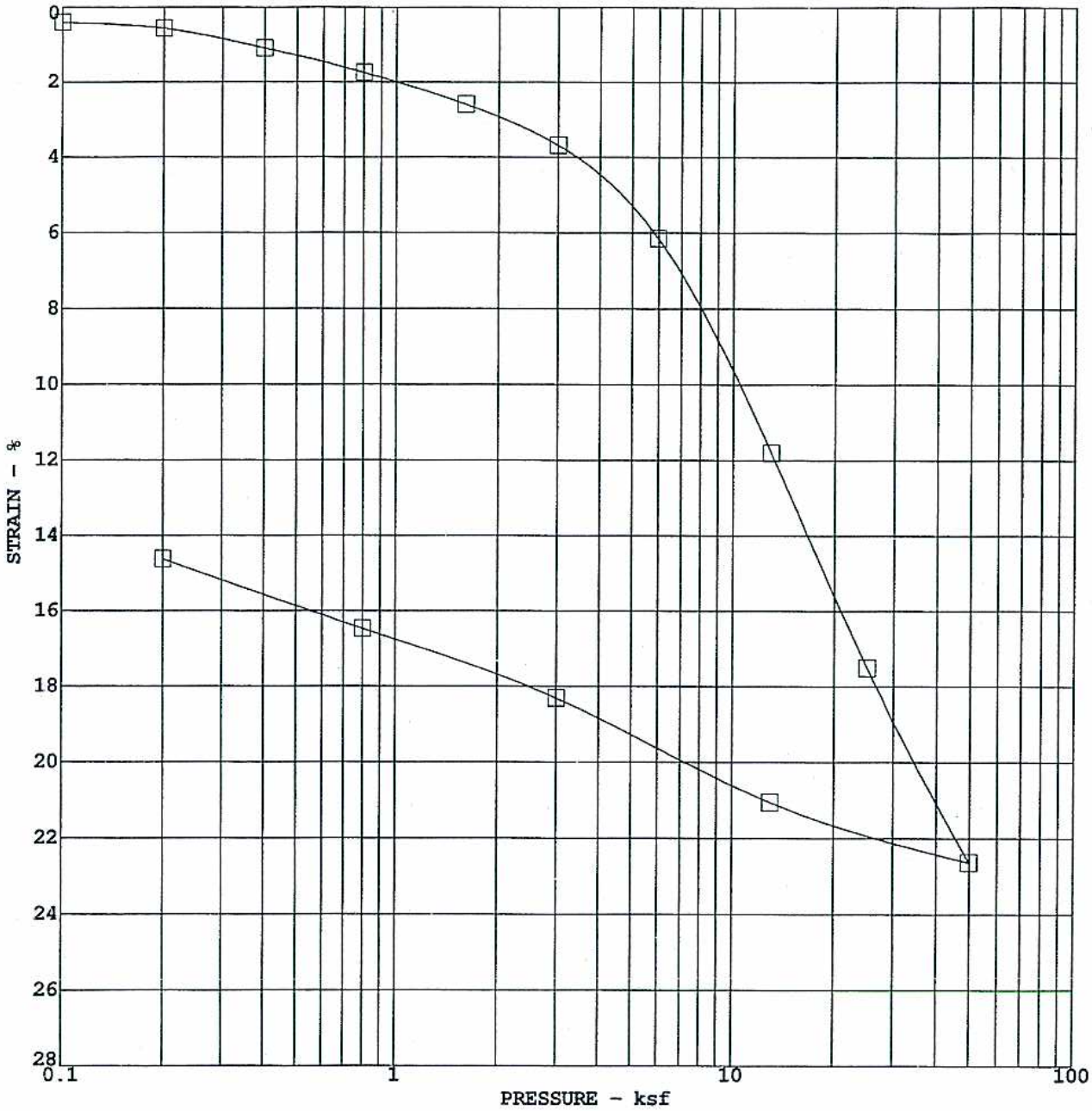

BORING NO. KB-2

DEPTH 31.0

DESCRIPTION Dark Gray Fat Clay

PRECONSOLIDATION PRESSURE 5.80 ksf

COMPRESSION RATIO= $C_c/1+e_o$ **0.210**

RECOMPRESSION RATIO= $C_r/1+e_o$ **0.035**

LL = _____ PL = _____

	INITIAL	FINAL
DRY DENSITY, lb/ft^3	101.1	113.6
WATER CONTENT, %	20.8	17.8
SAMPLE HEIGHT, in.	.686	.5857

KLEINFELDER

PROJECT NO. 53512-GEO

CONSOLIDATION TEST

CHEVRON/TEXACO INVESTIGATION
CHEVRON-TEXACO WAY
SAN RAMON, CALIFORNIA

PLATE

-B-2

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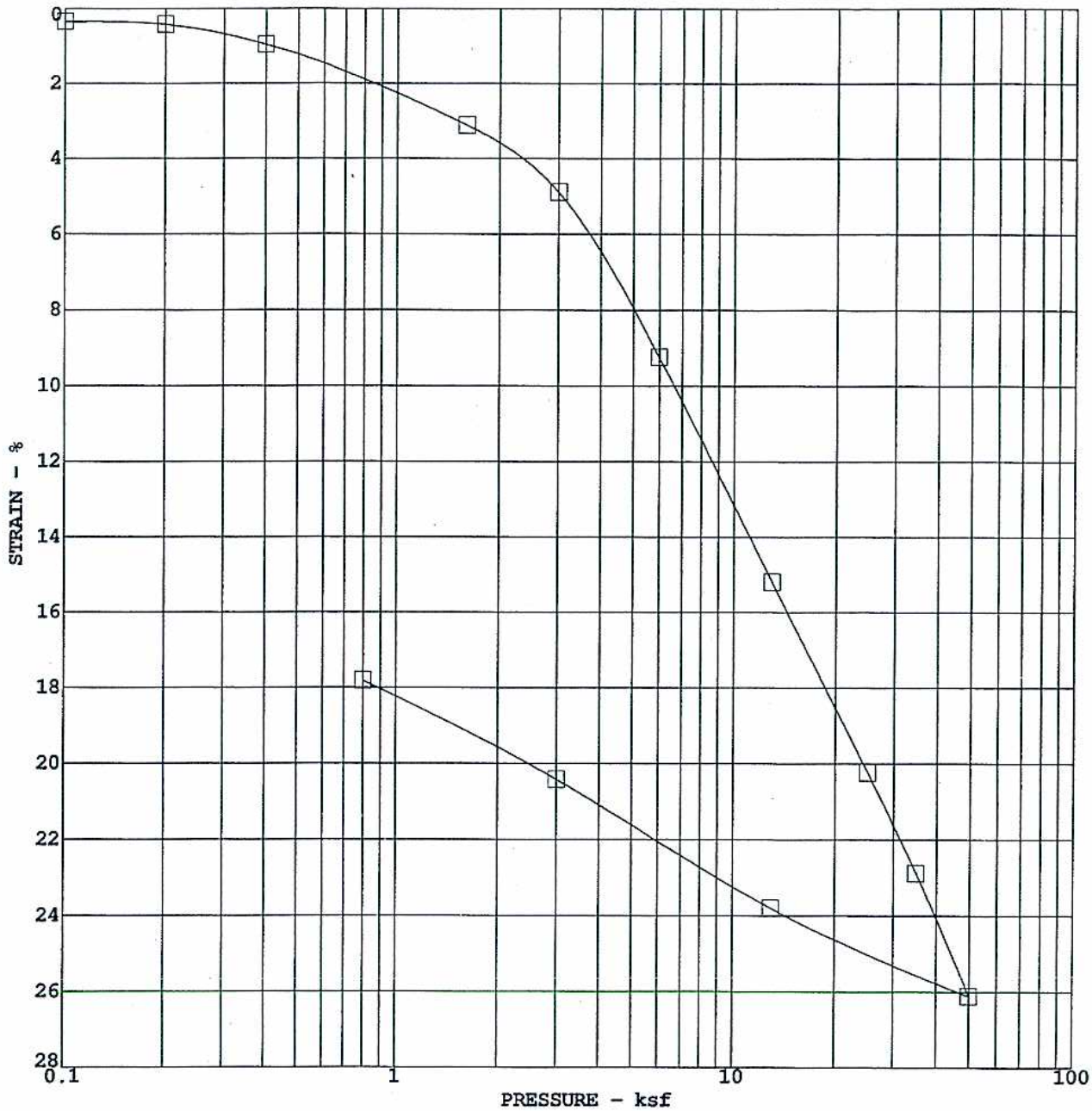

BORING NO. KB-3

DEPTH 16.0

DESCRIPTION Light Brown Silty Sandy Clay

PRECONSOLIDATION PRESSURE 3.20 ksf

COMPRESSION RATIO= $C_c/1+e_o$ **0.190**

RECOMPRESSION RATIO= $C_r/1+e_o$ **0.045**

LL = _____ PL = _____

	INITIAL	FINAL
DRY DENSITY, lb/ft^3	88.1	103.5
WATER CONTENT, %	28.4	22.5
SAMPLE HEIGHT, in.	.687	.5646

KLEINFELDER

PROJECT NO. 53512-GEO

CONSOLIDATION TEST

CHEVRON/TEXACO INVESTIGATION
CHEVRON-TEXACO WAY
SAN RAMON, CALIFORNIA

PLATE

-B-3

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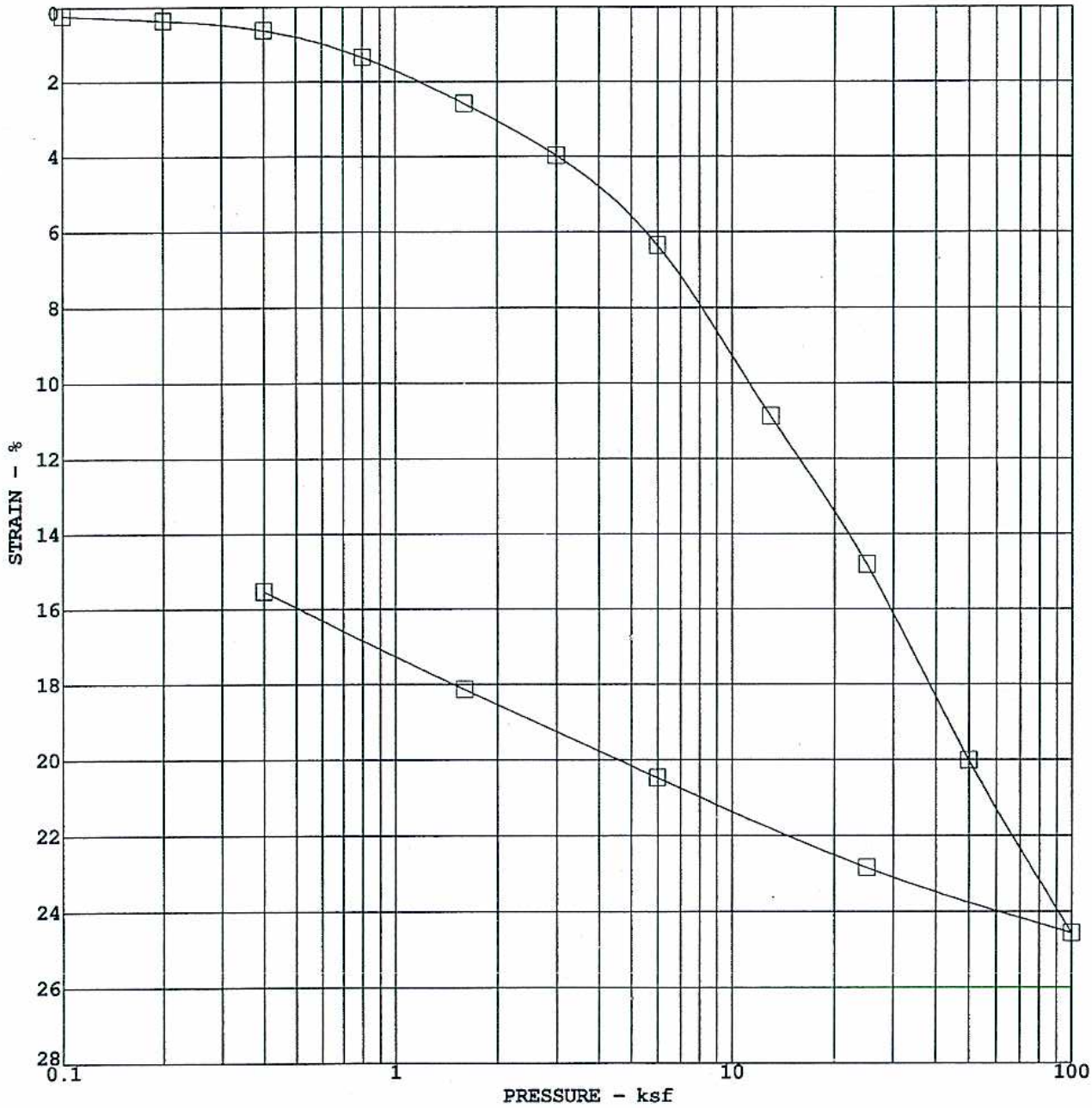

BORING NO. KB-4

DEPTH 26.0

DESCRIPTION Greenish-Brown Fat Clay

PRECONSOLIDATION PRESSURE 5.50 ksf

COMPRESSION RATIO= $C_c/1+e_o$ **0.150**

RECOMPRESSION RATIO= $C_r/1+e_o$ **0.040**

LL = _____ PL = _____

	INITIAL	FINAL
DRY DENSITY, lb/ft^3	93.5	109.8
WATER CONTENT, %	28.3	21.4
SAMPLE HEIGHT, in.	.637	.5381

KLEINFELDER

PROJECT NO. 53512-GEO

CONSOLIDATION TEST

CHEVRON/TEXACO INVESTIGATION
CHEVRON-TEXACO WAY
SAN RAMON, CALIFORNIA

PLATE

-B-4

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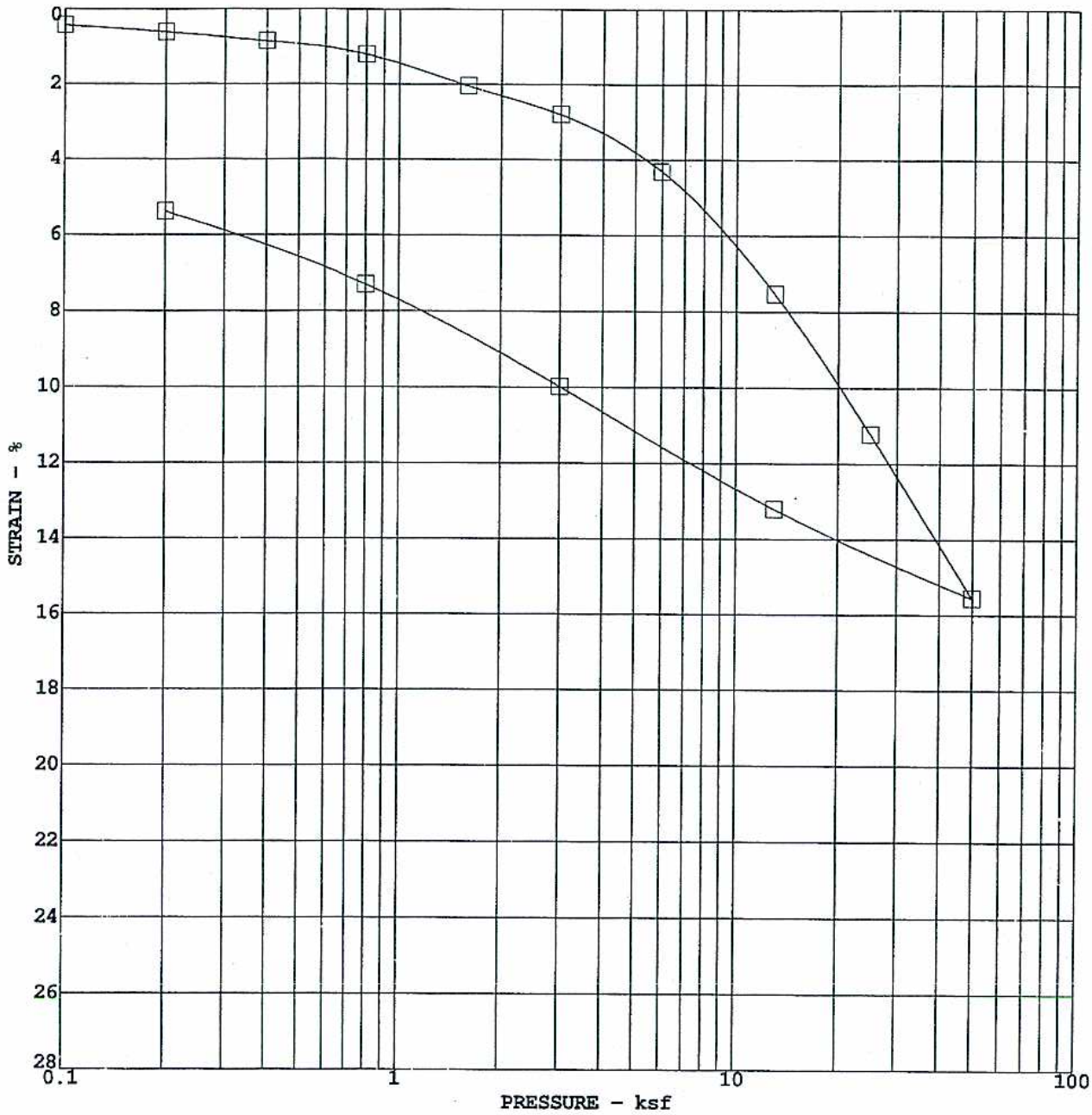

BORING NO. KB-5

DEPTH 31.0

DESCRIPTION Very Dark Greenish-Gray Fat Clay

PRECONSOLIDATION PRESSURE 7.50 ksf

COMPRESSION RATIO= $C_c/1+e_o$ **0.140**

RECOMPRESSION RATIO= $C_r/1+e_o$ **0.040**

LL = PL =

	INITIAL	FINAL
DRY DENSITY, lb/ft^3	103.9	109.2
WATER CONTENT, %	22.7	22.5
SAMPLE HEIGHT, in.	.63	.5961

KLEINFELDER

PROJECT NO. 53512-GEO

CONSOLIDATION TEST

CHEVRON/TEXACO INVESTIGATION
CHEVRON-TEXACO WAY
SAN RAMON, CALIFORNIA

PLATE

-B-5

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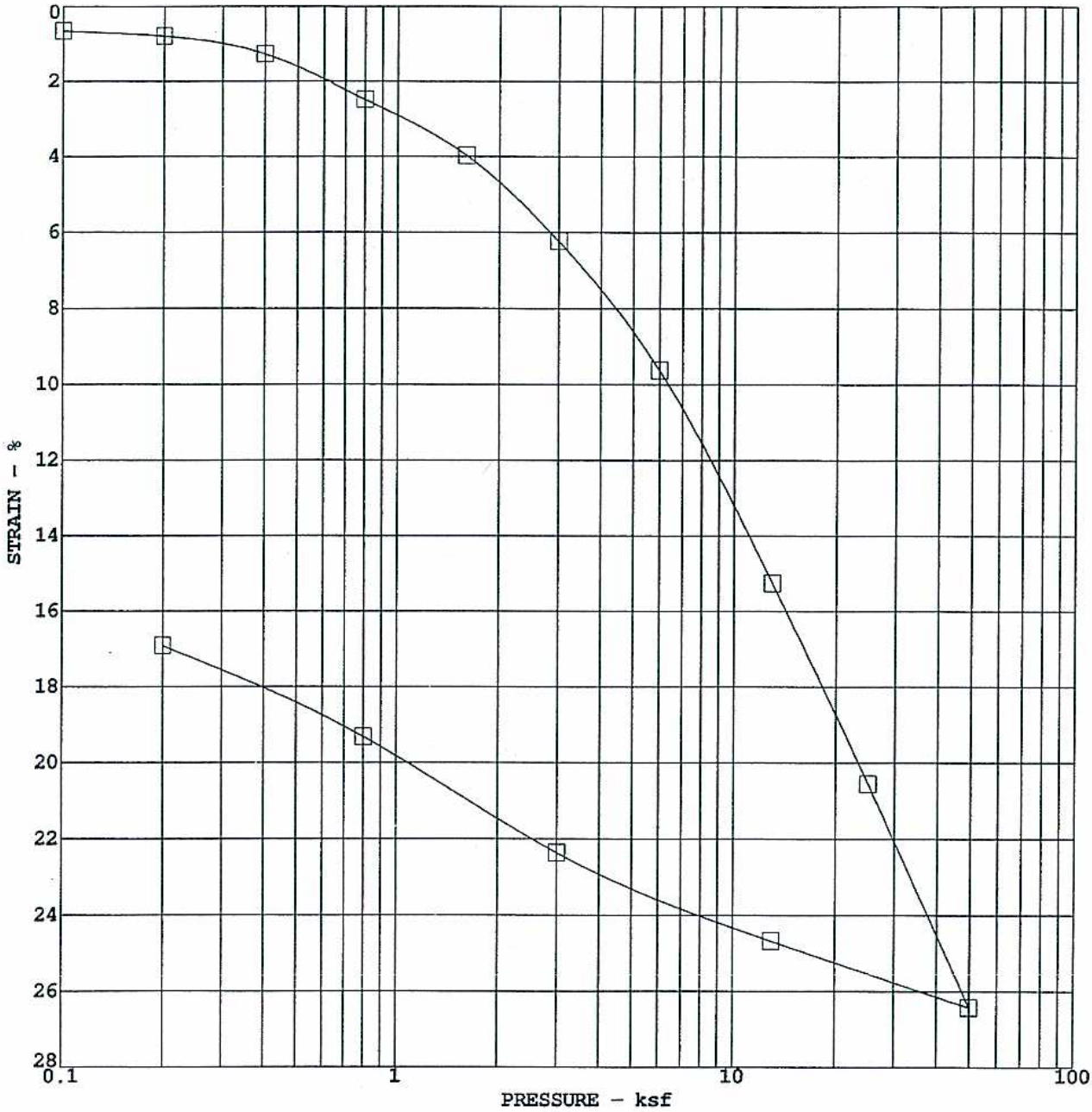

BORING NO. KB-6

DEPTH 21.0

DESCRIPTION Olive-Brown Silty Lean Clay

PRECONSOLIDATION PRESSURE 3.80 ksf

COMPRESSION RATIO= $C_c/1+e_o$ **0.210**

RECOMPRESSION RATIO= $C_r/1+e_o$ **0.040**

LL = _____ PL = _____

	INITIAL	FINAL
DRY DENSITY, lb/ft^3	111.7	128.2
WATER CONTENT, %	28.4	23.4
SAMPLE HEIGHT, in.	.566	.4702

KLEINFELDER

PROJECT NO. 53512-GEO

CONSOLIDATION TEST

CHEVRON/TEXACO INVESTIGATION
CHEVRON-TEXACO WAY
SAN RAMON, CALIFORNIA

PLATE

-B-6

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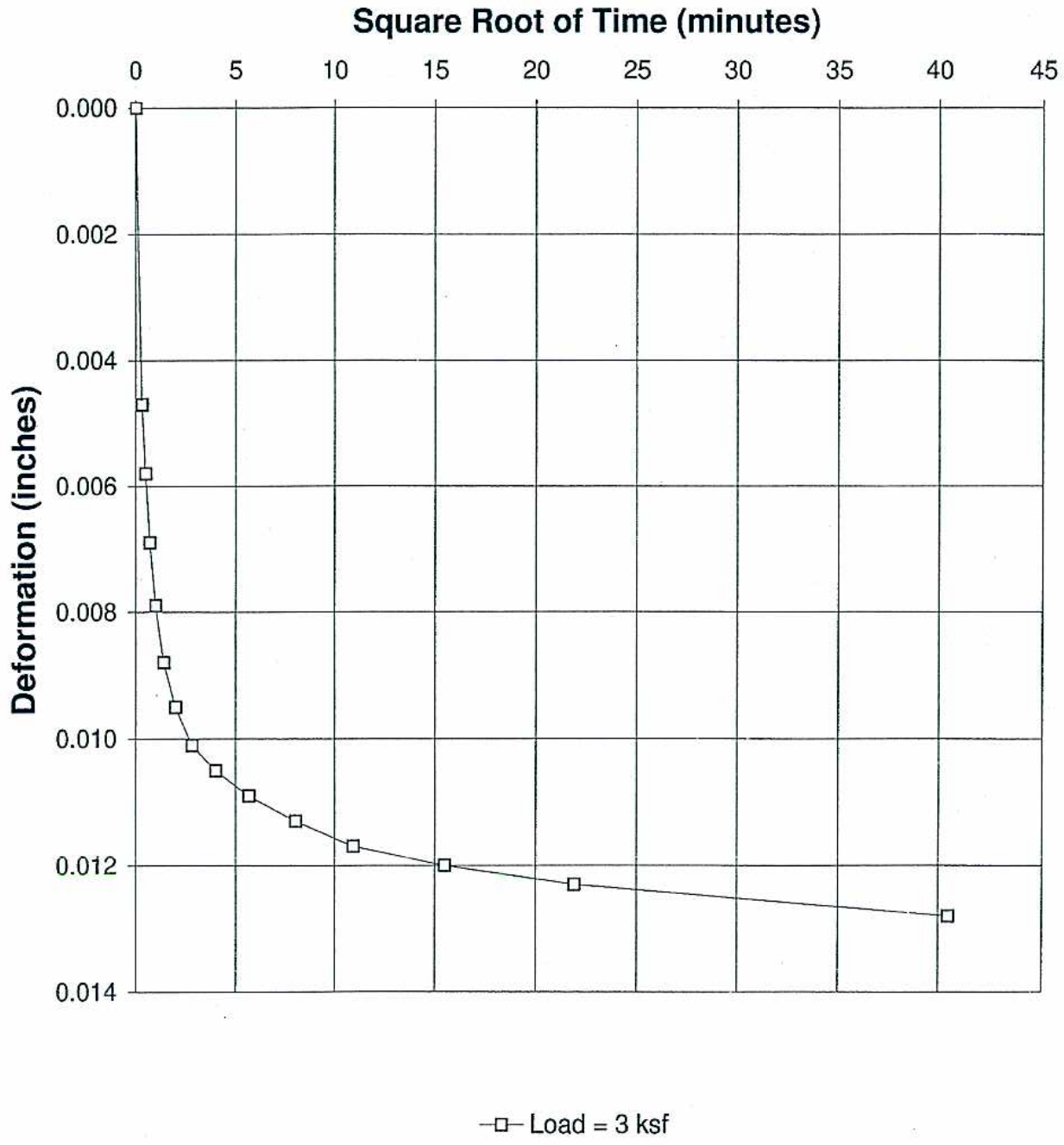
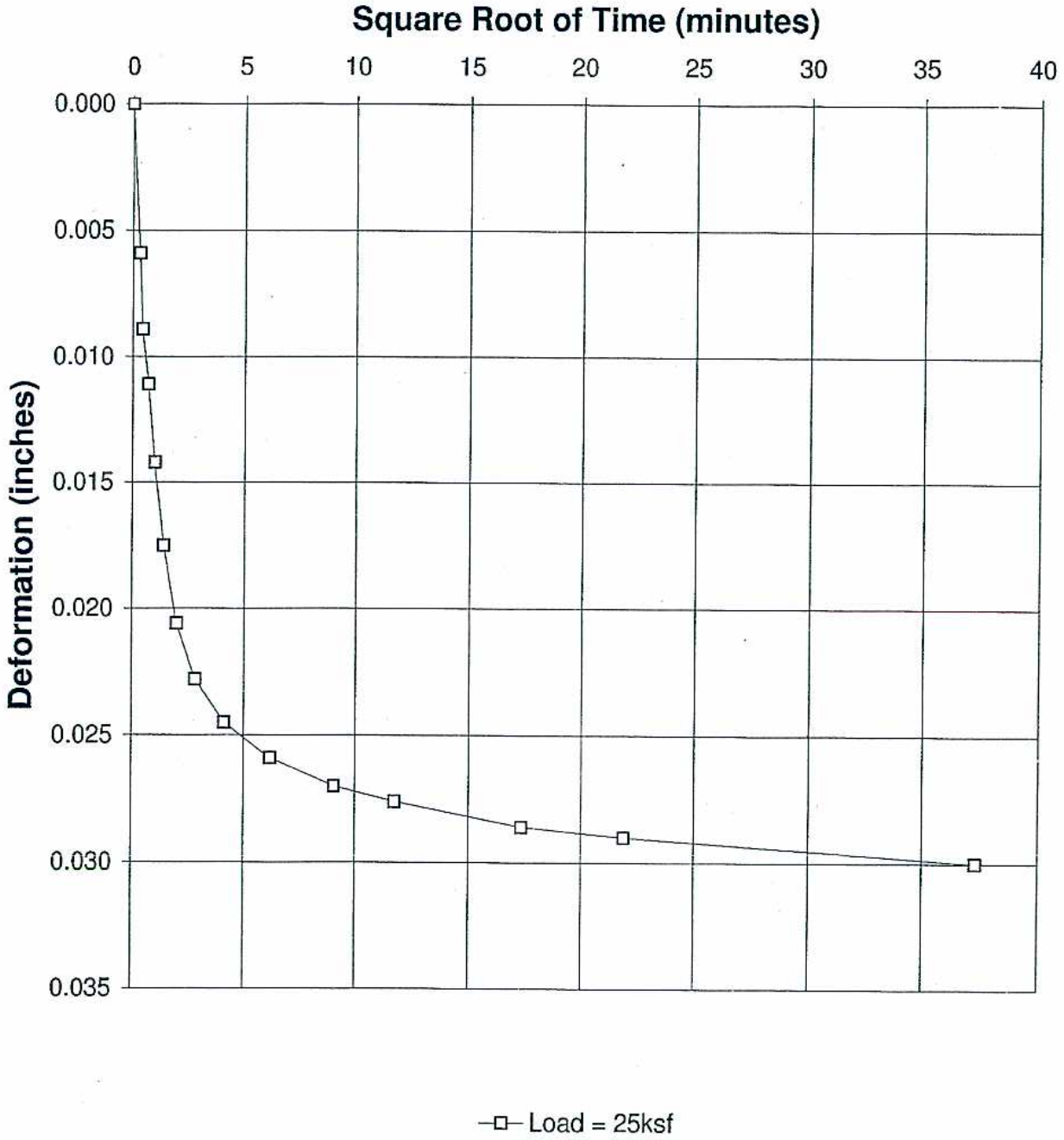
Time Rate of Consolidation



Boring No. KB-6 **Depth: 21 ft.**

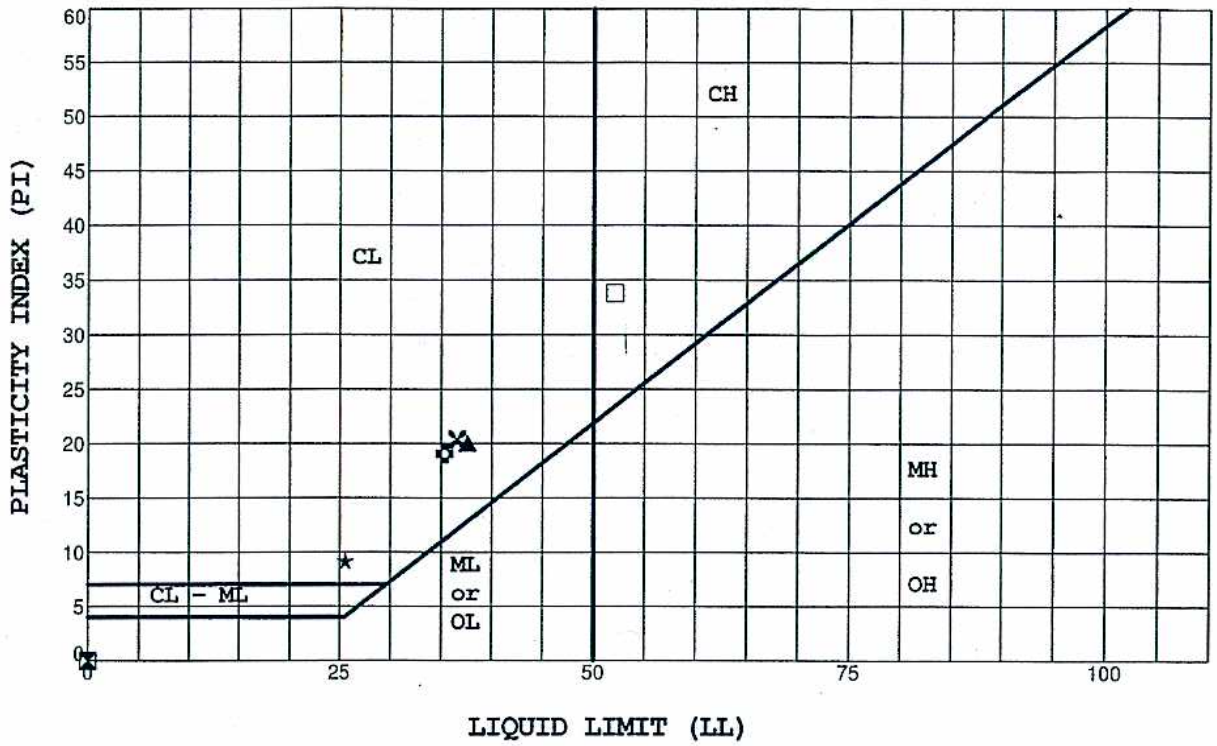
KLEINFELDER	**Chevron/Texaco Investigation** **Chevron-Texaco Way** **San Ramon, California**	*Plate*
Project No.: *53512*	**CONSOLIDATION/TIME RATE**	B-7

Time Rate of Consolidation



Boring No. KB-6 **Depth: 21 ft.**

KLEINFELDER	Chevron/Texaco Investigation Chevron-Texaco Way San Ramon, California	*Plate*
Project No.: *53512*	**CONSOLIDATION/TIME RATE**	B-8



Symbol	Boring	Depth	LL	PL	PI	Sample Description
□	KB-1	5.5	52	18	34	Black Clay
⊠	KB-1	9.5	NP	NP	NP	Light Brown Silty Sand
▲	KB-2	16.0	38	18	20	Light Brown Sandy Clay
★	KB-3	4.0	26	16	9	Light Brown Clayey Sand
✕	KB-4	10.5	37	16	20	Dark Brown Sandy Clay
✿	KB-5	10.0	35	16	19	Brown Sandy Clay

Unified Soil Classification

Fine Grained Soil Groups

Symbol	LL < 50	Symbol	LL > 50
ML	Inorganic clayey silts to very fine sands of slight plasticity	MH	Inorganic silts and clayey silts of high plasticity
CL	Inorganic clays of low to medium plasticity	CH	Inorganic clays of high plasticity
OL	Organic silts and organic silty clays of low plasticity	OH	Organic clays of medium to high plasticity, organic silts

KLEINFELDER

PROJECT NO. 53512-GEO

PLASTICITY CHART

CHEVRON/TEXACO INVESTIGATION
CHEVRON-TEXACO WAY
SAN RAMON, CALIFORNIA

PLATE

B-9

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