UNCONFINED COMPRESSION RESULTS

Schnabel
Schnabel Engineering

Unconfined Compression Test Report

ASTM D2166

Date: *10/20/2006*

Project: *Calvert Cliffs Nuclear Power Plant*

Location: *Calvert County, MD*

Schnabel No.: *06120048*
Boring No.: *B-304*
Depth: *98.5-99.5*
Elevation: *-30.5 to -31.5*

Test Specimen Data	
Initial Diameter, in:	*2.897*
Initial Area, in^2:	*6.594*
Initial Height, in:	*5.787*
Height/Diameter Ratio:	*2.0*
Moisture Content, %:	*42.1*
Wet Unit Weight, pcf:	*110.5*
Dry Unit Weight, pcf:	*77.7*

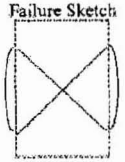
Testing Information	
Test Procedure:	*ASTM D2166*
Type of Specimen:	*Tube Sample*
Load Cell No.:	*1018253*
Strain Rate, %/min.:	*1.0*

Remarks:

Specimen Type: *Tube Sample*

Strength Data	
Strain at Failure, %:	*3.9*
Unconfined Strength (Qu), tsf:	*3.73*
Shear Strength (Su), tsf:	*1.87*

Failure Sketch



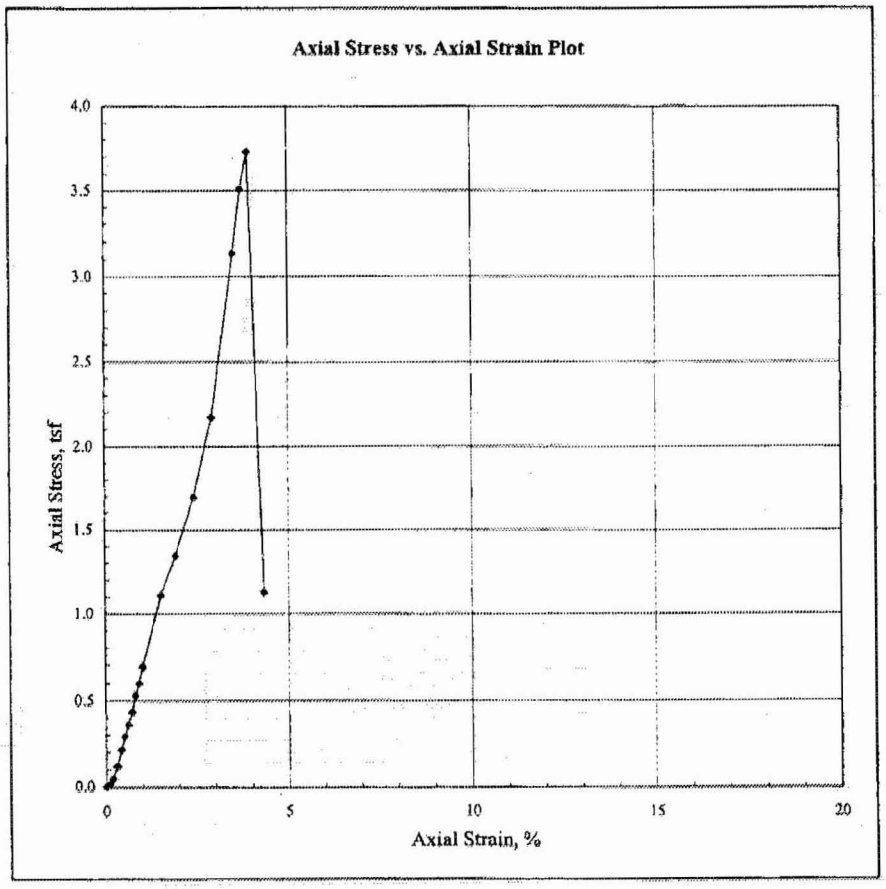
Reviewed by: *CJS*

Soil Desc.: *Fine CLAYEY SAND (SC), contains shell fragments - light gray*

LL, %:	*79*	% < 200:	*47.3*
PI, %:	*51*	Gs:	*2.65*

Test Data

Reading No.	Axial Load (lbs)	Axial Displ. (in.)	Axial Strain (%)	Corrected Area[1] (in^2)	Axial Stress (psi)	Axial Stress (tsf)
Zero	0.0	0.000	0.0	6.59	0.0	0.00
1	1.5	0.006	0.1	6.60	0.2	0.02
2	4.3	0.011	0.2	6.61	0.7	0.05
3	10.7	0.017	0.3	6.61	1.6	0.12
4	19.5	0.024	0.4	6.62	2.9	0.21
5	26.8	0.029	0.5	6.63	4.0	0.29
6	33.5	0.035	0.6	6.63	5.0	0.36
7	40.1	0.041	0.7	6.64	6.0	0.43
8	48.7	0.046	0.8	6.65	7.3	0.53
9	55.1	0.052	0.9	6.65	8.3	0.60
10	64.0	0.058	1.0	6.66	9.6	0.69
11	103.0	0.087	1.5	6.69	15.4	1.11
12	125.5	0.111	1.9	6.72	18.7	1.34
13	159.0	0.140	2.4	6.76	23.5	1.69
14	204.9	0.169	2.9	6.79	30.2	2.17
15	297.3	0.204	3.5	6.84	43.5	3.13
16	333.7	0.216	3.7	6.85	48.7	3.51
17	355.5	0.227	3.9	6.86	51.8	3.73
18	107.8	0.251	4.3	6.89	15.6	1.13
19	0.0	0.000	0.0	6.59	0.0	0.00
20	0.0	0.000	0.0	6.59	0.0	0.00
21	0.0	0.000	0.0	6.59	0.0	0.00
22	0.0	0.000	0.0	6.59	0.0	0.00
23	0.0	0.000	0.0	6.59	0.0	0.00
24	0.0	0.000	0.0	6.59	0.0	0.00
25	0.0	0.000	0.0	6.59	0.0	0.00
26	0.0	0.000	0.0	6.59	0.0	0.00



Notes: 1. Right Cylinder Area Correction Method

UC 8/2006 Rev. 0

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Unconfined Compression Test Report
ASTM D2166

Date: *10/20/2006*

Project: *Calvert Cliffs Nuclear Power Plant*

Location: *Calvert County, MD*

Schnabel No.: *06120048.00*
Boring No.: *B-304*
Depth: *138.5-139.3 ft*
Elevation: *-70.5 to -71.3*

Test Specimen Data	
Initial Diameter, in:	*2.898*
Initial Area, in^2:	*6.596*
Initial Height, in:	*5.680*
Height/Diameter Ratio:	*2.0*
Moisture Content, %:	*36.4*
Wet Unit Weight, pcf:	*112.2*
Dry Unit Weight, pcf:	*82.3*

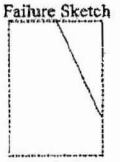
Testing Information	
Test Procedure:	*ASTM D2166*
Type of Specimen:	*Tube Sample*
Load Cell No.:	*1018253*
Strain Rate, %/min.:	*1.0*

Remarks:

Specimen Type: *Tube Sample*

Strength Data	
Strain at Failure, %:	*3.7*
Unconfined Strength (Qu), tsf:	*5.23*
Shear Strength (Su), tsf:	*2.62*

Failure Sketch



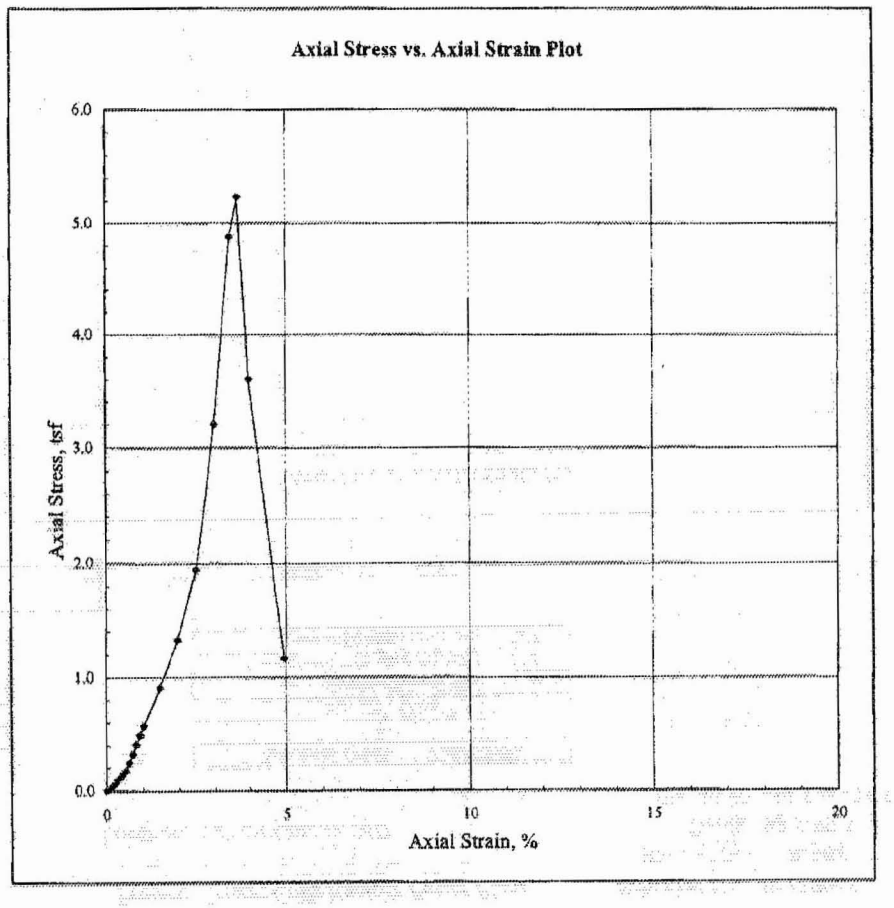
Reviewed by: *CJS*

Soil Desc.: *Fine CLAYEY SAND (SC) - dark gray*

LL, %:	*43*	% < 200:	*45.7*
PI, %:	*17*	Gs:	*2.65*

Test Data

Reading No.	Axial Load (lbs)	Axial Displ. (in.)	Axial Strain (%)	Corrected Area[1] (in^2)	Axial Stress (psi)	Axial Stress (tsf)
Zero	0.0	0.000	0.0	6.60	0.0	0.00
1	1.7	0.005	0.1	6.60	0.3	0.02
2	4.9	0.011	0.2	6.61	0.7	0.05
3	8.4	0.017	0.3	6.62	1.3	0.09
4	12.0	0.023	0.4	6.62	1.8	0.13
5	16.2	0.029	0.5	6.63	2.4	0.18
6	22.6	0.035	0.6	6.64	3.4	0.25
7	29.7	0.041	0.7	6.64	4.5	0.32
8	37.6	0.046	0.8	6.65	5.7	0.41
9	45.6	0.052	0.9	6.66	6.8	0.49
10	53.1	0.058	1.0	6.66	8.0	0.57
11	84.6	0.083	1.5	6.69	12.6	0.91
12	124.4	0.112	2.0	6.73	18.5	1.33
13	182.2	0.140	2.5	6.76	26.9	1.94
14	302.5	0.170	3.0	6.80	44.5	3.20
15	463.3	0.198	3.5	6.83	67.8	4.88
16	498.0	0.210	3.7	6.85	72.7	5.23
17	343.7	0.227	4.0	6.87	50.0	3.60
18	112.4	0.281	4.9	6.94	16.2	1.17
19	0.0	0.000	0.0	6.60	0.0	0.00
20	0.0	0.000	0.0	6.60	0.0	0.00
21	0.0	0.000	0.0	6.60	0.0	0.00
22	0.0	0.000	0.0	6.60	0.0	0.00
23	0.0	0.000	0.0	6.60	0.0	0.00
24	0.0	0.000	0.0	6.60	0.0	0.00
25	0.0	0.000	0.0	6.60	0.0	0.00
26	0.0	0.000	0.0	6.60	0.0	0.00



Notes: 1. Right Cylinder Area Correction Method

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Unconfined Compression Test Report

ASTM D2166

Date: *10/26/2006*

Project: *Calvert Cliffs Nuclear Power Plant*

Location: *Calvert County, MD*

Schnabel No.: *06120048*
Boring No.: *B-316*
Depth: *43.5-45.5 ft.*
Elevation: *64.6 to 62.6*

Test Specimen Data	
Initial Diameter, in:	*2.884*
Initial Area, in^2:	*6.535*
Initial Height, in:	*5.847*
Height/Diameter Ratio:	*2.0*
Moisture Content, %:	*28.6*
Wet Unit Weight, pcf:	*119.4*
Dry Unit Weight, pcf:	*92.8*

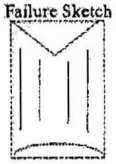
Testing Information	
Test Procedure:	*ASTM D2166*
Type of Specimen:	*Tube Sample*
Load Cell No.:	*1018253*
Strain Rate, %/min.:	*1.0*

Remarks:

Specimen Type:	*Tube Sample*

Strength Data	
Strain at Failure, %:	*3.4*
Unconfined Strength (Qu), tsf:	*1.13*
Shear Strength (Su), tsf:	*0.57*

Failure Sketch



Reviewed by: *CJS*

Soil Desc.: *LEAN CLAY with sand (CL) - gray*

LL, %:	*44*	% < 200:	*71.0*
PI, %:	*28*	Gs:	*2.79*

Test Data

Reading No.	Axial Load (lbs)	Axial Displ. (in.)	Axial Strain (%)	Corrected Area[1] (in^2)	Axial Stress (psi)	Axial Stress (tsf)
Zero	0.0	0.000	0.0	6.54	0.0	0.00
1	7.0	0.005	0.1	6.54	1.1	0.08
2	10.6	0.011	0.2	6.55	1.6	0.12
3	13.6	0.017	0.3	6.55	2.1	0.15
4	16.4	0.023	0.4	6.56	2.5	0.18
5	18.7	0.029	0.5	6.57	2.8	0.21
6	21.2	0.035	0.6	6.57	3.2	0.23
7	23.4	0.040	0.7	6.58	3.6	0.26
8	25.7	0.046	0.8	6.59	3.9	0.28
9	28.6	0.052	0.9	6.59	4.3	0.31
10	30.9	0.058	1.0	6.60	4.7	0.34
11	46.2	0.087	1.5	6.63	7.0	0.50
12	63.5	0.116	2.0	6.67	9.5	0.69
13	83.2	0.145	2.5	6.70	12.4	0.89
14	99.9	0.175	3.0	6.74	14.8	1.07
15	106.0	0.198	3.4	6.76	15.7	1.13
16	104.1	0.216	3.7	6.79	15.3	1.10
17	96.6	0.233	4.0	6.81	14.2	1.02
18	65.9	0.291	5.0	6.88	9.6	0.69
19	55.2	0.309	5.3	6.90	8.0	0.58
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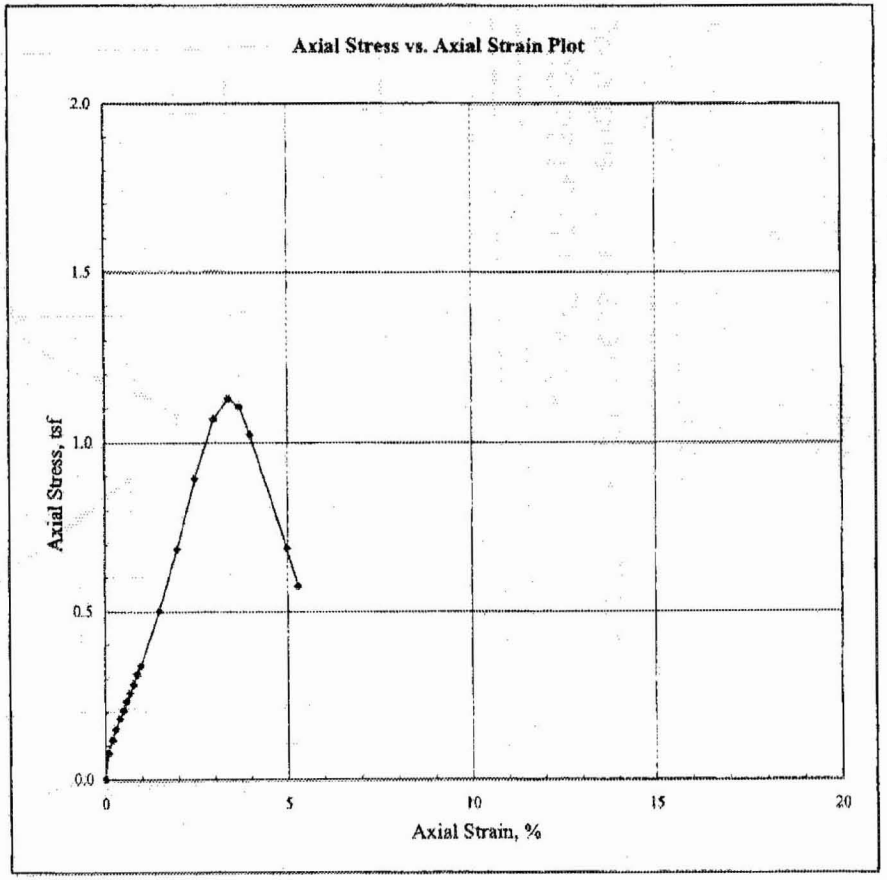
21						
22						
23						
24						
25						
26						



Notes: 1. Right Cylinder Area Correction Method

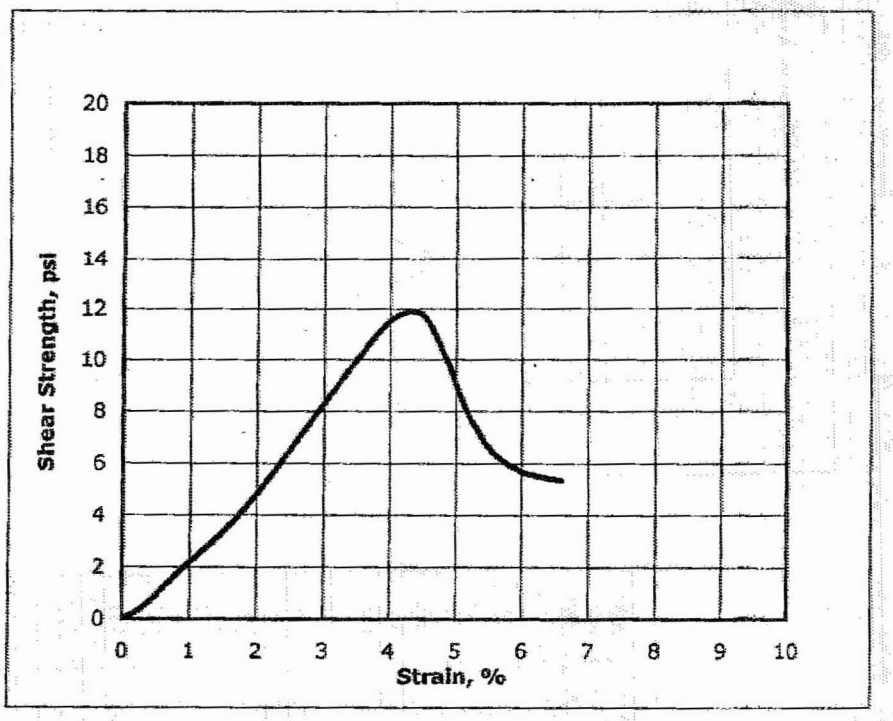
UC 8/2006 Rev. 0

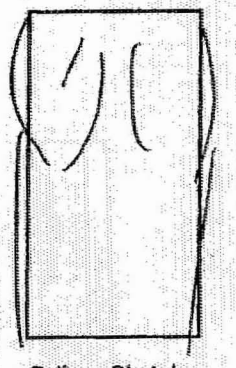
GeoTesting express

a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	10/18/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-326
Sample ID:	S-10
Depth, ft:	33.5-35.5
Visual Description:	Moist, dark gray sandy clay
Test No.:	UC9

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	11.9
Initial Height, in:	6.05	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.11	Strain at Failure, %:	4.3
Initial Mass, grams:	1237	Sample Type:	Tube
Initial Bulk Density, pcf:	120.4	Liquid Limit:	41
Initial Moisture Content, %:	26.6	Plastic Limit:	16
Initial Dry Density, pcf:	95.1	Plasticity Index:	25
Initial Degree of Saturation:	90.4	% Passing #200 sieve:	62
Initial Void Ratio:	0.81	Soil Classification:	Sandy Lean Clay
Measured Specific Gravity:	2.76	Group Symbol:	CL

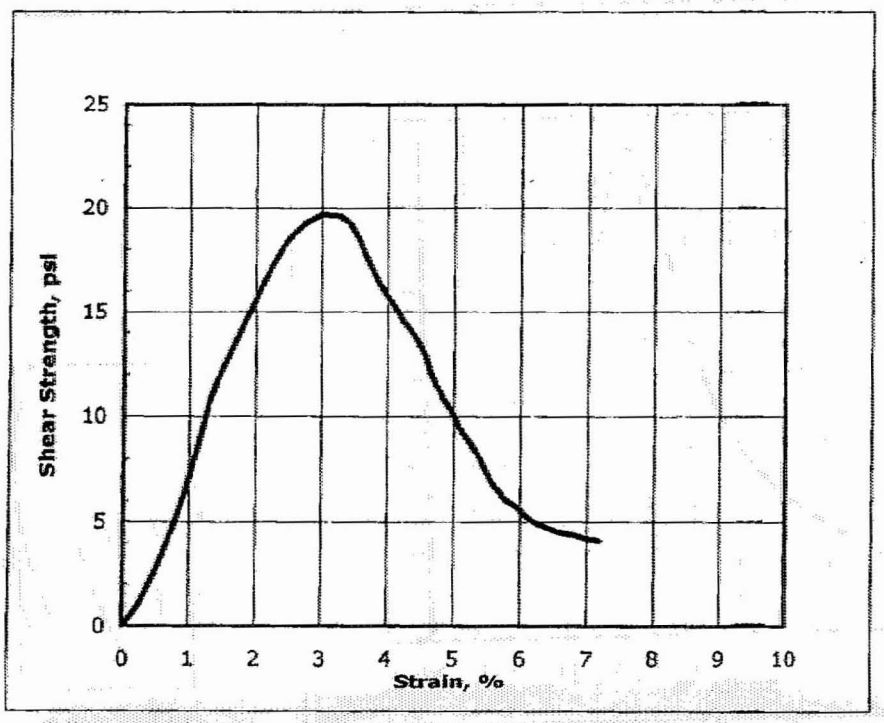
Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

GeoTesting express

a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	9/27/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-326
Sample ID:	S-12
Depth, ft:	43.5-45.5
Visual Description:	Moist, very dark gray organic clay
Test No.:	UC8

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00



Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	19.7
Initial Height, in:	6	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.09	Strain at Failure, %;	3.1
Initial Mass, grams:	1134	Sample Type:	Tube
Initial Bulk Density, pcf:	111.3	Liquid Limit:	63
Initial Moisture Content, %:	32.3	Plastic Limit:	22
Initial Dry Density, pcf:	84.1	Plasticity Index:	41
Initial Degree of Saturation:	87.0	% Passing #200 sieve:	89
Initial Void Ratio:	1.00	Soil Classification:	Organic Clay
Measured Specific Gravity:	2.70	Group Symbol:	OH

Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

GeoTesting express

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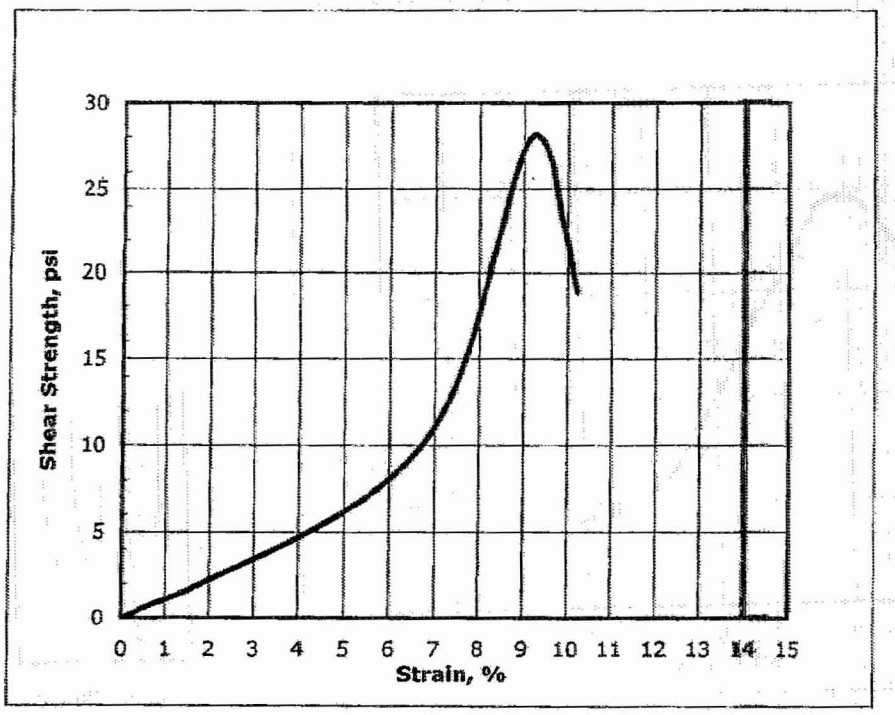
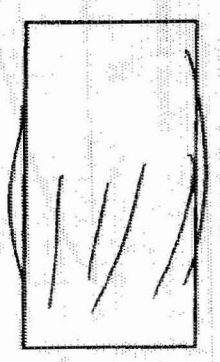
Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	9/27/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-331
Sample ID:	S-7
Depth, ft:	18.5-20.5
Visual Description:	Moist, mottled dark greenish gray, dusky red, and reddish brown clay
Test No.:	UC8

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	28.2
Initial Height, in:	5.75	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.00	Strain at Failure, %:	9.3
Initial Mass, grams:	1084	Sample Type:	Tube
Initial Bulk Density, pcf:	111.0	Liquid Limit:	57
Initial Moisture Content, %:	31.3	Plastic Limit:	23
Initial Dry Density, pcf:	84.5	Plasticity Index:	34
Initial Degree of Saturation:	84.9	% Passing #200 sieve:	97
Initial Void Ratio:	1.00	Soil Classification:	Fat Clay
Measured Specific Gravity:	2.71	Group Symbol:	CH

Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

Schnabel
Schnabel Engineering

Unconfined Compression Test Report
ASTM D2166

Date: *10/30/2006*

Project: *Calvert Cliffs Nuclear Power Plant*

Location: *Calvert County, MD*

Schnabel No.: *06120048*
Boring No.: *B-333*
Depth: *28.5-30.5 ft.*
Elevation: *61 to 59 ft*

Test Specimen Data	
Initial Diameter, in:	*2.892*
Initial Area, in^2:	*6.569*
Initial Height, in:	*5.825*
Height/Diameter Ratio:	*2.0*
Moisture Content, %:	*38.9*
Wet Unit Weight, pcf:	*112.8*
Dry Unit Weight, pcf:	*81.2*

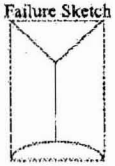
Testing Information	
Test Procedure:	*ASTM D2166*
Type of Specimen:	*Tube Sample*
Load Cell No.:	*1018253*
Strain Rate, %/min.:	*1.0*

Remarks:

Specimen Type:	*Tube Sample*

Strength Data	
Strain at Failure, %:	*3.4*
Unconfined Strength (Qu), tsf:	*1.49*
Shear Strength (Su), tsf:	*0.75*

Failure Sketch



Reviewed by: *CJS*

Soil Desc.: *FAT CLAY with sand (CH) - gray*

LL, %:	*52*	% < 200:	*85.3*
PI, %:	*33*	Gs:	*2.82*

Test Data

Reading No.	Axial Load (lbs)	Axial Displ. (in.)	Axial Strain (%)	Corrected Area[1] (in^2)	Axial Stress (psi)	Axial Stress (tsf)
Zero	0.0	0.000	0.0	6.57	0.0	0.00
1	2.0	0.005	0.1	6.57	0.3	0.02
2	4.6	0.012	0.2	6.58	0.7	0.05
3	7.3	0.017	0.3	6.59	1.1	0.08
4	9.8	0.023	0.4	6.60	1.5	0.11
5	12.3	0.029	0.5	6.60	1.9	0.13
6	14.5	0.035	0.6	6.61	2.2	0.16
7	17.1	0.040	0.7	6.61	2.6	0.19
8	19.8	0.046	0.8	6.62	3.0	0.22
9	22.6	0.052	0.9	6.63	3.4	0.25
10	25.7	0.058	1.0	6.64	3.9	0.28
11	45.4	0.087	1.5	6.67	6.8	0.49
12	72.9	0.116	2.0	6.70	10.9	0.78
13	103.8	0.145	2.5	6.74	15.4	1.11
14	130.9	0.175	3.0	6.77	19.3	1.39
15	140.3	0.198	3.4	6.80	20.6	1.49
16	127.8	0.216	3.7	6.82	18.7	1.35
17	87.2	0.234	4.0	6.84	12.7	0.92
18	22.4	0.291	5.0	6.91	3.2	0.23
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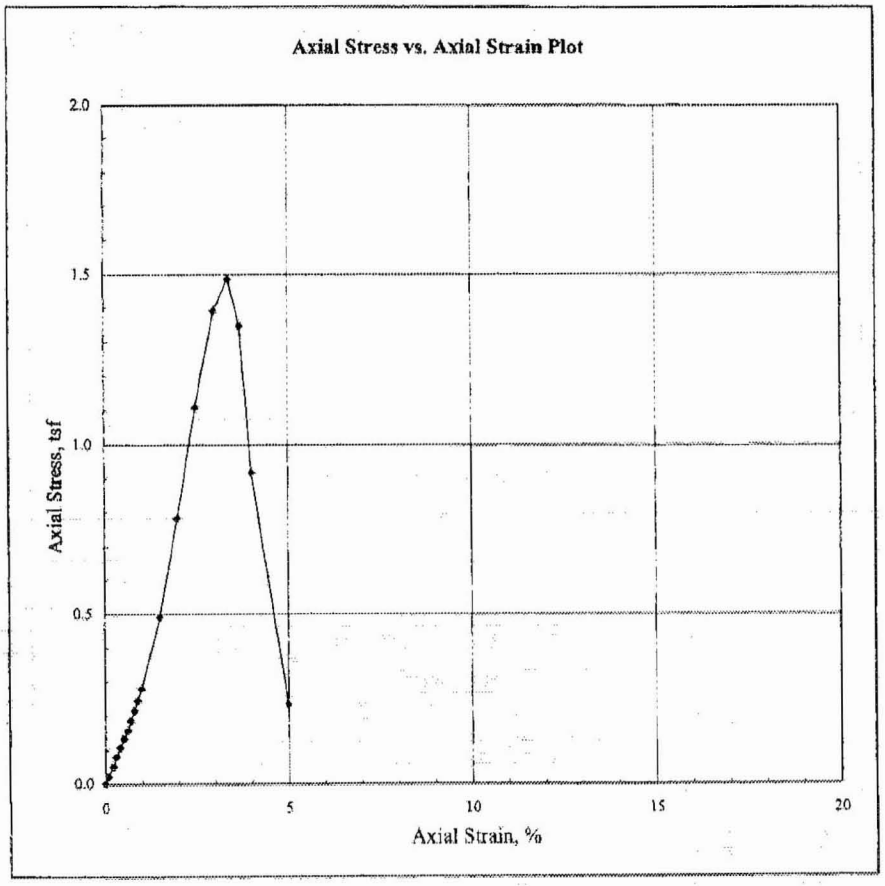


Notes: 1. Right Cylinder Area Correction Method

Schnabel
Schnabel Engineering

Unconfined Compression Test Report

ASTM D2166

Date: *11/27/2006*

Project: *Calvert Cliffs Nuclear Power Plant*

Location: *Calvert County, MD*

Schnabel No.: *06120048*
Boring No.: *B-333*
Depth: *38.5-40.5ft.*
Elevation: *51 to 49 ft*

Test Specimen Data	
Initial Diameter, in:	*2.885*
Initial Area, in^2:	*6.540*
Initial Height, in:	*5.889*
Height/Diameter Ratio:	*2.0*
Moisture Content, %:	*35.7*
Wet Unit Weight, pcf:	*118.0*
Dry Unit Weight, pcf:	*87.0*

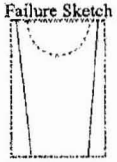
Testing Information	
Test Procedure:	*ASTM D2166*
Type of Specimen:	*Tube Sample*
Load Cell No.:	*1018253*
Strain Rate, %/min.:	*1.0*

Remarks:

Specimen Type: *Tube Sample*

Strength Data	
Strain at Failure, %:	*2.4*
Unconfined Strength (Qu), tsf:	*2.98*
Shear Strength (Su), tsf:	*1.49*

Failure Sketch



Reviewed by: *CJS*

Soil Desc.: *FAT CLAY (CH) - gray*

LL, %:	*61*	% < 200:	*98.8*
PI, %:	*38*	Gs:	*2.85*

Test Data

Reading No.	Axial Load (lbs)	Axial Displ. (in.)	Axial Strain (%)	Corrected Area[1] (in^2)	Axial Stress (psi)	Axial Stress (tsf)
Zero	0.0	0.000	0.0	6.54	0.0	0.00
1	8.1	0.006	0.1	6.55	1.2	0.09
2	16.4	0.011	0.2	6.55	2.5	0.18
3	24.2	0.017	0.3	6.56	3.7	0.27
4	31.4	0.023	0.4	6.57	4.8	0.34
5	38.2	0.029	0.5	6.57	5.8	0.42
6	47.5	0.035	0.6	6.58	7.2	0.52
7	56.8	0.041	0.7	6.59	8.6	0.62
8	67.4	0.046	0.8	6.59	10.2	0.74
9	79.5	0.052	0.9	6.60	12.0	0.87
10	91.8	0.058	1.0	6.60	13.9	1.00
11	171.2	0.087	1.5	6.64	25.8	1.86
12	247.6	0.116	2.0	6.67	37.1	2.67
13	276.8	0.140	2.4	6.70	41.3	2.98
14	176.1	0.175	3.0	6.74	26.1	1.88
15	52.9	0.233	4.0	6.81	7.8	0.56
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17						
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23						
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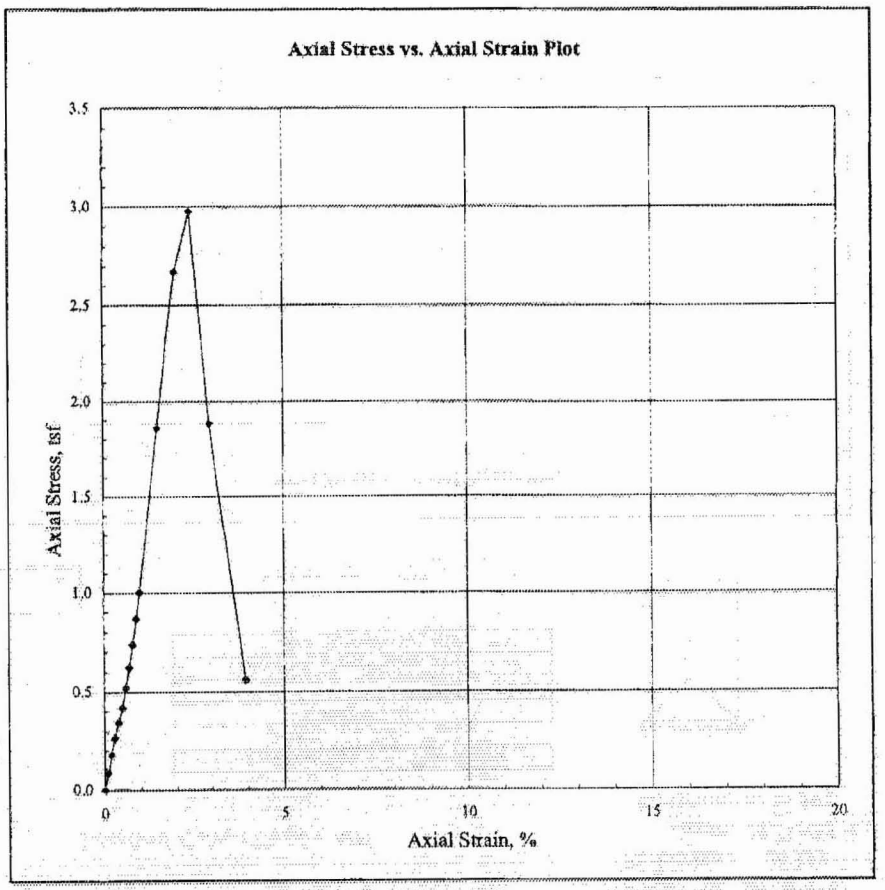
25						
26						



Notes: 1. Right Cylinder Area Correction Method

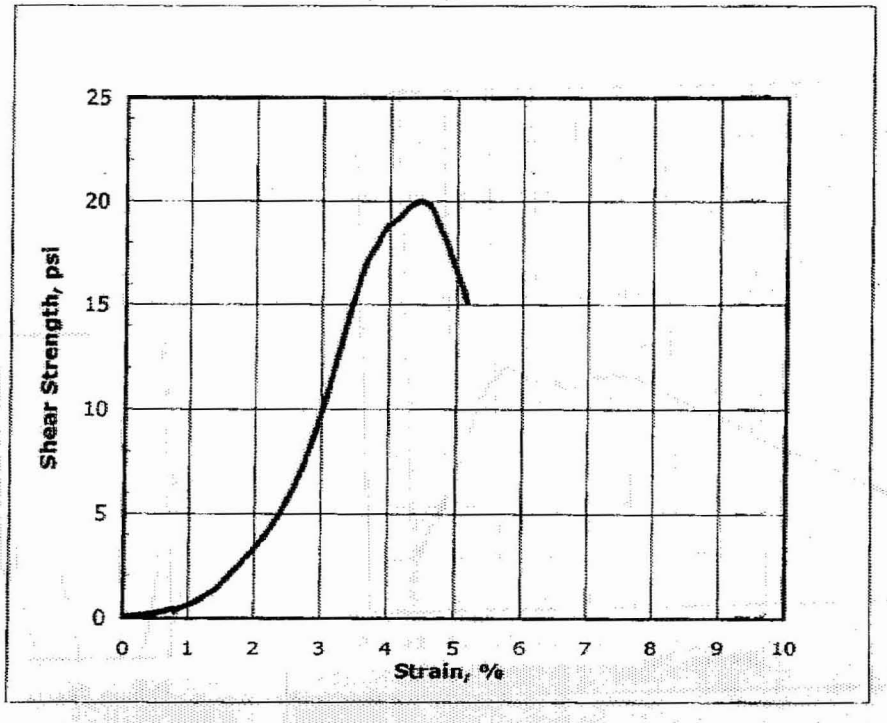
UC 8/2006 Rev. 0

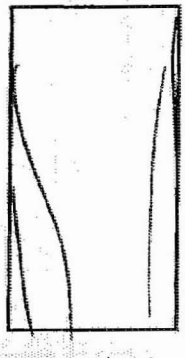
GeoTesting express

a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	10/19/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-406
Sample ID:	S-16
Depth, ft:	63.5-65.5
Visual Description:	Moist, very dark gray organic clay with sand
Test No.:	UC13

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	20.0
Initial Height, in:	5.9	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.06	Strain at Failure, %;	4.5
Initial Mass, grams:	1126	Sample Type:	Tube
Initial Bulk Density, pcf:	112.4	Liquid Limit:	63
Initial Moisture Content, %:	38.3	Plastic Limit:	19
Initial Dry Density, pcf:	81.2	Plasticity Index:	44
Initial Degree of Saturation:	95.1	% Passing #200 sieve:	90
Initial Void Ratio:	1.10	Soil Classification:	Organic Clay
Measured Specific Gravity:	2.74	Group Symbol:	OH

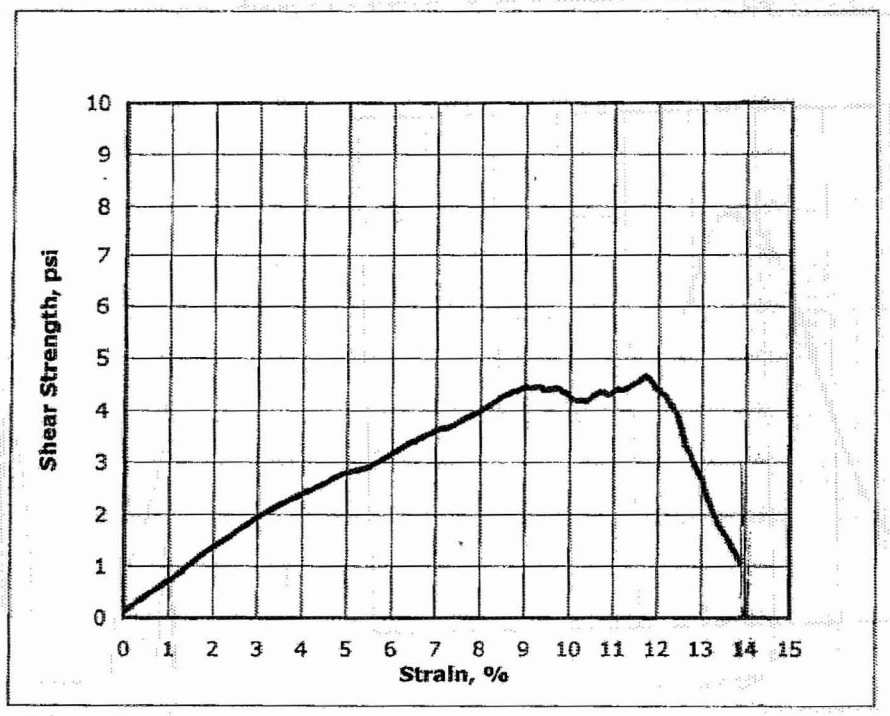
Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

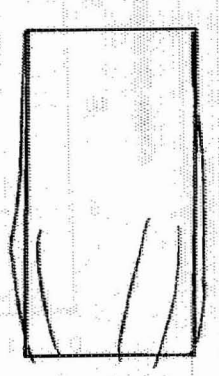
GeoTesting express

a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	10/19/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-414
Sample ID:	S-17
Depth, ft:	68-70
Visual Description:	Moist, dark greenish gray clay
Test No.:	UC11

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	4.7
Initial Height, in:	6.05	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.11	Strain at Failure, %;	11.7
Initial Mass, grams:	1059	Sample Type:	Tube
Initial Bulk Density, pcf:	103.1	Liquid Limit:	51
Initial Moisture Content, %:	36.6	Plastic Limit:	15
Initial Dry Density, pcf:	75.4	Plasticity Index:	36
Initial Degree of Saturation:	78.6	% Passing #200 sieve:	97
Initial Void Ratio:	1.29	Soil Classification:	Fat Clay
Measured Specific Gravity:	2.77	Group Symbol:	CH

Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

GeoTesting express

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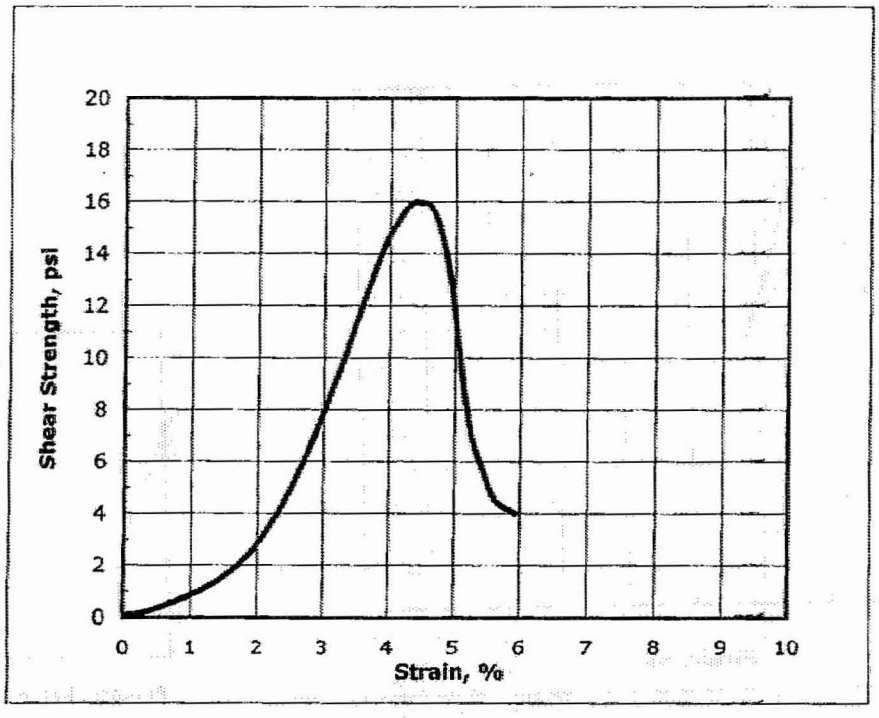
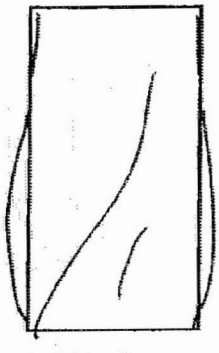
Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	9/12/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-420
Sample ID:	S-16
Depth, ft:	63.5-65.5
Visual Description:	Moist, olive gray clayey sand
Test No.:	UC1

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	16.0
Initial Height, in:	6.05	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.11	Strain at Failure, %;	4.4
Initial Mass, grams:	1204	Sample Type:	Tube
Initial Bulk Density, pcf:	117.2	Liquid Limit:	49
Initial Moisture Content, %:	31.6	Plastic Limit:	38
Initial Dry Density, pcf:	89.0	Plasticity Index:	11
Initial Degree of Saturation:	93.8	% Passing #200 sieve:	19
Initial Void Ratio:	0.93	Soil Classification:	Clayey Sand
Measured Specific Gravity:	2.75	Group Symbol:	SC

Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

GeoTesting express

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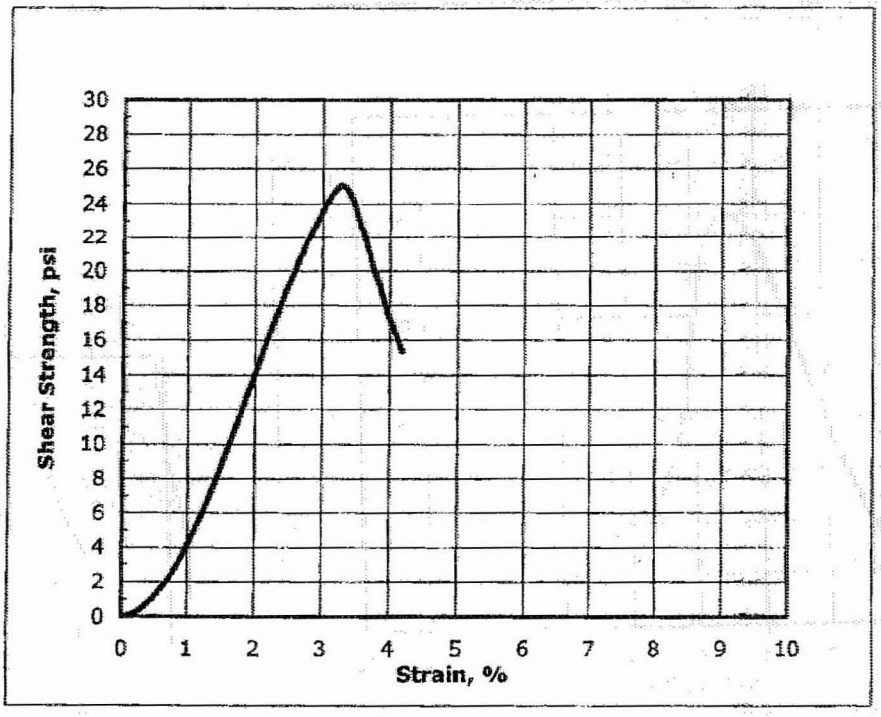
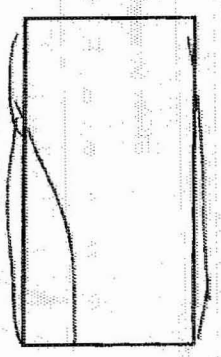
Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	10/19/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-427
Sample ID:	S-16
Depth, ft:	63.5-65.5
Visual Description:	Moist, black sandy organic clay
Test No.:	UC12

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	25.0
Initial Height, in:	5.83	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.03	Strain at Failure, %;	3.3
Initial Mass, grams:	1158	Sample Type:	Tube
Initial Bulk Density, pcf:	117.0	Liquid Limit:	56
Initial Moisture Content, %:	36.4	Plastic Limit:	18
Initial Dry Density, pcf:	85.7	Plasticity Index:	38
Initial Degree of Saturation:	100.7	% Passing #200 sieve:	61
Initial Void Ratio:	0.99	Soil Classification:	Organic Clay
Measured Specific Gravity:	2.73	Group Symbol:	OH

Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

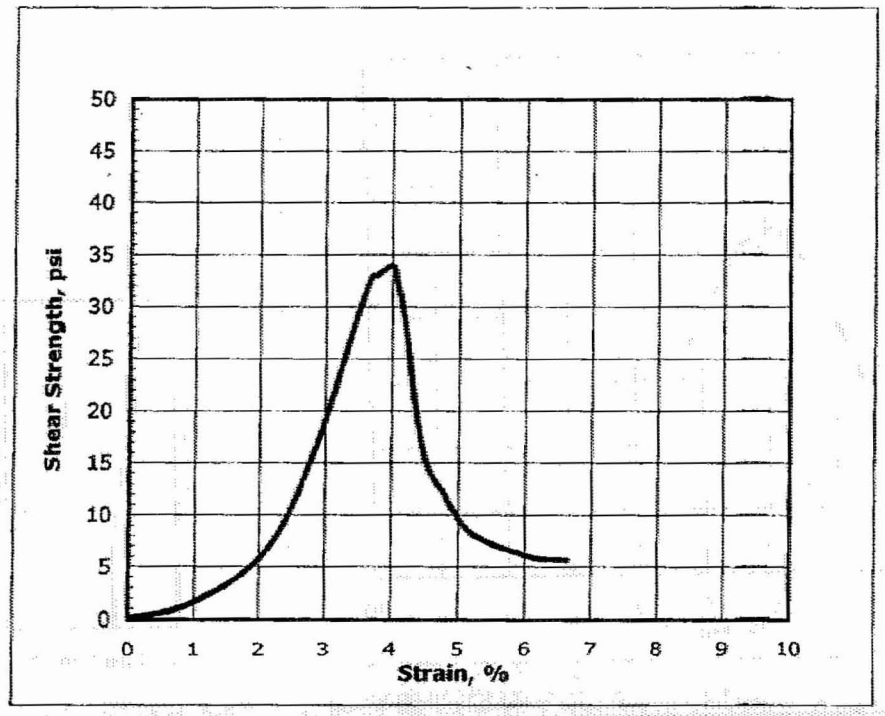
GeoTesting express

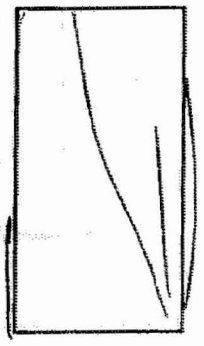
a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	10/27/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-428
Sample ID:	---
Depth, ft:	60-62
Visual Description:	Moist, dark greenish gray ~~organic~~ fat clay with sand
Test No.:	UC14

BB/4/6/07

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	33.9
Initial Height, in:	6	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.09	Strain at Failure, %;	4.0
Initial Mass, grams:	1227	Sample Type:	Tube
Initial Bulk Density, pcf:	120.4	Liquid Limit:	61
Initial Moisture Content, %:	32.2	Plastic Limit:	17
Initial Dry Density, pcf:	91.1	Plasticity Index:	44
Initial Degree of Saturation:	99.3	% Passing #200 sieve:	93
Initial Void Ratio:	0.90	Soil Classification:	Fat ~~Organic~~ Clay w/ Sand
Measured Specific Gravity:	2.77	Group Symbol:	~~OH~~ CH

BB/4/6/07

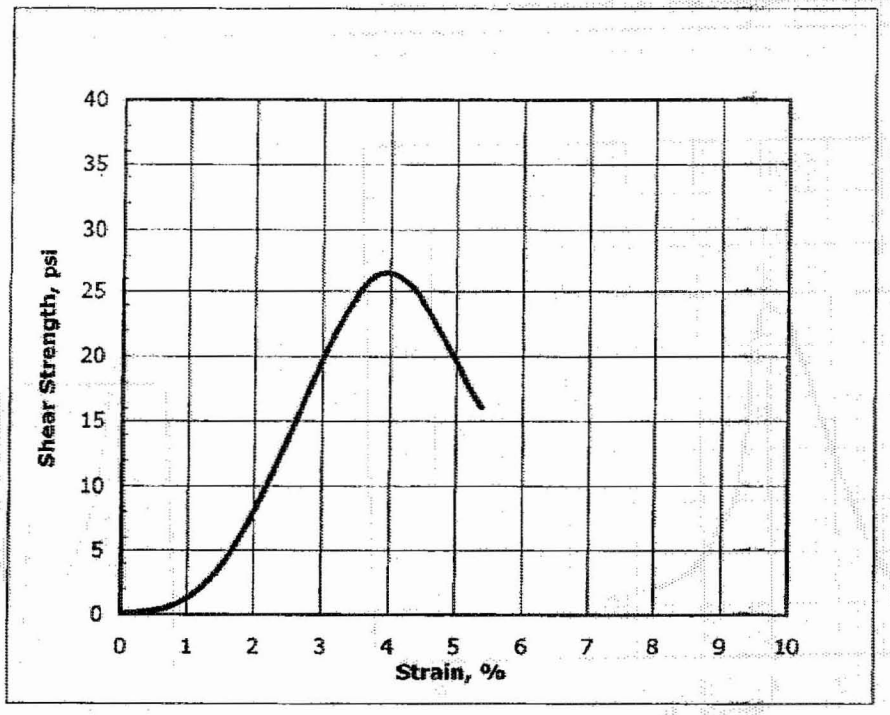
Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

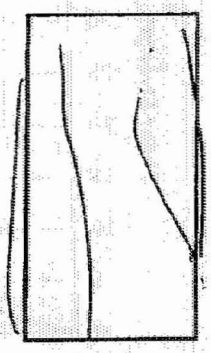
GeoTesting express

a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	9/27/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-433
Sample ID:	S-11
Depth, ft:	38.5-40.5
Visual Description:	Moist, very dark gray clay
Test No.:	UC6

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	26.4
Initial Height, in:	6.00	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.09	Strain at Failure, %;	4.0
Initial Mass, grams:	1232	Sample Type:	Tube
Initial Bulk Density, pcf:	120.9	Liquid Limit:	61
Initial Moisture Content, %:	30.5	Plastic Limit:	14
Initial Dry Density, pcf:	92.6	Plasticity Index:	47
Initial Degree of Saturation:	97.7	% Passing #200 sieve:	91
Initial Void Ratio:	0.87	Soil Classification:	Fat Clay
Measured Specific Gravity:	2.77	Group Symbol:	CH

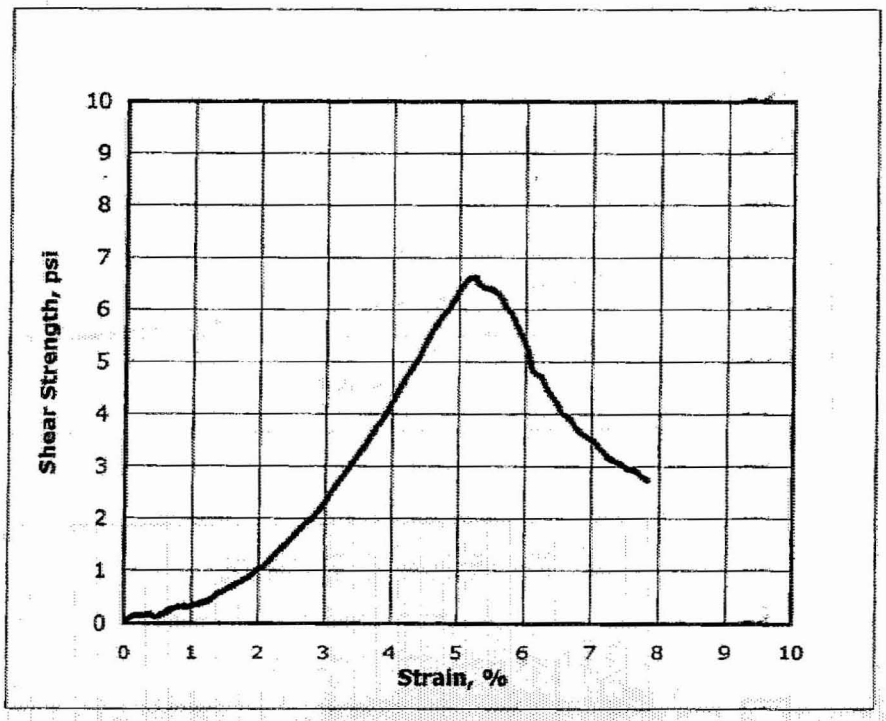
Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

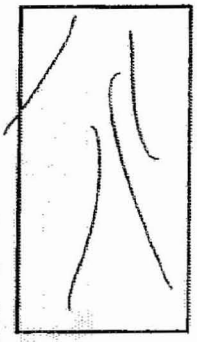
GeoTesting express

a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	10/27/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-433
Sample ID:	S-13
Depth, ft:	48.5-50.5
Visual Description:	Moist, black clay with sand
Test No.:	UC7

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	6.6
Initial Height, in:	6.3	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.20	Strain at Failure, %:	5.2
Initial Mass, grams:	1207	Sample Type:	Tube
Initial Bulk Density, pcf:	112.8	Liquid Limit:	64
Initial Moisture Content, %:	36.8	Plastic Limit:	23
Initial Dry Density, pcf:	82.4	Plasticity Index:	41
Initial Degree of Saturation:	96.7	% Passing #200 sieve:	95
Initial Void Ratio:	1.01	Soil Classification:	Clay with Sand
Measured Specific Gravity:	2.66	Group Symbol:	CH

Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422

Schnabel
Schnabel Engineering

Unconfined Compression Test Report

ASTM D2166

Date: *11/27/2006*

Project: *Calvert Cliffs Nuclear Power Plant*

Location: *Calvert County, MD*

Schnabel No.: *06120048*
Boring No.: *B-434*
Depth: *53.5-55.5ft.*
Elevation: *51.7 to 49.7 ft*

Test Specimen Data	
Initial Diameter, in:	*2.889*
Initial Area, in^2:	*6.558*
Initial Height, in:	*5.843*
Height/Diameter Ratio:	*2.0*
Moisture Content, %:	*34.4*
Wet Unit Weight, pcf:	*116.4*
Dry Unit Weight, pcf:	*86.6*

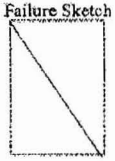
Testing Information	
Test Procedure:	*ASTM D2166*
Type of Specimen:	*Tube Sample*
Load Cell No.:	*1018253*
Strain Rate, %/min.:	*1.0*

Remarks:

Specimen Type:	*Tube Sample*

Strength Data	
Strain at Failure, %:	*2.0*
Unconfined Strength (Qu), tsf:	*4.10*
Shear Strength (Su), tsf:	*2.05*

Failure Sketch



Reviewed by: *CJS*

Soil Desc.: *FAT CLAY (CH) trace sand - gray*

LL, %:	*56*	% < 200:	*94.9*
PI, %:	*32*	Gs:	*2.84*

Test Data

Reading No.	Axial Load (lbs)	Axial Displ. (in.)	Axial Strain (%)	Corrected Area[1] (in^2)	Axial Stress (psi)	Axial Stress (tsf)
Zero	0.0	0.000	0.0	6.56	0.0	0.00
1	26.4	0.006	0.1	6.56	4.0	0.29
2	47.3	0.012	0.2	6.57	7.2	0.52
3	74.3	0.018	0.3	6.58	11.3	0.81
4	99.4	0.024	0.4	6.58	15.1	1.09
5	125.8	0.030	0.5	6.59	19.1	1.37
6	152.7	0.037	0.6	6.60	23.1	1.67
7	174.4	0.041	0.7	6.60	26.4	1.90
8	197.0	0.047	0.8	6.61	29.8	2.15
9	219.8	0.054	0.9	6.62	33.2	2.39
10	238.7	0.059	1.0	6.62	36.0	2.59
11	319.4	0.082	1.4	6.65	48.0	3.46
12	381.3	0.117	2.0	6.69	57.0	4.10
13	117.2	0.146	2.5	6.73	17.4	1.25
14	47.9	0.176	3.0	6.76	7.1	0.51
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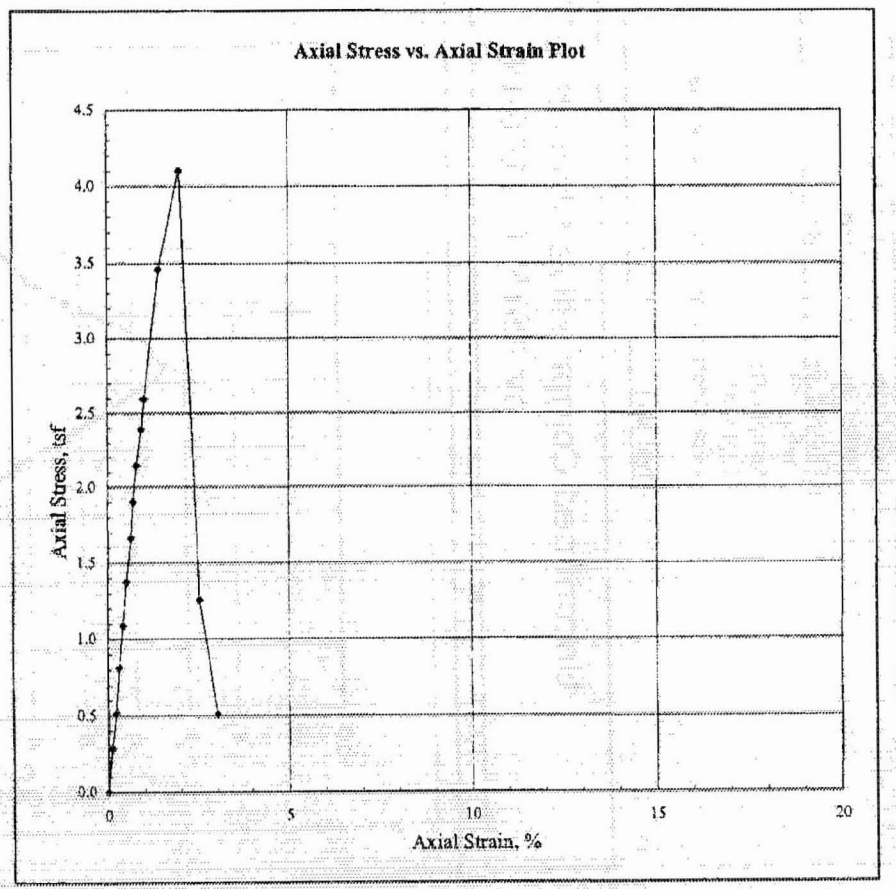


Notes: 1. Right Cylinder Area Correction Method

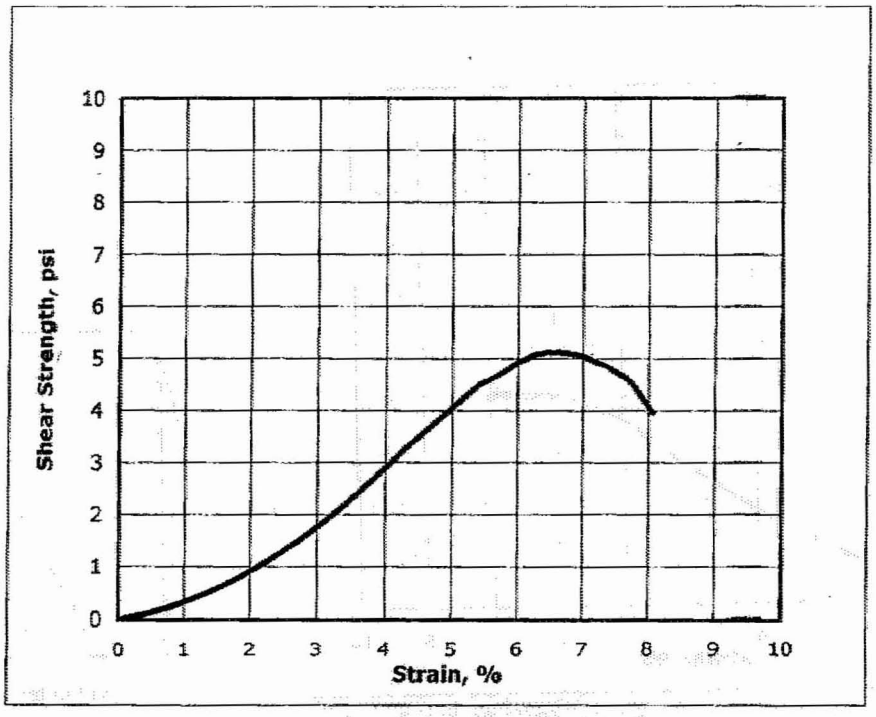
UC 8/2006 Rev. 0

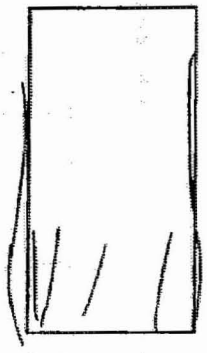
GeoTesting express

a subsidiary of Geocomp Corporation

Client:	Schnabel Engineering, Inc.
Project Name:	Subsurface Investigation Calvert Cliffs Nuclear PP
Project Location:	Calvert County, MD
GTX #:	6880
Test Date:	10/27/2006
Tested By:	md
Checked By:	jdt
Boring ID:	B-440
Sample ID:	S-14
Depth, ft:	51-53
Visual Description:	Moist, dark greenish gray organic clay with sand
Test No.:	UC14

Unconfined Compressive Strength of Cohesive Soil by ASTM D 2166-00





Failure Sketch

Initial Diameter, in:	2.87	Shear Strength, psi:	5.1
Initial Height, in:	5.8	Strain Rate, %/min:	1
Height to Diameter Ratio:	2.02	Strain at Failure, %;	6.5
Initial Mass, grams:	1163	Sample Type:	Tube
Initial Bulk Density, pcf:	118.1	Liquid Limit:	30
Initial Moisture Content, %:	30.2	Plastic Limit:	21
Initial Dry Density, pcf:	90.7	Plasticity Index:	9
Initial Degree of Saturation:	93.4	% Passing #200 sieve:	18
Initial Void Ratio:	0.88	Soil Classification:	Clayey Sand
Measured Specific Gravity:	2.74	Group Symbol:	SC

Notes: Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D 2216
Specific Gravity determined by ASTM D 854
Percent passing #200 sieve determined by ASTM D 422