

N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

: 27.09.12

Location

BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Depth

21.0m

Tested by

: D.Mohanty

	UNIX DATE MANUFACTOR	the succession of the successi	,
SI. No.	Observations	1 -	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
7	Specific Gravity G = (5) / (6)	2.65	

Lab Manager

Checked By



N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name :

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

: 27.09.12

Location

: BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Depth

24.0m

Tested by

D.Mohanty

SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
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DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

27.09.12

Location

BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Depth

27.0m

Tested by

D.Mohanty

Sl. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
7	Specific Gravity G = (5) / (6)	2.65	

Lab Manager

Checked By



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Client

DFCC

Project Name :

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

27.09.12

Location

BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Depth

28.5m

Tested by

D.Mohanty

The state of the s			(5)
SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
7	Specific Gravity G = (5) / (6)	2.65	

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Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

: 27.09.12

Location

BH-4(Yamuna River-Saharanpur)

Sampled by

: T.K.Das

Depth

30.0m

Tested by

D.Mohanty

			*
SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
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Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

27.09.12

BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Location Depth

33.0m

Tested by

D.Mohanty

SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
7	Specific Gravity G = (5) / (6)	2.65	

Lab Manager



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DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

BH-4(Yamuna River-Saharanpur)

Type of Sample:

SPT

Date Of Testing

27.09.12

Location

01 1

Sampled by

T.K.Das

Depth

34.5m

Tested by

D.Mohanty

SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	-
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
7	Specific Gravity G = (5) / (6)	2.65	

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DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name :

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

27.09.12

Location

BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Depth

36.0m

Tested by

D.Mohanty

SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
7	Specific Gravity G = (5) / (6)	2.65	

Lab Manager



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DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

BH-4(Yamuna River-Saharanpur)

Type of Sample:

SPT

Date Of Testing

27.09.12

Location

. .

Sampled by

T.K.Das

Depth

37.5m

Tested by

D.Mohanty

SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
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DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

27.09.12

Location

: BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Depth

40.5m

Tested by

D.Mohanty

SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
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DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

27.09.12

Location

BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Depth

42.0m

Tested by

D.Mohanty

SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	_
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	,
7	Specific Gravity G = (5) / (6)	2.65	

Lab Manager



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DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name :

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

: 27.09.12

Location

BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Depth

46.5m

Tested by

D.Mohanty

SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
7	Specific Gravity G = (5) / (6)	2.65	

Lab Manager



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Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

27.09.12

Location

BH-4(Yamuna River-Saharanpur)

Sampled by

T.K.Das

Depth

50.0m

Tested by

D.Mohanty

SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	37.52	
3	Weight of bottle with soil and water W3 in gm	137.46	
4	Weight of bottle full of water W4 in gm	133.72	
5	Weight of dry soil (W2-W1)in gm	6.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	2.26	
7	Specific Gravity G = (5) / (6)	2.65	

Lab Manager

Checked By

AMBITECHNO	01				ARKI		CHNO CONSULTANTS (I) FIN 3/91, IRC Village, Bhubaneswar	ULTANT	TECHNO CONSULTANTS (I) PVT. LTD N 3/91, IRC Village. Bhubaneswar	LTD.					
				DETI	DETERMINATION		DENSITY &	MOISTURE	OF BULK DENSITY & MOISTURE CONTENT OF SOIL SAMPLE	OF SOIL S.	AMPLE				
Client		DFCC													
Project Name	••	G.I For 3 Nos.	G.I For 3 Nos. Important Bridges	8						102					
Location		BH-4(Yamuna	BH-4(Yamuna River-Ambala)												
SI No.	BH No.	Depth in m	Type of Sample	Date of Testing	Weight of Container in gm	Diameter of Sample in cm	Length of Sample in cm	Volume of Sample in cc	Weight of Container + Wet Soil in gm	Weight of Container + Dry soil in gm	Weight of Dry soil in gm	Weight of water in gm	Moisture Content in %	Bulk Density in gm/cc	Dry Density in gm/cc
-		1.5	SPT	29.10.12	65.5	3.8		79.39	209.20	193.74	128.24	15.45	12.05	1.81	1.62
2		3.0	SPT	29.10.12	60.26	3.8	7	79.39	204.75	189.48	129.22	15.27	11.82	1.82	1.63
3		4.5	SPT	29.10.12	61.74	3.8	7	79.39	206.23	191.21	129.47	15.02	11.60	1.82	1,63
4		0.9	SPT	29,10.12	63.19	3.8	7	79.39	208.47	192.75	129.56	15.73	12.14	1.83	1.63
S		7.5	SPT	29.10.12	64.22	3.8	7	79.39	211.09	196.23	132.01	14.86	11.26	1.85	1.66
9		10.5	SPT	29,10,12	62.54	3.8	2	79.39	210,21	195.15	132.61	15.05	11.35	1.86	1.67
5 (15.0	SPT	29.10.12	63.12	3.8	7	79.39	208.40	192.51	129.39	15.89	12.28	1,83	1.63
»		18.0	SPT	29.10.12	89.09	3.8	7	79.39	207.55	191.62	130.94	15.94	12.17	1.85	1,65
o	(sisdr	21.0	SPT	29.10.12	61.31	3.8	7	79,39	209.77	193.96	132.65	15.81	11.92	1.87	1.67
10	nA-19≀	24.0	SPT	29.10.12	62.29	3.8	7	79.39	209.96	194.69	132.40	15.27	11.53	1.86	1.67
1.	viЯ sn	27.0	SPT	29.10.12	64.16	3.8	7	79.39	213.41	196.90	132.74	16.51	12.44	1.88	1.67
12	Vamu	28.5	SPT	29.10.12	62.81	3.8	7	79.39	212.86	197.53	134.72	15.33	11.38	1.89	1.70
5)4-H8	30.0	SPT	29,10.12	61,35	3.8	7	79.39	221.72	197.81	136.46	23.91	17.52	2.02	1.72
41		33.0	SPT	29.10.12	63.54	3.8	7	68'62	224.70	201,94	138.40	22.77	16.45	2.03	1.74
15		34.5	SPT	29.10.12	64.89	3.8	7	79.39	222.08	204.46	139.57	17.63	12.63	1.98	1.76
16		36.0	SPT	29.10.12	60.87	3.8	7	79.39	218.86	201.33	140.46	17.53	12.48	1.99	1.77
17		37.5	SPT	29.10.12	62.36	3.8	7	79.39	209.23	194,30	131.94	14.93	11.32	1.85	1.66
18		40.5	SPT	29.10.12	64.55	3.8	7	79.39	233.65	204.05	139.50	29.60	21.22	2.13	1.76
19		42.0	SPT	29.10.12	62.71	3.8	7	79.39	232.60	209.59	146.88	23.02	15.67	2.14	1.85
20		46.5	SPT	29.10.12	63.40	3.8	7	79.39	229.33	212.47	149.07	16.86	11.31	2.09	1.88
21		50.0	SPT	29.10.12	62.31	3.8	7	79.39	229.03	211.83	149.52	17.20	11.50	2.10	1.88



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

Date of Testing:

07.05.2013

Location

BH-5(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

1.5m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

83.35

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.73	1.73	1.73	98.27
2.00	32.56	32.56	34.29	65.71
0.425	28.89	28.89	63.18	36.82
0.075	20.17	20.17	83.35	16.65
Total	100.00			

Gravel Content (%)=

1.73

Sand Content (%) =

81.62

Silt and clay %

16.65

Remarks :-



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample: SPT Date of Testing: 07.05.2013

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 3.0m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

87.24

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.81	1.81	1.81	98.19
2.00	33.36	33.36	35.17	64.83
0.425	29.56	29.56	64.73	35.27
0.075	22.51	22.51	87.24	12.76
Total	100.00			

Gravel Content (%)=

1.81

Sand Content (%) =

85.43

Silt and clay %

12.76

Remarks :-

5027



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample: SPT Date of Testing: 07.05.2013

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 4.5m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

86.97

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	2.23	2.23	2.23	97.77
2.00	32.36	32.36	34.59	65.41
0.425	29.68	29.68	64.27	35.73
0.075	22.70	22.70	86.97	13.03
Total	100.00			

Gravel Content (%)= 2.23

Sand Content (%) = 84.74 Silt and clay % 13.03

Remarks :-



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date of Testing:

07.05.2013

Location

BH-5(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

: 6.0m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

85.58

		- C		
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.97	1.97	1.97	98.03
2.00	33.69	33.69	35.66	64.34
0.425	29.11	29.11	64.77	35.23
0.075	20.81	20.81	85.58	14.42
Total	100.00			

Gravel Content (%)=

1.97

Sand Content (%) =

83.61

Silt and clay %

14.42

Remarks :-



Arki Techno Consultants (India) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample: SPT Date of Testing: 07.05.2013

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 9.0m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

84.59

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.86	1.86	1.86	98.14
2.00	32.25	32.25	34.11	65.89
0.425	28.52	28.52	62.63	37.37
0.075	21.96	21.96	84.59	15.41
Total	100.00			

Gravel Content (%)= 1.86

Sand Content (%) = 82.73 Silt and clay % 15.41

Remarks :-



Arki Techno Consultants (India) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date of Testing:

07.05.2013

Location

BH-5(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

13.5m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

89.99

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	11.73	11.73	11.73	88.27
2.00	30.52	30.52	42.25	57.75
0.425	26.25	26.25	68.50	31.50
0.075	21.49	21.49	89.99	10.01
Total	100.00			

Gravel Content (%)=

11.73

Sand Content (%) =

78.26

Silt and clay %

10.01

Remarks :-

5020



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample: SPT Date of Testing: 07.05.2013

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 16.5m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

90.75

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	14.21	14.21	14.21	85.79
2.00	30.85	30.85	45.06	54.94
0.425	26.59	26.59	71.65	28.35
0.075	19.10	19.10	90.75	9.25
Total	100.00			

Gravel Content (%)=

14.21

Sand Content (%) =

76.54

Silt and clay %

9.25

0

Remarks :-

- 5027



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

DFCC Client

Project Name G.I For 3 Nos. Important Bridges

Type of Sample: Date of Testing: 07.05.2013

Location BH-5(Yamuna River-Ambala) Sampled by Binayak Swain

Depth 18.0m Tested by D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

88.99

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	2.26	2.26	2.26	97.74
2.00	35.52	35.52	37.78	62.22
0.425	30.12	30.12	67.90	32.10
0.075	21.09	21.09	88.99	11.01
Total	100.00			

Gravel Content (%)= 2.26

Sand Content (%) = 86.73 Silt and clay % 11.01

Remarks :-



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

BH-5(Yamuna River-Ambala)

Date of Testing:

07.05.2013

Location

Sampled by

Binayak Swain

Depth

22.5m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

99.46

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	16.73	16.73	16.73	83.27
2.00	33.52	33.52	50.25	49.75
0.425	29.85	29.85	80.10	19.90
0.075	19.36	19.36	99.46	0.54
Total	100.00			

Gravel Content (%)=

16.73

Sand Content (%) =

82.73

Silt and clay %

0.54

Remarks :-

- - 5023



Arki Techno Consultants (India) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P- 4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample: SPT Date of Testing: 07.05.2013

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 24.0m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

88.45

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	3.81	3.81	3.81	96.19
2.00	34.59	34.59	38.40	61.60
0.425	29.85	29.85	68.25	31.75
0.075	20.20	20.20	88.45	11.55
Total	100.00			

Gravel Content (%)=

3.81

Sand Content (%) =

84.64

Silt and clay %

11.55

Remarks :-



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : SPT Date of Testing :

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 30.0m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

96.59

07.05.2013

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	14.86	14.86	14.86	85.14
2.00	32.40	32.40	47.26	52.74
0.425	27.85	27.85	75.11	24.89
0.075	21.48	21.48	96.59	3.41
Total	100.00			

Gravel Content (%)=

14.86

Sand Content (%) =

81.73

Silt and clay %

3.41

0

Remarks :-

5031



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : SPT Date of Testing : 07.05.2013

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 33.0m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

41.71

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	10.36	10.36	10.36	89.64
2.00	15.02	15.02	25.38	74.62
0.425	11.41	11.41	36.79	63.21
0.075	4.92	4.92	41.71	58.29
Total	100.00			

Gravel Content (%)= 10.36

Sand Content (%) = 31.35 Silt and clay % 58.29

Remarks :-



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

BH-5(Yamuna River-Ambala)

Type of Sample:

SPT

Date of Testing:

07.05.2013

Location

01 1

Sampled by

Binayak Swain

Depth

39.0m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

36.97

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	8.73	8.73	8.73	91.27
2.00	13.61	13.61	22.34	77.66
0.425	9.15	9.15	31.49	68.51
0.075	5.48	5.48	36.97	63.03
Total	100.00			

Gravel Content (%)=

8.73

Sand Content (%) =

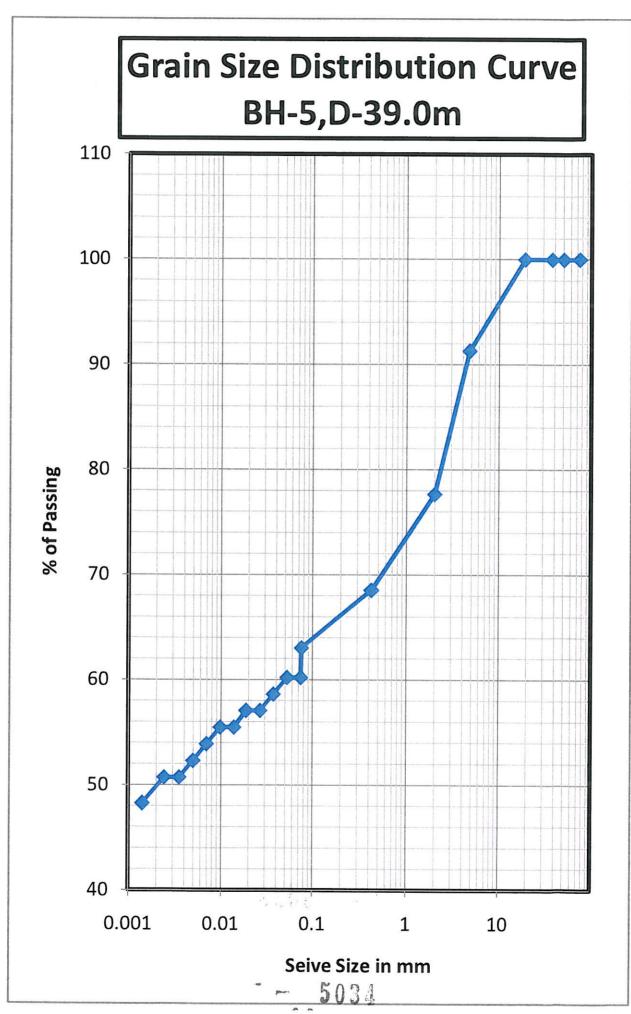
28.24

Silt and clay %

63.03

Remarks :-

- - 5033





Arki Techno Consultants (India) Pvt. Ltd N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : SPT Date of Testing :

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 42.0m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

07.05.2013

Weight of oven dried sample after washing (gm) :-

74.54

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	3.26	3.26	3.26	96.74
2.00	29.56	29.56	32.82	67.18
0.425	25.50	25.50	58.32	41.68
0.075	16.22	16.22	74.54	25.46
Total	100.00			

Gravel Content (%)=

3.26

Sand Content (%) =

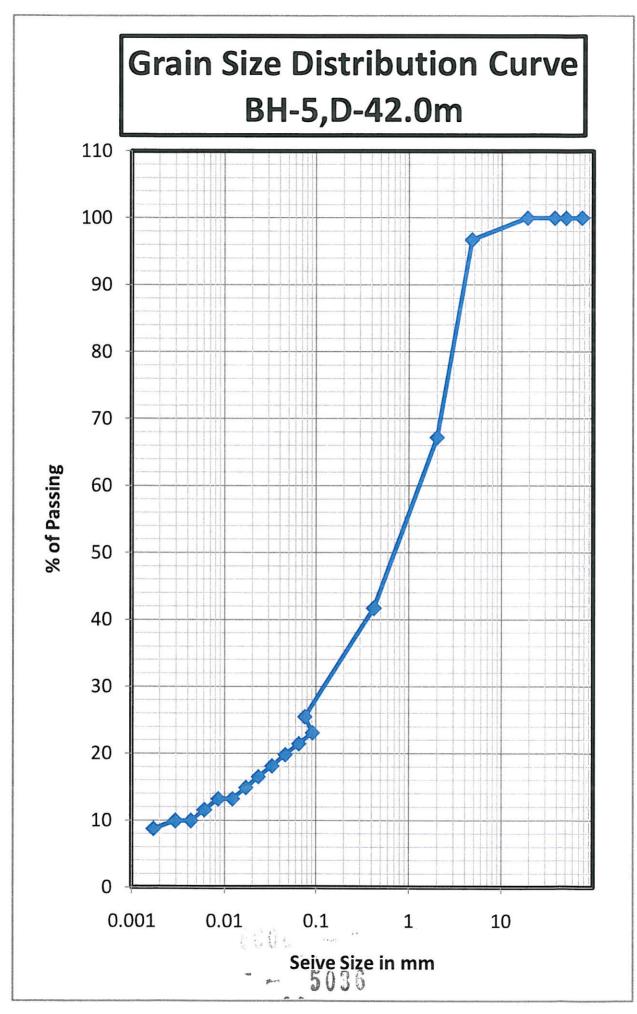
71.28

Silt and clay %

25.46

Remarks :-

- 5035



Continue of Hydrometer stem						OH W					
### GRAIN SIZE ANALYSIS OF SOIL - HYDROMETER METHOD #### BH-5(Yamuna River- Ambala) #### BH-5(Yamuna River- Ambala) ##################################	ARKIT	ECHNO	AKNIE	N 3/91 IR		IANIS (IIV	VOIA) PV		_		
t Name : G.I For 3 Nos. Important Bridges for Sample : SPT Date of Testing : 08.05.2013 Date	миловор	and through that the	GRAIN SIZ	E ANALYSIS	OF SO	IL - HYDROI	METER MET	THOD			
sof Sample : G.I For 3 Nos. Important Bridges Depth : 39.0m s of Sample : SPT Date of Testing : 08.05.2013 20.00 tion : BH-5(Yamuna River- Ambala) Tested by : D.Mohanty 20.00 pled by : Binayak Swain Fercentage of 75 micron passing (from sieve analysis) 63.03 CALIBRATION OF HYDROMETER H Mass of dry soil passing 2mm sieve taken (gm) Mass of dry soil passing 75 micron sieve (gm) 18.5 30 0.7 8.25 Mass of dry soil passing 75 micron wh (gm) 2.7 2.0 4.0 11.55 10.00 Specific gravity of soil grains, 65 2.7 2.0 4.0 11.55 10.00 Specific gravity of soil grains, 67 2.0 1.5 2.4 9.95 10.00 Specific gravity of soil grains, 67 2.0 1.5 2.0 4.0 11.55 10.00 Specific gravity of soil grains, 68 2.0 1.5 2.0 4.0 11.55 10.00 Hydrometer No 2.5 2.7 2.0 1.0 7.4 </th <th>Client</th> <th>•••</th> <th>DFCC</th> <th></th> <th></th> <th></th> <th></th> <th>25.00</th> <th></th> <th></th> <th></th>	Client	•••	DFCC					25.00			
tion : BH-5(Yamuna River- Ambala) pled by : Binayak Swain Percentage of 75 micron passing (from sieve analysis) Percentage of 75 micron passing (from sieve analysis) Boson of 75 micron sieve (gm) Mass of dry soil passing 75 micron sieve (gm) Mass of dry soil passing 75 micron sieve (gm) Mass of dry soil passing 75 micron wh (gm) Mass of dry soil passing 75 micron sieve (gm) Mass of dry soil passing 75 micron wh (gm) Specific gravity of soil grains, Gs Top Meniscus reading on hydrometer stem Bottom meniscus reading on hydrometer stem Meniscuss correction, Cm = + [(VII) - (VI)] Hydrometer No Volume of Hydrometer Y (cm3) 16.5 Rh = hydrometer Reading Height of bulb (h) in cm 16.5 Rh = hydrometer Reading	Project	t Name:	G.I For 3 Nos. Important Bridges			Depth :	39.0m		Cali	bration of	Hydrom
tion : BH-5(Yamuna River- Ambala) Percentage by : Binayak Swain Percentage of 75 micron passing (from sieve analysis) Percentage of 75 micron passing (from sieve analysis) Mass of dry soil retained on 75 micron Sieve (gm) Mass of dry soil passing 75 micron Sieve (gm) Mass of dry soil passing 75 micron Wh (gm) Specific gravity of soil grains, Gs Top Meniscus reading on hydrometer stem Bottom meniscus reading on hydrometer stem Meniscus correction, Cm = + [(VII) - (VI)] Hydrometer N (cm3) 16.5 Hydrometer N (cm3) 16.5 Height of bulb (h) in cm Sedimentation Jar No Sedimentation Jar No Tested by : D.Mohanty 15.00 16.00 T.4 16.5 T.4 Height of bulb (h) in cm Sedimentation Jar No Tested by : D.Mohanty 16.00 T.4 T.5 T.5 T.5 T.5 T.5 T.5 T.5	Type o	of Sample:				Date of Testing:	08.05.2013	20.00			
pled by Binayak Swain CALIBRATION OF HYDROMETER 15.00 Percentage of 75 micron passing (from sieve analysis) 63.03 CALIBRATION OF HYDROMETER 15.00 Mass of dry soil passing 2mm sieve taken (gm) 18.5 30 0.7 8.25 Mass of dry soil passing 75 micron Wh (gm) 31.5 25 2.4 9.95 Mass of dry soil passing 75 micron Wh (gm) 2.71 20 4.0 11.55 Specific gravity of soil grains, Gs 2.71 20 4.0 13.25 Specific gravity of soil grains, Gs 2.0 15 5.7 13.25 Specific gravity of soil grains, Gs 2.0 1.0 7.4 14.95 Bottom meniscus reading on hydrometer stem 2.5 1.0 7.4 14.95 Meniscuss correction, Cm = + [(VII) - (VI)] 1 0.5 5 9.1 10.7 Height of bulb (h) in cm 16.5 Rh = hydrometer Reading 12.4 19.95 0.00 Sedimentation Jar No 1 1 19.95 0.00 10.0	Locatic	··	BH-5(Yamuna River- Ambala)			Tested by :	D.Mohanty	00.07			
Percentage of 75 micron passing (from sieve analysis) 63.03 CALIBRATION OF HYDROMETER 15.00 Mass of dry soil passing 2mm sieve taken (gm) 18.5 30 0.7 8.25 e Mass of dry soil retained on 75micron sieve (gm) 18.5 30 0.7 8.25 e Mass of dry soil retained on 75micron sieve (gm) 31.5 2.5 2.4 9.95 10.00 Mass of dry soil retained on 75micron VM (gm) 31.5 2.6 4.0 11.55 10.00 Specific gravity of soil grains, Gs 2.71 2.0 4.0 11.55 10.00 Specific gravity of soil grains, Gs 2.0 1.5 7.4 14.95 5.00 Meniscus reading on hydrometer stem 2.5 10 7.4 14.95 5.00 Meniscus correction, Cm = + [(VII) - (VI)] 1 1 10.7 18.25 5.00 Volume of Hydrometer No volume of Hydrometer V (cm3) 50 -5 12.4 19.95 0.00 Height of bulb (h) in cm 16.5 Rh = hydrometer Reading 12.4 19.95 0.00	Sample	ed by :	Binayak Swain						*		
Mass of dry soil passing 2mm sieve taken (gm) Assort of dry soil passing 2mm sieve taken (gm) 48.5 30 0.7 8.25 e Mass of dry soil retained on 75micron sieve (gm) 18.5 30 0.7 8.25 e Mass of dry soil retained on 75micron sieve (gm) 31.5 2.5 2.4 9.95 10.00 Mass of dry soil passing 75 micron Wh (gm) 2.71 20 4.0 11.55 10.00 Specific gravity of soil grains, Gs Top Meniscus reading on hydrometer stem 2.0 15 7.4 14.95 10.00 Bottom meniscus reading on hydrometer stem 2.5 10 7.4 14.95 10.00 10.7 18.25 Meniscuss correction, Cm = + [(VII) - (VI)] 1 1 10.7 18.25 10.00 10.7 18.25 10.00	€	Percentage	of 75 micron passing (from sieve analysis)	63.03	CALIBRA	TION OF HYDRO	METER	T 15.00	*		
Mass of dry soil retained on 75micron sieve (gm) 18.5 30 0.7 8.25 e Mass of dry soil retained on 75micron Wh (gm) 31.5 25 2.4 9.95 10.00 Specific gravity of soil grains, Gs 2.71 20 4.0 11.55 10.00 Specific gravity of soil grains, Gs 2.7 2.0 15.7 13.25 10.00 Specific gravity of soil grains, Gs 2.0 15.7 13.25 10.00 Pottom meniscus reading on hydrometer stem 2.5 10 7.4 14.95 5.00 Meniscuss correction, Cm = + [(VII) - (VI)] 1 1 6.5 9.1 16.65 10.00 Volume of Hydrometer N (cm3) 50 -5 12.4 19.95 0.00 Rh Height of bulb (h) in cm 1 1 1 1 1 1 1 1 Sedimentation Jar No 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <t< td=""><td><u>E</u></td><td>Mass of dry</td><td>soil passing 2mm sieve taken (gm)</td><td>20</td><td>(Rh)</td><td>H (cm)</td><td>He (cm)</td><td>I</td><td></td><td>*</td><td></td></t<>	<u>E</u>	Mass of dry	soil passing 2mm sieve taken (gm)	20	(Rh)	H (cm)	He (cm)	I		*	
Mass of dry soil passing 75 micron Wh (gm) 31.5 25 2.4 9.95 10.00 Specific gravity of soil grains, Gs 2.71 20 4.0 11.55 10.00 Specific gravity of soil grains, Gs 2.7 2.0 15 5.7 13.25 10.00 Top Meniscus reading on hydrometer stem 2.5 10 7.4 14.95 5.00 10.34x+18. Meniscuss correction, Cm = + [(VII) - (VI)] 1 0.5 5 9.1 16.65 5.00 Hydrometer No Volume of Hydrometer No Uleight of bulb (h) in cm 50 -5 12.4 19.95 0.00 Height of bulb (h) in cm Sedimentation Jar No 1 H = height corresponding to Rh Rh Height corresponding to Rh	<u>E</u>	Mass of dry	soil retained on 75micron sieve (gm)	18.5	30	0.7	8.25	Q.		*	
Specific gravity of soil grains, Gs 2.71 20 4.0 11.55 Top Meniscus reading on hydrometer stem bottom meniscus reading on hydrometer stem wellscuss correction, Cm = + [(VII) - (VI)] 2.5 10 7.4 14.95 5.00 Meniscuss correction, Cm = + [(VII) - (VI)] 1 0.5 5 9.1 16.65 9.1 16.65 Hydrometer No Volume of Hydrometer No In Cm Sedimentation Jar No 16.5 Rh = hydrometer Reading 12.4 19.95 0.00 Rh Sedimentation Jar No 1 H = height corresponding to Rh 1 H = height corresponding to Rh 1 1.5 Rh	<u>§</u>	Mass of dry	soil passing 75 micron Wh (gm)	31.5	25	2.4	9.95	10.00			1
Top Meniscus reading on hydrometer stem 2.0 15 5.7 13.25 5.00 Bottom meniscus reading on hydrometer stem Meniscus correction, Cm = + [(VII) - (VI)] 2.5 10 7.4 14.95 5.00 Meniscuss correction, Cm = + [(VII) - (VI)] 1 0.5 5 9.1 16.65 9.1 16.65 Hydrometer No Volume of Hydrometer V (cm3) 50 -5 12.4 19.95 0.00 Rh Height of bulb (h) in cm Sedimentation Jar No 1 H = height corresponding to Rh 0.00 Rh	S	Specific gra	avity of soil grains, Gs	2.71	20	4.0	11.55	T		1	/
Bottom meniscus reading on hydrometer stem 2.5 10 7.4 14.95 5.00 Meniscuss correction, Cm = + [(VII) - (VI)] 1 6.5 5 9.1 16.65 9.1 16.65 10.7 18.25 Hydrometer No Volume of Hydrometer No Hydrometer No Height of bulb (h) in cm Sedimentation Jar No 16.5 Rh = hydrometer Reading Rh Rh	3	Top Menisc	us reading on hydrometer stem	2.0	15	5.7	13.25	Ī			
Meniscuss correction, Cm = + [(VII) - (VI)] 0.5 5 9.1 16.65 5.00 Hydrometer No Volume of Hydrometer No Volume of Hydrometer No Height of bulb (h) in cm Sedimentation Jar No 50 -5 12.4 19.95 0.00 Rh Height corresponding to Rh 16.5 Rh = height corresponding to Rh 1.0	<u>S</u>	Bottom me	niscus reading on hydrometer stem	2.5	10	7.4	14.95				
Hydrometer No 1 0 10.7 18.25 Volume of Hydrometer V (cm3) 50 -5 12.4 19.95 Height of bulb (h) in cm 16.5 Rh = hydrometer Reading Sedimentation Jar No 1 H = height corresponding to Rh		Meniscuss	correction, Cm = + [(VII) - (VI)]	0.5	5	9.1	16.65	2.00		v = -0.	334x + 18.
Volume of Hydrometer V (cm3)50-512.419.95Height of bulb (h) in cm16.5Rh = hydrometer ReadingSedimentation Jar No1H = height corresponding to Rh	Ø	Hydrometer	No No		0	10.7	18.25	T			
Height of bulb (h) in cm 16.5 Rh = hydrometer Reading 0.00 1 H = height corresponding to Rh		Volume of I			-5	12.4	19.95	I			
Sedimentation Jar No 1 H = height corresponding to Rh 2 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		Height of bu			ometer Read	ling		00.00		£	
	Ω	Sedimentat	ion Jar No	H = height	t correspond	ing to Rh			,		

40	% Finner w.r.t total mass (14) x (1)/100	15	60.22	60.22	58.64	57.05	57.05	55.47	55.47	53.88	52.30	50.71	50.71	48.22	
30	% Finner w.r.t Wd F (12) x (13)	14	95.55	95.55	93.03	90.52	90.52	88.00	88.00	85.49	82.97	80.46	80.46	76.50	
20	Factor N	13	5.029	5.029	5.029	5.029	5.029	5.029	5.029	5.029	5.029	5.029	5.029	5.029	
10	Rc2 = Rh + C (3) + (5)	12	19.00	19.00	18.50	18.00	18.00	17.50	17.50	17.00	16.50	16.00	16.00	15.21	
0	Particle 'C' (cm) (8) x (10)	11	0.00740973	0.00523947	0.00373225	0.00265832	0.00187972	0.00138261	0.00097765	0.00069619	0.00049572	0.00035294	0.00024166	0.000141010	
	Factor M	10	0.012096818	0.012096818	0.012096818	0.012096818	0.012096818	0.012096818	0.012096818	0.012096818	0.012096818	0.012096818	0.011713648	0.011713648	
corresponding to Rh ive height = H + 0.5*(h -V/A)	Viscosity (gm/cm2)	6	0.000008341	0.000008341	0.000008341	0.000008341	0.000008341	0.000008341	0.000008341	0.000008341	0.000008341	0.000008341	0.000007821	0.000007821	
corresponding to Rh ive height = H + 0.5*	Sqrt (h/t)	80	0.613	0.433	0.309	0.220	0.155	0.114	0.081	0.058	0.041	0.029	0.021	0.012	
H = height on He = Effecti	Rc1 = Rh + Cm	7	21.50	21.50	21.00	20.50	20.50	20.00	20.00	19.50	19.00	18.50	18.50	17.71	
1 35.714	Effective depth h (cm)	9	11.26	11.26	11.42	11.59	11.59	11.76	11.76	11.92	12.09	12.26	12.26	12.52	
	Composite Correction +/- C	5	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	
A) in cm2	Temperature (o C)	4	29	29	29	29	29	29	29	29	29	29	32	32	
Sedimentation Jar No Cross sectional area of jar (A) in cm2	Hydrometer Reading (Rh)	3	21.00	21.00	20.50	20.00	20.00	19.50	19.50	19.00	18.50	18.00	18.00	17.21	
Sediment Cross sec	Elapsed Time (min)	2	0.5	-	2	4	8	15	30	09	120	240	480	1440	
Ω	Time	-	10.30				-	_	-	j (୍ଷ	7			

				DKI TE	NIC			ABKI TECHNIO CONCILI TANTE (INDIA) BYT I TO	L//0 / A I C					
ARKIT	ARKITECHNO COMMUNICATION FUT LTD.				Ž	191, IRC	Villag	N 3/91, IRC Village, Bhubaneswar	rar var	<u>.</u>				
11				GRAIN SIZE ANALYSI	ZE AN	ALYSIS	ı	OF SOIL - HYDROMETER METHOD	ETER MET	ДОН				
Client		: DFCC								25.00				
Projec	Project Name	: G.I For 3 N	G.I For 3 Nos. Important Bridges	3ridges				Depth :	42.0m		Calibrat	ion of Hy	Calibration of Hydrometer	
Type o	Type of Sample:	: SPT						Date of Testing:	08.05.2013	20.00				
Location	on	: BH-5(Yamu	BH-5(Yamuna River- Ambala)	oala)				Tested by:	D.Mohanty	4				
Sampled by	ed by	: Binayak Swain	vain							/	1			
€	Percentag	Percentage of 75 micron passing (from sieve analysis)	assing (from sie	ve analysis)		25.46	CALIBRA	CALIBRATION OF HYDROMETER	ETER	15.00	*			
EÊ	Mass of d	Mass of dry soil passing zmm sieve taken (gm) Mass of dry soil retained on 75micron sieve (gm)	mm sieve taken n 75micron siev	(gm) e (am)		50 37.3	(Kh)	H (cm)	He (cm) 8 25	Ξ .	/	1		
\mathbb{Z}	Mass of d	Mass of dry soil passing 75 micron Wh (gm)	5 micron Wh (gr) ()		12.7	25	2.4	9.95	10.00		/	1	
S	Specific g	Specific gravity of soil grains, Gs	ns, Gs	55		2.54	20	4.0	11.55				1	
<u>S</u>	Top Meni	Top Meniscus reading on hydrometer stem	nydrometer stem			2.0	15	5.7	13.25					
	Bottom m	Bottom meniscus reading on hydrometer stem	on hydrometer s	tem		2.5	10	7.4	14.95	2 00				
	Meniscus	Meniscuss correction, Cm = + [(VII) - (VI)]	(IV) - (IIV)] + =			0.5	2	9.1	16.65	3.0		y = -0.33	y = -0.334x + 18.27	
ĸ	Hydrometer No	ter No	ć		<u> </u>		0	10.7	18.25					
	Volume o	Volume of Hydrometer V (cm3)	(cm3)		50		·5	12.4	19.95			£		
q	Sediment	Sedimentation Jar No			10.5	Kn = nydrometer Keading H = height corresponding	meter Kear correspond	Kn = nydrometer Keading H = height corresponding to Rh		0.00	- 6	20	2	
	Cross sec	Cross sectional area of jar (A) in cm2	(A) in cm2		35.714	He = Effect	ive height	= H + 0.5*(h - V/A)		Þ	Q.	2	000	40
Time	Elapsed Time (min)	Hydrometer Reading (Rh)	Temperature (o C)	Composite Correction +/- C	Effective depth h (cm)	Rc1 = Rh + Cm	Sqrt (h/t)	Viscosity (gm/cm2)	Factor M	Particle 'C' (cm) (8) x (10)	Rc2 = Rh + C = (3) + (5)	Factor	% Finner w.r.t Wd F (12) x (13)	% Finner w.r.t total mass (14)
~	2	3	4	5	9	7	8	6	10	11	12	13	14	15
10.30	0.5	9.00	29	-2.0	15.26	9.50	0.713	0.000008341	0.012747025	0.00909248	7.00	12.956	69.06	23.09
	-	8.50	29	-2.0	15.43	9.00	0.507	0.000008341	0.012747025	0.00646443	6.50	12.956	84.22	21.44
	2	8.00	29	-2.0	15.60	8.50	0.361	0.000008341	0.012747025	0.00459571	00.9	12.956	77.74	19.79
Re	4	7.50	29	-2.0	15.77	8.00	0.256	0.000008341	0.012747025	0.00326701	5.50	12.956	71.26	18.14
^	80	7.00	29	-2.0	15.93	7.50	0.182	0.000008341	0.012747025	0.00232233	5.00	12.956	64.78	16.49
^	1	6.50	29	-2.0	16.10	7.00	0.134	0.000008341	0.012747025	0.00170485	4.50	12.956	58.30	14.84
9 L		9.00	29	-2.0	16.27	6.50	0.095	0.000008341	0.012747025	0.00121175	4.00	12.956	51.83	13.19
10	09	00.9	29	-2.0	16.27	6.50	0.067	0.000008341	0.012747025	0.00085684	4.00	12.956	51.83	13.19
V	120	5.50	29	-2.0	16.43	6.00	0.048	0.000008341	0.012747025	0.00060898	3.50	12.956	45.35	11.55
	240	5.00	29	-2.0	16.60	5.50	0.034	0.000008341	0.012747025	0.00043279	3.00	12.956	38.87	9.90
	480	5.00	32	-2.0	16.60	5.50	0.024	0.000007821	0.012343260	0.00029634	3.00	12.956	38.87	9.90
	1440	4.64	32	-2.0	16.72	5.14	0.014	0.000007821	0.012343260 0.000171704	0.000171704	2.64	12.956	34.25	8.72
			The state of the s										387	



N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample

BH-5(Yamuna River-Ambala)

Date Of Testing

: 07.05.2013

Location

Sampled by

: Binayak Swain

Depth

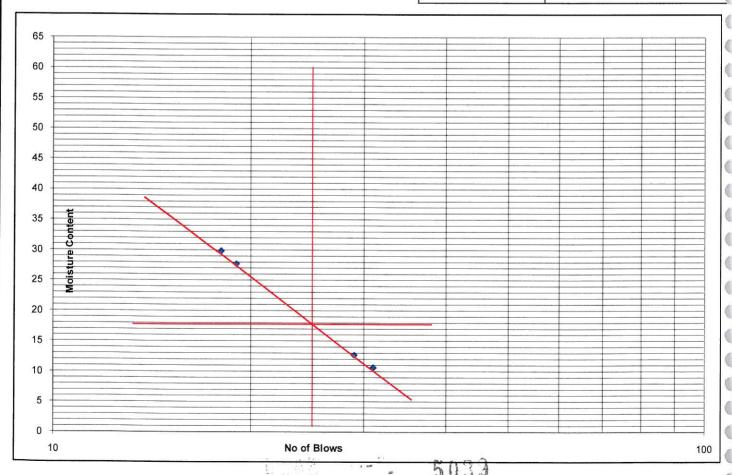
1.5m

Tested by

: D.Mohanty

Number of Blows	31	29	19	18	Plastic Limit
Container No.	C7	C8	C9	C10	
Container Weight (gm) (W1)	32.58	37.21	33.14	35.42	
Container + Wt. of wet soil (gm) (W2)	82.64	95.49	100.57	102.71	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	4.81	6.57	14.63	15.45	
Wt. of oven dry soil (gm) (W3-W1)	45.26	51.71	52.80	51.83	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	10.62	12.71	27.71	29.81	

Result Summary Liquid Limit (WL) 18 % Plastic Limit (Wp) NP Plasticity Index (Ip)





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Date Of Testing

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : SPT

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

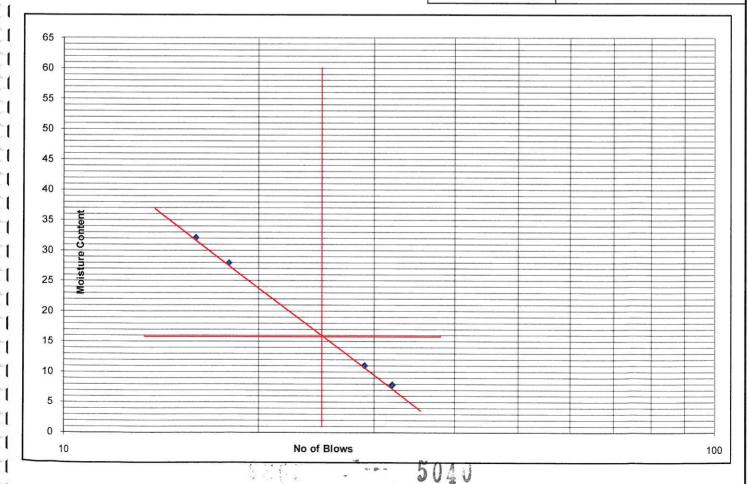
Depth : 3.0m Tested by : D.Mohanty

Number of Blows	32	29	18	16	Plastic Limit
Container No.	D1	D2	D3	D4	
Container Weight (gm) (W1)	31.25	32.42	33.65	34.47	
Container + Wt. of wet soil (gm) (W2)	81.50	95.15	100.57	104.19	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	3.66	6.23	14.63	16.94	
Wt. of oven dry soil (gm) (W3-W1)	46.59	56.50	52.29	52.78	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	7.85	11.03	27.98	32.09	

Result Summary

Liquid Limit (WL)	16	%	
Plastic Limit (Wp)	NP		
Plasticity Index (Ip)	_		

: 07.05.2013





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client

Depth

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample Location

: SPT

4.5m

: BH-5(Yamuna River-Ambala)

Date Of Testing

: 07.05.2013

Sampled by

: Binayak Swain

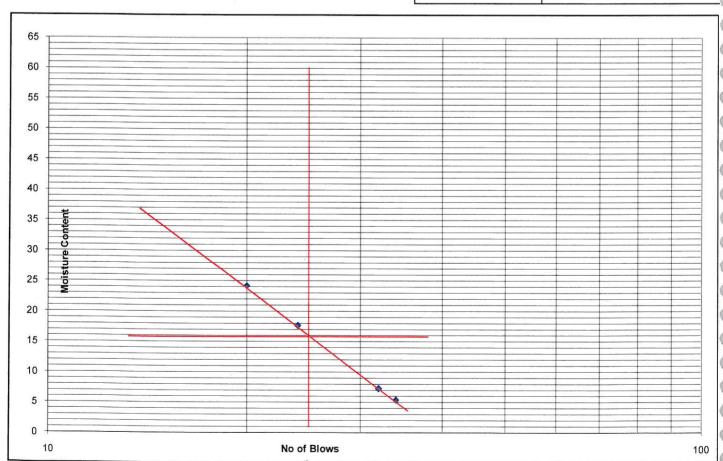
Tested by

: D.Mohanty

Number of Blows	34	32	24	20	Plastic Limit
Container No.	F1	F2	F3	F4	
Container Weight (gm) (W1)	30.25	33.24	34.18	32.74	
Container + Wt. of wet soil (gm) (W2)	80.40	92.98	95.08	100.44	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	2.57	4.06	9.14	13.18	
Wt. of oven dry soil (gm) (W3-W1)	47.59	55.68	51.76	54.51	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	5.39	7.29	17.65	24.18	

Result Summary

	100011	,
Liquid Limit (WL)	16	%
Plastic Limit (Wp)	NP	
Plasticity Index (Ip)	_	





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Date Of Testing

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

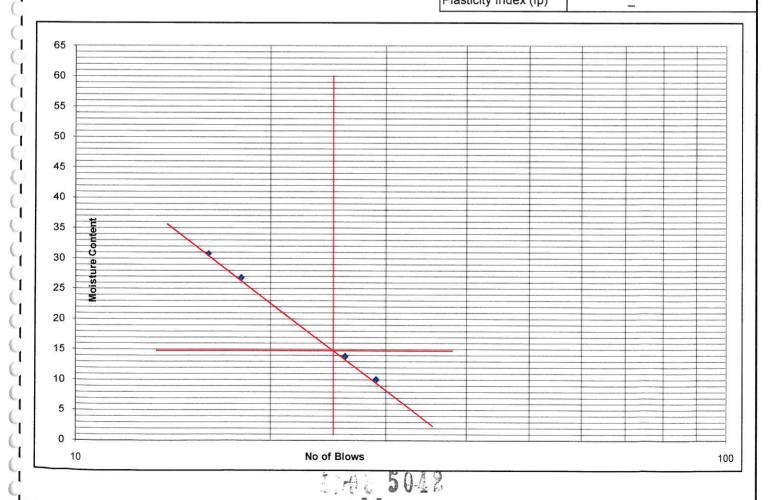
Type of Sample : SPT

Location : BH-5(Yamuna River-Ambala) : Binayak Swain

Depth : 6.0m Tested by : D.Mohanty

Number of Blows	29	26	18	16	Plastic Limit
Container No.	S1	S2	S3	S4	
Container Weight (gm) (W1)	31.48	35.18	34.61	32.85	
Container + Wt. of wet soil (gm) (W2)	82.48	96.36	99.70	104.00	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	4.65	7.44	13.76	16.75	
Wt. of oven dry soil (gm) (W3-W1)	46.36	53.74	51.33	54.40	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	10.02	13.85	26.80	30.78	

: 07.05.2013





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client :

Location

Depth

Project Name : G.I For 3 Nos. Important Bridges

DFCC

Type of Sample : SPT

BH-5(Yamuna River-Ambala) Sam

Date Of Testing : 07.05.2013

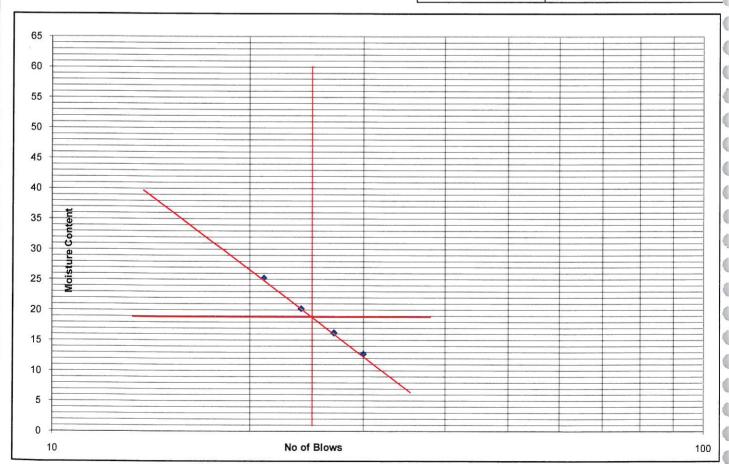
Sampled by : Binayak Swain

: 9.0m Tested by : D.Mohanty

Number of Blows	30	27	24	21	Plastic Limit
Container No.	W1	W2	W3	W4	
Container Weight (gm) (W1)	32.52	34.15	33.63	35.58	
Container + Wt. of wet soil (gm) (W2)	83.62	97.79	96.52	100.32	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	5.78	8.88	10.57	13.07	
Wt. of oven dry soil (gm) (W3-W1)	45.32	54.77	52.31	51.67	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	12.75	16.21	20.21	25.29	

Result Summary

Liquid Limit (WL)	19	%
Plastic Limit (Wp)	NP	
Plasticity Index (Ip)	_	





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : SPT

Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 13.5m Tested by : D.Mohanty

Number of Blows	32	29	23	19	Plastic Limit
Container No.	I1	12	13	14	
Container Weight (gm) (W1)	34.25	35.26	36.62	37.41	
Container + Wt. of wet soil (gm) (W2)	81.43	95.29	95.87	100.55	AND AND A SHEET FARE
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	3.60	6.37	9.93	13.30	
Wt. of oven dry soil (gm) (W3-W1)	43.59	53.66	49.32	49.84	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	8.25	11.88	20.13	26.68	

 Result Summary

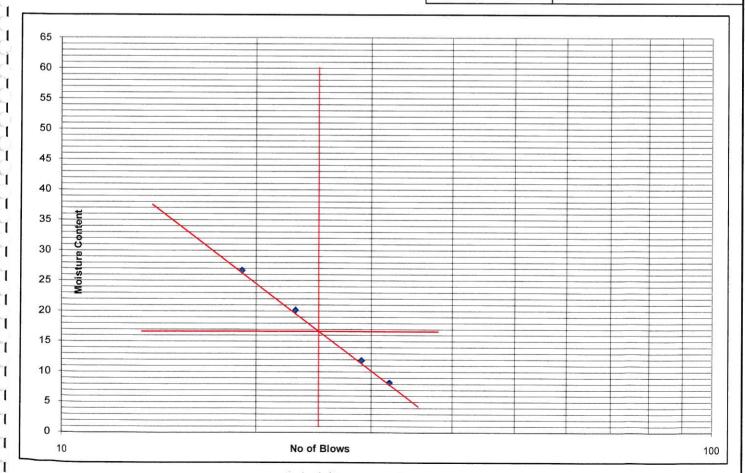
 Liquid Limit (WL)
 17
 %

 Plastic Limit (Wp)
 NP

: 07.05.2013

Plasticity Index (Ip)

Date Of Testing





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample

BH-5(Yamuna River-Ambala)

Date Of Testing

: 07.05.2013

Location

Sampled by

: Binayak Swain

Depth

18.0m

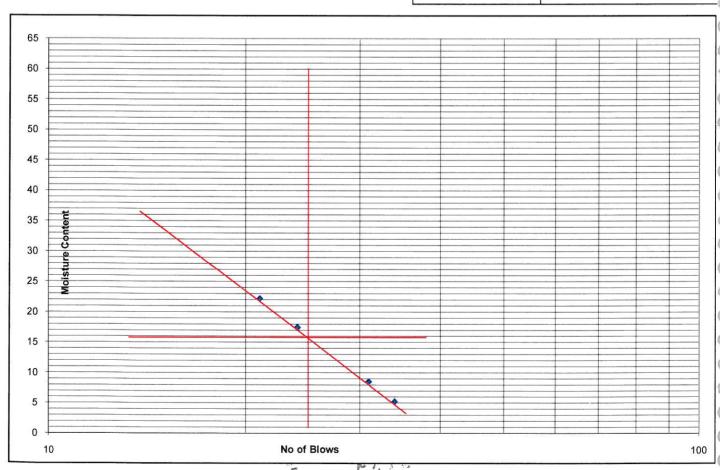
Tested by

: D.Mohanty

Number of Blows	34	31	24	21	Plastic Limit
Container No.	E1	E2	E3	E4	
Container Weight (gm) (W1)	32.26	3.41	34.58	33.29	
Container + Wt. of wet soil (gm) (W2)	80.21	96.20	94.89	99.24	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	2.37	7.29	8.95	11.99	
Wt. of oven dry soil (gm) (W3-W1)	45.58	85.51	51.36	53.96	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	5.21	8.52	17.42	22.21	

Result Summary

* <u></u>	toodit odililili	y
Liquid Limit (WL)	16	%
Plastic Limit (Wp)	NP	
Plasticity Index (Ip)	_	





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client

: DFCC

Project Name

: G.I For 3 Nos. Important Bridges

Type of Sample

Location

Depth

: SPT

22.5m

BH-5(Yamuna River-Ambala)

Date Of Testing

: 07.05.2013

Sampled by

: Binayak Swain

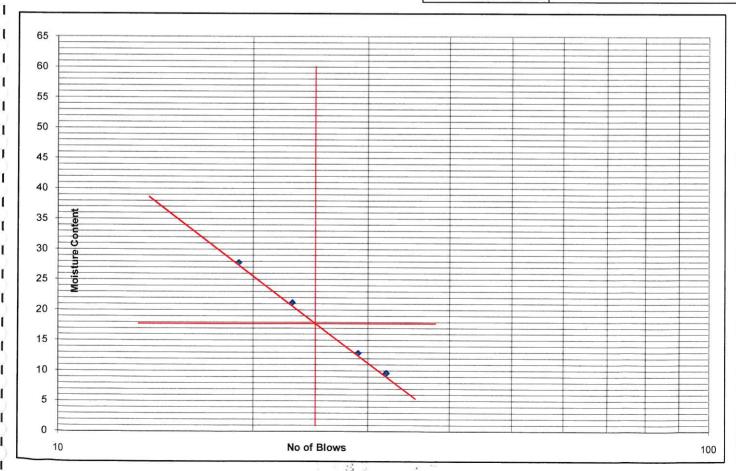
Tested by

: D.Mohanty

Number of Blows	32	29	23	19	Plastic Limit	
Container No.	Y1	Y2	Y3	Y4		
Container Weight (gm) (W1)	33.36	32.45	31.85	30.27	4.	
Container + Wt. of wet soil (gm) (W2)	82.11	96.20	97.42	103.10		
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25		
Wt. Of water (gm) (W2-W1)-(W3-W1)	4.27	7.29	11.47	15.85		
Wt. of oven dry soil (gm) (W3-W1)	44.48	56.47	54.09	56.98		
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	9.61	12.90	21.21	27.81		

Result Summary

Liquid Limit (WL)	18	%	
Plastic Limit (Wp)	NP	2000001-12-2-00-1/I	1
Plasticity Index (Ip)	_		





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client : DFCC

Project Name ; G.I For 3 Nos. Important Bridges

Type of Sample : SPT Date Of Testing : 07.05.2013

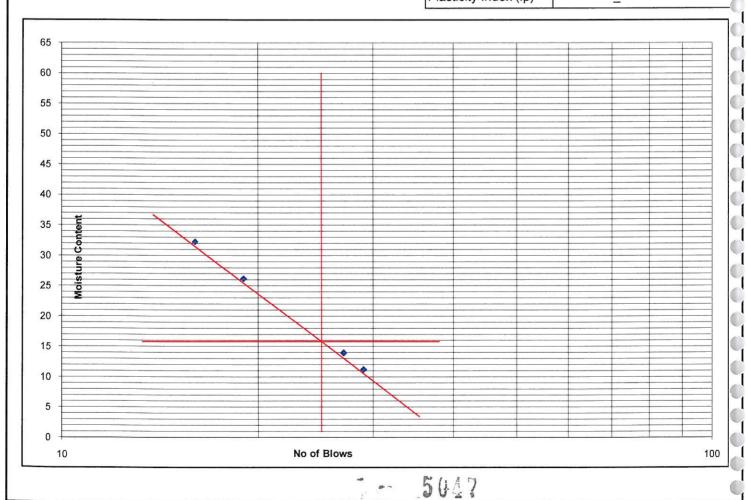
Location : BH-5(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 30.0m Tested by : D.Mohanty

Number of Blows	29	27	16	19	Plastic Limit
Container No.	R1	R2	R3	R4	
Container Weight (gm) (W1)	35.41	36.62	34.15	33.52	
Container + Wt. of wet soil (gm) (W2)	82.59	96.20	102.65	101.32	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	4.76	7.29	16.71	14.07	
Wt. of oven dry soil (gm) (W3-W1)	42.43	52.30	51.79	53.73	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	11.21	13.93	32.26	26.18	

Result Summary
Liquid Limit (WL) 16 %

Plastic Limit (Wp) NP
Plasticity Index (Ip) __





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

BH-5(Yamuna River-Ambala)

Type of Sample

: SPT

Date Of Testing

: 07.05.2013

Location

SPI

Sampled by

: Binayak Swain

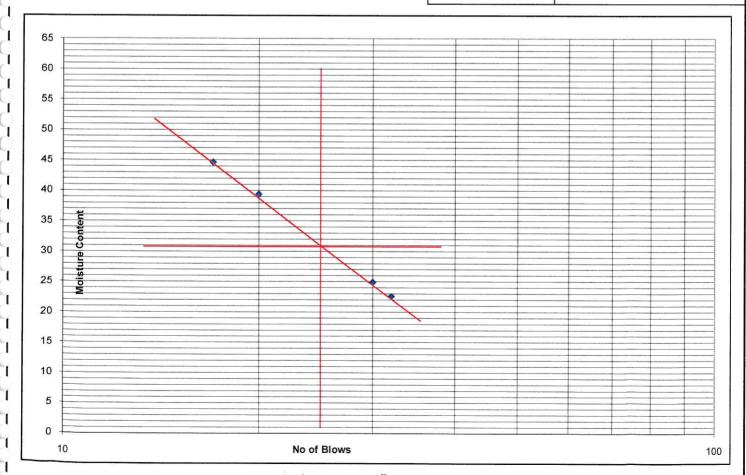
Depth

: 33.0m

Tested by

: D.Mohanty

<u> </u>						
Number of Blows	32	30	20	17	Plastic Limit	
Container No.	Q1	Q2	Q3	Q4	Q5	Q6
Container Weight (gm) (W1)	30.12	31.25	33.36	32.41	34.52	35.15
Container + Wt. of wet soil (gm) (W2)	88.62	103.27	106.64	111.72	84.92	97.80
(Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	77.84	88.92
Wt. Of water (gm) (W2-W1)-(W3-W1)	10.78	14.35	20.70	24.47	7.08	8.89
(Wt. of oven dry soil (gm) (W3-W1)	47.72	57.67	52.58	54.84	43.32	53.77
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	22.59	24.89	39.36	44.61	16.34	16.53





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample

: SPT

Date Of Testing

: 07.05.2013

Location

. 351

Sampled by

: Binayak Swain

Depth

: BH-5(Yamuna River-Ambala)

39.0m

Tested by

: D.Mohanty

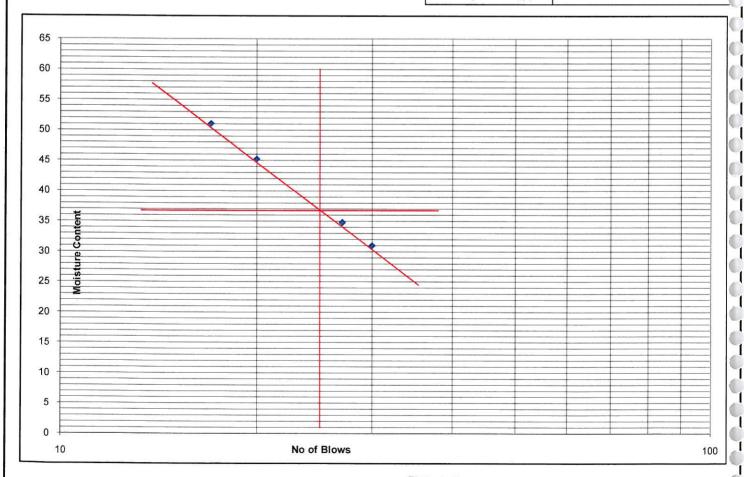
Number of Blows	30	27	20	17	Plasti	c Limit
Container No.	A1	A2	А3	A4	A5	. A6
Container Weight (gm) (W1)	31.25	32.36	34.74	35.59	30.17	33.33
Container + Wt. of wet soil (gm) (W2)	92.28	108.59	109.09	113.61	86.54	99.11
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	77.84	88.92
Wt. Of water (gm) (W2-W1)-(W3-W1)	14.44	19.67	23.15	26.36	8.70	10.19
Wt. of oven dry soil (gm) (W3-W1)	46.59	56.56	51.20	51.66	47.67	55.59
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	30.99	34.78	45.21	51.02	18.25	18.34

 Result Summary

 Liquid Limit (WL)
 37
 %

 Plastic Limit (Wp)
 18
 %

 Plasticity Index (Ip)
 19
 %





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client DFCC

Project Name G.I For 3 Nos. Important Bridges

42.0m

Type of Sample

Location

Depth

: BH-5(Yamuna River-Ambala)

Sampled by

: 07.05.2013

Date Of Testing

: Binayak Swain

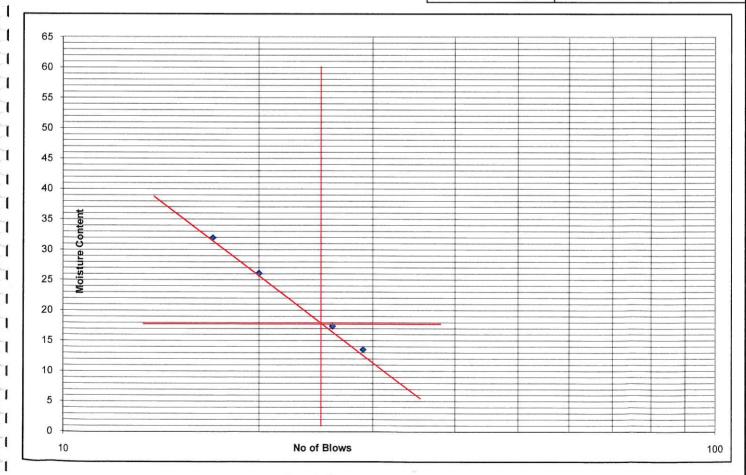
Tested by

: D.Mohanty

Number of Blows	29	26	17	20	Plastic Limit	
Container No.	01	O2	О3	04	NP	
Container Weight (gm) (W1)	31.25	32.36	34.74	35.59		
Container + Wt. of wet soil (gm) (W2)	84.15	98.75	102.30	100.74		
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25		
Wt. Of water (gm) (W2-W1)-(W3-W1)	6.31	9.83	16.36	13.49		
Wt. of oven dry soil (gm) (W3-W1)	46.59	56.56	51.20	51.66		
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	13.54	17.38	31.95	26.11		

Result Summary

Liquid Limit (WL)	18	%	
Plastic Limit (Wp)	NP		
Plasticity Index (Ip)	_		





N 3/91, IRC Village, Bhubaneswar

DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

AS PER IS: 2720 (PART - 40)

Client

: DFCC

Project Name

: G.I For 3 Nos. Important Bridges

: BH-5(Yamuna River-Ambala)

Date Of Testing

07.05.2013

Type of Sample : SPT

Tested by

D.Mohanty

Location

. 01 1

Sampled by

Binayak Swain

Depth

: 39.0m

Weight of Sample:

10gm

SAMPLE NO.	VOLUME IN KEROSIN OIL VK	VOLUME IN WATER Vd	SWELL (Vd-Vk)	SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%)	AVERAGE SWELL %	SPECIFIC LIMIT
1	10	12.5	2.50	25		
2	10	12.0	2.00	20	18	50%
3	10	11.0	1.00	10		(

Remarks:



N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

: 07.05.2013

Location

: BH-5(Yamuna River-Ambala)

Sampled by

: Binayak Swain

Depth

1.5m

Tested by

: D.Mohanty

	<u>, </u>		D.IVIOTIATILY
SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	35.73	
3	Weight of bottle with soil and water W3 in gm	136.68	
4	Weight of bottle full of water W4 in gm	134.17	
5	Weight of dry soil (W2-W1)in gm	4.21	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	1.70	
7	Specific Gravity G = (5) / (6)	2.48	



N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

07.05.2013

BH-5(Yamuna River-Ambala)

Sampled by

Binayak Swain

Location Depth

4.5m

Tested by

D.Mohanty

Deptil	. 4.0111	rested by .	D.IVIONAMY
SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	36.52	
3	Weight of bottle with soil and water W3 in gm	134.52	
4	Weight of bottle full of water W4 in gm	131.51	
5	Weight of dry soil (W2-W1)in gm	5.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	1.99	
7	Specific Gravity G = (5) / (6)	2.51	

6



N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

: 07.05.2013

Location

: BH-5(Yamuna River-Ambala)

Sampled by

: Binayak Swain

Depth

13.5m

Tested by

: D.Mohanty

		rected by .	Billionanty
SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	35.52	
3	Weight of bottle with soil and water W3 in gm	136.94	
4	Weight of bottle full of water W4 in gm	134.52	
5	Weight of dry soil (W2-W1)in gm	4.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	1.58	
7	Specific Gravity G = (5) / (6)	2.53	



N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

BH-5(Yamuna River-Ambala)

Type of Sample:

SPT

Date Of Testing

: 07.05.2013

SFI

Sampled by

: Binayak Swain

Location Depth

24.0m

Tested by

: D.Mohanty

•			z.monany
SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	36.31	
3	Weight of bottle with soil and water W3 in gm	135.52	
4	Weight of bottle full of water W4 in gm	132.64	
5	Weight of dry soil (W2-W1)in gm	4.79	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	1.91	
7	Specific Gravity G = (5) / (6)	2.51	

60



N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

07.05.2013

Location

: BH-5(Yamuna River-Ambala)

Sampled by

: Binayak Swain

Depth

33.0m

Tested by

D.Mohanty

		1.11.11.11.11.11.11.11.11.11.11.11.11.1	
SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	35.52	
3	Weight of bottle with soil and water W3 in gm	134.25	
4	Weight of bottle full of water W4 in gm	131.74	
5	Weight of dry soil (W2-W1)in gm	4.00	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	1.49	
7	Specific Gravity G = (5) / (6)	2.68	



N 3/91, IRC Village, Bhubaneswar

DIFFERENTIAL FREE SWELL INDEX OF SOIL (D.F.S.)

AS PER IS: 2720 (PART - 40)

Client

: DFCC

Project Name

: G.I For 3 Nos. Important Bridges

Date Of Testing

07.05.2013

Type of Sample: SPT

Tested by

D.Mohanty

Location

: BH-5(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

: 33.0m

Weight of Sample:

10gm

SAMPLE NO.	VOLUME IN KEROSIN OIL Vk	VOLUME IN WATER Vd	SWELL (Vd-Vk)	SWELL INDEX = (Vd-Vk)/ (Vk)*100 (%)	AVERAGE SWELL %	SPECIFIC LIMIT
1	10	12.0	2.00	20		
2	10	11.0	1.00	10	10	50%
3	10	10.0	0.00	0		

Remarks:



N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF SPECIFIC GRAVITY BY DENSITY BOTTLE METHOD AS PER IS: 2386 (Part -2)

Client

DFCC

Project Name ; G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date Of Testing

: 07.05.2013

Location

: BH-5(Yamuna River-Ambala)

Sampled by

: Binayak Swain

Depth

: 42.0m

Tested by

: D.Mohanty

			Divionanty
SI. No.	Observations	1	Remarks
1	Weight of density bottle W1 in gm	31.52	
2	Weight of bottle with dry soil in W2 gm	36.12	
3	Weight of bottle with soil and water W3 in gm	135.24	
4	Weight of bottle full of water W4 in gm	132.45	
5	Weight of dry soil (W2-W1)in gm	4.60	
6	Weight of equal volume of water(W2 - W1) - (W3 - W4) in gm	1.81	
7	Specific Gravity G = (5) / (6)	2.54	

B					ARKI TE	TECHN	CHNO CONSULTANTS (I) PVT. LTD	JLTANTS	3 (I) PVT.	LTD.					
ARKITECHNO	91					N 3/91	N 3/91, IRC Village, Bhubaneswar	e, Bhuban	eswar						
				DETERN	IINATION (OF BULK D	DETERMINATION OF BULK DENSITY & MOISTURE CONTENT OF SOIL SAMPLE	MOISTURE	CONTENT	OF SOIL S	SAMPLE				
Client		DFCC													
Project Name	••	G.I For 3 Nos. Important Bridges	mportant Bridg	es											
Location		BH-5(Yamuna River-Ambala)	(iver-Ambala)												
SI No.	BH No.	Depth in m	Type of Sample	Date of Testing	Weight of Container in gm	Diameter of Sample in cm	Length of Sample in cm	Volume of Sample in cc	Weight of Container + Wet Soil in gm	Weight of Container + Dry soil in gm	Weight of Dry soil in gm	Weight of water in gm	Moisture Content in %	Bulk Density in Dry Density in gm/cc	Dry Density in gm/cc
-		1.5	SPT	07,05,2013	62.34	3.8	7	79.39	203.65	193.97	131.63	9.69	7.36	1.78	1.66
2		3.0	SPT	07.05.2013	61.82	3.8	7	79.39	203.13	194.10	132.28	9.03	6.83	1.78	1.67
8	(e)	4.5	SPT	07.05.2013	60.71	3.8	7	79.39	202:02	192,43	131.72	9,59	7.28	1.78	1.66
4	sdmA	6.0	SPT	07.05.2013	63,49	3.8	7	79.39	211.16	200.01	136.52	11,14	8.16	1.86	1.72
2	River-	0.6	SPT	07.05.2013	60.77	3.8	7	79.39	204.47	193.91	133.14	10.56	7.93	1.81	1,68
9	eunu	13.5	SPT	07.05.2013	64.84	3.8	2	79.39	213.30	204,06	139.22	9.24	6.64	1.87	1.75
7	nsY)ð	18.0	SPT	07.05.2013	65,31	3.8	7	79.39	211.39	196.58	131.27	14.81	11.28	1.84	1.65
°	-H8	24.0	SPT	07.05.2013	60.5	3.8	2	79,39	209.75	193.45	132.95	16.30	12.26	1.88	1.67
6	l.	33.0	SPT	07.05.2013	61.31	3.8	2	79.39	218,50	193.64	132.33	24,86	18.79	1.98	1.67
10		42.0	SPT	07.05.2013	62.29	3.8	7	79.39	210.75	197,59	135.30	13.16	9.73	1.87	1.70

0 0 4



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date of Testing:

13.05.2013

Location

BH-6(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

1.5m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

84.30

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.59	1.59	1.59	98.41
2.00	32.54	32.54	34.13	65.87
0.425	28.53	28.53	62.66	37.34
0.075	21.64	21.64	84.30	15.70
Total	100.00			

Gravel Content (%)=

1.59

Sand Content (%) =

82.71

Silt and clay %

15.70

Remarks :-

5060



GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample: SPT Date of Testing: 13.05.2013

Location : BH-6(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 3.0m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

83.97

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	2.04	2.04	2.04	97.96
2.00	32.57	32.57	34.61	65.39
0.425	28.53	28.53	63.14	36.86
0.075	20.83	20.83	83.97	16.03
Total	100.00			

Gravel Content (%)=

2.04

Sand Content (%) =

81.93

Silt and clay %

16.03

0

Remarks :-



GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P- 4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample: SPT Date of Testing: 13.05.2013

Location: BH-6(Yamuna River-Ambala) Sampled by: Binayak Swain

Depth : 4.5m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

85.92

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.76	1.76	1.76	98.24
2.00	33.94	33.94	35.70	64.30
0.425	28.56	28.56	64.26	35.74
0.075	21.66	21.66	85.92	14.08
Total	100.00			

Gravel Content (%)= 1.76

Sand Content (%) = 84.16 Silt and clay % 14.08

Remarks :-

5062



GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date of Testing:

13.05.2013

Location

BH-6(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

7.5m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

84.79

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.92	1.92	1.92	98.08
2.00	32.96	32.96	34.88	65.12
0.425	28.56	28.56	63.44	36.56
0.075	21.35	21.35	84.79	15.21
Total	100.00			

Gravel Content (%)=

1.92

Sand Content (%) =

82.87

Silt and clay %

15.21

0 0 0

Remarks :-

- 5063



GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPI

Date of Testing:

13.05.2013

Location

BH-6(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

: 13.0m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

90.83

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	13.24	13.24	13.24	86.76
2.00	30.58	30.58	43.82	56.18
0.425	25.84	25.84	69.66	30.34
0.075	21.17	21.17	90.83	9.17
Total	100.00			

Gravel Content (%)=

13.24

Sand Content (%) =

77.59

Silt and clay %

9.17

Remarks :-

-- 5064



GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P- 4)

DFCC Client

G.I For 3 Nos. Important Bridges Project Name

Date of Testing: 13.05.2013 Type of Sample: Binayak Swain Sampled by

BH-6(Yamuna River-Ambala) D.Mohanty Location

Tested by 15.0m Depth

Weight of oven dried sample before washing (gm) :-100.00 91.05

Weight of oven dried sample after washing (gm) :-

	Individual Weight	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %	
Sieve Size mm	Retained in gm.		0.00	100.00	
75	0	0.00	0.00	100.00	
50	0	0.00	723	100.00	
	0	0.00	0.00		
37.5		0.00	0.00	100.00	
19	0		12.68	87.32	
4.75	12.68	12.68	44.20	55.80	
2.00	31.52	31.52		28.95	
	26.85	26.85	71.05		
0.425		20.00	91.05	8.95	
0.075	20.00	20.00			
Total	100.00				

12.68 Gravel Content (%)=

8.95 Silt and clay % 78.37 Sand Content (%) =

Remarks :-

- - 5065



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P- 4)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date of Testing:

13.05.2013

Location

BH-6(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

: 18.0m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

85.14

	T		the state of the s	
Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.64	1.64	1.64	98.36
2.00	33.67	33.67	35.31	64.69
0.425	28.41	28.41	63.72	36.28
0.075	21.42	21.42	85.14	14.86
Total	100.00			

Gravel Content (%)=

1.64

Sand Content (%) =

83.50

Silt and clay %

14.86

Remarks :-



GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

: DFCC

Project Name

: G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date of Testing:

13.05.2013

Location

BH-6(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

: 21.0m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

84.32

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.83	1.83	1.83	98.17
2.00	33.67	33.67	35.50	64.50
0.425	28.41	28.41	63.91	36.09
0.075	20.41	20.41	84.32	15.68
Total	100.00			

Gravel Content (%)=

1.83

Sand Content (%) =

82.49

Silt and clay %

15.68

Remarks :-



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample: SPT Date of Testing: 13.05.2013

Location : BH-6(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 30.0m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

40.83

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	9.86	9.86	9.86	90.14
2.00	15.53	15.53	25.39	74.61
0.425	11.10	11.10	36.49	63.51
0.075	4.34	4.34	40.83	59.17
Total	100.00			

Gravel Content (%)= 9.86

Sand Content (%) = 30.97 Silt and clay % 59.17

Remarks :-



N 3/91, IRC Village, Bhubaneswar

GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

Date of Testing:

13.05.2013

Location

: BH-6(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

: 33.0m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

39.39

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	10.25	10.25	10.25	89.75
2.00	14.32	14.32	24.57	75.43
0.425	9.85	9.85	34.42	65.58
0.075	4.97	4.97	39.39	60.61
Total	100.00			

Gravel Content (%)=

10.25

Sand Content (%) =

29.14

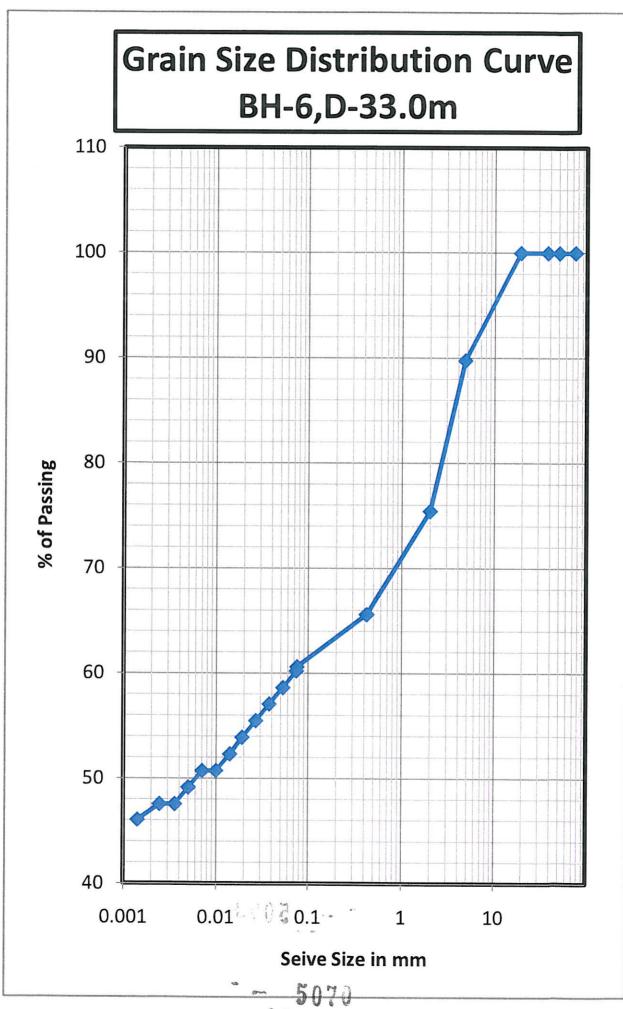
Silt and clay %

60.61

Remarks :-

- - 5069

1 1 2





GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample: SPT Date of Testing: 13.05.2013

Location : BH-6(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 39.0m Tested by : D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

84.59

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	2.13	2.13	2.13	97.87
2.00	35.52	35.52	37.65	62.35
0.425	30.12	30.12	67.77	32.23
0.075	16.82	16.82	84.59	15.41
Total	100.00			

Gravel Content (%)= 2.13

Sand Content (%) = 82.46 Silt and clay % 15.41

Remarks :-

- - 5071



GRAIN SIZE ANALYSIS OF SOIL AS PER IS 2720 (P-4)

Client

: DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample:

SPT

DII COVersure Diver Anchele

Date of Testing:

13.05.2013

Location

BH-6(Yamuna River-Ambala)

Sampled by

Binayak Swain

Depth

42.0m

Tested by

D.Mohanty

Weight of oven dried sample before washing (gm) :-

100.00

Weight of oven dried sample after washing (gm) :-

85.57

Sieve Size mm	Individual Weight Retained in gm.	Individual Wt. Retained In %	Cummulative Wt Retained In %	Cummulative Wt Passing In %
75	0	0.00	0.00	100.00
50	0	0.00	0.00	100.00
37.5	0	0.00	0.00	100.00
19	0	0.00	0.00	100.00
4.75	1.96	1.96	1.96	98.04
2.00	34.21	34.21	36.17	63.83
0.425	28.54	28.54	64.71	35.29
0.075	20.86	20.86	85.57	14.43
Total	100.00			

Gravel Content (%)=

1.96

Sand Content (%) =

83.61

Silt and clay %

14.43

Remarks :-

5072

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ARKITE	ARKITECHNO COMPLEMENT OF THE				Z	3/91, IRC	: Villag	N 3/91, IRC Village, Bhubaneswar	/ar					
				GRAIN SIZE	IZE AN	ANALYSIS	OF SC	SOIL - HYDROMETER	ETER MEI	METHOD				
Client		DFCC								25.00				
Project Name	Name :	G.I For 3 Nc	G.I For 3 Nos. Important Bridges	Sridges				Depth :	33.0m		Calibrat	ion of Hy	Calibration of Hydrometer	
Type of	Type of Sample:	SPT						Date of Testing:	14.05.2013	20.00				
Location		BH-6(Yamuı	BH-6(Yamuna River- Ambala)	ala)				Tested by :	D.Mohanty	4				
Sampled by	: kq p	Binayak Swain	ain							/	/			
	Percentage	Percentage of 75 micron passing (from sieve analysis)	assing (from sie	ve analysis)		60.61	CALIBRA	CALIBRATION OF HYDROMETER	ETER	15.00	*			
	Mass of dry	Mass of dry soil passing zmm sleve taken (gm) Mass of dry soil retained on 75micron sieve (dm)	nm sieve taken 75micron sieve	(gm) e (gm)		50 19.7	30 (34)	н (ст) 0.7	не (ст.) 8.25	E 4		1		
<u></u>	Mass of dry	Mass of dry soil passing 75 micron Wh (gm)	micron Wh (gn	. (c		30.3	25	2.4	9.95	10.00			*	
	Specific gra	Specific gravity of soil grains, Gs	is, Gs			2.71	20	4.0	11.55				*	
	Rottom me	Top Meniscus reading on hydrometer stem Bottom meniscus reading on hydrometer stem	yarometer stem on hydrometer st	E		2.0	10	5.7	13.25					
	Meniscuss	Meniscuss correction, Cm = + [(VII) - (VI)]	(IV) - (IIV)] + =	<u> </u>		0.5	2	9.1	16.65	- 2.00		y = -0.334	-0.334x + 18.27	
	Hydrometer No	r No			_		0	10.7	18.25					
٠	Volume of	Volume of Hydrometer V (cm3)	(cm3)		50	i	ငှ	12.4	19.95			뜐		
q	Height of b Sedimentat	Height of bulb (h) in cm Sedimentation Jar No			16.5 1 25 244	Kh = hydro H = height	rometer Reading t corresponding	Kh = hydrometer Keading H = height corresponding to Rh		0.00	10	20	30	40
	Cross secti	Cross sectional area or lar (A) in cmz	(A) In cm2		33.7.14	He = ETIECT	ive neignt	= H + U.5"(N - V/A)						٥/ ٦
Time	Elapsed Time (min)	Hydrometer Reading (Rh)	Temperature (o C)	Composite Correction +/- C	Effective depth h (cm)	Rc1 = Rh + Cm	Sqrt (h/t)	Viscosity (gm/cm2)	Factor M	Particle 'C' (cm) (8) x (10)	Rc2 = Rh + C (3) + (5)	Factor	% Finner w.r.t Wd F (12) x (13)	% Finner w.r.t total mass (14) × (1)/100
-	2	3	4	5	9	7	8	6	10	11	12	13	14	15
10.30	0.5	21.00	29	-2.0	11.26	21.50	0.613	0.000008341	0.012096818	0.00740973	19.00	5.229	98.36	60.22
	1	20.50	29	-2.0	11.42	21.00	0.436	0.000008341	0.012096818	0.00527820	18.50	5.229	96.75	58.64
	2	20.00	29	-2.0	11.59	20.50	0.311	0.000008341	0.012096818	0.00375943	18.00	5.229	94.13	57.05
	4	19.50	29	-2.0	11.76	20.00	0.221	0.000008341	0.012096818	0.00267740	17.50	5.229	91.52	55.47
	80	19.00	29	-2.0	11.92	19.50	0.158	0.000008341	0.012096818	0.00190661	17.00	5.229	88.90	53.88
•	15	18.50	29	-2.0	12.09	19.00	0.116	0.000008341	0.012096818	0.00140211	16.50	5.229	86.29	52.30
-	30	18.00	29	-2.0	12.26	18.50	0.083	0.000008341	0.012096818	0.00099826	16.00	5.229	83.67	50.71
) (99	18.00	29	-2.0	12.26	18.50	0.058	0.000008341	0.012096818	0.00070588	16.00	5.229	83.67	50.71
1 8	120	17.50	29	-2.0	12.43	18.00	0.042	0.000008341	0.012096818	0.00050252	15.50	5.229	81.06	49.13
ही	⊕ 240	17.00	29	-2.0	12.59	17.50	0.030	0.000008341	0.012096818	0.00035772	15.00	5.229	78.44	47.54
	480	17.00	32	-2.0	12.59	17.50	0.021	0.000007821	0.011713648	0.00024493	15.00	5.229	78.44	47.54
	0::		((- W. Section 100 -					Continue of the	The state of the s		34 54 54



N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client

DFCC

Project Name

G.I For 3 Nos. Important Bridges

Type of Sample

Date Of Testing

: 13.05.2013

Sampled by

Location

BH-6(Yamuna River-Ambala)

: Binayak Swain

Depth

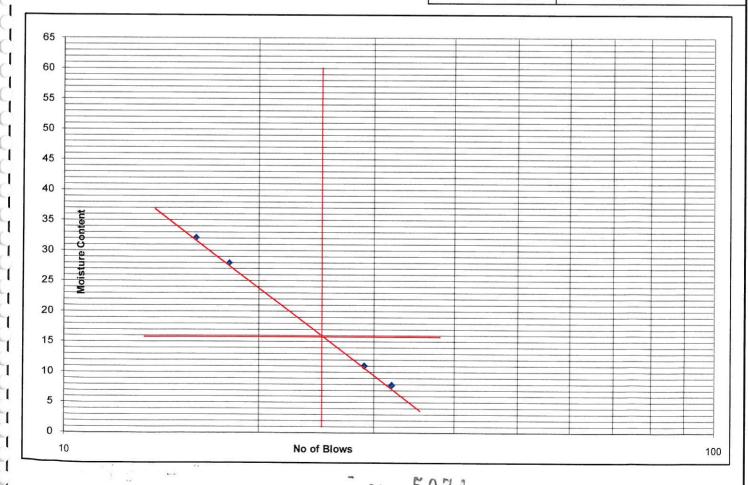
1.5m

Tested by

: D.Mohanty

Number of Blows	32	29	18	16	Plastic Limit
Container No.	D1	D2	D3	D4	NP
Container Weight (gm) (W1)	31.25	32.42	33.65	34.47	
Container + Wt. of wet soil (gm) (W2)	81.50	95.15	100.57	104.19	
(Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	3.66	6.23	14.63	16.94	
Wt. of oven dry soil (gm) (W3-W1)	46.59	56.50	52.29	52.78	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	7.85	11.03	27.98	32.09	

Result Summary Liquid Limit (WL) % 16 Plastic Limit (Wp) NP Plasticity Index (Ip)





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

Type of Sample : SPT Date Of Testing : 13.05.2013

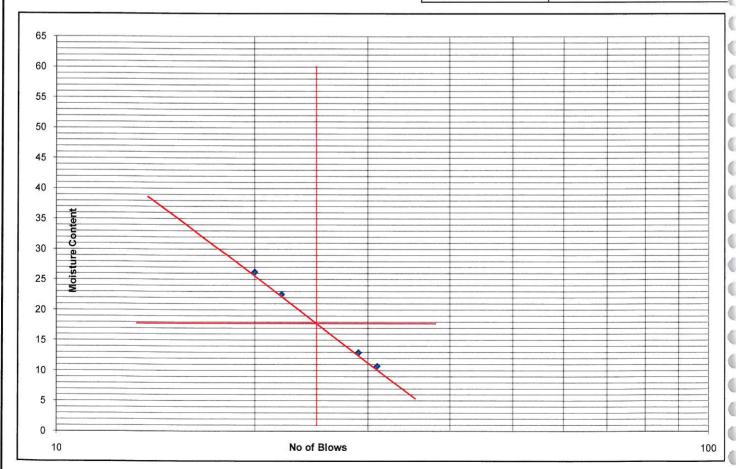
Location : BH-6(Yamuna River-Ambala) Sampled by : Binayak Swain

Depth : 3.0m Tested by : D.Mohanty

Number of Blows	31	29	22	20	Plastic Limit
Container No.	F1	F2	F3	F4	NP
Container Weight (gm) (W1)	34.52	35.65	36.15	37.12	
Container + Wt. of wet soil (gm) (W2)	82.50	95.82	97.16	100.39	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	4.66	6.90	11.21	13.14	
Wt. of oven dry soil (gm) (W3-W1)	43.32	53.27	49.79	50.13	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	10.75	12.95	22.52	26.20	71

Result Summary

Liquid Limit (WL)	18	%
Plastic Limit (Wp)	NP	
Plasticity Index (Ip)	_	





N 3/91, IRC Village, Bhubaneswar

DETERMINATION OF LIQUID LIMIT AND PLASTIC LIMIT

IS: 2720 (Part -5)

Client : DFCC

Project Name : G.I For 3 Nos. Important Bridges

6.0m

Type of Sample : SPT

Location

Depth

BH-6(Yamuna River-Ambala)

Date Of Testing

: 13.05.2013

Sampled by

: Binayak Swain

Tested by

: D.Mohanty

Number of Blows	28	30	21	23	Plastic Limit
Container No.	U1	U2	U3	U4	NP
Container Weight (gm) (W1)	33.1	32.57	31.08	34.41	
Container + Wt. of wet soil (gm) (W2)	84.54	96.01	99.88	98.78	
Wt of Container + Wt. of oven dry soil (gm) (W3)	77.84	88.92	85.94	87.25	
Wt. Of water (gm) (W2-W1)-(W3-W1)	6.70	7.09	13.94	11.53	
Wt. of oven dry soil (gm) (W3-W1)	44.74	56.35	54.86	52.84	
Moisture Content (%)= [(W2-W1)-(W3-W1)]/(W3-W1) X 100	14.98	12.58	25.41	21.81	

	Result Summa	ıry	
Liquid Limit (WL)	19	%	
Plastic Limit (Wp)	NP		
Plasticity Index (Ip)	<u></u>		

