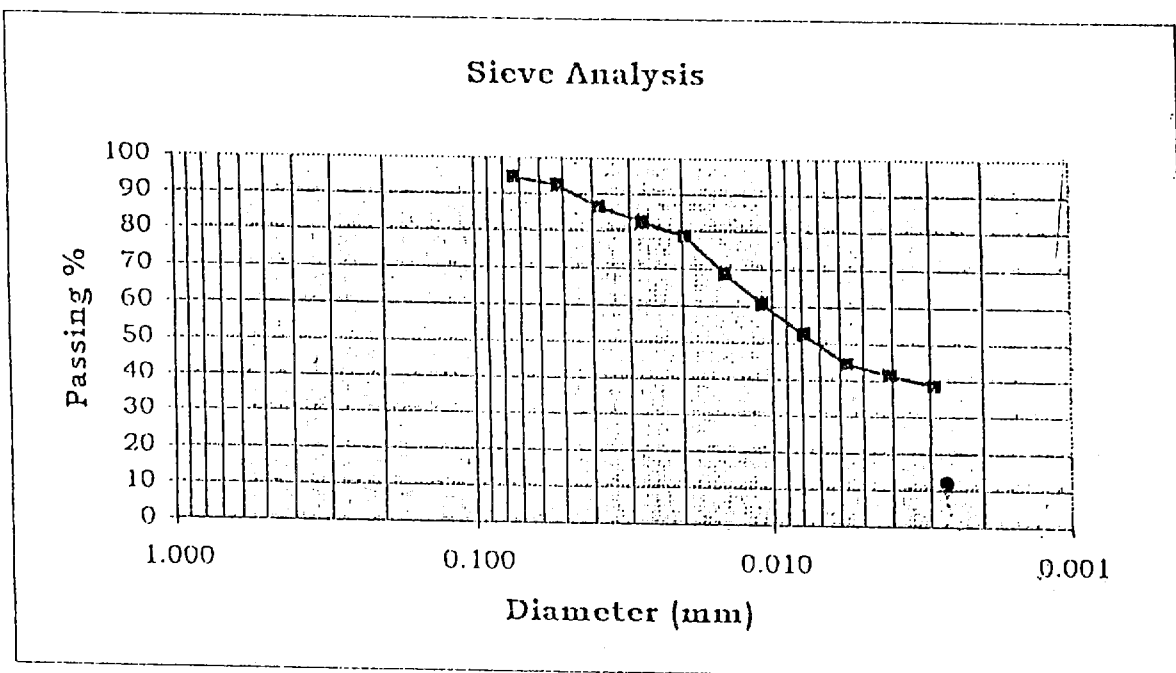


# HYDROMETER TEST

Project : Adana Buyuk Schir      Bore No.      **B-1(1)**  
 Location : Sofulu                      Depth (m) :      6.00-6.45  
  
 Date : 30.04.1999'                       $\gamma_s$  (t/m<sup>3</sup>) :                      2.69  
 Temperature (°C) :                      26                      Mass of Soil (gr):                      50

t(min)	Ra	Rc	Rm	Hc	D(mm)	Passing %
0.25	48.00	47.15	49.00	8.64	0.073	%94
0.50	47.00	46.15	48.00	8.80	0.052	%92
1	44.00	43.15	45.00	9.29	0.038	%86
2	42.00	41.15	43.00	9.61	0.027	%82
4	40.00	39.15	41.00	9.94	0.020	%78
8	35.00	34.15	36.00	10.75	0.014	%68
15	31.00	30.15	32.00	11.40	0.011	%60
30	27.00	26.15	28.00	12.05	0.008	%52
60	23.00	22.15	24.00	12.70	0.006	%44
120	21.50	20.65	22.50	12.94	0.004	%41
240	20.00	19.15	21.00	13.19	0.003	%38

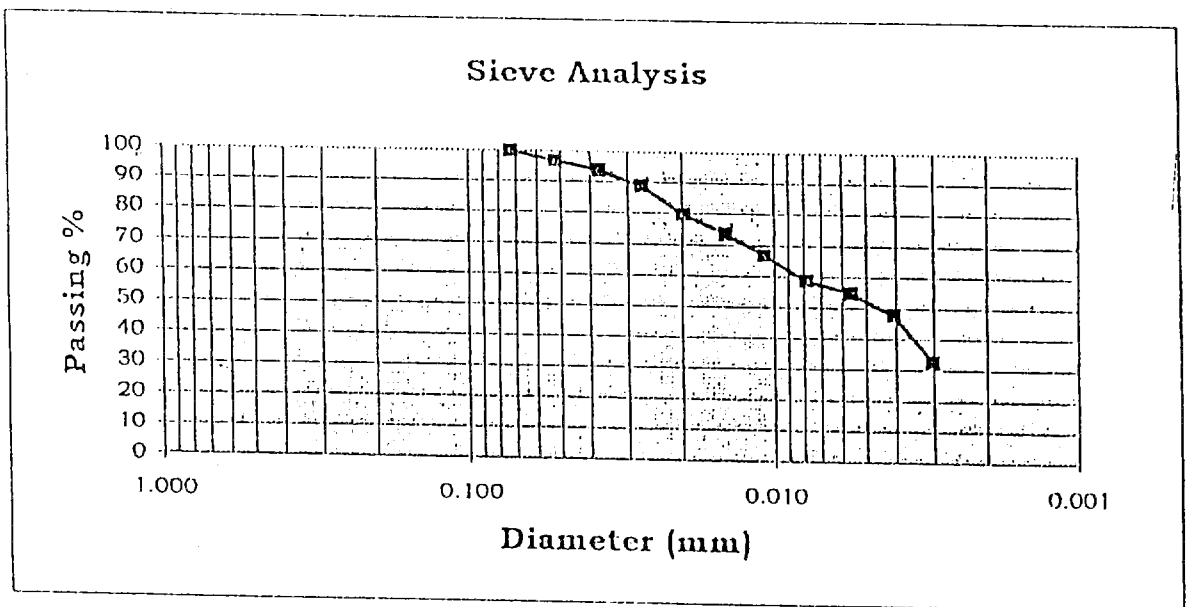


## HYDROMETER TEST

Project : Adana Buyuk Schir      Bore No.      **B-1(2)**  
 Location : Sofulu      Depth (m) : 12.00-12.45  
 Date : 30.04.1999       $\gamma_s$  (t/m<sup>3</sup>) : 2.67  
 Temperature (°C) : 26      Mass of Soil (gr): 50

T(°C)	26.00	Ca	2.5	$\gamma_s$ (t/m <sup>3</sup> )	2.67	0.0126
Ct	1.65	Cm	1	Plt(%)	1.00	50.00

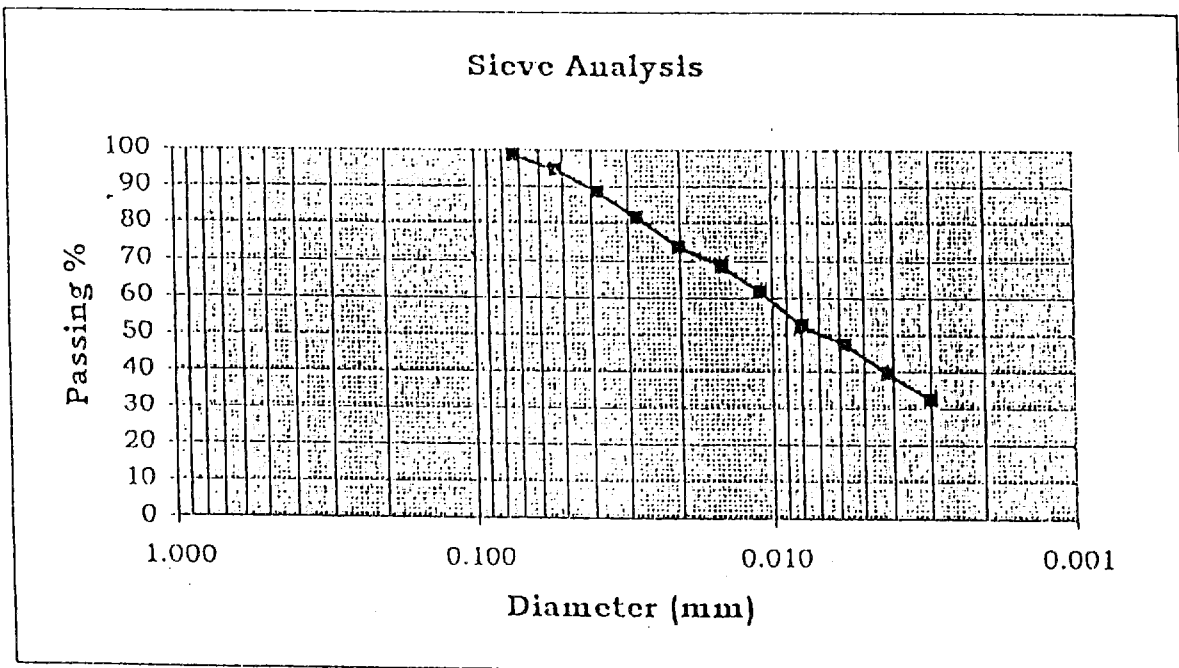
t(min)	Ra	Rc	Rm	Hc	D(mm)	Passing %
0.25	50.50	49.65	51.50	8.23	0.072	%99
0.50	49.00	48.15	50.00	8.48	0.052	%96
1	47.50	46.65	48.50	8.72	0.037	%93
2	45.00	44.15	46.00	9.13	0.027	%88
4	40.50	39.65	41.50	9.86	0.020	%79
8	37.50	36.65	38.50	10.34	0.014	%73
15	34.00	33.15	35.00	10.91	0.011	%66
30	30.00	29.15	31.00	11.56	0.008	%58
60	28.00	27.15	29.00	11.89	0.006	%54
120	24.50	23.65	25.50	12.46	0.004	%47
240	17.00	16.15	18.00	13.68	0.003	%32



# HYDROMETER TEST

Project : Adana Buyuk Schir      Bore No.      **B-2(1)**  
 Location : Sofulu                      Depth (m) :      7.50-7.95  
 Date :                      30.04.1999                       $\gamma_s$  (t/m<sup>3</sup>) :                      2.68  
 Temperature (°C) :                      25                      Mass of Soil (gr):                      50

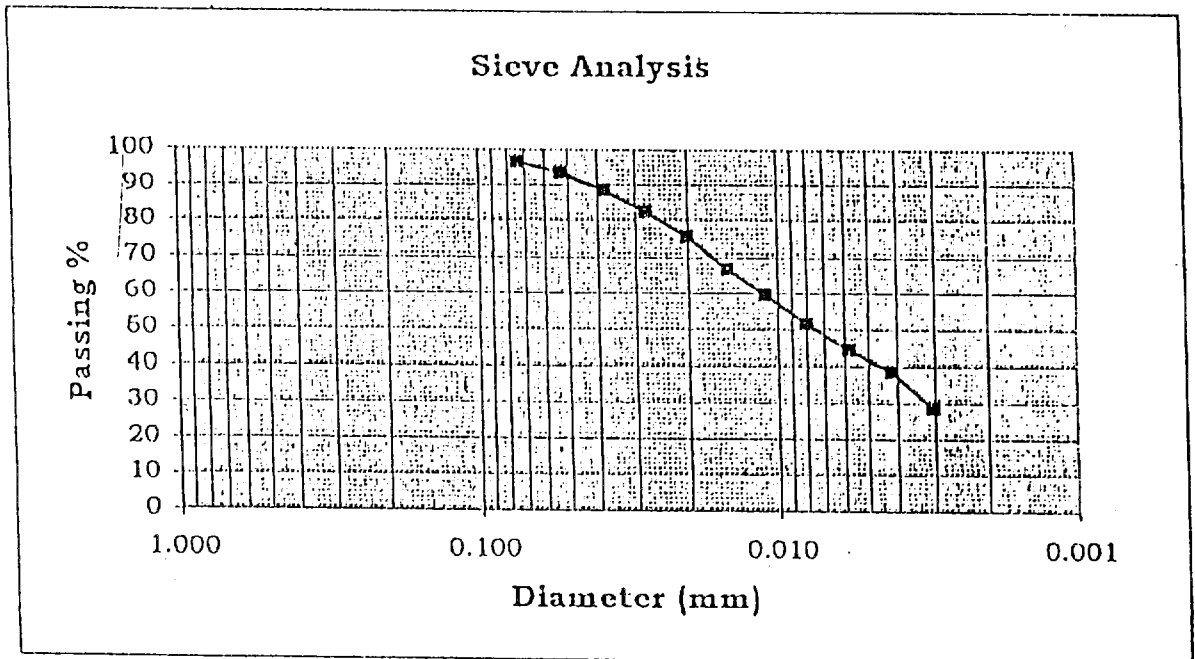
t(min)	Ra	Rc	Rm	Hc	D(mm)	Passing %
0.25	50.00	49.15	51.00	8.31	0.073	%98
0.50	48.00	47.15	49.00	8.64	0.052	%94
1	45.00	44.15	46.00	9.13	0.038	%88
2	41.50	40.65	42.50	9.69	0.028	%81
4	37.50	36.65	38.50	10.34	0.020	%73
8	35.00	34.15	36.00	10.75	0.015	%68
15	31.50	30.65	32.50	11.32	0.011	%61
30	27.00	26.15	28.00	12.05	0.008	%52
60	24.50	23.65	25.50	12.46	0.006	%47
120	20.50	19.65	21.50	13.11	0.004	%39
240	17.00	16.15	18.00	13.68	0.003	%32



## HYDROMETER TEST

Project :	Adana Buyuk Schir	Bore No.	B-2(2)
Location :	Sofulu	Depth (m) :	12.00-12.45
Date :	30.04.1999	$\gamma_s$ (t/m <sup>3</sup> ) :	2.72
Temperature (°C) :	25	Mass of Soil (gr):	50

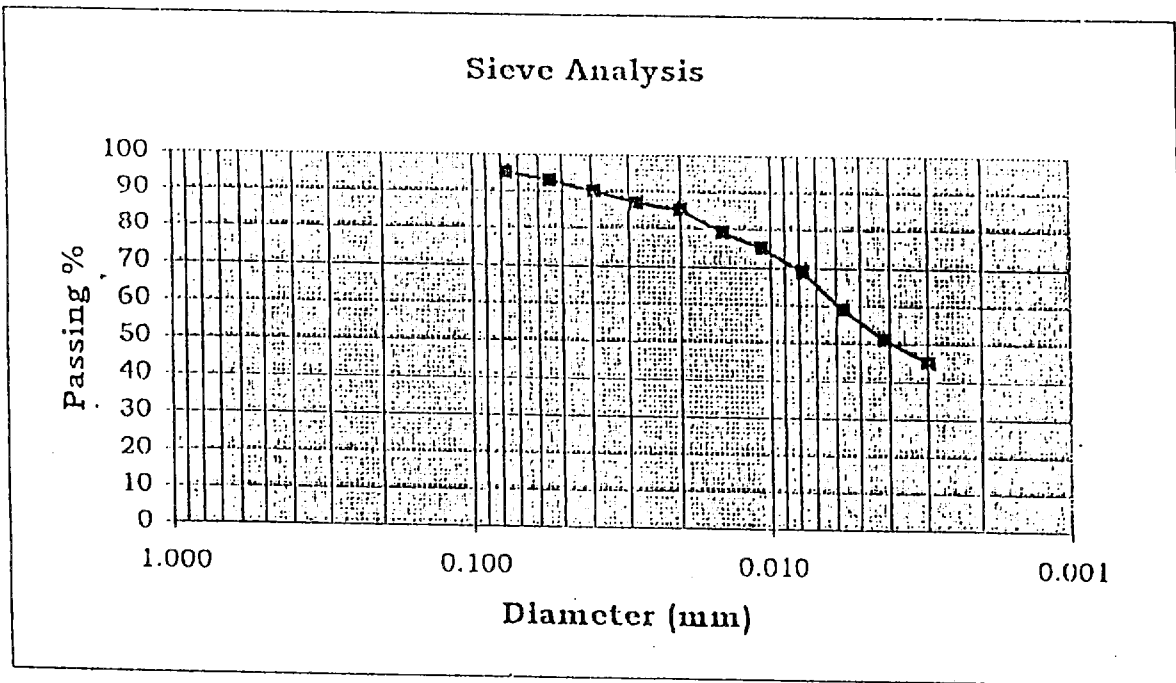
t(min)	Ra	Rc	Rm	Hc	D(mm)	Passing %
0.25	49.00	48.15	50.00	8.48	0.073	%96
0.50	47.50	46.65	48.50	8.72	0.053	%93
1	45.00	44.15	46.00	9.13	0.038	%88
2	42.00	41.15	43.00	9.61	0.028	%82
4	38.50	37.65	39.50	10.18	0.020	%75
8	34.00	33.15	35.00	10.91	0.015	%66
15	30.50	29.65	31.50	11.48	0.011	%59
30	26.50	25.65	27.50	12.13	0.008	%51
60	23.00	22.15	24.00	12.70	0.006	%44
120	20.00	19.15	21.00	13.19	0.004	%38
240	15.00	14.15	16.00	14.00	0.003	%28



# HYDROMETER TEST

Project : Adana Buyuk Schir      Bore No.      B-4(2)  
 Location : Sofulu                      Depth (m) : 15.0-15.10  
 Date : 30.04.1999                       $\gamma_s$  (t/m<sup>3</sup>) : 2.65  
 Temperature (°C) : 27                      Mass of Soil (gr): 50

t (min)	Ra	Rc	Rm	Hc	D(mm)	Passing %
0.25	48.00	47.40	49.00	8.60	0.076	%95
0.50	47.00	46.40	48.00	8.76	0.054	%93
1	45.50	44.90	46.50	9.00	0.039	%90
2	44.00	43.40	45.00	9.25	0.028	%87
4	43.00	42.40	44.00	9.41	0.020	%85
8	40.00	39.40	41.00	9.90	0.014	%79
15	38.00	37.40	39.00	10.22	0.011	%75
30	35.00	34.40	36.00	10.71	0.008	%69
60	30.00	29.40	31.00	11.52	0.006	%59
120	26.00	25.40	27.00	12.17	0.004	%51
240	23.00	22.40	24.00	12.66	0.003	%45



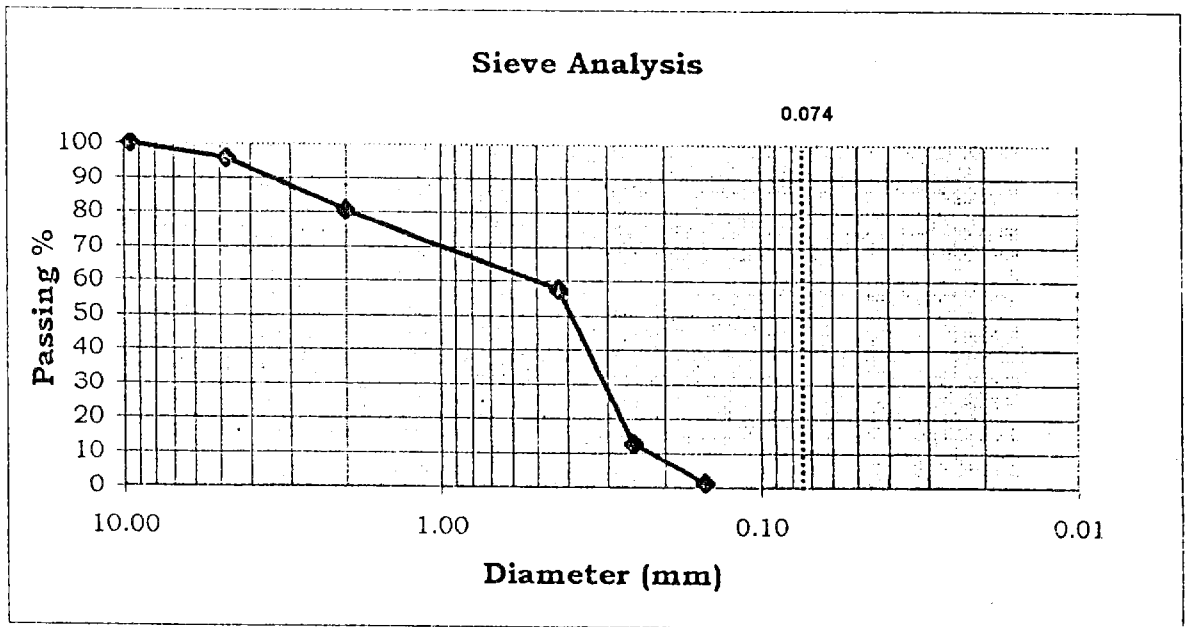
## SIEVE ANALYSES

**Project :** Adana B.şehir  
**Location :** Sofulu

**Sample No :** B-4(1)  
**Depth (m) :** 10.50-10.95

**W (gr) = 550**

Test Sieve Sieve No.	Size(mm)	Mass retained (gr)	Mass passing (gr)	Passing (%)
3/8#	9.53	0.00	550.0	%100
4	4.75	23.40	526.6	%96
10	2.00	84.50	442.1	%80
40	0.43	126.10	316.0	%57
60	0.25	247.30	68.7	%12
100	0.15	61.50	7.2	%1
200	0.07	7.20	0.00000	%0
<i>Tetained</i>		0.00		
<i>Total</i>		550.00		



Gravel %	4	Cu	2.27
Sand %	96	Cc	0.82

**Type of Soil :** SP (Poor Graded Sand)

## ATTERBERG LIMITS

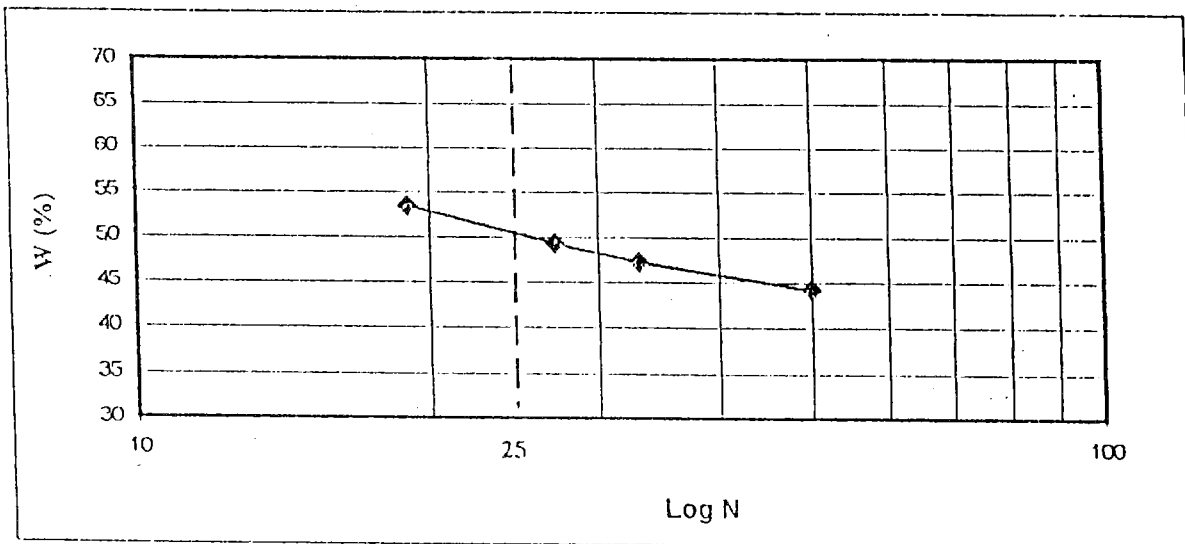
Project : Adana Buyuk Schir      Bore No.    **B-1(1)**  
 Location : Sofulu                      Depth (m) : 6.00-6.45

### LIQUID LIMIT

Can No	32	41	30	10
No. of Drops (N)	50	33	27	19
Can + Wet Soil (gr)	43.19	49.16	41.60	56.53
Can + Dry Soil (gr)	39.30	43.88	38.35	51.28
Mass of Can (gr)	30.48	32.68	31.74	41.43
Moisture Content (%)	44	47	49	53

### PLASTIC LIMIT

Can No	1	11
Can + Wet Soil (gr)	48.31	36.44
Can + Dry Soil (gr)	46.33	34.69
Mass of Can (gr)	38.60	28.04
Moisture Content (%)	26	26



$w_L$ (%)	$w_P$ (%)	$I_P$ (%)
50.0	26	24

$w_L$  = Liquid Limit  
 $w_P$  = Plastic Limit  
 $I_P$  = Plasticity Index

## ATTERBERG LIMITS

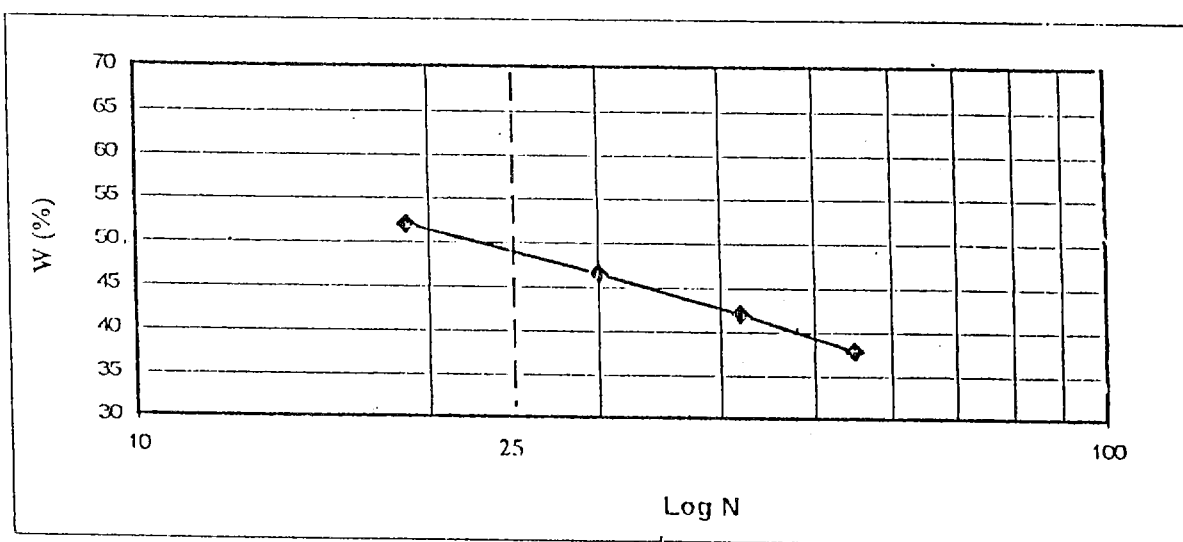
Project : Adana Buyuk Schir      Bore No.    **B-1(2)**  
 Location : Sofulu                      Depth (m) : 12.00-12.45

### LIQUID LIMIT

Can No	50	15	42	49
No. of Drops (N)	55	42	30	19
Can + Wet Soil (gr)	45.00	49.50	49.80	53.10
Can + Dry Soil (gr)	41.73	44.60	44.70	46.62
Mass of Can (gr)	33.07	32.94	33.71	34.14
Moisture Content (%)	38	42	46	52

### PLASTIC LIMIT

Can No	4	7
Can + Wet Soil (gr)	54.20	52.20
Can + Dry Soil (gr) <sup>s</sup>	51.49	49.54
Mass of Can (gr)	41.37	39.45
Moisture Content (%)	27	26



$w_L$ (%)	$w_P$ (%)	$I_P$ (%)
48.0	27	21

$w_L$  = Liquid Limit

$w_P$  = Plastic Limit

$I_P$  = Plasticity Index



## ATTERBERG LIMITS

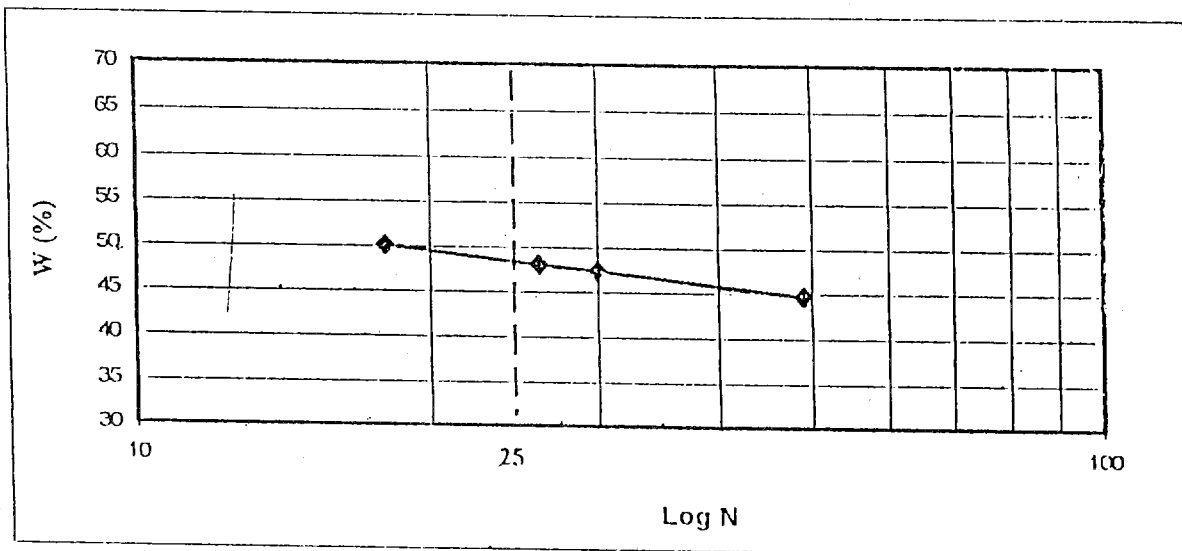
Project : Adana Buyuk Schir      Bore No.    B-2(1)  
 Location : Sofulu                      Depth (m) : 7.50-7.95

### LIQUID LIMIT

Can No	46	9	44	14
No. of Drops (N)	49	30	26	18
Can + Wet Soil (gr)	45.91	49.17	49.47	51.92
Can + Dry Soil (gr)	42.53	44.23	44.61	46.92
Mass of Can (gr)	34.95	33.76	34.45	36.93
Moisture Content (%)	45	47	48	50

### PLASTIC LIMIT

Can No	28	2
Can + Wet Soil (gr)	40.99	47.25
Can + Dry Soil (gr)	39.29	45.60
Mass of Can (gr)	32.71	38.69
Moisture Content (%)	26	24



$w_L$ (%)	$w_P$ (%)	$I_P$ (%)
48.0	25	23

$w_L$  = Liquid Limit

$w_P$  = Plastic Limit

$I_P$  = Plasticity Index

### ATTERBERG LIMITS

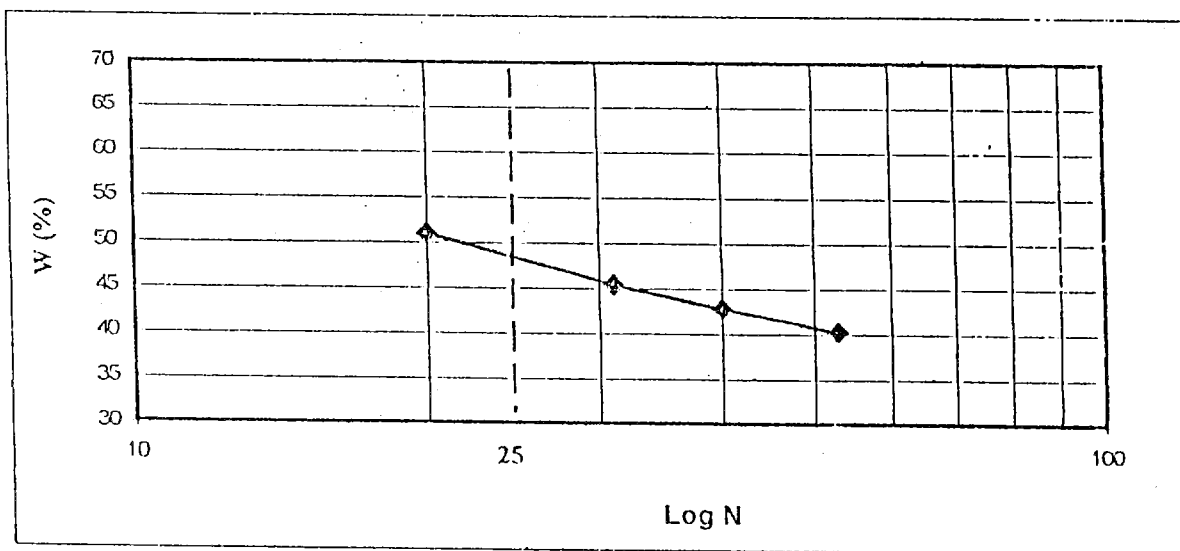
Project : Adana Buyuk Schir      Bore No.    B-2(2)  
 Location : Sofulu                      Depth (m) : 12.00-12.45

#### LIQUID LIMIT

Can No	31	26	29	20
No. of Drops (N)	53	40	31	20
Can + Wet Soil (gr)	49.00	44.20	48.00	59.55
Can + Dry Soil (gr)	44.00	39.62	42.87	53.05
Mass of Can (gr)	31.56	28.91	31.55	40.30
Moisture Content (%)	40	43	45	51

#### PLASTIC LIMIT

Can No	3	38
Can + Wet Soil (gr)	53.20	47.20
Can + Dry Soil (gr)	50.50	44.64
Mass of Can (gr)	40.00	34.74
Moisture Content (%)	26	26



$W_L$ (%)	$W_P$ (%)	$I_P$ (%)
48.0	26	22

$W_L$  = Liquid Limit  
 $W_P$  = Plastic Limit  
 $I_P$  = Plasticity Index

## ATTERBERG LIMITS

Project : Adana Büyükşehir  
Location : Sofulu

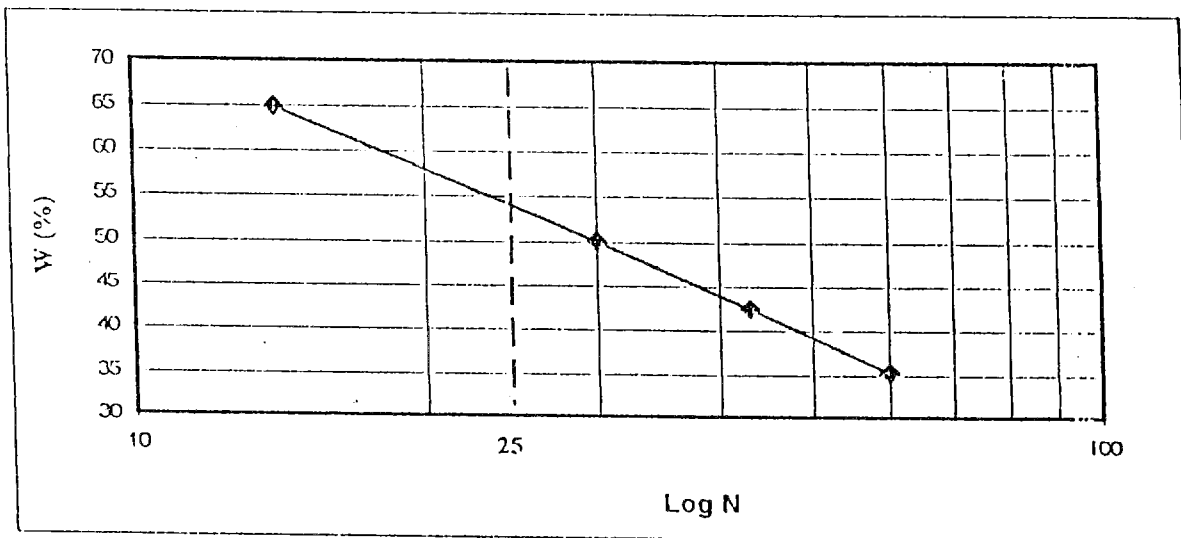
Bore No : B-4(2)  
Depth (m) : 15.00-15.10

### LIQUID LIMIT

Can No	41	9	46	32
No. of Drops (N)	60	43	30	14
Can + Wet Soil (gr)	44.80	46.20	47.50	46.50
Can + Dry Soil (gr)	41.64	42.50	43.32	40.20
Mass of Can (gr)	32.68	33.76	34.95	30.48
Moisture Content (%)	35	42	50	65

### PLASTIC LIMIT

Can No	41	15
Can + Wet Soil (gr)	44.00	43.50
Can + Dry Soil (gr)	41.70	41.50
Mass of Can (gr)	32.68	32.94
Moisture Content (%)	25	23



$w_L$ (%)	$w_P$ (%)	$I_P$ (%)
55.0	24	31

$w_L$  = Liquid Limit

$w_P$  = Plastic Limit

$I_P$  = Plasticity Index

**Project** : Adana Büyükşehir

**Location** : Fill Material

**Table 8 BULK DENSITY**

Sample No	Can + Soil (gr)	Can(gr)	Volume (cm <sup>3</sup> )	$\gamma(t/m^3)$
1	3759.00	1998.0	940	1.87
2	3524.00	1998.0	940	1.62
3	3636.00	1998.0	940	1.74

**Table 9 SPECIFIC GRAVITY**

Sample No	M2	M1	M3	$\gamma(t/m^3)$
1	625.00	100.00	688.21	2.72
2	625.11	100.00	686.27	2.57
3	625.11	125.00	703.35	2.67

M1 : Mass of Soil (gr)

M2 : Mass of bottle+water (gr)

M3 : Mass of bottle+soil+water(gr)

**Table 10 WATER CONTENT**

Sample No	Mass of Can (gr)	Can+Wet Soil (gr)	Can + Dry Soil (gr)	$W_n(\%)$
1	73.1	326.4	314.3	5.0
2	64.9	384.8	322.1	24.4
3	66.7	455.0	44.8	3.5

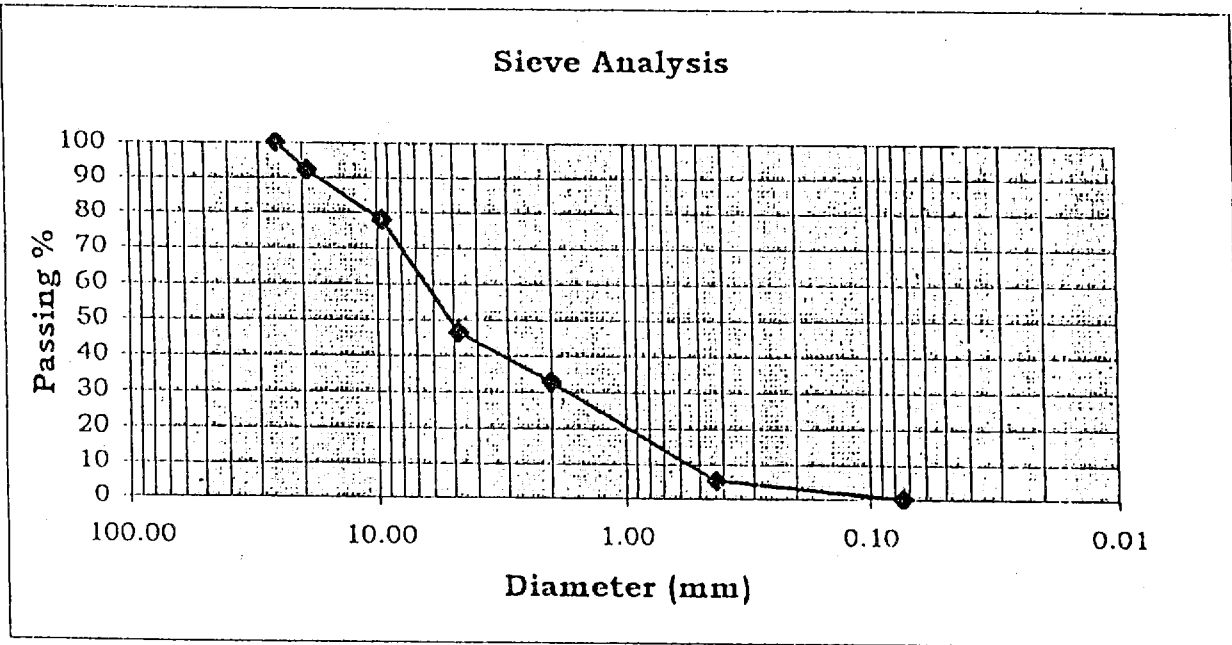
## SIEVE ANALYSIS

Project : Adana B.şehir  
 Location : Fill material

Sample No : 1

$W (gr) = 2500$

Test Sieve Sieve No.	Size(mm)	Mass <i>retained (gr)</i>	Mass <i>passing (gr)</i>	Passing (%)
1#	25.40	0.00	2500.0	%100
3/4#	19.05	199.70	2300.3	%92
3/8#	9.53	357.40	1942.9	%78
4	4.75	783.60	1159.3	%46
10	2.00	343.40	815.9	%33
40	0.43	685.50	130.4	%5
200	0.07	130.40	0.0	%0
<i>Retained Total</i>		0.00	2500.00	



Gravel %	%54	Cu	10.83
Sand %	%46	Cc	1.03

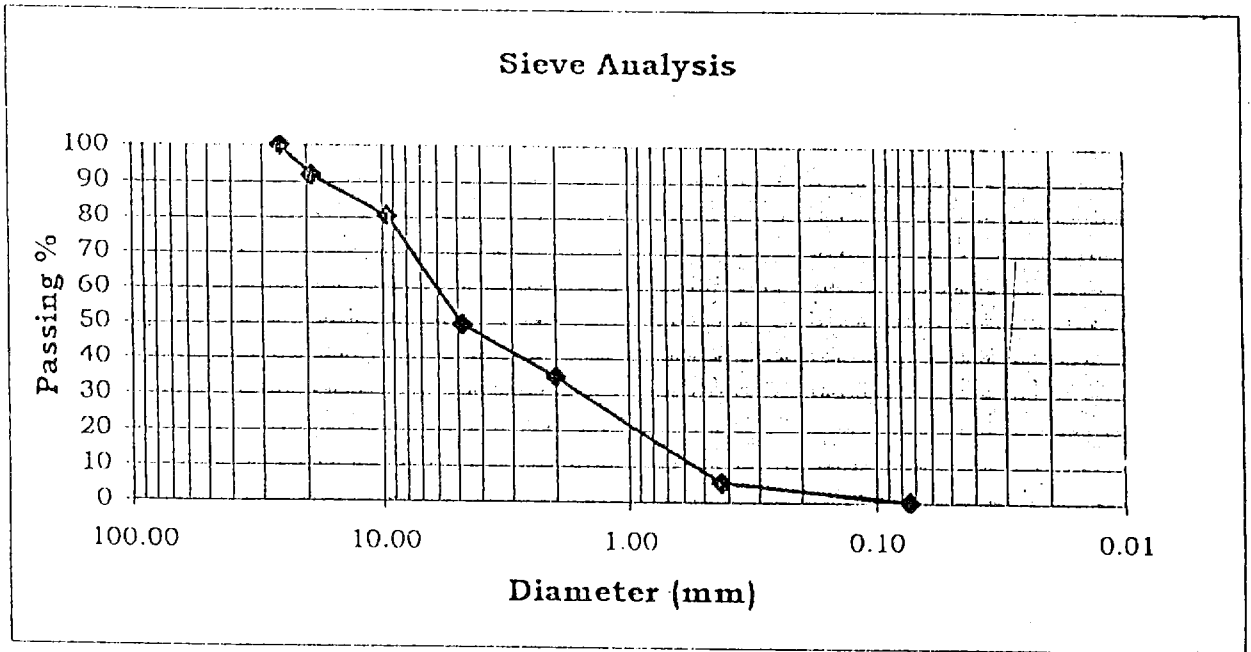
## SIEVE ANALYSIS

Project : Adana B.şehir  
 Location : Fill material

Sample No : 1

$W (gr) = 2200$

Test Sieve Sieve No.	Size(mm)	Mass retained (gr)	Mass passing (gr)	Passing (%)
1#	25.40	0.00	2200.0	%100
3/4#	19.05	185.40	2014.6	%92
3/8#	9.53	251.10	1763.5	%80
4	4.75	675.40	1088.1	%49
10	2.00	326.10	762.0	%35
40	0.43	645.20	116.8	%5.3
200	0.07	116.80	0.0	%0.0
<i>Retained</i>		0.00		
<i>Total</i>		2200.00		



Gravel %	%51	Cu	10.91
Sand %	%49	Cc	0.98

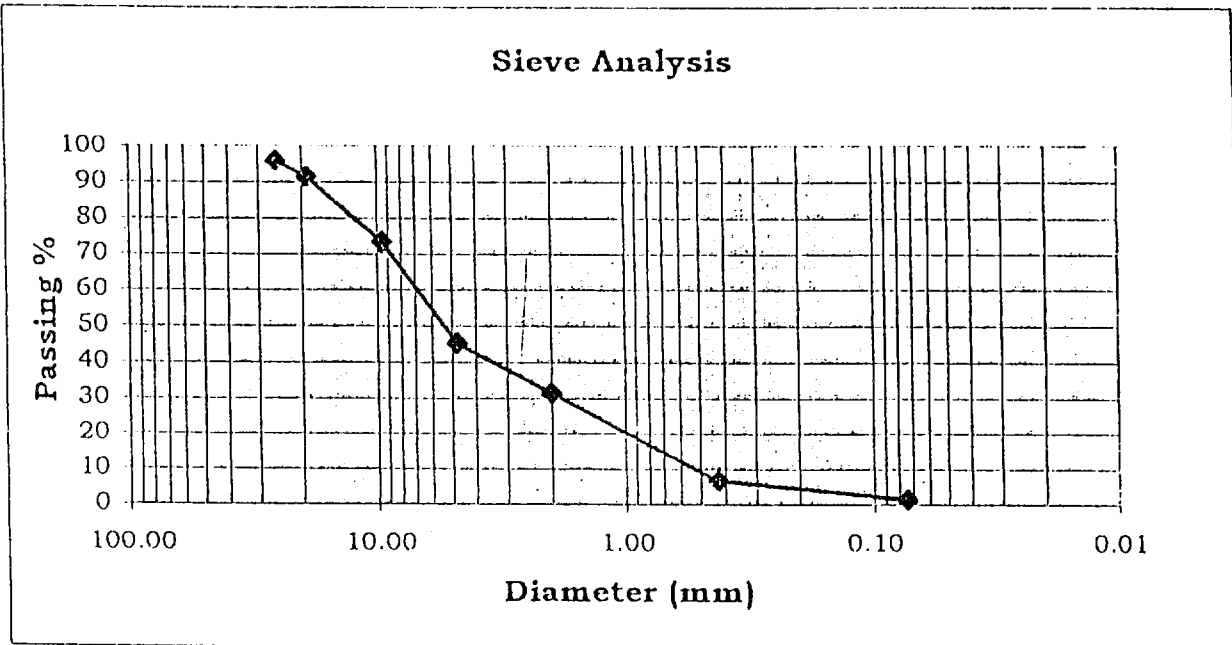
## SIEVE ANALYSIS

Project : Adana B.şchir  
 Location : Fill material

Sample No : 2

$W$  (gr) = 2000

Test Sieve Sieve No.	Size(mm)	Mass <i>retained</i> (gr)	Mass <i>passing</i> (gr)	Passing (%)
1#	25.40	84.50	1915.5	%96
3/4#	19.05	89.80	1825.7	%91
3/8#	9.53	364.50	1461.2	%73
4	4.75	562.30	898.9	%45
10	2.00	274.60	624.3	%31
40	0.43	495.60	128.7	%6
200	0.07	103.80	24.9	%1
<i>Retained</i>		24.90		
<i>Total</i>		2000.00		



Gravel %	%55	Cu	12.73
Sand %	%44	Cc	1.04

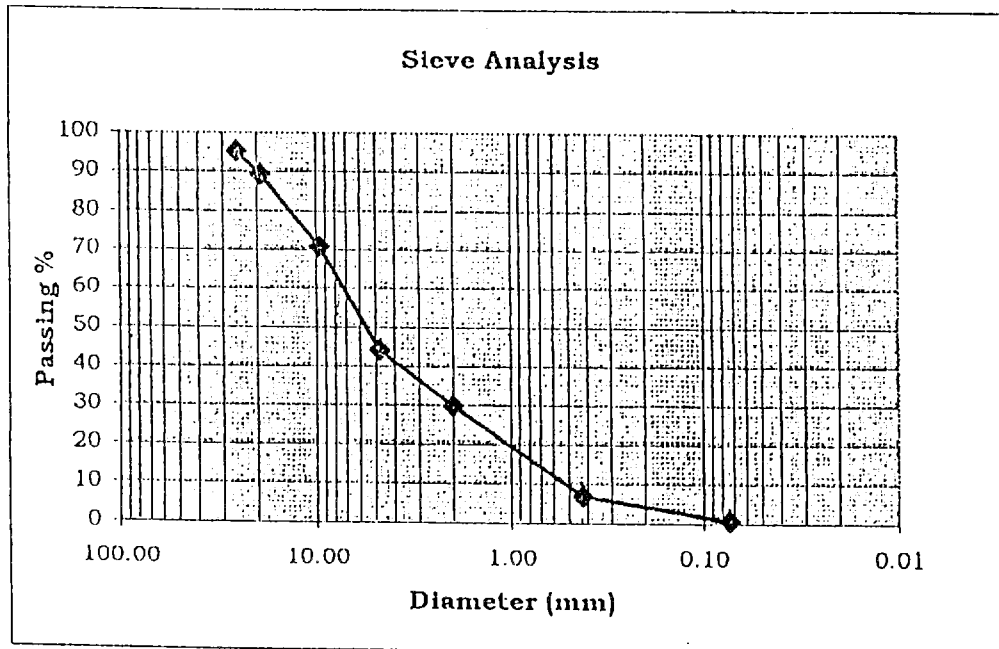
## SIEVE ANALYSIS

Project : Adana B.şehir  
 Location : Fill material

Sample No : 2

$W (gr) = 2500$

Test Sieve Sieve No.	Size(mm)	Mass retained (gr)	Mass passing (gr)	Passing (%)
1#	25.40	129.30	2370.7	%94.8
3/4#	19.05	146.50	2224.2	%89.0
3/8#	9.53	458.60	1765.6	%70.6
4	4.75	669.10	1096.5	%43.9
10	2.00	357.80	738.7	%29.5
40	0.43	568.90	169.8	%6.8
200	0.07	156.10	13.7	%0.5
<i>Retained</i>		13.70		
<i>Total</i>		2500.00		



Gravel %	%56	Cu	13.64
Sand %	%43	Cc	0.97



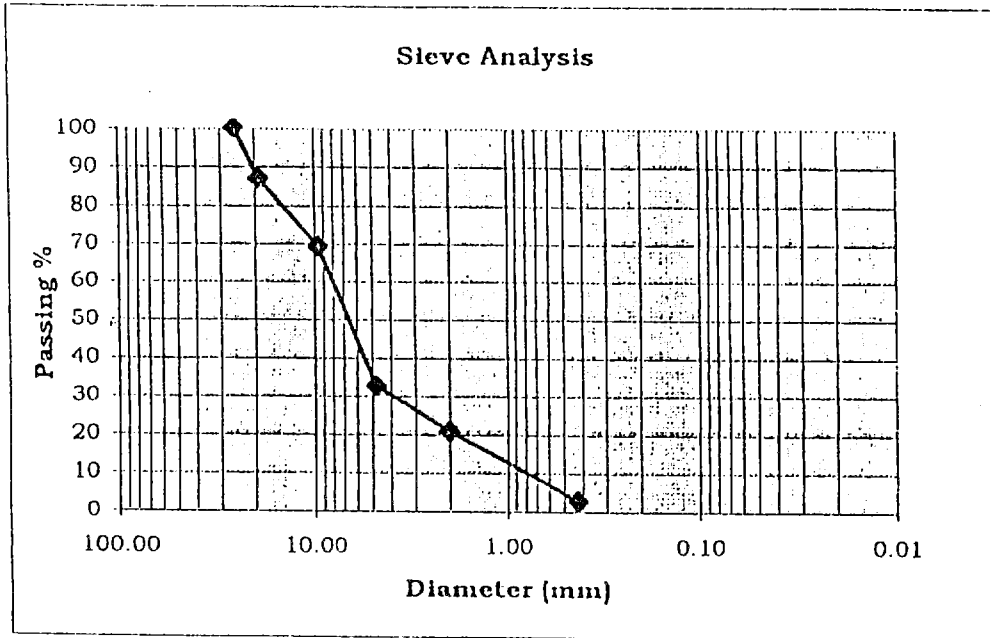
## SIEVE ANALYSIS

Project : Adana B.şehir  
 Location : Fill material

Sample No : 3

W (gr) = 2500

Test Sieve Sieve No.	Size(mm)	Mass retained (gr)	Mass passing (gr)	Passing (%)
1#	25.40	0.00	2500.0	%100
3/4#	19.05	327.30	2172.7	%87
3/8#	9.53	442.00	1730.7	%69
4	4.75	918.30	812.4	%32
10	2.00	293.40	519.0	%21
40	0.43	449.60	69.4	%3
200	0.07	69.40	0.0	%0
<i>Retained</i>		0.00		
<i>Total</i>		2500.00		



Gravel %	%68	Cu	10.00
Sand %	%32	Cc	2.50

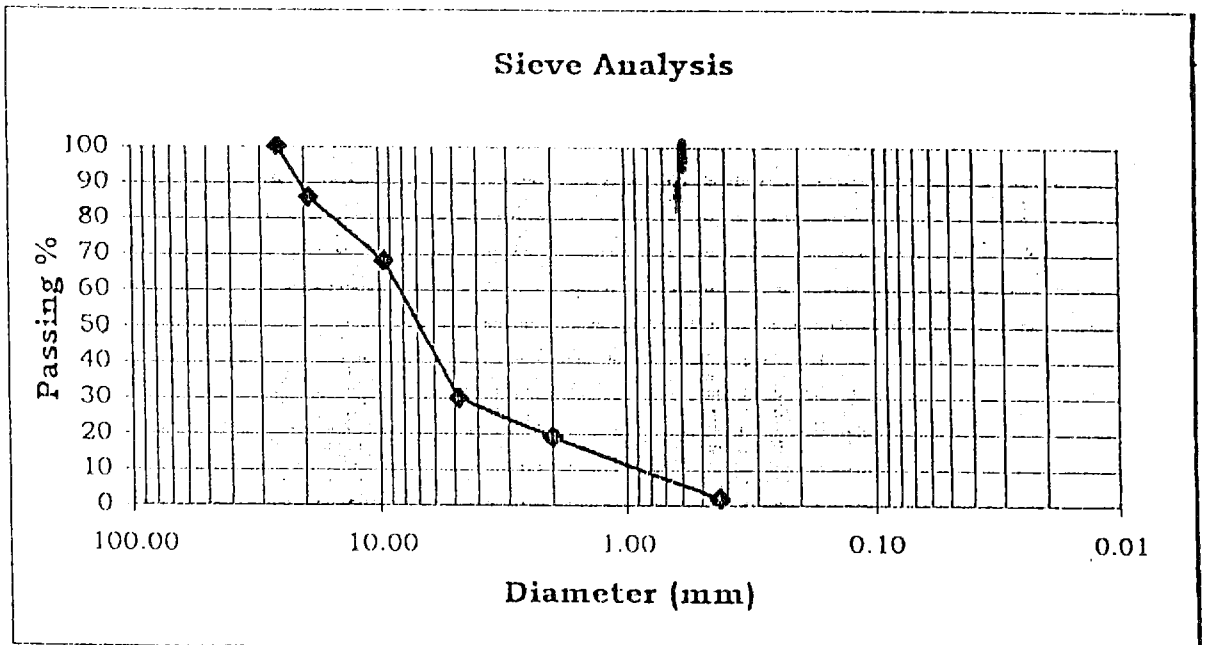
## SIEVE ANALYSIS

Project : Adana B.şehir  
 Location : Fill material

Sample No : 3

$W (gr) = 2000$

Test Sieve		Mass	Mass	Passing
Sieve No.	Size(mm)	retained (gr)	passing (gr)	(%)
1#	25.40	0.00	2000.0	%100
3/4#	19.05	284.50	1715.5	%86
3/8#	9.53	358.40	1357.1	%68
4	4.75	764.20	592.9	%30
10	2.00	214.60	378.3	%19
40	0.43	342.50	35.8	%2
200	0.07	35.80	0.0	%0
<i>Retained</i>		0.00		
<i>Total</i>		2000.00		



Gravel %	%70	Cu	10.00
Sand %	%30	Cc	3.46

## COMPACTION TEST

Location of Project : Adana Büyük Şehir

Number of Layers: 3

Location: Fill material

Wt. Hammer : 2.5 kg.

Sample No : 1

Ht. of Fall : 30.5 cm

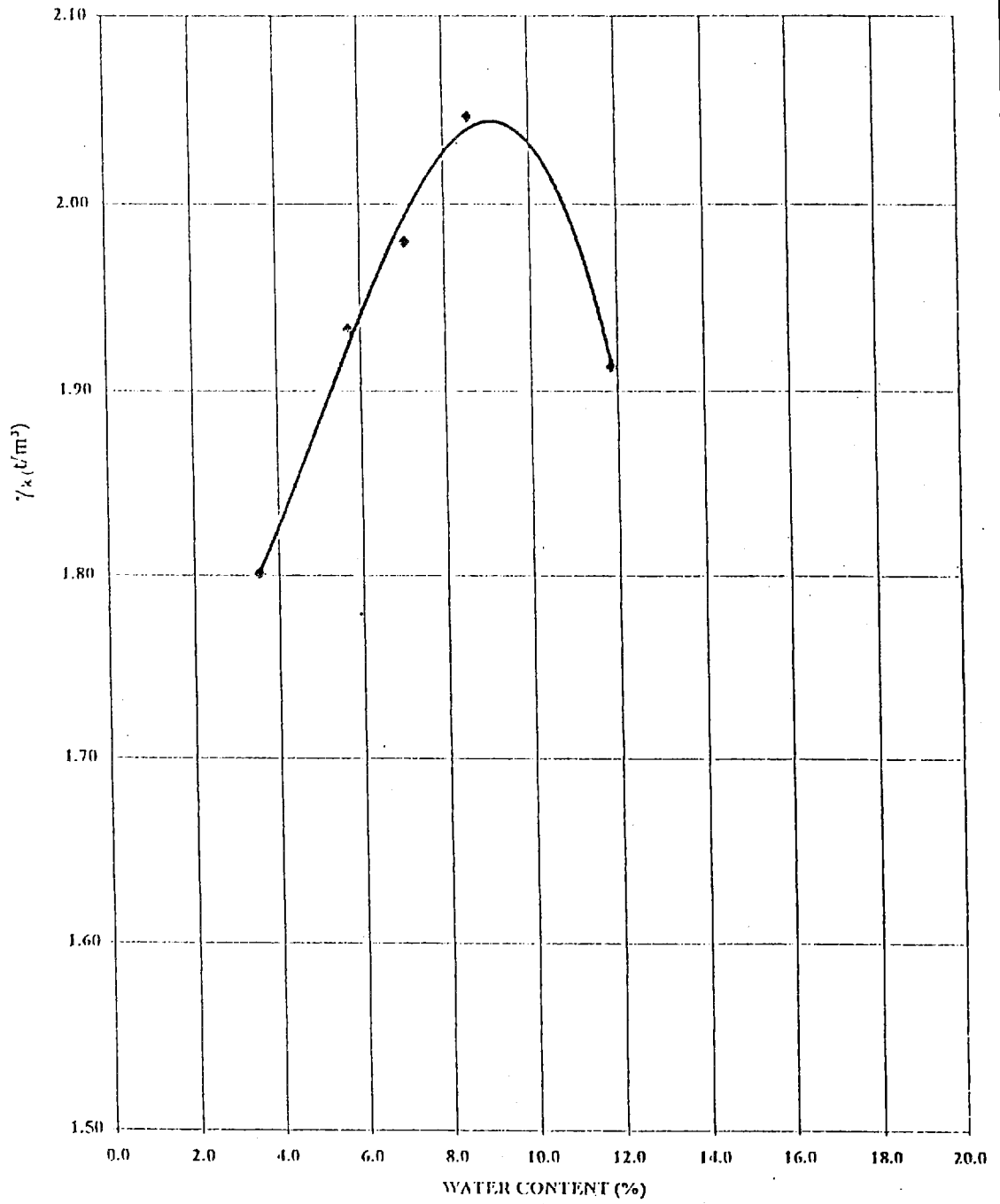
Mold Volume(cm<sup>3</sup>) : 940

No. Of Blow : 25

Sample No.	1		2		3		4	
Wet soil + Cup	3750.40		3918.00		3989.40		4086.40	
Cup	1998.00		1998.00		1998.00		1998.00	
Wet Soil	1752.40		1920.00		1991.40		2088.40	
Density (t/m <sup>3</sup> )	1.86		2.04		2.12		2.22	
Moisture Can No:	49	28	43	46	9	42	45	50
Wet soil + Can	117.00	110.20	98.90	106.80	96.20	94.20	117.90	107.50
Dry soil + Can	114.10	107.60	95.30	103.00	92.10	90.20	111.20	101.50
Weight of water	2.90	2.60	3.60	3.80	4.10	4.00	6.70	6.00
Wt. Can	34.14	32.71	33.66	34.95	33.76	33.71	31.72	33.07
Wt. of dry soil	79.96	74.89	61.64	68.05	58.34	56.49	79.48	68.43
Water Content (%)	3.63	3.47	5.84	5.58	7.03	7.08	8.43	8.77
Average Water Content (%)	3.5		5.7		7.1		8.6	
Dry density (t/m <sup>3</sup> )	1.80		1.93		1.98		2.05	

Sample No.	5				7		8	
Wet soil + Cup	4009.50							
Cup	1998.00							
Wet Soil	2011.50							
Density (t/m <sup>3</sup> )	2.14							
Moisture Can No:	37	26						
Wet soil + Can	112.00	104.50						
Dry soil + Can	103.60	96.30						
Weight of water	8.40	8.20						
Wt. Can	31.11	28.91						
Wt. of dry soil	72.49	67.39						
Water Content (%)	11.59	12.17						
Average Water Content (%)	11.9							
Dry density (t/m <sup>3</sup> )	1.91							

# COMPACTION TEST



$\gamma_{kmaks} = 2.05 t/m^3$

$\omega_{opt} = 9\%$

### COMPACTION TEST

*Location of Project : Adana Büyük Şehir Number of Layers: 3*

*Location: Fill material*

*Wt. Hammer 2.5 kg.*

*Sample No : 2*

*Ht. of Fall : 30.5 cm*

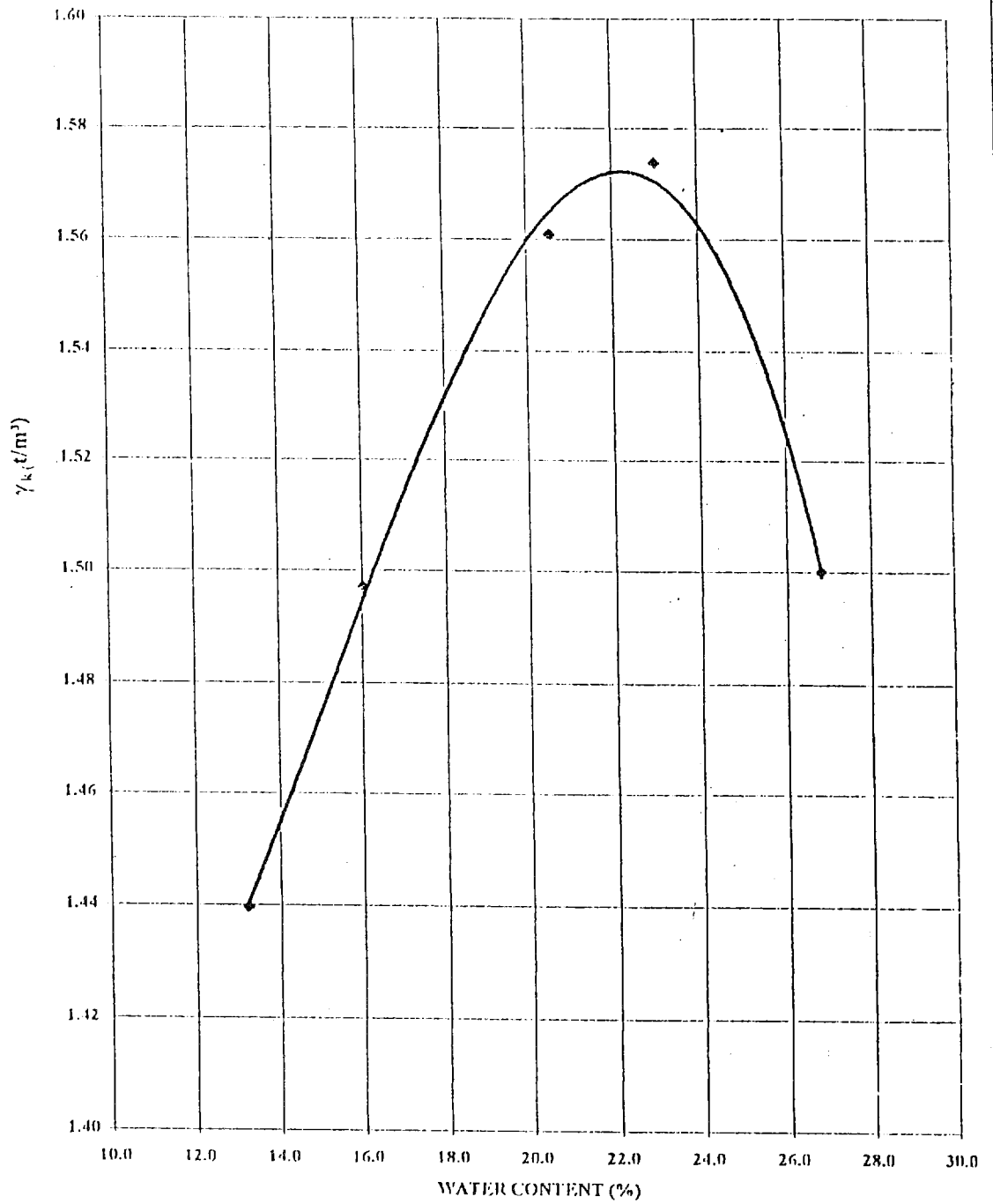
*Mold Volume(cm<sup>3</sup>) : 940*

*No. Of Blow : 25*

Sample No.	1		2		3		4	
Wet soil + Cup	3530.40		3630.50		3766.70		3817.80	
Cup	1998.00		1998.00		1998.00		1998.00	
Wet Soil	1532.40		1632.50		1768.70		1819.80	
Density (t/m <sup>3</sup> )	1.63		1.74		1.88		1.94	
Moisture Can No:	45	9	26	46	50	42	37	28
Wet soil + Can	98.70	88.10	87.80	88.40	101.60	97.60	100.50	93.60
Dry soil + Can	90.80	81.80	79.80	80.90	89.70	86.90	88.10	81.70
Weight of water	7.90	6.30	8.00	7.50	11.90	10.70	12.40	11.90
Wt. Can	31.72	33.76	28.91	34.95	33.07	33.71	31.11	32.71
Wt. of dry soil	59.08	48.04	50.89	45.95	56.63	53.19	56.99	48.99
Water Content (%)	13.37	13.11	15.72	16.32	21.01	20.12	21.76	24.29
Average Water Content (%)	13.2		16.0		20.6		23.0	
Dry density (t/m <sup>3</sup> )	1.44		1.50		1.56		1.57	

Sample No.	5			7	8
Wet soil + Cup	3785.90				
Cup	1998.00				
Wet Soil	1787.90				
Density (t/m <sup>3</sup> )	1.90				
Moisture Can No:	43	49			
Wet soil + Can	122.10	129.40			
Dry soil + Can	102.90	109.80			
Weight of water	19.20	19.60			
Wt. Can	33.66	34.14			
Wt. of dry soil	69.24	75.66			
Water Content (%)	27.73	25.91			
Average Water Content (%)	26.8				
Dry density (t/m <sup>3</sup> )	1.50				

# COMPACTION TEST



$\gamma_{kmax} = 1.57 \text{ t/m}^3$

$w_{opt} = \%22$

## COMPACTION TEST

Location of Project : Adana Büyük Şehir Number of Layers: 3

Location: Fill material

Wt. Hammer 2.5 kg.

Sample No : 3

Ht. of Fall : 30.5 cm

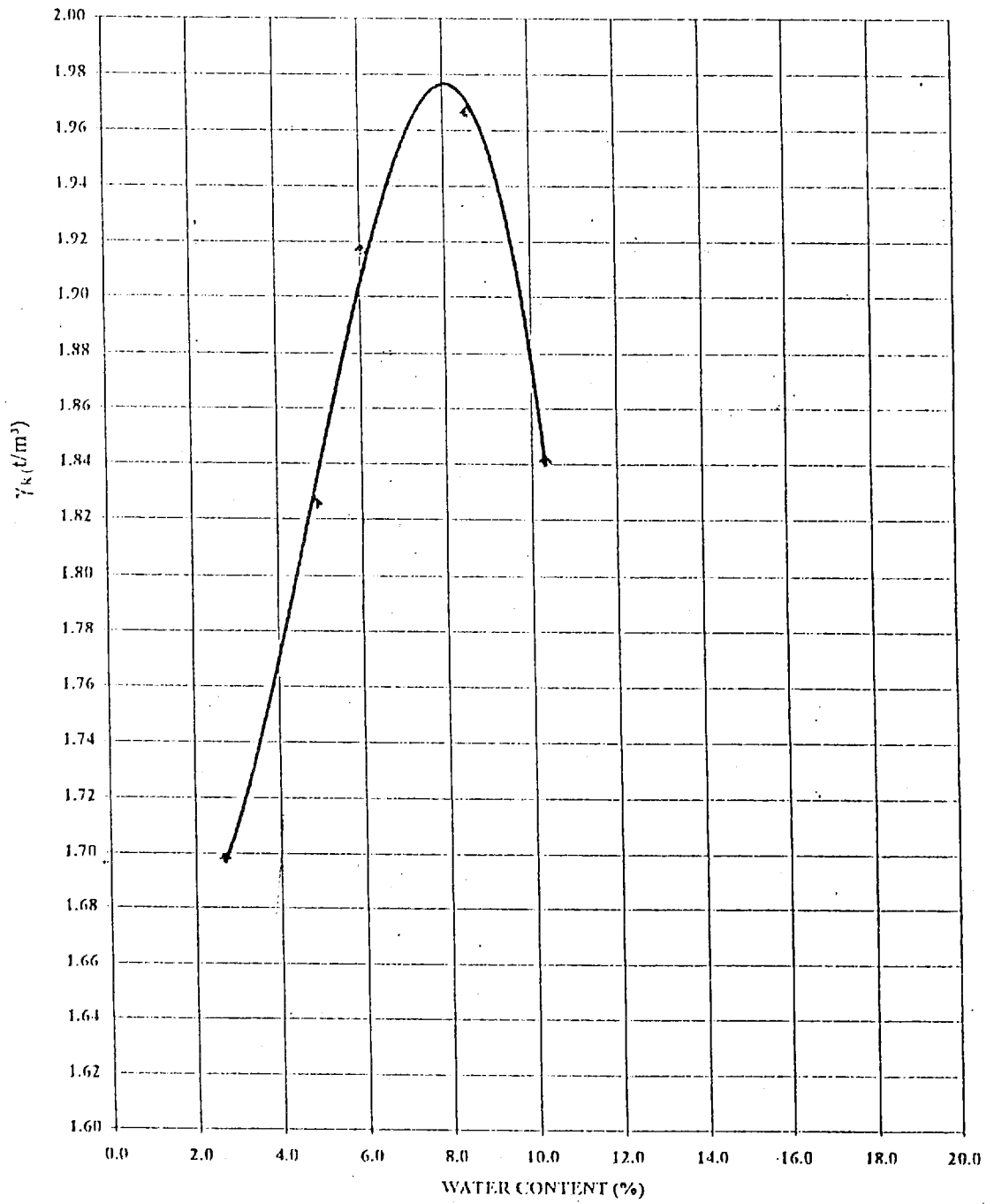
Mold Volume(cm<sup>3</sup>) : 940

No. Of Blow : 25

Sample No	1		2		3		4	
Wet soil + Cup	3636.80		3798.20		3908.00		4004.52	
Cup	1998.00		1998.00		1998.00		1998.00	
Wet Soil	1638.80		1800.20		1910.00		2006.52	
Density (t/m <sup>3</sup> )	1.74		1.92		2.03		2.13	
Moisture Can No:	25	17	7	41	4	22	3	5
Wet soil + Can	120.50	133.10	124.70	124.00	136.30	129.10	125.60	124.20
Dry soil + Can	118.40	130.60	120.70	119.70	131.20	123.80	119.05	117.30
Weight of water	2.10	2.50	4.00	4.30	5.10	5.30	6.55	6.90
Wt. Can	39.30	38.07	39.45	32.68	41.37	40.81	40.00	39.07
Wt. of dry soil	79.10	92.53	81.25	87.02	89.83	82.99	79.05	78.23
Water Content (%)	2.65	2.70	4.92	4.94	5.67	6.39	8.29	8.82
Average Water Content (%)	2.7		4.9		6.0		8.6	
Dry density (t/m <sup>3</sup> )	1.70		1.83		1.92		1.97	

Sample No.	5		7		8	
Wet soil + Cup	3907.00					
Cup	1998.00					
Wet Soil	1909.00					
Density (t/m <sup>3</sup> )	2.03					
Moisture Can No:	30	2				
Wet soil + Can	102.30	110.30				
Dry soil + Can	95.90	103.40				
Weight of water	6.40	6.90				
Wt. Can	31.74	38.69				
Wt. of dry soil	64.16	64.71				
Water Content (%)	9.98	10.66				
Average Water Content (%)	10.3					
Dry density (t/m <sup>3</sup> )	1.84					

# COMPACTION TEST



$\gamma_{kmax} = 1.98 \text{ t/m}^3$   
 $\omega_{opt} = \%8$