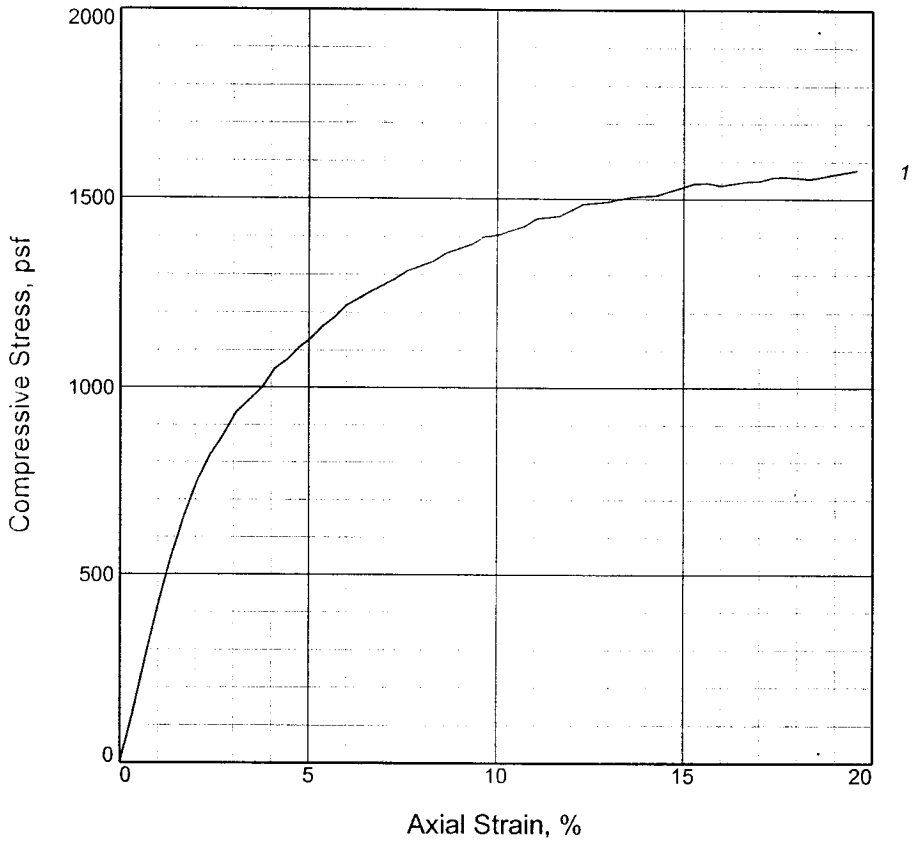
UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	1541.6			
Undrained shear strength, psf	770.8			
Failure strain, %	15.6			
Strain rate, in./min.	0.058			
Water content, %	41.3			
Wet density, pcf	107.8			
Dry density, pcf	76.3			
Saturation, %	91.7			
Void ratio	1.2243			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: M GR & T CH4 W/ LNS & ARS ML, RT

LL =	PL =	PI =	**Assumed GS=** 2.72	**Type:** UNDISTUTRBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.500 TSF

Figure 1

Client: URS Corporation

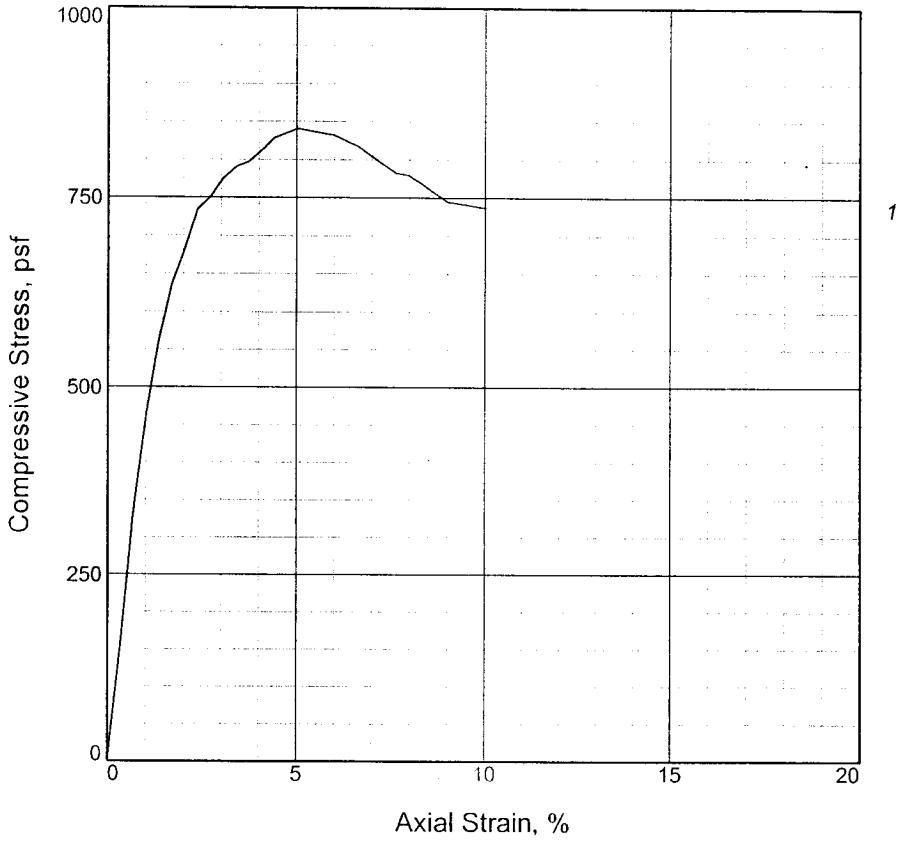
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 0.0
Sample Number: 1

UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	840.5			
Undrained shear strength, psf	420.3			
Failure strain, %	5.0			
Strain rate, in./min.	0.059			
Water content, %	60.4			
Wet density, pcf	100.1			
Dry density, pcf	62.4			
Saturation, %	95.1			
Void ratio	1.7408			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: SO GR CH4 W/ SL

LL =	PL =	PI =	**Assumed GS=** 2.74	**Type:** UNDISTURBED

Project No.: 19082
Date: 11-22-05

Remarks:
TORVANE = 0.340 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 5.0
Sample Number: 3

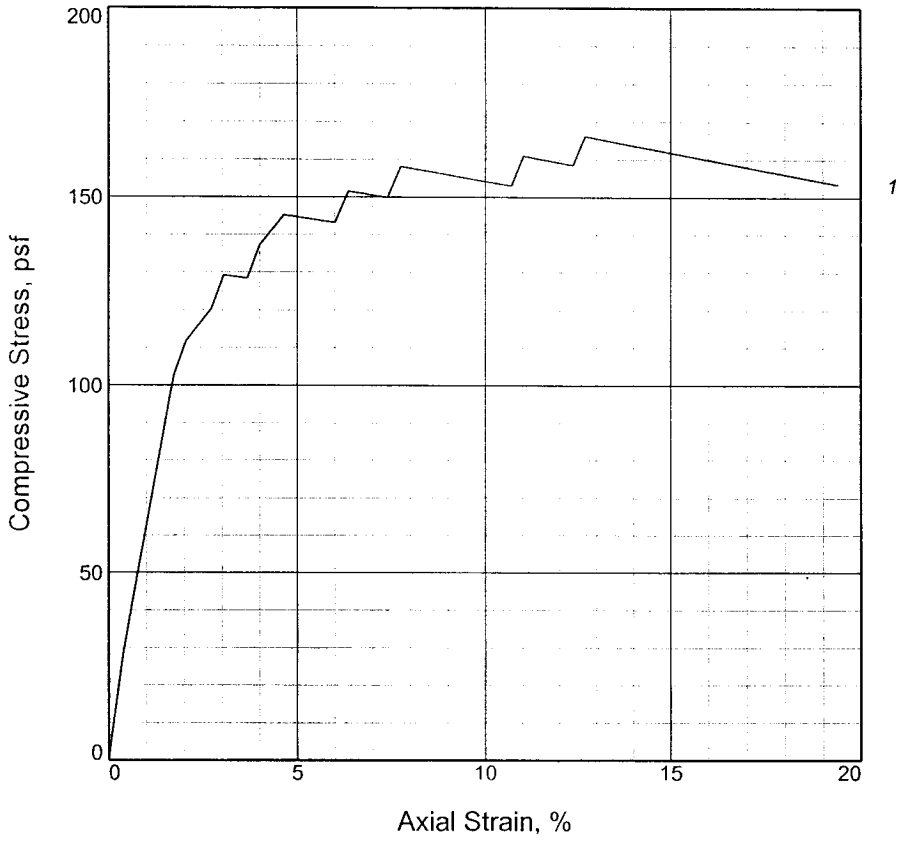
UNCONFINED COMPRESSION TEST

Figure 1

EUSTIS ENGINEERING COMPANY, INC.

Tested By: RR **Checked By:** JS

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	129.2			
Undrained shear strength, psf	64.6			
Failure strain, %	3.1			
Strain rate, in./min.	0.054			
Water content, %	163.8			
Wet density, pcf	78.9			
Dry density, pcf	29.9			
Saturation, %	95.4			
Void ratio	4.6362			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: VSO DGR & GR CHOB W/ TR-WD, SL

LL =	PL =	PI =	**Assumed GS=** 2.7	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.070 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 7.5
Sample Number: 4

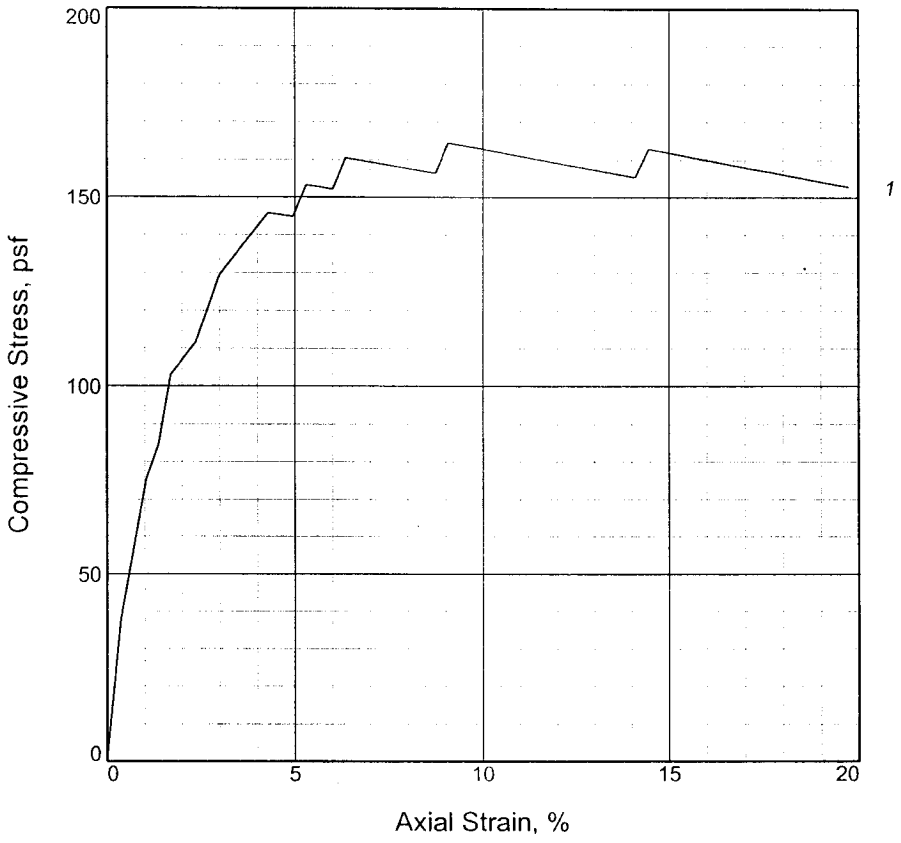
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	145.7			
Undrained shear strength, psf	72.9			
Failure strain, %	4.3			
Strain rate, in./min.	0.055			
Water content, %	131.4			
Wet density, pcf	82.8			
Dry density, pcf	35.8			
Saturation, %	95.4			
Void ratio	3.7483			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: VSO GR CHOA W/ WD, SL

LL =	PL =	PI =	**Assumed GS=** 2.72	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.050 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 10.0
Sample Number: 5

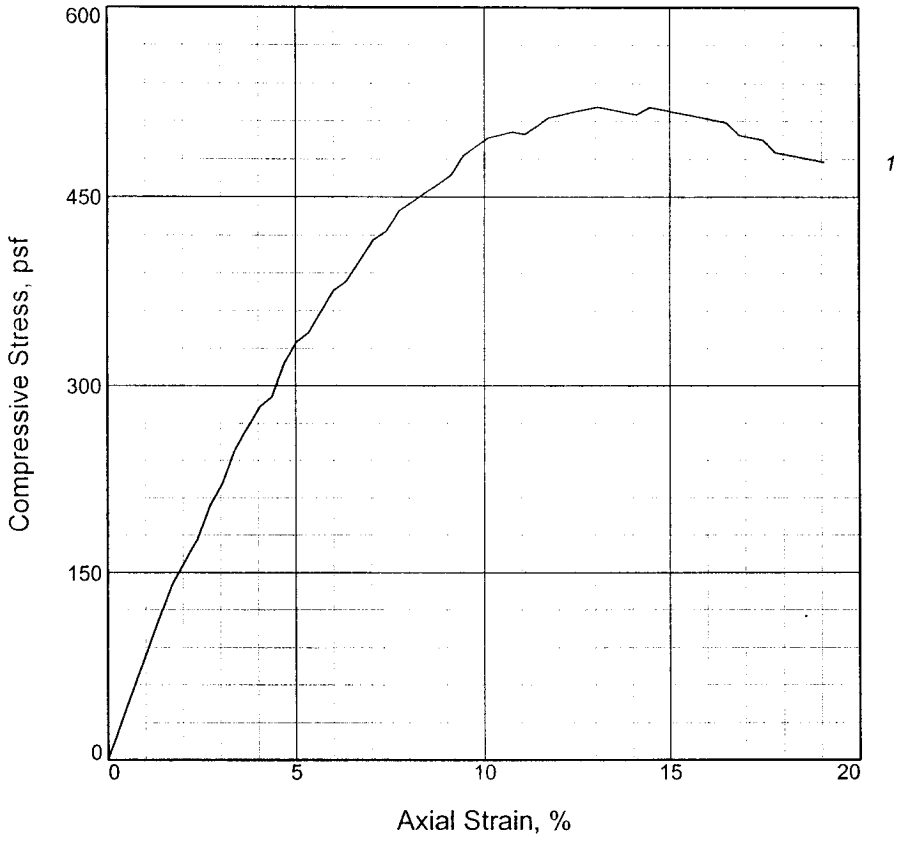
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: rr **Checked By:** dp

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	501.1			
Undrained shear strength, psf	250.6			
Failure strain, %	10.7			
Strain rate, in./min.	0.059			
Water content, %	441.6			
Wet density, pcf	63.4			
Dry density, pcf	11.7			
Saturation, %	89.7			
Void ratio	12.0563			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: SO DGR & BR PT W/ RT

LL =	PL =	PI =	**Assumed GS=** 2.45	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.050 TSF

Figure 1

Client: URS Corporation

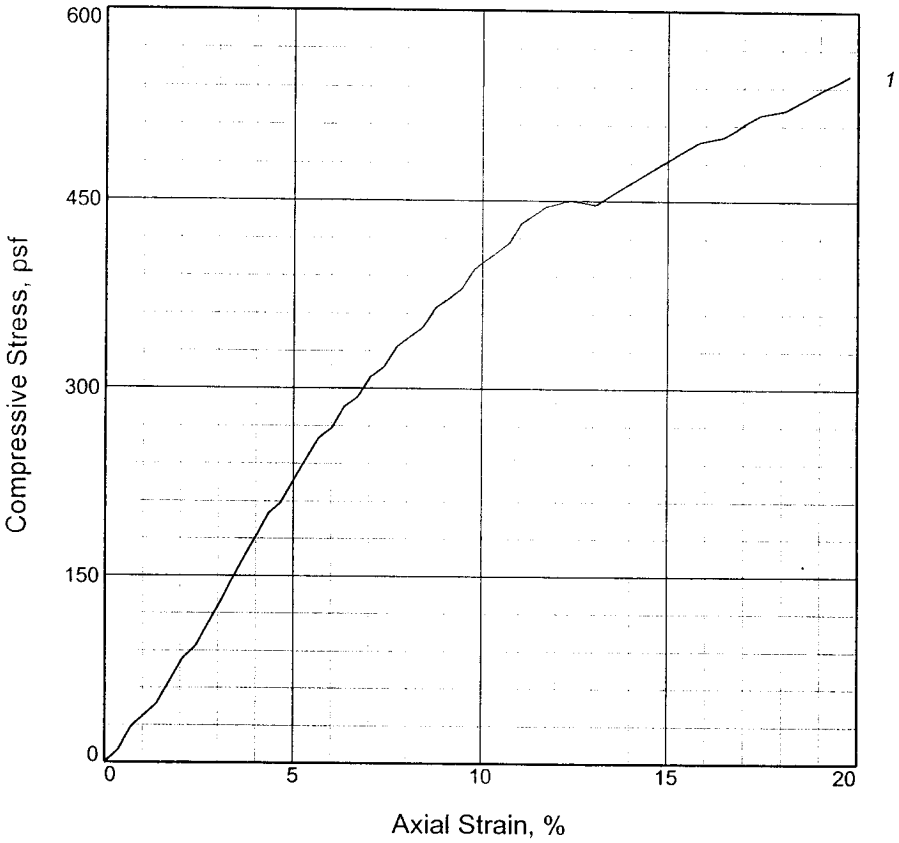
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 12.5
Sample Number: 6

UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	450.3			
Undrained shear strength, psf	225.1			
Failure strain, %	12.4			
Strain rate, in./min.	0.059			
Water content, %	35.2			
Wet density, pcf	112.1			
Dry density, pcf	82.9			
Saturation, %	92.0			
Void ratio	1.0324			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: VSO GR CH3 W/ LNS & LYS ML

LL =	PL =	PI =	**Assumed GS=** 2.7	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/29/05

Remarks:
TORVANE = 0.050 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 17.5
Sample Number: 8

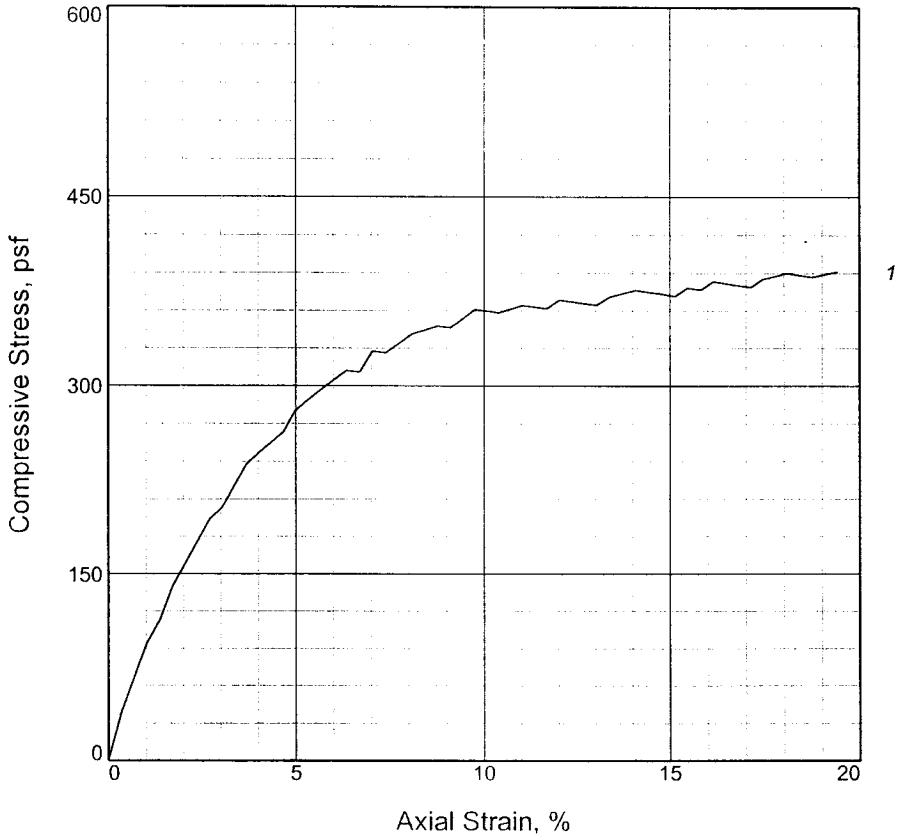
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	311.9			
Undrained shear strength, psf	156.0			
Failure strain, %	6.4			
Strain rate, in./min.	0.059			
Water content, %	43.3			
Wet density, pcf	109.8			
Dry density, pcf	76.6			
Saturation, %	97.5			
Void ratio	1.1994			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: VSO GR CH4 W/ LNS ML

LL =	PL =	PI =	**Assumed GS=** 2.7	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.080 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 22.5
Sample Number: 10

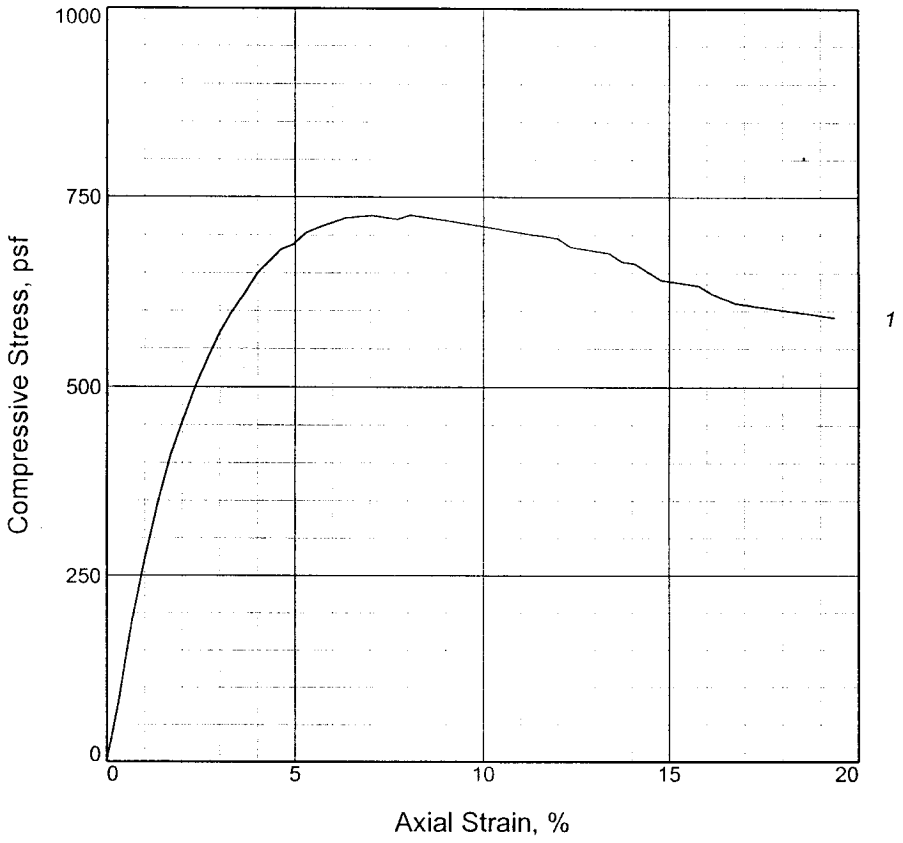
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	725.5			
Undrained shear strength, psf	362.8			
Failure strain, %	7.0			
Strain rate, in./min.	0.057			
Water content, %	74.1			
Wet density, pcf	96.5			
Dry density, pcf	55.4			
Saturation, %	97.4			
Void ratio	2.0851			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: SO GR CH4 W/ LNS ML

LL =	PL =	PI =	**Assumed GS=** 2.74	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.100 TSF

Figure 1

Client: URS Corporation

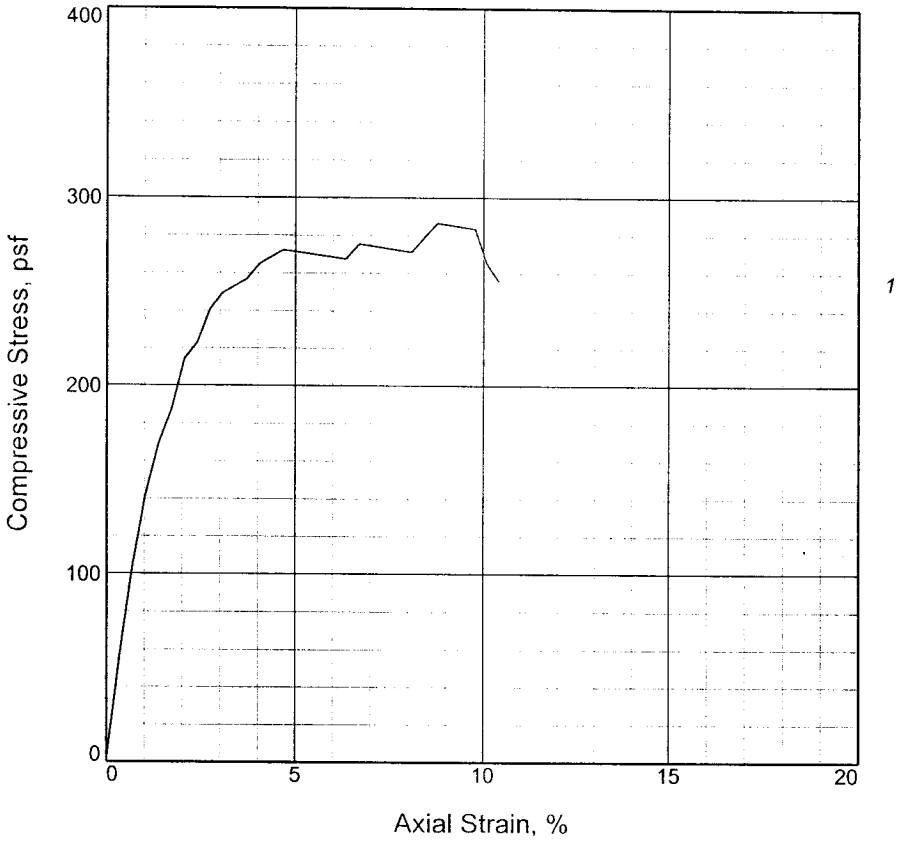
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 27.5
Sample Number: 12

UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	272.1			
Undrained shear strength, psf	136.1			
Failure strain, %	4.7			
Strain rate, in./min.	0.058			
Water content, %	72.5			
Wet density, pcf	96.3			
Dry density, pcf	55.8			
Saturation, %	96.3			
Void ratio	2.0627			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: VSO GR CH4 W/ SL

LL =	PL =	PI =	**Assumed GS=** 2.74	**Type:** UNDISTURBED

Project No.: 19082
Date: 11-23-05

Remarks:
TORVANE = 0.110 TSF

Figure 1

Client: URS Corporation

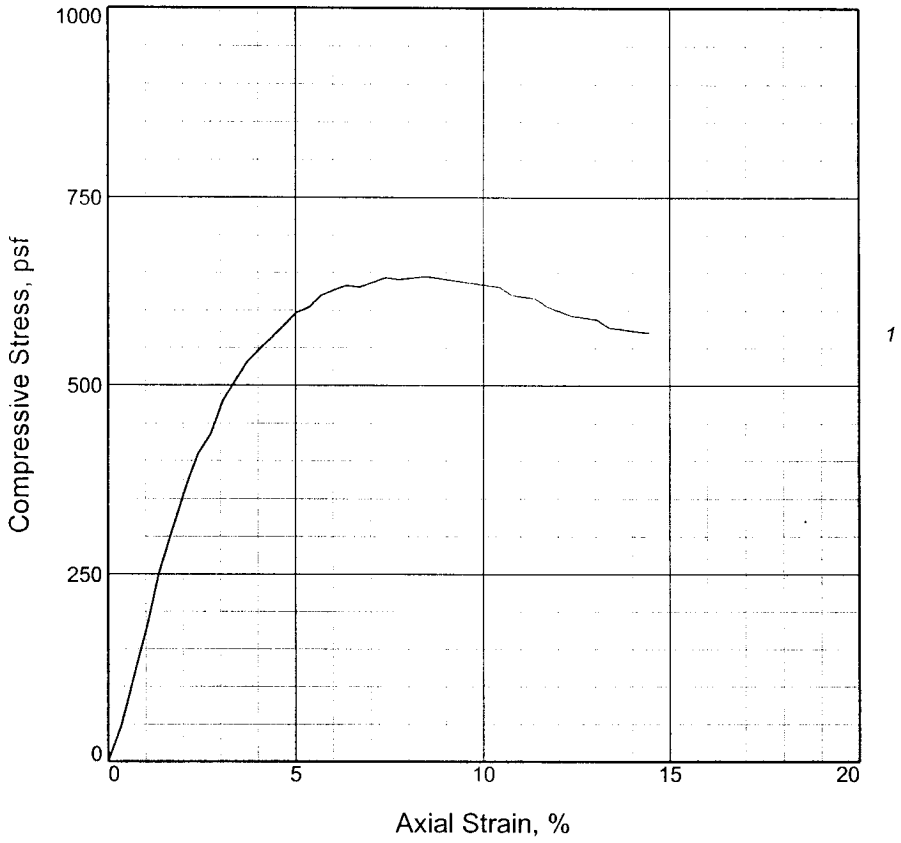
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 32.5
Sample Number: 14

UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Tested By: RR **Checked By:** JS

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	619.3			
Undrained shear strength, psf	309.7			
Failure strain, %	5.7			
Strain rate, in./min.	0.059			
Water content, %	61.7			
Wet density, pcf	99.3			
Dry density, pcf	61.4			
Saturation, %	94.7			
Void ratio	1.7854			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: SO GR CH4 W/ LNS ML

LL =	PL =	PI =	**Assumed GS=** 2.74	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.100 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 37.5
Sample Number: 16

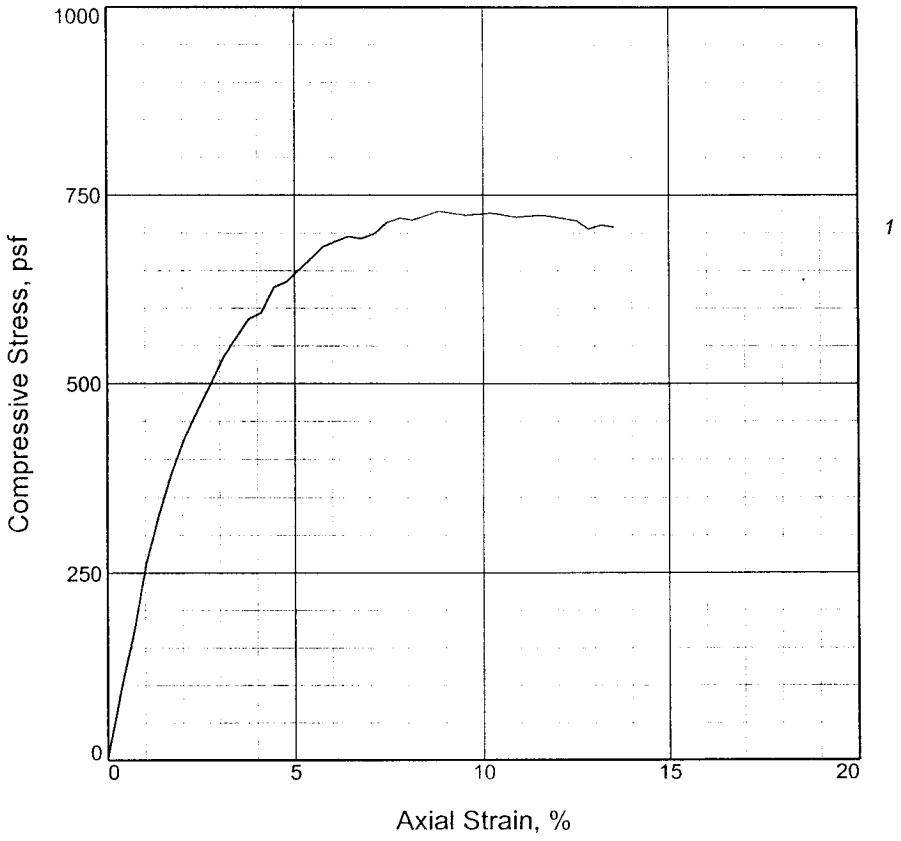
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	694.6			
Undrained shear strength, psf	347.3			
Failure strain, %	6.4			
Strain rate, in./min.	0.060			
Water content, %	72.2			
Wet density, pcf	95.4			
Dry density, pcf	55.4			
Saturation, %	95.5			
Void ratio	2.0409			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: SO GR CH4 W/ LNS SM

LL =	PL =	PI =	**Assumed GS=** 2.7	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.140 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 42.5
Sample Number: 18

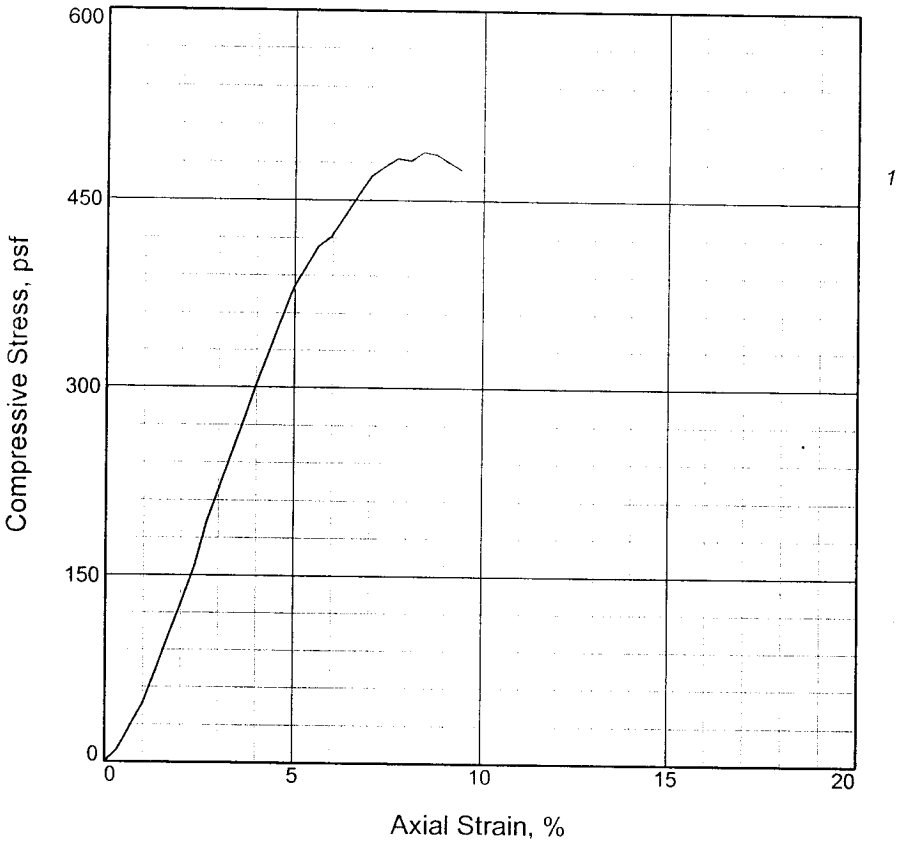
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	483.1			
Undrained shear strength, psf	241.5			
Failure strain, %	7.7			
Strain rate, in./min.	0.059			
Water content, %	36.3			
Wet density, pcf	112.4			
Dry density, pcf	82.4			
Saturation, %	93.3			
Void ratio	1.0598			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: VSO GR CL5 W/ SIF

LL =	PL =	PI =	**Assumed GS=** 2.72	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.100 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 47.5
Sample Number: 20

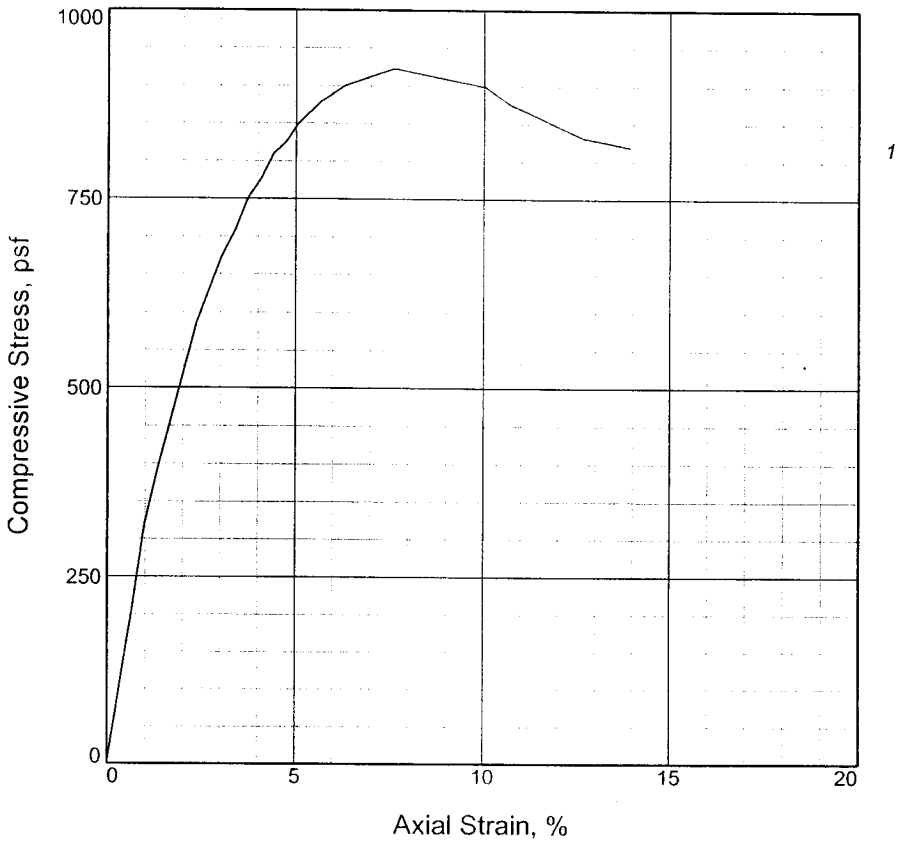
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	919.7			
Undrained shear strength, psf	459.8			
Failure strain, %	8.0			
Strain rate, in./min.	0.058			
Water content, %	48.1			
Wet density, pcf	107.4			
Dry density, pcf	72.5			
Saturation, %	97.5			
Void ratio	1.3408			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: SO GR CH3 W/ ARS SM, SIF, TR-WD

LL =	PL =	PI =	**Assumed GS=** 2.72	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.200 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 60.0
Sample Number: 24

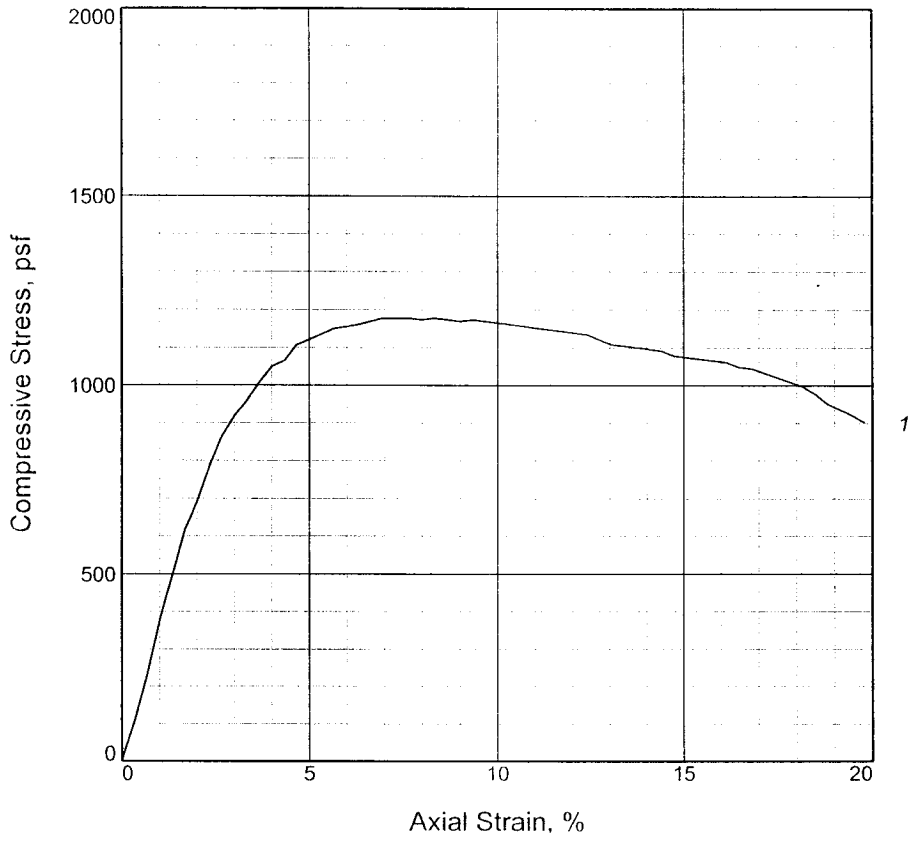
UNCONFINED COMPRESSION TEST

Figure 1

EUSTIS ENGINEERING COMPANY, INC.

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	1177.8			
Undrained shear strength, psf	588.9			
Failure strain, %	7.6			
Strain rate, in./min.	0.056			
Water content, %	39.3			
Wet density, pcf	112.5			
Dry density, pcf	80.8			
Saturation, %	96.8			
Void ratio	1.1028			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: M GNGR CH3 W/ ARS SM, SIF

LL =	PL =	PI =	**Assumed GS=** 2.72	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05
Remarks:
TORVANE = 0.200 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 65.0
Sample Number: 26

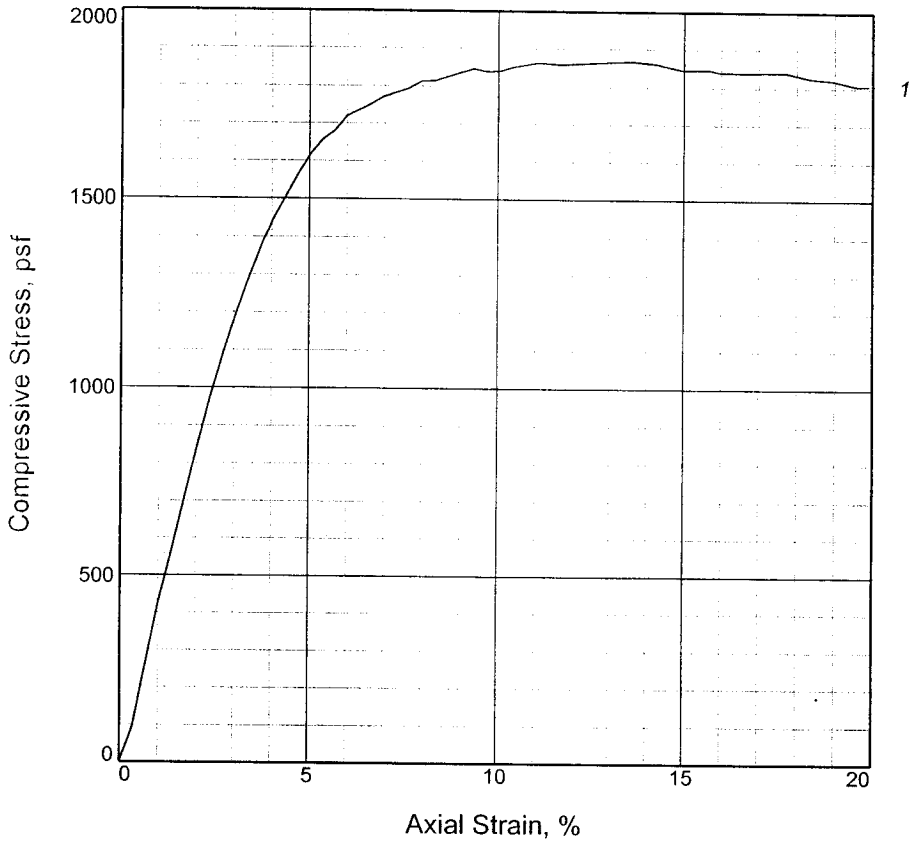
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	1846.2			
Undrained shear strength, psf	923.1			
Failure strain, %	9.4			
Strain rate, in./min.	0.037			
Water content, %	26.3			
Wet density, pcf	122.0			
Dry density, pcf	96.6			
Saturation, %	94.4			
Void ratio	0.7569			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: M GR CH4 W/ ARS SM, SIF

LL =	PL =	PI =	**Assumed GS=** 2.72	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.300 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 70.0
Sample Number: 28

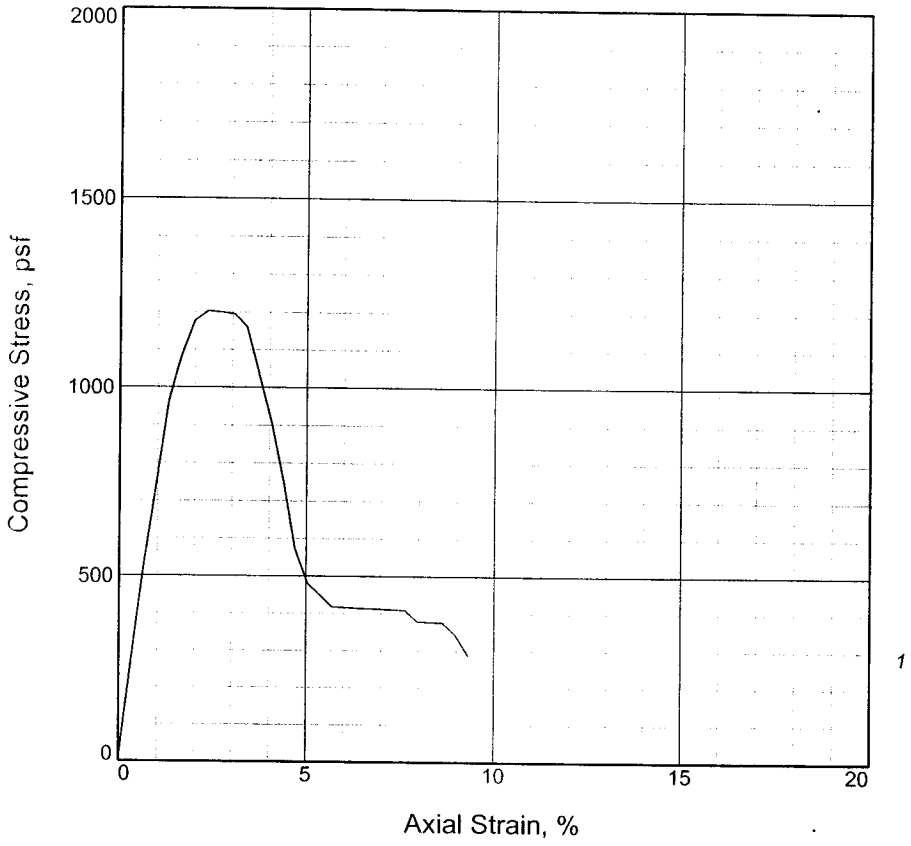
UNCONFINED COMPRESSION TEST

Figure 1

EUSTIS ENGINEERING COMPANY, INC.

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	1202.8			
Undrained shear strength, psf	601.4			
Failure strain, %	2.4			
Strain rate, in./min.	0.059			
Water content, %	21.7			
Wet density, pcf	125.0			
Dry density, pcf	102.7			
Saturation, %	91.5			
Void ratio	0.6409			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: M GNGR CL3

LL =	PL =	PI =	Assumed GS= 2.7	Type: UNDISTURBED

Project No.: 19082
Date: 11/22/05
Remarks:

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 75.0
Sample Number: 30

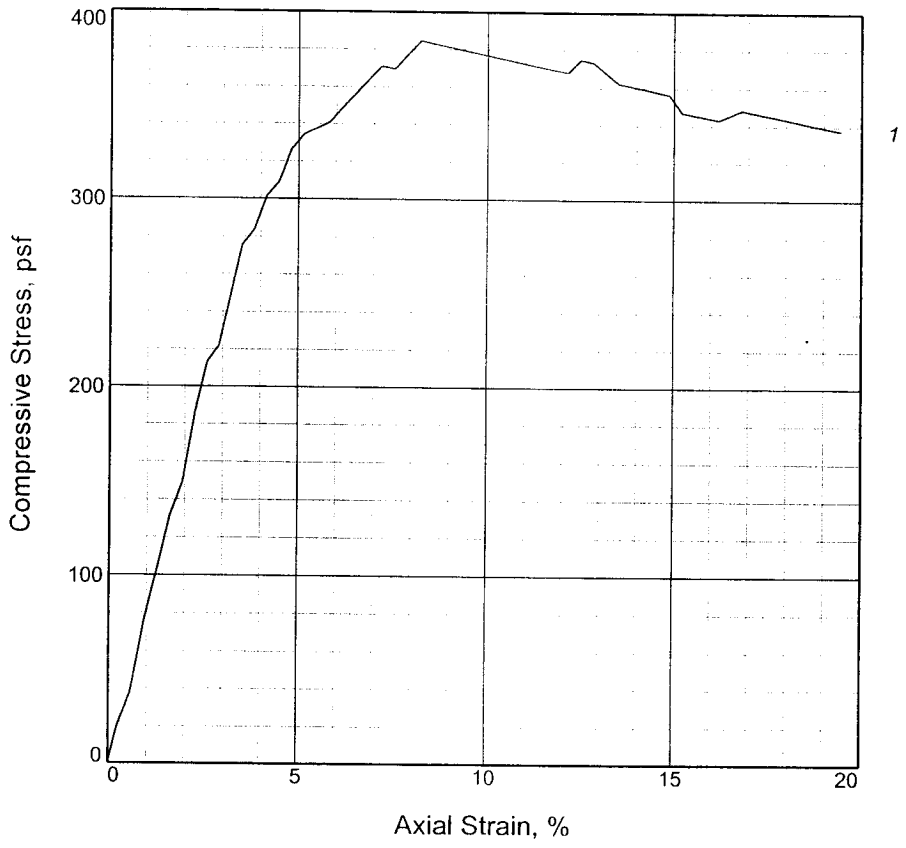
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	370.9			
Undrained shear strength, psf	185.5			
Failure strain, %	7.2			
Strain rate, in./min.	0.057			
Water content, %	25.8			
Wet density, pcf	122.8			
Dry density, pcf	97.6			
Saturation, %	96.0			
Void ratio	0.7267			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: VSO GR CL3 W/ ARS CH, SIF

LL =	PL =	PI =	**Assumed GS=** 2.7	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/2/05
Remarks:

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 80.0
Sample Number: 32

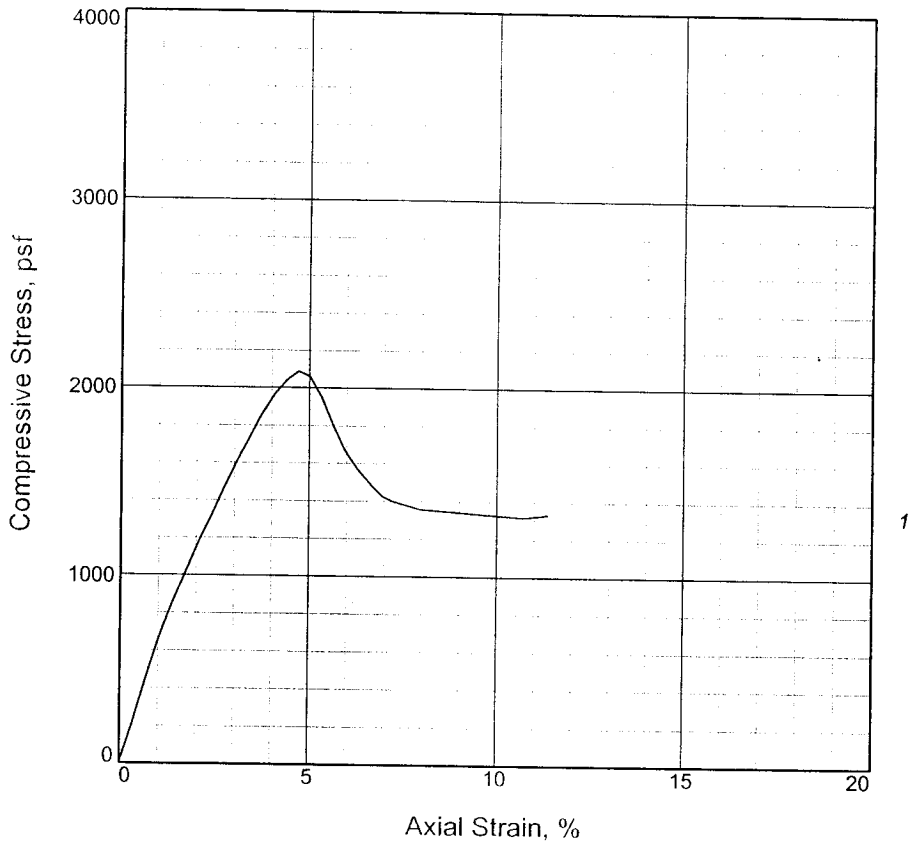
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: RR **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	2085.8			
Undrained shear strength, psf	1042.9			
Failure strain, %	4.7			
Strain rate, in./min.	0.059			
Water content, %	40.0			
Wet density, pcf	111.2			
Dry density, pcf	79.4			
Saturation, %	95.5			
Void ratio	1.1377			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: ST GR CH4 W/ ARS & LNS SM, SL

LL =	PL =	PI =	Assumed GS= 2.72	Type: UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.300 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 85.0
Sample Number: 34

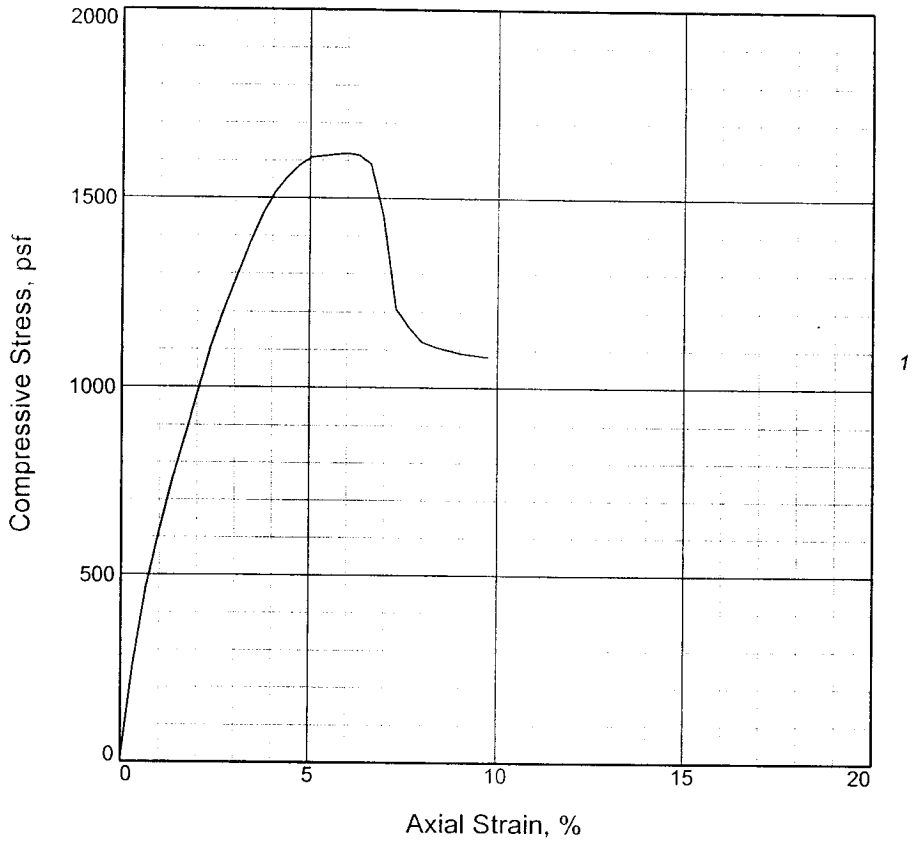
UNCONFINED COMPRESSION TEST

Figure 1

EUSTIS ENGINEERING COMPANY, INC.

Tested By: JL **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	1619.4			
Undrained shear strength, psf	809.7			
Failure strain, %	6.0			
Strain rate, in./min.	0.059			
Water content, %	37.9			
Wet density, pcf	116.3			
Dry density, pcf	84.3			
Saturation, %	101.6			
Void ratio	1.0139			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: M GR CH4 W/ LYS ML

LL =	PL =	PI =	Assumed GS= 2.72	Type: UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.270 TSF

Client: URS Corporation

Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 90.0
Sample Number: 36

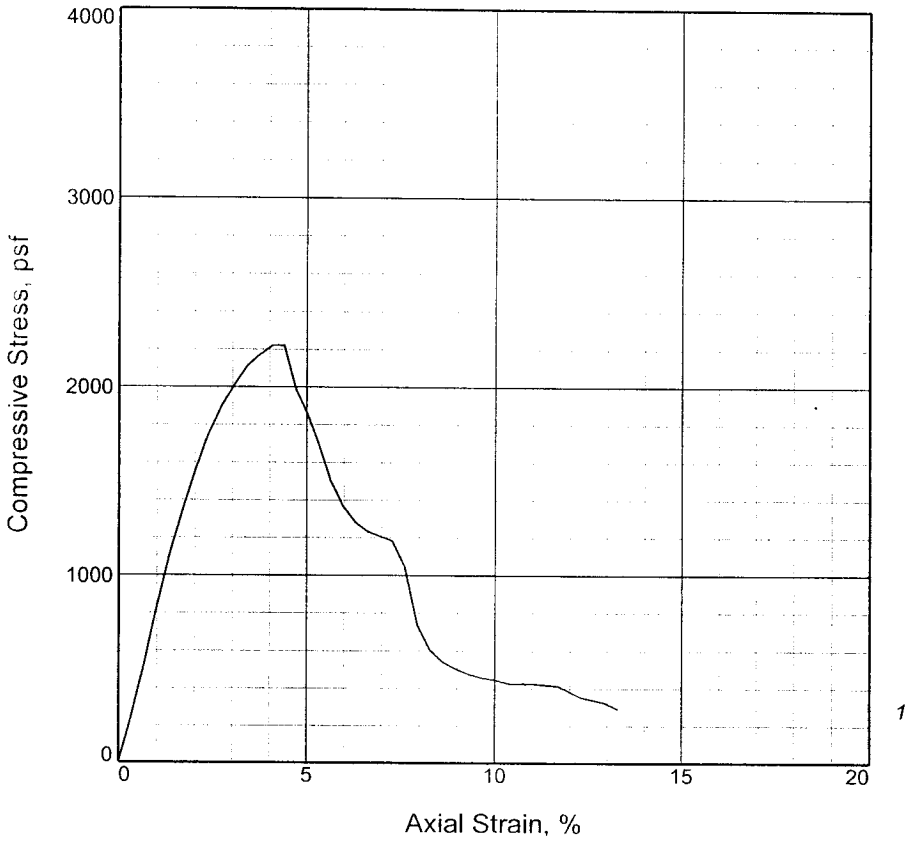
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: JL **Checked By:** DP

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	2220.0			
Undrained shear strength, psf	1110.0			
Failure strain, %	4.4			
Strain rate, in./min.	0.050			
Water content, %	54.4			
Wet density, pcf	103.0			
Dry density, pcf	66.7			
Saturation, %	95.7			
Void ratio	1.5455			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: ST GR CH4 W/ CC, RT

LL =	PL =	PI =	**Assumed GS=** 2.72	**Type:** UNDISTURBED

Project No.: 19082
Date: 11/22/05

Remarks:
TORVANE = 0.400 TSF

Figure 1

Client: URS Corporation

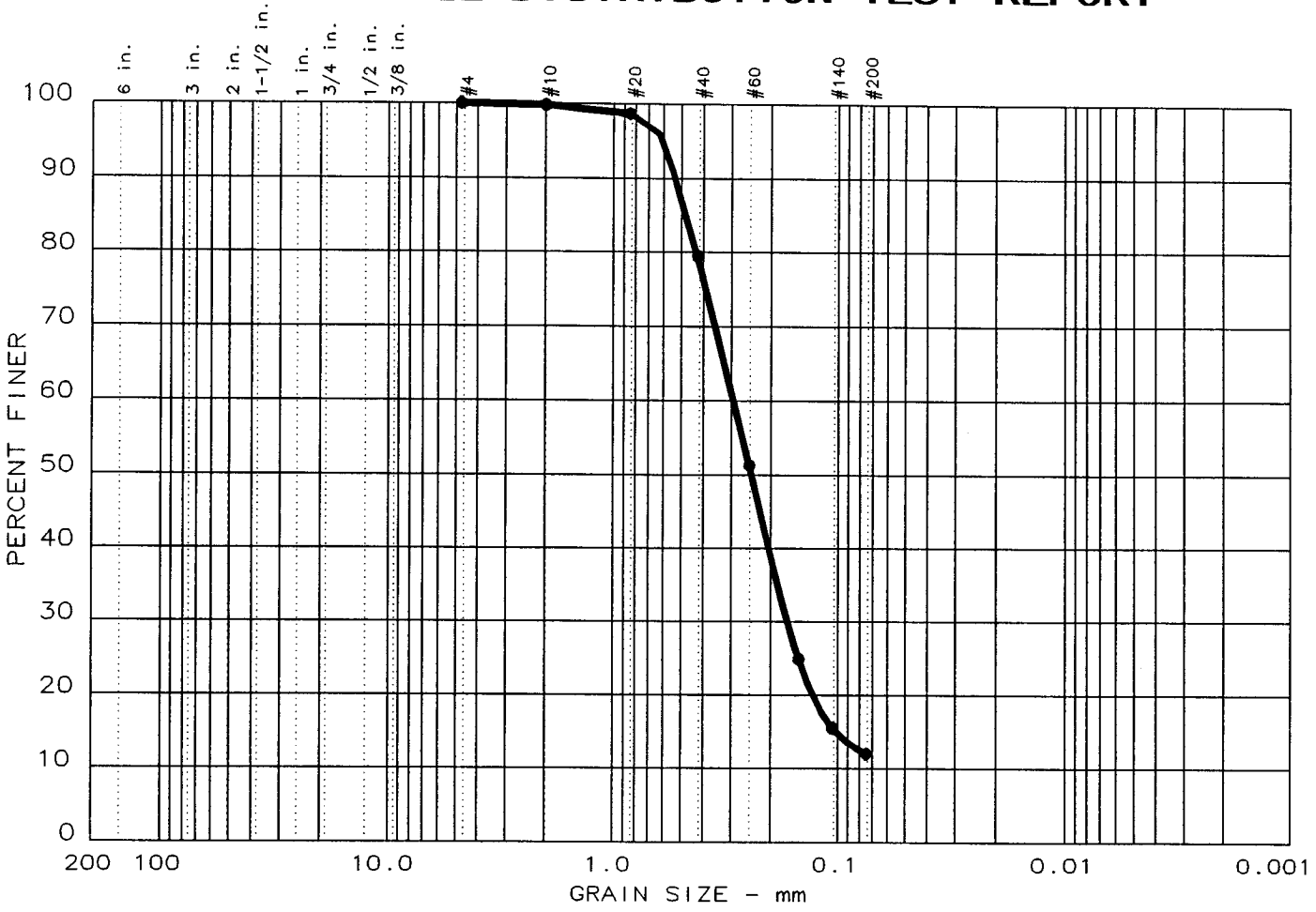
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: B-5G **Depth:** 95.0
Sample Number: 38

UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Tested By: RR **Checked By:** DP

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.0	87.9	12.1		SM1-s		

SIEVE inches size	PERCENT FINER ●		
	GRAIN SIZE		
D_{60} D_{30} D_{10}	0.29 0.17		
	COEFFICIENTS		
C_c C_u			

SIEVE number size	PERCENT FINER ●
4	100.0
10	99.8
20	98.7
40	79.5
60	51.3
100	24.9
140	15.6
200	12.1

Sample information:
● Boring 5G, Sample 21
Gr SM1-s W/ TR SIF

Remarks:
Sample 52.5'

Eustis Engineering Company, Inc.

Project No.: 19082
Project: USACE - IHNC

Date: 12-1-05 Data Sheet No. ——