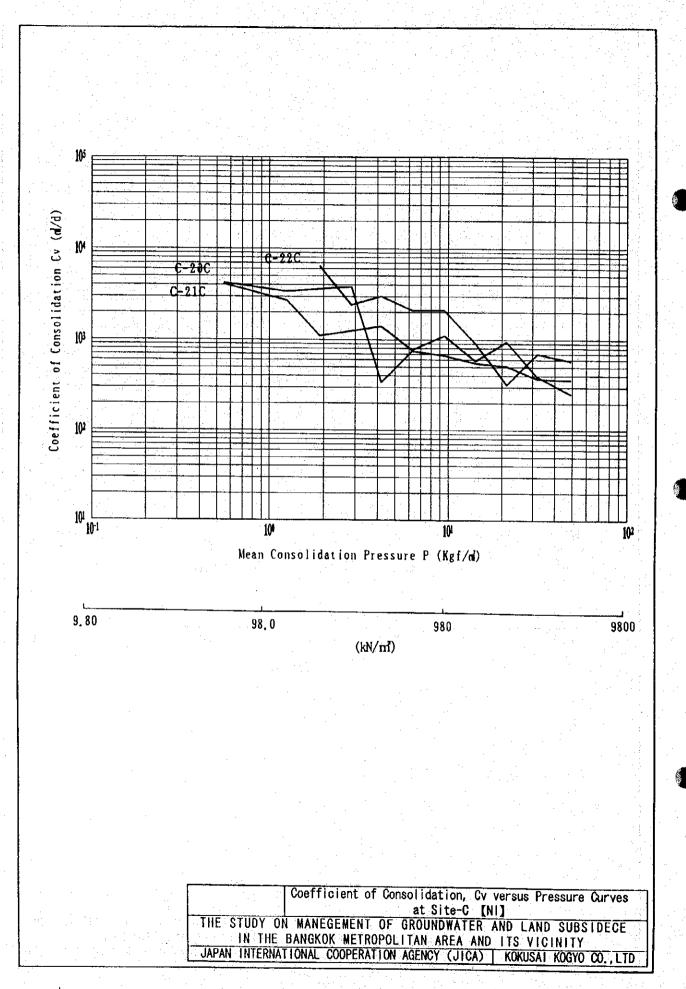
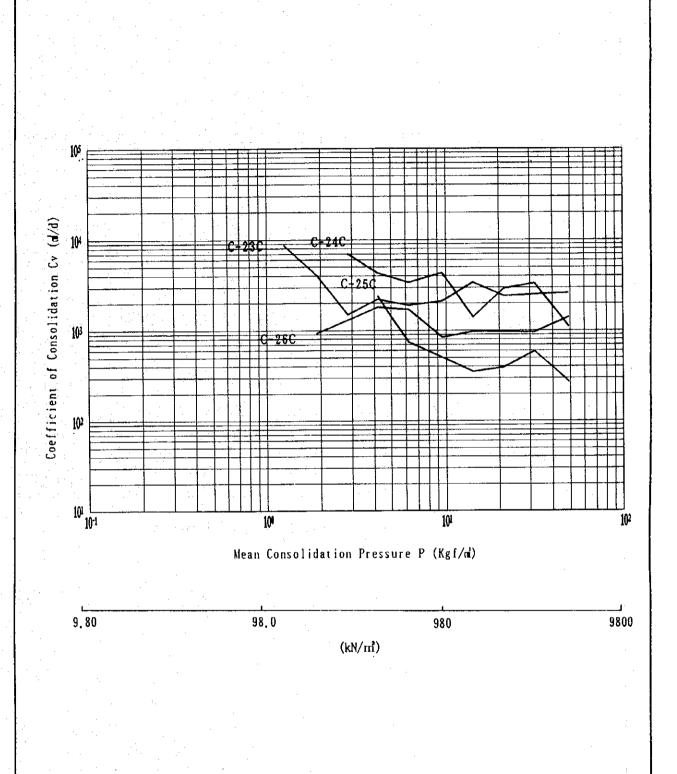


Coefficient of Consolidation, Cv versus Pressure Curves
at Site-C [Pd]

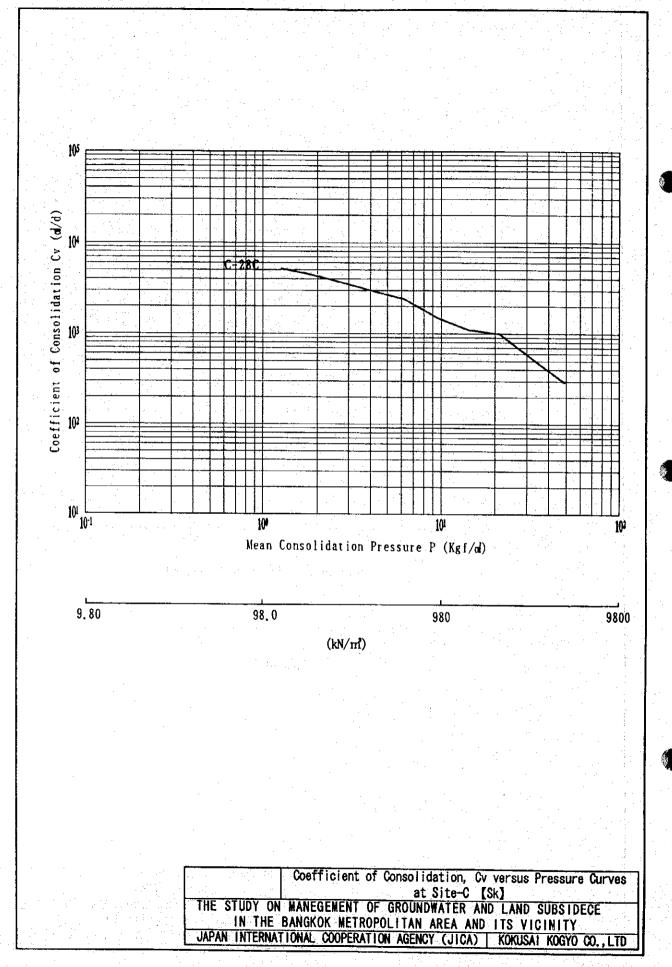
THE STUDY ON MANEGEMENT OF GROUNDWATER AND LAND SUBSIDECE
IN THE BANGKOK METROPOLITAN AREA AND ITS VICINITY

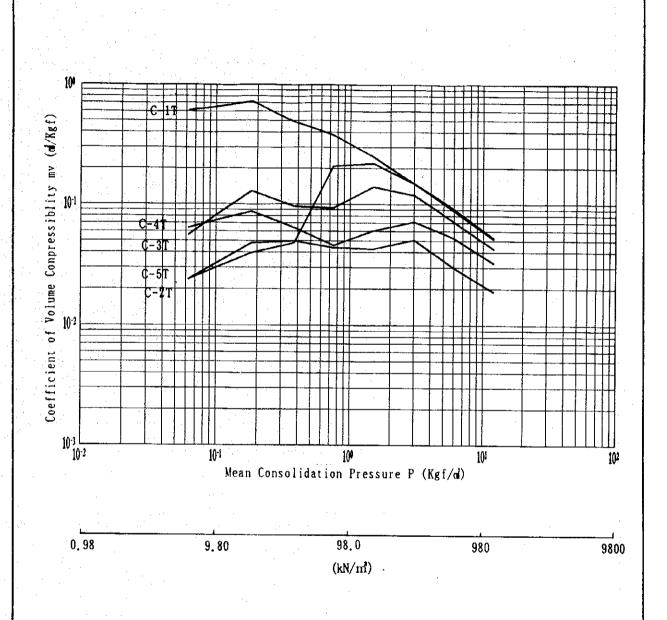
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) | KOKUSAI KOGYO CO., LTD



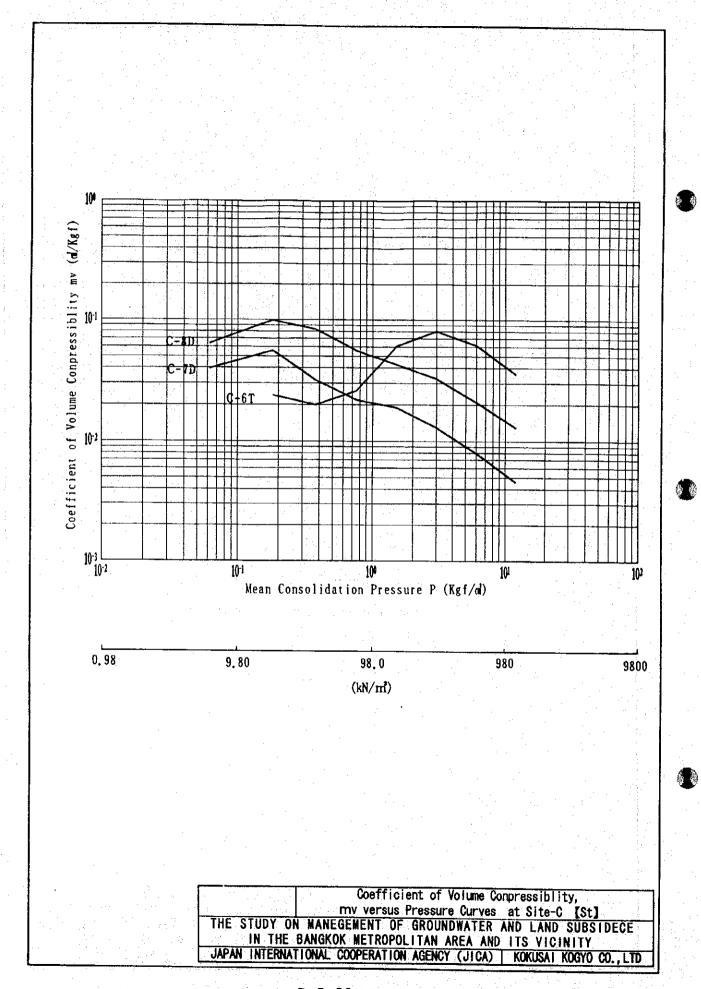


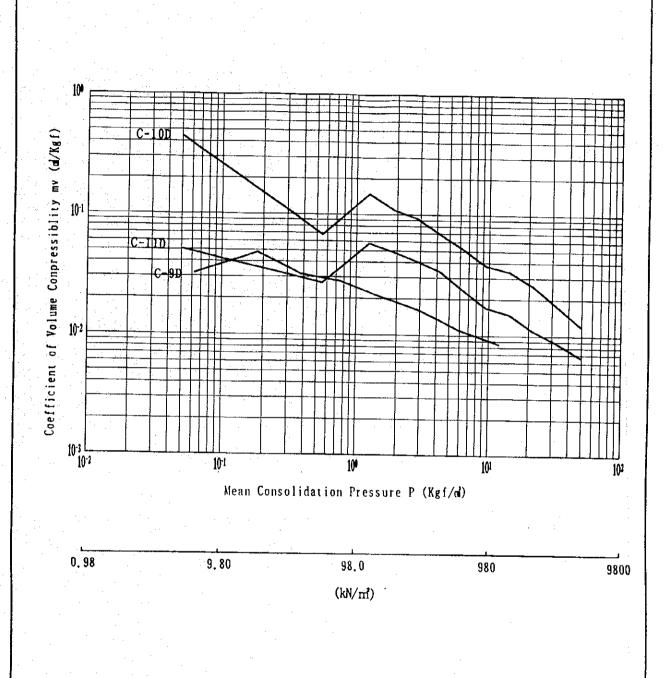
Coefficient of Consolidation, Cv versus Pressure Curves at Site-C [Nb]
THE STUDY ON MANEGEMENT OF GROUNDWATER AND LAND SUBSIDECE IN THE BANGKOK METROPOLITAN AREA AND ITS VICINITY
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) | KOKUSAI KOGYO CO., LTD



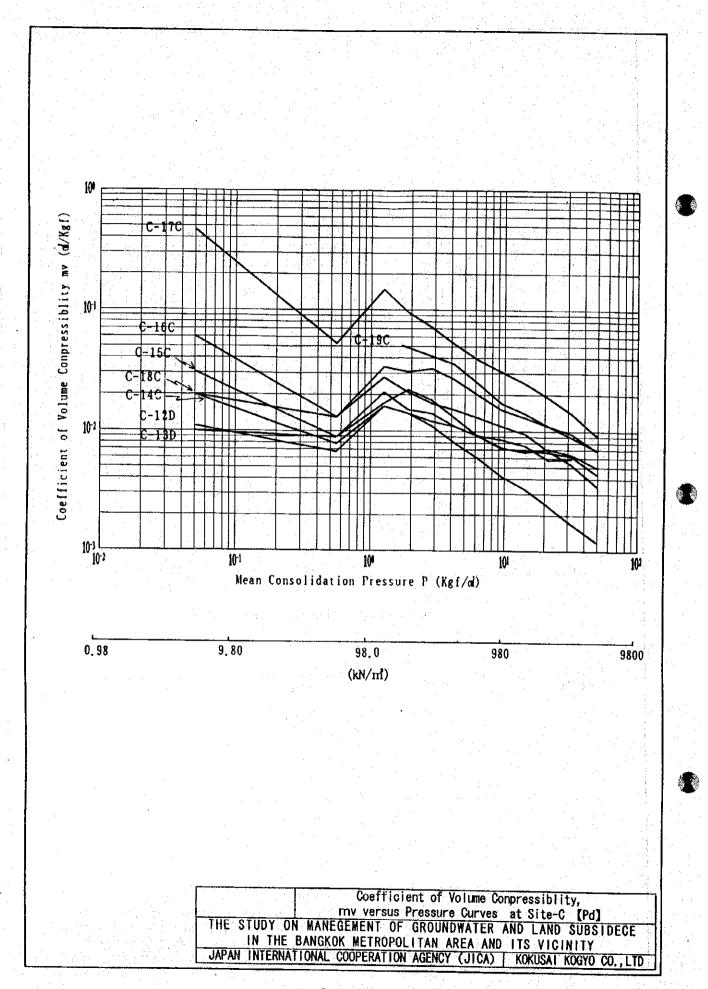


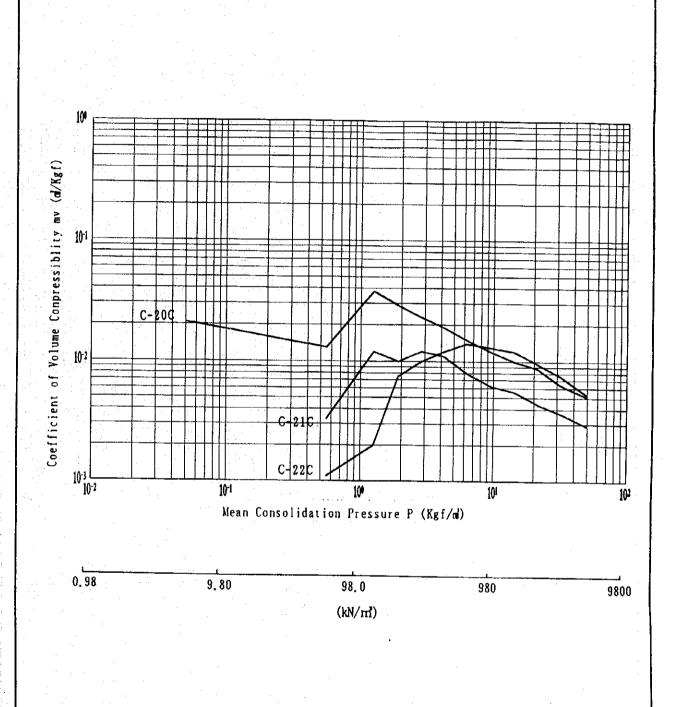
Coefficient of Volume Conpressiblity,
mv versus Pressure Curves at Site-C [Sf]
THE STUDY ON MANEGEMENT OF GROUNDWATER AND LAND SUBSIDECE
IN THE BANGKOK METROPOLITAN AREA AND ITS VICINITY
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) | KOKUSAI KOGYO CO., LTD



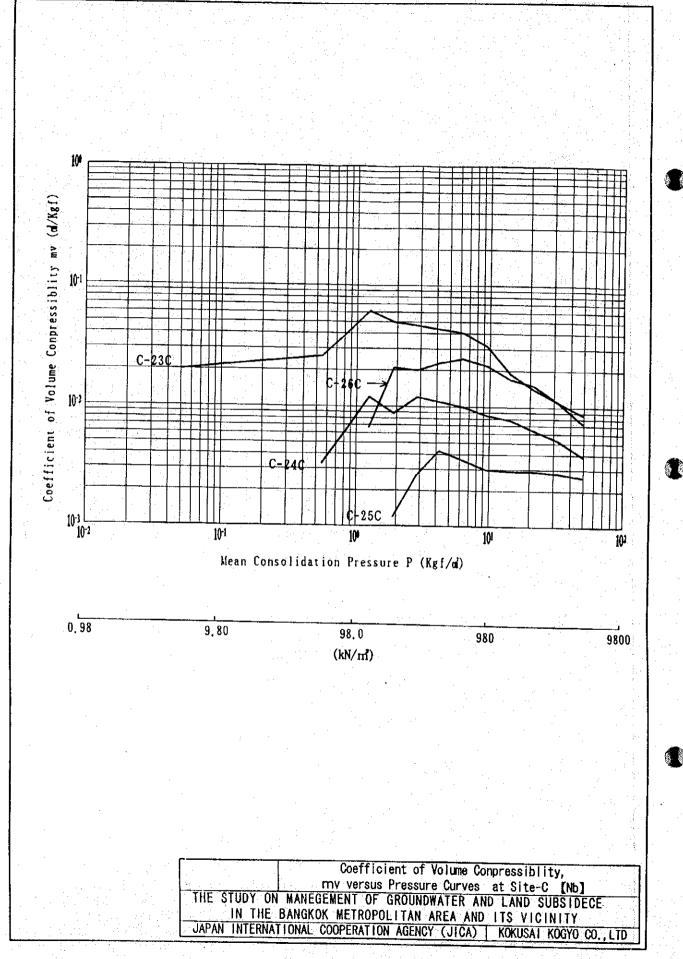


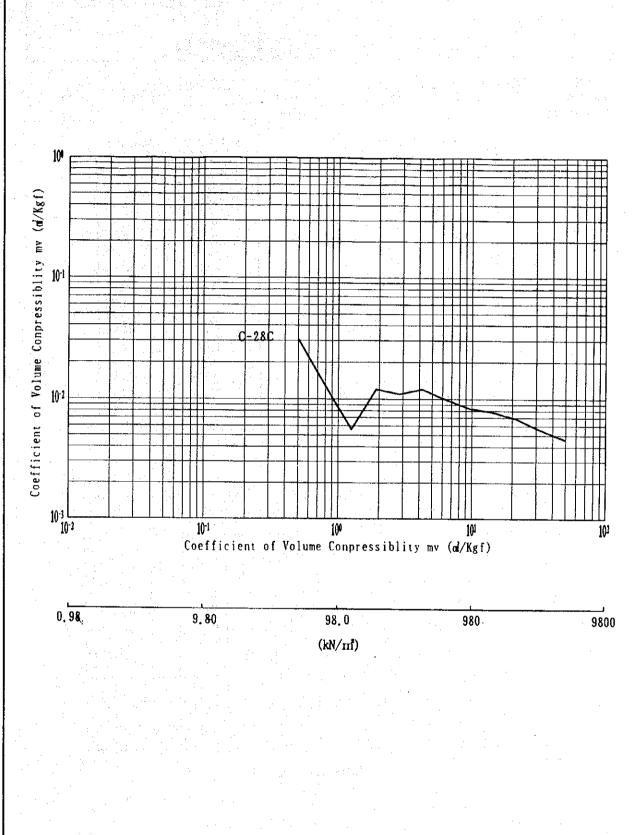
Coefficient of Volume Conpressibility,
mv versus Pressure Curves at Site-C [Bk]
THE STUDY ON MANEGEMENT OF GROUNDWATER AND LAND SUBSIDECE
IN THE BANGKOK METROPOLITAN AREA AND ITS VICINITY
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) | KOKUSAI KOGYO CO., LTC





Coefficient of Volume Conpressiblity,
mv versus Pressure Curves at Site-C [NI]
THE STUDY ON MANEGEMENT OF GROUNDWATER AND LAND SUBSIDECE
IN THE BANGKOK METROPOLITAN AREA AND ITS VICINITY
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) KOKUSAI KOGYO CO., LTD





Coefficient of Volume Conpressiblity, mv versus Pressure Curves at Site-C [Sk] THE STUDY ON MANEGEMENT OF GROUNDWATER AND LAND SUBSIDECE
IN THE BANGKOK METROPOLITAN AREA AND ITS VICINITY

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA) | KOKUSAI KOGYO CO., LT. D.3-25

# **GRAIN SIZE ANALYSIS**

	Subsidence in Bangkok Vicinity	Location:	Samut Sakhon		
Borehole No.:		Sample No.:		Test No.:	AH-32
Soil Description	);	Tested By:		Date:	3-2-93

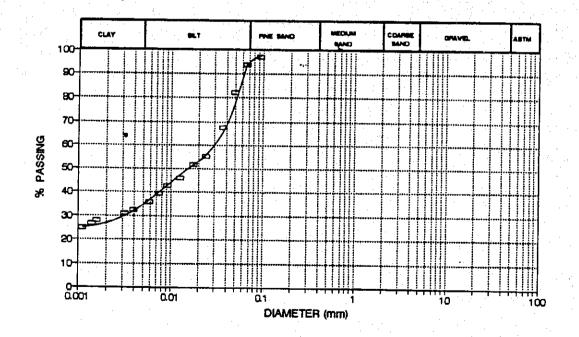
#### SIEVE ANALYSIS

	Percent
Operang	Finer
(mm)	(%)
4.76	
2.00	
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	
	No. of

#### HYDROMETER ANALYSIS Particle: Percent Size Finer (mm) (%) 0.0923 97.16 0.0663 93.84 0.0493 8219 0.0368 67.88 0.0368 67.88 0.0243 55.24 0.0176 51.59 0.0127 45.93 0,0091 42.61 0.0075 39,28 0.0059 35.95 0.0039 3261 0.0031 30.95 0.0016 27.95 0.0014 26.62

0.0011

24.96



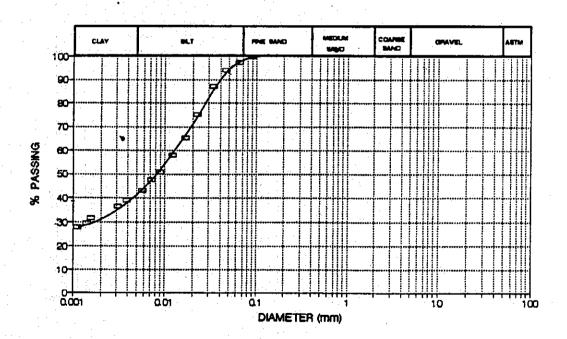
# **GRAIN SIZE ANALYSIS**

Project:	Subsid	tence in Bangko	k Vicinity	Location:	Samut Sakhon				
Borehole No.:	С	Depth (m)	5.00-5.80	Sample No.:		Test No.:		AH-33	
Soil Description	1:			Tested By:		Date:	, F.	3-2-93	

#### SIEVE ANALYSIS

SIEVE A	UNALYSIS
	Percent
Opening (mm)	Finer (%)
4.76	
2.00	ar i i
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	and the second
the product of the second	

THE PROPERTY OF			
Percent			
Finer			
(%)			
99.64			
97.42			
94.25			
87.27			
87.27			
75.21			
65.39			
58.09			
51,11			
47.61			
43.17			
39.04			
36.50			
31.74			
29.83			
27.93			



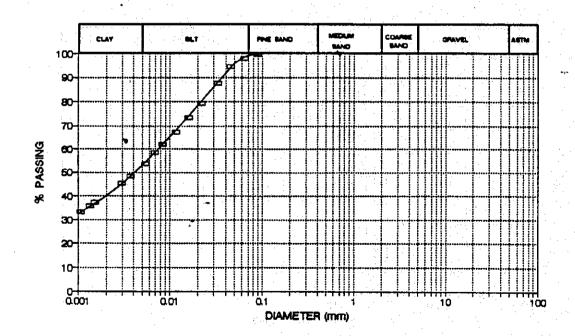
### **GRAIN SIZE ANALYSIS**

Project:	Subsi	dence in Bangk	ok Vicinity	<u>. 1</u>	Location:	Samut Sakhon		
Borehole No.:	C	Depth (m)	8.00-8.80		Sample No.:		Test No.:	AH-34
Soll Description	);			141.	Tested By:		Date:	3-2-93

#### SIFVE ANALYSIS

	NALYSIS Percent
Opening	Finer
(mm)	(%)
4.76	
2.00	
0.84	
0.59	
0.42	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
0.30	
0.15	
0.07	

	· · · · · · · · · · · · · · · · · · ·
Particle	Percent
Size	Finer
(mm)	(%)
0.0886	99.70
0.0633	97.78
0.0455	94.59
0.0332	87.88
0.0332	87.88
0,0218	79.57
0.0160	73.52
0.0116	67.45
0,0084	62.01
0.0069	58.50
0.0055	53.70
0,0037	48.58
0.0030	45.38
0.001 5	37.39
0.0013	35.79
0.0011	33.24

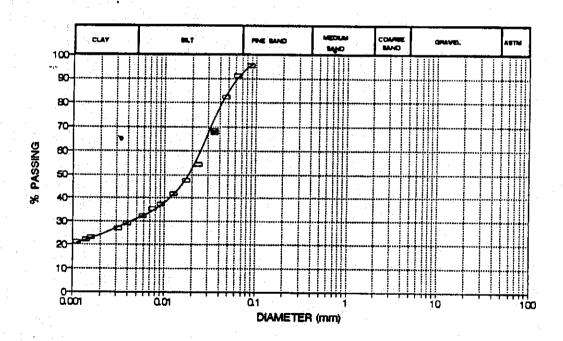


# **GRAIN SIZE ANALYSIS**

Subsidence in Bangkok Vicinity Project: Location: Samut Sakhon Borehole No.: C Depth (m) 11.00-11.80 Sample No.: Test No.: AH-35 Soil Description: Tested By: Date: 3-2-93

	Percent
Opening	Finer
(mm)	(%)
4.76	
200	
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	

HIUNUME	CH ANALYSIS
Particle	Percent
Size	Finer
(mm)	(%)
0.0869	95.60
0.0630	91.21
0.0467	82.44
0.0353	68,41
0.0354	67.83
0.0237	54.38
0.01 74	47.67
0.01 26	41.82
0.0091	37,43
0.0075	35.09
0.0058	32.17
0.0039	29.24
0.0031	26.90
0.0016	23.10
0.0014	21.93
0.0011	21.05



### **ASIAN INSTITUTE OF TECHNOLOGY**

### GEOTECHNICAL AND TRANSPORTATION ENGINEERING DIVISION

# **GRAIN SIZE ANALYSIS**

Project:	Subsidence in Bangkok Vicinity	Location:	Samut Sakhon	Villa Lelis de	
Borehole No.:	C Depth (m) 13.00-13.80	Sample No.:		Test No.:	CH-36
Soil Description	n:	Tested By:		Date:	3-2-93

#### SIEVE ANALYSIS

	Percent
Opening	Finer
(mm)	(%)
4.76	
2.00	
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	
80 (	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

#### Particle Percent Size Finer (mm): (%) 0.0663 97.35 0.0489 88.32 0.0364 76.07 0.0365 75.75 0.0243 62.54 0.0179 54.17 0.0129 48.37 0.0093 42.89 0.0077 39.34

36.44

33,21

30.63

26.44

24.82

23.53

0.0060

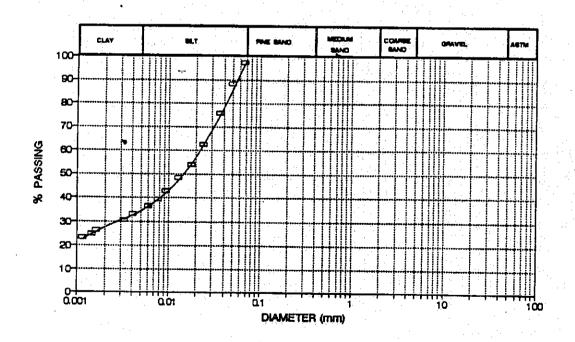
0.0041

0.0032

0.0016

0.0015

0.0012

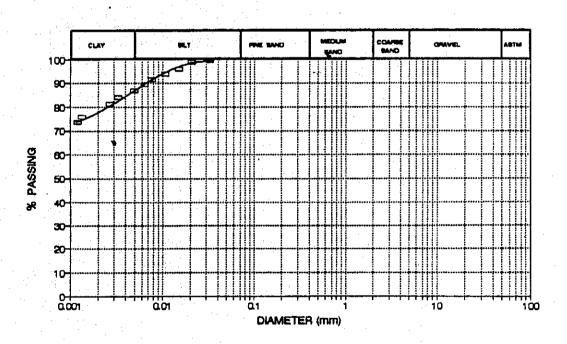


### **GRAIN SIZE ANALYSIS**

Project: Subsidenc	e in Bangkok V	/icinity	Location:	Samut Sathon		2 1 2 2
. · ·		.0-1 6.8	Sample No.:		Test No.:	AH-37
Soil Description:			Tested By:		Date:	3-2-1993

SIEVE A	NALYSIS
Opening	Percent Finer
(mm)	(%)
4.76 2.00	
0.84	
0.59	
0.42 0.30	
0.15	
0.07	
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	

HYDROMETER ANALYSIS				
Particle	Percent			
Size	Finer			
(mm)	(%)			
0.0327	99.61			
0.0328	99.26			
0,0208	98.56			
0.01 51	95.78			
0.01 07	94.03			
0.0077	91.57			
0.0063	89.47			
0.0049	87.01			
0.0033	84.19			
0.0027	81,38			
0.0013	76.12			
0.0012	74.01			
0,0010	73.31			



### **GRAIN SIZE ANALYSIS**

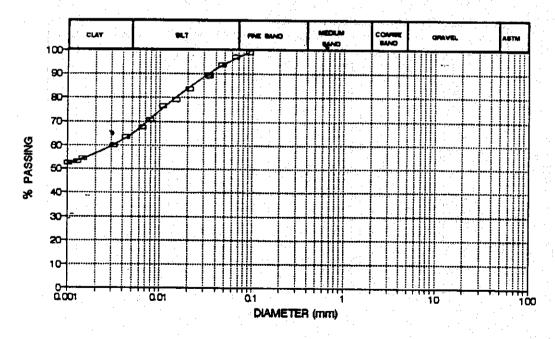
Subsidence in Bangkok Vicinity Location: Samut Sakhon Borehole No.: C Depth (m) Sample No.: Test No.: AH-38 Soll Description: Tested By: Date: 19-2-93

#### SIEVE ANALYSIS

	WALLOW
	Percent
Operang	Finer
(mm)	(%)
	(79)
4.76	
200	
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	
1.17 (4.17)	
1 1 1 1 1 1 1 1 1	

# Percent Size

(mm)	(%)
0.0920	98.84
0.0656	97.19
0.0471	93.90
0.0340	88.96
0.0339	89.61
0.0210	83.68
0.01 51	79.07
0.0108	76,77
0.0078	70,84
0.0065	67.54
0.0043	63.59
0.0032	59.96
0.001 5	54.36
0.0013	53,37
0.0010	52.39
0.0010	51.07



### **GRAIN SIZE ANALYSIS**

Project: Subsidence in Bangkok Vicinity Location: Samut Sakhon

Borehole No.: C Depth (m) 28-29 Sample No.: Test No.: AH-39

Soil Description: Tested By: WY Date: 19-2-93

#### SEVE ANALYSIS

SIEVE ANALYSIS					
	Percent				
Opening	Finet				
(mm)	(%)				
4.76	and the second				
2.00					
0.84					
0.59					
0,42					
0.30					
0.15	1 1 1 1				
0.07					
gen er en e					
	100				

#### Size Finer (%) (mm) 99.71 0.0888 0.0633 98.15 0.0455 95.03 0.0329 90,36 90.67 0.0329 0,0200 87.56 0.0145 83.51 0.0104 80.08

HYDROMETER ANALYSIS

Percent

75.72

72.60 66.99

62.94

56.09

54,53

52.97

Particle

0,0075

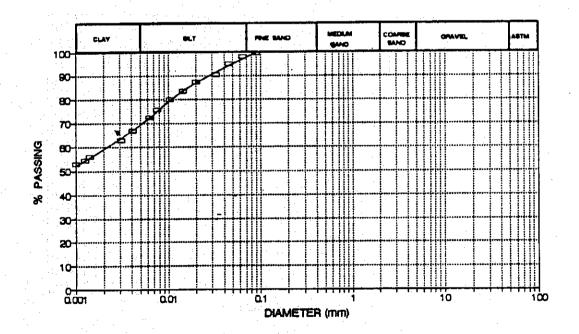
0.0062

0.0041

0.0031

0.0013

0.0010



#### ASIAN INSTITUTE OF TECHNOLOGY

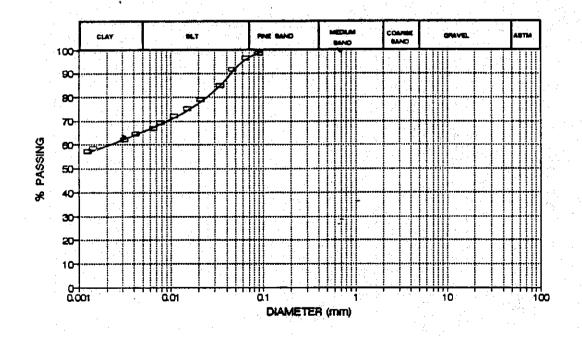
### GEOTECHNICAL AND TRANSPORTATION ENGINEERING DIVISION

### **GRAIN SIZE ANALYSIS**

Location: Samut Sakhon Subsidence in Bangkok Vicinity Project: Test No.: AH-40 Depth (m) Sample No.: 35.5-36.5 Borehole No.: C WY Date: 19-2-93 Tested By: Soil Description:

SIEVE A	NALYSIS
	Percent
Opening	Finer
	(%)
(mm)	
4.76	
2.00	
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	
	. 1.13

#### HYDROMETER ANALYSIS **Particle** Percent Size Finer (mm) (%): 0.0897 98.68 0.0642 96.50 0.0465 91.83 0.0340 84.98 0.0340 84.98 0.0210 79.07 0.0151 75.33 72.22 0.0109 0.0078 69.42 0.0064 66.93 0.0042 64.75 0.0031 62.26 0.0014 58.52 0.0013 57.28 0.0010 56.66



### **GRAIN SIZE ANALYSIS**

Project: Subsidence in Bangkok Vicinity Location: Samut Sakhon

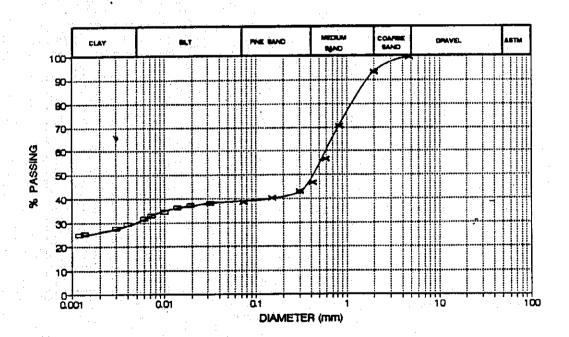
Borehole No.: C Depth (m) 38-39 Sample No.: Test No.: AH-41

Soil Description: Tested By: WY Date: 19-2-93

#### SIFVE ANALYSIS

SIEVE A	NALYSIS
	Percent
Opening	Finer
(mm)	(%)
4.76	99.60
200	93.30
0.84	70.80
0.59	56.50
0.42	46.60
0.30	43.10
0.15	40.30
0.07	38.70
	7 - 1 - 1

CONTRACTOR S	CONTRACTOR AND
Particle	Percent
Size	Finer
(मम)	(%)
0.0320	38.19
0.0319	38.32
0.0193	37.32
0.0139	36.19
0.0100	34.69
0.0072	32.93
0.0060	31.68
0.0040	29.43
0.0030	27.68
0.0014	25.30
0.0012	24.92
0.0010	24.42

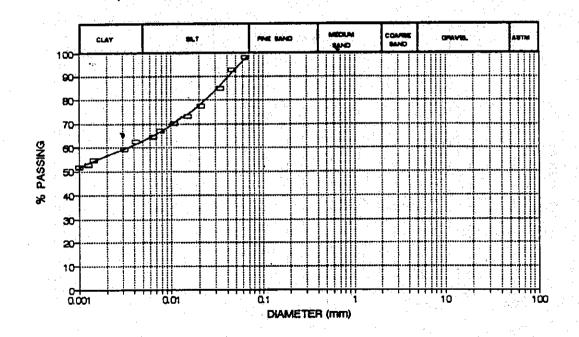


# **GRAIN SIZE ANALYSIS**

Project:	Subsid	ence in Ba	ingkok Vicir	nity .	Location:	Samut Sakhon		
Borehole No.:	C	Depth (m)	41-42	g djart.	Sample No.:		Test No.:	AH-42
Soil Description	n:			in the seal.	Tested By:	WY	Date:	19-2-93

SIEVE A	NALYSIS
	Percent
Opening (mm)	Finer (%)
4.76	
2.00	
0.84	
0.59	
0.42	A Common
0.30 0.15	
0.17	
	No. 20 grant
4.3	

HYDROMET	ER ANALYSIS
Particle	Percent
Size	Finer
(17171)	(%)
0.0632	96.04
0.0459	92.80
0.0338	84.79
0.0337	85.10
0.0210	77.70
0.0152	73.38
0.01 09	70.30
0.0078	67.21
0.0064	64.75
0.0042	62.59
0.0031	59.51
0.0014	54.88
0.0013	52.72
0.0010	51.80
0.0010	50.56



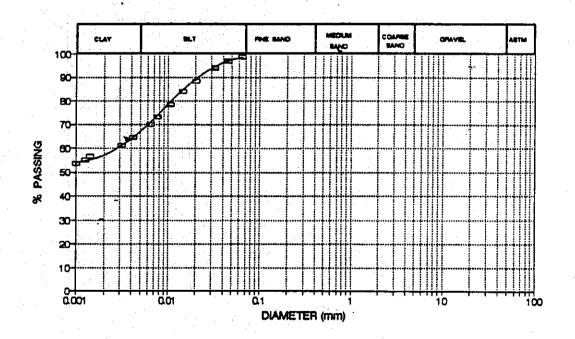
### **GRAIN SIZE ANALYSIS**

Project:	Subsi	dence in Bangkok Vk	cinity	Location:	Samut Sakhon		**
Borehole No.:	С	Depth (m) 45.5	5-46.5	Sample No.:		Test No.:	AH-43
Soll Description	n: :			Tested By:	WY	Date:	19-2-93

#### SIFVE ANALYSIS

SIEVE ANALYSIS				
Opening	Percent Finer			
(mm)	(%)			
4.76				
200				
0.84				
0.59				
0.42				
0.30				
0.15				
0.07				
100				
	to a many the			

TITOTIONE TELLITATE TOTO				
Particle ::	Percent			
Size	Finer			
(mm)	(%)			
0.0645	96.53			
0.0460	96.89			
0.0329	93,93			
0.0329	94.26			
0.0203	88.68			
0.01 46	84.08			
0.01 06	78.50			
0.0077	73.24			
0.0064	69.96			
0.0042	64.70			
0.0031	61.42			
0.0014	56.82			
0.0013	55.18			
0.0010	53.86			



### **GRAIN SIZE ANALYSIS**

Project: Subsidence in Bangkok Vicinity Location: Samut Sakhon

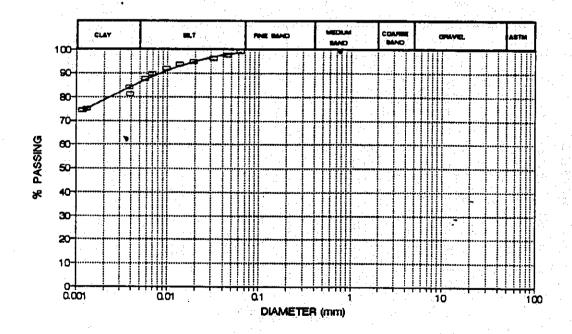
Borehole No.: C Depth (m) 47-48 Sample No.: Test No.: AH-44

Soil Description: Tested By: WY Date: 19-2-93

#### SIEVE ANALYSIS

	Percent
Operang	Finer
(mm):	<b>(%</b> )
4.76	
200	
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	
11 15 1 15 15 15 15 15 15 15 15 15 15 15	Parameter 1

	1211744721010
Particle	Percent
Size	Finer
(mm)	(%)
0.0627	99.18
0.0447	97.64
0.0319	96.10
0.0318	96.41
0.0191	94.87
0.0136	93.95
0.0097	92.10
0.0070	89.63
0.0058	87.79
0.0038	84.09
0.0039	81.32
0.0013	75,46
0.0012	74.54



# **GRAIN SIZE ANALYSIS**

Project: Subsidence in Bangkok Vicinity Location: Samut Sakhon

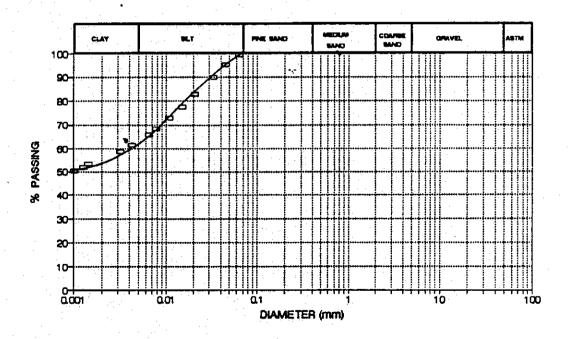
Borehole No.: C Depth (m) 67.1-67.6 Sample No.: Test No.: AH-45

Soil Description: Tested By: WY Date: 19-2-93

#### SIEVE ANALYSIS

SIEVE	NALYSIS
	Percent
Opening	Finer
(mm)	(%)
4.76	
2.00	
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	

TIT DOONIE TEN AINALTOID				
Particle	Percent			
Size	Finer			
(मम)	(%)			
0.0633	99.52			
0.0458	95.45			
0.0332	90.13			
0.0332	90.13			
0.0207	82.93			
0.01 50	77.61			
0.01 08	72.92			
0.0078	68.54			
0.0065	66.03			
0.0043	61.65			
0.0032	58.83			
0.0015	53,51			
0.0013	51.95			
0.0010	50.38			
0.0010	49.13			

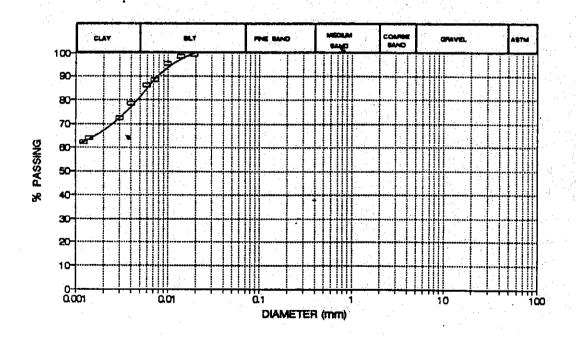


### **GRAIN SIZE ANALYSIS**

Project:	Subsidence in Bangkok Vicinity		Location:	Samut Sakhon		
Borehole No.:	C Depth (m) 69.4-69.9		Sample No.:		Test No.:	AH-46
Soil Description:		ζ.	Tested By:	WY	Date:	19-2-93

SIEVE A	NALYSIS
Opening	Percent Finer
(mm): 4,76	(%)
200	
0.84 0.59	
0.42	
0.30 0.15	
0.07	

HYDROMET	TER ANALYSIS
Particle	Percent
Size	Finer
(mm)	(%)
0.0194	99.13
0.0137	98,45
0.0099	95.43
0.0072	88.37
0.0060	86.36
0.0040	78.63
0.0030	72.58
0.0014	64.18
0.0012	62.50
0.0010	60.82



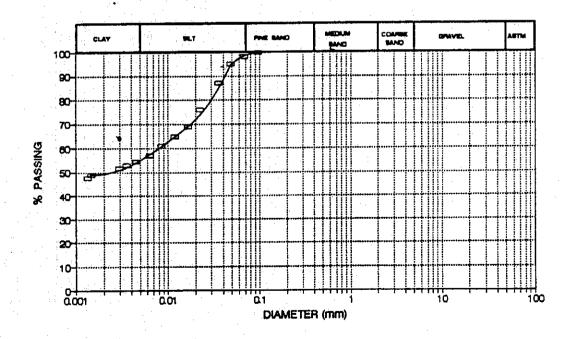
### **GRAIN SIZE ANALYSIS**

Project:	Subsidence in Bangk	ok Vicinity	Location:	Samut Sakhon		
Borehole No.:	C Depth (m)	66.5-67	Sample No.:		Test No.:	AH-1 08
Soil Description	n:	1000	Tested By:	WY	Date:	29-3-93

#### SIEVE ANALYSIS

SIEVE	NALYSIS
	Percent
Opening	Firer
(mm)	(%)
4.76	
200	
0.84	
0.59	7
0.42	
0.30	
0.15	4
0.07	
	l

#### HYDROMETER ANALYSIS Particle Percent Size Finer (mm) (%): 0.0946 99.89 0.0675 98.31 95.14 0.0485 87,21 0.0356 0.0356 87.21 76.11 0.0226 0.0165 69.13 0.0118 65.01 0.0085 61,20 0,0063 57.08 0.0045 54.54 52.96 0.0035 0.0029 51.69 0.0015 49.15 0.0013 47.57 47.25 0,0011



#### **GRAIN SIZE ANALYSIS**

Project: Subsidence in Bangkok Vicinity Location: Samut Sakhon

Borehole No.: C Depth (m) 70-71 Sample No.: Test No.: AH-109

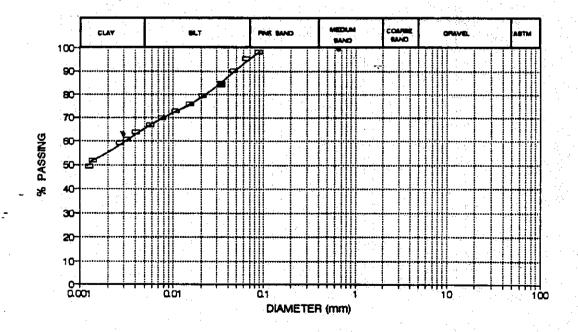
Soil Description: Tested By: WY Date: 29-3-93

#### SEVE ANALYSIS

		Percent
	pening	Finer
	(mm)	(%)
7	4,76	
	200	
7.	0.84	
	0.59	Mark W.
.2	0.42	
-	0.30	
	0.15	
	0.07	
	3	
	1 1 1 1 1 1 1 1 1	

#### Particle Percent Finer Size. (mm) (%): 0.0885 98.22 0.0637 95.24 0.0463 90.18 0.0338 84.23 0.0337 84.83 0.0207 79.77

0.0150	75.90
0.0107	72.92
0.0077	69,94
0.0057	66.97
0.0041	63,99
0.0032	61.02
0.0027	59.23
0.0014	52.09
0.0013	49.41
0.0010	46.13



#### **GRAIN SIZE ANALYSIS**

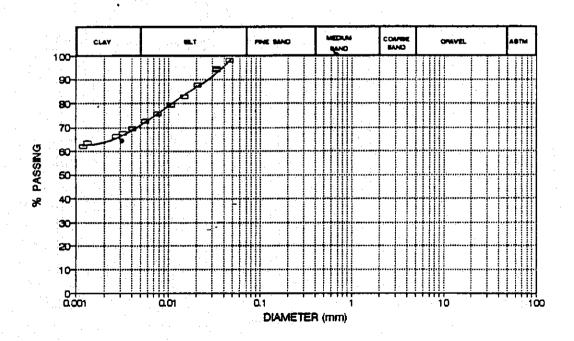
Project: Subsidence in Bangkok Vicinity Location: Samut Sakhon

Borehole No.: C Depth (m) 90.3-91 Sample No.: Test No.: AH-112

Soil Description: Tested By: WY Date: 29-3-93

### 

#### HYDROMETER ANALYSIS Particle Size Finer (mm) (%) 0.0464 98.15 0.0334 94.16 0.0334 94.49 0.0207 87.84 0.0149 82.85 0.0107 79.52 0.0077 75.86 0.0057 72.87 0.0041 69.87 0.0032 67.87 0.0027 66.54 0.0013 63.55 0.0012 0.0010 61.55



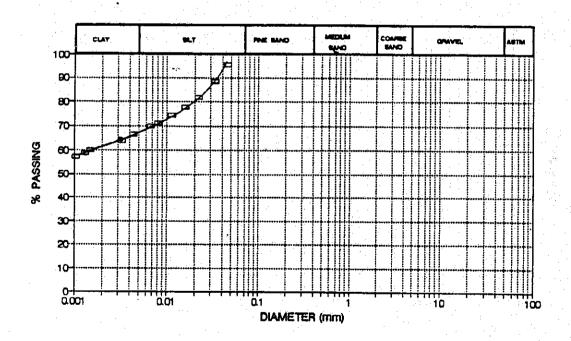
## **GRAIN SIZE ANALYSIS**

Project:	Subsidence in Bang	kok Vicinity	Location:	Samut S	akhon	10.46.	
Borehole No.:	C Depth (m)	101.0-102	Sample No	).: <u> </u>	Test	No.:	AH-31
Soil Description	);	1 1 1 1 1	Tested By:		Date	•	19-2-1993

#### SIEVE ANALYSIS

SIEVE	
	Percent
Operang	Finer
(mm)	(%)
4.76	
200	1. D
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	
	y

Particle Size (mm)	Percent Finer (%)
	Part Control
0.0631	100.28
0.0457	95.61
0.0335	88,45
0.0335	88.76
0.021 9	81.91
0.01 57	77.86
0.0113	74.43
0.0081	71.32
0.0066	70.07
0.0044	66.65
0.0033	63.84
0.0015	60,11
0.0013	58.86
0.0010	57.30
0.0010	56.06



#### SIEVE ANALYSIS

Project:

Subsidence in Bangkok Vicinity

Location:

Borehole No.: C-1/1 Depth (m)

104.00-104.50

Sample No.: SS-C-1C

WY

Test No.:

S-32

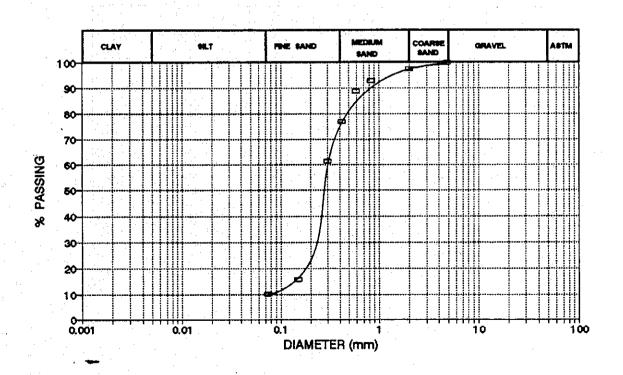
Soil Description:

Tested By:

Date:

Container No.:	
Weight of Container	100.00 g
Weight of Container+Dry Soil	450.00 g
Weight of Dry Soil	350.00 g

Sieve No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Cumulative Petaired (%)	Percent Finer
4	4,76	0.00	0.00	0.0	100.0
10	2.00	9.13	9.13	2.6	97.4
20	0.84	15.63	24.76	7.1	92.9
30	0.59	14.10	38.86	11.1	88.9
40	0.42	41.15	80.01	22.9	<i>7</i> 7.1
50	0.30	55.02	135.03	38.6	61.4
100	0.15	159.23	294.26	84.1	15.9
200	0.07	20.20	314.46	89.8	10.2
				1 844	
		•			



## **GRAIN SIZE ANALYSIS**

Project: Subsidence in Bangkok Vicinity Location: Samut Sakhon

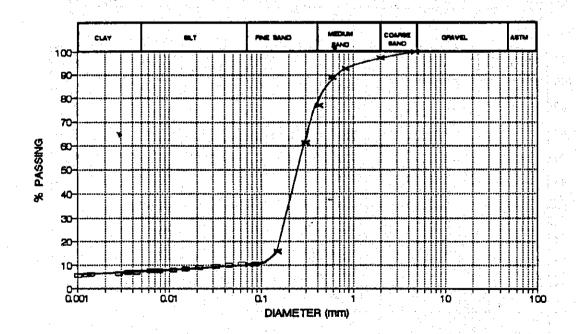
Borehole No.: C Depth (m) 104.0-104.5 Sample No.: Test No.: AH-27

Soil Description: Tested By: WY Date: 15-2-1993

#### SIEVE ANALYSIS

SIEVE ANALYSIS					
Opening	Percent Finer				
(mm)	(%)				
4.76	100.00				
2.00	97.40				
0.84	92.90				
0.59	88.90				
0.42	77.10				
0.30	61,40				
0.15	15.90				
0.07	10.20				
	1 12 17 17 17 17 17 17 17 17 17 17 17 17 17				
	4,44.4				
	1 1 1 1 1				
****					

HYDROMET	ER ANALYSIS
Particle	Percent
Size	Finer
(mm)	(%)
0.0862	10.39
0.0615	10.23
0.0444	9.86
0.0323	9.30
0.0322	9.33
0.0209	8.84
0.01 50	8.50
0.0109	7,91
0.0078	7,60
0.0062	7.44
0,0044	6.98
0.0035	6.76
0.0028	6.48
0.0014	6.05
0.0013	5.77
0.0010	5.58



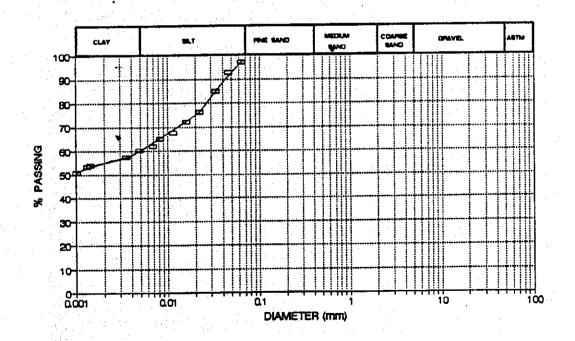
## **GRAIN SIZE ANALYSIS**

Prolect:	Subs	idence in Bangi	rok Vicinity	Location:	Samut Salinon		
Borehole No.:		Depth (m)	131.0-132.0	Sample No.:		Test No.:	AH-54
Soli Description	<del></del>			Tested By:		Date:	25-2-1993

#### SIEVE ANALYSIS

SIEVE A	NALYSIS
	Percent
Opening	Finer
(mm)	(%)
4.76	
200	to a second
0.84	
0.59	
0.42	
0.30	
0.15	4.0
0.07	
100	

Particle Size	Percent Finer
(mm)	(%)
1 1 1 1	
0.0640	97.07
0.0462	92.93
0.0338	85.30
0.0339	84.98
0.0222	76.38
0.0160	72.25
0.0115	67.79
0.0082	65.24
0.0068	62,06
0.0048	60.47
0.0035	57.61
0,0014	54.11
0,0013	53.47
0.0010	50.92
0.0010	50.60



# SIEVE ANALYSIS

Subsidence in Bangkok Vicinity

Location:

Borehole No.: C-1/1 Depth (m) 133.00-133.50 Sample No.: SS-C-2C

Test No.:

S-33

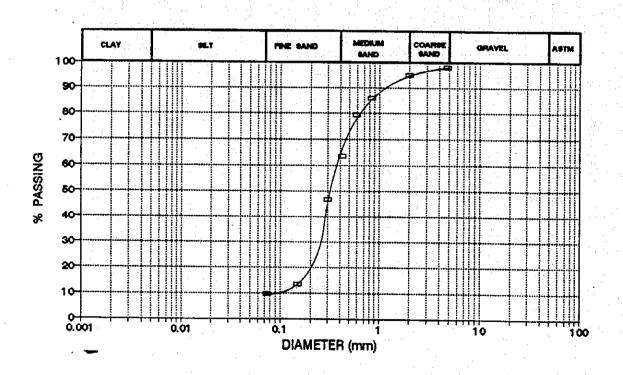
Soil Description:

Tested By: WY

Date:

Container No.:		
Weight of Contain	101	100.00 g
Weight of Contain	er+Dry Soil	500.00 g
Weight of Dry Soi	that were a single	400.00 g

Sieve	Sieve	Weight of	Cumulative	Cumulative	Percent
No.	Opening	Soil Retained	Retained	Permed	Finer
	(mm)	(g)	(g)	(%)	
4	4.76	7.44	7.44	1.9	98.1
10	200	12.31	19.75	4.9	95,1
20	0.84	36.59	56.34	14.1	85.9
30	0.59	25.81	82.15	20.5	79.5
40	0.42	63.73	145.88	36.5	63.5
50	0.30	67.67	213.55	53.4	46.6
100	0.15	133.58	347.13	86.8	13.2
200	0.07	14.78	361.91	90.5	9.5



#### **GRAIN SIZE ANALYSIS**

Project: Subsidence in Bangkok Vicinity Location: Samut Sakhon

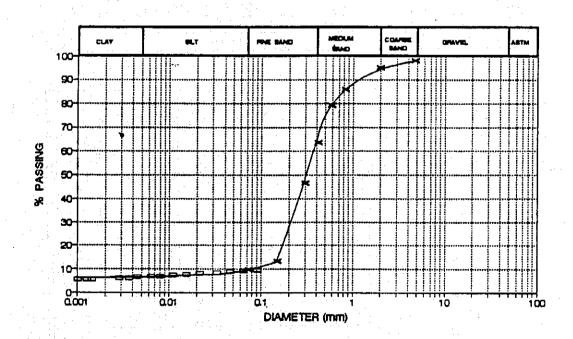
Borehole No.: C Depth (m) 133.0-133.5 Sample No.: Test No.: AH-28

Soil Description: Tested By: Date: 15-2-1993

#### SIEVE ANALYSIS

SIEVE ANALYSIS							
Opening	Percent Finer						
(mm) 4,76	98.10						
200	95.10						
0.84	85.90						
0.59	79.50						
0.42	63.50						
0.30	46.60						
0.15	13.20						
0.07	9.50						
	<b> </b>						

HYDHOME	ER ANALYSIS
Particle	Percent
Size	Finer
(mm)	(%)
0.0907	9.31
0.0647	9,16
0.0464	8.86
0.0334	8,50
0.0334	8.53
0.0216	8.05
0.01 55	7.75
0.0112	7.33
0.0080	7.00
0.0064	6.88
0.0044	6.55
0.0036	6.25
0.0028	6.13
0.0014	5.71
0.0013	5.53
0.0010	5.41



# SIEVE ANALYSIS

Project:

Subsidence in Bangkok Vicinity

Location:

Borehole No.: C-1/1 Depth (m) 138.00-138.50 Soil Description:

Tested By: WY

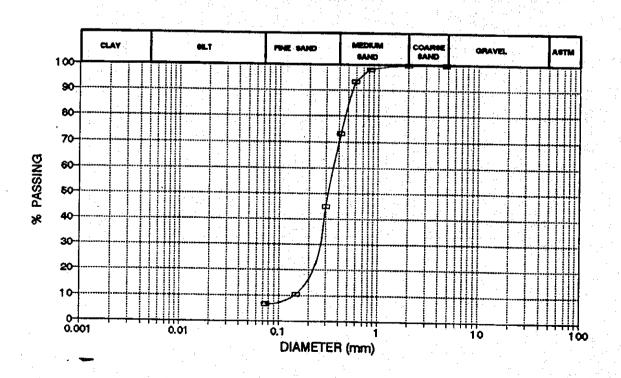
Sample No.: SS-C-3C Test No.:

Date:

S-34 5-2-1993

Container No.:	41 - 11	
Weight of Container	100.00	a
Weight of Container+ Dry Soil	500.00	o o
Weight of Dry Soil	400.00	9

Sieve No:	Sieve Opening (mm)	Weight of Soil Retained (g)	Currelative Retained (Q)	Currulative Retained (%)	Percent Finer
4	4.76	0.00	0.00	0.0	100.0
10	200	0.30	0.30	0.1	99.9
20	0.84	6.84	7.14	1.8	98.2
30	0.59	19.17	26.31	6.6	93.4
40	0.42	80.36	106.67	26.7	73.3
50	0.30	114.29	220.96	55.2	44.8
100	0.15	137.62	358.58	89.6	10.4
200	0.07	16.15	374.73	93.7	6.3
			and the state of the state of	es etal y	<u> </u>



# SIEVE ANALYSIS

Project:

Subsidence in Bangkok Vicinity

Borehole No.: C-1/1 Depth (m) 141.00-141.50 Sample No.: SS-C-4C

Test No.:

S-35

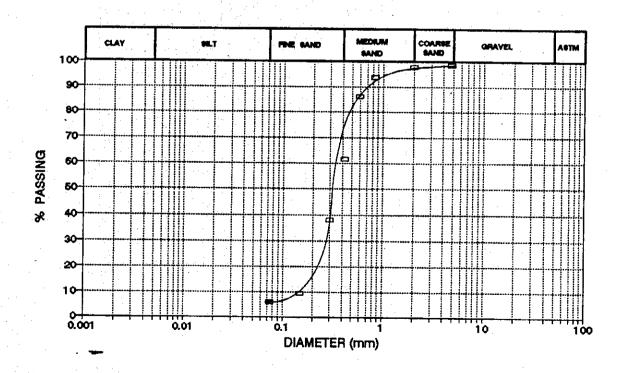
Soil Description:

Tested By: WY

Date:

Container No.:	1		
Weight of Container	 	100.00	q
Weight of Container+Dry Soil		500.00	g
Weight of Dry Soil	 :	400.00	a

No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Cumulative Retained (%)	Percent Finer
4	4.76	5.87	5.87	1.5	98.5
10	200	2.93	8.80	22	97.8
20	0.84	16.34	25.14	6.3	93.7
30	0.59	29.26	54.40	13.6	86.4
40	0.42	98.59	152.99	38.2	61.8
50	0.30	94.93	247.92	62.0	38.0
100	0.15	114.64	362.56	90.6	9.4
200	0.07	14.05	376.61	94.2	5.8
					·
1.0					<del></del>



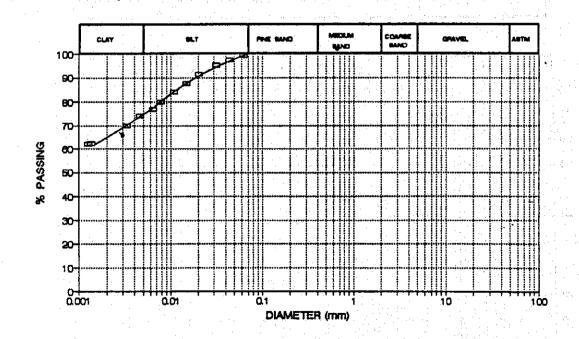
#### **GRAIN SIZE ANALYSIS**

Project: Subsi	dence in Bangko	k Vicinity	Location:	Samut Sakhon		<u> 10 40 5 5</u>
Borehole No.: C	Depth (m)	144.0-145	Sample No.:	<u> </u>	Test No.:	AH-53
Soil Description:			Tested By:		Date:	25-2-1993

#### SIEVE ANALYSIS

. ,	SIEVE A	NALYSIS
	Opening (mm)	Percent Finer (%)
	4.76	
	2.00	
	0.84	
ď	0.59	
	0.42	
٠.	0.30	
	0.16	
1	0.07	
		40.00
١		
: .		

HIDHOME	EN MINETON
Particle	Percent
Size	Finer
(mm)	(%)
0.0625	99.16
0.0446	97.56
0.0319	95,32
0.0319	95.00
0.0206	91.48
0.0150	87.67
0.01 07	84.15
0.0077	79.99
0.0064	77.11
0.0046	74.23
0,0033	70.06
0.0014	62.38
0.001 3	62.06
0.0010	59.18
0.0009	58.86



# SIEVE ANALYSIS

Project: Subsidence in Bangkok Vicinity

Location:

Soil Description:

Borehole No.: C-1/1 Depth (m)

161.00-160.50

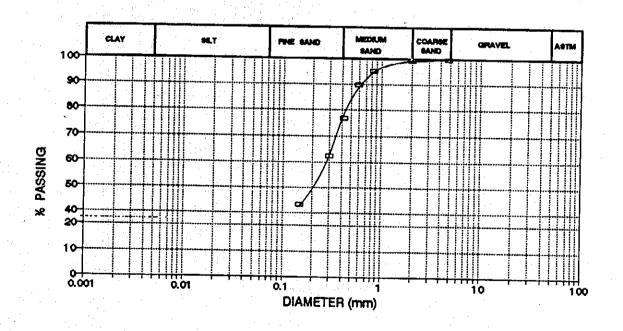
Sample No.: SS-C-5C Tested By:

Test No.: Date:

S-36 5-2-1993

Container No.:	<del></del>
Weight of Container	100.00 g
Weight of Container+Dry Soil	500.00 g
Weight of Dry Soil	400.00 g

Sieve No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Cumulative Retained (%)	Percent Finer
4	4.76	0.20	0.20	0.1	100.0
10	200	244	2.64	0.7	99.3
20	0.84	16.57	19.21	4.8	95.2
30	0.59	21.12	40.33	10.1	89.9
40	0.42	51.99	92.32	23.1	76.9
50	0.30	57.93	150.25	37.6	62.4
100	0.15	77.27	227.52	56.9	43,1
200	0.07	25.57	253.09	63.3	36.7
		Participation of the Control of the			
				<del></del>	



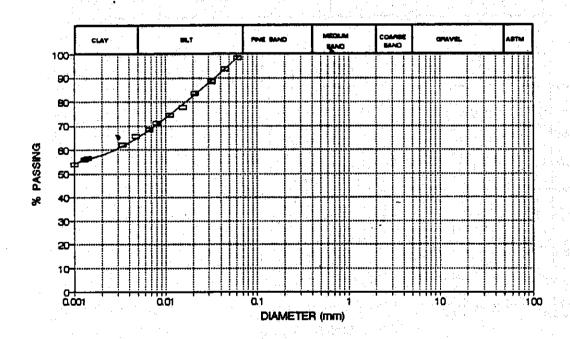
#### GRAIN SIZE ANALYSIS

Project:	Subside	ence in Ban	gkok Vicinity	Location:	Samut Sathon		
Borehole No.:	Ç	Depth (m)	163.0-163.6	Sample No.:		Test No.:	AH-52
Soil Description	: <u> </u>			Tested By:		Date:	25-2-1993

#### SIEVE ANALYSIS

SIEVE A	NALYSIS
	Percent
Opening	Finer
(mm)	(%)
4.76	
2.00	a same a same
0.84	legal a daudi, i blaka
0.59	
0.42	The contract of Williams
0.30	That I have
0.15	
0.07	
eg esc. 1 c	The state of
	·

HYDROMET	ER ANALYSIS
Particle	Percent
Size	Finer
(तारा)	(%)
0.0618	98.36
0.0448	93.81
0.0325	88.65
0.0325	88.95
0.0211	83.79
0.01 55	77.74
0.0111	74.70
0.0080	71,06
0.0066	68.63
0.0047	65.59
0.0034	62.24
0.0014	56,47
0.0013	55.87
0.0010	54.04
0.0010	53.44



# SIEVE ANALYSIS

Project:

Subsidence in Bangkok Vicinity

Soil Description:

Borehole No.: C-1/1 Depth (m) 168.00-168.50 Sample No.: SS-C-6C

Test No.:

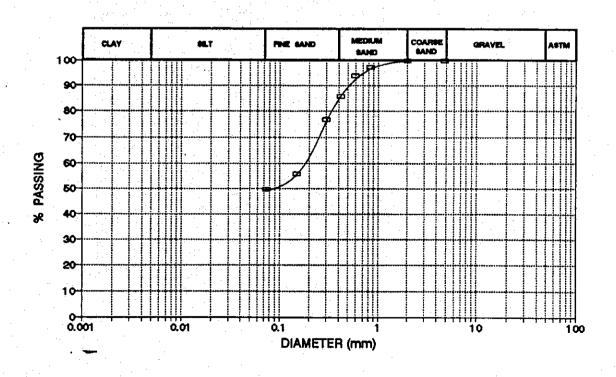
S-37

Tested By: WY

Date:

	the state of the s
Weight of Container	100.00 g
Weight of Container+Dry Soil	500.00 g
Weight of Dry Soil	400.00 g

Sieve No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Completive Retained (%)	Percent Finer
4	4.76	0.00	0.00	0.0	100.0
10	200	0,81	0.81	0.2	99.8
20	0.84	10.63	11.44	2.9	97.1
30	0.59	13.00	24.44	6.1	93.9
40	0.42	32.53	56.97	14.2	85.8
50	0.30	35.74	92.71	23.2	76.8
100	0.15	83.37	176.08	44.0	56.0
200	0.07	24.57	200.65	50.2	49.8
	And the second of the second o				
: 1					<del></del>



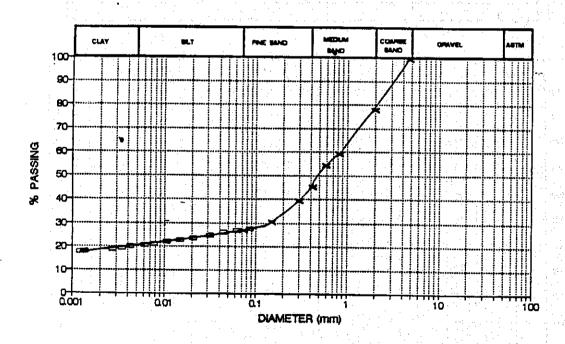
#### **GRAIN SIZE ANALYSIS**

Project:	Sub	side	nce in Bangi	tok Vicinity		Location:	Samut Sa	ichon			Ú.
Borehole No.:	C	C	epth (m)	177.0-17	7.5	Sample No.;			Test No.:	AH-29	:
Soil Description	1: :				1.4.5	Tested By:	411.00	or Malaconis	Date:	15-2-199	3

#### SIEVE ANALYSIS

	UVALTSIS
Opening	Percent Finer
(mm)	(%)
4.76	99,40
200	77.90
0.84	59.00
0.59	54.30
0.42	45.10
0.30	39.30
0.15	30.50
0.07	26,90
5,,5	4 4 4 4 4 4
	1 1 2 1
	1 1 1 1 1 1
	The same same said
7 4 4	

THE PROPERTY OF	EN ANALTSIS
Particle	Percent
Size	Finer
(mm)	(%)
0.0857	27.49
0.0613	26.91
0.0441	26.09
0.0318	25.03
0.0318	25.03
0.0206	23.71
0.01 48	22.89
0.01 07	21.91
0.0076	21.09
0.0061	20.76
0.0042	19.94
0,0034	19.29
0.0027	18.88
0.0014	17.98
0.0012	17.65
0.0010	17.49

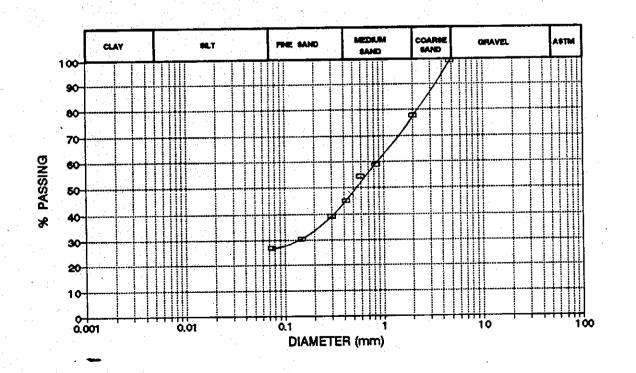


#### SIEVE ANALYSIS

Project:	Subsic	dence in Bang	kok Vicinity	Location:			
Borehole No.:			177.00-177.50	Sample No.:	SS-C-7C	Test No.: ,	<u>\$-38</u>
Soil Description			Market Commence	Tested By:	WY	Date:	5-2-1993
	**			· · · · · · · · · · · · · · · · · · ·	-		

Container No.:	
Weight of Container	100.00 g
Weight of Container+Dry Soil	500.00 g
Weight of Dry Soil	400.00 g

Sieve No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Camulative Retained (%)	Percent Finer
4	4.76	2.52	252	0.6	99.4
10	200	85.90	88.42	22.1	77.9
20	0.84	75.65	164.07	41.0	59.0
30	0.59	18.65	182.72	45.7	54.3
40	0.42	37.00	219.72	54.9	45.1
50	0.30	22.99	242.71	60.7	39.3
100	0.15	35.44	278.15	69.5	30.5
200	0.07	14.16	292.31	73.1	26.9
10.	en et en en en		r		



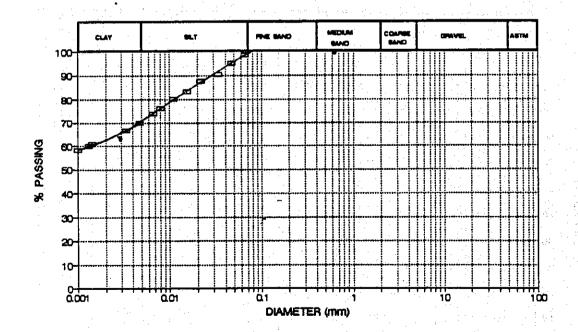
#### **GRAIN SIZE ANALYSIS**

Project:	Subsk	tence in Ban	gkok Vicinity	Loc	ation: Sar	mut Sakhon		
Borehole No.:	C	Depth (m)	190.0-19	1.0 San	nple No.:		Test No.:	AH-61
Soll Description	1:			Tes	ted By:		Date:	25-2-1 993

#### SIEVE ANALYSIS

	Percent
Opening	Finer
(m(n)	(%)
4.76	
2.00	
0.84	
0.59	eelja lat 19 griits
0.42	
0.30	
0.15	
0.07	
	0.73
	1.5
	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	<b>1</b>

HYDROMET	ER ANALYSIS
Particle	Percent
Size	Finer
(mm)	(%)
0,0654	98.38
0.0469	95.04
0.0338	90.71
0.0338	90.71
0.0217	87.71
0.0156	83.37
0.0112	80.37
0.0060	76.37
0.0066	74.03
0.0047	70.03
0,0034	66.70
0,0014	61.03
0.0013	60.03
0.001 0	58.36
0.0010	57.69



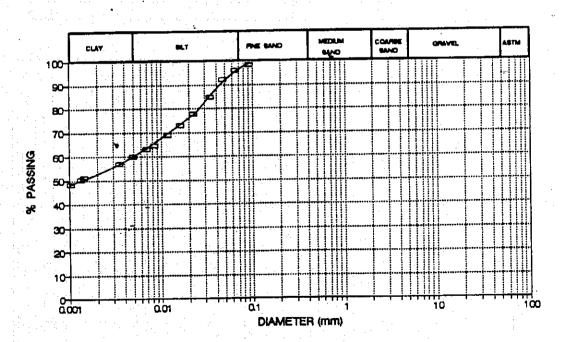
# **GRAIN SIZE ANALYSIS**

Prolect:	Subsic	lence in Banç	kok Vicinity	L	ocation:	Samut Sakhon		
Borehole No.:		Depth (m)	204.0-204.6	_ s	ample No.:		Test No.:	AH-50
		Deput and		— т	ested By:		Date:	25-2-1993
Soli Description	1:				catou aj.			

#### SIEVE ANALYSIS

	Percent
Opening	Finer
(17)(17)	(%)
4.76	
2.00	
0.84	
0.59	
0.42	
0.30	
0.15	
0.07	
. s	
1.11.14.	
The second second	

THENTONETHINITE				
Particle	Percent			
Size	Finer			
(mm)	(%)			
0.0907	98.33			
0.0649	96.09			
0.0467	92.25			
0.0342	84.88			
0.0342	84.88			
0.0223	77.83			
0.0161	73.03			
0.0116	68.86			
0.0083	64.70			
0.0068	63,10			
0,0049	60,22			
0.0035	<b>\$7.01</b>			
0,001 5	51,25			
0.0013	50.29			
0,0010	48.37			
0.0010	47.72			



#### SIEVE ANALYSIS

Project:

Subsidence in Bangkok Vicinity

Location:

Borehole No.: C-1/1 Depth (m)

208.00-208.50 Sample No.: SS-C-8C

Test No.:

S-39

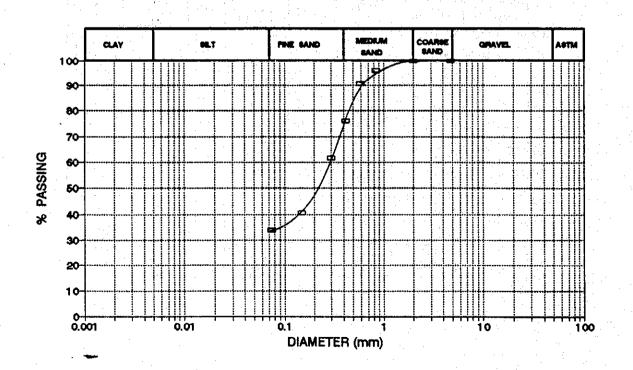
Soil Description:

Tested By: WY

Date:

Container No.:		The Section of the Se
Weight of Container		100.00 g
Weight of Container + Dry Soil		500.00 g
Weight of Dry Soil	A Markey	400.00 g

Sieve No	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Cumulative Retained (%)	Percent Finer
4	4.76	0.00	0.00	0.0	100.0
10	200	1.13	1.13	0.3	99.7
20	0.84	14.46	15.59	3.9	96.1
30	0.59	20.96	36.55	9.1	90.9
40	0.42	58.64	95,19	23.8	76.2
50	0.30	57.94	153.13	38.3	61.7
100	0.15	83.69	236,82	59.2	40.8
200	0.07	26.87	263.69	65.9	. 34.1
144 J. 145					



## **GRAIN SIZE ANALYSIS**

Project: Borehole No.: C Depth (m)

Subsidence in Bangkok Vicinity

Opening

(17)(71) 4.76

200

0.84

0.59

0.42

0.30

0.15

0.07

206.0-206.5

SIEVE ANALYSIS

Location:

Samut Sakhon

Test No.: Date:

AH-30 15-2-1993

Soil Description:

Percent

Finer (%)

100.00

99,70

96.10

90.90

76,20

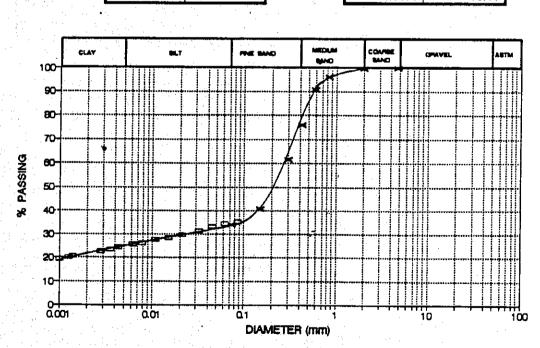
61.70

40.80

34.10

Sample No.: Tested By:

HIDHOWE	EN ANALTSIS
Particle	Percent
Size	Finer
(mm)	(%)
0.0865	35.35
0.0620	34.50
0.0448	33.12
0.0325	31.32
0.0325	31.42
0.0211	29.51
0.01 51	28,45
0.01 08	27.49
0.0078	26.33
0.0062	25.58
0.0043	24.42
0.0035	23.36
0.0028	22.62
0.0014	20.71
0.0013	20.18
0.0010	19.44



## SIEVE ANALYSIS

Project:

Subsidence in Bangkok Vicinity

Location:

Borehole No.: C-1/1 Depth (m)

211.00-211.50

Sample No.: SS-C-9C

Test No.:

S-40

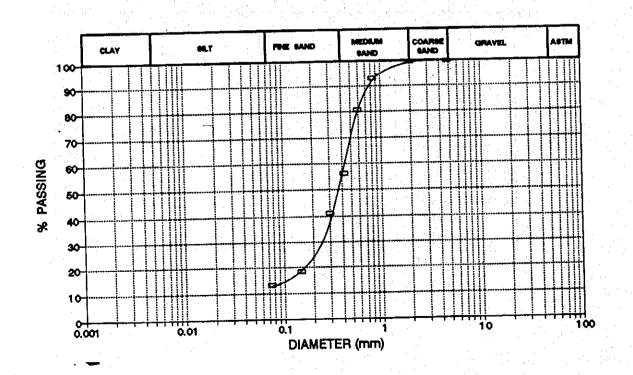
Soil Description:

Tested By:

Date:

7 19			 		
	ontainer No.:				
	/eight of Container		100	00 g	
		Soil	500	00 g	_
	/eight of Container+Dry	304	400		
V	/eight of Dry Soil				

Sieve No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Curnulative Retained (g)	Cumulative Retained (%)	Percent Finer
4	4.76	0.52	0.52	0.1	99.9
10	200	1.38	1.90	0.5	99.5
20	0.84	25.48	27.38	6.8	93.2
30	0.59	49.09	76.47	19.1	80.9
40	0.42	98.81	175.28	43,8	56.2
50	0.30	60.36	235.64	58.9	41.1
100	0.15	90.90	326.54	81.6	18.4
200	0.07	21.42	347.96	87.0	13.0

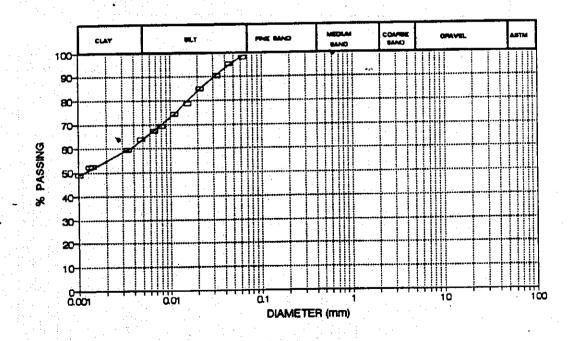


## **GRAIN SIZE ANALYSIS**

Project: Subsidence in Bangkok Vicinity	Location:	Samut Sathon	1.70	
Borehole No.: C Depth (m) 226.5-227.0	Sample No.:		Test No.:	AH-49
Soil Description:	Tested By:		Date:	25-2-1993

# SIEVE ANALYSIS Operating: Finer (mm): (%) 4.76 2.00 0.84 0.59 0.42 0.30 0.15 0.07

HYDROMETER ANALYSIS					
Particle	Percent				
Size	Finer				
(mm)	(%)				
0.0626	98.30				
0.0450	95.21				
0.0326	90.57				
0.0326	90,26				
0.0212	85.01				
0.01 54	78.83				
0.0111	74.50				
0.0080	69.55				
0.0066	67.39				
0.0047	63.99				
0,0034	59.66				
0.0014	52.55				
0,0013	52.24				
0,0010	49.15				
0,0010	46.06				



## SIEVE ANALYSIS

Project:

Subsidence in Bangkok Vicinity

Location:

Borehole No.: C-1/1 Depth (m) 228.00-228.50 Sample No.: SS-C-10C

Test No.:

S-41

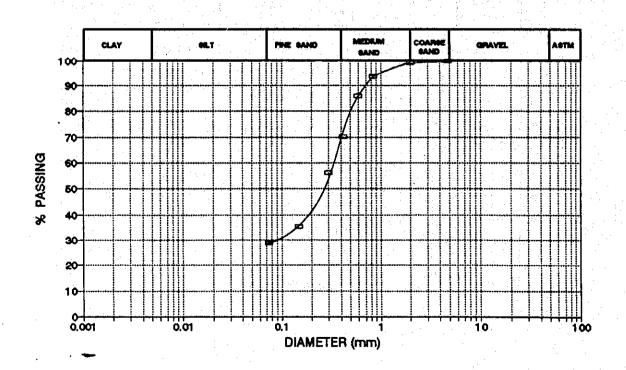
Soil Description:

Tested By: WY

Date:

2	Container No.:	
4	Weight of Container	100.00 g
2	Weight of Container+Dry Soil	500.00 g
	Weight of Dry Soil	400.00 g

Sieve No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Cumulative Retained (%)	Percent Finer
4	4.76	0.77	0.77	0.2	99.8
10	2.00	2.43	3.20	0.8	99.2
20	0.84	22.38	25.58	6.4	93.6
30	0.59	29.81	55.39	13.8	86.2
40	0.42	63.47	118.86	29.7	70.3
50	0.30	56.73	175.59	43.9	56.1
100	0.15	83.12	258.71	64.7	35.3
200	0.07	26.06	284.77	71.2	28.8
	10000				
7				:	



## ASIAN INSTITUTE OF TECHNOLOGY

# GEOTECHNICAL AND TRANSPORTATION ENGINEERING DIVISION

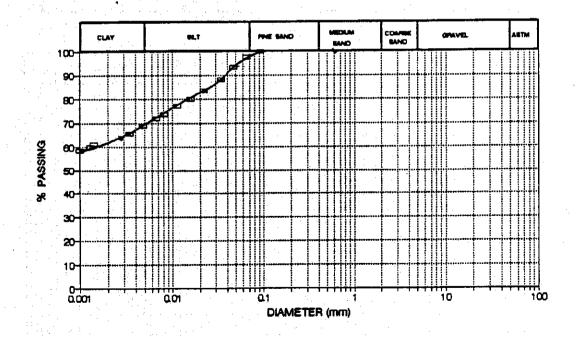
## **GRAIN SIZE ANALYSIS**

Project: Subsidence in Bangkok Vicinity	Location: Samut Sakho	ก	
Borehole No.: C Depth (m) 247.0-248	Sample No.:	Test No.:	AH-48
Soil Description:	Tested By:	Date:	25-2-1993

#### SIEVE ANALYSIS

SIE VE A	NALTSIS
	Percent
Opening	Firer
(mm)	(%)
4.76	
200	
0,84	
0.59	
0.42	
0.30	
0.16	
0.07	
e uz e	

Particle	Percent
Size	Finer
(mm):	(%)
0.0913	99.92
0.0652	97.63
0.0471	93,37
0.0341	88.13
0.0341	88,13
0.0220	83,54
0.01 58	80.27
0.0113	77.32
0.0081	73.71
0.0066	72.08
0.0048	69.13
0.0034	65.85
0.0014	61.26
0.001 3	60.28
0.0010	58.64
0.0010	57,66



#### SIEVE ANALYSIS

Subsidence in Bangkok Vicinity

Location:

Borehole No.: C-1/1 Depth (m) Soil Description:

258.00-258.50 Sample No.: SS-C-11C

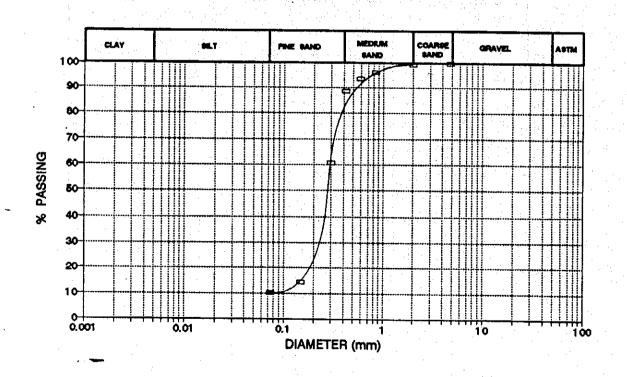
Tested By: WY

Test No.: Date:

S-42 5-2-1993

Container No.:	
Weight of Container	100.00 g
Weight of Container+Dry Soil	500.00 g
Weight of Dry Soil	400.00 g

Sieve No:	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Cumulative Flatzined (%)	Percent Finer
4	4.76	0.00	0.00	0.0	100.0
10	200	241	241	0.6	99.4
20	0.84	12.69	15.10	3.8	96.2
30	0.59	10.34	25.44	6.4	93,6
40	0.42	20.46	45.90	11.5	88.5
50	0.30	111.06	156.96	39.2	60.8
100	0.15	185.71	342.67	85.7	14.3
200	0.07	16.90	359.57	89.9	10.1
				grant princes as	



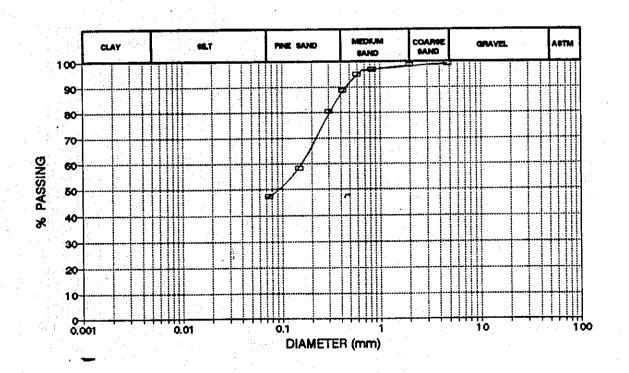
## SIEVE ANALYSIS

Project: Subsidence in Bangkok Vicinity Location:

Borehole No.: C-1/1 Depth (m) 259.5-260.00 Sample No.: SS-C-12C Test No.: S-43
Soil Description: Tested By: WY Date: 5-2-1993

Container No.:	
Weight of Container	100.00 g
Weight of Container+Dry Soil	500.00 g
Weight of Dry Soil	400.00 g

Sieve No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Cumulative Retained (%)	Percent Finer
4	4.76	3.78	3.78	0.9	99.1
10	2.00	1.71	5.49	1.4	98.6
20	0.84	6.58	12.07	3.0	97.0
30	0.59	7.96	20.03	5,0	95.0
40	0.42	23.84	43.87	11.0	89.0
50	0.30	33.49	77.36	19.3	80.7
100	0.15	89.54	166.90	41.7	58.3
200	0.07	43.81	210.71	52.7	47.3



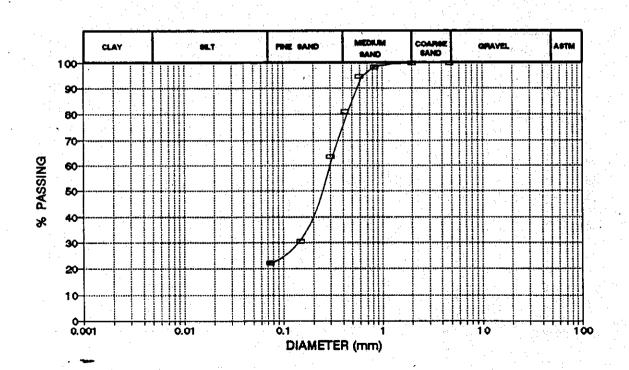
## SIEVE ANALYSIS

Subsidence in Bangkok Vicinity Location: 262.00-262.50 Sample No.: SS-C-13C Borehole No.: C-1/1 Depth (m)

Test No.: S-44 Date: 5-2-1993 Tested By: WY Soil Description:

·	Container No.:			
	Weight of Container		7. 	100.00 g
	Weight of Container	+Dry Soil		500.00 g
1	Weight of Dry Soil			400.00 g

Sieve No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Cumulative Retained (%)	Percent Finer
4	4.76	0.42	0.42	0.1	99.9
10	200	0.32	0.74	0.2	99.8
20	0.84	6.41	7.15	1.8	98.2
30	0.59	14.68	21.83	5.5	94.5
40	0.42	54.09	75.92	19.0	81.0
50	0.30	69.58	145.50	36.4	63.6
100	0.15	133.14	278.64	69.7	30.3
200	0.07	32.79	311.43	77.9	22.1



# SIEVE ANALYSIS

Project:

Subsidence in Bangkok Vicinity

Location:

Borehole No.: C-1/1 Depth (m) 274.00-274.50 Sample No.: SS-C-14C Soil Description:

Tested By: WY

Test No.: Date:

Container No.:	
Weight of Container	100.00 g
Weight of Container+Dry Soil	500.00 g
Weight of Dry Soil	 400.00 g

Sieve No.	Sieve Opening (mm)	Weight of Soil Retained (g)	Cumulative Retained (g)	Cumulative Retained (%)	Percent Finer
4	4.76	1.36	1.36	0.3	99.7
10	200	0.55	1.91	0.5	99.5
20	0.84	5.43	7.34	1.8	98.2
30	0.59	11.33	18.67	4.7	95.3
40	0.42	53.79	72.46	18.1	81.9
50	0.30	67.09	139.55	34.9	65.1
100	0.15	139.70	279.25	69.8	30.2
200	0.07	35.45	314.70	78.7	21.3
					_

