

**GEO-TECHNICAL INVESTIGATION & SOIL TESTING**  
**REPORT**

**ON 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY  
AT KANDLA.**

**BORE HOLE NO & DEPTH:**

**BH-01: LAT: 22.994948° LONG: 70.211465°**

**BH-02: LAT: 22.994812° LONG: 70.211558°**

**BH-03: LAT: 22.994915° LONG: 70.211854°**

**BH-04: LAT: 22.994998° LONG: 70.211802°**

**DEPTH: 20 MTR.**

**FINDINGS:**

**Properties of Sub-Soil Strata**

**Water Table Status**

**SPT-Value**

**Safe bearing Capacity**

**CLIENT: DEENDAYAL PORT AUTHORITY**

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**GENERAL :**

For the proposed Structures in , entrusted the Geotechnical Investigation work

The object of investigation is to determine the sub surface conditions at the site and to provide information that would assist the Structural Engineer in the design of foundation.

**FIELD INVESTIGATION :**

Two bores 150 mm. Dia were put down to the depth of 20.00 mt Bh1 to Bh4. at proposed site of construction by our skilled and experienced site personnel by using Rotary boring.

**Standard Penetration Test :**

The standard penetration test was carried out by split spoon sampler confirming to IS - 2131-1981. The split spoon sampler assembly is divided in three parts. One is cutting shoe of 38 mm inside Dia and 51 mm out side diameter with 75 mm length. The second is split body of same diameter and 508 mm in length. The third is driving head with ball of same Dia meters and 180 mm in length. The drive weight assembly consist of 65 kg. weight hammer and 750 mm free fall guide rod.

Before conducting the Standard Penetration Test we had cleaned the trial pit by shell then lowered the S.P.T. sampler with 'A' rod and conducted the Standard Penetration Test in accordance with IS 2131-1981.

**Undisturbed Sample :**

The undisturbed samples were collected at 3.0 mt. interval in thin walled sampling tube of 65 mm inside diameter and 3 mm thick wall tube.

The thin wall sampling tube confirming to IS 2132-1981 consist of cutting shoe sampling tube and driving head with ball. The tests were conducted in accordance with IS 2132-1981.



## **LABORATORY TESTING :**

The Laboratory testing's should be carried out on both disturbed and undisturbed samples. The following tests should be carried out on disturbed / undisturbed samples.

- (1) Mechanical Analysis
- (2) Atterberg Limit
- (3) Specific Gravity

## **Undisturbed Sample :**

- (1) Field Density
- (2) Moisture Content
- (3) Grain Size Analysis
- (4) Atterberg Limit
- (5) Specific Gravity
- (6) Direct Shear Test
- (7) Triaxial Test
- (8) Consolidation Test

(1) The Grain Size Analysis Tests should be carried out in accordance with IS 2720(Part IV)-1985.

(2) The Atterberg limit test apparatus are (1) Casagrande & (2) Cone Penetrometer in accordance with IS 9259- 1979 and 11196-1985 respectively. We will carry out the Test by using both equipments with respect to the soil behavior and as per the IS- 2720 ( Part-V)-1985.

(3) Specific Gravity : The specific gravity of the soil samples should be carried out in accordance with IS- 2720 (Part- 3/Sec-1)-1980 for fine grain soil and IS 2720 (Part-3/ Sec - 2)-1980 for medium and coarse grain soil.

(4) Field density and moisture content should be carried out in accordance with IS 2720 (Part-2)-1973.

(5) Direct Shear Test : The direct shear tests should be carried out by small size box shear test in accordance with IS- 2720 (Part-13 )-1986 and apparatus confirming to IS-11229-1985.

(6) Triaxial Test : The Triaxial test should be carried out in accordance with IS - 2720 (Part-11 ) -1986.

(7) Consolidation Test : The Consolidation test Should be carried out in accordance with IS - 2720 (Part-15) - 1986.



## **SUBSOIL PROFILE :**

The bore log data of the bore holes reveal the soil formation as follows.

Location : Kandla

### **BH1 & BH2 & BH3 & BH4**

The layer from 0.00 mt to 1.50 mt depth is

Brownish Yellowish sandy Clay With Gravel-

Filling Material (Medium plastic) (SC)

The layer from 1.50m to 7.0m is Brownish

sand With Little Clay and Gravel (Low to

Medium plastic) (SM-SC)

The layer from 7.0 to 15.0m, Grayish Stiff Clay

With Little Fine Sand (Hight Plasticity) (CH)

The layer from 15.0 to 20.0m, Cemented

Colour Grayish Stiff Clay With Little Fine Sand

(Hight Plasticity) (CH)

## **WATER TABLE:**

The water table was encountered at 3.5 Mtr

From the G.L. during the boring in JAN 2026.



## RECOMMENDATIONS & CONCLUSIONS

### **66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.**

- 1) As per strata of soil recommend bored cast in situ pile having 0.60 m & 0.65 mt. diameter and 20.00 mt. length for the proposed structure, Safe Load Carrying Capacity of the pile are below.

Summary of Allowable Pile Capacity of Single Pile

Type and Dia.of Pile	total length(m)		Recommended Net Safe Load Capacity	
Uniform concrete cast in situ pile Dia (MM)			Compression(t)	Uplift(t)
<u>650</u>	<u>20</u>	-	<u>78.48</u>	<u>23.44</u>
<u>600</u>	<u>20</u>	-	<u>69.64</u>	<u>21.64</u>

- 3) The comments given in the report and suggestions given are based on ground conditions encountered during investigations. If during executing the foundation work, any variation in stratification of foundation, location is noticed, please inform us about that.

The net safe bearing capacity for Individual column footing of size 2.0mt X 2.0mt:-

At a depth of 2.5 mt below G.L is recommended as 4.8 t/m<sup>2</sup>.

At a depth of 3.50 mt below G.L is recommended as 5.5 t/m<sup>2</sup>

At a depth of 2.5 mt below G.L is recommended as 7.8 t/m<sup>2</sup>



## GENERAL NOTATIONS

f	Angle of friction
q <sub>d</sub>	Net ultimate bearing capacity
DS	Disturbed Sample
UDS	Undisturbed sample
DU	Direct Shear Undrained Test
NP	Non Plastic
LL	Liquid Limit
PL	Plastic Limit
N	SPT Value
BH	Bore Hole
C	Cohesion
g	Bulk density
B	Width of Footing in mt.
N <sub>c</sub> , N <sub>q</sub> & N <sub>g</sub>	Bearing Capacity Factors
S <sub>c</sub> , S <sub>q</sub> & S <sub>g</sub>	Shape Factors.
d <sub>c</sub> , d <sub>q</sub> & d <sub>g</sub>	Depth Factors.
i <sub>c</sub> , i <sub>q</sub> & i <sub>g</sub>	Inclination Factors.
w'	Correction factor for water table.
SC	Clayey Sand
SM	Silty sand
SW	Well graded sand
SP	Poorly graded sand
CH	Clay of high plasticity
CI	Clay of Intermediate plasticity
CL	Clay of Low plasticity
MH	Silt of high plasticity
MI	Silt of Intermediate plasticity
MH	Silt of low plasticity
A <sub>p</sub>	cls area of pile
D	stem Dia in c
γ	Effective unit wt. of soil Kg/cm <sup>2</sup>
P <sub>D</sub>	Effective over burden pressure at pile toe Kg/cm <sup>2</sup>
K	Co. eff. of earth pressure
P <sub>Di</sub>	Effective over burden pressure in Kg/cm <sup>3</sup> for i <sup>th</sup> layer
δ	Angle of wall friction = φ
A <sub>s</sub> , A <sub>si</sub>	Surface area of pile stem in cm <sup>2</sup> in i <sup>th</sup> layer
α	Reduction Factor
C	Average Cohesion along length of pile



## **REFERENCES**

Indian Standards

IS 2720 Part -II, Part -III, Part -IV, Part -V, Part -XIII  
Part -XXXI, IS - 1948, IS - 6403, IS - 1904, IS:6409-1981  
IS : 2911Part-I (Sec.-2), IS 456-2000, IS 2720(Part IV &  
V)-1985. IS 9259 - 1979 & 11196-1985, IS-11229-1985.

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EXPLORATION    BORE HOLE NO. : 1																	
NAME OF WORK : 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.																	
Location :        BH-01: LAT: 22.994948° LONG: 70.211465°																	
Water Table @ 3.5 Mtr																	
BORE LOG																	
Method of boring	Casings	Bore diameter	Thickness of layer	Depth (meter)	SOIL	VISUAL SOIL DESCRIPTION		PENETRATION TEST N - VALUES					Undisturbed Sample	Disturbed Sample	REMARKS		
				IN Mt.				5	15	25	35	45					
Rotary Drilling	Nil	150 mm.	1.30 mt.		0.0		Brownish Yellowish sandy Clay With Gravel-Filling Material (Medium plastic) (SC)								*	SPT=13	
					1.5		Brownish sand With Little Clay and Gravel (Low to Medium plastic) (SM-SC)								*		
			5.70 mt.		3.0								*	SPT=12			
					4.5								*				
					6.0							*					
			8.00 mt		7.5		Grayish Stiff Clay With Little Fine Sand (Hight Plasticity) (CH)							*	SPT=8		
					9.0							*	SPT=16				
					10.5							*					
					12.0						*						
					13.5						*	SPT=16					
					15.0					*							
			5.0 mt		16.5		Cemented Colour Grayish Stiff Clay With Little Fine Sand (Hight Plasticity) (CH)							*	SPT=30		
					18.0							*	SPT=41				
					20.0						*						
			Terminated @ 20.m														



SOIL PROFILE				NAME OF WORK : 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.										TERMINATION DEPTH :20 .00 mt					TABLE NO : 10F1			
				WATER TABLE : FOUND 3.5 MTR FROM G.L										BH. NO : 1								
Sr. No.	Depth in	Samples	Actual	Specific Gravity	GRAIN SIZE ANALYSIS					ATTERBERG LIMITS			IS Classi-	FIELD	DRY.	FIELD	SHEAR PARAMETERES			CONSOLIDATION		
					%	%	%	%	%	LL	PL	PI					Type	c	φ	qu	CC	e0
					Gravel	Sand	Silt	Clay	%	%	%	%					Kg/cm2	Kg/cm2		Kg/cm2		
1	0.0	DS		2.64	18	28	54		33	15	18		SC	-	-	-	-	-	-	-	-	-
2	1.5	SPT	13		14	30	56		35	16	19		SC	-	-	-	-	-	-	-	-	-
3	3.0	UDS		2.68	10	52	38		22	11	11		SM-SC	1.79	1.54	16.50	DST	0.12	19.5	0.24	0.08	0.74
4	4.5	SPT	12		12	46	42		25	12	13		SM-SC	-	-	-	-	-	-	-	-	-
5	6.0	UDS		2.66	11	48	41		24	12	12		SM-SC	1.76	1.47	19.80	TU	0.13	19.5	0.26	0.10	0.81
6	7.5	SPT	8		13	20	67		45	22	23		CI-CH	-	-	-	-	-	-	-	-	-
7	9.0	UDS		2.60	6	25	69		48	27	21		CH	1.86	1.54	20.50	TU	0.11	18.5	0.22	0.27	0.68
8	10.5	SPT	16		4	24	72		51	32	19		CH			-	-	-	-	-	-	-
9	12.0	UDS		2.57	2	20	78		57	34	23		CH	1.86	1.53	21.30	TU	0.12	20.5	0.24	0.33	0.68
10	13.5	SPT	16		2	18	80		62	41	21		CH	-	-	-	-	-	-	-	-	-
11	15.0	UDS		2.58	3	22	75		55	33	22		CH	1.85	1.54	20.40	TU	0.11	25.1	0.22	0.32	0.68
12	16.5	SPT	30		4	21	75		55	34	21		CH	-	-	-	-	-	-	-	-	-
13	18.0	UDS		2.56	3	21	76		57	35	22		CH	1.85	1.55	19.50	TU	0.12	24.4	0.24	0.33	0.65
14	20.0	SPT	41	5.58	4	21	75		56	35	21		CH	-	-	-	-	-	-	-	-	-



EXPLORATION BORE HOLE NO. : 2																	
NAME OF WORK : 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.																	
Location : BH-02: LAT: 22.994812° LONG: 70.211558°																	
Water Table @ 3.5 Mtr																	
BORE LOG																	
Method of boring	Casings	Bore diameter	Thickness of layer	Depth (meter)	SOIL	VISUAL SOIL DESCRIPTION		PENETRATION TEST N - VALUES					Undisturbed Sample	Disturbed Sample	REMARKS		
				IN Mt.				5	15	25	35	45					
Rotary Drilling	Nil	150 mm.	1.30 mt.			Brownish Yellowish sandy Clay With Gravel-Filling Material (Medium plastic) (SC)								*	SPT=14		
														*			
																	*
			5.70 mt.		Brownish sand With Little Clay and Gravel (Low to Medium plastic) (SM-SC)									*	SPT=14		
													*				
													*				
			8.00 mt		Grayish Stiff Clay With Little Fine Sand (Hight Plasticity) (CH)										*	SPT=18	
													*				
													*				
			5.0 mt		Cemented Colour Grayish Stiff Clay With Little Fine Sand (Hight Plasticity) (CH)										*	SPT=21	
													*				
													*				
																*	SPT=32
													*				
													*				
																*	SPT=40
													*				
													*				
																*	SPT=40
													*				
													*				
Terminated @ 20.m																	



SOIL PROFILE				NAME OF WORK : 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.										TERMINATION DEPTH :20 .00 mt					TABLE NO : 10F1							
				WATER TABLE : FOUND 3.5 MTR FROM G.L										BH. NO :2												
Sr. No.	Depth in	Samples	Actual	Specific Gravity	GRAIN SIZE ANALYSIS					ATTERBERG LIMITS			IS Classi-	FIELD	DRY.	FIELD	SHEAR PARAMETERES			CONSOLIDATION						
					%	%	%	%	%	LL	PL	PI					Type	c	φ	qu	CC	e0				
					Gravel	Sand	Silt	Clay	%	%	%	gm/cc											ENT	Kg/cm2	Kg/cm2	
1	0.0	DS		2.62	21	27	52		31	15	16	SC	-	-	15.60	1.57	-	-	-	-	-	-	-	-	-	-
2	1.5	SPT	14		16	26	58		34	16	18	SC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	3.0	UDS		2.62	12	52	36		28	11	17	SM-SC	1.81	1.57	15.60	DST	0.12	19.5	0.24	0.13	0.67					
4	4.5	SPT	14		14	45	41		28	12	16	SM-SC	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	6.0	UDS		2.64	12	48	40		26	12	14	SM-SC	1.79	1.52	17.55	TU	0.13	19.5	0.26	0.11	0.73					
6	7.5	SPT	12		15	23	62		44	22	22	CI-CH	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	9.0	UDS		2.60	12	23	65		26	27	-1	CH	1.84	1.58	16.45	TU	0.11	18.5	0.22	0.11	0.65					
8	10.5	SPT	18		10	22	68		46	32	14	CH			-	-	-	-	-	-	-	-	-	-	-	-
9	12.0	UDS		2.58	8	23	69		52	34	18	CH	1.88	1.62	16.20	TU	0.12	20.5	0.24	0.29	0.59					
10	13.5	SPT	21		10	19	71		56	41	15	CH	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	15.0	UDS		2.58	6	22	72		48	33	15	CH	1.87	1.58	18.10	TU	0.11	25.1	0.22	0.27	0.63					
12	16.5	SPT	32		8	15	77		52	34	18	CH	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	18.0	UDS		2.58	6	20	74		54	35	19	CH	1.86	1.59	16.90	TU	0.12	24.4	0.24	0.31	0.62					
14	20.0	SPT	40	2.62	6	22	72		54	35	19	CH	-	-	-	-	-	-	-	-	-	-	-	-	-	-



EXPLORATION BORE HOLE NO. : 3																	
NAME OF WORK : 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.																	
Location : BH-03: LAT: 22.994915° LONG: 70.211854°																	
Water Table @ 3.5 Mtr																	
BORE LOG																	
Method of boring	Casings	Bore diameter	Thickness of layer	Depth (meter)	SOIL	VISUAL SOIL DESCRIPTION		PENETRATION TEST N - VALUES					Undisturbed Sample	Disturbed Sample	REMARKS		
				IN Mt.				5	15	25	35	45					
Rotary Drilling	Nil	150 mm.	1.30 mt.		0.0	Brownish Yellowish sandy Clay With Gravel-Filling Material (Medium plastic) (SC)									*	SPT=11	
					1.5										*		
			5.70 mt.		3.0	Brownish sand With Little Clay and Gravel (Low to Medium plastic) (SM-SC)								*		SPT=14	
					4.5									*			
					6.0								*				
					7.5								*				
			8.00 mt		9.0	Grayish Stiff Clay With Little Fine Sand (Hight Plasticity) (CH)								*		SPT=18	
					10.5									*			
					12.0								*				
					13.5								*				
			5.0 mt		15.0	Cemented Colour Grayish Stiff Clay With Little Fine Sand (Hight Plasticity) (CH)								*		SPT=31	
					16.5									*			
					18.0								*				
					20.0								*	SPT=42			
			Terminated @ 20.m														



SOIL PROFILE				NAME OF WORK : 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.										TERMINATION DEPTH :20 .00 mt				TABLE NO : 10F1					
				WATER TABLE : FOUND 3.5 MTR FROM G.L										BH. NO :3									
Sr. No.	Depth in	Samples	Actual	Specific Gravity	GRAIN SIZE ANALYSIS					ATTERBERG LIMITS			IS Classi-	FIELD	DRY.	FIELD	SHEAR PARAMETERES			CONSOLIDATION			
					%	%	%	%	%	LL	PL	PI					ENT	Type	c	φ	qu	CC	e0
					Gravel	Sand	Silt	Clay	%	%	%	Kg/cm2											
1	0.0	DS		2.59	19	29	52	32	15	15	15	SC	-	-	-	-	-	-	-	-	-	-	-
2	1.5	SPT	11		15	31	54	31	16	14	14	SC	-	-	-	-	-	-	-	-	-	-	-
3	3.0	UDS		2.62	12	46	42	28	11	16	16	SM-SC	1.81	1.61	12.65	DST	0.12	19.5	0.24	0.13	0.24	0.11	0.70
4	4.5	SPT	14		12	48	40	31	12	18	18	SM-SC	-	-	-	-	-	-	-	-	-	-	-
5	6.0	UDS		2.64	12	50	38	26	12	12	12	SM-SC	1.78	1.55	14.65	TU	0.13	19.5	0.26	0.11	0.26	0.11	0.70
6	7.5	SPT	10		14	22	64	32	22	12	12	CH	-	-	-	-	-	-	-	-	-	-	-
7	9.0	UDS		2.64	12	20	68	38	27	14	14	CH	1.84	1.57	16.95	TU	0.12	18.5	0.24	0.20	0.24	0.20	0.68
8	10.5	SPT	18		8	21	71	42	32	12	12	CH		-	-	-	-	-	-	-	-	-	-
9	12.0	UDS		2.58	10	22	68	48	34	11	11	CH	1.82	1.54	18.10	TU	0.11	20.5	0.22	0.27	0.22	0.27	0.67
10	13.5	SPT	22		8	16	76	52	41	12	12	CH	-	-	-	-	-	-	-	-	-	-	-
11	15.0	UDS		2.60	6	20	74	54	33	18	18	CH	1.84	1.57	17.45	TU	0.12	25.1	0.24	0.31	0.24	0.31	0.66
12	16.5	SPT	31		6	22	72	48	34	14	14	CH	-	-	-	-	-	-	-	-	-	-	-
13	18.0	UDS		2.56	8	23	69	52	35	18	18	CH	1.89	1.59	18.55	TU	0.11	24.4	0.22	0.29	0.22	0.29	0.61
14	20.0	SPT	42	2.58	6	23	71	54	35	16	16	CH	-	-	-	-	-	-	-	-	-	-	-



EXPLORATION BORE HOLE NO. : 4																			
NAME OF WORK : 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.																			
Location : BH-04: LAT: 22.994998° LONG: 70.211802°																			
Water Table @ 3.5 Mtr																			
BORE LOG																			
Method of boring	Casings	Bore diameter	Thickness of layer	Depth (meter)	SOIL	VISUAL SOIL DESCRIPTION					PENETRATION TEST N - VALUES					Undisturbed Sample	Disturbed Sample	REMARKS	
				IN Mt.								5	15	25	35	45			
Rotary Drilling	Nil	150 mm.	1.30 mt.	0.0		Brownish Yellowish sandy Clay With Gravel-Filling Material (Medium plastic) (SC)												*	SPT=15
			5.70 mt.	1.5		Brownish sand With Little Clay and Gravel (Low to Medium plastic) (SM-SC)											*		
				3.0								*	SPT=14						
				4.5								*							
				6.0								*	SPT=9						
			7.5	Grayish Stiff Clay With Little Fine Sand (Hight Plasticity) (CH)											*				
			9.0							*	SPT=18								
			10.5									*							
			12.0							*	SPT=20								
			13.5									*							
			15.0	Cemented Colour Grayish Stiff Clay With Little Fine Sand (Hight Plasticity) (CH)						*		SPT=32							
			16.5								*								
			18.0							*	SPT=44								
			20.0									*							
			Terminated @ 20.m																



SOIL PROFILE				NAME OF WORK : 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.										TERMINATION DEPTH :20 .00 mt				TABLE NO : 10F1				
				WATER TABLE : FOUND 3.5 MTR FROM G.L										BH. NO :4								
Sr. No.	Depth in	Samples	Actual	Specific Gravity	GRAIN SIZE ANALYSIS					ATTERBERG LIMITS			IS Classi-	FIELD	DRY.	FIELD	SHEAR PARAMETERES			CONSOLIDATION		
					%	%	%	%	%	LL	PL	PI					Type	c	φ	qu	CC	e0
					Gravel	Sand	Silt	Clay	%	%	%	Kg/cm2										
1	0.0	DS		2.62	22	43	35		28	15	12	SC	-	-	-	-	-	-	-	-	-	-
2	1.5	SPT	15		18	41	41		26	16	10	SC	-	-	-	-	-	-	-	-	-	-
3	3.0	UDS		2.66	18	50	32		31	11	14	SM-SC	1.92	1.71	12.30	DST	0.12	19.5	0.24	0.15	0.56	
4	4.5	SPT	14		16	46	38		26	12	14	SM-SC	-	-	-	-	-	-	-	-	-	-
5	6.0	UDS		2.68	14	50	36		22	12	10	SM-SC	1.87	1.63	14.55	TU	0.13	19.5	0.26	0.08	0.64	
6	7.5	SPT	9		12	46	42		32	22	10	CI-CH	-	-	-	-	-	-	-	-	-	-
7	9.0	UDS		2.62	11	46	43		34	27	12	CH	1.88	1.61	16.90	TU	0.11	18.5	0.22	0.17	0.63	
8	10.5	SPT	18		10	12	78		42	32	11	CH			-	-	-	-	-	-	-	-
9	12.0	UDS		2.58	10	18	72		46	34	12	CH	1.89	1.60	18.45	TU	0.12	20.5	0.24	0.25	0.62	
10	13.5	SPT	20		8	24	68		38	41	-3	CH	-	-	-	-	-	-	-	-	-	-
11	15.0	UDS		2.62	6	25	69		48	33	15	CH	1.86	1.59	16.95	TU	0.11	24.2	0.22	0.27	0.65	
12	16.5	SPT	32		8	21	71		46	34	12	CH	-	-	-	-	-	-	-	-	-	-
13	18.0	UDS		2.58	6	26	68		52	35	17	CH	1.88	1.60	17.85	TU	0.12	22.5	0.24	0.29	0.62	
14	20.0	SPT	44	2.60	6	25	69		49	35	14	CH	-	-	-	-	-	-	-	-	-	-



Name of work : 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.

Summary of Safe bearing Capacity of Soil & Permissible Settlement. BH1,BH2,BH3,BH4

<u>Group</u>	<u>BORE HOLE NO.</u>	<u>Depth below G.L.</u>	<u>Safe bearing Capacity.</u>	<u>Maxmium Permissible settlement in C-Phi type Soil for Isolated footing of frame structures.</u>	<u>Maxmium settlement in C-Phi type Soil as per shear parameters..</u>	<u>REMARKS</u>
		<u>(m)</u>	<u>(t/m2)</u>	<u>(mm)</u>	<u>kg/cm2</u>	
I	BH-1, BH 2 BH-3 & BH 4	2.5	4.8	50.0	2.1	OK
	BH-1, BH 2 BH-3 & BH 4	3.5	5.5	50.0	2.4	OK
	BH-1, BH 2 BH-3 & BH 4	4.5	7.8	50.0	3.6	OK



**Name of work :** 66 KV GIS SUBSTATION FOR DEENDAYAL PORT AUTHORITY AT KANDLA.

**SUMMARY OF PILE CAPACITY;**

**Summary of Allowable Pile Capacity of Single Pile bored cast In-situ.**

<b><u>BORE HOLE NO.</u></b>	<b><u>Type and Dia.of Pile</u></b>	<b><u>i.e Length of pile(M)</u></b>	<b><u>Recommended Net Safe Load Capacity</u></b>	
			<b>Compression(t)</b>	<b>Upliftt(t)</b>
BH-1, BH-2, BH-3 & BH-4	Uniform concrete cast insitu pile,700 mm Dia	20	<b><u>87.82</u></b>	<b><u>25.24</u></b>
BH-1, BH-2, BH-3 & BH-4	Uniform concrete cast insitu pile,650 mm Dia	20	<b><u>78.48</u></b>	<b><u>23.44</u></b>
BH-1, BH-2, BH-3 & BH-4	Uniform concrete cast insitu pile,600 mm Dia	20	<b><u>69.64</u></b>	<b><u>21.64</u></b>