Singleton Laboratories

The Critical Link.®

May 31, 1995

Mr. F. Gregory Nadeau
Gilbert/Commonwealth, Inc.
Route 10 & Pheasant Road
Reading, Pennsylvania 19607

RE: TASK ASSIGNMENT No. TV-FH-SL001-058, G/C P.O No. 245770.058, G/C Work Order No. 07-9822-029, and TVA TAO No. GP-622-398715 KINGSTON FOSSIL PLANT DREDGE CELLS/CLOSURE - ADDITIONAL LABORATORY TESTING - SINGLETON LABORATORIES REPORT 715-672-157A

Dear Mr. Nadeau:

Work associated with the above referenced project has been completed and is summarized in the enclosed report.

Please sign the enclosed copy of this letter to acknowledge receipt of this report, and return the signed copy to Singleton.

Sincerely,

Yung C. Chung, P.E.
Laboratory Director

Enclosure
cc (Enclosure):
K. Burnett

Receipt Acknowledgment:

_____

Date _____, 1995

A Division of United Energy Services Corporation
1413 Topside Road · Louisville, Tennessee · 37777

Singleton Laboratories

Singleton Laboratories

The Critical Link.®

May 31, 1995

TASK ASSIGNMENT No. TV-FH-SL-001-058
G/C P.O. No. 245770.058
G/C WORK ORDER No. 07-9822--029
TVA TAO No. GP-622-398715
KINGSTON FOSSIL PLANT
DREDGE CELLS/CLOSURE
ADDITIONAL LABORATORY TESTING

SL Report 715-672-157A

PREPARED FOR:
Gilbert/Commonwealth, Inc.
Route 10 & Pheasant Road
Reading, PA 19607
As Requested By: G. Nadeau

SINGLETON LABORATORIES
1413 Topside Road
Louisville, Tennessee 37777
615-970-2299

Table of Contents

Introduction

Singleton Laboratories has completed a requested additional laboratory testing for the subject project. This testing program was conducted in general accordance with a subcontract P.O. No. 245770.058. The purpose of the testing program was to determine shear strength of remolded fly ash samples. The following report presents the activities and results of the testing program.

Receipt Inspection

The fly ash samples were obtained from the Dredge Cell No. 2 during the previous investigation reported in Singleton Laboratories Report 015-672-142A dated September 29, 1994.

Scope and Procedures

The testing program consists of unconsolidated-undrained triaxial compression and consolidated-undrained triaxial compression with pore water pressure measurements tests. Tests were performed on a composite fly ash samples remolded to 3 percent wet of the optimum moisture content with 85 percent of the maximum dry density in accordance with the appropriate American Society for Testing and Materials (ASTM) Methods. In the consolidated-undrained triaxial testing, all samples were saturated by a back pressure of 100 psi and consolidated under isotropic conditions prior to shearing.

Results

Test results are summarized in Table 1. Individual test data are enclosed in Appendix A. Test data indicates the angle of shear resistance and cohesion are 25.3 degrees and 0.06 tsf, respectively, for the unconsolidated-undrained conditions, and 8.6 degrees and zero, respectively, for the apparent consolidated-undrained conditions and 14.0 degrees and 0.02 tsf, respectively, for the effective consolidated-undrained conditions.

KINGSTON FOSSIL PLANT - FLY ASH

SUMMARY OF LABORATORY TEST DATA

	Symbol	Sp G	Grain-Size Analysis					Atterberg Limit		Max	Opt
			Gravel	Sand	Silt	Clay	D_{10}	Liquid Limit	Plastic Index	Density	Moist
			%	%	%	%	mm	%	%	pcf	%
Class I	ML	2.25	0	6	67	27	--	NP	NP	79.8	25.4
Class II	ML	2.26	0	25	66	19	--	NP	NP	79.9	24.5

	Triaxial Q Remolded		Saturated Triaxial R Apparent		Saturated Triaxial R Effective	
	ϕ	c	ϕ	c	ϕ	c
	deg	tsf	def	tsf	deg	tsf
Class I & II	25.3	0.06	8.6	0.00	14.0	0.02

Remolded at 3% wet of optimum moisture and at 85% of maximum unit weight.

Table 1

TASK ASSIGNMENT NO: TV-FH-SL001-058, G/C P.O. No. 245770-058
KINGSTON FOSSIL PLANT - DREDGE CELLS/CLOSURE PROJECT
ADDITIONAL LABORATORY TESTING

Singleton Laboratories Report 715-672-157A

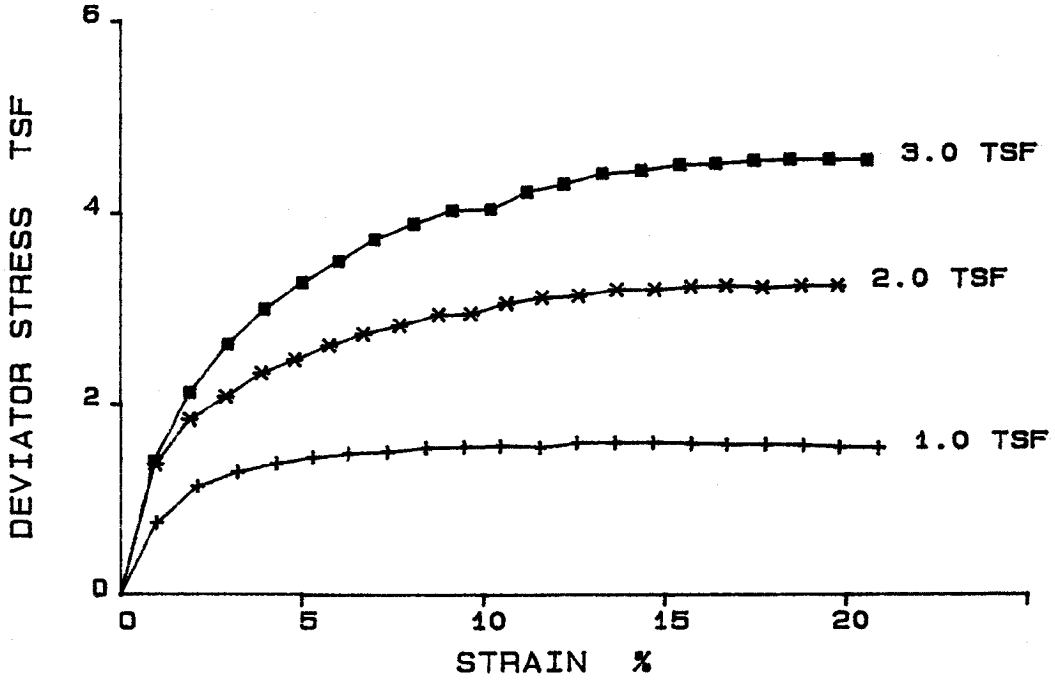
Attachment A

Laboratory Test Data Sheets

SINGLETON LABORATORIES
Louisville, Tennessee

SINGLETON LABORATORIES
UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (Q) TEST

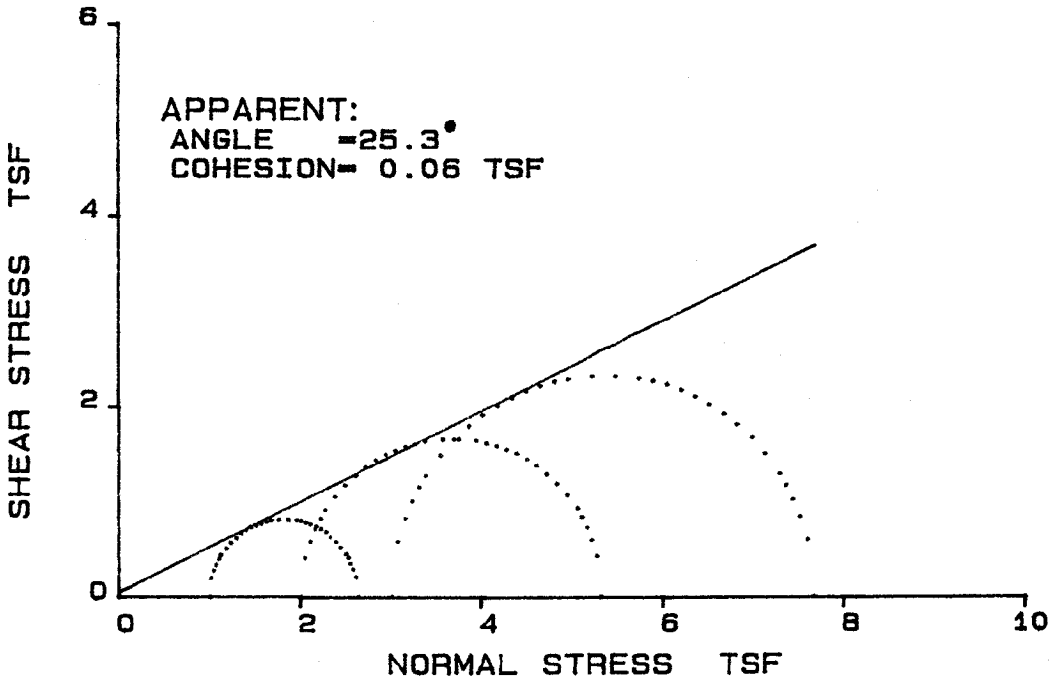
PROJECT:	KINGSTON FP	EL.	:
FEATURE:	DREDGE CELL CLOS	SAMPLE	: CLASS I & II
STATION:		PART	: Borrow
RANGE	:	SOIL SYM:	ML
BORING	:	DATE	: 05-22-95



REMARKS: REMOLDED AT 3% WET OF OPTIMUM MOISTURE AND AT 85% MAXIMUM UNIT WEIGHT.

SINGLETON LABORATORIES
UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (Q) TEST

PROJECT:	KINGSTON FP	EL.	:
FEATURE:	DREDGE CELL CLOS	SAMPLE	: CLASS I & II
STATION:		PART	: Borrow
RANGE	:	SOIL SYM:	ML
BORING	:	DATE	: 05-22-95



REMARKS: REMOLDED AT 3% WET OF OPTIMUM MOISTURE AND AT 85% MAXIMUM UNIT WEIGHT.

Singleton Laboratories

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION(Q) TEST

Project: KINGSTON FP
Feature: DREDGE CELL CLOSURE
Station:
Range :
Boring :

El. :
Sample: CLASS I & II
Part : Borrow

File : 55
Tested By : TAL
Computed By: MHD
Checked By : CCG
Report Date: 05-22-95

Soil Symbol= ML
Sp. Gr. = 2.26

L.L.(%)= NP
D10(mm)=

P.I.(%) = NP

Specimen Number	1	2	3	4
Initial:				
Moisture Content(%)	28.1	28.1	28.1	0.0
Dry Density(pcf)	67.8	67.8	67.8	0.0
Void Ratio	1.082	1.082	1.082	0.000
Saturation(%)	58.7	58.7	58.7	0.0
Before Shearing:				
Moisture(%) (after satur.)	--	--	--	--
Saturation(%)	--	--	--	--
Moisture(%) (after cons.)	--	--	--	--
Void Ratio (after cons.)	--	--	--	--
Final Moisture Content(%)	28.2	27.6	28.1	0.0
Minor Principal Stress(tsf)	1.01	2.02	3.02	0.00
Major Principal Stress(tsf)	2.66	5.35	7.68	0.00
Eff. Minor Prin Stress (tsf)	--	--	--	--
Eff. Major Prin Stress (tsf)	--	--	--	--
Time to Failure(min)	17	20	19	0
Rate of Strain(%/min)	1.06	1.00	1.04	0.00
Specimen Height(in.)	3.13	3.13	3.13	0.00
Specimen Dia (in.)	1.40	1.40	1.40	0.00

Shear Strength	Max Deviator Stress Deg	c(tsf)	Max Eff Deg	Stress Ratio c(tsf)
Apparent	25.3	0.06		
Effective	--	--		

NOTE: Figures in parenthesis are based on the failure criteria of Maximum Effective Principal Stress Ratio.

Remark: REMOLDED AT 3% WET OF OPTIMUM MOISTURE AND AT 85% MAXIMUM UNIT WEIGHT.

Singleton Laboratories
UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION(Q) TEST

Project: KINGSTON FP
Feature: DREDGE CELL CLOSURE
Station:
Range :
Boring :
El. :
Sample: CLASS I & II
Part : Borrow
File : 55
Tested By : TAL
Computed By: MHD
Checked By : RLG
Report Date: 05-22-95

Moisture Content	Trimming	Initial	Final
Wet Wt. and Tare(gm)=	97.7	110.3	150.3
Dry Wt. and Tare(gm)=	84.6	86.1	126.0
Wt. of Tare(gm) =	37.6	0.0	39.9
Moisture(%) =	27.9	28.1	28.2

Test Conditions and Constants:

Proving Ring No. = 2410	Tube No. = 1
Proving Ring Constant:	Sample Volume (cc) = 79.31301
Slope Const. = 1	Sample Height(in.) = 3.133
Intercept = 0	Specific Gravity = 2.26
Confining Pres.(psi) = 14	Consolidation(in.) = 0
Initial Pore Pre(psi)= 0	Initial P.R. Rdg = 13.3

Time (Min)	Deflection (ins.)	Pro.Ring Reading	Strain (%)	±1 - ±3 (tsf)
1	0.032	29.9	1.02	0.77
2	0.068	38.6	2.17	1.15
3	0.103	42.3	3.29	1.31
4	0.137	44.7	4.37	1.40
5	0.169	46.5	5.39	1.46
6	0.201	48.0	6.42	1.51
7	0.235	48.9	7.50	1.53
8	0.270	50.3	8.62	1.58
9	0.303	51.2	9.67	1.60
10	0.335	52.0	10.69	1.61
11	0.368	52.0	11.75	1.59
12	0.400	53.7	12.77	1.64
13	0.433	54.3	13.82	1.65
14	0.466	54.9	14.87	1.65
15	0.499	55.3	15.93	1.65
16	0.530	55.8	16.92	1.65
17	0.564	56.5	18.00	1.65
18	0.597	56.9	19.06	1.64
19	0.629	57.0	20.08	1.63
20	0.662	57.4	21.13	1.62

Initial:

Moisture(%) = 28.1	Void Ratio =1.082
Density(pcf)= 67.8	Saturation(%)= 58.7

Minor Prin. Stress(tsf) =1.01 Major Prin. Stress(tsf) = 2.66

NOTE: Figures in parenthesis are based on the failure criteria of Maximum Effective Principal Stress Ratio.

Singleton Laboratories
UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION(Q) TEST

Project: KINGSTON FP
Feature: DREDGE CELL CLOSURE
Station:
Range :
Boring :
El. :
Sample: CLASS I & II
Part : Borrow
File : 55
Tested By : TAL
Computed By: MHD
Checked By : RLG
Report Date: 05-22-95

Moisture Content	Trimming	Initial	Final
Wet Wt. and Tare(gm)=	86.9	110.3	152.5
Dry Wt. and Tare(gm)=	76.5	86.1	128.2
Wt. of Tare(gm) =	39.5	0.0	40.1
Moisture(%) =	28.1	28.1	27.6

Test Conditions and Constants:

Proving Ring No. = 2410
Proving Ring Constant:
Slope Const. = 1
Intercept = 0
Confining Pres.(psi) = 28
Initial Pore Pre(psi)= 0
Tube No. = 1
Sample Volume (cc) = 79.31301
Sample Height(in.) = 3.133
Specific Gravity = 2.26
Consolidation(in.) = 0
Initial P.R. Rdg = 24

Time (Min)	Deflection (ins.)	Pro.Ring Reading	Strain (%)	±1 - ±3 (tsf)
1	0.030	53.7	0.96	1.37
2	0.060	64.3	1.92	1.84
3	0.092	70.2	2.94	2.09
4	0.123	76.3	3.93	2.34
5	0.152	80.1	4.85	2.49
6	0.182	84.1	5.81	2.64
7	0.212	87.5	6.77	2.76
8	0.244	90.4	7.79	2.85
9	0.278	93.8	8.87	2.96
10	0.306	94.9	9.77	2.98
11	0.337	98.4	10.76	3.09
12	0.368	100.7	11.75	3.15
13	0.400	102.3	12.77	3.18
14	0.433	104.9	13.82	3.25
15	0.466	106.1	14.87	3.26
16	0.498	108.0	15.90	3.29
17	0.529	109.5	16.88	3.31
18	0.561	110.1	17.91	3.29
19	0.595	112.0	18.99	3.32
20	0.627	113.3	20.01	3.33

Initial:
Moisture(%) = 28.1
Density(pcf)= 67.8
Void Ratio =1.082
Saturation(%)= 58.7

Minor Prin. Stress(tsf) =2.02
Major Prin. Stress(tsf) = 5.35

NOTE: Figures in parenthesis are based on the failure criteria of Maximum Effective Principal Stress Ratio.

Singleton Laboratories
UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION(Q) TEST

Project: KINGSTON FP
Feature: DREDGE CELL CLOSURE
Station:
Range :
Boring :
El. :
Sample: CLASS I & II
Part : Borrow
File : 55
Tested By : TAL
Computed By: MHD
Checked By : RLC
Report Date: 05-22-95

Moisture Content	Trimming	Initial	Final
Wet Wt. and Tare(gm)=	94.1	110.3	149.1
Dry Wt. and Tare(gm)=	82.1	86.1	124.9
Wt. of Tare(gm) =	39.2	0.0	38.8
Moisture(%) =	28.0	28.1	28.1

Test Conditions and Constants:

Proving Ring No. = 2410	Tube No. = 1
Proving Ring Constant:	Sample Volume (cc) = 79.31301
Slope Const. = 1	Sample Height(in.) = 3.133
Intercept = 0	Specific Gravity = 2.26
Confining Pres.(psi) = 42	Consolidation(in.) = 0
Initial Pore Pre(psi)= 0	Initial P.R. Rdg = 36

Time (Min)	Deflection (ins.)	Pro.Ring Reading	Strain (%)	±1 - ±3 (tsf)
1	0.029	66.5	0.93	1.41
2	0.060	82.6	1.92	2.13
3	0.093	94.5	2.97	2.65
4	0.125	103.6	3.99	3.02
5	0.158	110.9	5.04	3.31
6	0.190	116.8	6.06	3.54
7	0.222	123.2	7.09	3.78
8	0.256	128.2	8.17	3.95
9	0.289	132.6	9.22	4.09
10	0.322	134.0	10.28	4.10
11	0.354	139.6	11.30	4.28
12	0.386	142.8	12.32	4.36
13	0.419	147.0	13.37	4.48
14	0.453	149.2	14.46	4.51
15	0.486	152.3	15.51	4.58
16	0.518	154.1	16.53	4.59
17	0.551	156.6	17.59	4.63
18	0.583	158.6	18.61	4.65
19	0.617	160.5	19.69	4.66
20	0.650	161.9	20.75	4.65

Initial:

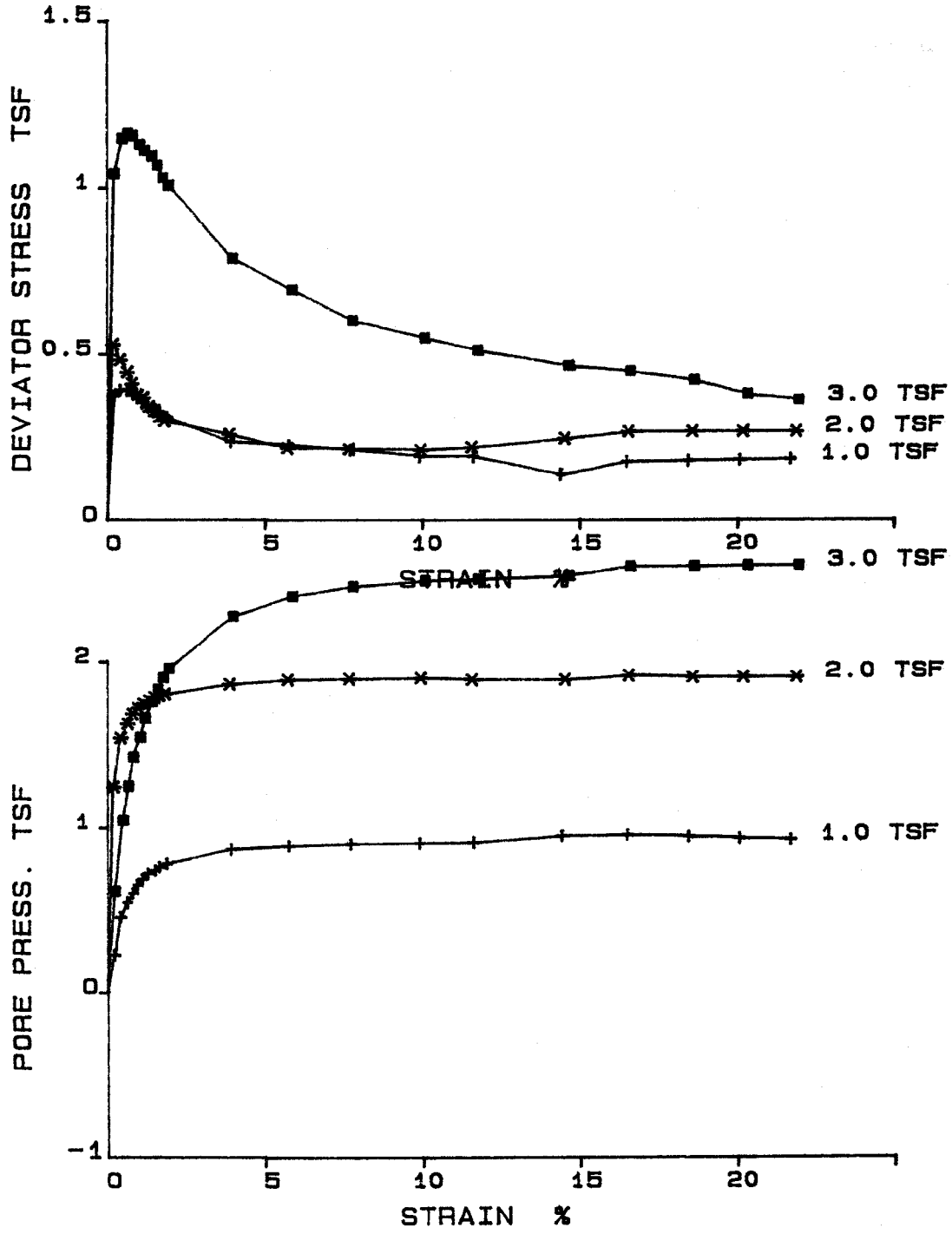
Moisture(%) = 28.1	Void Ratio =1.082
Density(pcf)= 67.8	Saturation(%)= 58.7

Minor Prin. Stress(tsf) =3.02 Major Prin. Stress(tsf) = 7.68

NOTE: Figures in parenthesis are based on the failure criteria of Maximum Effective Principal Stress Ratio.

SINGLETON LABORATORIES
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (R) TEST

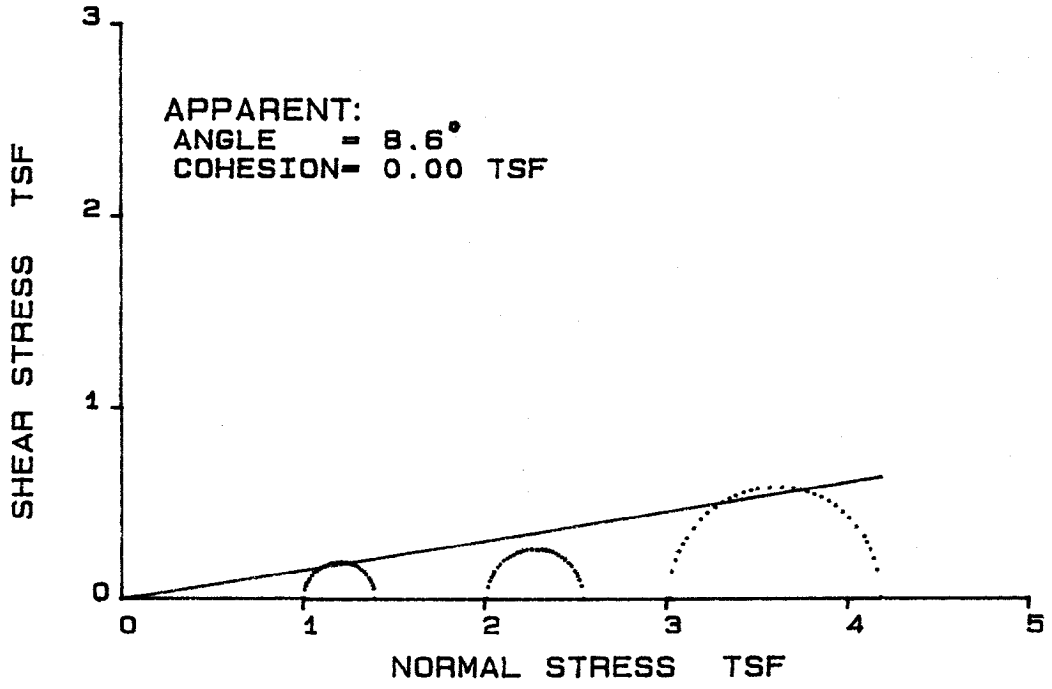
PROJECT:	KINGSTON FP	EL.	:
FEATURE:	DREDGE CELL CLOSR	SAMPLE	: CLASS I & II
STATION:		PART	: Borrow
RANGE :		SOIL SYM:	ML
BORING :		DATE	: 05-22-95

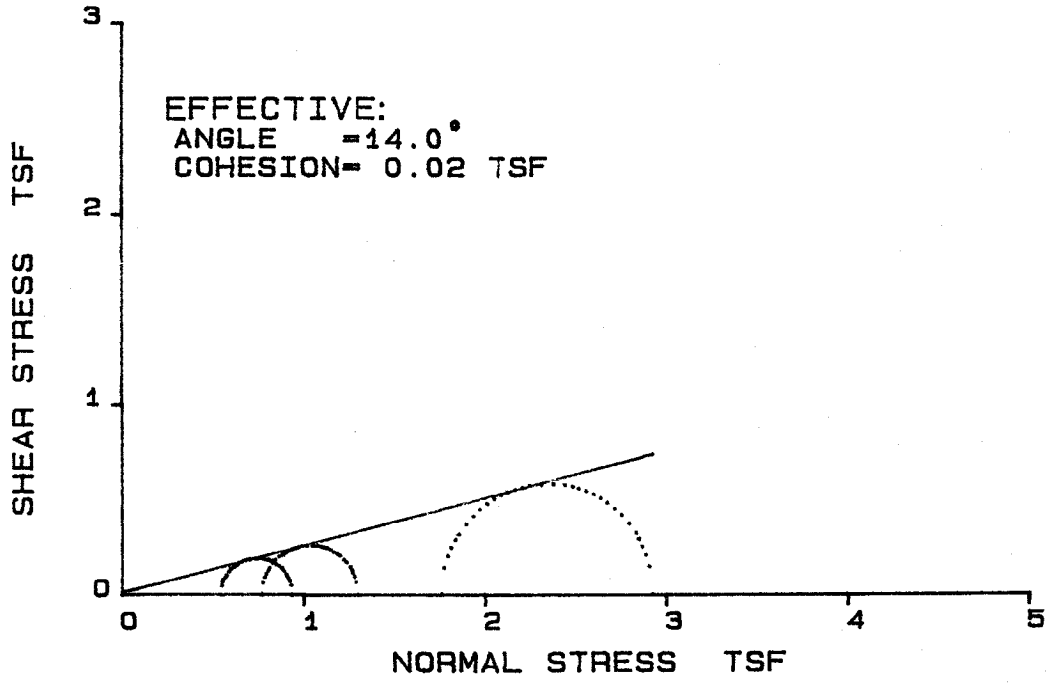


REMARKS: REMOLDED AT 3% WET OF OPTIMUM MOISTURE AND AT 85% MAXIMUM UNIT WEIGHT.

SINGLETON LABORATORIES
CONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (R) TEST

PROJECT:	KINGSTON FP	EL.	:
FEATURE:	DREDGE CELL CLOSR	SAMPLE	: CLASS I & II
STATION:		PART	: Borrow
RANGE :		SOIL SYM:	ML
BORING :		DATE	: 05-22-95





REMARKS: REMOLDED AT 3% WET OF OPTIMUM MOISTURE AND AT 85% MAXIMUM UNIT WEIGHT.

Singleton Laboratories
Consolidated Undrained Triaxial Compression (R) Test

Project: KINGSTON FP
Feature: DREDGE CELL CLOSURE
Station:
Range :
Boring :

El. :
Sample: CLASS I & II
Part : Borrow

File : 53
Tested By : TAL
Computed By: MHD
Checked By : Reg
Report Date: 05-22-95

Soil Symbol= ML
Sp. Gr. = 2.26

L.L.(%)= NP
D10(mm)=

P.I.(%) = NP

Specimen Number	1	2	3	4
Initial:				
Moisture Content(%)	28.0	28.0	28.0	0.0
Dry Density(pcf)	67.8	67.8	67.8	0.0
Void Ratio	1.079	1.079	1.079	0.000
Saturation(%)	58.5	58.5	58.5	0.0
Before Shearing:				
Moisture(%) (after satur.)	47.8	47.8	47.8	0.0
Saturation(%)	100.0	100.0	100.0	0.0
Moisture(%) (after cons.)	41.3	40.5	40.1	0.0
Void Ratio (after cons.)	0.934	0.915	0.905	0.000
Final Moisture Content(%)	40.0	37.0	41.4	0.0
Minor Principal Stress(tsf)	1.01(1.01)	2.02(2.02)	3.02(3.02)	0.00(0.00)
Major Principal Stress(tsf)	1.40(1.21)	2.55(2.31)	4.19(3.73)	0.00(0.00)
Eff. Minor Prin Stress(tsf)	0.55(0.02)	0.77(0.06)	1.76(0.60)	0.00(0.00)
Eff. Major Prin Stress(tsf)	0.94(0.22)	1.30(0.35)	2.93(1.30)	0.00(0.00)
Time to Failure(min)	2	1	3	0
Rate of Strain(%/min)	0.21	0.20	0.23	0.00
Specimen Height(in.)	3.13	3.13	3.13	0.00
Specimen Dia (in.)	1.40	1.40	1.40	0.00

Shear Strength	Max Deviator Stress Deg	Max Deviator Stress c(tsf)	Max Eff Stress Ratio Deg	Max Eff Stress Ratio c(tsf)
Apparent	8.6	0.00	6.5	-0.05
Effective	14.0	0.02	17.1	0.08

NOTE: Figures in parenthesis are based on the failure criteria of Maximum Effective Principal Stress Ratio.

Remark: REMOLDED AT 3% WET OF OPTIMUM MOISTURE AND AT 85% MAXIMUM UNIT WEIGHT.

Singleton Laboratories
Consolidated Undrained Triaxial Compression (R) Test

Project: KINGSTON FP
Feature: DREDGE CELL CLOSURE
Station:
Range :
Boring :
El. :
Sample: CLASS I & II
Part : Borrow
File : 53
Tested By : TAL
Computed By: MHD
Checked By : RCG
Report Date: 05-22-95

Moisture Content	Trimming	Initial	Final
Wet Wt. and Tare(gm)=	147.8	110.3	160.3
Dry Wt. and Tare(gm)=	124.1	86.2	125.8
Wt. of Tare(gm) =	39.4	0.0	39.6
Moisture(%) =	28.0	28.0	40.0

Test Conditions and Constants:
Proving Ring No. = 2409
Proving Ring Constant:
Slope Const. = 1
Intercept = 0
Confining Pres.(psi) = 14
Initial Pore Pre(psi)= 100
Tube No. = 1
Sample Volume (cc) = 79.31301
Sample Height(in.) = 3.133
Specific Gravity = 2.26
Consolidation(in.) = .075
Initial P.R. Rdg = 91.1

Time (Min)	Deflection (ins.)	Pro.Ring Reading	Pore Pres. (psi)	Strain (%)	±1 - ±3 (tsf)	Pore Press. (tsf)	±1 / ±3 (TSF)
1	0.007	98.8	103.2	0.23	0.38	0.23	1.48
2	0.013	99.2	106.4	0.43	0.39	0.46	1.72
3	0.020	99.2	107.7	0.65	0.39	0.55	1.87
4	0.026	99.1	108.5	0.85	0.39	0.61	1.98
5	0.031	98.9	109.2	1.01	0.38	0.66	2.09
6	0.036	98.6	109.7	1.18	0.36	0.70	2.17
7	0.042	98.4	110.2	1.37	0.35	0.73	2.29
8	0.049	98.3	110.5	1.60	0.35	0.76	2.38
9	0.054	98.2	110.8	1.77	0.34	0.78	2.48
10	0.061	97.9	111.1	1.99	0.33	0.80	2.56
20	0.123	96.5	112.3	4.02	0.25	0.89	3.07
30	0.180	96.4	112.6	5.89	0.24	0.91	3.42
40	0.240	96.2	112.8	7.85	0.23	0.92	3.66
50	0.308	95.9	112.9	10.07	0.21	0.93	3.67
60	0.360	96.0	113.0	11.77	0.21	0.94	3.94
70	0.446	94.9	113.6	14.58	0.16	0.98	6.51
80	0.510	96.0	113.7	16.68	0.20	0.99	10.25
90	0.570	96.2	113.6	18.64	0.20	0.98	8.05
100	0.620	96.4	113.5	20.27	0.21	0.97	6.74
110	0.670	96.6	113.4	21.91	0.21	0.96	5.86

Initial:
Moisture(%) = 28.0
Density(pcf)= 67.8
Void Ratio =1.079
Saturation(%)= 58.5
After Saturation:
Moisture(%) = 47.8
Void Ratio =0.934

Minor Prin. Stress(tsf) =1.01
Major Prin. Stress(tsf) = 1.40(1.21)
Eff. Minor Prin. Stress(tsf)=0.55(0.02)
Eff. Major Prin. Stress(tsf)= 0.94(0.22)

NOTE: Figures in parenthesis are based on the failure criteria of Maximum Effective Principal Stress Ratio.

Singleton Laboratories
Consolidated Undrained Triaxial Compression (R) Test

Project: KINGSTON FP
Feature: DREDGE CELL CLOSURE
Station:
Range :
Boring :
El. :
Sample: CLASS I & II
Part : Borrow
File : 53
Tested By : TAL
Computed By: MHD
Checked By : RLS
Report Date: 05-22-95

Moisture Content	Trimming	Initial	Final
Wet Wt. and Tare(gm)=	151.5	110.3	157.6
Dry Wt. and Tare(gm)=	127.1	86.2	125.7
Wt. of Tare(gm) =	39.8	0.0	39.5
Moisture(%) =	27.9	28.0	37.0

Test Conditions and Constants:

Proving Ring No. = 2410	Tube No. = 1
Proving Ring Constant:	Sample Volume (cc) = 79.31301
Slope Const. = 1	Sample Height(in.) = 3.133
Intercept = 0	Specific Gravity = 2.26
Confining Pres.(psi) = 28	Consolidation(in.) = .085
Initial Pore Pre(psi)= 100	Initial P.R. Rdg = 101.4

Time (Min)	Deflection (ins.)	Pro.Ring Reading	Pore Pres. (psi)	Strain (%)	±1 - ±3 (tsf)	Pore Press. ±1 / ±3 (tsf)	(TSF)
1	0.006	112.2	117.3	0.20	0.53	1.25	1.69
2	0.013	111.3	121.4	0.43	0.49	1.54	2.02
3	0.020	110.6	122.6	0.66	0.45	1.63	2.16
4	0.025	109.9	123.5	0.82	0.42	1.69	2.28
5	0.031	109.2	124.0	1.02	0.38	1.73	2.32
6	0.037	109.1	124.4	1.21	0.37	1.76	2.45
7	0.043	108.6	124.7	1.41	0.35	1.78	2.47
8	0.049	108.4	125.0	1.61	0.34	1.80	2.57
9	0.054	108.1	125.2	1.77	0.32	1.81	2.61
10	0.060	107.9	125.4	1.97	0.31	1.83	2.68
20	0.123	107.2	126.3	4.04	0.27	1.89	3.24
30	0.180	106.4	126.7	5.91	0.23	1.92	3.48
40	0.240	106.5	126.8	7.87	0.23	1.93	3.68
50	0.310	106.6	126.9	10.17	0.23	1.94	3.90
60	0.360	106.9	126.8	11.81	0.24	1.93	3.76
70	0.450	107.8	126.8	14.76	0.27	1.93	4.11
80	0.512	108.5	127.2	16.80	0.29	1.96	6.05
90	0.574	108.7	127.1	18.83	0.29	1.95	5.50
100	0.623	108.9	127.1	20.44	0.29	1.95	5.53
110	0.675	109.1	127.1	22.15	0.30	1.95	5.56

Initial:
Moisture(%) = 28.0
Density(pcf)= 67.8
Void Ratio =1.079
Saturation(%)= 58.5
After Saturation:
Moisture(%) = 47.8
Void Ratio =0.915

Minor Prin. Stress(tsf) =2.02
Major Prin. Stress(tsf) = 2.55(2.31)
Eff. Minor Prin. Stress(tsf)=0.77(0.06)
Eff. Major Prin. Stress(tsf)= 1.30(0.35)

NOTE: Figures in parenthesis are based on the failure criteria of
Maximum Effective Principal Stress Ratio.

Singleton Laboratories
Consolidated Undrained Triaxial Compression (R) Test

Project: KINGSTON FP
Feature: DREDGE CELL CLOSURE
Station:
Range :
Boring :
El. :
Sample: CLASS I & II
Part : Borrow
File : 53
Tested By : TAL
Computed By: MHD
Checked By : RLG
Report Date: 05-22-95

Moisture Content	Trimming	Initial	Final
Wet Wt. and Tare(gm)=	152.9	110.3	161.2
Dry Wt. and Tare(gm)=	128.2	86.2	125.5
Wt. of Tare(gm) =	40.1	0.0	39.3
Moisture(%) =	28.0	28.0	41.4

Test Conditions and Constants:
Proving Ring No. = 2408
Proving Ring Constant:
Slope Const. = 1
Intercept = 0
Confining Pres.(psi) = 42
Initial Pore Pre(psi)= 100
Tube No. = 1
Sample Volume (cc) = 79.31301
Sample Height(in.) = 3.133
Specific Gravity = 2.26
Consolidation(in.) = 9.000001E-02
Initial P.R. Rdg = 120.4

Time (Min)	Deflection (ins.)	Pro.Ring Reading	Pore Pres. (psi)	Strain (%)	±1 - ±3 (tsf)	Pore Press. (tsf)	±1 / ±3 (TSF)
1	0.007	141.6	108.6	0.23	1.04	0.62	1.43
2	0.015	143.8	114.6	0.49	1.15	1.05	1.58
3	0.021	144.2	117.5	0.69	1.17	1.26	1.66
4	0.026	144.1	120.0	0.85	1.16	1.44	1.73
5	0.033	143.6	121.7	1.08	1.13	1.56	1.78
6	0.038	143.3	123.3	1.25	1.12	1.68	1.83
7	0.045	143.0	124.7	1.48	1.10	1.78	1.88
8	0.051	142.5	125.8	1.68	1.07	1.86	1.92
9	0.057	141.8	126.8	1.87	1.04	1.93	1.95
10	0.063	141.4	127.6	2.07	1.02	1.99	1.98
20	0.125	137.3	132.0	4.11	0.80	2.30	2.11
30	0.183	135.6	133.7	6.01	0.71	2.43	2.18
40	0.242	133.9	134.6	7.95	0.61	2.49	2.15
50	0.312	133.1	135.1	10.25	0.56	2.53	2.13
60	0.363	132.5	135.3	11.93	0.53	2.54	2.09
70	0.451	131.8	135.6	14.82	0.48	2.56	2.04
80	0.511	131.7	136.4	16.79	0.46	2.62	2.15
90	0.573	131.3	136.4	18.83	0.44	2.62	2.08
100	0.625	130.5	136.5	20.54	0.40	2.63	2.00
110	0.675	130.3	136.5	22.18	0.38	2.63	1.96

Initial:
Moisture(%) = 28.0
Density(pcf)= 67.8
Void Ratio =1.079
Saturation(%)= 58.5
After Saturation:
Moisture(%) = 47.8
Void Ratio =0.905

Minor Prin. Stress(tsf) =3.02
Major Prin. Stress(tsf) = 4.19(3.73)
Eff. Minor Prin. Stress(tsf)=1.76(0.60)
Eff. Major Prin. Stress(tsf)= 2.93(1.30)

NOTE: Figures in parenthesis are based on the failure criteria of
Maximum Effective Principal Stress Ratio.

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