(i)	Submerged condition Under water table.	
	a) Rock with discontinuous joints with opening less than 1mm wide;	3/4
	b) Rock with continuous joints with opening 1 to 5 mm wide and filled with clay; and	3/4 to 1/2
	c) Limestone/Dolomite deposit with major cavities filled soil	2/3 to 1/2
(ii)	Cavities	
	Major cavities inside limestone (Core recovery less than 70%)	1/2
(iii)	Slope	
	a) Fair orientation of continuous joints in the slope	1 to 1/2
	b) Unfavorable orientation of continuous joints in slope	1/2 to 1/3

6.2. Computation of Bearing Capacity for Sandy & Clayey Strata

The ultimate net bearing capacity is obtained as per clause 5.1.1 of IS:6403-1981.

a) In case of general shear failure (qd)= C.Nc.Sc.Dcic + q(Nq-1)Sq.dq.iq+ 0.5γ.B.Nγ.Sγ.Dγ.iγ.w'.

b) In case of local shear failure (q'd)=2/3 C.N'c.Sc.Dcic+ q(N'q-1)Sq.dq.iq+0.5γ.B.N'γ.Sγ.Dγ.iγ.w'.

Criteria for analysis as per clause 5,2,1.1 of IS:6403-1981 is given below.

Method of analysis base on relative density			
Relative Density	Void Ratio	Condition	Method of Analysis
Greater than 70%	less than 0.55	Dense	General Shear
Less than 20%	Greater than 0.75	Loose	Local Shear(as well as punching shear)
20% to 70%	0.55 to 0.75	Medium	interpolate between (i & ii)

Where;

C=cohesion in kg/sq.cm

Nc, N'c Nq N'q and Nγ N'γ =Bearing capacity factor

Sc, Sq and Sγ =Shape factor

Dc, Dq and Dγ =Depth factor

ic,iγ,&iγ =inclination Factor

γ =bulk unit weight of foundation soil.

q =effective surcharge at the base level of foundation in (kg/sq.cm)

B =Width of footing(cm)

W' =Correction factor for location of water table.

As per clause no. 5.2.2.1 the ultimate net bearing capacity shall be calculated from the following formula.(Based on SPT Value)

(qd)=q(Nq-1)Sq.dq.iq+ 0.5γ.B.Nγ.Sγ.Dγ.iγ.w'

All parameters are same as above, only Φ is read from fig.1 of IS:6403-1981.

The bearing capacity factor ,Depth factor, Shape Factor, inclination factor & effect of water table given below.

Bearing Capacity Factor(IS:6403-1981)			
Φ (deg)	Nc	Nq	Nγ
0	5.14	1	0
5	6.14	1.57	0.45
10	8.35	2.47	1.22
15	10.98	3.94	2.65
20	14.83	6.4	5.39
25	20.72	10.66	10.88
30	30.14	18.4	22.4
35	46.12	33.3	48.03
40	75.31	64.2	109.41
45	138.88	134.88	271.76
50	266.89	319.07	762.89

For obtaining N'c, N'q& N'γ, Φ'=tan-1(0.67tan Φ) and the values are respectively.

Shape Factor(IS:6403-1981)			
Sl.no shape of base	Sc	Sq	Sγ
Continious strip	1	1	1
Rectangle	1+0.2B/L	1+0.2B/L	1-0.4B/L
Square	1.3	1.2	0.8
Circle	1.3	1.2	0.6
where,B the diameter in the bearing capacity formula			

The depth factor shall be as under:

dc=1+ 0.2Dt/B√NΦ

dq=dy=1 for Φ<10deg.

dq=dy=1+0.1Dt/B√NΦ for Φ>10deg.

Here, the correction is to be applied only when back filling is done with proper compaction.
The Inclination Factor shall be under:

ic =iq=(1-a/90)^2

iy =(1-a/ Φ)^2

Where,

a =Inclination of the load to the vertical in deg.

Φ = Angle of shearing resistance of soil in deg.

Effect of Water table :

a) If the water table is likely to permanently remain at or below a depth of (Dt+B) beneath the ground level surrounding the footing then W'=1.
b) If the water table is located at a depth Dt or likely to rise to the base of footing or above the value of W' shall be taken as 0.5
c) If the water table is likely to permanently got located at a depth Dt<Dw<(Dt+B),then the value of W' be obtained by linear interpolation.

In the present case, the foundation has been provided at rocky strata, hence the bearing capacity has been computed for rocky strata and the same has been enclosed.

7. RECOMMENDATION.

7.1.Recommended Net Safe Bearing Capacity for open foundation.

Based upon the parameter, sub-soil profile, the lab test result and calculation of net Safe Bearing capacity for open type of foundation at the founding level is recommended and tabulated below.

Deternmination Ultimate Net Bearing capacity in soil based upon c-Φ value

The Net Ultimate Bearing Capacity is given q_u= C.Nc.Sc.Dc+q.Nq.Sq.Dq+0.5γ.Nγ.Sγ.Dγ-q

CHOICE OF FOUNDATION & FOUNDING LEVEL

Bore Hole No.	Depth (Df)	Width (B)	Length (L)	Cohesion (C = t/sqm)	Overburden Pressure (q = t/sqm)	Bulk Density below Foundation (γ)	Submerge Density	ϕ/	Net Ultimate B.C. in t/sqm	Net Safe B.C. in t/sqm
BH-1	1.00	2.00	1.50	0.91	1.278	2.28	1.278	18	28	11
	3.00	3.00	2.00	2.27	3.825	2.28	1.275	16	59	24
BH-2	1.50	2.00	2.00	1.44	1.914	2.28	1.276	17	36	14
	3.50	3.50	3.50	2.29	4.452	2.27	1.272	16	65	26
BH-3	1.00	2.00	1.50	1.37	1.269	2.27	1.269	18	34	14
	3.00	3.00	2.00	2.10	3.795	2.27	1.265	16	61	24
BH-4	1.00	2.00	1.50	0.80	1.276	2.28	1.276	18	26	11
	3.00	3.00	2.00	2.10	3.816	2.27	1.272	16	61	24
BH-5	1.00	2.00	2.00	1.08	1.31	2.31	1.310	18	29	12
	3.00	3.50	3.50	0.99	3.885	2.30	1.295	18	46	18
BH-6	1.00	2.00	1.50	0.91	1.274	2.27	1.274	18	28	11
	3.00	3.00	2.00	0.82	3.3	2.10	1.1	18	43	17
BH-7	1.00	2.00	1.50	0.94	1.451	2.45	1.451	18	30	12
	3.00	3.00	2.00	0.96	3.828	2.28	1.276	18	49	20
BH-8	1.00	2.00	2.00	0.91	1.272	2.27	1.272	18	26	10
	3.00	3.50	3.50	0.94	4.35	2.45	1.450	18	53	21
BH-9	1.00	2.00	1.50	0.71	1.395	2.40	1.395	19	28	11
	3.00	3.00	2.00	1.05	4.23	2.41	1.41	18	49	20
BH-10	1.00	2.00	1.50	0.94	1.451	2.45	1.451	18	30	12
	3.00	3.00	2.00	0.94	4.176	2.39	1.392	18	51	21
BH-11	1.00	2.00	2.00	0.76	1.276	2.28	1.276	19	26	10
	3.00	3.50	3.50	0.94	3.816	2.27	1.272	18	49	20
BH-12	1.00	2.00	1.50	0.98	1.395	2.40	1.395	18	31	12
	3.00	3.00	2.00	0.93	4.38	2.46	1.46	19	53	21
BH-13	1.00	2.00	1.50	1.10	1.421	2.42	1.421	17	30	12
	3.00	3.00	2.00	0.52	4.23	2.41	1.41	19	44	17
BH-14	1.00	2.00	1.50	0.94	1.451	2.45	1.451	18	30	12
	3.00	3.00	2.00	0.76	4.176	2.39	1.392	19	53	21
BH-15	1.00	2.00	2.00	0.82	1.276	2.28	1.276	18	27	11
	3.00	3.50	3.50	0.60	3.816	2.27	1.272	18	39	15
BH-16	1.00	2.00	1.50	0.95	1.27	2.27	1.27	19	29	12
	3.00	3.00	2.00	0.97	3.795	2.27	1.265	18	45	18

8. BORELOG :

Bore Log Data Sheet									BH. No.- 01		
Site	PLOT 485, BAJRA			Client:	Jharkhand Urban Infrastructure Development Corporation						
Type of Boring		Auger & Rotary		Job No. :							
Dia of Hole (mm):		150		Bore Hole No. :			BH. No.- 01				
Depth (M):		4.00									
Water Struc:		Ground Water:	N/A	Location of Bore Hole			Marked-01				
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.	
				0-150	150-300	300-450	N				
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1			
		1.00	2.00	8	9	10	19				
Organic Silt Clay (OL)		2.00	3.00	10	12	14	26				
		3.00	4.00					UDS-2/1			

Bore Log Data Sheet									BH. No.- 02		
Site	PLOT 485, BAJRA			Client:	Jharkhand Urban Infrastructure Development Corporation						
Type of Boring		Auger & Rotary		Job No. :							
Dia of Hole (mm):		150		Bore Hole No. :			BH. No.- 02				
Depth (M):		4.50									
Water Struc:		Ground Water:	N/A	Location of Bore Hole			Marked-02				
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.	
				0-150	150-300	300-450	N				
Organic Clay Soil (OH)		0.00	1.50					UDS-1/1			
		1.50	2.50	8	9	11	20				
Organic Silt Clay (OL)		2.50	3.50	10	12	15	27				
		3.50	4.50					UDS-2/1			

Bore Log Data Sheet										BH. No.- 03
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 03			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-03			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	10	12	22			
Organic Silt Clay (OL)		2.00	3.00	10	13	15	28			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 04
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 04			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-04			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	9	12	21			
Organic Silt Clay (OL)		2.00	3.00	10	13	14	27			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 05
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 05			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-05			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	9	12	21			
Organic Silt Clay (OL)		2.00	3.00	10	13	14	27			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 06
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 06			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-06			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	10	12	22			
Organic Silt Clay (OL)		2.00	3.00	10	13	15	28			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 07
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 07			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-07			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	11	12	23			
Organic Silt Clay (OL)		2.00	3.00	10	13	15	28			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 08
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 08			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-08			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	10	11	21			
Organic Silt Clay (OL)		2.00	3.00	10	12	15	27			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 09
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 09			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-09			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	10	11	21			
Organic Silt Clay (OL)		2.00	3.00	10	12	15	27			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 10
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 10			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-10			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	10	12	22			
Organic Silt Clay (OL)		2.00	3.00	10	13	15	28			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 11
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 11			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-11			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	9	12	21			
Organic Silt Clay (OL)		2.00	3.00	10	13	14	27			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 12
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 12			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-12			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	10	11	21			
Organic Silt Clay (OL)		2.00	3.00	10	13	15	28			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 13
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 13			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-13			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	10	12	22			
Organic Silt Clay (OL)		2.00	3.00	10	13	14	27			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 14
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 14			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-14			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	11	12	23			
Organic Silt Clay (OL)		2.00	3.00	10	13	15	28			
		3.00	4.00					UDS-2/1		

Bore Log Data Sheet										BH. No.- 15
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 15			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-15			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	10	11	21			
Organic Silt Clay (OL)		2.00	3.00	10	12	13	25			
		3.00	4.00					UDS-2/1		

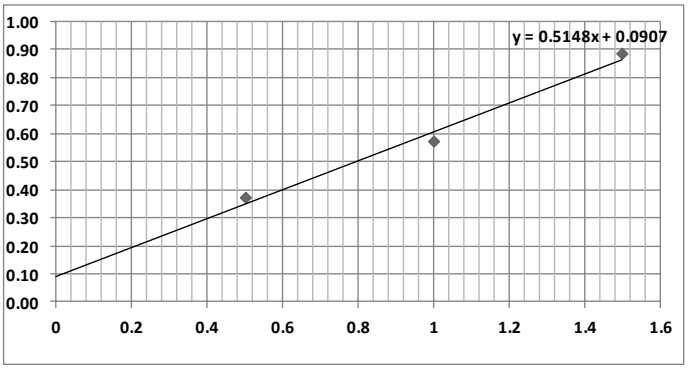
Bore Log Data Sheet										BH. No.- 16
Site	PLOT 485, BAJRA				Client:	Jharkhand Urban Infrastructure Development Corporation				
Type of Boring		Auger & Rotary			Job No. :					
Dia of Hole (mm):		150			Bore Hole No. :		BH. No.- 16			
Depth (M):		4.00								
Water Struc:		Ground Water:	N/A		Location of Bore Hole		Marked-16			
Description of Strata	Symbol	From (M)	To (M)	SPT Record				Sample Ref. No.	Core Revry (%)	R.Q.D.
				0-150	150-300	300-450	N			
Organic Clay Soil (OH)		0.00	1.00					UDS-1/1		
		1.00	2.00	8	10	12	22			
Organic Silt Clay (OL)		2.00	3.00	10	13	14	27			
		3.00	4.00					UDS-2/1		

9. DIRECT SHEAR TEST :

Condition of test:	CQ		Bore hole No.	BH-1
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

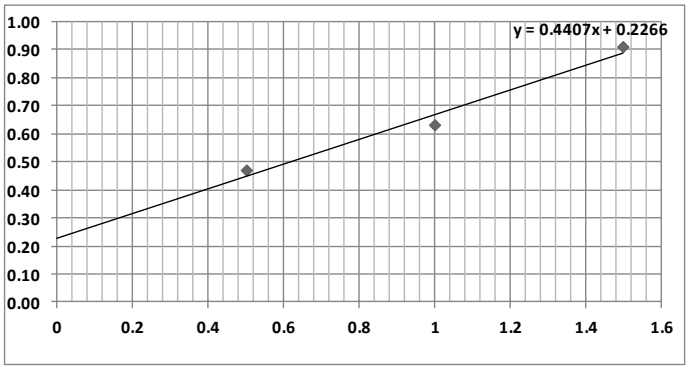
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.091	27.24	2.071	10.00
1	67	18.76	0.57	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-1
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.0M
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

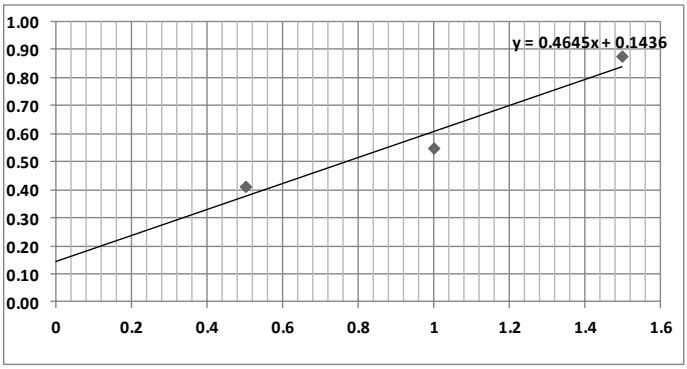
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	56	15.68	0.47	400	33.600	0.227	23.79	2.00	14.00
1	74	20.72	0.63	500	33.000				
1.5	105	29.4	0.91	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-2
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.5M
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 2			Proving ring constant	0.28kg/div.

TEST Results

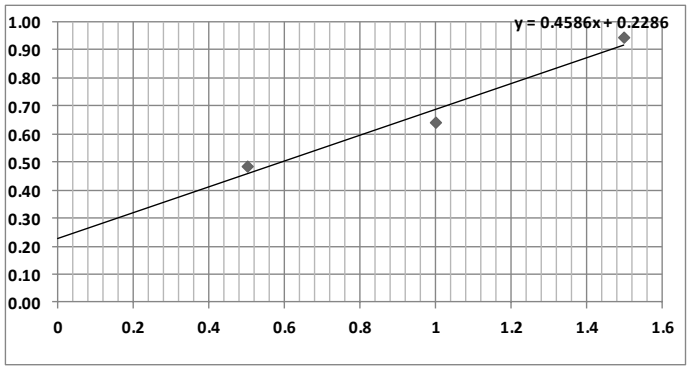
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	49	13.72	0.41	400	33.600	0.144	24.92	2.07	10.00
1	64	17.92	0.54	500	33.000				
1.5	101	28.28	0.87	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-2
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.5M
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 2			Proving ring constant	0.28kg/div.

TEST Results

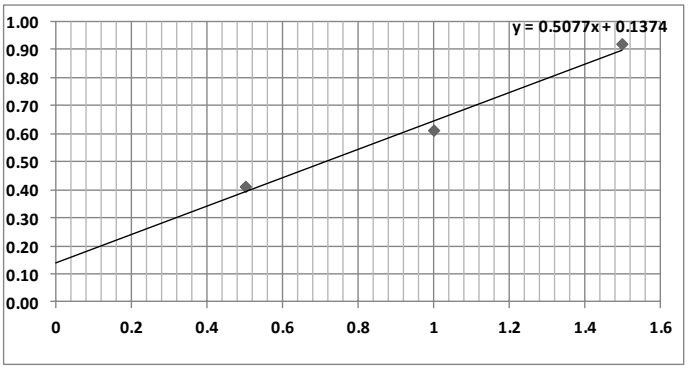
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	58	16.24	0.48	400	33.600	0.229	24.64	1.98	15.00
1	75	21	0.64	500	33.000				
1.5	109	30.52	0.94	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-3
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 3			Proving ring constant	0.28kg/div.

TEST Results

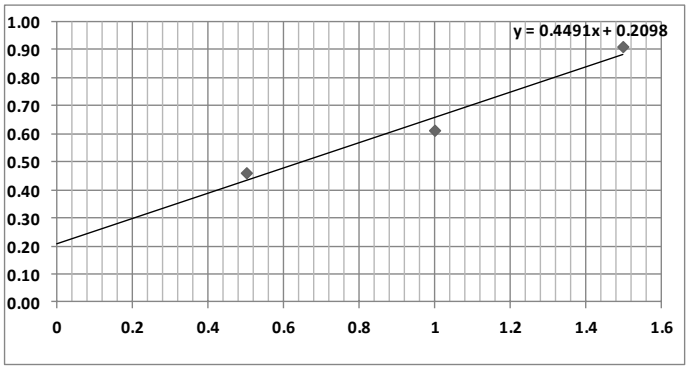
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	49	13.72	0.41	400	33.600	0.137	26.92	2.06	10.00
1	72	20.16	0.61	500	33.000				
1.5	106	29.68	0.92	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-3
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.0M
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 3			Proving ring constant	0.28kg/div.

TEST Results

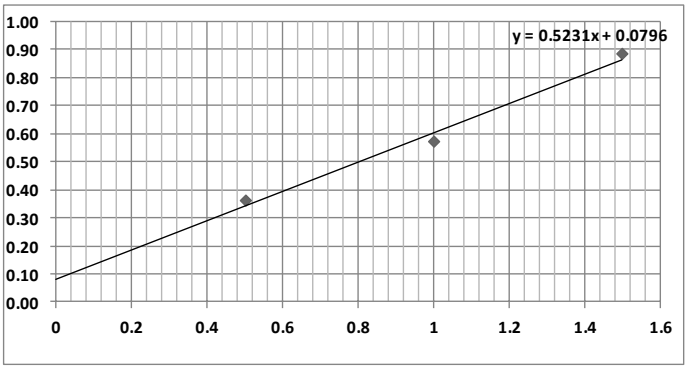
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	55	15.4	0.46	400	33.600	0.210	24.18	1.99	14.00
1	72	20.16	0.61	500	33.000				
1.5	105	29.4	0.91	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-4
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

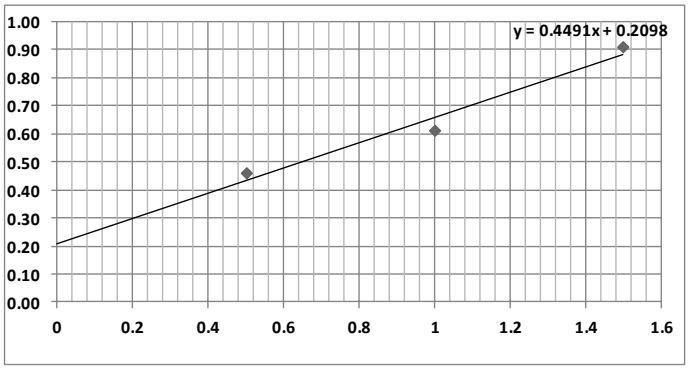
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	43	12.04	0.36	400	33.600	0.080	27.62	2.069	10.00
1	67	18.76	0.57	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-4
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.0M
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

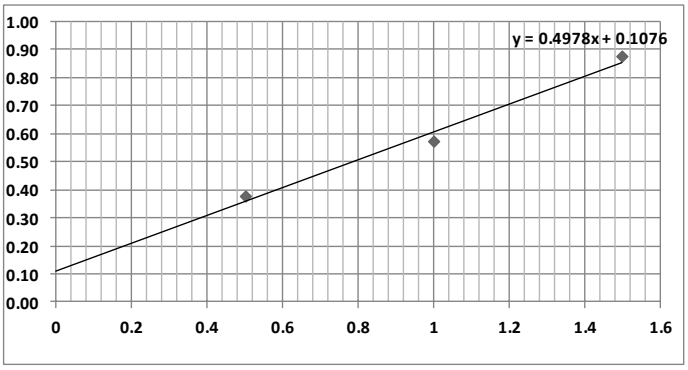
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	55	15.4	0.46	400	33.600	0.210	24.18	1.99	14.00
1	72	20.16	0.61	500	33.000				
1.5	105	29.4	0.91	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-5
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

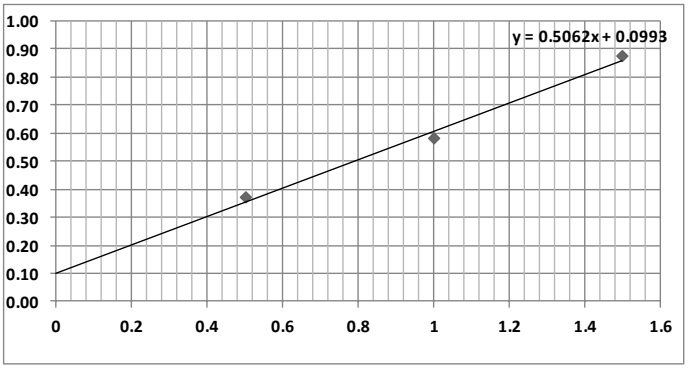
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	45	12.6	0.38	400	33.600	0.108	26.47	2.100	10.00
1	67	18.76	0.57	500	33.000				
1.5	101	28.28	0.87	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-5
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

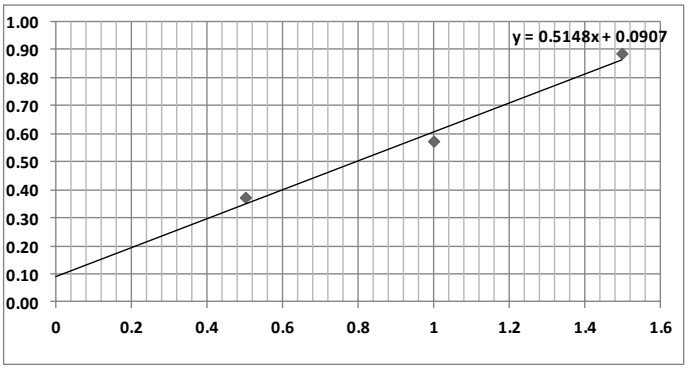
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.099	26.85	2.013	14.00
1	68	19.04	0.58	500	33.000				
1.5	101	28.28	0.87	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-6
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

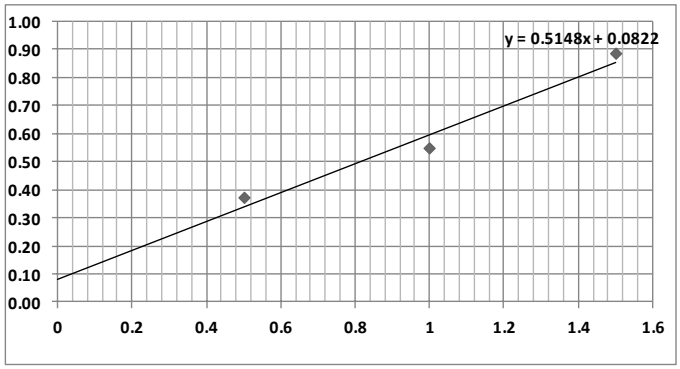
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.091	27.24	2.067	10.00
1	67	18.76	0.57	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-6
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

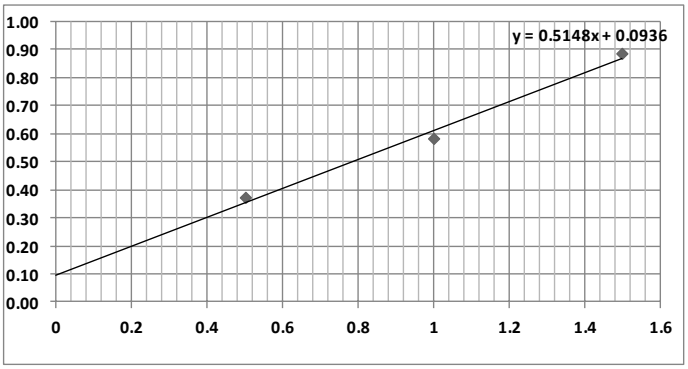
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.082	27.24	1.842	14.00
1	64	17.92	0.54	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-7
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

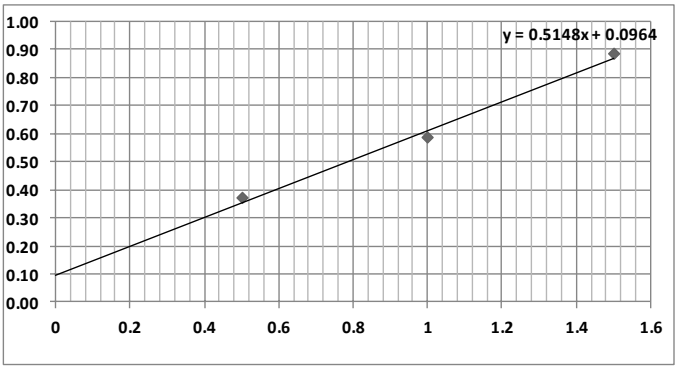
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.094	27.24	2.228	10.00
1	68	19.04	0.58	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-7
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

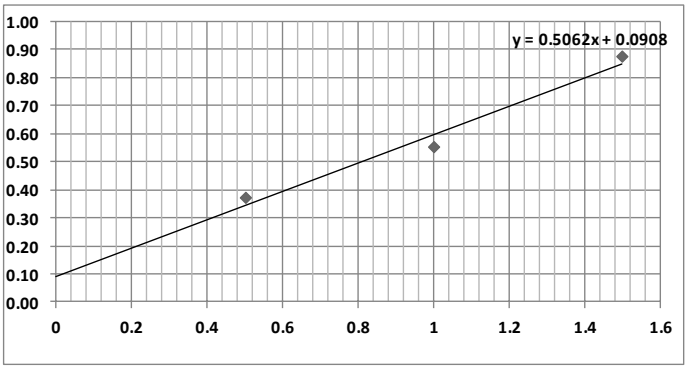
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.096	27.24	1.996	14.00
1	69	19.32	0.59	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-8
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

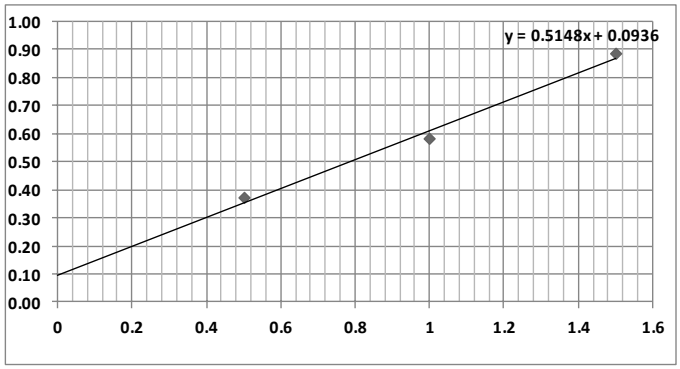
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.091	26.85	2.065	10.00
1	65	18.2	0.55	500	33.000				
1.5	101	28.28	0.87	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-8
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

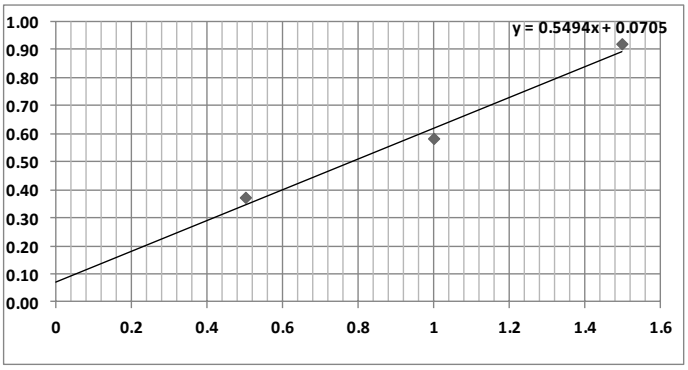
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.094	27.24	2.149	14.00
1	68	19.04	0.58	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-9
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

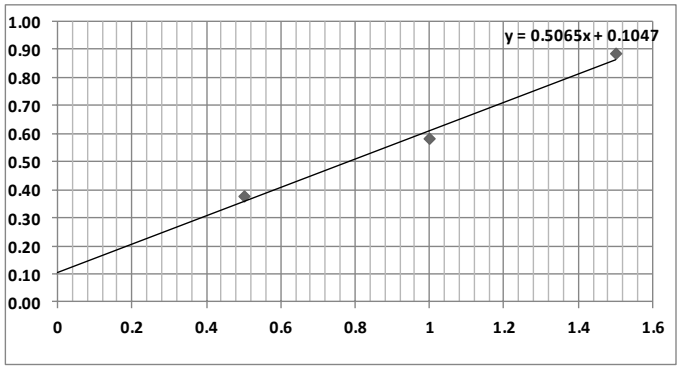
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.071	28.78	2.177	10.00
1	68	19.04	0.58	500	33.000				
1.5	106	29.68	0.92	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-9
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

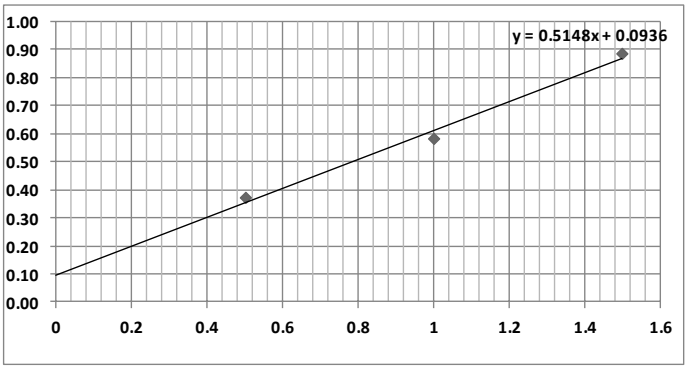
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	45	12.6	0.38	400	33.600	0.105	26.86	2.114	14.00
1	68	19.04	0.58	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-10
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

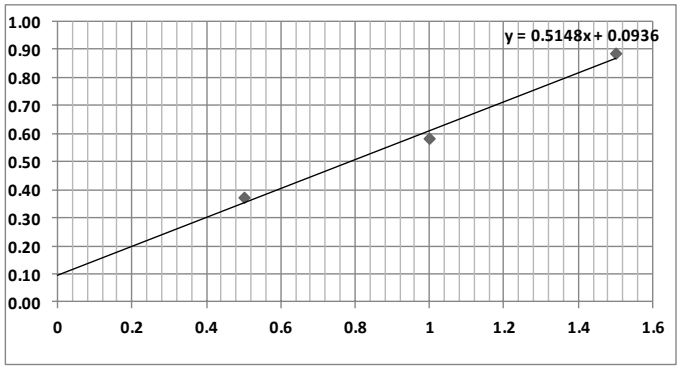
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.094	27.24	2.228	10.00
1	68	19.04	0.58	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-10
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

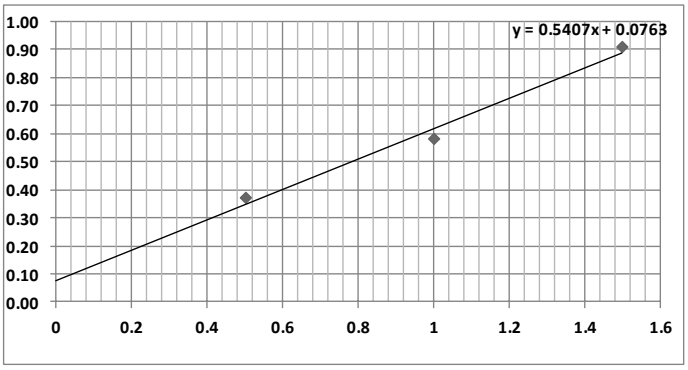
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.094	27.24	2.098	14.00
1	68	19.04	0.58	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-11
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

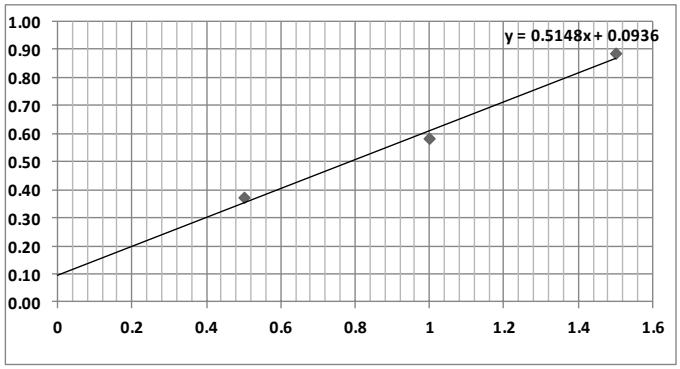
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.076	28.40	2.069	10.00
1	68	19.04	0.58	500	33.000				
1.5	105	29.4	0.91	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-11
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

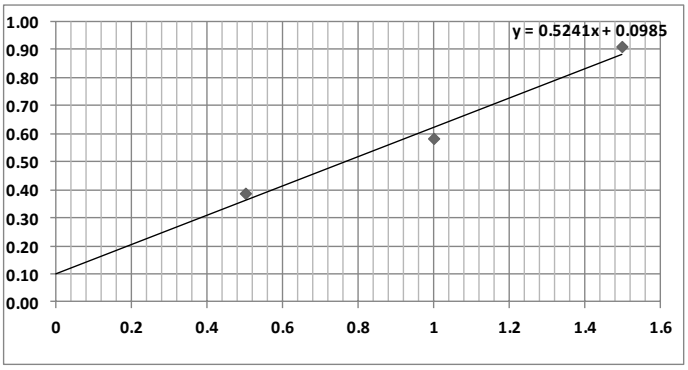
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.094	27.24	1.976	15.00
1	68	19.04	0.58	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-12
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

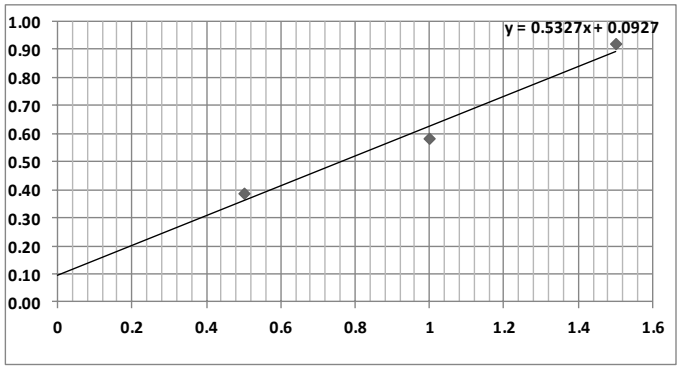
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	46	12.88	0.38	400	33.600	0.098	27.66	2.177	10.00
1	68	19.04	0.58	500	33.000				
1.5	105	29.4	0.91	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-12
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

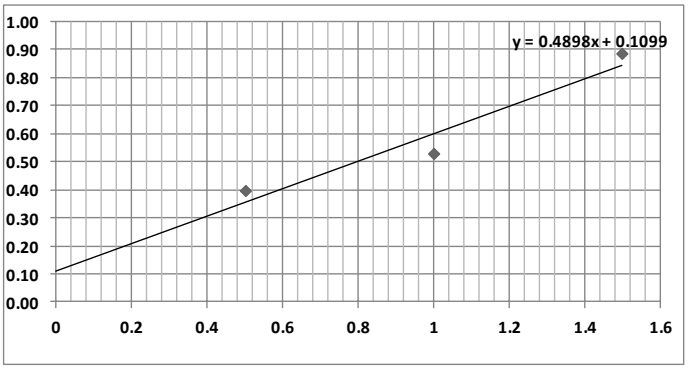
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	46	12.88	0.38	400	33.600	0.093	28.04	2.158	14.00
1	68	19.04	0.58	500	33.000				
1.5	106	29.68	0.92	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-13
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

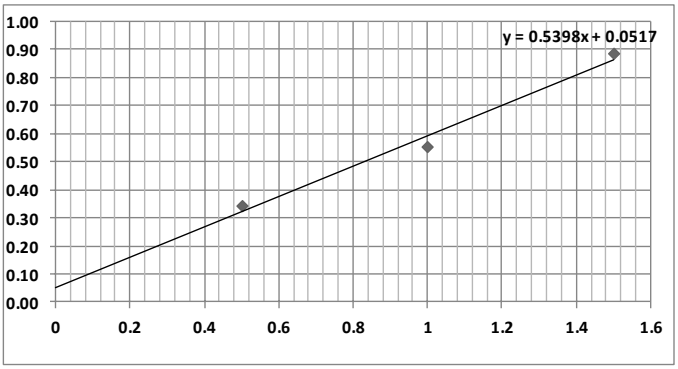
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	47	13.16	0.39	400	33.600	0.110	26.10	2.201	10.00
1	62	17.36	0.53	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-13
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

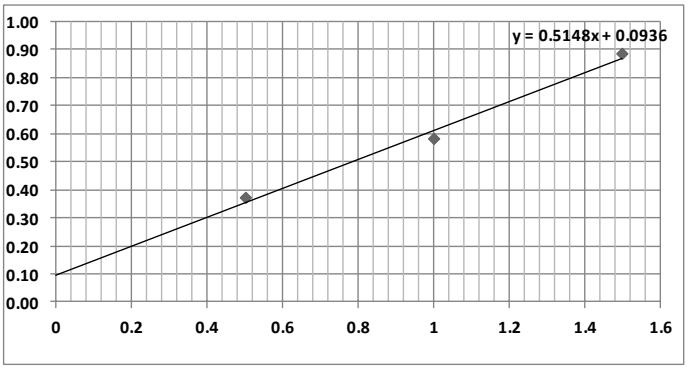
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	41	11.48	0.34	400	33.600	0.052	28.36	2.114	14.00
1	65	18.2	0.55	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-14
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

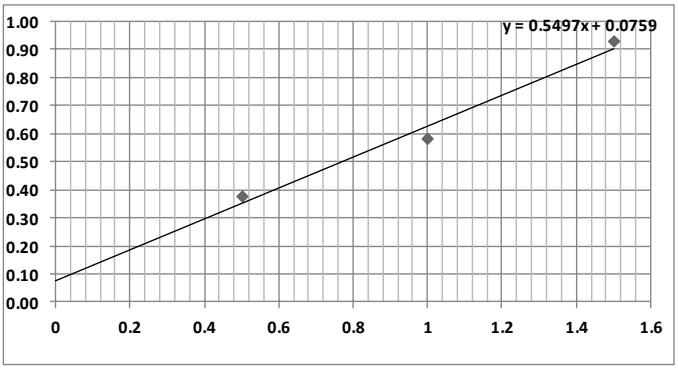
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.094	27.24	2.228	10.00
1	68	19.04	0.58	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-14
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

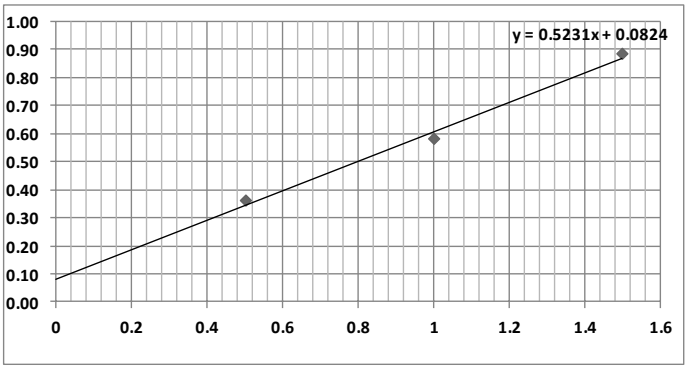
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	45	12.6	0.38	400	33.600	0.076	28.80	2.080	15.00
1	68	19.04	0.58	500	33.000				
1.5	107	29.96	0.92	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-15
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

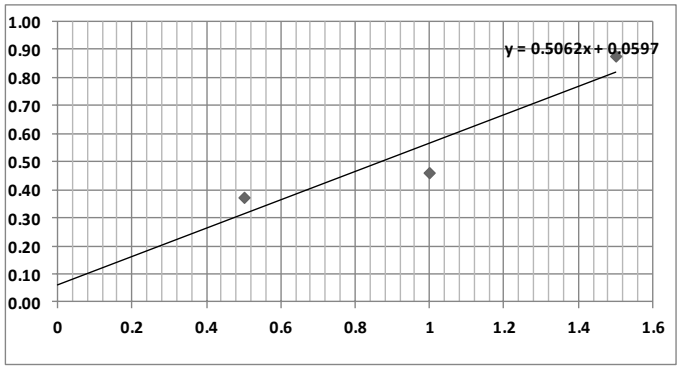
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	43	12.04	0.36	400	33.600	0.082	27.62	2.069	10.00
1	68	19.04	0.58	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-15
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

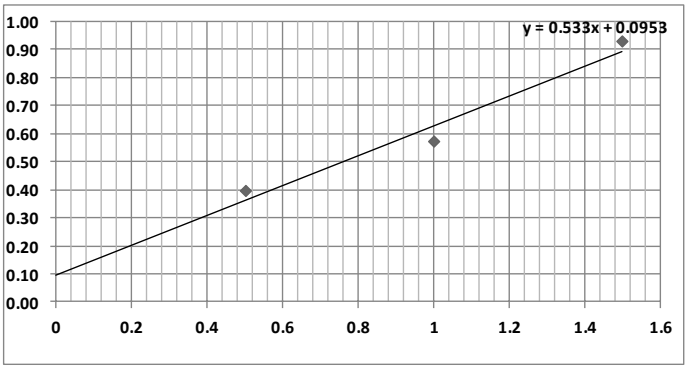
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.060	26.85	1.976	15.00
1	54	15.12	0.46	500	33.000				
1.5	101	28.28	0.87	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-16
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

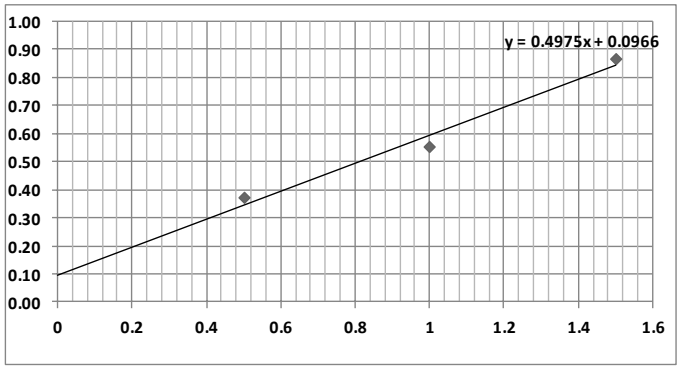
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	47	13.16	0.39	400	33.600	0.095	28.06	2.064	10.00
1	67	18.76	0.57	500	33.000				
1.5	107	29.96	0.92	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-16
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.097	26.45	1.987	14.00
1	65	18.2	0.55	500	33.000				
1.5	100	28	0.86	600	32.400				



10. LAB TEST RESULT :

SOIL TEST DATA SHEET

Project Name: Geotechnical investigation report for proposed housing compex at Plot 485-Bajra under Ranchi ULB, Jharkhand.

Client : JUIDCO

Consultant : SPARSH ENGINEERING COMPANY PVT.LTD **Structure-Housing**

SL NO.	Type of Sample	Depth m	DENSITY		NMC %	S_G	Grain Size Analysis				Consistancy Limit			Soil Classification	Shear Parameter			Consolidation	
			g_b gm/cm^3	g_d gm/cm^3			GRAVEL %	SAND %	SILT %	CLAY %	W_L %	W_P %	I_P %		Type of Test	c_u Kg/cm^2	ϕ_u Deg.	e_o	C_c cm2/ kg
BH-1	UDS-1/1	1.00	2.278	2.071	10.00	2.43	10.80	66.40	12.00	10.80	42.00	26.00	16.00	OH	-	0.091	27.240	-	-
	UDS-2/1	3.00	2.275	2.00	14.00	2.39	10.80	65.80	11.90	11.50	46.00	27.00	19.00	OL	-	0.227	23.785	-	-
BH-2	UDS-1/2	1.50	2.276	2.07	10.00	2.46	10.85	66.35	11.80	11.00	46.00	27.00	19.00	OH	-	0.144	24.915	-	-
	UDS-2/2	3.50	2.272	1.98	15.00	2.41	10.10	66.20	11.70	12.00	47.00	27.00	20.00	OL	-	0.229	24.638	-	-
BH-3	UDS-1/1	1.00	2.269	2.063	10.00	2.46	10.40	66.00	11.60	12.00	44.00	26.00	18.00	OH	-	0.137	26.918	-	-
	UDS-2/1	3.00	2.265	1.99	14.00	2.48	11.90	65.80	11.50	10.80	47.00	27.00	20.00	OL	-	0.210	24.184	-	-
BH-4	UDS-1/1	1.00	2.276	2.069	10.00	2.43	9.40	67.20	12.00	11.40	42.00	26.00	16.00	OH	-	0.080	27.616	-	-
	UDS-2/1	3.00	2.272	1.99	14.00	2.39	10.10	66.50	11.90	11.50	46.00	27.00	19.00	OL	-	0.210	24.184	-	-
BH-5	UDS-1/2	1.00	2.310	2.10	10.00	2.46	7.70	69.50	11.80	11.00	46.00	27.00	19.00	OH	-	0.108	26.466	-	-
	UDS-2/2	3.00	2.295	2.01	14.00	2.41	6.30	70.00	11.70	12.00	47.00	27.00	20.00	OL	-	0.099	26.847	-	-
BH-6	UDS-1/1	1.00	2.274	2.067	10.00	2.46	5.10	71.10	11.80	12.00	44.00	26.00	18.00	OH	-	0.091	27.240	-	-
	UDS-2/1	3.00	2.100	1.84	14.00	2.48	5.30	72.20	11.70	10.80	48.00	28.00	20.00	OL	-	0.082	27.240	-	-
BH-7	UDS-1/1	1.00	2.451	2.228	10.00	2.43	6.00	71.00	11.60	11.40	42.00	26.00	16.00	OH	-	0.094	27.240	-	-
	UDS-2/1	3.00	2.276	2.00	14.00	2.39	7.00	70.00	11.50	11.50	46.00	27.00	19.00	OL	-	0.096	27.240	-	-
BH-8	UDS-1/2	1.00	2.272	2.07	10.00	2.46	8.60	69.50	10.90	11.00	42.00	26.00	16.00	OH	-	0.091	26.847	-	-
	UDS-2/2	3.00	2.450	2.15	14.00	2.41	11.00	66.00	11.00	12.00	47.00	27.00	20.00	OL	-	0.094	27.240	-	-
BH-9	UDS-1/1	1.00	2.395	2.177	10.00	2.46	10.90	65.90	11.20	12.00	44.00	26.00	18.00	OH	-	0.071	28.784	-	-
	UDS-2/1	3.00	2.410	2.11	14.00	2.48	12.90	65.00	11.30	10.80	47.00	27.00	20.00	OL	-	0.105	26.861	-	-

L/S : Left Side — R/S : Right Side

g_b : Bulk Density — NMC : Natural Moisture Content — W_P : Plastic Limit — S_G : Specific gravity — ϕ_u :Undrained Angle of Friction

g_d : Dry Density — W_L : Liquid Limit — I_P : Plasticity Index — C_u : Undrain Cohesion — C_c :Coefficient of Consolidation

SOIL TEST DATA SHEET

Project Name: Geotechnical investigation report for proposed housing compex at Plot 485-Bajra under Ranchi ULB, Jharkhand.

Client : JUIDCO

Consultant : SPARSH ENGINEERING COMPANY PVT.LTD **Structure-Housing**

SL NO.	Type of Sample	Depth m	DENSITY		NMC %	S_G	Grain Size Analysis				Consistancy Limit			Soil Classification	Shear Parameter			Consolidation	
			g_b gm/cm^3	g_d gm/cm^3			GRAVEL %	SAND %	SILT %	CLAY %	W_L %	W_P %	I_P %		Type of Test	c_u Kg/cm^2	ϕ_u Deg.	e_o	C_c cm2/ kg
BH-10	UDS-1/1	1.00	2.451	2.228	10.00	2.43	11.95	65.90	10.75	11.40	42.00	26.00	16.00	OH	-	0.094	27.240	-	-
	UDS-2/1	3.00	2.392	2.10	14.00	2.39	12.70	64.80	11.00	11.50	49.00	28.00	21.00	OL	-	0.094	27.240	-	-
BH-11	UDS-1/2	1.00	2.276	2.07	10.00	2.46	12.00	65.00	12.00	11.00	48.00	28.00	20.00	OH	-	0.076	28.402	-	-
	UDS-2/2	3.00	2.272	1.98	15.00	2.41	11.00	64.00	13.00	12.00	47.00	27.00	20.00	OL	-	0.094	27.240	-	-
BH-12	UDS-1/1	1.00	2.395	2.177	10.00	2.46	10.00	66.00	12.00	12.00	48.00	28.00	20.00	OH	-	0.098	27.658	-	-
	UDS-2/1	3.00	2.460	2.16	14.00	2.48	14.20	64.00	11.00	10.80	47.00	27.00	20.00	OL	-	0.093	28.045	-	-
BH-13	UDS-1/1	1.00	2.421	2.201	10.00	2.46	10.10	67.00	10.90	12.00	46.00	27.00	19.00	OH	-	0.110	26.096	-	-
	UDS-2/1	3.00	2.410	2.11	14.00	2.48	13.20	65.00	11.00	10.80	47.00	27.00	20.00	OL	-	0.052	28.361	-	-
BH-14	UDS-1/1	1.00	2.451	2.228	10.00	2.43	8.60	68.00	12.00	11.40	42.00	26.00	16.00	OH	-	0.094	27.240	-	-
	UDS-2/1	3.00	2.392	2.08	15.00	2.39	10.40	66.00	12.10	11.50	46.00	27.00	19.00	OL	-	0.076	28.797	-	-
BH-15	UDS-1/2	1.00	2.276	2.07	10.00	2.46	11.20	65.90	11.90	11.00	46.00	27.00	19.00	OH	-	0.082	27.616	-	-
	UDS-2/2	3.00	2.272	1.98	15.00	2.41	9.70	66.00	12.30	12.00	49.00	28.00	21.00	OL	-	0.060	26.847	-	-
BH-16	UDS-1/1	1.00	2.270	2.064	10.00	2.46	12.00	65.00	11.00	12.00	44.00	26.00	18.00	OH	-	0.095	28.059	-	-
	UDS-2/1	3.00	2.265	1.99	14.00	2.48	13.20	64.00	12.00	10.80	47.00	27.00	20.00	OL	-	0.097	26.452	-	-

L/S : Left Side — R/S : Right Side

g_b : Bulk Density — NMC : Natural Moisture Content — W_P : Plastic Limit — S_G : Specific gravity — ϕ_u :Undrained Angle of Friction

g_d : Dry Density — W_L : Liquid Limit — I_P : Plasticity Index — C_u : Undrain Cohesion — C_c :Coefficient of Consolidation

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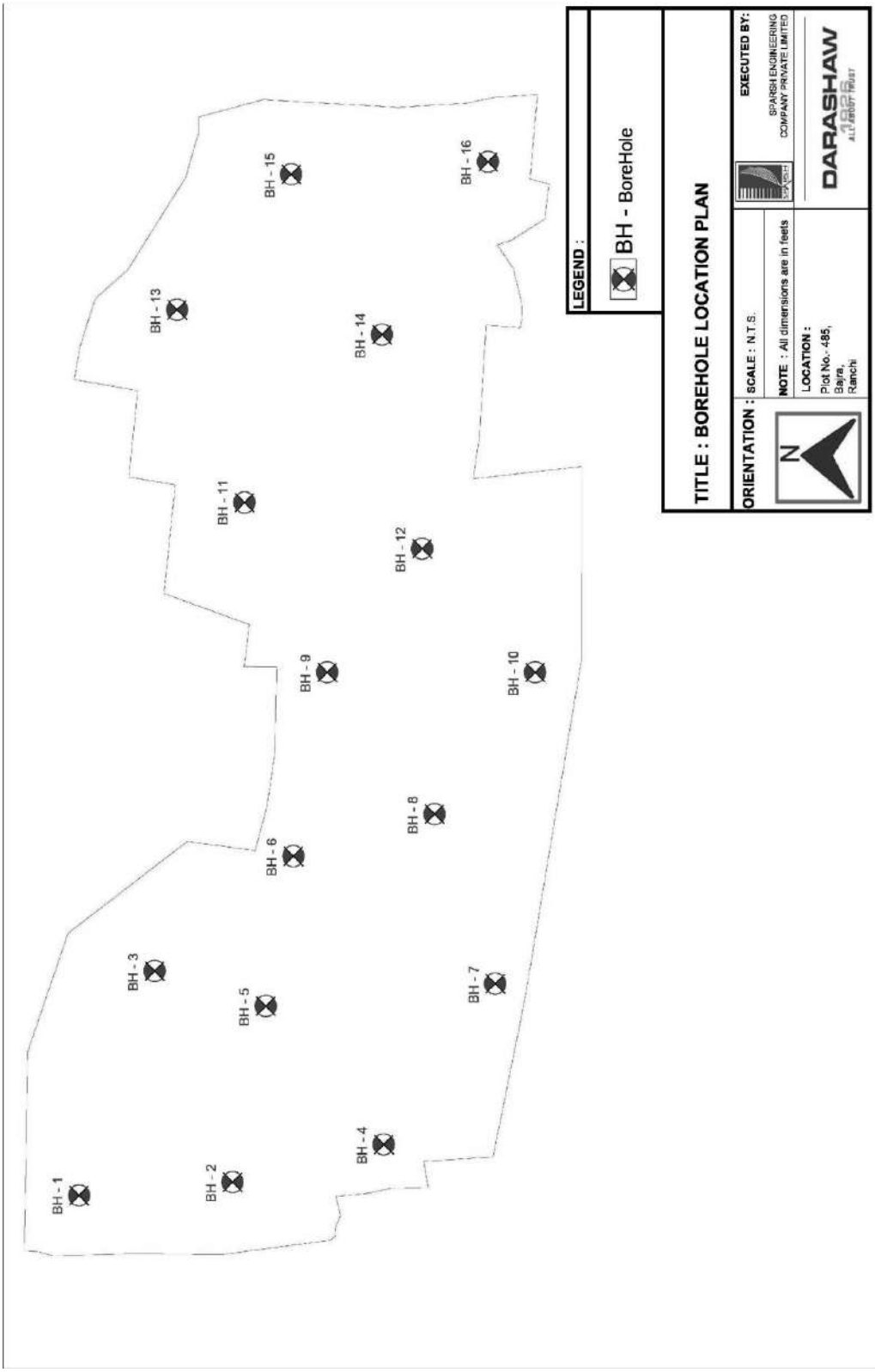
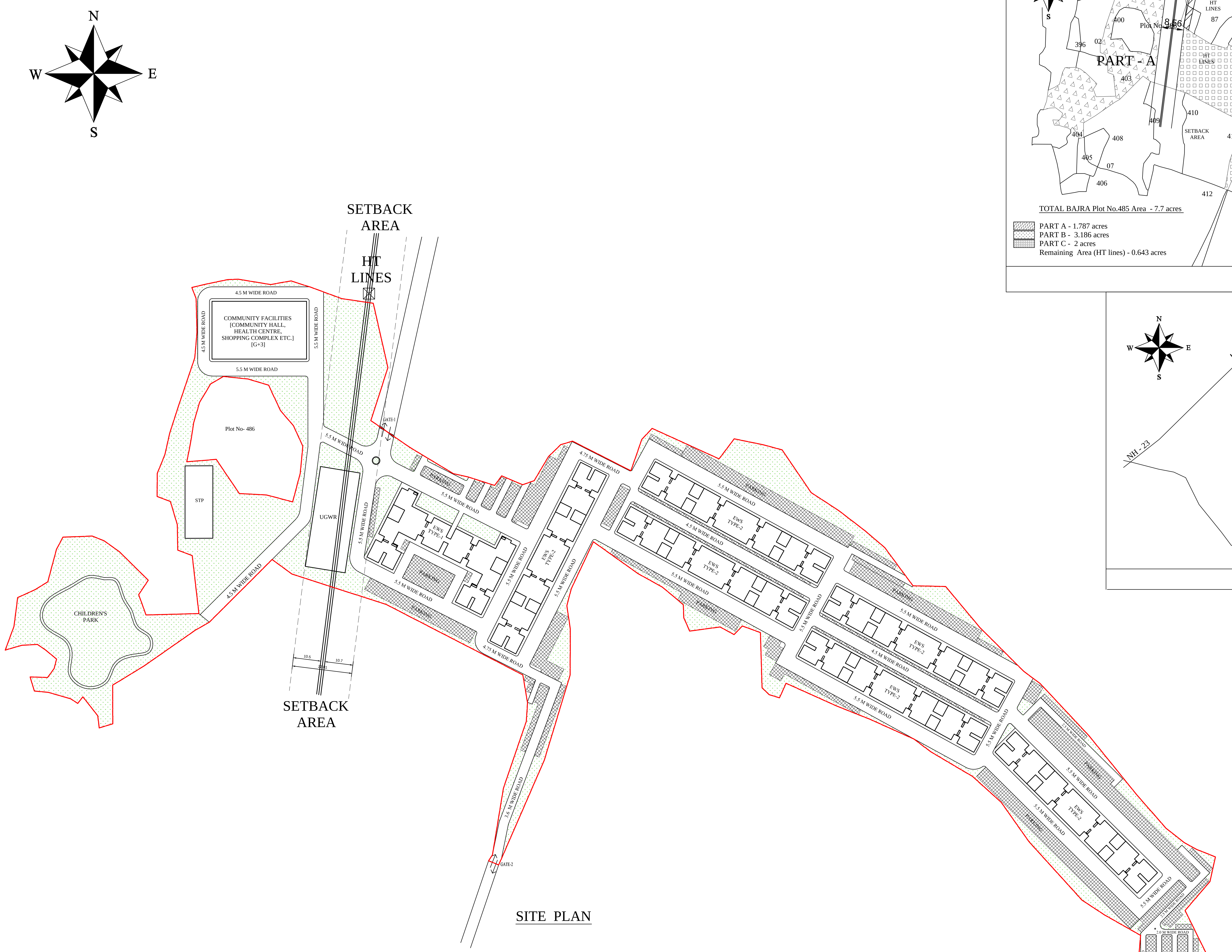
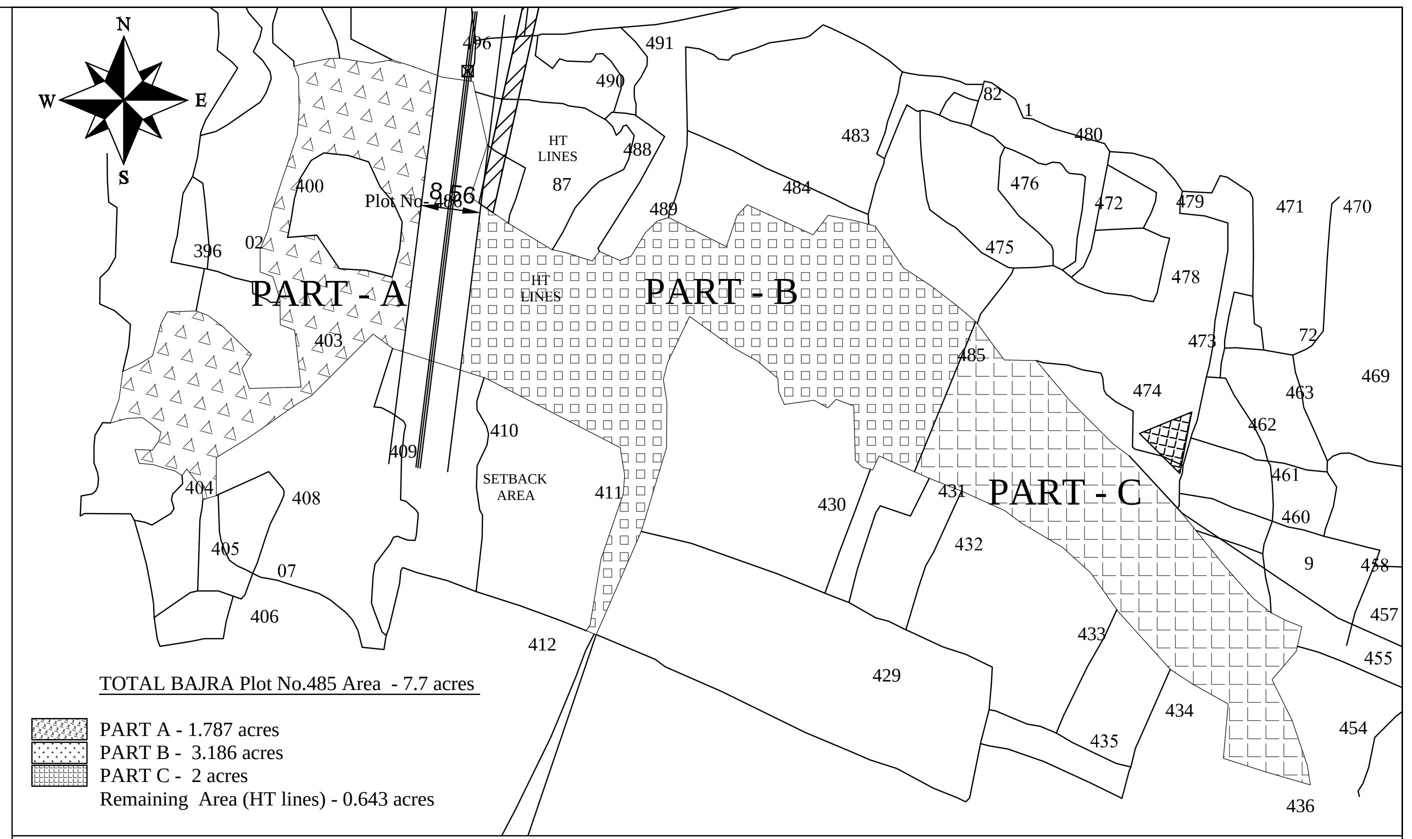
11. BORE HOLE LOCATION PLAN :



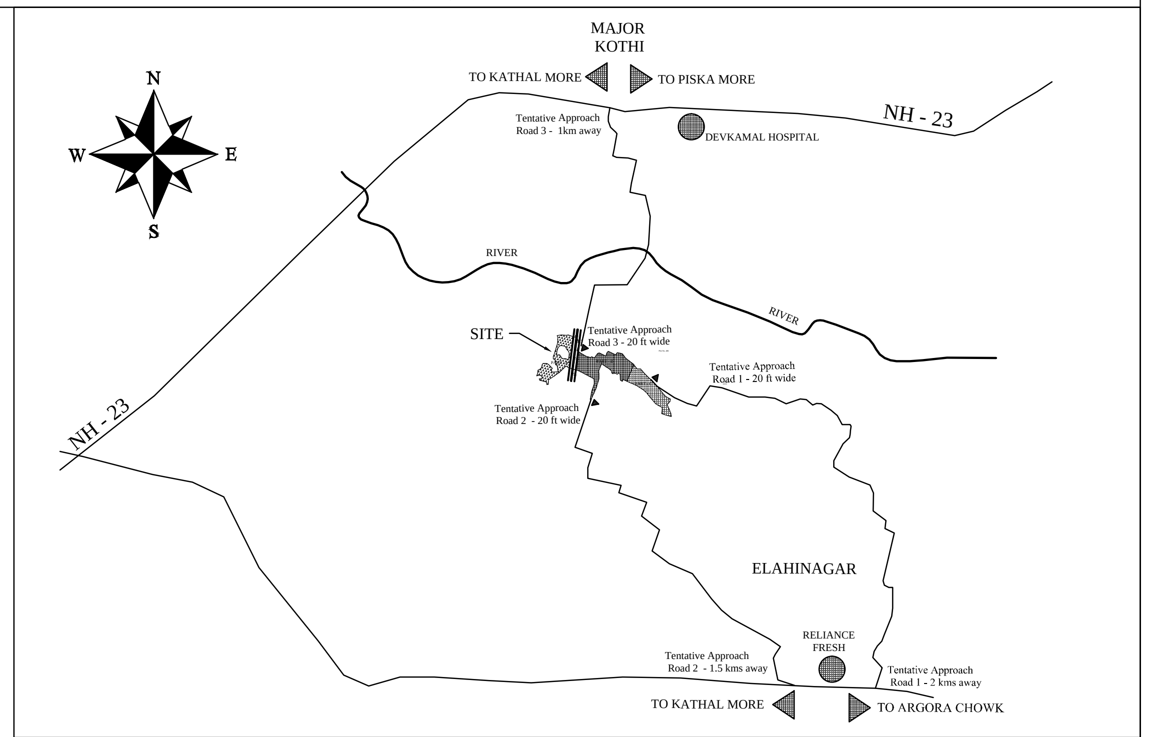
2.2.4 Layout Plan



SITE PLAN



KHASRA MAP
(NTS)



LOCATION PLAN
(NTS)

LEGEND:

- EWS BLOCK TYPE – 1
- EWS BLOCK TYPE – 2
- PARKING AREA
- GREEN AREA

NOTES :-

1. ALL DIMENSIONS ARE IN METER AND LEVELS IN METER.
2. THE LAYOUT HAS BEEN PREPARED IN ACCORDANCE WITH APPLICABLE PROVISIONS OF JHARKHAND BUILDING BYE LAWS - 2016 (FOR AFFORDABLE HOUSING).

DATE	NO.	REVISION	DRAWN	CHECKED	APPROVED

DARASHAW 1926 ALL ABOUT TRUST

OFFICE OF ORIGIN
RANCHI
FLAT NO.6A 6th FLOOR MARU TOWER
KANKE ROAD HATMA
RANCHI-834008,JHARKHAND.
TEL.0651-2547665.

CLIENT: GOVERNMENT OF JHARKHAND
JHARKHAND URBAN INFRASTRUCTURE DEVELOPMENT CORPORATION LTD

DATE 06-JUN-2019

ENGINEERING CONSULTANT: DARASHAW & CO.PVT.LTD
HEAD OFFICE
12th FLOOR, REGENT CHAMBERS,
NARIMAN POINT,
MUMBAI - 400021

DRAWN S.AHMAD

PROJECT: PREPARATION OF HOUSING FOR ALL PLAN OF ACTION, DPR AND PMC UNDER PMAY AHP/LHP

CHECKED KALLOL DAS

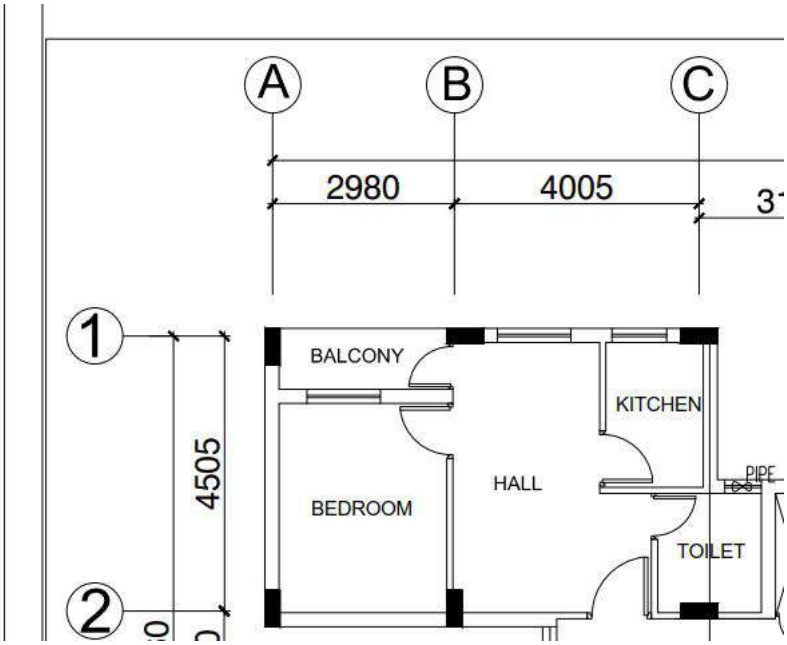
TITLE: SITE PLAN

APPROVED GEORGE THAMBI

DRG. NO. DCPL/0460T/LHP/AR/WD/01 — REV. P0

SCALE NTS

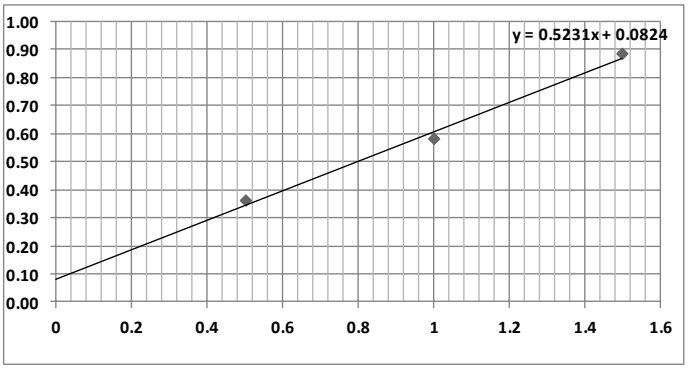
2.2.5 Unit Plan



Condition of test:	CQ		Bore hole No.	BH-15
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

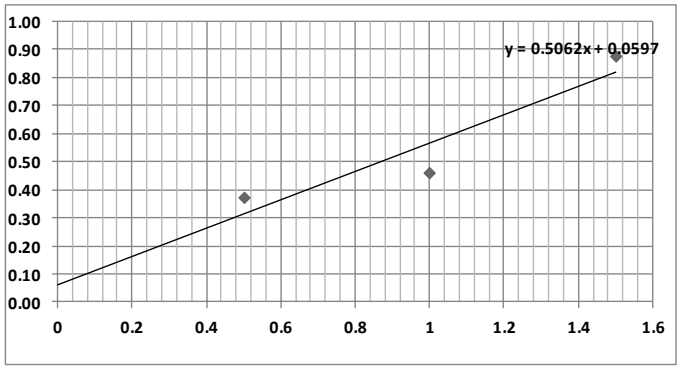
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	43	12.04	0.36	400	33.600	0.082	27.62	2.069	10.00
1	68	19.04	0.58	500	33.000				
1.5	102	28.56	0.88	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-15
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

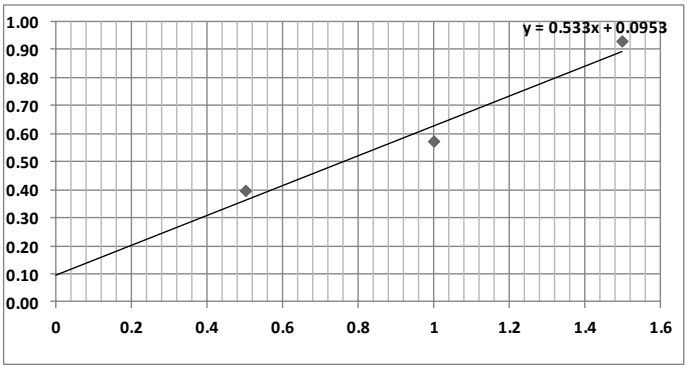
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.060	26.85	1.976	15.00
1	54	15.12	0.46	500	33.000				
1.5	101	28.28	0.87	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-16
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	1.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

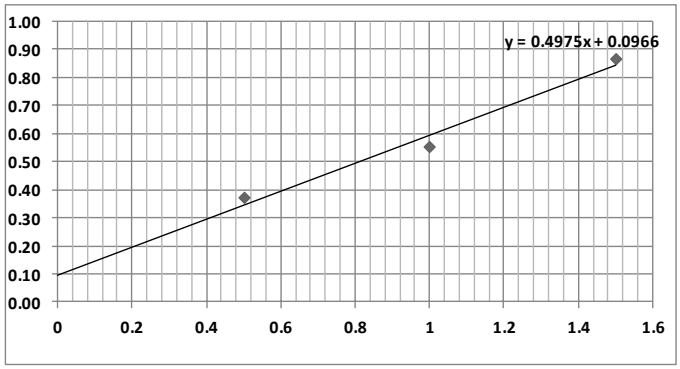
Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	47	13.16	0.39	400	33.600	0.095	28.06	2.064	10.00
1	67	18.76	0.57	500	33.000				
1.5	107	29.96	0.92	600	32.400				



Condition of test:	CQ		Bore hole No.	BH-16
Length of sample:(L)	60mm	DIRECT SHEAR TEST	Depth of sample	3.00
Width of sample:(W)	60mm	IS:2720(Part11)-1993	Least count of gauge	0.01mm/div.
BH 1			Proving ring constant	0.28kg/div.

TEST Results

Normal Stress (kg/sq.cm)	Dial read.	Load gauge Reading (KG)	Shear stress (kg/sq.cm)	Compression Gauge Reading	corrected area	C	φ (Deg)	Dry density (γ_d) gm/cc	Moisture Content(W) %
		at Failure							
Kg/sq.cm		Div.							
0.5	44	12.32	0.37	400	33.600	0.097	26.45	1.987	14.00
1	65	18.2	0.55	500	33.000				
1.5	100	28	0.86	600	32.400				



10. LAB TEST RESULT :

SOIL TEST DATA SHEET

Project Name: Geotechnical investigation report for proposed housing compex at Plot 485-Bajra under Ranchi ULB, Jharkhand.

Client : JUIDCO

Consultant : SPARSH ENGINEERING COMPANY PVT.LTD **Structure-Housing**

SL NO.	Type of Sample	Depth m	DENSITY		NMC %	S_G	Grain Size Analysis				Consistancy Limit			Soil Classification	Shear Parameter			Consolidation	
			g_b gm/cm^3	g_d gm/cm^3			GRAVEL %	SAND %	SILT %	CLAY %	W_L %	W_P %	I_P %		Type of Test	c_u Kg/cm^2	ϕ_u Deg.	e_o	C_c cm2/ kg
BH-1	UDS-1/1	1.00	2.278	2.071	10.00	2.43	10.80	66.40	12.00	10.80	42.00	26.00	16.00	OH	-	0.091	27.240	-	-
	UDS-2/1	3.00	2.275	2.00	14.00	2.39	10.80	65.80	11.90	11.50	46.00	27.00	19.00	OL	-	0.227	23.785	-	-
BH-2	UDS-1/2	1.50	2.276	2.07	10.00	2.46	10.85	66.35	11.80	11.00	46.00	27.00	19.00	OH	-	0.144	24.915	-	-
	UDS-2/2	3.50	2.272	1.98	15.00	2.41	10.10	66.20	11.70	12.00	47.00	27.00	20.00	OL	-	0.229	24.638	-	-
BH-3	UDS-1/1	1.00	2.269	2.063	10.00	2.46	10.40	66.00	11.60	12.00	44.00	26.00	18.00	OH	-	0.137	26.918	-	-
	UDS-2/1	3.00	2.265	1.99	14.00	2.48	11.90	65.80	11.50	10.80	47.00	27.00	20.00	OL	-	0.210	24.184	-	-
BH-4	UDS-1/1	1.00	2.276	2.069	10.00	2.43	9.40	67.20	12.00	11.40	42.00	26.00	16.00	OH	-	0.080	27.616	-	-
	UDS-2/1	3.00	2.272	1.99	14.00	2.39	10.10	66.50	11.90	11.50	46.00	27.00	19.00	OL	-	0.210	24.184	-	-
BH-5	UDS-1/2	1.00	2.310	2.10	10.00	2.46	7.70	69.50	11.80	11.00	46.00	27.00	19.00	OH	-	0.108	26.466	-	-
	UDS-2/2	3.00	2.295	2.01	14.00	2.41	6.30	70.00	11.70	12.00	47.00	27.00	20.00	OL	-	0.099	26.847	-	-
BH-6	UDS-1/1	1.00	2.274	2.067	10.00	2.46	5.10	71.10	11.80	12.00	44.00	26.00	18.00	OH	-	0.091	27.240	-	-
	UDS-2/1	3.00	2.100	1.84	14.00	2.48	5.30	72.20	11.70	10.80	48.00	28.00	20.00	OL	-	0.082	27.240	-	-
BH-7	UDS-1/1	1.00	2.451	2.228	10.00	2.43	6.00	71.00	11.60	11.40	42.00	26.00	16.00	OH	-	0.094	27.240	-	-
	UDS-2/1	3.00	2.276	2.00	14.00	2.39	7.00	70.00	11.50	11.50	46.00	27.00	19.00	OL	-	0.096	27.240	-	-
BH-8	UDS-1/2	1.00	2.272	2.07	10.00	2.46	8.60	69.50	10.90	11.00	42.00	26.00	16.00	OH	-	0.091	26.847	-	-
	UDS-2/2	3.00	2.450	2.15	14.00	2.41	11.00	66.00	11.00	12.00	47.00	27.00	20.00	OL	-	0.094	27.240	-	-
BH-9	UDS-1/1	1.00	2.395	2.177	10.00	2.46	10.90	65.90	11.20	12.00	44.00	26.00	18.00	OH	-	0.071	28.784	-	-
	UDS-2/1	3.00	2.410	2.11	14.00	2.48	12.90	65.00	11.30	10.80	47.00	27.00	20.00	OL	-	0.105	26.861	-	-

L/S : Left Side — R/S : Right Side

g_b : Bulk Density — NMC : Natural Moisture Content — W_P : Plastic Limit — S_G : Specific gravity — ϕ_u :Undrained Angle of Friction

g_d : Dry Density — W_L : Liquid Limit — I_P : Plasticity Index — C_u : Undrain Cohesion — C_c :Coefficient of Consolidation