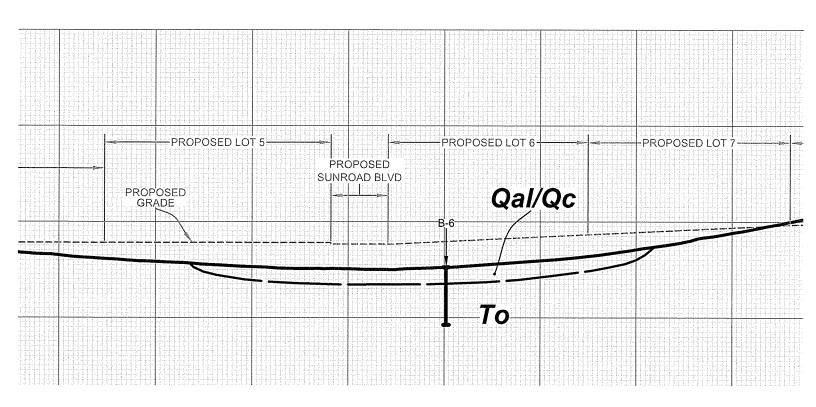


GEOLOGIC CROSS-SECTION C-C'

SCALE: 1" = 200' (Horiz.); 1" = 40' (Vert.)



SLOPE HEIGHT H = 40 feet

SLOPE INCLINATION 2 : 1 (Horizontal : Vertical)

TOTAL UNIT WEIGHT OF SOIL γ_t = 118.3 pounds per cubic foot

ANGLE OF INTERNAL FRICTION ϕ = 35 degrees

APPARENT COHESION C = 150 pounds per square foot

NO SEEPAGE FORCES

ANALYSIS:

 $\gamma_{c\phi} = \frac{\gamma_{t} H \tan \phi}{c}$ EQUATION (3-3), REFERENCE 1

FS = $\frac{\text{NcfC}}{\text{VH}}$ EQUATION (3-2), REFERENCE 1

 $\gamma_{c\phi}$ = 22.1 CALCULATED USING EQ. (3-3)

Ncf = 60 DETERMINED USING FIGURE 10, REFERENCE 2

FS = 1.9 FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES:

- Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics, Series No. 46, 1954
- Janbu, N., Discussion of J.M. Bell, Dimensionless Parameters for Homogeneous Earth Slopes, Journal of Soil Mechanics and Foundation Design, No. SM6, November 1967.

SLOPE STABILITY ANALYSIS - FILL SLOPES

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DSK/GTYPD

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DATE 07 - 20 - 2015

PROJECT NO. 06263 - 42 - 03

SLOPE HEIGHT H = Infinite

DEPTH OF SATURATION Z = 3 feet

SLOPE INCLINATION 2 : 1 (Horizontal : Vertical)

SLOPE ANGLE i = 26.6 degrees

UNIT WEIGHT OF WATER $\gamma_w = 62.4$ pounds per cubic foot

TOTAL UNIT WEIGHT OF SOIL γ_t = 118.3 pounds per cubic foot

ANGLE OF INTERNAL FRICTION ϕ = 35 degrees

APPARENT COHESION C = 150 pounds per square foot

SLOPE SATURATED TO VERTICAL DEPTH $\it Z$ BELOW SLOPE FACE SEEPAGE FORCES PARALLEL TO SLOPE FACE

ANALYSIS:

$$FS = \frac{C + (\gamma_t - \gamma_w) Z \cos^2 i \tan \phi}{\gamma_t Z \sin i \cos i} = 2.1$$

REFERENCES:

- 1......Haefeli, R. *The Stability of Slopes Acted Upon by Parallel Seepage*, Proc. Second International Conference, SMFE, Rotterdam, 1948, 1, 57-62
- 2......Skempton, A. W., and F.A. Delory, Stability of Natural Slopes in London Clay, Proc. Fourth International Conference, SMFE, London, 1957, 2, 378-81

SURFICIAL SLOPE STABILITY ANALYSIS - FILL SLOPES

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RG/RS

DSK/GTYPD

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DATE 07 - 20 - 2015

PROJECT NO. 06263 - 42 - 03

SLOPE HEIGHT H = 40 feet

SLOPE INCLINATION 2 : 1 (Horizontal : Vertical)

TOTAL UNIT WEIGHT OF SOIL $\gamma_t = 132.3$ pounds per cubic foot

ANGLE OF INTERNAL FRICTION ϕ = 35 degrees

APPARENT COHESION C = 500 pounds per square foot

NO SEEPAGE FORCES

ANALYSIS:

 $\gamma_{c\phi} = \frac{\gamma_{t} H \tan \phi}{2}$ EQUATION (3-3), REFERENCE 1

FS = $\frac{\text{NcfC}}{\text{OUL}}$ EQUATION (3-2), REFERENCE 1

 $\lambda_{c\phi}$ = 7.0 CALCULATED USING EQ. (3-3)

Ncf = 25 DETERMINED USING FIGURE 10, REFERENCE 2

FS = 2.5 FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES:

- Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics, Series No. 46, 1954
- Janbu, N., Discussion of J.M. Bell, Dimensionless Parameters for Homogeneous Earth Slopes, Journal of Soil Mechanics and Foundation Design, No. SM6, November 1967.

SLOPE STABILITY ANALYSIS - CUT SLOPES

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DATE 07 - 20 - 2015

PROJECT NO. 06263 - 42 - 03

SLOPE HEIGHT H = Infinite

DEPTH OF SATURATION Z = 3 feet

SLOPE INCLINATION 2 : 1 (Horizontal : Vertical)

SLOPE ANGLE $\dot{1}$ = 26.6 degrees

UNIT WEIGHT OF WATER $\gamma_w = 62.4$ pounds per cubic foot

TOTAL UNIT WEIGHT OF SOIL γ_t = 132.3 pounds per cubic foot

ANGLE OF INTERNAL FRICTION ϕ = 35 degrees

APPARENT COHESION C = 350 pounds per square foot

SLOPE SATURATED TO VERTICAL DEPTH Z BELOW SLOPE FACE SEEPAGE FORCES PARALLEL TO SLOPE FACE

ANALYSIS:

$$FS = \frac{C + (\gamma_t - \gamma_w) Z \cos^2 i \tan \phi}{\gamma_t Z \sin i \cos i} = 4.1$$

REFERENCES:

- 1......Haefeli, R. *The Stability of Slopes Acted Upon by Parallel Seepage*, Proc. Second International Conference, SMFE, Rotterdam, 1948, 1, 57-62
- Skempton, A. W., and F.A. Delory, Stability of Natural Slopes in London Clay, Proc. Fourth International Conference, SMFE, London, 1957, 2, 378-81

SURFICIAL SLOPE STABILITY ANALYSIS - CUT SLOPES

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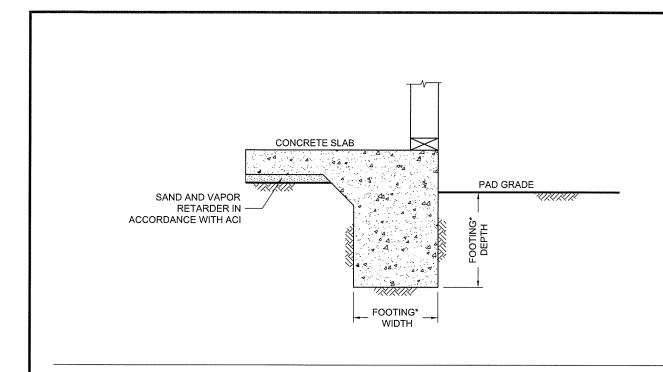
RG/RS

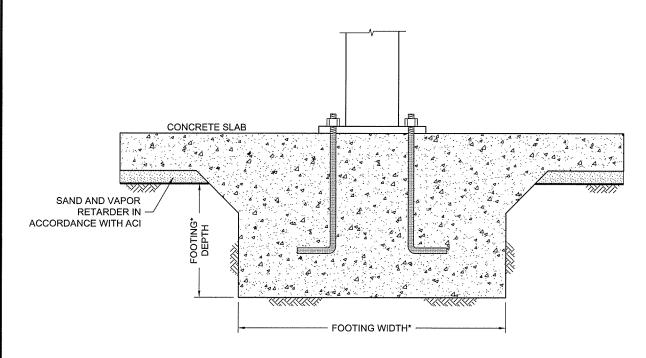
DSK/GTYPD

EAST OTAY MESA CENTER MIXED-USE SAN DIEGO, CALIFORNIA

DATE 07 - 20 - 2015

PROJECT NO. 06263 - 42 - 03





*...SEE REPORT FOR FOUNDATION WIDTH AND DEPTH RECOMMENDATION

NO SCALE

WALL / COLUMN FOOTING DIMENSION DETAIL

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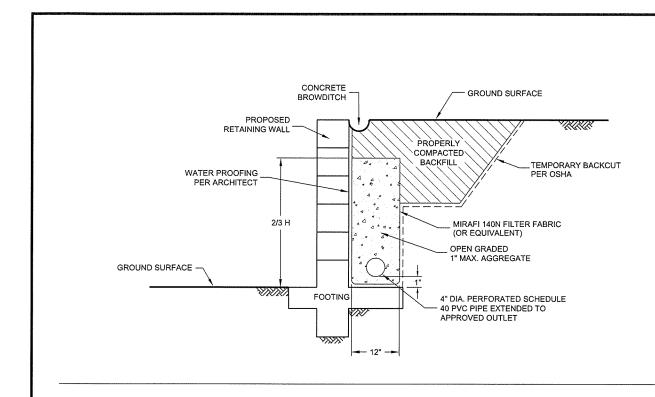
RG/RS

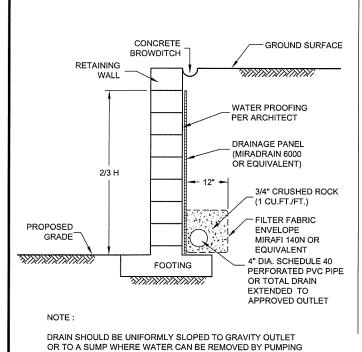
DSK/GTYPD

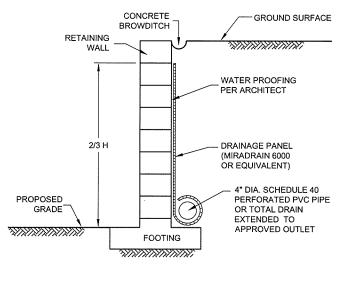
EAST OTAY MESA CENTER MIXED-USE SAN DIEGO, CALIFORNIA

DATE 07 - 20 - 2015

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TYPICAL RETAINING WALL DRAIN DETAIL

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RG / RS DSK/GTYPD

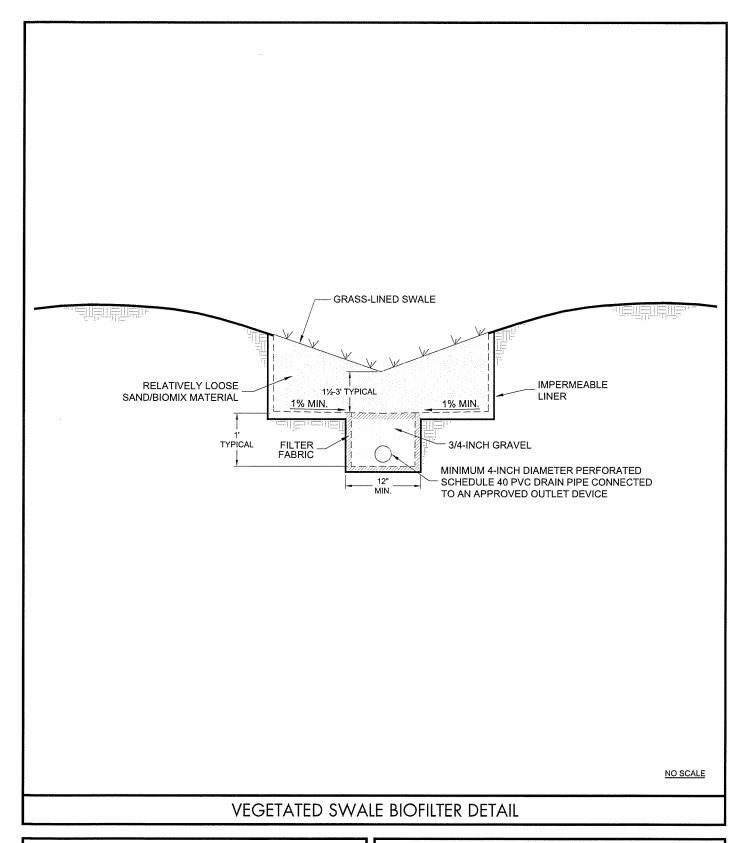
EAST OTAY MESA CENTER MIXED-USE SAN DIEGO, CALIFORNIA

DATE 07 - 20 - 2015

PROJECT NO. 06263 - 42 - 03

FIG.10

NO SCALE



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DATE 07 - 20 - 2015

PROJECT NO. 06263 - 42 - 03

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The field investigation was performed between September 7 and September 20, 1990, and consisted of geologic mapping of 11 large-diameter exploratory borings and 26 exploratory trenches at the approximate locations shown on the attached Geologic Map, Figure 2 (Map Pocket). The borings were advanced to depths ranging from 20 feet to 90 feet below existing grade utilizing an E100 drill-rig equipped with a 30-inch-diameter bucket auger. The trenches were excavated utilizing a John Deere 710 backhoe and/or a John Deere 555 trackhoe.

Relatively undisturbed samples were obtained from the borings by driving a three-inch O. D. split-tube sampler into the soil mass with blows from the drill rig's Kelly bar falling 12 inches. The sampler was equipped with 1-inch by 2\%-inch brass sampler rings to facilitate removal and testing. Disturbed samples of prevailing soils were also obtained from the borings and trenches.

The soil conditions encountered in the trenches were visually examined, classified, and logged in general conformance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D 2844). The logs of the exploratory borings and trenches are presented on Figures A-1 through A-45. The logs depict the various soil types encountered and indicate the depths at which samples were obtained.

Project No. 06263-42-03 July 20, 2015

FILE NO. 04581-03-01 SROUNDWATER BORING B 1 LITHOLOGY PENETRATION RESISTANCE (BLOWS/FT.) ORY DENSITY (P.C.F.) MOISTURE DEPTH SOIL SAMPLE IN CLASS ELEVATION 572 DATE COMPLETED 9/10/90 NO. FFFT (USCS) EQUIPMENT E-100 BUCKET DRILL MATERIAL DESCRIPTION 0 TOPSOIL CL Soft, dry, dark gray, Sandy CLAY 2 **OTAY FORMATION** 4 Highly weathered, fractured, dry, whitish gray Silty fine SANDSTONE interbedded with B1-1 SM 3/12" 103.3 16.1 Sandy SILTSTONE 6 8 Hard, humid, fractured purplish CLAYSTONE, CL bedding attitude near horizontal 10 B1-23/12" 105.8 16.6 Very dense, humid, light gray Silty fine 12 SANDSTONE SM 14 B1-4 ML Purplish sandy siltstone from 14 to 15 feet 16 B1-35/12" 108.7 16.2 Very dense, humid, light gray Silty fine 18 SANDSTONE SM 20 Very stiff to hard, humid, purplish-brown Clayey SILTSTONE. Contact gradational 3/12" B1-5ML 84.1 35.8 2.2 CH Bentonite layer approximately 6 inches thick, attitude horizontal. Shear zone 24 bedding plane fault 1/2 inch thick horizontal B1-6 ML 13/12" 10.5 Hard, humid, pinkish-gray, Clayey 26 SILTSTONE SM Grades into massive, gray, very fine 28 silty sandstone at 27 feet 10/12" 17.1B1-7ML Grades into hard, purplish siltstone Figure A-1 Log of Test Boring B 1, page 1 of 3 ECKE ... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED) SAMPLE SYMBOLS ₩ ... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

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

FILE N	IO. 0458	1-03-	01	1		7		
DEPTH	Action of the contraction of the	750	ATER		BORING B 1	2 H 3	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	2
IN FEET	SAMPLE NO.	LITHOLOGY	BROUNDWATER	CLASS (USCS)	ELEVATION 572 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	DENSJ O. F.	MOISTURE CONTENT (%)
	Na mini manahamin papakanan ka		GR.		EQUIPMENT E-100 BUCKET DRILL	PENE RESJ (BLO	DRY (₽)	MOJ
- 30 -					MATERIAL DESCRIPTION			
32	anna merumektik kapa apaka mana			SM	at 29 feet Grades into hard, purplish siltstone at 29 feet (continued)		The company of the co	
34	de de la constante de la const			SM	Very dense, moist, light gray, massive, fine Silty <u>SANDSTONE</u>		Residence or season of the sea	
	**************************************				*** *** *** *** *** *** *** *** *** **			
- 36 -				CL_	Hard claystone layer. Attitude near horizontal			
- 38 -				SM	Very dense, moist, light gray, massive, fine Silty <u>SANDSTONE</u>	PRODE		
	And the state of t			CL	Hard claystone bed from 38.5 to			
- 40 -	B1-8			and the same of th	39.5 feet	20/12"	129.3	6.0
- 42 -				SM	Very dense, moist, light gray, massive, fine Silty <u>SANDSTONE</u>	encia Season		
- 44 -			2 0 1 1 2 0 1 1 1 1 1	SP	Very hard, well-cemented sandstone from 42.5 to 43.5			
- 46 -				SM	Very dense, moist, light gray, massive, fine Silty <u>SANDSTONE</u>	and the second s		
40			i i		Very hard, moist, massive, light gray			
- 48 -				SM	Sandy <u>SILTSTONE</u>			
- 50 -	B1-9			SM	Very dense, moist, gray, massive fine Silty <u>SANDSTONE</u>	17/12"	106.6	20.6
52		TO THE PROPERTY OF THE PROPERT						
- 54	And control of the co					And a separation of the separa		
- 56	PER STATE OF THE S	Marie Communication of the com		CL	Very hard, massive, humid, purplish brown Silty <u>CLAYSTONE</u>			
		MARINE MARINES CONTROL		AVVACANTAGE	-	Proof.		
- 58 - 				СН	Very hard, purplish-gray, Bentonitic CLAY conchoidal fracturing			

Figure A-2 Log of Test Boring B 1, page 2 of 3 ECKE ... SAMPLING UNSUCCESSFUL 🛮 ... STANDARD PENETRATION TEST 📱 ... DRIVE SAMPLE (UNDISTURBED) SAMPLE SYMBOLS ☐... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE

FILE N	10. 0458	1-03-0	01			7		
DEPTH		ову	ATER		BORING B 1	N H C	È	2
IN FEET	SAMPLE NO.	ITHOLOGY	BROUNDWATER	SOIL CLASS (USCS)	ELEVATION 572 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	DENSITY	MOISTURE CONTENT (%)
]	GRO		EQUIPMENT E-100 BUCKET DRILL	PENE RESI (BLO)	DRY (₽.	MOI
- 60 -	B1-10	2777777			MATERIAL DESCRIPTION			
62	D1-10			CH	Very hard, purplish-gray, Bentonitic <u>CLAY</u> conchoidal fracturing (continued) Hard, pink <u>BENTONITE</u>	11/12"	65.5	54.6
64 -	in decidence and design in the second			ML	Shear zone, soft, highly remolded 1 to 3 inch thick. Attitude near horizontal 62 to 63 feet			
- 66 -	Transmit Application of the Control				Very dense, moist, massive, dark gray fine Silty <u>SANDSTONE</u> Grades into very hard, light brown siltstone	Silahafu penilara		
- 68 -				Control of the Contro	at 63.5 feet			
- 70 -					Vous dance and the manufacture laws and the		- Nation Collected Collected of the coll	Parameter and a service a
- 72 -	B1-11 Z			SM	Very dense, moist, massive, brownish-gray, very fine, Silty <u>SANDSTONE</u>	American	126.9	6.6
- 74 -				TO CONTROL AND ADDRESS OF THE PERSONS OF THE PERSON		Production of the Control of the Con		
76 -				SM	Very hard, moist, purplish-brown, massive Sandy <u>SILTSTONE</u>			
- 78 -								
- 80 -	B1-12 🛭			SM	Very dense, massive, fine <u>SANDSTONE</u>	- color-	117.1	13.3
- 82 -						and the second		
- 84 -					Very hard, humid, massive, Sandy SILTSTONE			
- 86 -				SM		The state of the s	er en	
- 88 -			***************************************	ter a resident sind and service and deliveral		The state of the s		
***					TRENCH TERMINATED AT 90 FEET		92.5	27.0
Figure	≥ A-3	L	go	of T	est Boring B 1, page 3 of 3		ACCOMPANIES OF THE CONTROL OF	ECKE
SAMI	PLE SVM	rroi (. 1] SA	MPLING UNSUCCESSFUL 📗 STANDARD PENETRATION TEST 🗏 DRIV	VE SAMPLE	(UNDIST	JRBED)

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

☐... CHUNK SAMPLE

▼ ... WATER TABLE OR SEEPAGE

◯ ... DISTURBED OR BAG SAMPLE

FILE N	IO. 0458	1-03-0) 1					
\$ 0° 0° 1°		00×	SROUNDWATER		BORING B 2	Z W ?	È	- R
DEPTH IN FEET	SAMPLE NO.	ITHOLOGY	S S S	SOIL CLASS (USCS)	ELEVATION 576 DATE COMPLETED 9/11/90	RATI STAN	DENSITY	END FAI
	The second secon	ם	GRO	(0303)	EQUIPMENT E-100 BUCKET DRILL	PENETRATION RESISTANCE (BLOWS/FT.)	0RY 0	MOISTURE CONTENT (%)
- 0 -					MATERIAL DESCRIPTION	1	Say I	
_ 2 -				CL	TOPSOIL Loose, dry, dark gray Silty <u>CLAY</u>	Anguer 1990/00		
4 -	des del construir de la proprieta de la construir de la constr			SM	OTAY FORMATION Medium dense, humid, fractured, weathered light grayish-brown Silty SANDSTONE			
- 6 -	B2-1					3/12"	102.6	17.4
- 8 -				CL	Hard, humid, purple, massive <u>CLAYSTONE</u>	ens. o		
- 10 - - 12 -	B2-2			SM	Grades into very dense massive, Silty SANDSTONE	9/12"	118.2	11.9
- 14 -				CL	Hard, humid, purple claystone from 12.5 to 14 feet			***
- 16 -	B2-3			SM	Grades into very dense massive, Silty <u>SANDSTONE</u>	⁻ 8/12"	122.2	11.4
- 18 -				Control manufacture of the second of the sec		Bandon-		
- 20 -	B2-4			CL	Hard, purple, humid claystone from 19.5 to 20.5 feet	7/12"	108.9	19.0
- 22 -				SM	Grades into very dense massive, Silty <u>SANDSTONE</u>	projekti.		
- 24 -			_	CII				
- 26 -	B2-5			CH SM	Hard pink bentonite bed approximately horizontal from 24.5 to 25.5 feet		111.3	11.4
- 28 -				SP SM	Grades into very dense massive, Silty SANDSTONE			

B2-5

CH

Hard pink bentonite bed
approximately horizontal from 24.5
to 25.5 feet

SP

Grades into very dense massive,
Silty SANDSTONE

Hard, well-cemented sandstone from

Figure A-4

Log of Test Boring B 2, page 1 of 3

ECKE

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

DISTURBED OR BAG SAMPLE

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

FILE N	IO. 0458	1-03-0	01					
		ĠΥ	TER		BORING B 2] <u>z </u>	>	
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	aROUNDWATER	SOIL CLASS (USCS)	ELEVATION 576 DATE COMPLETED 9/11/90	PENETRATION RESISTANCE (BLOWS/FT.)	P.C.F.)	MOISTURE CONTENT (%)
***************************************			0		EQUIPMENT E-100 BUCKET DRILL		DRY (P.	ΣÓ
- 30 -	B2-6 ▮			a Productiva de Santo	MATERIAL DESCRIPTION 27 to 28 feet	14/12"	118.4	
				SM	والمراكب المراكب المرا	14/12	110.4	10.3
- 32				CL	Very dense, massive, Silty <u>SANDSTONE</u> (continued)		antilitation (1900) anti-almost anti-almos	
- 34 -				CL	Hard, humid, brown Sandy <u>CLAYSTONE</u>			
- 36 -				SM	Very dense, humid, massive, light	Particular (
- 38 -					gray, very fine Silty <u>SANDSTONE</u>		A distribution of the state of	

- 40 -	B2-7						105.7	9.8
- 42 -								
						_		
- 44 -						_		
- 46 -								
				CL	Hard, humid, dark gray Silty CLAYSTONE	Seasoni .		
- 48 -								
- 50 -			1		Very dense, humid, massive, light gray,			**************************************
	B2-8			SM	medium cemented, very fine Silty SANDSTONE	9/12"	103.3	13.9
- 52 -								
- 54 -			-				-	
- 54			o se e um e			panege	-	OTTO CONTINUE MANAGEMENT AND
- 56 -				CL	Hard, humid, purple, <u>CLAYSTONE</u> Grades into hard, dark gray bentonitic			
		111111			claystone at 56.5 feet			
- 58 -				СН	Hard, brittle, pinkish-brown BENTONITE			
		<i></i>	=				****************	
Figure	: A-5	L	og —	of T	est Boring B 2, page 2 of 3		AND THE RESIDENCE OF THE PROPERTY AND ADMINISTRATION OF THE PROPERTY AND ADMINISTRATIO	ECKE
SAME	PLE SYM	IBOLS	; [MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DRIV STURBED OR BAG SAMPLE WATE	/E SAMPLE		-
			***		Section 7 7 27/1 to			- 1

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П	-			¥**.	1 1		ı	162	3.	^ 1	 	-	ł	3	ŧ.

A AAAAA A	(0. 0430)	, - WJ - (<i>/</i> 1	y				
DEDTE	Problema de la companya de la compan	OGY	ATER		BORING B 2	<u>₹₩</u> ;	<u>}</u>	- R
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	ELEVATION 576 DATE COMPLETED 9/11/90	PENETRATION RESISTANCE (BLOWS/FT.)	ORY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			GR		EQUIPMENT E-100 BUCKET DRILL	PENE RES: (BLO	γ G	MO:
- 60 -					MATERIAL DESCRIPTION			
	B2-9				Very dense, humid, gray, massive fine <u>SANDSTONE</u>		64.4	57.4
- 62 - 				SP				
- 64 -						- Consider		
- 66 -						endere-		
su								
- 68 -								
					BORING TERMINATED AT 69 FEET			
							: :	
of the second se								
Design of the second se								
SECONDA DO COMPANION DE COMPANI								
and the second s								
el de Allanderre en								

воден и па подруждала			***************************************					
volumbous / Avvaribuo			-					
ACOO B BROWNING A SALESHAME								
кам (кульрукарура	-							
одоржадарандаранданданданданданданданданданданданданда								

Figure A-6 Log of Test Boring B 2, page 3 of 3

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR SEEPAGE

	And the second s	ĞΥ	TER		BORING B 3	Z w ^	\	T a
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	3ROUNDWATER	SOIL CLASS (USCS)	ELEVATION 606 DATE COMPLETED 9/12/90	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (X)
	die en de cyproniscular printerado	נ	GRO	(0000)	EQUIPMENT E-100 BUCKET DRILL	RESI BLOU)RY [MOI
0 -					MATERIAL DESCRIPTION			
2				CL	TOPSOIL Soft, dry, blackish-brown Sandy <u>CLAY</u>		Comment on a control of control o	
4 -	B3-1			SC	OTAY FORMATION Fractured, weathered, dry, whitish-tan Clayey SANDSTONE	2/12"	99.2	20.6
8				SM	Very dense, moist, light gray, fine, massive, Silty <u>SANDSTONE</u>			
10	B3-2 ■			ML	Stiff, humid, light brown SILTSTONE (volcanic tuff)	6/12"	111.7	11.5
12 •				SM	Very dense, moist, light gray, fine, massive, Silty <u>SANDSTONE</u>	A Contraction of the Contraction		
14	B3-3			ati isintani teritori teritori teritori anti ancele anti ancele anti ancele anti ancele anti ancele anti ancel	Hard, humid, purplish-brown CLAYSTONE	8/12"	112.7	15.1
16 -								
18				SM	Very dense, moist, light gray, fine, massive, Silty <u>SANDSTONE</u>			
20 -	B3-4					7/12"	113.5	9.9
22 -				SP SM	Well cemented <u>SANDSTONE</u> from 21 to 21.5 feet			mustikinus karlaksankan kihapi ini ugimman kihikin Mustikin karlaksan kanga panga kanga panga kanga kanga Mustikin sa kanga kanga panga kanga panga kanga kanga
24 -				CL	Very dense, moist, light gray, fine, massive, Silty SANDSTONE	gradient in heart have been been received an open of an		
26	B3-5				Hard, humid, purple, massive CLAYSTONE	76/12"	114.4	13.2
26 -	Bereite des des des des des des des des des de			SP	Very dense, humid, light gray, fine SANDSTONE		,	

28 CL Hard, humid, light brown, massive $\underline{CLAYSTONE}$ Figure A-7 Log of Test Boring B 3, page 1 of 3 ECKE ■ ... STANDARD PENETRATION TEST ■ ... DRIVE SAMPLE (UNDISTURBED) ... SAMPLING UNSUCCESSFUL SAMPLE SYMBOLS ◯ ... DISTURBED OR BAG SAMPLE ☐... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

FILE N	(O. 0458)	I-03-()1	T I		1		
DEPTH		-067	3ROUNDWATER	SOIL	BORING B 3	사이 있다.	È,	т 8 В
IN FEET	SAMPLE NO.	ITHOLOGY	IONO!	CLASS (USCS)	ELEVATION 606 DATE COMPLETED 9/12/90	STAN STAN	Y DENSITY (P.C.F.)	AUTS TAN
			GRC		EQUIPMENT E-100 BUCKET DRILL	PENETRATION RESISTANCE (BLOWS/FT.)	ORY (P.	MOISTURE CONTENT (%)
- 30					MATERIAL DESCRIPTION		*****************	
- 32	B3-6				Hard, humid, massive, light gray Sandy SILTSTONE	14/12"	119.3	12.4
32	grand and design of the second			SM				
- 34 -	en e					and the second of the second o		
36 -				SM	Very dense, moist, light gray, very fine Silty <u>SANDSTONE</u>			
- 38 -				- Minimipal Market Mills - 64 Activities (1900)	Hard, well cemented concretions from 37.5 to 39 feet			
- 40 42	B3-7 Ø			CL/SM	Hard purplish <u>CLAYSTONE</u> interbedded with very dense, light gray Silty <u>SANDSTONE</u> . Thickness of beds 1 to 2 feet, Contact gradational, general attitude near horizontal.	Andrew C	99.7	13.2
- 44 -					attitude near horizontal.	-		
- 46				Angel de Alberta		antitie		
- 48 -	B3-10			uudivadeallaalla minimminen en en essaania en en en essaania en en en essaania en en en essaania en en en essa	Shear zone. Bedding plane fault. Thickness approximately 1 inch. Attitude horizontal. Developed along	-constant -const	+ NAME OF THE STREET OF THE ST	erroritantissee sterophessaanin polisia
- 50 -	B3-8				purplish claystone (above) and gray siltstone (below) from 47.5 to 47.75 feet	_ [23/12"	116.6	14.9
- 52 -				SM-ML	Very dense, humid, light gray, fine Silty <u>SANDSTONE</u> interbedded with gray Shaley <u>SILTSTONE</u>	, 		
- 54 -				CL	Very hard, humid, purplish-brown <u>CLAYSTONE</u> , grades into clayey sandstone	- many		
- 56 - 58				SM	Very dense, humid, massive, light gray, fine Silty <u>SANDSTONE</u> . Occasional cemented zones.			

Figure A-8 Log of Test Boring B 3, page 2 of 3

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... CHUNK SAMPLE

... WATER TABLE OR SEEPAGE

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

FILE N	O. 04581	1-03-(01					
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 3 ELEVATION 606 DATE COMPLETED 9/12/90 EQUIPMENT E-100 BUCKET DRILL	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 60 -		: r : r : r :			MATERIAL DESCRIPTION			
62	B3-9 Z				Very dense, humid, massive, light gray, fine Silty <u>SANDSTONE</u> . Occasional cemented zones. (continued)		105.7	13.2
- 64 - - 66 -				SM				
- 68 -				**************************************				
- 70 - 72 -	B3-11			CL	Hard, humid, purplish-brown <u>CLAYSTONE</u>	720/12" - -	110.9	18.5
- 74 - - 76 -				SM	Very dense, humid, light gray Silty <u>SANDSTONE</u> with occasional siltstone zones			
- 78 - - 78 -				CH SM	Hard, brittle, pinkish-brown bentonite seam. Thickness approximately 4 inches, poorly developed shear zone. Attitude near horizontal from 76.5 to 77 feet			
- 80 -	B3-12			Adama Alia Pelak Kili Sering Int I I I I I I I I I I I I I I I I I I	Very dense, humid, light gray Silty SANDSTONE with occasional siltstone zones	30/12"	114.4	11.0
					BORING TERMINATED AT 81 FEET			
Figure	A-9	L	og	of T	est Boring B 3, page 3 of 3			ECKE
CARAI	DIESVA	(BOL9	<u>. </u>] SA	MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DRI'	VE SAMPLE	(UNDISTL	JRBED)

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

▼ ... WATER TABLE OR SEEPAGE

FILE NO	04581	-03-01
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7 132. 1	10. 0458.	1-05-1	<i>)</i>	pro-incommon and a second		eng.		
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	ELEVATION 559 DATE COMPLETED 9/12/90 EQUIPMENT E-100 BUCKET DRILL		DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
	-				MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	- Lui	
2 -				CL	TOPSOIL/ALLUVIUM/COLLUVIUM Soft, dry, dark gray Sandy <u>CLAY</u>			
6	B4-1			SM	OTAY FORMATION Highly weathered, moist, whitish-tan Sandy SILT	2/12"	107.9	17.6
8 -				SM	Medium dense, humid, light gray Silty <u>SAND</u>	product.		
10 -	B4-2			SM	Stiff, moist, fine Sandy <u>SILTSTONE</u> (volcanic tuff) Poorly developed shear zone attitude horizontal at 10 feet	T1/12"	91.3	30.5
- 12 - 14 -				SM-ML	Very dense, moist, light grayish-brown, massive, very fine Silty SANDSTONE/SILTSTONE	anaini anaini		
a	B4-3			andi interpreta		4/12"	100.8	23.8
- 16 - - - 18 - 				CL	Very hard, humid, purple-brown massive <u>CLAYSTONE</u>			maniference (miles en especialistes pour la circum)
- 20 - 22 -	B4-4			SM	Very dense, moist, massive, trace Silty <u>SANDSTONE</u> with trace of silt	4/12"	103.0	23.2
24					BORING TERMINATED AT 25 FEET			amaga ngaga ang king ang kanaga k
		to direct tribuments compared accompanies and accompanies accompan						

Figure A-10 Log of Test Boring B 4, page 1 of 1

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... WATER TABLE OR SEEPAGE

FILE NO. 04581-03-01 GROUNDWATER BORING B 5 LITHOLOGY DENSITY .C.F.) PENETRATION RESISTANCE (BLOWS/FT.) MOISTURE DEPTH SOIL SAMPLE IN CLASS ELEVATION 547 DATE COMPLETED 9/12/90 NO. FFFT (USCS) EQUIPMENT E-100 BUCKET DRILL MATERIAL DESCRIPTION 0 TOPSOIL/ALLUVIUM/COLLUVIUM CLSoft, dry, dark gray Sandy CLAY 2 Becomes moist, blackish-gray clay at 2.5 feet 4 B5-1 1/12" 104.2 19.3 **OTAY FORMATION** 6 Soft, moist to wet, mottled, highly weathered bioturbated CLAY CL/SM Medium dense, moist, grayish-brown 8 fine Silty SAND CaCO3 concentrations from 8 to 8.5 feet 10 B5-2 3/12" 94.9 20.8 Stiff, moist, purple-brown CL **CLAYSTONE** 12 Well cemented concretion from 11 to 11.5 feet Very stiff, moist, dark gray, Sandy 14 SILTSTONE SM 16 18 Hard, humid, gray SILTSTONE B5 - 3ML 103.2 20.9 20 Light seepage at 20 feet 22 B5-4102.5 22.8 24 BORING TERMINATED AT 25 FEET

Figure A-11 Log of Test Boring B 5, page 1 of 1 **ECKE** ... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED) SAMPLE SYMBOLS ◯ ... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE

FI	LE	N	Ю.	0458	1 -	-03-	01	
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FILE	VO. 04581	1-03-1	<u> </u>	T		7		
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 6 ELEVATION 539 DATE COMPLETED 9/12/90 EQUIPMENT E-100 BUCKET DRILL	PENETRATION RESISTANCE (BLOWS/FT.)	ORY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -					MATERIAL DESCRIPTION			
2 -				CL	ALLUVIUM\COLLUVIUM Medium stiff, dry-slightly damp, red-brown to gray-brown Sandy <u>CLAY</u> Very gravelly at 2.5 feet			
- 6 -	B6-1			CL	OTAY FORMATION Medium stiff, moist, mottled red-brown and light tan Silty CLAY with CaCO3 seams; some interbedded medium dense, moist, gray-brown Silty fine SAND; highly weathered Becomes stiff at 5 feet	1/12"	102.3	21.1
- 10 -	B6-2			ML	Stiff moist-wet, light tan <u>SILTSTONE</u> Becomes wet from 11 to 11.5 feet		108.5	20.5
- 12 - - 14 - - 16 -	B6-3		∑ america a america a america a america a america a a a a a a a a a a a a a a a a a a	SM	Very dense, moist-wet, gray micaceous SANDSTONE, some interbedded hardened red-brown oxidized layers Becomes saturated at 14 feet		109.1	18.3
- 18 -				AND THE PROPERTY OF THE PROPER	Highly cemented sandstone at 18.5 feet	projecijo – projec		
- 20 -	B6-4			CL	Stiff, saturated, light red-brown CLAYSTONE	5/12"	106.4	21.1
- 22 -				SM	Dense, saturated dark gray SANDSTONE	-safer.		
- 24 -			And the state of t			granati.		
e u					BORING TERMINATED AT 25 FEET			
	transica con conservativa de la co	hammen an						

Figure A-12 Log of Test Boring B 6, page 1 of 1

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... CHUNK SAMPLE

... WATER TABLE OR SEEPAGE

FILE NO. 04581-03-01 GROUNDWATER BORING B 7 LITHOLOGY PENETRATION RESISTANCE (BLOWS/FT.) DRY DENSITY (P.C.F.) MOISTURE CONTENT (X) DEPTH SOIL SAMPLE TM CLASS ELEVATION 615 DATE COMPLETED 9/13/90 NO. FEET (USCS) EQUIPMENT E-100 BUCKET DRILL MATERIAL DESCRIPTION 0 TOPSOIL CL Soft, dry, dark gray Sandy CLAY 2 Cobbles at 2.5 feet **OTAY FORMATION** 4 Highly weathered, dry, whitish-tan, fractured calichified <u>SILTSTONE</u>. B7-1 ML 4/12" 91.7 15.5 Numerous krotovinas along the topsoil 6 contact Stiff, humid, dark gray, fractured 8 SM Sandy SILTSTONE 10 Very dense, humid, light gray, massive B7-2SM 5/12" 109.7 12.0 weakly cemented fine Silty SANDSTONE 12 ML Hard, humid, dark gray Sandy SILTSTONE. 14 Bedding near horizontal. B7 - 370/12" 126.6 11.3 16 Very dense, humid, light gray, massive 18 weakly cemented fine Silty SANDSTONE SM 20 B7-4 70/12" | 118.6 11.8 22 SM Volcanic tuff bed. Attitude horizontal

Very dense, humid, light gray, fine
Silty SANDSTONE
Bentonitic tuff seam. from 27.5 to 28
feet, Attitude horizontal
Purple, hard, claystone from 28 to 28.5 feet

Figure A-13 Log of Test Boring B 7, page 1 of 2

SAMPLE SYMBOLS

SAMPLE SYMBOLS

SAMPLE SYMBOLS

Log of Test Boring B 7, page 1 of 2

SAMPLE SYMBOLS

SAMPLE SYMBOLS

Log of Test Boring B 7, page 1 of 2

SAMPLE SYMBOLS

Log of Test Boring B 7, page 1 of 2

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SAMPLE SYMBOLS

Log of Test Boring B 7, page 1 of 2

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Log of Test Boring B 7, page 1 of 2

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SAMPLE SYMBOLS

Log of Test Boring B 7, page 1 of 2

ECKE

SAMPLE SYMBOLS

Log of Test Boring B 7, page 1 of 2

ECKE

Sandy SILTSTONE/CLAYSTONE

Very stiff to hard, humid, purplish-brown

10.6

14/12"

124.8

from 22.5 to 23 feet

SM-CL

24

26

B7 - 5

FILE N	O. 0458	1-03-0	01	grand dichasemen Andrews man essen essen				
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 7 ELEVATION 615 DATE COMPLETED 9/13/90	PENETRATION RESISTANCE (BLOWS/FT.)	Y DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			20		EQUIPMENT E-100 BUCKET DRILL	N N N N N N N N N N N N N N N N N N N	DRY CP	5 NO
- 30 -	B7-6			SM	MATERIAL DESCRIPTION	10/12"	109.3	22.2
32					Very dense, humid, light gray, fine , Silty SANDSTONE (continued)			
amac v. s				CL SP	Hard, humid, purplish-brown, Silty <u>CLAYSTONE</u>			oodset see see soon saan see see see see see see see see see se
- 34 -				ML	Very dense, humid, gray massive <u>SANDSTONE</u>			
- 36 -				SP	Hard, purplish-brown siltstone from 34 to 35 feet			
- 38					Very dense, gray, massive <u>SANDSTONE</u>			
- 40 -								rara kraumana ara a Jacores a ara con
					BORING TERMINATED AT 40 FEET			

Figure A-14 Log of Test Boring B 7, page 2 of 2

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE

... CHUNK SAMPLE

... WATER TABLE OR SEEPAGE

FILE NO. 04581-03-01 GROUNDWATER **BORING B 8** LITHOLOGY PENETRATION RESISTANCE (BLOWS/FT.) DENSITY MOISTURE DEPTH SOIL SAMPLE IN CLASS NO. ELEVATION 539 DATE COMPLETED 9/13/90 FEET (USCS) EQUIPMENT E-100 BUCKET DRILL MATERIAL DESCRIPTION 0 CL TOPSOIL Loose, slightly damp to damp, yellow-brown 2 CL CLAY with minor caliche, abundant grass and root matter B8-1 1/12" 110.9 12.1ALLUVIUM/COLLUVIUM 4 Stiff, damp, brown, Sandy CLAY with Becomes dark brown CaCO3, from 3 B8-4 CL to 4 feet 6 B8-2 PUSH 87.8 31.7 Dense, damp, gray-brown, Clayey fine to SM medium SAND with CaCo3 8 SM Stiff, moist, brown Sandy CLAY 10 **OTAY FORMATION** B8-3 2/12" 97.1 26.6 Highly weathered, dense, moist, gray-brown SM Silty SAND with sub-horizontal layers 12 of highly weathered white volcanic tuff Stiff, hard, moist, light gray-pinkish gray volcanic tuff at 8 feet 14 Dense to hard, damp to moist, gray-brown Silty fine SAND with few interbedded B8-5 4/12" 105.9 20.1 layers of volcanic tuff 16 18 Standing water at 19 feet 20 BORING TERMINATED AT 20 FEET

Figure A-15 Log of Test Boring B 8, page 1 of 1

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE

... WATER TABLE OR SEEPAGE

	- Company and a	ову	ATER		BORING B 9	N N ·	<u>}</u>] <u>S</u>
DEPTH IN FEET	SAMPLE NO.	ITHOLOGY	BROUNDWATER	SOIL CLASS (USCS)	ELEVATION 553 DATE COMPLETED 9/13/90	PENETRATION RESISTANCE (BLOWS/FT.)	DENSITY	MOISTURE
			GR		EQUIPMENT E-100 BUCKET DRILL	PES:	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	5 E E
0				MATERIAL CONTROL CONTR	MATERIAL DESCRIPTION		- Comment of the Comm	
				SC	TOPSOIL Loose, dry, dark brown, Clayey SAND			
2				CL	with trace gravel	_		
- 4 -					COLLUVIUM Stiff, damp, dark brown Sandy CLAY Stiff mottled dark red-brown and light	Manager (
- 6 -	B9-1			SM	tan sandy clay at 4 feet	2/12"	104.8	11.5
- 8 -					OTAY FORMATION Highly weathered, interbedded dense, damp gray SANDSTONE Krotovina at 5.5 feet			
10	B9-2			SP	Very dense, damp, light brownish-gray <u>SANDSTONE</u>		107.0	13.6
12						- and-		
14 -	B9-3			SM-ML	Very dense to hard, damp, light pinkish-gray,	5/12"	111.9	10.7
18 -				SP	tuffaceous SANDSTONE Stiff, hard, damp, purplish-gray to white volcanic tuff SILTSTONE	onnone.		
				CL	Very dense, damp, light gray-brown interlayered with pinkish-brown SANDSTONE	-cont		
20 -	B9-4		-		Medium stiff, damp to moist, light slightly pinkish-tan <u>CLAYSTONE/BENTONITE</u>	7/12"	110.9	18.3
22 -				SP	Hard, damp, medium gray-brown <u>SANDSTONE</u>	ewood-		
24 -				111-11-11-111-1				
					BORING TERMINATED AT 25 FEET			uureen erakuk ehekekaan ehekekaan kerikaan ehekekaan kerikaan ehekekaan kerikaan ehekekaan kerikaan ehekekaan
	: A-16			of T	est Boring B 9, page 1 of 1			FCK

🛮 ... STANDARD PENETRATION TEST 📱 ... DRIVE SAMPLE (UNDISTURBED) ... SAMPLING UNSUCCESSFUL SAMPLE SYMBOLS ◯ ... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ▼ ... WATER TABLE OR SEEPAGE NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

FILE	IO. 04581	1-03-(T			00000		
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 10 ELEVATION 518 DATE COMPLETED 9/13/90 EQUIPMENT E-100 BUCKET DRILL	PENETRATION RESISTANCE (BLOWS/FT.)	ORY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION	ш - О		<u> </u>
0 -				CL	TOPSOIL	***		e de la companya de l
2 -			And the second s		Loose, fractured, stiff, damp dark brown Sandy CLAY with little gravel	numar.		
4				CL	ALLUVIUM/COLLUVIUM Stiff, damp, dark brown, Sandy <u>CLAY</u> with gravel, subangular clasts to 3 inches.	and the second		
6 -	B10-1 B10-2			CL	Base of gravels at 2.5 feet	PUSH	89.6	27.4
- 8				SP	OTAY FORMATION Stiff, mottled gray-brown to dark brown, Silty CLAY, highly weathered			<
- 10 -	B10-3				Dense, moist, interbedded gray-brown SANDSTONE with brown siltstone/claystone Becomes very dense to hard, damp,	2/12"	94.1	29.9
- 12	1010-3			ML	gray-brown sandstone, finely bedded Highly cemented layer 4 to 6 inch thick at 9 feet	2/12	94.1	29.9
- 14	B10-4			SM	Stiff, moist, light purplish-tan SILTSTONE Becomes medium stiff, finely bedded at 11.5 feet	2/12"	99.1	25.5
- 16 - - 18 -					Very dense to hard, moist, medium gray-brown <u>SANDSTONE</u> 6 inch thick siltstone layer at 13 feet Highly cemented layer 1 to 2 inch thick at 17.5 feet	anais		
- 20 -	B10-5				Siltstone layer 2 to 3 inch thick at 20 feet	-6/12" -	105.3	20.4
- 22 -					Siltstone layer 2 to 3 inch thick at 22 feet	indicate and the second		and an arrangement of the second
- 24								ANNE PROPRIO (NOTATION) (NOTATION
- 26 -			***************************************		Siltstone layer 2 to 3 inch thick, very hard at 25 feet			
- 28 -	ALIEF TREASURATION OF THE PROPERTY OF THE PROP					enderion.		
					BORING TERMINATED AT 28.5 FEET			
Figure	e A-17	L	og	g of T	est Boring B 10, page 1 of 1			ECKE
SAM	PLE SYM	IBOL:	Š		MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DRI			

FILE N	IO. 0458	1-03-0	01					
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING B 11 ELEVATION 558 DATE COMPLETED 9/13/90 EQUIPMENT E-100 BUCKET DRILL	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -		0777%	-	CI	MATERIAL DESCRIPTION			
- 2				CL CL	TOPSOIL Highly fractured, stiff, slightly damp, dark brown, slightly gravelly, Sandy CLAY			eripridationila advanta en amendal a a valum
- 4				CL	ALLUVIUM/COLLUVIUM Stiff, damp, moist, dark brown, fine Sandy CLAY with little gravel			
- 6	B11-1			SM	Stiff, damp, grayish brown, CLAY, gravelly	2/12"	100.0	11.6
Non- 5-0		A CONTROL OF CONTROL O		SM-CL	in lower 6 inches to 1 foot (subangular clasts to 5 inches)	naac		
- 8				SP	OTAY FORMATION Very dense, damp, gray brown Silty			
- 10	B11-2			ML-CL	Medium stiff, damp, mottled purplish brown and light tan, SILTSTONE/ CLAYSTONE -Becomes stiff, at 7 feet	_1/12" _	96.4	23.2
		Marie Mari			Very dense, slightly damp, gray brown SANDSTONE	maint.		
- 16 -	B11-3			SM	Stiff to very stiff, damp, grayish tan and dark purplish brown SILTSTONE/ CLAYSTONE with interbedded, discontinuous seams of white volcanic tuff siltstone	- - - - -	123.2	12.7
- 18 -				CL	Very dense to hard, damp, gray brown SANDSTONE Seams of white volcanic turn shistone SANDSTONE			
- 20				ML	Very stiff, damp, light reddish brown CLAYSTONE with pressure faces			-ACMANICHIANICHIA STOREN CONTRACTOR CONTRACT
					Hard, slightly damp, dark gray brown SILTSTONE BORING TERMINATED AT 20 FEET			

Figure A-18 Log of Test Boring B 11, page 1 of 1

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE

... CHUNK SAMPLE

... WATER TABLE OR SEEPAGE

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

		>-	CK.		TRENCH T 1			T
ЭЕРТН		0.0	FA	SOIL		집병근	rt >	ш :
IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	CLASS (USCS)	ELEVATION 607 DATE COMPLETED 9/7/90	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE
		Ľ	0 R		EQUIPMENT JD 710 BACKHOE	PENE PESI (BLO	DRY (P.	100
					MATERIAL DESCRIPTION			
0 -				SC	TOPSOIL		distantification and a second and a second	
2				SC	Loose, dry, slightly damp gray-brown, slightly Clayey fine to coarse <u>SAND</u>		***************************************	
					7 FLUVIAL TERRACE DEPOSITS		****	ļ
4				SM	Soft-medium, stiff, damp-moist, dark gray- brown, Clayey fine to medium <u>SAND</u> with abundant subangular cobbles	annonio		
6					OTAY FORMATION			
_				SM	Medium dense, damp, mottled white and light yellow-brown <u>SANDSTONE</u> with			
8 -				SM	CaCO3			
-					Medium dense, dense, damp light gray Silty fine to coarse <u>SAND</u>			
					Very dense, damp, white - to light tan Silty SANDSTONE			
						-		
	100				TRENCH TERMINATED AT 9.5 FEET			
				-				

ĺ								
						Application		
Paris derendelmandelen								
				-				
***************************************	Management of the same		-					

... CHUNK SAMPLE

... SAMPLING UNSUCCESSFUL

 $oximes\ldots$ disturbed or bag sample

SAMPLE SYMBOLS

■ ... STANDARD PENETRATION TEST
■ ... DRIVE SAMPLE (UNDISTURBED)

▼ ... WATER TABLE OR SEEPAGE

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATE	SOIL CLASS (USCS)	ELEVATION 620 DATE COMPLETED 9/7/90 EQUIPMENT JD 710 BACKHOE MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -		777777			MATERIAL DESCRIPTION			
2 -				CL	TOPSOIL Dark blackish-gray, soft, dry Sandy CLAY			
4				SW	FLUVIAL TERRACE DEPOSITS Dense, dry, whitish-gray, weathered SAND/COBBLES			
8 -				SW	Very dense, humid, light brown, cohesionless <u>SAND/COBBLE</u> (subrounded metavolcanic rock fragments)	and a second sec		
- 10 -	TO A STATE OF THE							
 - 12 ~	T2-1 ⊗			SC	OTAY FORMATION Very dense, moist, light gray medium-cemented Clayey SANDSTONE	particular l		
					TRENCH TERMINATED AT 12.5 FEET			
Figure	: A-20	, Log	S C	t les	t Trench T 2			ECKE
SAMI	PLE SYM	BOLS	5		MPLING UNSUCCESSFUL □ STANDARD PENETRATION TEST ■ DRIV STURBED OR BAG SAMPLE □ WATE			1

FILE NO. 04581-03-01

FILE N	IO. 04581	-03-()]					
DEPTH	SAMPLE	LITHOLOGY	GROUNDWATER	SOIL	TRENCH T 3	PENETRATION RESISTANCE (BLOWS/FT.)	SITY 	F 3
IN FEET	NO.	HH	OC.	CLASS (USCS)	ELEVATION 611 DATE COMPLETED 9/7/90	TRA ESTA WS/F	DENSITY .C.F.)	ISTU ENT
			GR		EQUIPMENT JD 710 BACKHOE	PENE RES:	DRY (Р.	MOISTURE CONTENT (%)
- 0		.11 .122			MATERIAL DESCRIPTION		****	
2 -				SC	TOPSOIL Loose, slightly-damp, gray-brown, Clayey SAND Becomes dark-brown at 1 foot			Print Sen Sellen Augustus (Salaman Salaman Sal
- 8 -	T3-1 ⊠			SW	FLUVIAL TERRACE DEPOSITS Dense, damp-moist, yellow-brown, slightly clayey, Gravelly SAND with some cobble to 10 inches Becomes gravelly sand with cobble, no clay at 6 feet			
- 12 -	T3-2 ₹			SM	OTAY FORMATION Dense, damp, light gray, Silty SANDSTONE TRENCH TERMINATED AT 12 FEET			
			era a esta de la composição de la compos					
			MANUFACTURE CONTRACTOR					
			With the second second second			The state of the s		
Figure	A-21,	Log	0	f Tes	t Trench T 3	L.		ECKE
SAMF	LE SYM	BOLS			MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DRIVE			
			ĝ	⊠ DI	STURBED OR BAG SAMPLE 🗵 WATER	R TABLE O	R SEEPAG	Ε

		OGY	ATER		TRENCH T 4	N H ?	<u> </u>	<u>S</u>
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	BROUNDWATER	SOIL CLASS (USCS)	ELEVATION 611 DATE COMPLETED 9/7/90	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
noneman and the second control of		ļ j	00		EQUIPMENT JD 710 BACKHOE	PENE RES: (BLO	ORY CP	MO:
0		<u> </u>			MATERIAL DESCRIPTION			
2				SC-SM	TOPSOIL/COLLUVIUM Loose,to medium-dense, damp-dry, gray-brown Clayey, Silty SAND			
			The best of the second					
4 -	T4-1		and a state of the	CL	FLUVIAL TERRACE DEPOSITS Medium stiff, to stiff, moist, dark reddish-brown Sandy CLAY Becomes cobbly (metavolcanic rock			
6 -	T4-2		Marketin Mar	SM/SW	fragments) at 4 feet			
8					Dense, damp, light reddish-brown Silty, Gravelly <u>SAND</u> with cobbles Cobble size increases with depth	Daniero.		
10 -					Boulders to 3 feet at 10 feet			
					TRENCH TERMINATED AT 11 FEET REFUSAL			

Figure A-22, Log of Test Trench T 4

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... WATER TABLE OR SEEPAGE

FILE N	O. 04581	-03-0	T			1		
DEDTU		ogy	ATER	con	TRENCH T 5	S W C	Ę,	ш <u></u> 8
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	ELEVATION 627 DATE COMPLETED 9/7/90	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSIT (P.C.F.)	MOISTURE CONTENT (%)
]	GRC		EQUIPMENT JD 710 BACKHOE	PENE RESJ (BLO	DRY (P.	MOO
- 0 -					MATERIAL DESCRIPTION			
	- AND AND THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROP			SM-SC	TOPSOIL			
- 2 -				SW	Loose, dryish damp, gray-brown Silty SAND Becomes dark brown, clayey with abundant cobbles			
- 4 -					TERRACE DEPOSITS			
6 ···	di un mante de la constante de				Dense, damp, light yellowish, reddish-brown, <u>SAND/COBBLE</u> to greater than 12 inches, Subangular Boulders to 2 feet, at 4.5 feet	enten		
- 8 - - 10 -	T5-1 ⊠			SM-SW	OTAY FORMATION Very dense, damp, light gray-brown, weakly cemented <u>SANDSTONE</u>	energy.		
					TRENCH TERMINATED AT 10.5 FEET			

Figure A-23, Log of Test Trench T 5

SAMPLE SYMBOLS

... sampling unsuccessful ... standard penetration test ... drive sample (undisturbed) ... chunk sample ... water table or seepage

FILE N	O. 04581	1-03-0	01					
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 8 ELEVATION 607 DATE COMPLETED 9/7/90 EQUIPMENT JD 710 BACKHOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					MATERIAL DESCRIPTION		CPTOTOM CONCENSION CONTRACTOR SPECIAL DESCRIPTION OF SPECIAL DESCRIP	
- 4 8 -				SC-CL SM SC-CL SM	TOPSOIL Loose to medium dense, damp, dark gray-brown clayey SAND with trace gravel FLUVIAL TERRACE DEPOSITS Medium dense, damp, gray-brown, Clayey SAND/Sandy CLAY with cobbles (metavolcanic rock fragments) Medium stiff, damp-moist dark red-brown Sandy CLAY OTAY FORMATION Very dense, slightly damp, light greenish-gray Silty SANDSTONE Medium dense, medium stiff, damp-moist, reddish brown, Clayey SAND/Sandy CLAY Medium dense to dense, damp, white light gray-brown mottled CaCO3 cemented SANDSTONE TRENCH TERMINATED AT 8.5 FEET			
les 5	<u> </u>				4 T T 0			No sylvania constituto ar
rigure	H-21	, LOE	3 (of les	t Trench T 8			ECKE
SAMI	PLE SYM	IBOLS	5		MPLING UNSUCCESSFUL $\ \ \ \ \ \ \ \ \ \ \ \ \ $			

FILE N	O. 0458	1-03-0	T	promoteros toda n e escuelan escuelan		1		
DEPTH		,0GY	PTER	SOIL	TRENCH T 9	S C C	ΣĽ,	ш <u>3</u>
IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	CLASS (USCS)	ELEVATION 610 DATE COMPLETED 9/7/90	PENETRATION RESISTANCE (BLOWS/FT.)	RY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
] 3	GRO		EQUIPMENT JD 710 BACKHOE	PENE RESI (BLO	DRY (P.	CONT
- 0 -		V//			MATERIAL DESCRIPTION			
- 2 -				SC	TOPSOIL Loose-medium dense, damp dark brown, Clayey SAND with cobbles, few boulders			
- 4 -				CL	TERRACE DEPOSITS Medium stiff, damp, yellow brown, Sandy			
entaner (Autor)				CL	CLAY OTAY FORMATION			44440 market
- 6 - 8 -	T9-1 🖇				Stiff, damp, pale yellow-brown Sandy <u>CLAY</u> with clay films on ped faces			Territoria de la Adrian de Miller de La Adrian de La Ad
- 10 -				SP	Very dense, damp, light brown <u>SANDSTONE</u>			
					TRENCH TERMINATED AT 10 FEET			
	. A 20			of Too	st Trench T 9			ECKE

SAMPLE SYMBOLS

... sampling unsuccessful.

D... standard penetration test.

C... drive sample (undisturbed).

C... chunk sample.

		>-	E.		TRENCH T 10		et et milit de de rep enden mejod betydelsen gener	·
DEPTH	SAMPLE	Log	MAT	SOIL	* * * * * * * * * * * * * * * * * * *		YTI.	H 5
IN FEET	NO.	LITHOLOGY	GROUNDWATER	CLASS (USCS)	ELEVATION 600 DATE COMPLETED 9/7/90	TRAT STAI	DENSITY .C.F.)	DTS
					EQUIPMENT JD 710 BACKHOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSIT (P.C.F.)	MOISTURE
- 0					MATERIAL DESCRIPTION			
. 2				SC-CL	TOPSOIL Loose, damp, dark gray-brown, Clayey SAND/Sandy CLAY			
- 4 -				CL	OTAY FORMATION Medium dense, weathered, damp		en met 10 met en men met en el met en	
			1 1	CL-SM	') white light ton Conduc CY AN		and the second framework from a new constant according to	
6 -				CL/ML	Dense, damp, light gray-tan, Sandy <u>CLAYSTONE/SILTSTONE</u>			and a second control of the second control o
					TRENCH TERMINATED AT 7 FEET			
						and the second s		
				The state of the s				
			-					
	A 00	В		<i>K</i> • • • • • • • • • • • • • • • • • • •	t Trench T 10			ECK

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

... CHUNK SAMPLE

... SAMPLING UNSUCCESSFUL

◯ ... DISTURBED OR BAG SAMPLE

SAMPLE SYMBOLS

🖺 ... STANDARD PENETRATION TEST 📱 ... DRIVE SAMPLE (UNDISTURBED)

▼ ... WATER TABLE OR SEEPAGE

			T ₀	ľ	Nigra dan Ren da	1		
		ya√	TE I		TRENCH T 11	중 !! 그	<u> </u>	😯
DEPTH IN	SAMPLE	O G	Day	SOIL		TA F	DENSITY .C.F.)	URE
FEET	NO.	LITHOLOGY	GROUNDWATER	(USCS)	ELEVATION 612 DATE COMPLETED 9/7/90	TR/ IST DWS,	i c	IST ENJ
			8		EQUIPMENT JD 710 BACKHOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSI (P.C.F.)	MOISTURE CONTENT (%)
	-				MATERIAL DESCRIPTION	<u> </u>		<u> </u>
0 -							MT-00-000-00-00-00-00-00-00-00-00-00-00-0	
		77777	1_	SC-CL	TOPSOIL Loose to medium dense, dry-damp, dark			
2 -			_	· ····································	brown Clayey <u>SAND</u> with subangular to subrounded cobbles			
			-	SC	Becomes stiff sandy clay at 1.5 feet			
4				SM	OTAY FORMATION			
				SIVI	Weathered, medium dense, damp, yellow-brown	and the same of th		
6 -					Clayey SAND			
-	And the second s			CL-ML	Dense, damp, yellowish gray-brown SANDSTONE			Affin Color on International Section Section 1
8 -				CL-WL	21 CH WH WH WH MAN			
		ZZZYXX			Dense, slightly damp, tan <u>SILTSTONE/</u> <u>CLAYSTONE</u>			
		WATER AND THE PARTY OF THE PART			TRENCH TERMINATED AT 9 FEET			
					THE TERMINATED AT A LEET			
				•				
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	***						***************************************	
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				and an arrange of				
	A 20	B			A T T 44			
rigure	A-3U	, LO	3 (or les	t Trench T 11			ECKE
SAMI	PLE SYM	1BOL:		-	MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DRIV			
1				🔯 DI	STURBED OR BAG SAMPLE WATE	K TABLE C	лк SEEPAG	it

		ЭЗ	TER		TRENCH T 12	N N C	<u>}</u>	l Q
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	ELEVATION 605 DATE COMPLETED 9/7/90	PENETRATION RESISTANCE (BLOWS/FT.)	DENSIT.	MOISTURE CONTENT (%)
			GRC		EQUIPMENT JD 710 BACKHOE	PENE RESJ (BLO	ORY (P.	MOI
0 -					MATERIAL DESCRIPTION			
				SC-CL	TOPSOIL Loose to medium dense, damp, dark brown,	anaci		
2 -					Clayey SAND Becomes stiff sandy clay at 1.5 feet			made Calmen a riandam managem dan managem dan m
4				SW-SM	OTAY FORMATION Dense, damp, yellow-brown, Silty fine to coarse SAND	January Branch		
6 -				SM	Very dense, damp, gray-brown <u>SANDSTONE</u>			
8 -				CL-ML	Medium dense, damp-moist, yellow-brown SILTSTONE/CLAYSTONE			
10 -								
					TRENCH TERMINATED AT 10 FEET			

Figure A-31, Log of Test Trench T 12

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE

... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE

FILE NO. 04581-03-01 GROUNDWATER TRENCH T 13 PENETRATION RESISTANCE (BLOWS/FT.) LITHOLOGY DRY DENSITY (P.C.F.) MOISTURE CONTENT (%) DEPTH SOIL SAMPLE IN CLASS ELEVATION 560 DATE COMPLETED 9/10/90 NO. FEET (USCS) EQUIPMENT JD 555 TRACK HOE MATERIAL DESCRIPTION 0 **TOPSOIL** Loose, damp, dark brown Sandy CLAY T13-1 CL 2 **OTAY FORMATION** 4 Medium stiff, damp, mottled white to medium tan Sandy <u>CLAY</u> CL 6 Dense, dry to slightly damp, light tan CL-MI SILTSTONE/CLAYSTONÉ TRENCH TERMINATED AT 7.5 FEET

	or lest irench i 13		ECKE
SAMPLE SYMBOLS	SAMPLING UNSUCCESSFUL	STANDARD PENETRATION TEST	DRIVE SAMPLE (UNDISTURBED)
DAWII DE BINIDOES	◯ DISTURBED OR BAG SAMPLE	☑ CHUNK SAMPLE	▼ WATER TABLE OR SEEPAGE

		<u>}</u>	E E		TRENCH T 14	7	<u> </u>	T
DEPTH IN	SAMPLE	ITHOLOGY	BROUNDWATER	SOIL CLASS	ELEVATION 553 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	NSIT)	MOISTURE CONTENT (%)
FEET	NO.	5	GROU	(USCS)	EQUIPMENT JD 555 TRACKHOE	ESIS.	DRY DENSITY (P.C.F.)	MOIS
					MATERIAL DESCRIPTION	F 5 5	Ö	8
- 2				CL	ALLUVIUM/COLLUVIUM Soft to medium stiff, humid, blackish- gray Sandy <u>CLAY</u>	Market		
- 4 -				CL	Stiff, moist, dark brown Sandy <u>CLAY/</u>		nevenhirmajuna krevo musia naam aska roma	
- 6 -				CL	COBBLES			
- 8 -				SC	Stiff, blackish-brown Sandy CLAY OTAY FORMATION			
	The state of the s		The state of the s	SC	Dense, moist, whitish-brown, weathered Clayey SANDSTONE			
- 10 -					Very dense, moist, grayish-light brown medium to weakly cemented, poorly graded fine Clayey SANDSTONE	en estado		
- 12 -								
					TRENCH TERMINATED AT 13 FEET			

Figure A-33, Log of Test Trench T 14

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... CHUNK SAMPLE

... WATER TABLE OR SEEPAGE

			α		TOPACH TAP]		
		βĠ	AT III		TRENCH T 15	~ 등 등	<u>}</u>	2
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	BROUNDWATER	SOIL CLASS (USCS)	ELEVATION 544 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	NY DENSITY	MOISTURE
			GRC	·	EQUIPMENT JD 555 TRACKHOE	PENE' RESI (BLO	DRY (P.	MOI
0 -					MATERIAL DESCRIPTION			
2 -				CL	ALLUVIUM/COLLUVIUM Soft, dry to humid, blackish-gray Sandy CLAY Numerous CaCO3 concentrations from 2 to 3 feet			
4				SC	2 to 3 feet			
				CL	Medium dense, moist, dark brown Clayey SAND/COBBLES			
6 -	Posterior			SC	Stiff moist, black <u>CLAY</u>	and the second s		
8				SM	OTAY FORMATION Dense, moist, weathered, light brown Clayey SANDSTONE			
10					Very dense, moist, grayish-brown, poorly graded weakly cemented Silty <u>SANDSTONE</u>			
					TRENCH TERMINATED AT 10 FEET			
	Account to the factor of the second for the							
			- Participation of the State of					
The second secon						The property of the control of the c		
desidency of the programme of the progra						lander specific har principal de sous personales de		
Mario American de American de Carlos								
er bely med dely med are as manuscrimentary			***************************************					
				E Too	t Trench T 15		adicional de la companya de la comp	ECKE

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

☐... CHUNK SAMPLE

🖺 ... STANDARD PENETRATION TEST 🗏 ... DRIVE SAMPLE (UNDISTURBED)

▼ ... WATER TABLE OR SEEPAGE

... SAMPLING UNSUCCESSFUL

◯ ... DISTURBED OR BAG SAMPLE

SAMPLE SYMBOLS

FILE N	O. 0458	1-03-0	T			1		
DEPTH		.0GY	BROUNDWATER	6071	TRENCH T 16	NO.	È	2
IN FEET	SAMPLE NO.	LITHOLOGY	MONO	SOIL CLASS (USCS)	ELEVATION 532 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
		5	GRC		EQUIPMENT JD 555 TRACKHOE	PENE' RESI (BLOI	DRY (P.	MOI
- 0 -		777777			MATERIAL DESCRIPTION			
				CL	. ALLUVIUM/COLLUVIUM Soft, dry, dark-gray, Sandy CLAY			
- 2 -				SC	Medium dense, moist, reddish-brown, Clayey SAND, some cobbles			
- 4 -				SC	OTAY FORMATION Medium dense, moist, light-brown Clayey SANDSTONE	■ ************************************		
					TRENCH TERMINATED AT 6 FEET			
		Carrie and Carrier				1.000		
								ATTENDATION OF THE PROPERTY OF
	THE PROPERTY OF THE PROPERTY O							
	an early of the property of th							
			-					
-			-					
Padary (Walin Salaki ja Manasalasian				and the state of t		manifelia de la companiona del companiona de la companiona dela companiona dela companiona		
and the second s			-	and the second s		and a property of the property		
	Annother Wilder and State Control of the State Cont		***************************************					
Figure	Δ_35	100		f Tes	t Trench T 16			ECK

SAMPLE SYMBOLS

... sampling unsuccessful ... standard penetration test ... drive sample (undisturbed)

... disturbed or bag sample ... chunk sample ... water table or seepage

FILE NO. 04581-03-01 GROUNDWATER TRENCH T 17 LITHOLOGY PENETRATION RESISTANCE (BLOWS/FT.) DRY DENSITY (P.C.F.) MOISTURE DEPTH SOIL SAMPLE IN CLASS ELEVATION 548 DATE COMPLETED 9/10/90 NO. FEET (USCS) EQUIPMENT JD 555 TRACKHOE MATERIAL DESCRIPTION 0 TOPSOIL CL Medium stiff to stiff, humid, blackish 2 gray, Sandy CLAY, with some cobbles **OTAY FORMATION** 4 SC Dense, moist, light brown, poorly graded, Clayey SANDSTONE 6 TRENCH TERMINATED AT 6 FEET

Figure A-36, Log of Test Trench T 17

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

SAMPLE SYMBOLS

... DISTURBED OR BAG SAMPLE

... CHUNK SAMPLE

... WATER TABLE OR SEEPAGE

		> 0	日日		TRENCH T 18	Zwa	>-	C
DEPTH IN	SAMPLE	LITHOLOGY	GROUNDWATER	SOIL CLASS	FI FULL TION SEE DATE COMPANY DE LA 100 100	PENETRATION RESISTANCE (BLOWS/FT.)	DENSIT	MOISTURE CONTENT (%)
FEET	NO.	占	ROUF	(USCS)	ELEVATION 575 DATE COMPLETED 9/10/90	SIST		OIST
	·		g		EQUIPMENT JD 555 TRACKHOE	月 日 日 日 日 日	DRY (P	ΣÓ
- 0 +		777777		******************************	MATERIAL DESCRIPTION			
- 2 -				CL	TOPSOIL Soft, dry, dark gray, Sandy <u>CLAY</u> with cobbles	Months.	:	
- 4 -								
- 6 -				SW	FLUVIAL TERRACE DEPOSITS Very dense, moist reddish-brown, well graded cohesionless SAND/COBBLES, occasional boulders Becomes moderately cemented, very slow trenching at 6.5 feet			
- 10						and the second s		
- 12 -						initiad		
- 14 -						Policina Policina		
- 16 -						entari		
- 18 -				SM	OTAY FORMATION Dense, moist, light gray, massive, fine SANDSTONE			
					TRENCH TERMINATED AT 19 FEET			
		hadusia a manapa antinga antin						
							integration of the state of the	
	The property of the second of						Annual de la constante de la c	
		- modelija vidokuma pojeka podok					an an ann an	
igure:	A-37	, Lo	 5 C	of Tes	t Trench T 18		ing proposed the first proposed and send	ECKE

	<u>}</u>	TER		TRENCH T 19			pin-months-west-season-season-season-	
DEPTH		0.037	ATE	SOIL	INENCH I 19	8 B C	, ,	Эш
IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	CLASS (USCS)	ELEVATION 564 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	ORY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
		نا	GR(EQUIPMENT JD 555 TRACKHOE	PENE RES: (BLO	0RY (P.	MO3
					MATERIAL DESCRIPTION			
0 -				CL	TOPSOIL 7			
_ 2 _					Soft, dry, dark grayish-brown Sandy CLAY	-		
- 4 -				SM	OTAY FORMATION Dense, light brown, dry, highly weathered SANDSTONE	000 000 000 000 000 000 000 000 000 00	TO A STATE OF THE	
- 6 -				SM	Dense, humid, grayish-brown, massive Silty SANDSTONE			- destructed distribution and the data activation and add a second activation and a second activation and a second activation and a second activation acti
					TRENCH TERMINATED AT 6 FEET			
		V-1						

	and a second						and the second s	
						and the state of t	oda admilioperadopera	
	Application of the same						***************************************	
	Approximation of the state of t							

Figure	A-38	, Lo	Z (of Tes	t Trench T 19			ECKE
CANA	or r cs/s	anor 4			MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DRIVE	SAMPLE	(UNDISTL	JRBED)
SAMI	PLE SYM	IDOL!	3	⊠ bi	STURBED OR BAG SAMPLE WATER	R TABLE O	R SEEPAG	SE

FILE N	O. 0458	1-03-0)1					
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 20 ELEVATION 562 DATE COMPLETED 9/10/90 EQUIPMENT JD 555 TRACKHOE	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
- 0 -		777777			MATERIAL DESCRIPTION			
2 -				CL	TOPSOIL Soft, humid, blackish-gray Sandy <u>CLAY</u>	and a second		
- 6 -				SM	OTAY FORMATION Medium dense, dry, whitish, light brown, highly weathered, Silty SANDSTONE			
_				SP	Very dense, humid, grayish-brown, massive <u>SANDSTONE</u>			
	Λ 20			£ Tao	TRENCH TERMINATED AT 7 FEET			
rigure	: A-39	, Log	S C	or les	t Trench T 20			ECKE

☐... CHUNK SAMPLE

STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

▼ ... WATER TABLE OR SEEPAGE

... SAMPLING UNSUCCESSFUL

SAMPLE SYMBOLS

			D _C	A CONTROL MICHAEL MICHAEL STREET	minute des la lace de la companya del companya de la companya de la companya del companya de la companya del la companya de la			
		967	ATE		TRENCH T 21	SH:	<u>`</u>	2,,,
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	ELEVATION 563 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	RY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
			GRO	(0000)	EQUIPMENT JD 555 TRACKHOE	PESI (BLOU	0RY 0	MOI
- 0 -		e former of the former primary and a			MATERIAL DESCRIPTION			
2				CL	TOPSOIL Soft, humid, dark gray, Sandy <u>CLAY</u>			
4 -				ML	OTAY FORMATION Medium dense, dry, whitish-tan, highly weathered <u>SILTSTONE</u>	anhare		
- 6 -				SM	Dense, humid, whitish-gray Silty <u>SANDSTONE</u>		P-103P-990cc000000000000000000000000000000000	***************************************
					TRENCH TERMINATED AT 7 FEET			
Figure	A-40	, Log	Z C		t Trench T 21			ECKE
SAMI	PLE SYM	1BOLS	3	∐ SA	MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DRIV	E SAMPLE	(UND1STU	RBED)

... CHUNK SAMPLE

▼ ... WATER TABLE OR SEEPAGE

 $oxtimes\ldots$ disturbed or bag sample

		T	T	T		7		
DEPTH	A de la companya de l	-097	GROUNDWATER	SOIL	TRENCH T 22	NON C	\ \ \ \ \	<u>й</u> 8
IN FEET	SAMPLE NO.	LITHOLOGY	SUND	CLASS (USCS)	ELEVATION 537 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	ORY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
		ا ا	GRO	Apply the same and a s	EQUIPMENT JD 555 TRACKHOE	PENE RESI (BLO	ORY (P.	MOI
0 -					MATERIAL DESCRIPTION			
2				CL	ALLUVIUM/COLLUVIUM Soft, moist, blackish-brown Sandy <u>CLAY</u>	- challer		
- 4 -						enterior (a variation of the control of the co	
6 -						-		The state of the s
- 8 -				SC	OTAY FORMATION Highly weathered, moist, mottled whitish- tan, brown Clayey <u>SAND</u> , highly bioturbated			
- 10 -				SM	Dense, moist to wet, gray, weakly cemented, fine Silty <u>SANDSTONE</u>			
					TRENCH TERMINATED AT 11 FEET			

Figure A-41, Log of Test Trench T 22

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... CHUNK SAMPLE

... WATER TABLE OR SEEPAGE

**************************************			DZ.					
		JGY	ATE		TRENCH T 23	8 H C	<u> </u>	2
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	BROUNDWATER	SOIL CLASS (USCS)	ELEVATION 544 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	Y DENSITY (P.C.F.)	MOISTURE CONTENT (%)
FEET	And the second s	Ľ	GROI	(DSCS)	EQUIPMENT JD 555 TRACKHOE	PENET RESIS	0RY 0 (P.(MOIS
-					MATERIAL DESCRIPTION	<u>u</u> - 0	<u>U</u>	
- 0 -				************************	A Y Y YYYYY A LOON Y Y YYYYY A			
- 2 -				CL	ALLUVIUM/COLLUVIUM Soft, moist, blackish-brown Sandy CLAY	and department of the second		
4						and		
-						-		
6 -				SW	Medium dense, moist, reddish-brown fine to coarse SAND with cobbles			
8 -				SM	OTAY FORMATION Medium dense, wet, grayish-brown weathered, Silty SANDSTONE			of anni lock discovers is some or more than a market
					weathered, Silty <u>SANDSTONE</u>]		
					TRENCH TERMINATED AT 9 FEET			
Figure	A-42	, Lo	3 C	of Tes	st Trench T 23			ECKE
CARA	PLE SYM	ABOT 9	2	s <i>i</i>	MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DI	RIVE SAMPLE	(UNDIST	JRBED)
SAIVI	LLE 31N	TDUL	3	⊠ DI	STURBED OR BAG SAMPLE CHUNK SAMPLE W	ATER TABLE O	OR SEEPAC	ЗE

FILE NO. 04581-03-01 GROUNDWATER TRENCH T 24 LITHOLOGY RESISTANCE (BLOWS/FT.) DENSITY .C.F.) PENETRATION MOISTURE CONTENT (%) DEPTH SOIL SAMPLE IN CLASS ELEVATION 550 DATE COMPLETED 9/10/90 NO. FEET (USCS) DRY C (P. **EQUIPMENT** JD 555 TRACKHOE MATERIAL DESCRIPTION 0 ALLUVIUM/COLLUVIUM Soft, dry, dark grayish-black Silty CL 2 CLAY **OTAY FORMATION** 4 SC Medium dense, moist, highly weathered, grayish-brown, Clayey SANDSTONE 6 Dense, moist, gray, fine, Silty SM SANDSTONE 8 TRENCH TERMINATED AT 8 FEET

Figure A-43, Log of Test Trench T 24

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL

... STANDARD PENETRATION TEST

... DRIVE SAMPLE (UNDISTURBED)

... UNDISTURBED OR BAG SAMPLE

... WATER TABLE OR SEEPAGE

FILE N	O. 0458	1-03-0	01					
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 25 ELEVATION 442 DATE COMPLETED 9/10/90 EQUIPMENT JD 555 TRACKHOE	PENETRATION RESISTANCE (BLOWS/FT.)	ORY DENSITY (P.C.F.)	MOISTURE
			<u> </u>		MATERIAL DESCRIPTION		Test .	
- 0 - - 2 -				CL	TOPSOIL Soft, dry, black Sandy <u>CLAY</u> , rare cobbles Becomes moist at 2 feet		Adaptikasidhan da eka sakara	
<u> </u>				SM	OTAY FORMATION Highly weathered, humid, whitish, Silty <u>SANDSTONE</u>			
- 8 -			1	_CH_	Thin bentonite layer from 7 to 7.5 feet			
					SANTIAGO PEAK VOLCANICS Hard metavolcanic ROCK			
					TRENCH TERMINATED AT 9 FEET			
Figure	A-44	, Los	g (of Tes	t Trench T 25			ECKE
CARROLL MICHIGAN SANDE - 2009	PLE SYM	****			MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DRIV	/E SAMPLE	(UNDISTU	JRBED)

... CHUNK SAMPLE

▼ ... WATER TABLE OR SEEPAGE

oximes ... DISTURBED OR BAG SAMPLE

FILE N	O. 0458	1-03-0	01	principle (company)				
brot!!		OGY	ATER		TRENCH T 26	N H C	<u>}</u>	я Я
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	AROUNDWATER	SOIL CLASS (USCS)	ELEVATION 445 DATE COMPLETED 9/10/90	PENETRATION RESISTANCE (BLOWS/FT.)	DENSITY	MOISTURE CONTENT (%)
			GR		EQUIPMENT JD 555 TRACKHOE	PENE RES:	DRY (P.	E POS
- 0 -					MATERIAL DESCRIPTION			
- 2 -				CL	TOPSOIL Soft, dry, grayish-black Sandy <u>CLAY,</u> with angular boulders	ent-	N	
4 -			menthermore vide and consumments of a consistency of sufficients of the constraints of th	SM	OTAY FORMATION Highly weathered, dry, whitish-brown Sandy SILTSTONE	andria di distributione di seriesi di distributione di seriesi di		
- 6 -					Very dense, hard, moist, massive light gray Silty SANDSTONE	Age.		
- 8 -				SM	-			
- 10 - -				СН	Hard, pinkish-brown bentonite from 10.5 to 11 feet	22-		Gold dei dei de de de la companie d Companie de la companie de la compa
- 12 -					SANTIAGO PEAK VOLCANICS Very hard, metavolcanic ROCK		***************************************	
					TRENCH TERMINATED AT 12 FEET			
						-		
- Annual Company						***************************************		
		Condensate Annual Annua						
		are a constant of the constant						
		Always and a service and a ser						
							or management of the state of t	
						maria and an and an		
			-			Control of the Contro		
Figuro	<u> </u> Λ _ 15	100		f Tac	t Trench T 26			
winestrinishingaa aan yaa					MPLING UNSUCCESSFUL STANDARD PENETRATION TEST DRIVE	CAMPIE	(IMP) (CT)	ECKE
SAMI	PLE SYM	IBOLS	5		STURBED OR BAG SAMPLE WATER			

APPENDIX <

B

APPENDIX B

LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM). The maximum dry density and optimum moisture content of samples were determined in accordance with Test Procedure D1557-78, Method A. In addition, relatively undisturbed ring samples were tested for in-place moisture and density, shear strength and consolidation characteristics. Expansion Index tests were also performed on six samples collected from the exploratory excavations. The results of the tests are presented in tabular and graphical form herein. Moisture-density relationships are presented on the boring logs.

TABLE B-I SUMMARY OF LABORATORY MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT TEST RESULTS ASTM D 1557-91

Sample No.	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (% dry wt.)
T2-1	Light gray, Clayey SAND	113.7	15.5
T3-1	Yellowish-brown, well graded SAND	131.1	7.3
T9-1	Light brown CLAY	112.2	16.0
T13-1	Dark brown, Sandy CLAY	114.5	14.9
B1-4	Purplish, Sandy SILT	108.7	15.3
B8-4	Dark brown, Sandy CLAY	117.1	15.1

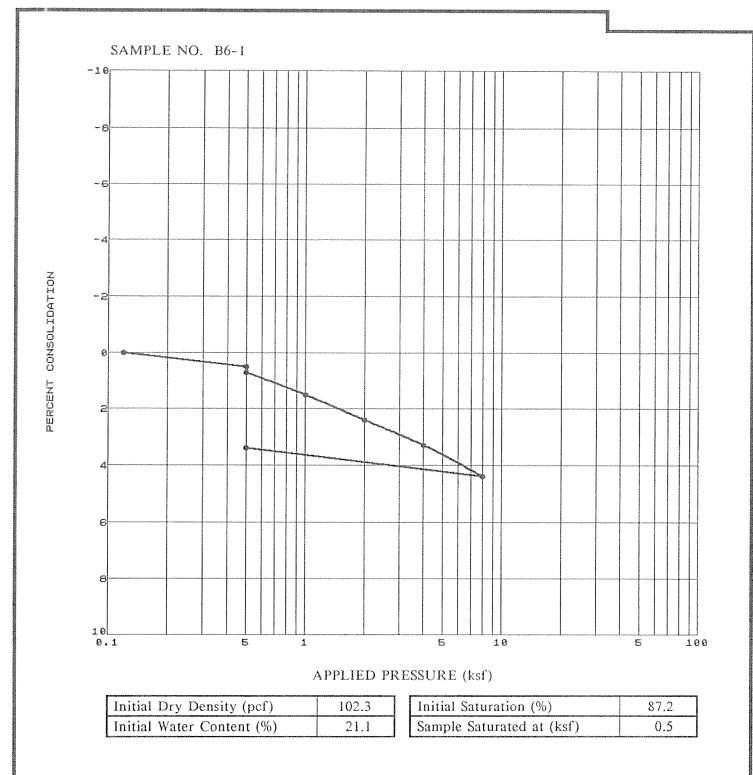
TABLE B-II
SUMMARY OF IN-PLACE MOISTURE DENSITY
AND DIRECT SHEAR TEST RESULTS

Sample No.	Depth (feet)	Dry Density (pcf)	Moisture Content (%)	Unit Cohesion (psf)	Angle of Shear Resistance (degrees)
T2-1*	12	102.7	15.2	150	35
T3-1*	6	117.7	7.6	120	38
T9-1*	6	101.3	15.7	590	15
B1-10	60	65.5	54.6	2315	6
B2-2	10	118.2	11.9	530	35
B3-5	25	114.4	13.2	1460	11

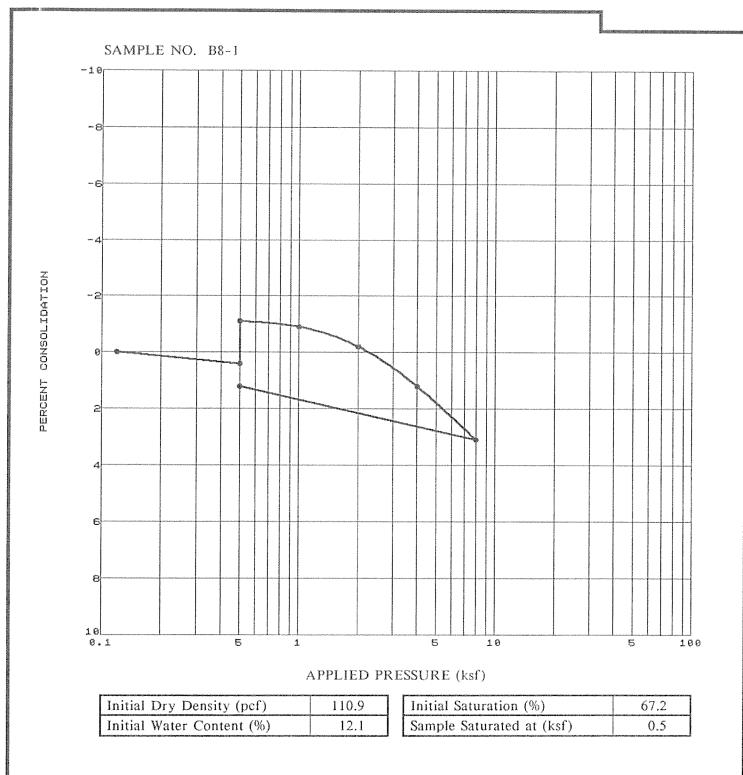
^{*}Soil sample remolded approximately to 90 percent relative density at near optimum moisture content.

TABLE B-III SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS

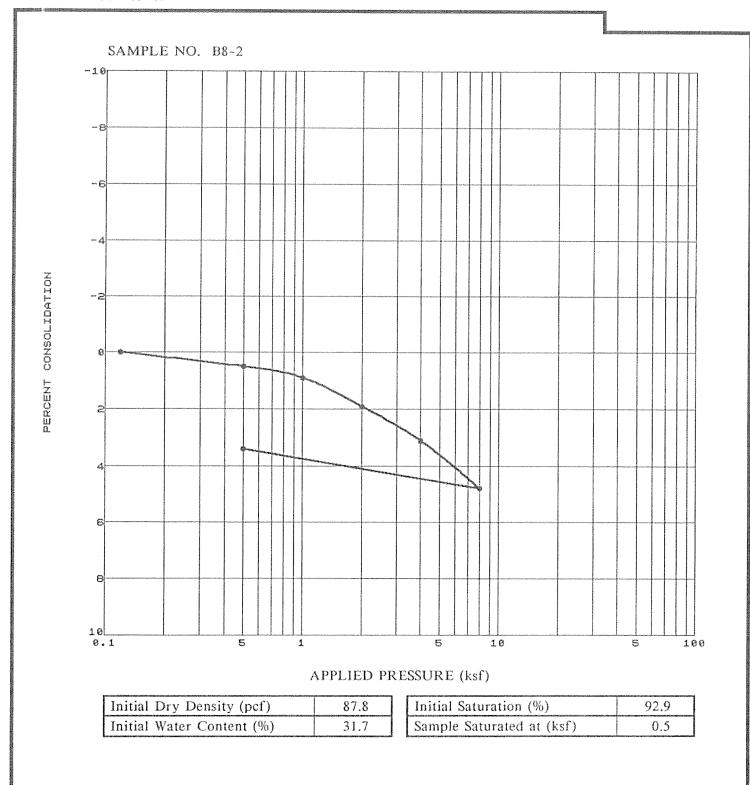
	Moisture C	ontent (%)		Expansion Index	
Sample No.	Before Test	After Test	Dry Density (pcf)		
T2-1	11.0	23.2	106.1	6	
T3-1	6.4	13.2	125.1	0	
T9-1	11.9	36.4	102.4	160	
T13-1	11.7	34.9	103.8	115	
B1-4	10.5	32.3	106.7	63	
B8-4	9.2	31.4	111.8	88	



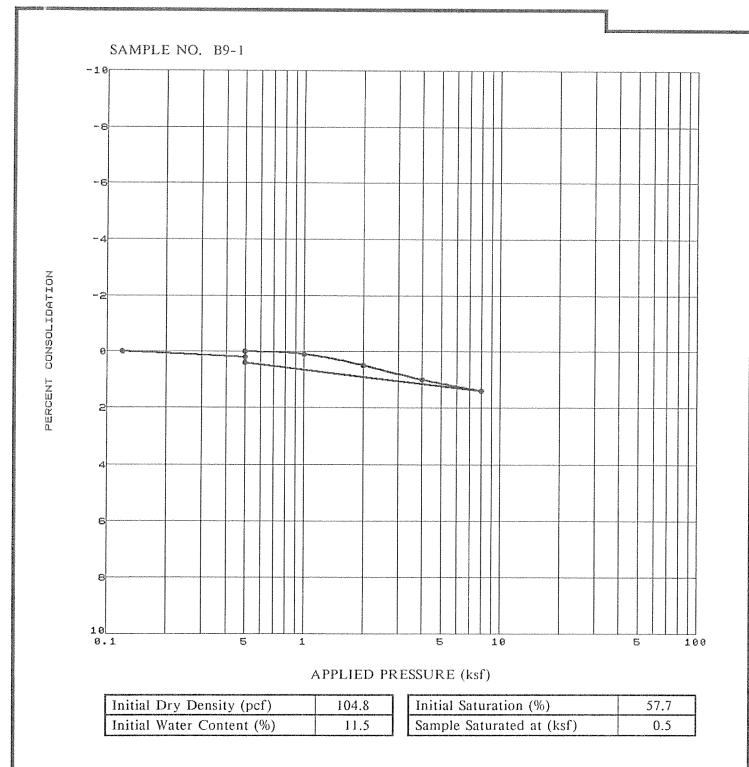
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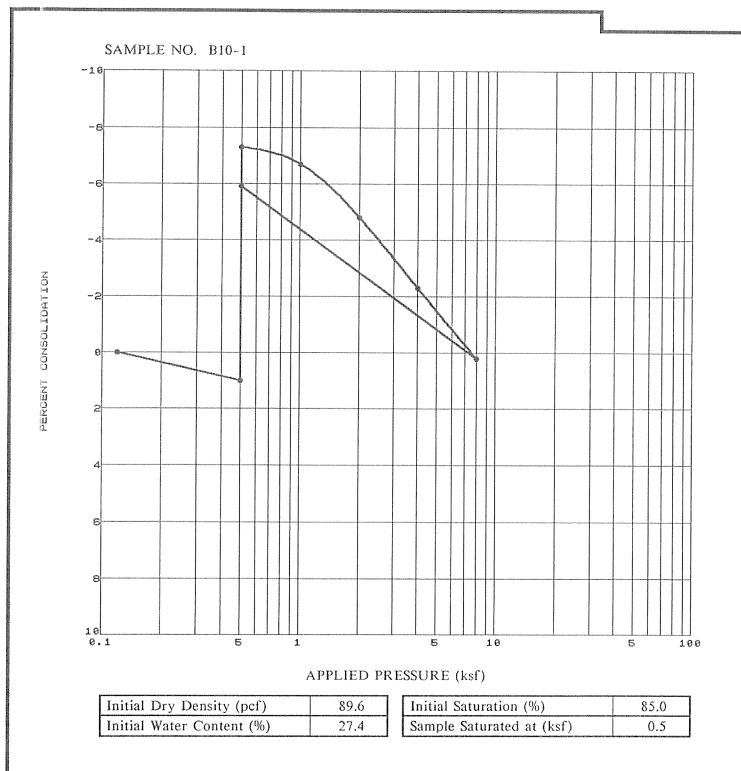
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