

Table-2.5 Laboratory Test Results of Soil Samples from BH-5

Depth of Sample (m)	SPT-Value	Type of Sample	Engineering Description of Soil	Clay							Relative Density / Consistency	Sand					IS-Classification	
				NMC(%)	LL (%)	PL (%)	PI	lc	SL (%)	FS (%)		Gravel (%)	Coarse (%)	Medium (%)	Fine (%)	Silt (%)		Clay (%)
2.0	16	SS	Silty Clay	21	43	22	21	1.05	14	45	V.Stiff	-	-	-	-	-	-	CI
3.0	27	SS	Silty Clay with Sand Pockets	20	40	22	18	1.11	13	42	-	-	-	-	-	-	-	CI
4.0	13	SS	Silty Clay	31	57	28	28	0.90	12	48	Stiff	-	-	-	-	-	-	CH
5.0	.1	SS	Silty Clay with Mica Flakes	48	50	23	27	0.07	13	70	V.Soft	-	-	-	-	-	-	CH
6.0	2	SS	-	49	51	23	28	0.07	12	75	-	-	-	-	-	-	-	CH
7.0	101	SS	Weathered Rock	-	-	-	-	-	-	-	V.Dense	17	6	24	27	26	0	GM

Table-2.6 Results of Chemical Analysis

SL No.	Bore Hole No.	Water				Soil			
		Depth of Sample (m)	pH	Chlorides (ppm)	Sulphates (ppm)	Depth of Sample (m)	pH	Chlorides (ppm)	Sulphates (ppm)
1	BH-1	2.00	7.15	354	435	1.00	7.25	385	452
2	BH-2	2.60	7.25	365	459	2.00	7.35	392	472
3	BH-3	3.00	7.20	372	472	2.00	7.30	395	490
4	BH-4	3.00	7.15	348	485	1.00	7.25	384	495
5	BH-5	1.70	7.20	359	445	2.00	7.25	386	482

REFERENCE BORE HOLE-BH-

4

Ref R.L. of G.L. (m)

0

Layer No.	Layer Thk. (m)			Type of Strata	Colour	Ave. Design SPT	Relative Density	Consistency	(γ) kN/m ³	Shear Parameters	
	Top. R.L.	Bot. R.L.	Thickness							(C _u) kPa	(ϕ) Deg.
1	0.00	1.80	1.80	Filled Up Soil (Sandy Silty Clay)	Brownish	17	-	-	-	113	-
2	1.80	3.50	1.70	Silty Fine Sand Mixed Gravel	Brownish	36	Dense	-	19.5	-	37.7
3	3.50	5.00	1.50	Sandy Silty Clay	Brick Reddish	39	-	Hard	21	260	-
4	5.00	6.80	1.80	Clayey Silty Sand (Cemented Sand)	Brick Reddish to Greenish	60	Dense	-	20.5	-	41
5	6.80	7.00	0.20	Weathered Rock	Brownish Yellow	60	Very Dense	-	20.5	-	42.5

REFERENCE BORE HOLE-BH-

5

Ref R.L. of G.L. (m)

0

Layer No.	Layer Thk. (m)			Type of Strata	Colour	Ave. Design SPT	Relative Density	Consistency	(γ) kN/m ³	Shear Parameters	
	Top. R.L.	Bot. R.L.	Thickness							(C _u) kPa	(ϕ) Deg.
1	0.00	1.40	1.40	Filled up Materials	-	-	-	-	-	-	-
2	1.40	2.70	1.30	Silty Clay	Brownish Grey	16	-	Very Stiff	20	107	-
3	2.70	4.00	1.30	Silty Clay	Greyish	27	-	Very Stiff	20.5	180	-
4	4.00	5.00	1.00	Silty Clay	Blackish	13	-	Stiff	19	87	-
5	5.00	6.00	1.00	Silty Clay	Blackish	2	-	Very Soft	14	13	-
6	6.80	7.00	0.20	Weathered Rock	Greyish	60	Very Dense	-	20.5	-	-

Project: Proposed Construction of Compound wall at IIT Madras, Chennai.
 Location: IIT Campus
 Bore Hole No.: BH- 5

RL of G.L.: 0.000 m R.L of G.W.T 1.700 m
 Started on : 04/02/10 Ended on : 04/02/10 Dia. of Bore 150mm

Stratification Data				SPT - Data													Type of Sample					
Depth Below G.L. (m)	G.W.T (m)	Soil Profile	Description of Soil	Depth of SPT (m)	No. of Blows for Pen (cm)														Depth of Sample (m)	Type of Sample		
					0-15	15-30	30-45	N	0	10	20	30	40	50	60	70	80	90				
1.400			Filled Up (Road Materials)	1.000	-	-	-	-													1.000	SS
1.700			Brownish to Greyish V. Stiff Silty Clay Undrained Shear Strength 106.67kPa	2.000	5	7	9	16													2.000	SS
2.700				3.000	7	13	14	27														3.000
4.000			Greyish V. Stiff Silty Clay with Sand Pockets Undrained Shear Strength 160kPa	4.000	3	6	7	13													4.000	SS
5.000			Blackish Stiff Silty Clay Undrained Shear Strength 66.67kPa	5.000	1	0	1	1													5.000	SS
6.800			Blackish V. Soft Marne Silty Clay Mixed Mica Flakes Undrained Shear Strength 13.33kPa	6.000	1	1	1	2													6.000	SS
			Greyish Weathered Rock Angle of Shearing Resistance 42.5°	7.000	12	34	67	101													7.000	SS

Borehole terminated at 7 m depth below E.G.L.

FIG.2.5 Sub Soil Profile at BH-5 Location