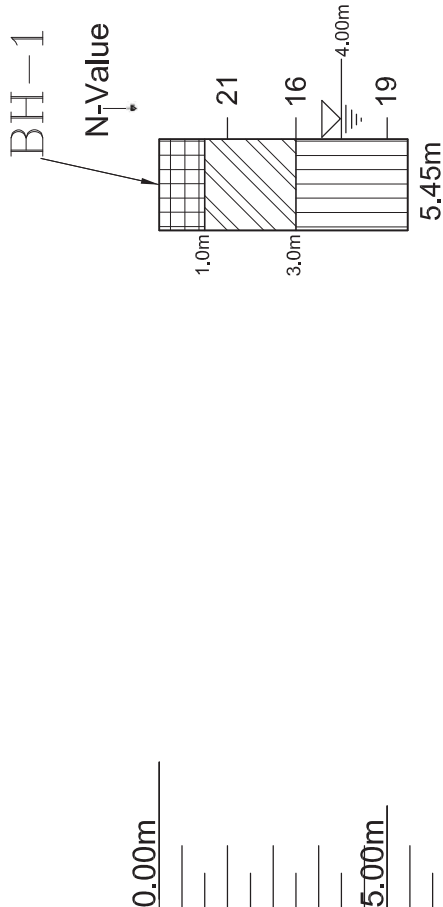


Indicative Geotech details

Rly Km. 1410 to 1414
for reference



BOREHOLE PROFILE



PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).	LEGEND	
	SYMBOL	DESCRIPTION
		Silty /Sandy CLAY of low plasticity (CL)
		Silty CLAY of medium plasticity (CI)
		Sandy SILT (ML)
CHAINAGE DFCC: 1408+984		
DFCC BRIDGE NO : 214		
	Ground water Table	

[illegible]



INDIAN GEOTECHNICAL SERVICES

New Delhi

CALCULATIONS FOR CORRECTED SPT (N) VALUES

PROJECT: GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

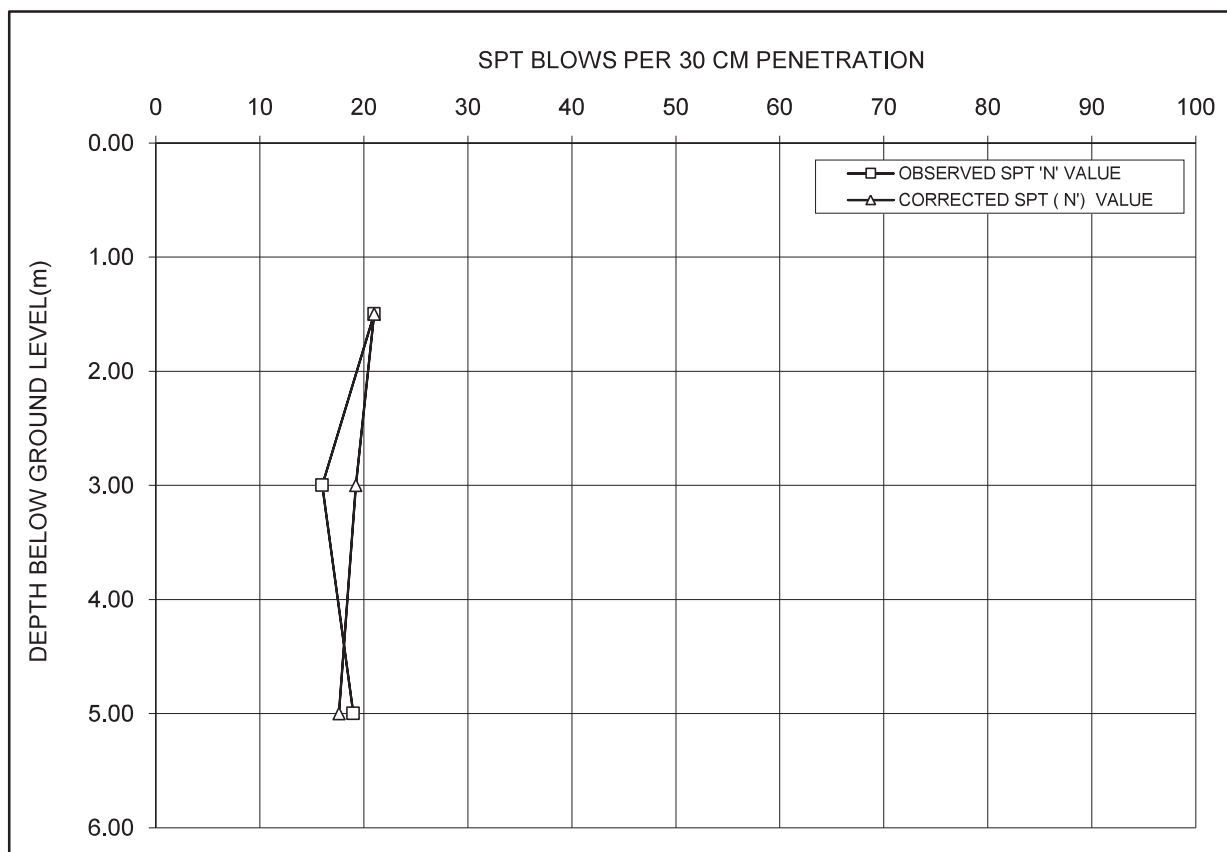
CHAINAGE: IR : 1408 + 984

BORE HOLE NO : 1

DFCC BRIDGE No. : 214

GWT depth below EGL (m) : 4.00

DEPTH OF SAMPLE	TYPE OF SOIL	γ_{bulk} (Bulk Unit Weight), t/m^3	OVERBURDEN PRESSURE (t/m^2)	OVERBURDEN PRESSURE (kg/cm^2)	OVERBURDEN CORRECTION FACTOR	OBSERVED SPT 'N' VALUE	CORRECTED SPT (N') VALUE (FOR OVERBURDEN)	FINAL CORRECTED VALUE AFTER DILATANCY CORRECTION (N'')
		1.80						
1.50	Plastic	1.87	2.70	0.270	1.00	21	21.00	21
3.00	Non Plastic	1.90	5.51	0.551	1.20	16	19.22	19
5.00	Non Plastic	1.98	8.31	0.831	1.06	19	20.21	18





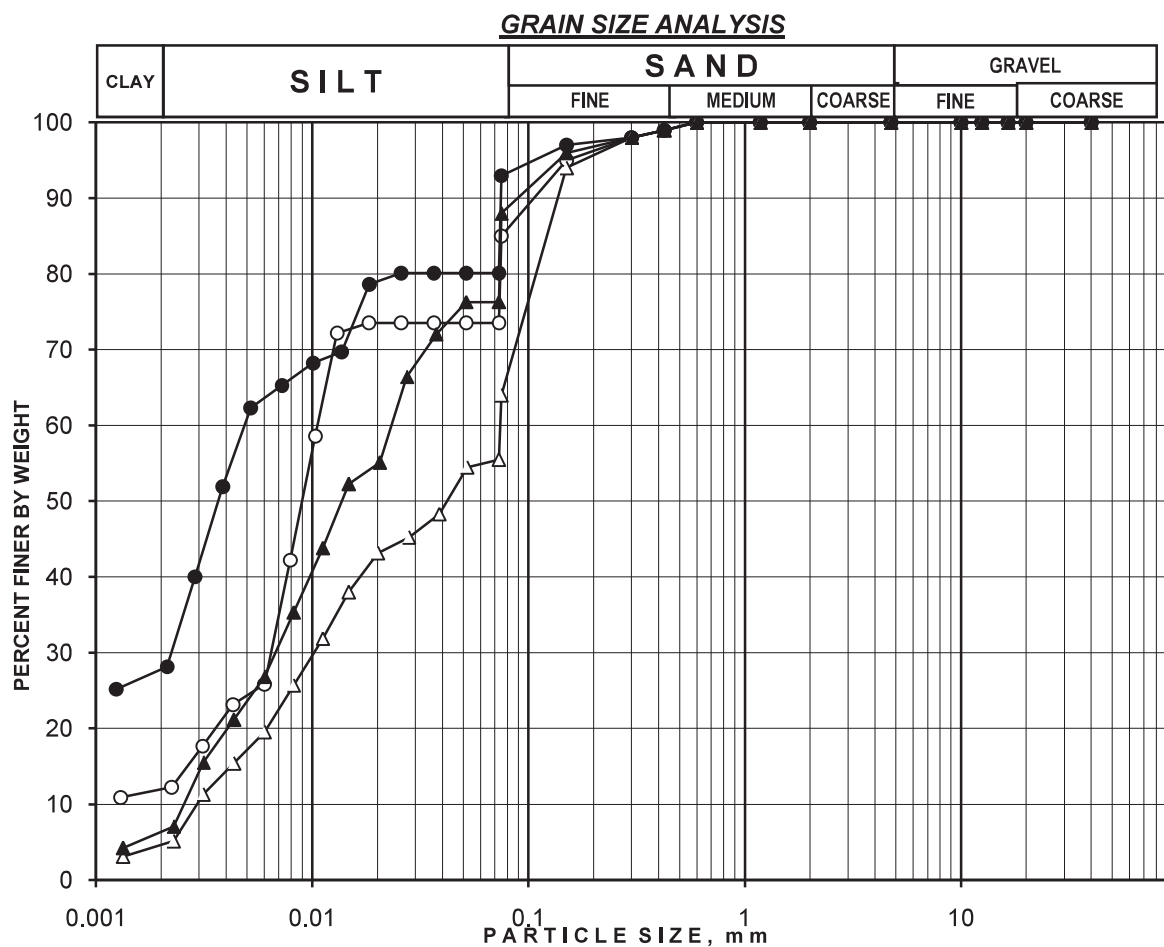
INDIAN GEOTECHNICAL SERVICES

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PROJECT : : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

CHAINAGE: IR : 1408 + 984

DFCC BRIDGE No. : 214



Symbol	BH No.	Depth, m	Soil Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	C _u	C _c
○	1	00.0-0.5	Silty CLAY of low plasticity (CL)	0.00	15.00	74.00	11.00	--	--
●	1	1.00	Silty CLAY / Lean CLAY of medium plasticity (CI)	0.00	7.00	68.00	25.00	--	--
△	1	3.00	Sandy SILT (ML)	0.00	36.00	61.00	3.00	25.22	0.48
▲	1	5.00	Sandy SILT (ML)	0.00	12.00	84.00	4.00	9.12	0.77



INDIAN GEOTECHNICAL SERVICES

New Delhi

DETERMINATION OF SILT FACTOR

PROJECT: GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRUCTURE DFCC BRIDGE No. : 214 at CHAINAGE: IR : 1408+984

BORE HOLE NO. 1

DEPTH (m) 0.00 - 1.00

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.750	0.00	4.750	0.000		
2.000	0.00	3.375	0.000		
1.180	0.00	1.590	0.000		
0.600	0.00	0.890	0.000		
0.425	1.00	0.513	0.513	0.059	0.426
0.300	1.00	0.363	0.363		
0.150	3.00	0.225	0.675		
0.075	10.00	0.113	1.125		
PAN	85.00	0.038	3.188		
	100.00		5.863		

DEPTH (m) 1.00-3.00

C = 0.98 kg/cm²

fi = 4 degree

Ksf = f (1 + sqrt (c))

f = 1.5 for fi > 10 and <15

f = 1.75 for fi > 5 and <10

f = 2.0 for fi <5

Silt Factor = 3.980

DEPTH (m) 3.00 - 5.00

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.750	0.00	4.750	0.000		
2.000	0.00	3.375	0.000		
1.180	0.00	1.590	0.000		
0.600	0.00	0.890	0.000		
0.425	1.00	0.513	0.513	0.076	0.484
0.300	1.00	0.363	0.363		
0.150	4.00	0.225	0.900		
0.075	30.00	0.113	3.375		
PAN	64.00	0.038	2.400		
	100.00		7.550		

DEPTH (m) 5.00-5.45

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.750	0.00	4.750	0.000		
2.000	0.00	3.375	0.000		
1.180	0.00	1.590	0.000		
0.600	0.00	0.890	0.000		
0.425	1.00	0.513	0.513	0.055	0.414
0.300	1.00	0.363	0.363		
0.150	2.00	0.225	0.450		
0.075	8.00	0.113	0.900		
PAN	88.00	0.038	3.300		
	100.00		5.525		



INDIAN GEOTECHNICAL SERVICES

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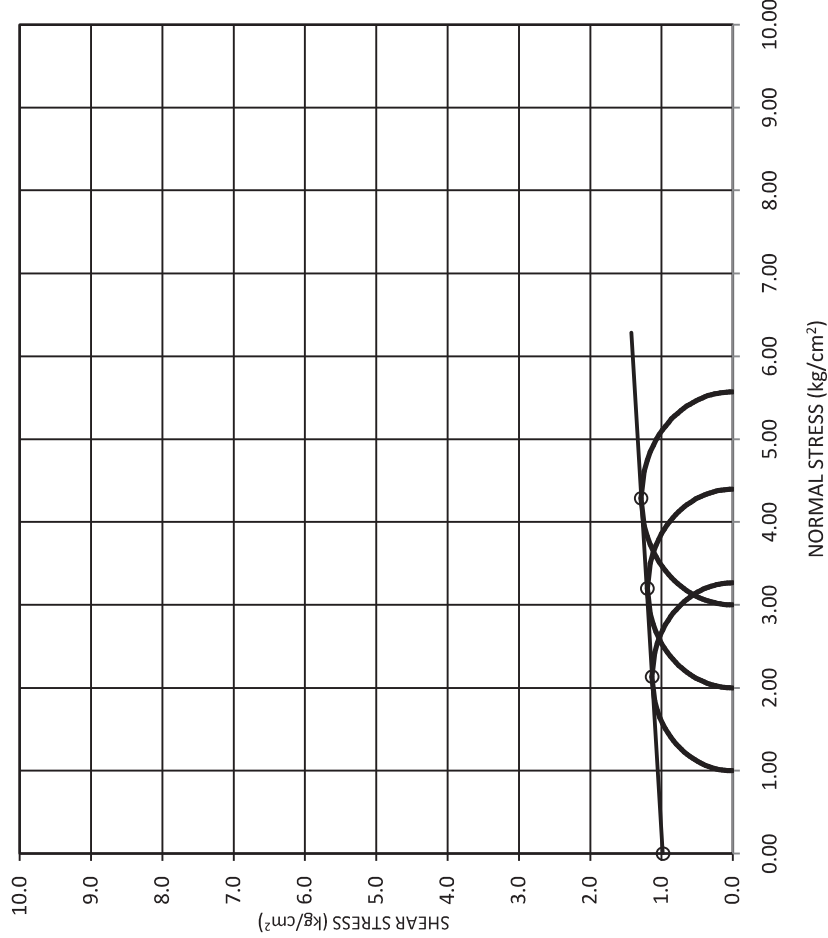
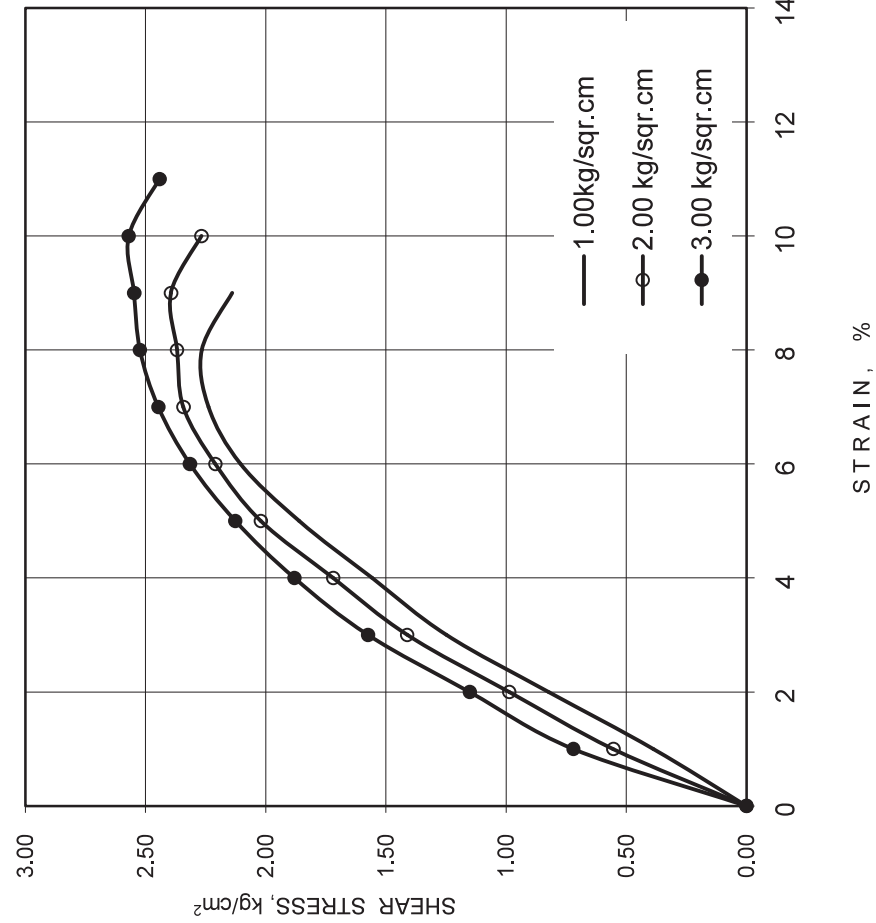
UNCONSOLIDATED UNDRAINED TRIAXIAL SHEAR TEST

Borehole No. 01	Depth, m	1.00	Dry Density (gm/cc)	1.58	"c" kg/cm ² = 0.98	"φ" Degree= 4
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CHAINAGE : IR : 1408 + 984 (DFCC BRIDGE NO. 214)

PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRESS STRAIN CURVE





INDIAN GEOTECHNICAL SERVICES

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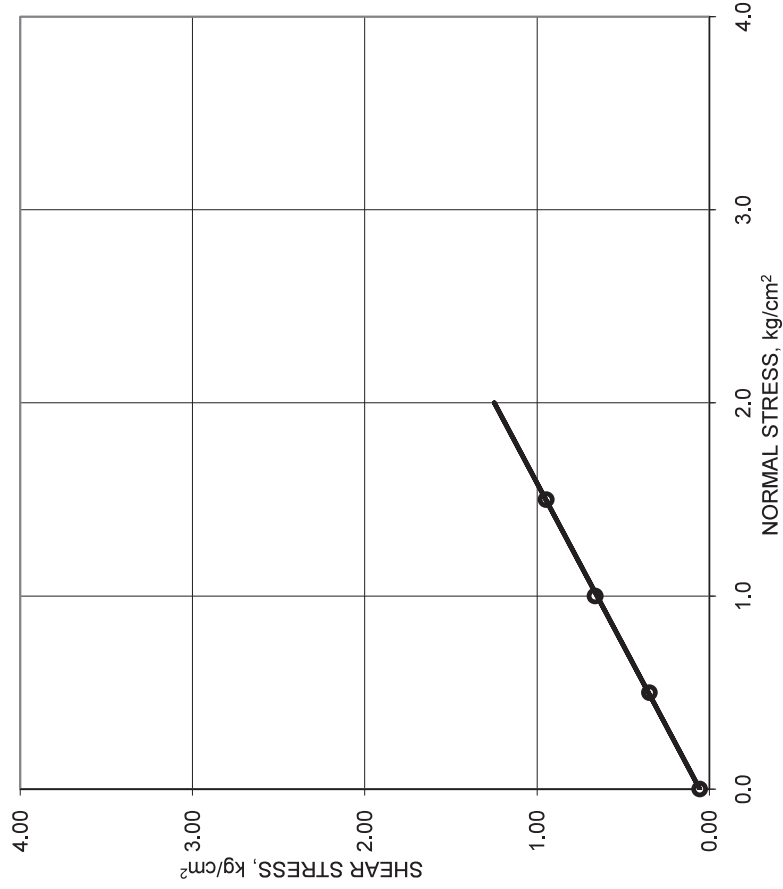
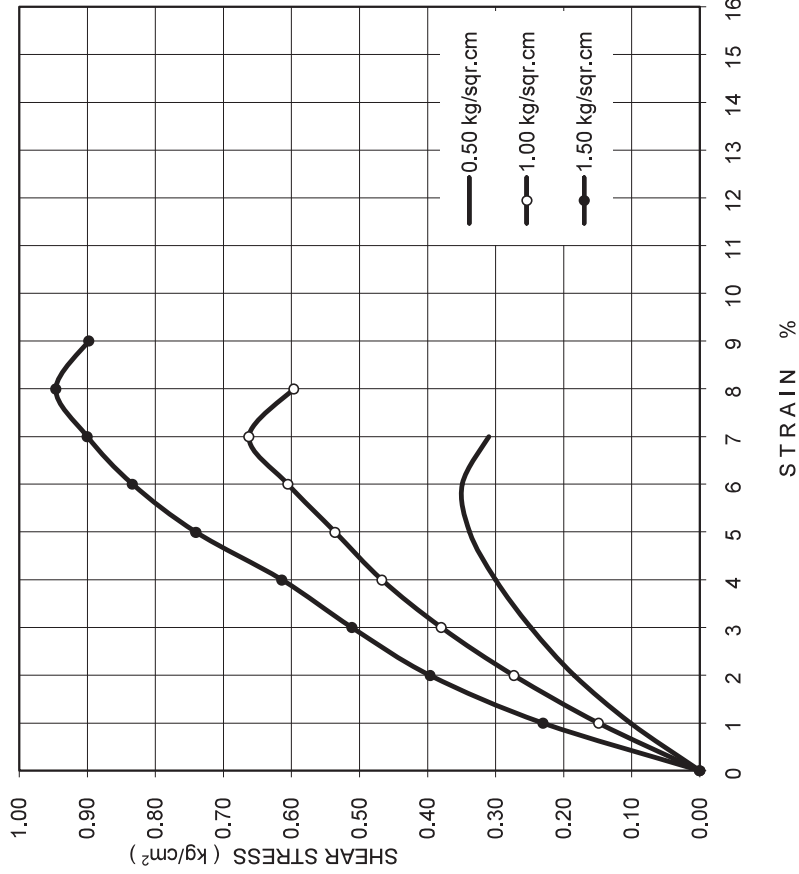
DIRECT SHEAR TEST

Borehole No. 1	Depth, m	3.00	Dry Density (gm/cc)	1.58	"c" kg/cm ² = 0.06	"φ" Degree= 30.8
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CHAINAGE : IR : 1408 + 984 (DFCC BRIDGE NO. 214)

PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRESS STRAIN CURVE





PROJECT : : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

Depth (m) 1.00-1.30

BOREHOLE No. 1

11.79

[illegible]



INDIAN GEOTECHNICAL SERVICES

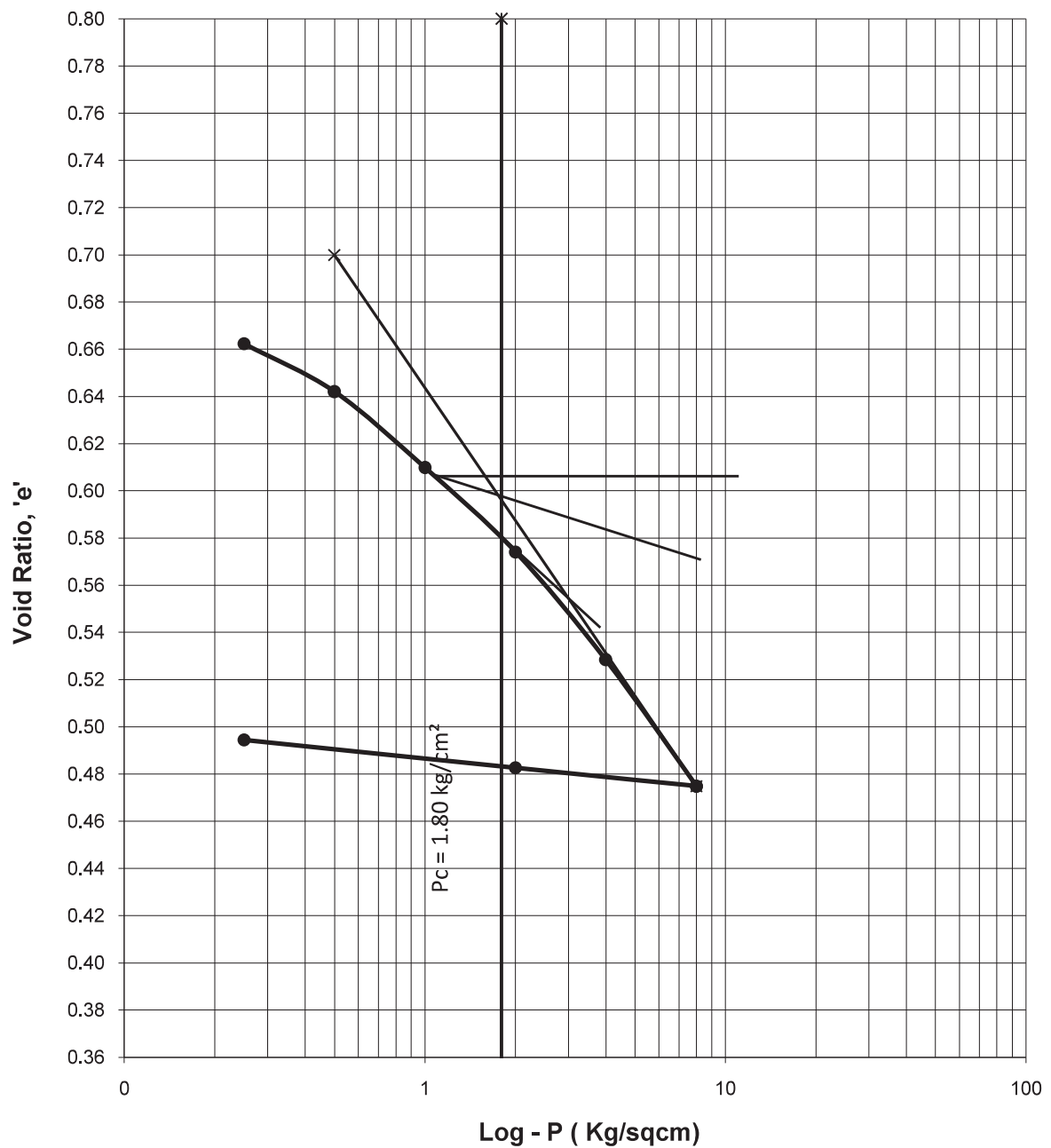
New Delhi

CONSOLIDATION CURVE (e - logp)

PROJECT : : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

BOREHOLE No. 1
CHAINAGE : 1408+984

Depth (m) 1.00-1.30

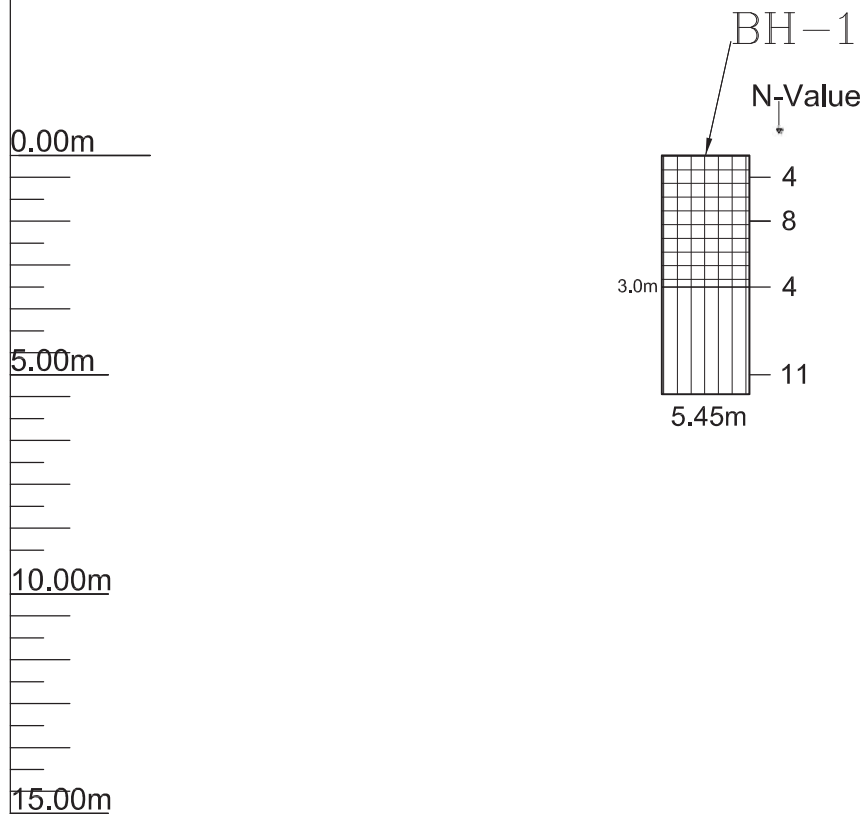




INDIAN GEOTECHNICAL SERVICES

New Delhi

BOREHOLE PROFILE



PROJECT : GEOTECHNICAL INVESTIGATIONS FOR
DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

LEGEND

SYMBOL

DESCRIPTION



Silty /Sandy CLAY of low plasticity (CL)



Sandy SILT (ML)

CHAINAGE DFCC: 1411+143

DFCC BRIDGE NO : 215

BOREHOLE NO. 01		DATE STARTED : 26/10/2016		INDIAN GEOTECHNICAL SERVICES	
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: DS = DISTURBED SAMPLE ; SPT = STANDARD PENETRATION TEST; UDS = UNDISTURBED SAMPLE; DST = DIRECT SHEAR TEST					
+ = TEST ON REMOLDED SAMPLES; UC : UNCONFIRMED COMPRESSION TEST					
*Dry Density is assumed based on SPT (N) value if undisturbed sample is not available					
Date of Undisturbed Samples Tested : 07.11.2016 to 08.11.2016					
Date of Tests on Disturbed Samples / Consolidation Tests : 07.11.2016 to 10.11.2016					

BOREHOLE NO. 01		DATE STARTED : 26/10/2016		INDIAN GEOTECHNICAL SERVICES	
REDUCED LEVEL OF GROUND BORE (M) :		DATE COMPLETED : 26/10/2016		New Delhi	
FIELD TEST RESULTS					
LABORATORY TEST RESULTS					
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).					
CHAINAGE: IR : 1411 + 143 (BRIDGE NO. 215)					
DFCC BRIDGE No. 215					
NOTE : 1. CLASSIFICATION OF SOIL AS PER IS : 1498					
2. ABBREVIATION USED					
: DS = DISTURBED SAMPLE ; SPT = STANDARD PENETRATION TEST; UDS = UNDISTURBED SAMPLE; DST = DIRECT SHEAR TEST					
+ = TEST ON REMOLDED SAMPLES; UC : UNCONFIRMED COMPRESSION TEST					
*Dry Density is assumed based on SPT (N) value if undisturbed sample is not available					
Date of Undisturbed Samples Tested : 07.11.2016 to 08.11.2016					
Date of Tests on Disturbed Samples / Consolidation Tests : 07.11.2016 to 10.11.2016					

BOREHOLE NO. 01		DATE STARTED : 26/10/2016		INDIAN GEOTECHNICAL SERVICES	
REDUCED LEVEL OF GROUND BORE (M) :		DATE COMPLETED : 26/10/2016		New Delhi	
FIELD TEST RESULTS					
LABORATORY TEST RESULTS					
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).					
CHAINAGE: IR : 1411 + 143 (BRIDGE NO. 215)					
DFCC BRIDGE No. 215					
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Date of Undisturbed Samples Tested : 07.11.2016 to 08.11.2016					
Date of Tests on Disturbed Samples / Consolidation Tests : 07.11.2016 to 10.11.2016					

BOREHOLE NO. 01		DATE STARTED : 26/10/2016		INDIAN GEOTECHNICAL SERVICES	
REDUCED LEVEL OF GROUND BORE (M) :		DATE COMPLETED : 26/10/2016		New Delhi	
FIELD TEST RESULTS					
LABORATORY TEST RESULTS					
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).					
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BOREHOLE NO. 01		DATE STARTED : 26/10/2016		INDIAN GEOTECHNICAL SERVICES	
REDUCED LEVEL OF GROUND BORE (M) :		DATE COMPLETED : 26/10/2016		New Delhi	
FIELD TEST RESULTS					
LABORATORY TEST RESULTS					
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).					
CHAINAGE: IR : 1411 + 143 (BRIDGE NO. 215)					
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BOREHOLE NO. 01		DATE STARTED : 26/10/2016		INDIAN GEOTECHNICAL SERVICES	
REDUCED LEVEL OF GROUND BORE (M) :		DATE COMPLETED : 26/10/2016		New Delhi	
FIELD TEST RESULTS					
LABORATORY TEST RESULTS					
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).					
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DFCC BRIDGE No. 215					
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FIELD TEST RESULTS					
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Date of Tests on Disturbed Samples / Consolidation Tests : 07.11.2016 to 10.11.2016					

BOREHOLE NO. 01		DATE STARTED : 26/10/2016		INDIAN GEOTECHNICAL SERVICES	
REDUCED LEVEL OF GROUND BORE (M) :		DATE COMPLETED : 26/10/2016		New Delhi	
FIELD TEST RESULTS					
LABORATORY TEST RESULTS					
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).					
CHAINAGE: IR : 1411 + 143 (BRIDGE NO. 215)					
DFCC BRIDGE No. 215					
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BOREHOLE NO. 01		DATE STARTED : 26/10/2016		INDIAN GEOTECHNICAL SERVICES	
REDUCED LEVEL OF GROUND BORE (M) :		DATE COMPLETED : 26/10/2016		New Delhi	
FIELD TEST RESULTS					
LABORATORY TEST RESULTS					
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).					
CHAINAGE: IR : 1411 + 143 (BRIDGE NO. 215)					
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BOREHOLE NO. 01		DATE STARTED : 26/10/2016		INDIAN GEOTECHNICAL SERVICES	
REDUCED LEVEL OF GROUND BORE (M) :		DATE COMPLETED : 26/10/2016		New Delhi	
FIELD TEST RESULTS					
LABORATORY TEST RESULTS					
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).					
CHAINAGE: IR : 1411 + 143 (BRIDGE NO. 215)					
DFCC BRIDGE No. 215					
NOTE :					



INDIAN GEOTECHNICAL SERVICES

New Delhi

CALCULATIONS FOR CORRECTED SPT (N) VALUES

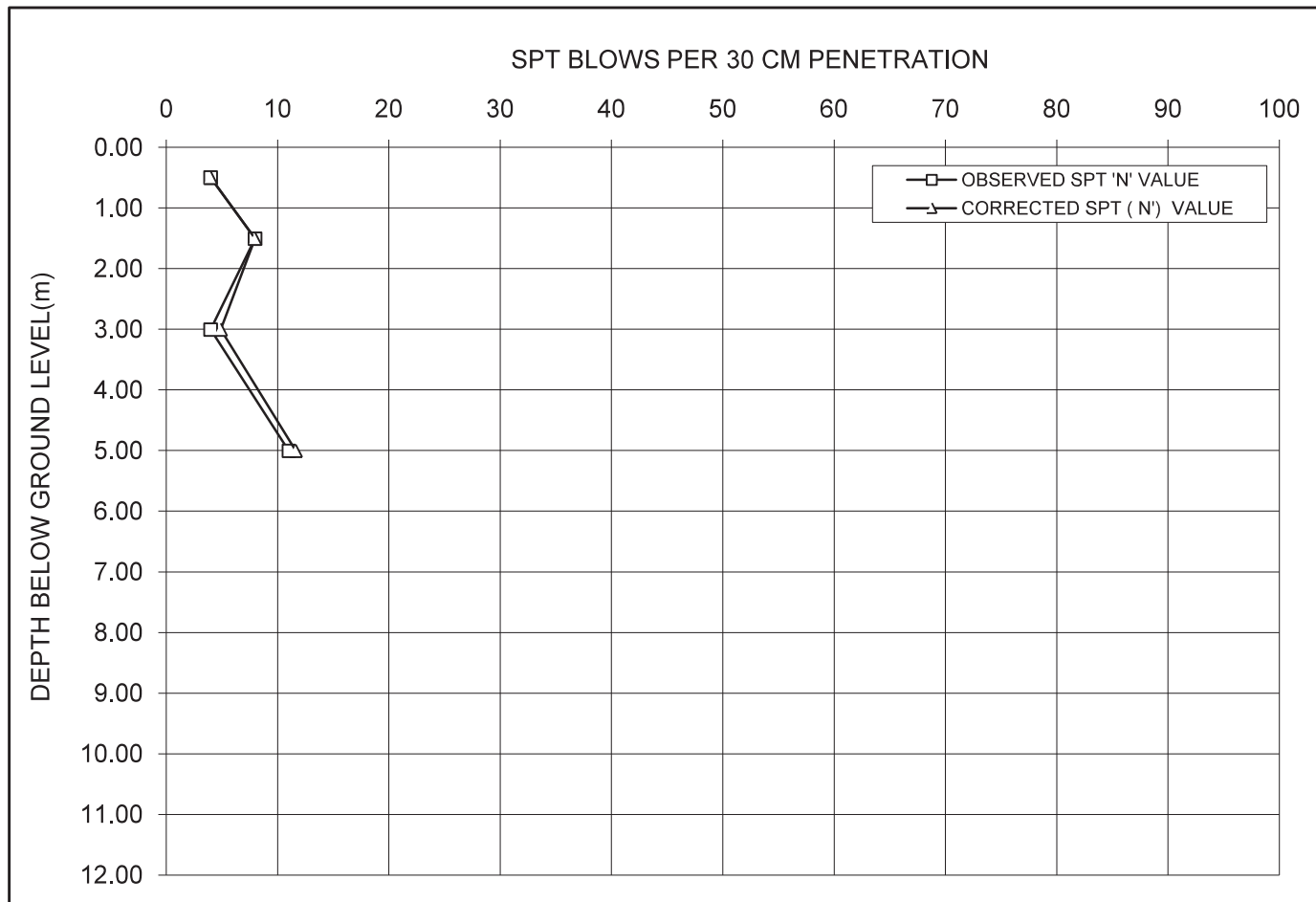
PROJECT: GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

CHAINAGE: IR : 1411 + 143 (Bridge No. 215)

BORE HOLE NO : 1

GWT depth below EGL (m) : Not Met

DEPTH OF SAMPLE	TYPE OF SOIL	γ_{bulk} (Bulk Unit Weight), t/m^3	OVERBURDEN PRESSURE (t/m^2)	OVERBURDEN PRESSURE (kg/cm^2)	OVERBURDEN CORRECTION FACTOR	OBSERVED SPT 'N' VALUE	CORRECTED SPT (N') VALUE (FOR OVERBURDEN)	FINAL CORRECTED VALUE AFTER DILATANCY CORRECTION (N'')
		1.65						
0.50	Plastic	1.65	0.83	0.083	1.00	4	4.00	4
1.50	Plastic	1.72	2.48	0.248	1.00	8	8.00	8
3.00	Non Plastic	1.70	5.06	0.506	1.23	4	4.92	5
5.00	Non Plastic	1.75	8.46	0.846	1.06	11	11.64	12



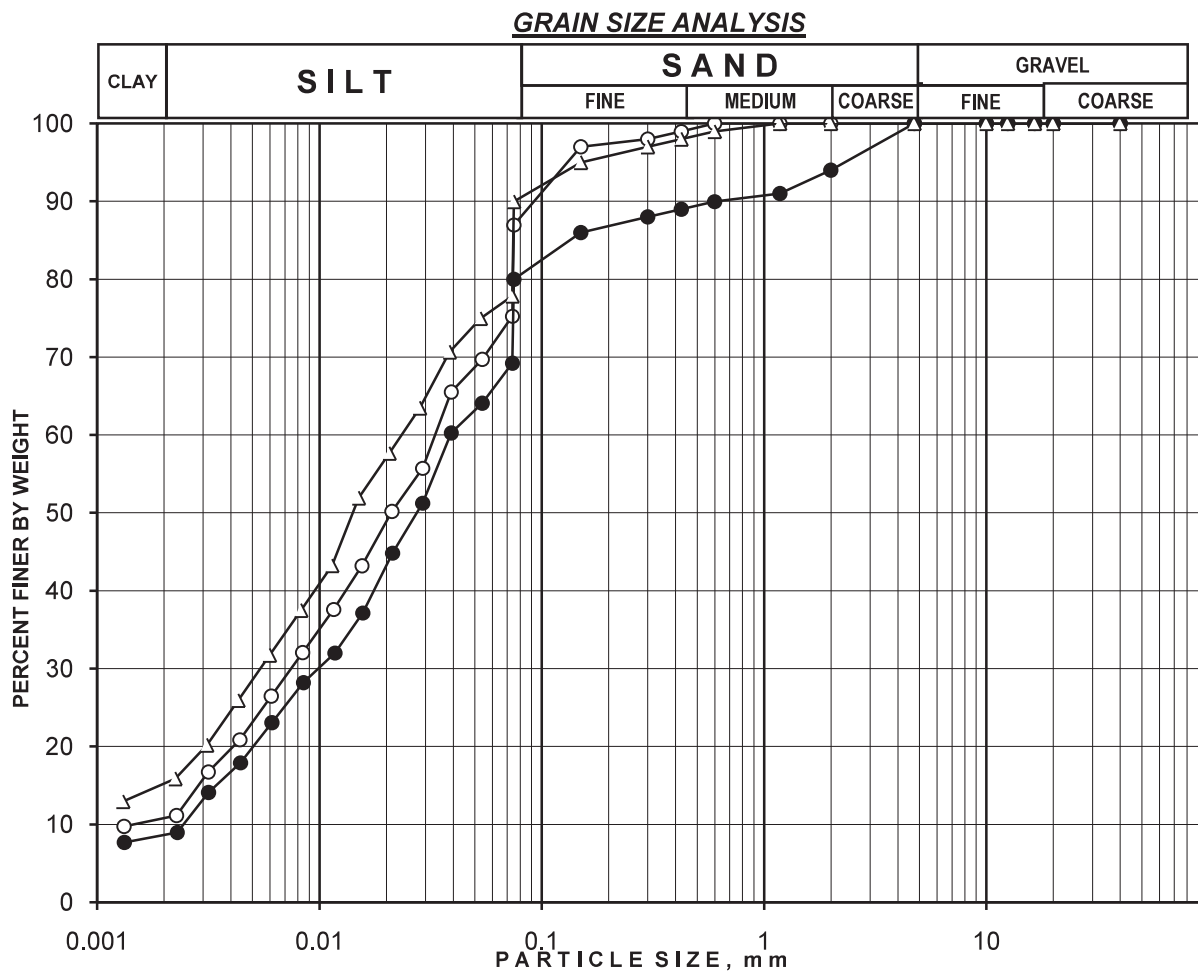


INDIAN GEOTECHNICAL SERVICES

New Delhi

PROJECT : : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

CHAINAGE: IR : 1411 + 143
DFCC BRIDGE No. :215



Symbol	BH No.	Depth, m	Soil Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	C _u	C _c
○	1	0.00	Sandy CLAY / Silty CLAY of low Plasticity (CL)	0.00	13.00	77.00	10.00	22.83	1.16
●	1	1.00	Sandy CLAY / Silty CLAY of low Plasticity (CL)	0.00	20.00	72.00	8.00	15.88	1.03
△	1	2.50	Sandy CLAY / Silty CLAY of low Plasticity (CL)	0.00	10.00	77.00	13.00	--	--

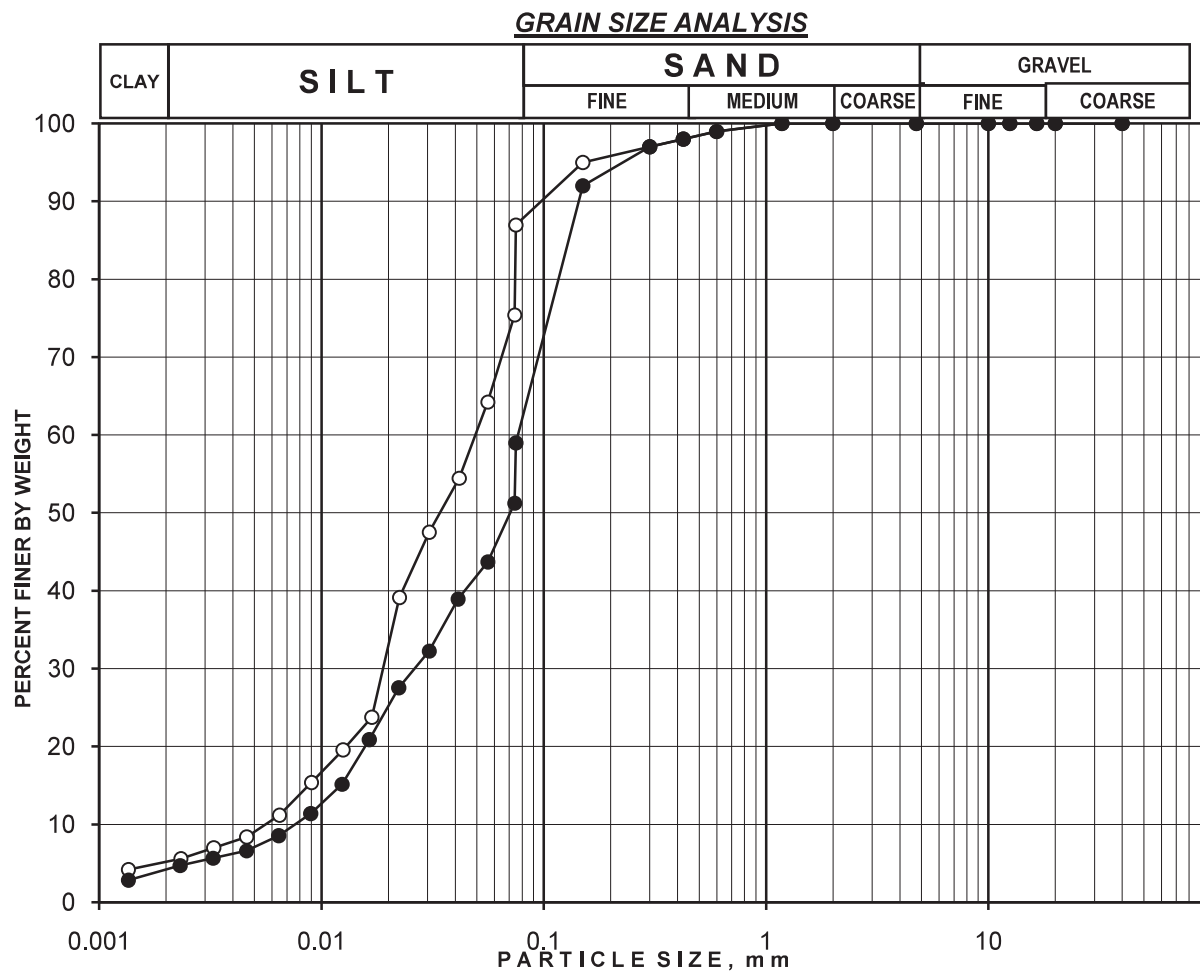


INDIAN GEOTECHNICAL SERVICES

New Delhi

PROJECT : : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

CHAINAGE: IR : 1411 + 143
DFCC BRIDGE No. :215



Symbol	BH No.	Depth, m	Soil Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	C _u	C _c
○	1	3.00	sandy SILT with nominal Clay (ML)	0.00	10.00	77.00	13.00	--	--
●	1	5.00	sandy SILT with nominal Clay (ML)	0.00	41.00	56.00	3.00	10.07	1.18



INDIAN GEOTECHNICAL SERVICES New Delhi

DETERMINATION OF SILT FACTOR

PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRUCTURE : 1411+143 (Bridge No. 215)

BORE HOLE NO.: : 01

DEPTH, M : : 0.00-1.00

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (D _m), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.75	6.00	4.750	28.500		
2	3.00	3.375	10.125		
1.18	2.00	1.590	3.180		
0.6	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.478	1.217
0.3	1.00	0.363	0.363		
0.15	1.00	0.225	0.225		
0.075	11.00	0.113	1.238		
PAN	74.00	0.038	2.775		
	100.00		47.808		

DEPTH, M : : 1.00-2.50

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (D _m), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.75	0.00	4.750	0.000		
2	6.00	3.375	20.250		
1.18	3.00	1.590	4.770		
0.6	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.309	0.979
0.3	1.00	0.363	0.363		
0.15	2.00	0.225	0.450		
0.075	6.00	0.113	0.675		
PAN	80.00	0.038	3.000		
	100.00		30.910		



INDIAN GEOTECHNICAL SERVICES

New Delhi

DETERMINATION OF SILT FACTOR

PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRUCTURE : 1411+143 (Bridge No. 215)

BORE HOLE NO.: : 01

DEPTH, M : : 2.50-3.00

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.75	0.00	4.750	0.000		
2	0.00	3.375	0.000		
1.18	0.00	1.590	0.000		
0.6	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.062	0.437
0.3	1.00	0.363	0.363		
0.15	2.00	0.225	0.450		
0.075	5.00	0.113	0.563		
PAN	90.00	0.038	3.375		
	100.00		6.153		

DEPTH, M : : 3.00-5.00

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.75	0.00	4.750	0.000		
2	0.00	3.375	0.000		
1.18	0.00	1.590	0.000		
0.6	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.064	0.444
0.3	1.00	0.363	0.363		
0.15	2.00	0.225	0.450		
0.075	8.00	0.113	0.900		
PAN	87.00	0.038	3.263		
	100.00		6.378		

DEPTH, M : : 5.00-5.45

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.75	0.00	4.750	0.000		
2	0.00	3.375	0.000		
1.18	0.00	1.590	0.000		
0.6	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.088	0.523
0.3	1.00	0.363	0.363		
0.15	5.00	0.225	1.125		
0.075	33.00	0.113	3.713		
PAN	59.00	0.038	2.213		
	100.00		8.815		



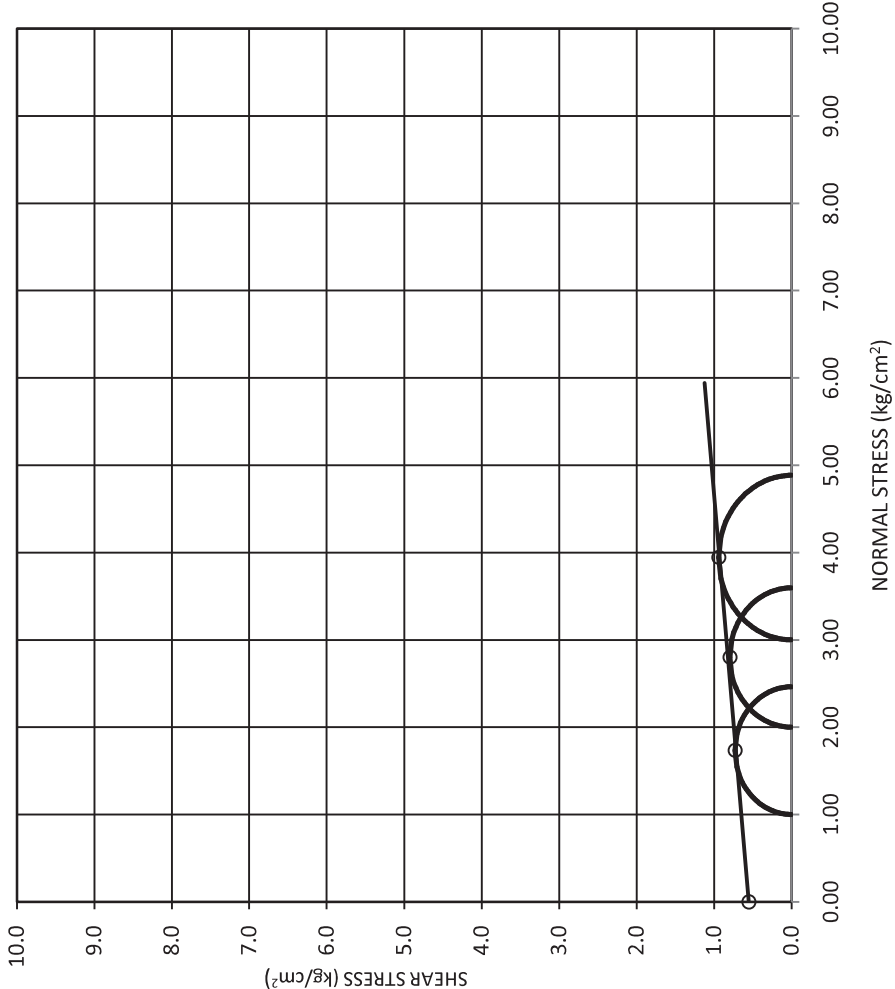
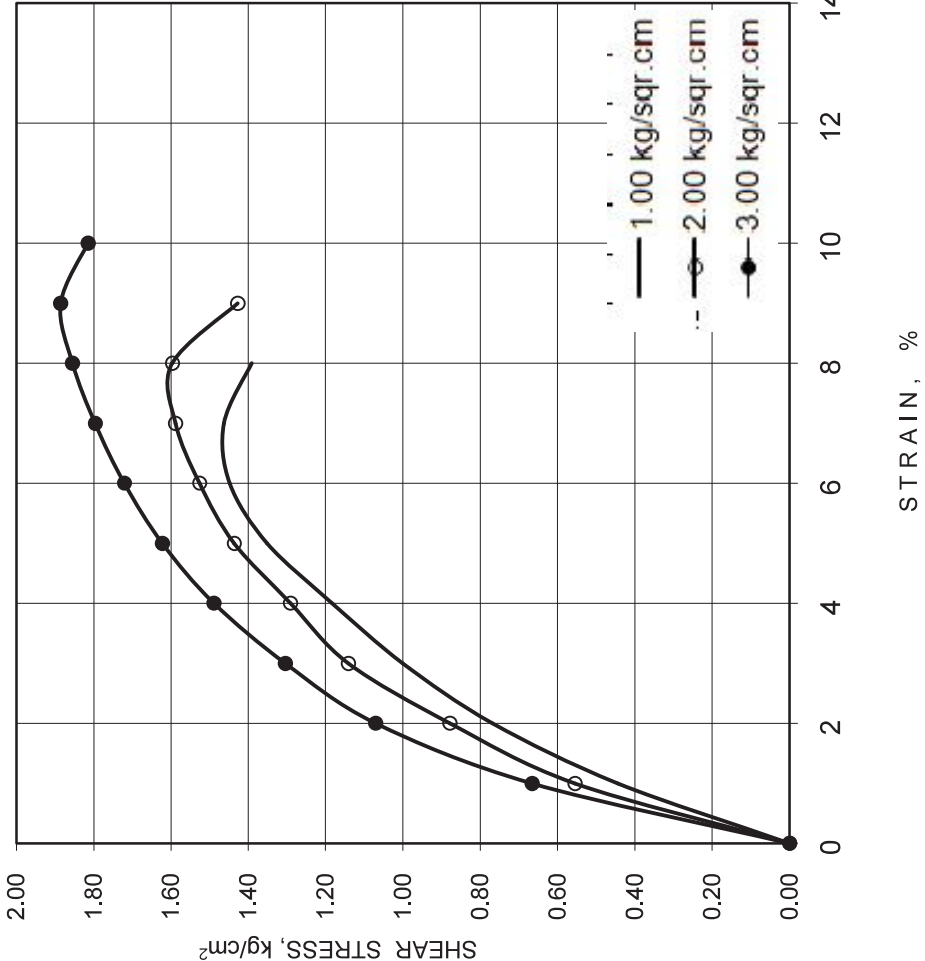
UNCONSOLIDATED UNDRAINED TRIAXIAL SHEAR TEST

Borehole No. 1	Depth, m	Dry Density (gm/cc)	1.52	"c" kg/cm²= 0.55	"φ" Degree= 5
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CHAINAGE : IR : 1411+143 (DFCC BRIDGE NO. 215)

PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRESS STRAIN CURVE





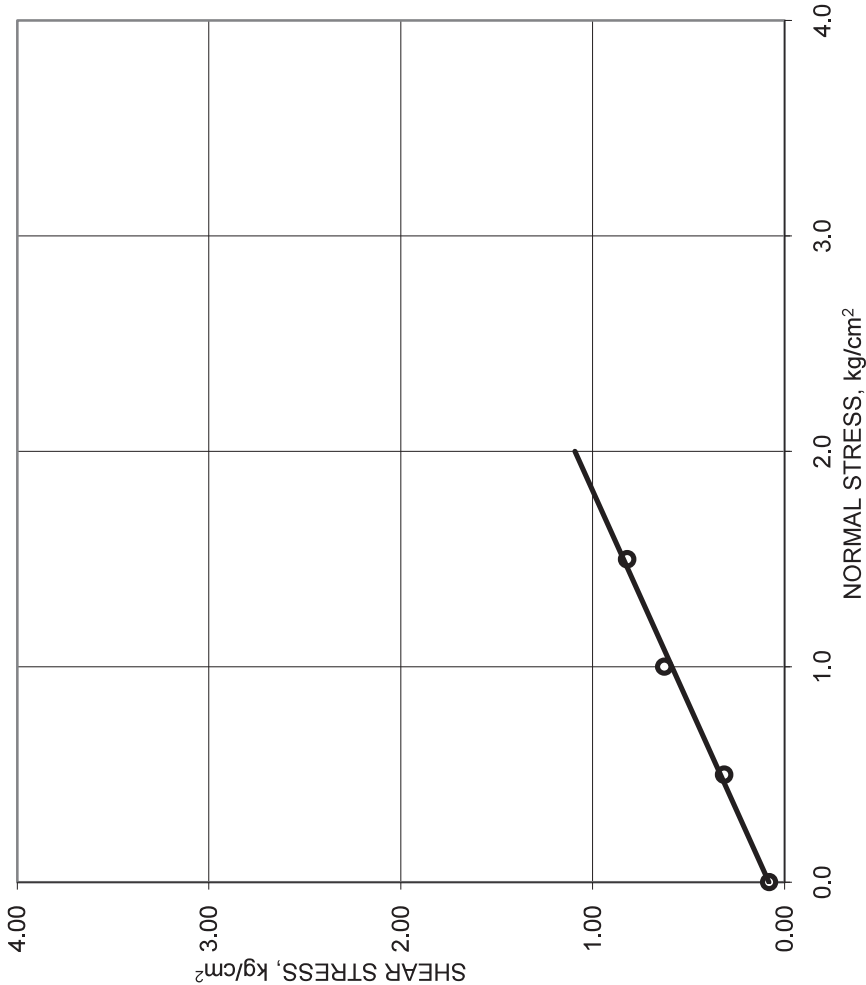
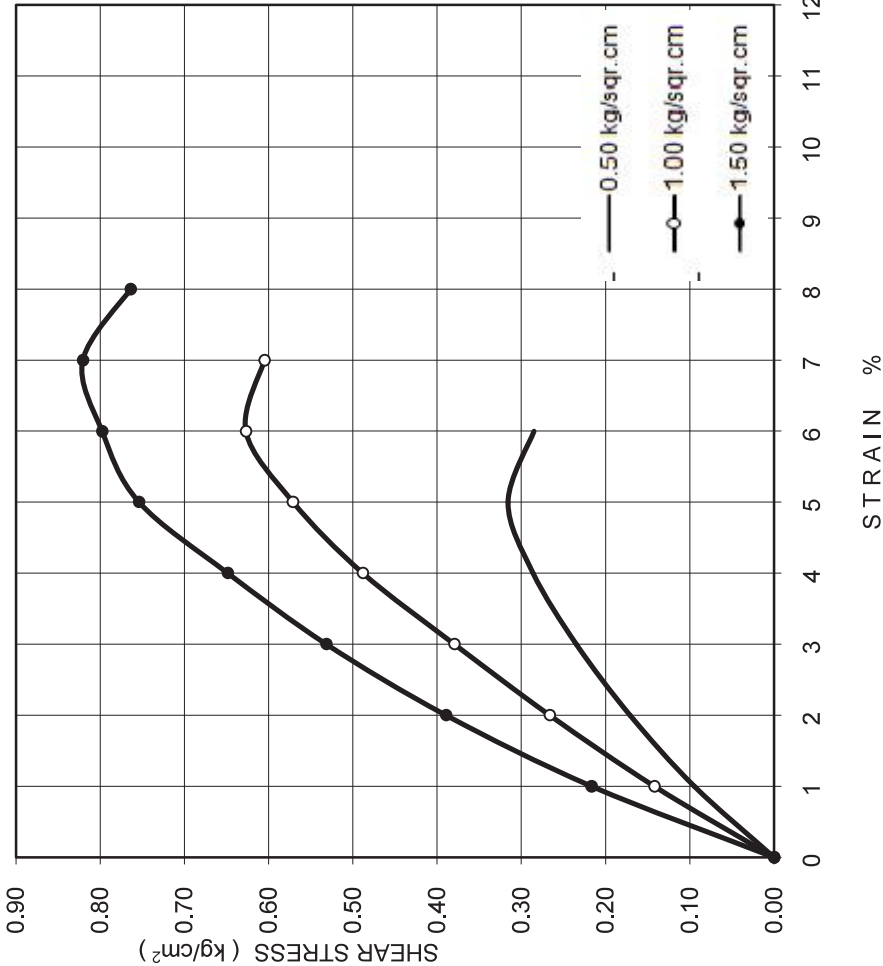
DIRECT SHEAR TEST

Borehole No. 1	Depth, m	1.00	Dry Density (gm/cc)	1.50	"c" kg/cm ² = 0.08	"φ" Degree= 26.8
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CHAINAGE : IR : 1411+143 (DFCC BRIDGE NO. 215)

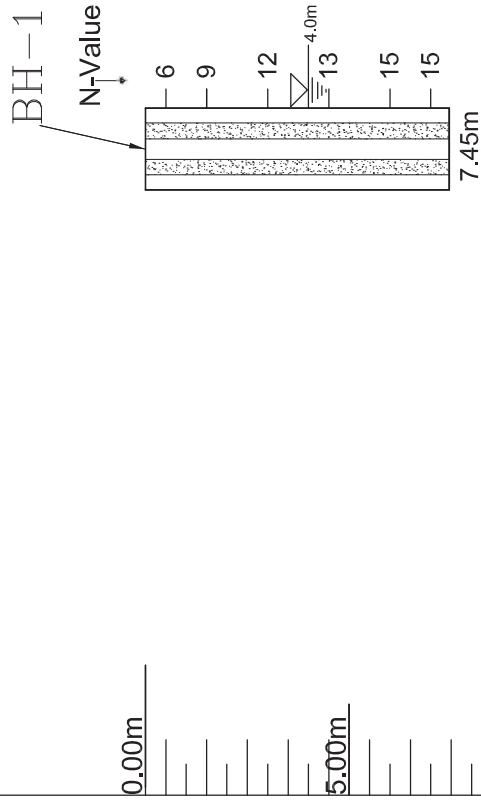
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRESS STRAIN CURVE





BOREHOLE PROFILE



PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).	LEGEND	
	SYMBOL	DESCRIPTION
CHAINAGE DFCC: 1411+904 (Bridge No. 216)		Silty SAND (SM)
		Ground water Table
DFCC BRIDGE NO :		

[illegible]



INDIAN GEOTECHNICAL SERVICES

New Delhi

CALCULATIONS FOR CORRECTED SPT (N) VALUES

PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

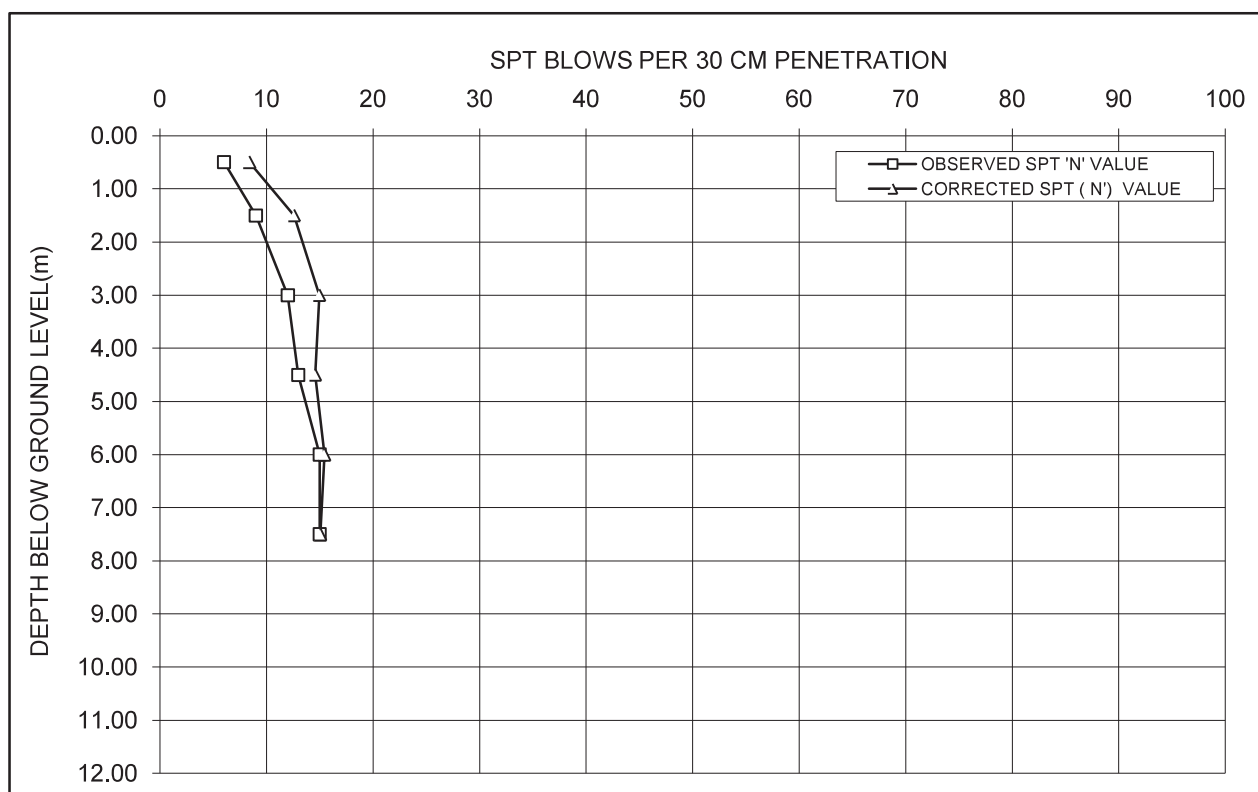
CHAINAGE: IR : 1411+904 (BRIDGE NO. 216)

BORE HOLE NO : 1

DFCC BRIDGE No. :

GWT depth below EGL (m) : 4.00

DEPTH OF SAMPLE	TYPE OF SOIL	γ_{bulk} (Bulk Unit Weight), t/m^3	OVERBURDEN PRESSURE (t/m^2)	OVERBURDEN PRESSURE (kg/cm^2)	OVERBURDEN CORRECTION FACTOR	OBSERVED SPT 'N' VALUE	CORRECTED SPT (N') VALUE (FOR OVERBURDEN)	FINAL CORRECTED VALUE AFTER DILATANCY CORRECTION (N')
		1.60						
0.50	Non Plastic	1.60	0.80	0.080	1.40	6	8.40	8
1.50	Non Plastic	1.66	2.40	0.240	1.40	9	12.60	13
3.00	Non Plastic	1.80	4.80	0.480	1.25	12	14.97	15
4.50	Non Plastic	1.95	7.00	0.700	1.12	13	14.57	15
6.00	Non Plastic	1.95	8.43	0.843	1.06	15	15.89	15
7.50	Non Plastic	1.95	9.85	0.985	1.01	15	15.10	15





INDIAN GEOTECHNICAL SERVICES

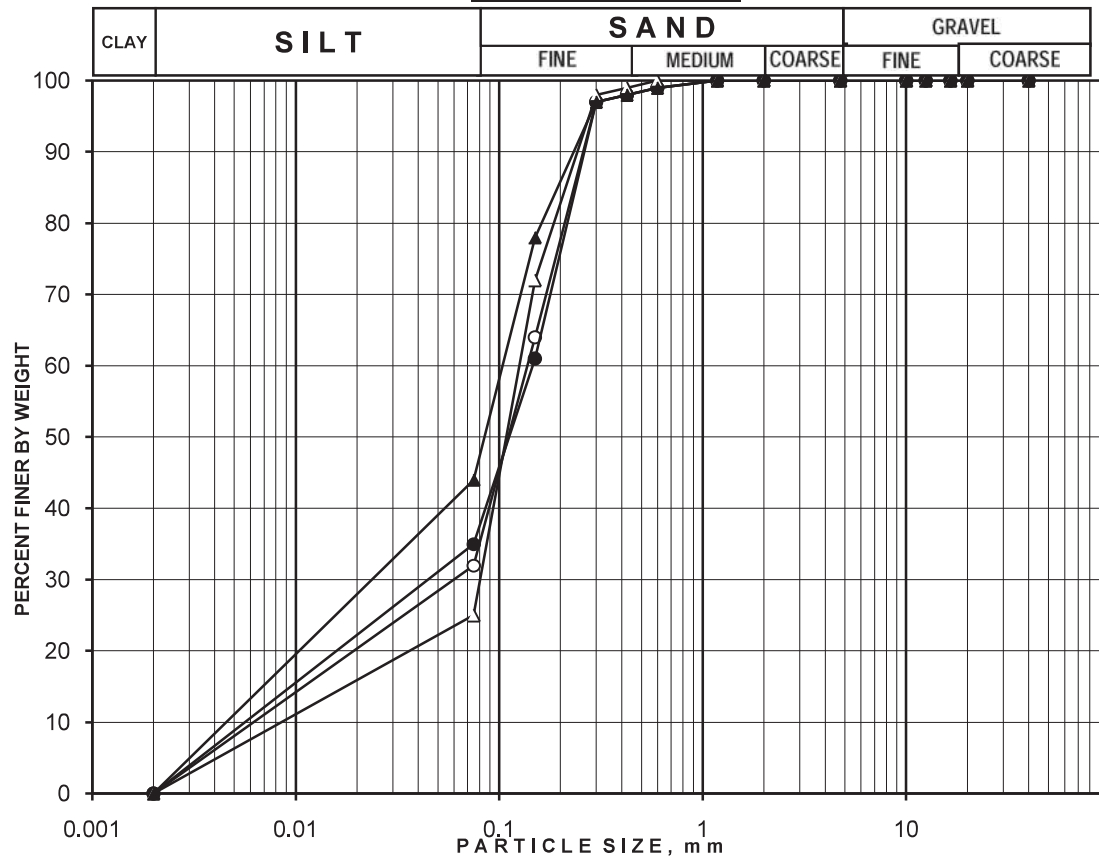
New Delhi

PROJECT : : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

CHAINAGE: IR : 1411+904 (BRIDGE NO. 216)

DFCC BRIDGE No. :

GRAIN SIZE ANALYSIS



Symbol	BH No.	Depth, m	Soil Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	C _u	C _c
○	1	0.00	Silty SAND (SM)	0.00	68.00	32.00	0.00	22.16	4.19
●	1	1.00		0.00	65.00	35.00	0.00	25.93	2.43
△	1	4.50		0.00	75.00	25.00	0.00	14.74	6.09
▲	1	7.00		0.00	56.00	44.00	0.00	22.80	1.18



INDIAN GEOTECHNICAL SERVICES

New Delhi

DETERMINATION OF SILT FACTOR

PROJECT: GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRUCTURE DFCC BRIDGE No : at CHAINAGE: IR : 1411+904

BORE HOLE NO. 1

DEPTH (m) 0.00-1.00

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.750	0.00	4.750	0.000		
2.000	0.00	3.375	0.000		
1.180	0.00	1.590	0.000		
0.600	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.140	0.658
0.300	1.00	0.363	0.363		
0.150	33.00	0.225	7.425		
0.075	32.00	0.113	3.600		
PAN	32.00	0.038	1.200		
	100.00		13.990		

DEPTH (m) 1.00-4.50

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.750	0.00	4.750	0.000		
2.000	0.00	3.375	0.000		
1.180	0.00	1.590	0.000		
0.600	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.141	0.661
0.300	1.00	0.363	0.363		
0.150	36.00	0.225	8.100		
0.075	26.00	0.113	2.925		
PAN	35.00	0.038	1.313		
	100.00		14.103		

DEPTH (m) 4.50-7.00

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.750	0.00	4.750	0.000		
2.000	0.00	3.375	0.000		
1.180	0.00	1.590	0.000		
0.600	0.00	0.890	0.000		
0.425	1.00	0.513	0.513	0.130	0.633
0.300	1.00	0.363	0.363		
0.150	26.00	0.225	5.850		
0.075	47.00	0.113	5.288		
PAN	25.00	0.038	0.938		
	100.00		12.950		



INDIAN GEOTECHNICAL SERVICES

New Delhi

DETERMINATION OF SILT FACTOR

PROJECT: GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRUCTURE DFCC BRIDGE No : at CHAINAGE: IR : 1411+904

BORE HOLE NO. 1

DEPTH (m) 7.00-7.45

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (D _m), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.750	0.00	4.750	0.000		
2.000	0.00	3.375	0.000		
1.180	0.00	1.590	0.000		
0.600	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.115	0.597
0.300	1.00	0.363	0.363		
0.150	19.00	0.225	4.275		
0.075	34.00	0.113	3.825		
PAN	44.00	0.038	1.650		
	100.00		11.515		



INDIAN GEOTECHNICAL SERVICES

New Delhi

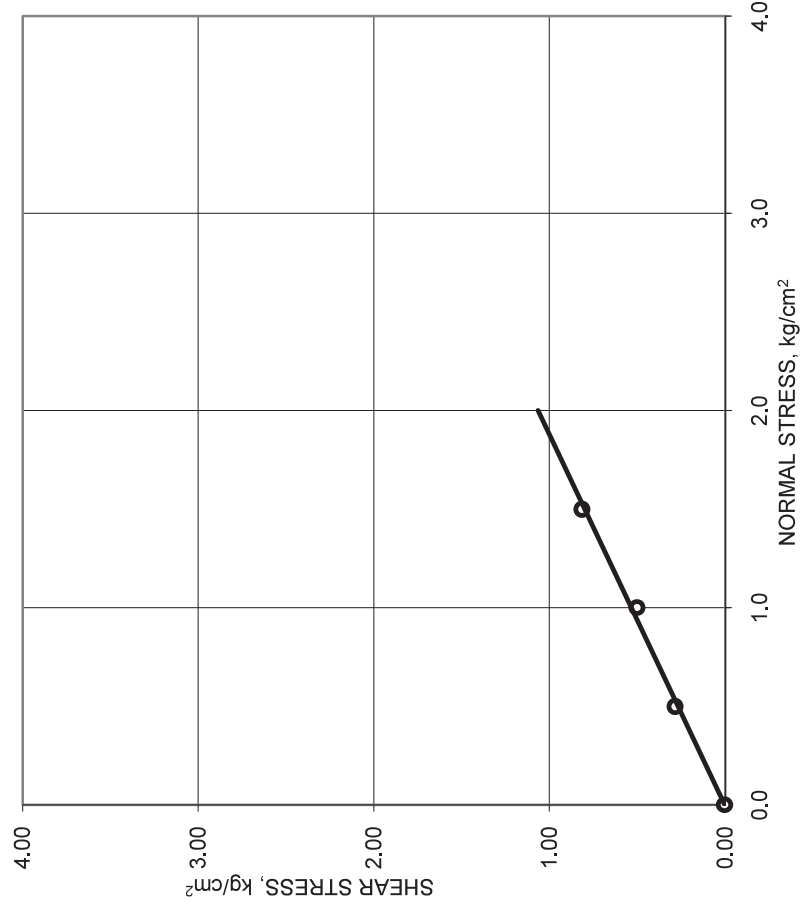
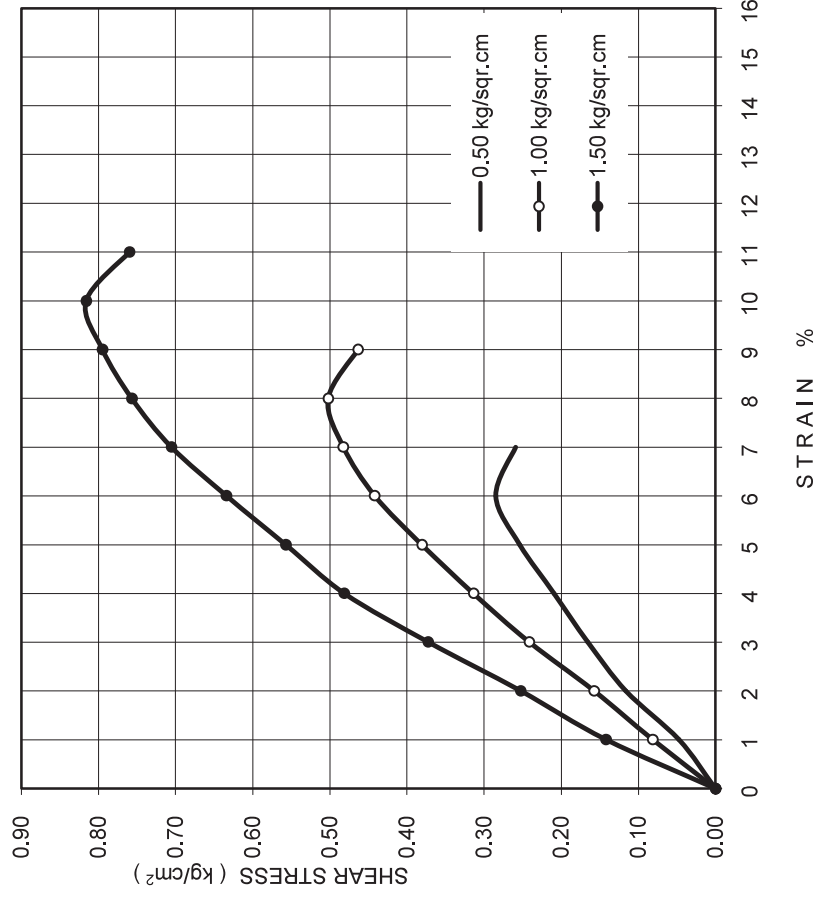
DIRECT SHEAR TEST

Borehole No. 1	Depth, m	1.00	Dry Density (gm/cc)	1.52	"c" kg/cm ² = 0.00	"φ" Degree= 28.0
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CHAINAGE : 1411 + 904 (Bridge No. 216)

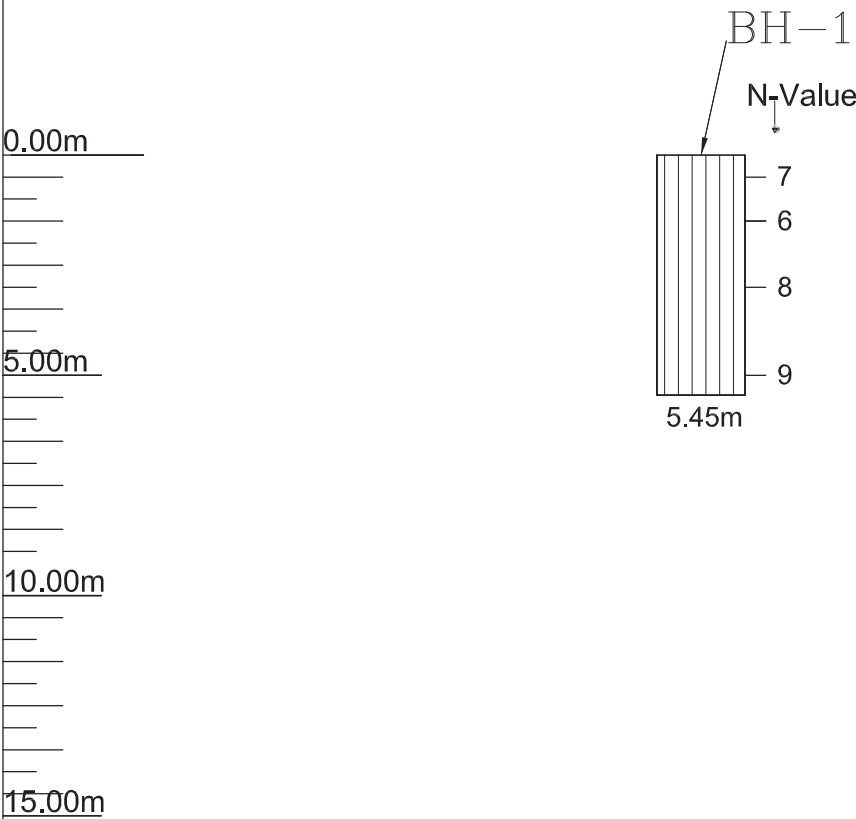
PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC PACKAGE-302 DADRI TO KHURJA (APPROX. 50 KM)


STRESS STRAIN CURVE





BOREHOLE PROFILE



PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).	LEGEND	
	SYMBOL	DESCRIPTION
		Sandy SILT (ML)
CHAINAGE DFCC: 1413+130		
DFCC BRIDGE NO : 217		

[illegible]



INDIAN GEOTECHNICAL SERVICES

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CALCULATIONS FOR CORRECTED SPT (N) VALUES

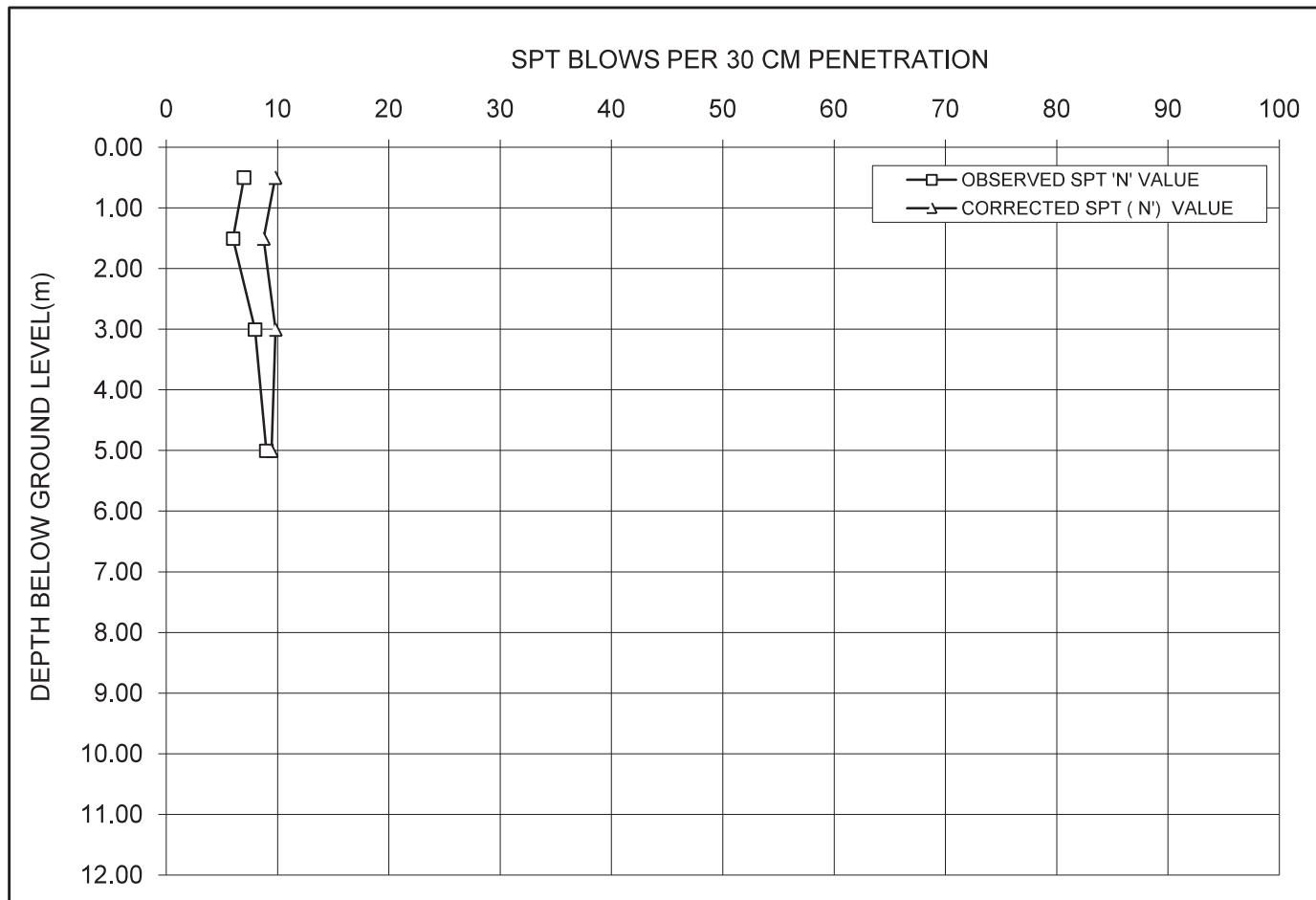
PROJECT: GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

CHAINAGE: IR : 1413 + 130 (Bridge No. 217)

BORE HOLE NO : 1

GWT depth below EGL (m) : Not met

DEPTH OF SAMPLE	TYPE OF SOIL	γ_{bulk} (Bulk Unit Weight), t/m^3	OVERBURDEN PRESSURE (t/m^2)	OVERBURDEN PRESSURE (kg/cm^2)	OVERBURDEN CORRECTION FACTOR	OBSERVED SPT 'N' VALUE	CORRECTED SPT (N') VALUE (FOR OVERBURDEN)	FINAL CORRECTED VALUE AFTER DILATANCY CORRECTION (N'')
		1.70						
0.50	Non Plastic	1.70	0.85	0.085	1.40	7	9.80	10
1.50	Non Plastic	1.70	2.55	0.255	1.46	6	8.75	9
3.00	Non Plastic	1.75	5.10	0.510	1.23	8	9.82	10
5.00	Non Plastic	1.75	8.60	0.860	1.05	9	9.47	9



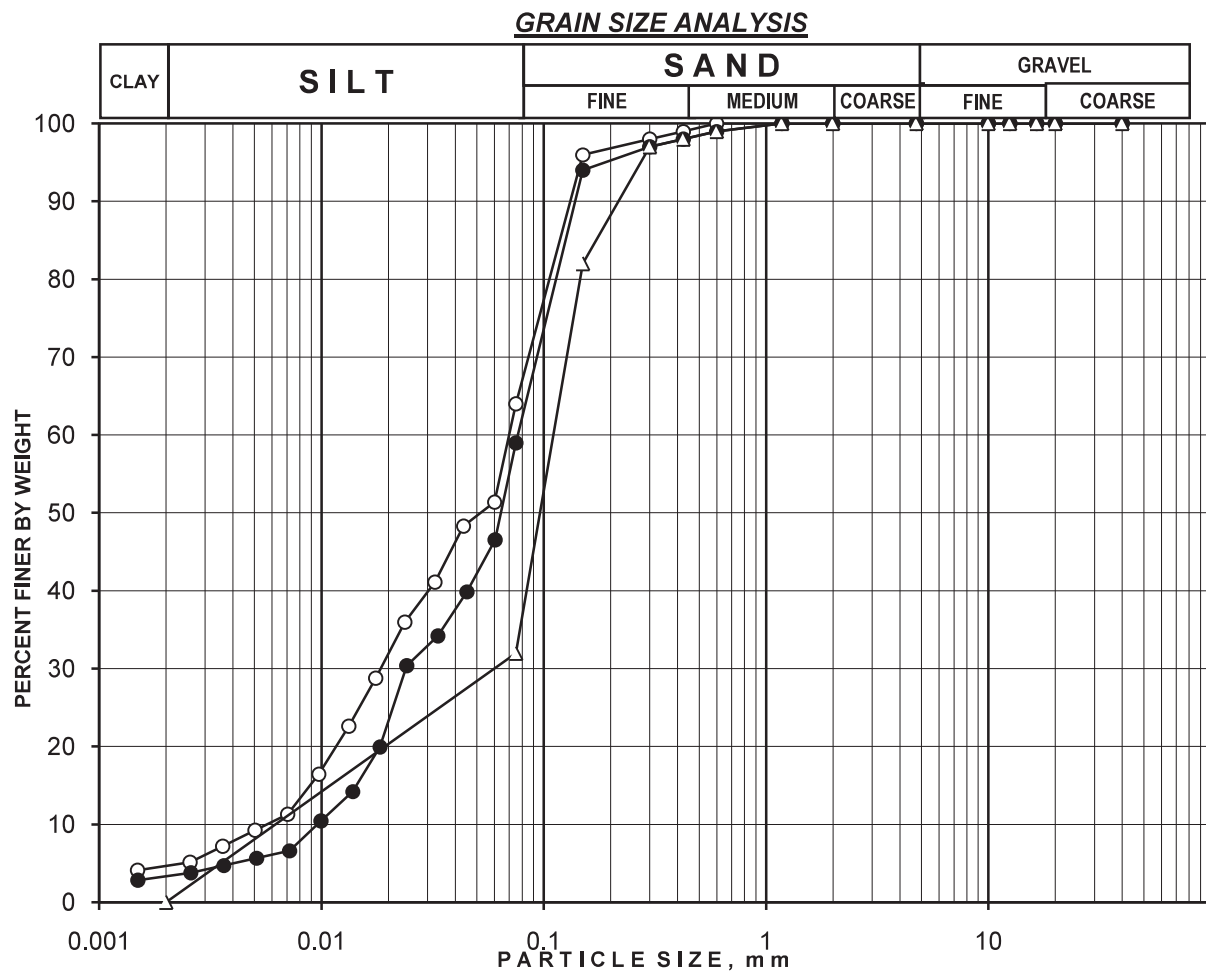


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PROJECT : : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

CHAINAGE: IR : 1413 + 130
DFCC BRIDGE No. : 217



Symbol	BH No.	Depth, m	Soil Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	C _u	C _c
○	1	0.00	Sandy SILT with nominal Clay (ML)	0.00	36.00	60.00	4.00	12.28	0.86
●	1	1.00	Sandy SILT with nominal Clay (ML)	0.00	41.00	56.00	3.00	7.98	0.78
Δ	1	3.00	Sandy SILT (ML)	0.00	68.00	32.00	0.00	17.81	5.21



INDIAN GEOTECHNICAL SERVICES

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DETERMINATION OF SILT FACTOR

PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRUCTURE : 1413+130 (Bridge No. 217)

BORE HOLE NO.: : 01

DEPTH, M : : 0.00-1.00

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.75	0.00	4.750	0.000		
2	0.00	3.375	0.000		
1.18	0.00	1.590	0.000		
0.6	0.00	0.890	0.000		
0.425	1.00	0.513	0.513	0.073	0.476
0.3	1.00	0.363	0.363		
0.15	2.00	0.225	0.450		
0.075	32.00	0.113	3.600		
PAN	64.00	0.038	2.400		
	100.00		7.325		

DEPTH, M : : 1.00-3.00

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.75	0.00	4.750	0.000		
2	0.00	3.375	0.000		
1.18	0.00	1.590	0.000		
0.6	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.086	0.516
0.3	1.00	0.363	0.363		
0.15	3.00	0.225	0.675		
0.075	35.00	0.113	3.938		
PAN	59.00	0.038	2.213		
	100.00		8.590		

DEPTH, M : : 3.00-5.45

SIEVE SIZE (mm)	PERCENTAGE RETAINED	AVERAGE SIZE OF SIEVE	2 X 3	MEAN DIAMETER (Dm), mm	SILT FACTOR, f
1	2	3	4	4/100	
4.75	0.00	4.750	0.000		
2	0.00	3.375	0.000		
1.18	0.00	1.590	0.000		
0.6	1.00	0.890	0.890		
0.425	1.00	0.513	0.513	0.120	0.609
0.3	1.00	0.363	0.363		
0.15	15.00	0.225	3.375		
0.075	50.00	0.113	5.625		
PAN	32.00	0.038	1.200		
	100.00		11.965		



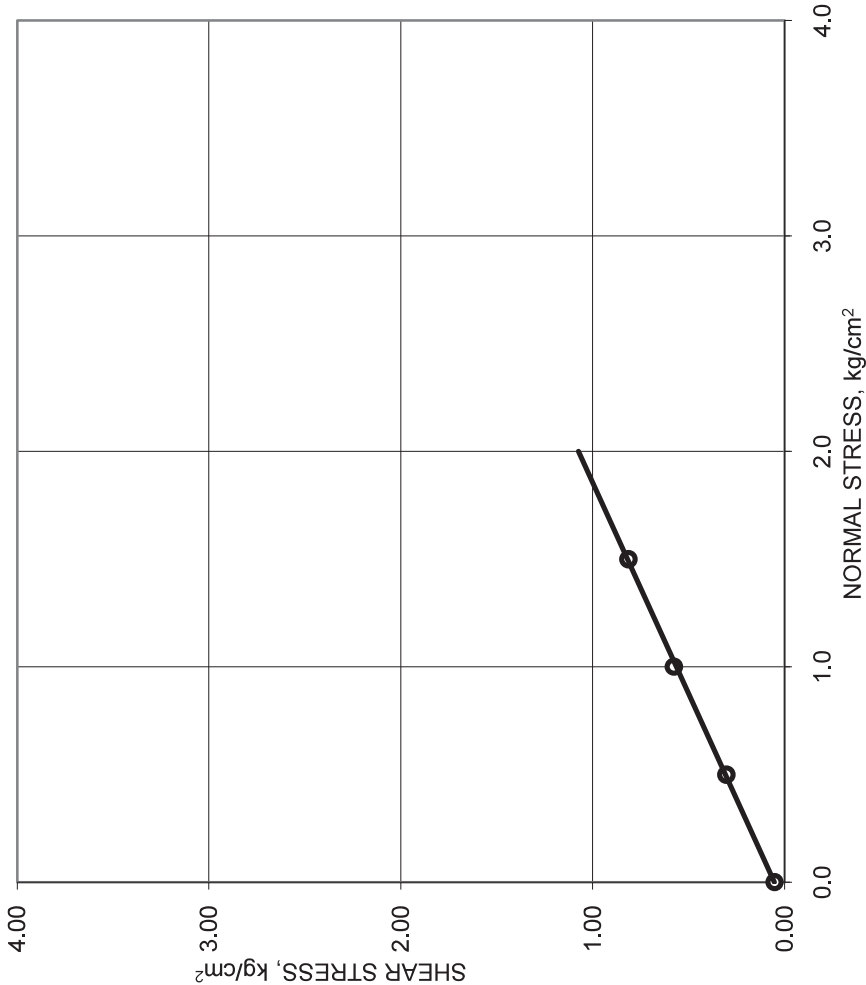
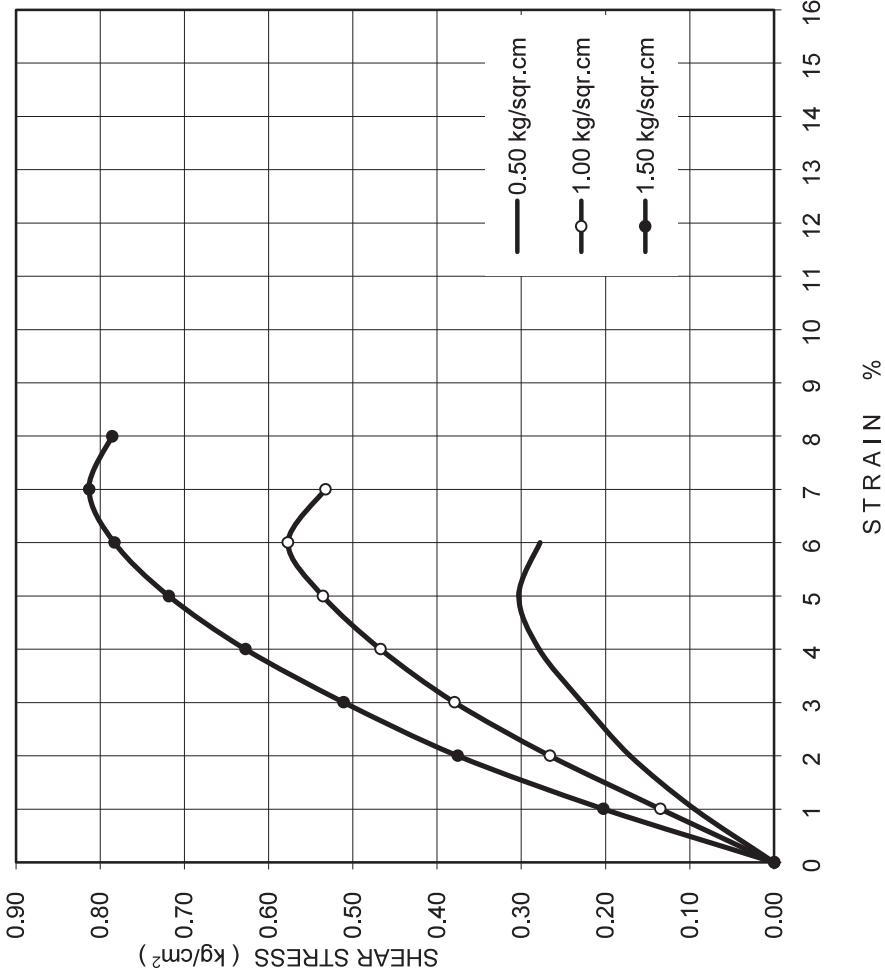
DIRECT SHEAR TEST

Borehole No. 1	Depth, m	1.00	Dry Density (gm/cc)	1.50	"c" kg/cm ² = 0.05	"φ" Degree= 27.0
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CHAINAGE : IR : 1413+130 (DFCC BRIDGE NO : 217)

PROJECT : GEOTECHNICAL INVESTIGATIONS FOR DFCC 302 DADRI TO KHURJA (APPROX. 50 KM).

STRESS STRAIN CURVE



Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Structure No

MIB 210

Dead load of Box:

10.5

t/m2

Borelog Details		
Depth of Water Table	Not Met	m
Depth of Water Table Considered	0	m
Energy delivered	45	%
Borehole Diameter	150	mm
Rod Length	3	m
Presence of Liner	Without Liner	
Soil Type	Clay	
Hammer Correction	0.986	
RL of Founding Level	202.518	
RL of Ground Level	205.847	

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{max} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	
1.45	

Box:

Depth (m)	RL of Layer (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _u (kPa)	C _u	C _e	C _b	C _r	C _s	C _h	a	b	(N) ₁₆₀	(N) _{160CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _o	K _a	CSR	CSR ^{1.5}	CRR	FS	Remark	
0.5	205.347	74	4	1.92	0.92	0.96	0.46	2.00	0.75	1.05	0.75	1.05	0.986	5.0	1.2	4.9	11	15	1.00	0.8	1.00	1.00	1	0.162	0.121	0.175	>1	Non-Liquefiable
1.5	204.347	85	4	1.92	0.92	2.88	1.38	2.00	0.75	1.05	0.75	1.05	0.986	5.0	1.2	4.9	11	15	0.99	0.8	1.00	1.00	1	0.174	0.121	0.175	>1	Non-Liquefiable
3	202.847	92	10	1.97	0.97	5.84	2.84	1.84	0.75	1.05	0.75	1.05	0.986	5.0	1.2	11.2	18	35	0.98	0.8	1.00	1.00	1	0.187	0.197	0.286	>1	Non-Liquefiable
5	200.847	83	10	1.93	0.93	9.78	4.70	1.43	0.75	1.05	0.85	1.05	0.986	5.0	1.2	9.9	17	35	0.96	0.8	1.00	1.00	1	0.200	0.180	0.260	>1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Structure No

MIB 212

Dead load of Box:

10.5

t/m2

Borelog Details		
Depth of Water Table	2.4	m
Depth of Water Table Considered	0	m
Energy delivered	45	%
Borehole Diameter	150	mm
Rod Length	3	m
Presence of Liner	Without Liner	
Soil Type	Clay	
Hammer Correction	0.986	
RL of Founding Level	202.168	
RL of Ground Level	203.612	

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a_{max}/g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K_m	1.45

Box:

Depth (m)	RL of Layer (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _u (kPa)	C _n	C _e	C _b	C _r	C _s	C _H	a	b	(N ₁) ₆₀	(N ₁) _{60CS}	Relative density, Dr (%)	r _d	r	Corr for High Overburden stress, K _p	K _a	CSR	CSR _{1.5}	CRR	FS	Remark
1.5	202.112	93	7	1.94	0.94	2.91	1.41	2.00	0.75	1.05	0.75	1.05	0.986	5.0	1.2	8.6	15	35	0.99	0.8	1.00	1	0.174	0.163	0.236	>1	Non-Liquefiable
3	200.612	54	15	1.96	0.96	5.85	2.85	1.83	0.75	1.05	0.75	1.05	0.986	5.0	1.2	16.8	25	35	0.98	0.8	1.00	1	0.187	0.296	0.429	>1	Non-Liquefiable
5	198.612	54	17	1.96	0.96	9.77	4.77	1.42	0.75	1.05	0.75	1.05	0.986	5.0	1.2	14.7	23	35	0.96	0.8	1.00	1	0.199	0.252	0.365	>1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Structure No

MIB 213

Dead load of Box:

11.5

t/m2

Borelog Details		
Depth of Water Table	3.5	m
Depth of Water Table Considered	0	m
Energy delivered	45	%
Borehole Diameter	150	mm
Rod Length	3	m
Presence of Liner	Without Liner	
Soil Type	Clay	
Hammer Correction	0.986	
RL of Founding Level	202.857	
RL of Ground Level	203.432	

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a_{max}/g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K_m	1.45

Box:

Depth (m)	RL of Layer (m)	%Fine	N_{60}	Sat. density of soil (kN/m ³)	Sub. density of soil (kN/m ³)	s_v (kPa)	s_v' (kPa)	C_N	C_e	C_B	C_R	C_S	C_H	a	b	$(N_{1,60})$	$(N_{1,60CS})$	Relative density, Dr (%)	r_d	r	Corr for High Overburden stress, K_p	K_a	CSR	$CSR_{1.5}$	CRR	FS	Remark
1.5	201.932	95	13	1.96	0.96	2.94	1.44	2.00	0.75	1.05	0.75	1.05	0.986	5.0	1.2	15.9	24	35	0.99	0.8	1.00	1	0.172	0.275	0.398	>1	Non-Liquefiable
3	200.432	84	5	1.93	0.93	5.84	2.84	1.84	0.75	1.05	0.75	1.05	0.986	5.0	1.2	5.6	12	15	0.98	0.8	1.00	1	0.184	0.129	0.187	>1	Non-Liquefiable
5	198.432	82	8	1.93	0.93	9.70	4.70	1.43	0.75	1.05	0.75	1.05	0.986	5.0	1.2	7.0	13	15	0.96	0.8	1.00	1	0.196	0.144	0.209	>1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Structure No

MIB 214

Dead load of Box:

9

t/m2

Borelog Details		
Depth of Water Table	4	m
Depth of Water Table Considered	0	m
Energy delivered	45	%
Borehole Diameter	150	mm
Rod Length	3	m
Presence of Liner	Without Liner	
Soil Type	Clay	
Hammer Correction	0.986	
RL of Founding Level	204.426	
RL of Ground Level	205.048	

Earthquake Details		
Seismic Zone	IV	
Zone Factor, Z	0.24	
Importance Factor, I	1	
Site Factor, S	1	
a _{max} /g	0.24	
Magnitude of Earthquake	6.5	
Magnitude Scaling Factor, MSF, K _m	1.45	

Box:

Depth (m)	1.5	203.648	93	21	1.96	0.96	2.940	1.44	2.00	0.75	C _e	C _b	C _r	C _s	C _H	a	b	(N) ₁₆₀	(N) _{160CS}	Relative density, Dr (%)	r _d	r	Corr for High Overburden stress, K _o	K _a	CSR	CSR _{1.5}	CRR	FS	Remark
3	202.048	64	16	1.96	0.96	0.96	5.880	2.88	1.82	0.75	0.75	1.05	1.05	1.05	0.986	5.0	1.2	17.8	26	35	0.98	0.8	1.00	1	0.191	0.323	0.468	>1	Non-Liquefiable
5	200.048	88	19	1.96	0.96	0.96	9.800	4.800	1.41	0.75	0.75	1.05	0.75	1.05	0.986	5.0	1.2	16.4	25	35	0.96	0.8	1.00	1	0.204	0.286	0.415	>1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Structure No

MIB 215

Dead load of Box:

8.5

t/m2

Borelog Details		
Depth of Water Table	Not Met	m
Depth of Water Table Considered	5	m
Energy delivered	45	%
Borehole Diameter	150	mm
Rod Length	3	m
Presence of Liner	Without Liner	
Soil Type	Clay	
Hammer Correction	0.986	
RL of Founding Level	205.215	
RL of Ground Level	207.315	

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a_{max}/g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K_m	
1.45	

Box:

Depth (m)	RL of Layer (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _u	C _c	C _b	C _r	C _s	C _h	a	b	(N) _{160cs}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _o	K _a	CSR	CSR _{1.5}	CRR	FS	Remark	
0.5	206.815	87	4	1.95	1.95	0.98	0.98	2.00	0.75	1.05	0.75	1.05	0.986	5.0	1.2	4.9	11	15	1.00	0.8	1.00	1	0.155	0.121	0.175	>1	Non-Liquefiable
1.5	205.815	80	8	1.95	1.95	2.93	2.93	1.81	0.75	1.05	0.75	1.05	0.986	5.0	1.2	8.9	16	35	0.99	0.8	1.00	1	0.154	0.166	0.241	>1	Non-Liquefiable
3	204.315	87	4	1.95	1.95	5.85	5.85	1.28	0.75	1.05	0.75	1.05	0.986	5.0	1.2	3.1	9	15	0.98	0.8	1.00	1	0.152	0.102	0.148	0.97344	Liquefiable
5	202.315	59	11	1.95	1.95	9.75	9.75	0.99	0.75	1.05	0.85	1.05	0.986	5.0	1.2	7.6	14	35	0.96	0.8	1.00	1	0.150	0.151	0.219	>1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Structure NoMIB 216

Dead load of Box:

9t/m2

Borelog Details		
Depth of Water Table	4	m
Depth of Water Table Considered	0	m
Energy delivered	45	%
Borehole Diameter	150	mm
Rod Length	3	m
Presence of Liner	Without Liner	
	Loose Sand	
Hammer Correction	0.986	
RL of Founding Level	204.158	
RL of Ground Level	205.346	

Earthquake Details		
Seismic Zone		IV
Zone Factor, Z		0.24
Importance Factor, I		1
Site Factor, S		1
a_{msl}/g		0.24
Magnitude of Earthquake		6.5
Magnitude Scaling Factor, MSF, K_m		1.45

Box:

Depth (m)	RL of Layer (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _n	C _e	C _b	C _r	C _s	C _H	a	b	(N) ₁₆₀	(N) _{160CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark
0.5	204.846	32	6	1.99	0.99	0.995	0.495	2.00	0.75	1.05	0.75	1.05	0.986	4.8	1.2	7.3	13	35	1.00	0.8	1.00	1	0.164	0.145	0.210	>1	Non-Liquefiable
2	203.346	35	9	1.99	0.99	3.980	1.98	2.00	0.75	1.05	0.75	1.05	0.986	5.0	1.2	11.0	18	35	0.98	0.8	1.00	1	0.182	0.194	0.282	>1	Non-Liquefiable
3.5	201.846	25	12	1.99	0.99	6.965	3.465	1.66	0.75	1.05	0.75	1.05	0.986	4.3	1.1	12.2	18	35	0.97	0.8	1.00	1	0.194	0.191	0.276	>1	Non-Liquefiable
4.5	200.846	25	13	2.01	1.01	8.955	4.475	1.46	0.75	1.05	0.85	1.05	0.986	4.3	1.1	13.2	19	35	0.97	0.8	1.00	1	0.201	0.203	0.295	>1	Non-Liquefiable
6	199.346	44	15	2.01	1.01	11.970	5.990	1.26	0.75	1.05	0.85	1.05	0.986	5.0	1.2	13.1	21	35	0.95	0.8	1.00	1	0.297	0.225	0.327	>1	Non-Liquefiable
7	198.346	44	15	2.01	1.01	13.980	7.000	1.17	0.75	1.05	0.85	1.05	0.986	5.0	1.2	12.2	20	35	0.95	0.8	1.00	1	0.295	0.210	0.305	>1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Structure No

MIB 217

Dead load of Box:

13

t/m2

Borelog Details		
Depth of Water Table	Not Met	m
Depth of Water Table Considered	0	m
Energy delivered	45	%
Borehole Diameter	150	mm
Rod Length	3	m
Presence of Liner	Without Liner	
	Loose Sand	
Hammer Correction	0.986	
RL of Founding Level	202.482	m
RL of Ground Level	204.074	m

Earthquake Details		
Seismic Zone		IV
Zone Factor, Z		0.24
Importance Factor, I		1
Site Factor, S		1
a_{max}/g		0.24
Magnitude of Earthquake		6.5
Magnitude Scaling Factor, MSF, K_m		1.45

Box:

Depth (m)	RL of Layer (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _n	C _e	C _b	C _r	C _s	C _H	a	b	(N ₁) ₆₀	(N ₁) _{100CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark
0.5	203.574	64	7	1.93	0.93	0.965	0.465	2.00	0.75	1.05	0.75	1.05	0.986	5.0	1.2	8.6	15	35	1.00	0.8	1.00	1	0.161	0.163	0.236	>1	Non-Liquefiable
1.5	202.574	59	6	1.93	0.93	2.895	1.395	2.00	0.75	1.05	0.75	1.05	0.986	5.0	1.2	7.3	14	35	0.99	0.8	1.00	1	0.170	0.148	0.215	>1	Non-Liquefiable
3	201.074	62	8	1.93	0.93	5.790	2.790	1.85	0.75	1.05	0.75	1.05	0.986	5.0	1.2	9.1	16	35	0.98	0.8	1.00	1	0.181	0.169	0.245	>1	Non-Liquefiable
5	199.074	62	9	1.93	0.93	9.650	4.650	1.44	0.75	1.05	0.85	1.05	0.986	5.0	1.2	9.0	16	35	0.96	0.8	1.00	1	0.193	0.168	0.243	>1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		1.6 m
Borehole No		164
Top width of Embankment		13.6 m
Bottom Width of embankment		19.8 m
Density of Soil		1.8 t/m3
Dead load of embankment		2.7 t/m2

Bore hole Chainage – 1410+520
Applicable Chainage - 1409+780 to 1410+640

Borelog Details	
Depth of Water Table	Not Met
Depth of Water Table Considered	5.45 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _u	C _e	C _s	C _a	C _s	C _a	C _e	a	b	(N) ₁₅₀	(N) _{150CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark
0.5	56	12	1.95	1.95	0.975	0.975	2.00	0.75	1.05	0.75	1.05	0.75	1.05	5.0	1.2	14.7	23	35	1.00	0.8	1.00	1	0.155	0.251	0.364	> 1	Non-Liquefiable
1.5	91	10	1.95	1.95	2.925	2.925	1.81	0.75	1.05	0.75	1.05	0.99	5.0	5.0	1.2	11.1	18	35	0.99	0.8	1.00	1	0.154	0.195	0.283	> 1	Non-Liquefiable
3	47	8	1.95	1.95	5.850	5.850	1.28	0.75	1.05	0.75	1.05	0.99	5.0	5.0	1.2	6.3	13	15	0.98	0.8	1.00	1	0.152	0.136	0.197	> 1	Non-Liquefiable
5	47	12	1.95	1.95	9.750	9.750	0.99	0.75	1.05	0.75	1.05	0.99	5.0	5.0	1.2	7.3	14	35	0.96	0.8	1.00	1	0.150	0.148	0.214	> 1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		0.8 m
Borehole No		165
Top width of Embankment		13.6 m
Bottom Width of embankment		16.7 m
Density of Soil		1.8 t/m3
Dead load of embankment		1.4 t/m2

Borelog Details	
Depth of Water Table	Not Met
Depth of Water Table Considered	4.45 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _n	C _e	C _s	C _a	C _s	C _a	C _e	a	b	(N) _{1.60}	(N) _{1.60CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark
0.5	86	10	1.94	1.94	0.970	0.97	2.00	0.75	1.05	0.75	1.05	0.75	0.75	5.0	1.2	12.2	20	35	1.00	0.8	1.00	1	0.155	0.211	0.307	> 1	Non-Liquefiable
1.5	86	6	1.94	1.94	2.910	2.91	1.81	0.75	1.05	0.75	1.05	0.99	0.99	5.0	1.2	6.7	13	15	0.99	0.8	1.00	1	0.154	0.140	0.204	> 1	Non-Liquefiable
3	89	10	1.97	1.97	5.865	5.865	1.28	0.75	1.05	0.75	1.05	0.99	0.99	5.0	1.2	7.8	14	35	0.98	0.8	1.00	1	0.152	0.154	0.223	> 1	Non-Liquefiable
4	62	13	1.97	1.97	7.835	7.835	1.11	0.75	1.05	0.75	1.05	0.99	0.99	5.0	1.2	8.8	16	35	0.97	0.8	1.00	1	0.151	0.166	0.240	> 1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		0.7 m
Borehole No		166
Top width of Embankment		13.6 m
Bottom Width of embankment		16.2 m
Density of Soil		1.7 t/m3
Dead load of embankment		1.1 t/m2

Bore hole Chainage – 1411+120
Applicable Chainage - 1410+960 to 1411+260

Borelog Details	
Depth of Water Table	Not Met
Depth of Water Table Considered	3 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _n	C _e	C _a	C _s	C _g	C _h	a	b	(N) ₁₀₀	(N) _{100CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark
0.5	84	6	1.95	1.95	0.975	0.975	2.00	0.75	1.05	0.75	1.05	0.99	5.0	1.2	7.3	14	35	1.00	0.8	1.00	1	0.155	0.148	0.215	> 1	Non-Liquefiable
1.5	92	7	1.95	1.95	2.925	2.925	1.81	0.75	1.05	0.75	1.05	0.99	5.0	1.2	7.7	14	35	0.99	0.8	1.00	1	0.154	0.153	0.222	> 1	Non-Liquefiable
3	92	7	1.97	0.97	5.880	4.380	1.48	0.75	1.05	0.75	1.05	0.99	5.0	1.2	6.3	13	15	0.98	0.8	1.00	1	0.194	0.137	0.198	> 1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		1.1 m
Borehole No		167
Top width of Embankment		13.6 m
Bottom Width of embankment		18.1 m
Density of Soil		1.7 t/m3
Dead load of embankment		1.9 t/m2

Bore hole Chainage – 1411+420	
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Applicable Chainage - 1411+260 to 1411+560	
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Borelog Details	
Depth of Water Table	Not Met
Depth of Water Table Considered	4.45 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _n	C _e	C _B	C _R	C _S	C _H	a	b	(N) _{100CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _c	K _a	CSR	CSR _{7.5}	CRR	CRR	FS	Remark
0.5	82	12	1.95	1.95	0.975	0.975	2.00	0.75	1.05	0.75	1.05	0.99	5.0	1.2	14.7	23	35	1.00	0.8	1.00	1	0.155	0.251	0.364	> 1	Non-Liquefiable
1.5	92	9	1.95	1.95	2.925	2.925	1.81	0.75	1.05	0.75	1.05	0.99	5.0	1.2	10.0	17	35	0.99	0.8	1.00	1	0.154	0.180	0.261	> 1	Non-Liquefiable
3	85	11	1.94	1.94	5.835	5.835	1.28	0.75	1.05	0.75	1.05	0.99	5.0	1.2	8.6	15	35	0.98	0.8	1.00	1	0.152	0.164	0.237	> 1	Non-Liquefiable
4	85	9	1.94	1.94	7.775	7.775	1.11	0.75	1.05	0.75	1.05	0.99	5.0	1.2	6.1	12	15	0.97	0.8	1.00	1	0.151	0.134	0.195	> 1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		2.2 m
Borehole No		168
Top width of Embankment		13.6 m
Bottom Width of embankment		22.3 m
Density of Soil		1.8 t/m ³
Dead load of embankment		3.8 t/m ²

Bore hole Chainage – 1411+720	
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Applicable Chainage - 1411+560 to 1411+860	
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Borelog Details	
Depth of Water Table	3.5 m
Depth of Water Table Considered	3.5 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m ³)	Sub. density of soil (kN/m ³)	s _v (kPa)	s _v ' (kPa)	C _u	C _e	C _s	C _a	C _s	C _a	C _e	C _s	a	b	(N) _{1.60}	(N) _{1.60CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark
0.5	93	6	1.95	1.95	0.975	0.975	2.00	0.75	1.05	0.75	1.05	0.75	1.05	0.99	5.0	1.2	7.3	14	35	1.00	0.8	1.00	1	0.155	0.148	0.215	> 1	Non-Liquefiable
1.5	79	10	1.95	1.95	2.925	2.925	1.81	0.75	1.05	0.75	1.05	0.99	0.75	1.05	5.0	1.2	11.1	18	35	0.99	0.8	1.00	1	0.154	0.195	0.283	> 1	Non-Liquefiable
3	71	10	1.97	1.97	5.880	5.880	1.28	0.75	1.05	0.75	1.05	0.99	0.75	1.05	5.0	1.2	7.8	14	35	0.98	0.8	1.00	1	0.152	0.154	0.223	> 1	Non-Liquefiable
5	71	15	1.97	0.97	9.820	7.820	1.11	0.75	1.05	0.85	1.05	0.99	0.75	1.05	5.0	1.2	11.5	19	35	0.96	0.8	1.00	1	0.188	0.201	0.292	> 1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		2.4 m
Borehole No		169
Top width of Embankment		13.6 m
Bottom Width of embankment		23.2 m
Density of Soil		1.7 t/m3
Dead load of embankment		4.0 t/m2

Bore hole Chainage – 1412+020
Applicable Chainage – 1411+860 to 1412+160

Borelog Details	
Depth of Water Table	4 m
Depth of Water Table Considered	4 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _u	C _e	C _a	C _s	C _a	C _s	C _u	C _e	C _a	b	(N) ₁₀₀	(N) _{160CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress,K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark	
0.5	71	5	1.94	1.94	0.970	0.97	2.00	0.75	1.05	0.75	1.05	0.75	1.05	0.99	5.0	1.2	6.1	12	15	1.00	0.8	1.00	1	0.155	0.134	0.195	> 1	Non-Liquefiable	
1.5	77	10	1.94	1.94	2.910	2.91	1.81	0.75	1.05	0.75	1.05	0.75	1.05	0.99	5.0	1.2	11.1	18	35	0.99	0.8	1.00	1	0.154	0.195	0.283	> 1	Non-Liquefiable	
3	85	17	1.94	1.94	5.820	5.820	1.28	0.75	1.05	0.75	1.05	0.99	0.75	1.05	0.99	5.0	1.2	13.3	21	35	0.98	0.8	1.00	1	0.152	0.228	0.331	> 1	Non-Liquefiable
4.5	41	21	1.97	0.97	8.775	7.275	1.15	0.75	1.05	0.85	1.05	0.99	0.75	1.05	0.99	5.0	1.2	16.7	25	35	0.97	0.8	1.00	1	0.182	0.293	0.424	> 1	Non-Liquefiable
6	41	21	1.97	0.97	11.730	8.730	1.05	0.75	1.05	0.85	1.05	0.99	0.75	1.05	0.99	5.0	1.2	15.2	23	35	0.95	0.8	1.00	1	0.200	0.262	0.379	> 1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		2.5 m
Borehole No		170
Top width of Embankment		13.6 m
Bottom Width of embankment		23.4 m
Density of Soil		1.8 t/m ³
Dead load of embankment		4.4 t/m ²

Bore hole Chainage – 1412+320
Applicable Chainage – 1412+160 to 1412+460

Borelog Details	
Depth of Water Table	3 m
Depth of Water Table Considered	3 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m ³)	Sub. density of soil (kN/m ³)	s _v (kPa)	s _v ' (kPa)	C _u	C _e	C _s	C _a	C _p	C _q	C _r	a	b	(N) ₁₀₀	(N) _{160CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark	
0.5	85	15	1.97	1.97	0.985	0.985	2.00	0.75	1.05	0.75	1.05	0.75	1.05	0.99	5.0	1.2	18.3	27	35	1.00	0.8	1.00	1	0.155	0.339	0.491	> 1	Non-Liquefiable
1.5	75	22	1.97	1.97	2.955	2.955	1.80	0.75	1.05	0.75	1.05	0.75	1.05	0.99	5.0	1.2	24.2	34	65	0.99	0.7	1.00	1	NL	NL	0.491	> 1	Non-Liquefiable
3	34	21	1.97	0.97	5.910	4.410	1.47	0.75	1.05	0.75	1.05	0.99	4.9	1.2	18.9	27	35	0.98	0.8	0.98	1.00	1	0.178	0.351	0.509	> 1	Non-Liquefiable	
4.5	34	16	1.97	0.97	8.865	5.865	1.28	0.75	1.05	0.85	1.05	0.99	4.9	1.2	14.2	22	35	0.97	0.8	0.97	1.00	1	0.228	0.239	0.346	> 1	Non-Liquefiable	
6	30	12	1.97	0.97	11.820	7.320	1.14	0.75	1.05	0.85	1.05	0.99	4.7	1.2	9.5	16	35	0.95	0.8	0.95	1.00	1	0.240	0.167	0.242	> 1	Non-Liquefiable	

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		3.1 m
Borehole No		171
Top width of Embankment		13.6 m
Bottom Width of embankment		25.8 m
Density of Soil		1.8 t/m ³
Dead load of embankment		5.5 t/m ²

Bore hole Chainage – 1412+620
Applicable Chainage – 1412+460 to 1412+760

Borelog Details	
Depth of Water Table	4.8 m
Depth of Water Table Considered	4.8 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m ³)	Sub. density of soil (kN/m ³)	s _v (kPa)	s _v ' (kPa)	C _u	C _e	C _b	C _a	C _s	C _h	a	b	(N) ₁₆₀	(N) _{160CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress,K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark
0.5	85	15	1.96	1.96	0.980	0.98	2.00	0.75	1.05	0.75	1.05	0.99	5.0	1.2	18.3	27	35	1.00	0.8	1.00	1	0.155	0.339	0.491	> 1	Non-Liquefiable
1.5	86	14	1.96	1.96	2.940	2.94	1.81	0.75	1.05	0.75	1.05	0.99	5.0	1.2	15.5	24	35	0.99	0.8	1.00	1	0.154	0.266	0.385	> 1	Non-Liquefiable
3	84	24	1.97	1.97	5.895	5.895	1.28	0.75	1.05	0.75	1.05	0.99	5.0	1.2	18.7	27	35	0.98	0.8	1.00	1	0.152	0.352	0.510	> 1	Non-Liquefiable
4.5	84	26	1.97	1.97	8.850	8.850	1.04	0.75	1.05	0.85	1.05	0.99	5.0	1.2	18.8	28	35	0.97	0.8	1.00	1	0.151	0.353	0.512	> 1	Non-Liquefiable
6	31	28	1.97	0.97	11.805	10.305	0.96	0.75	1.05	0.85	1.05	0.99	4.8	1.2	18.7	27	35	0.95	0.8	1.00	1	0.171	0.326	0.472	> 1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		2.5 m
Borehole No		172
Top width of Embankment		13.6 m
Bottom Width of embankment		23.6 m
Density of Soil		1.7 t/m3
Dead load of embankment		4.3 t/m2

Bore hole Chainage – 1412+920
Applicable Chainage – 1412+760 to 1413+060

Borelog Details	
Depth of Water Table	Not Met
Depth of Water Table Considered	3.45 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _n	C _e	C _a	C _s	C _g	C _p	a	b	(N) _{100CS}	(N) _{100CS}	Relative density, Dr (%)	r _d	r	Corr for High Overburden stress, K _p	K _a	CSR	CR _r ^{7/8}	CRR	FS	Remark
0.5	93	4	1.91	1.91	0.955	0.955	2.00	0.75	1.05	0.75	1.05	0.99	5.0	1.2	4.9	11	15	1.00	0.8	1.00	1	0.155	0.121	0.175	> 1	Non-Liquefiable
1.5	33	7	1.93	1.93	2.885	2.885	1.82	0.75	1.05	0.75	1.05	0.99	4.9	1.2	7.8	14	35	0.99	0.8	1.00	1	0.154	0.151	0.219	> 1	Non-Liquefiable
3	37	8	1.93	1.93	5.780	5.780	1.29	0.75	1.05	0.75	1.05	0.99	5.0	1.2	6.3	13	15	0.98	0.8	1.00	1	0.152	0.136	0.198	> 1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		0.8 m
Borehole No		173
Top width of Embankment		13.6 m
Bottom Width of embankment		16.6 m
Density of Soil		1.7 t/m3
Dead load of embankment		1.3 t/m2

Borelog Details	
Depth of Water Table	Not Met
Depth of Water Table Considered	4 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s' _v (kPa)	C _n	C _e	C _a	C _s	C _h	a	b	(N) _{1.60}	(N) _{1.60CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _p	K _a	CSR	CSR _{7.5}	CRR	FS	Remark
0.5	87	12	1.95	1.95	0.975	0.975	2.00	0.75	1.05	0.75	1.05	5.0	1.2	14.7	23	35	1.00	0.8	1.00	1	0.155	0.251	0.364	> 1	Non-Liquefiable
1.5	94	8	1.95	1.95	2.925	2.925	1.81	0.75	1.05	0.75	1.05	5.0	1.2	8.9	16	35	0.99	0.8	1.00	1	0.154	0.166	0.241	> 1	Non-Liquefiable
3	57	4	1.95	1.95	5.850	5.850	1.28	0.75	1.05	0.75	1.05	5.0	1.2	3.4	9	15	0.98	0.8	1.00	1	0.152	0.106	0.153	> 1	Non-Liquefiable

Typical Computation of Liquefaction Potential by Simplified Seed & Idriss Method

Average Embankment Height		0.9 m
Borehole No		174
Top width of Embankment		13.6 m
Bottom Width of embankment		17.1 m
Density of Soil		1.7 t/m3
Dead load of embankment		1.5 t/m2

Bore hole Chainage – 1413+520
Applicable Chainage - 1413+360 to 1413+900

Borelog Details	
Depth of Water Table	Not Met
Depth of Water Table Considered	3 m
Energy delivered	45 %
Borehole Diameter	150 mm
Rod Length	3 m
Presence of Liner	Without Liner
Soil Type	Loose Sand
Hammer Correction	0.986

Earthquake Details	
Seismic Zone	IV
Zone Factor, Z	0.24
Importance Factor, I	1
Site Factor, S	1
a _{msk} /g	0.24
Magnitude of Earthquake	6.5
Magnitude Scaling Factor, MSF, K _m	1.45

Depth (m)	%Fine	N ₆₀	Sat. density of soil (kN/m³)	Sub. density of soil (kN/m³)	s _v (kPa)	s _v ' (kPa)	C _n	C _e	C _a	C _s	C _g	C _h	a	b	(N) ₁₀₀	(N) _{100CS}	Relative density, Dr (%)	r _d	f	Corr for High Overburden stress, K _p	K _a	CSR	CR _r ^{7/8}	CRR	FS	Remark
0.5	94	4	1.91	1.91	0.955	0.955	2.00	0.75	1.05	0.75	1.05	0.99	5.0	1.2	4.9	11	15	1.00	0.8	1.00	1	0.155	0.121	0.175	> 1	Non-Liquefiable
1.5	87	5	1.91	1.91	2.865	2.865	1.83	0.75	1.05	0.75	1.05	0.99	5.0	1.2	5.6	12	15	0.99	0.8	1.00	1	0.154	0.129	0.186	> 1	Non-Liquefiable
3	94	11	1.91	0.91	5.730	4.230	1.51	0.75	1.05	0.75	1.05	0.99	5.0	1.2	10.1	17	35	0.98	0.8	1.00	1	0.192	0.182	0.265	> 1	Non-Liquefiable