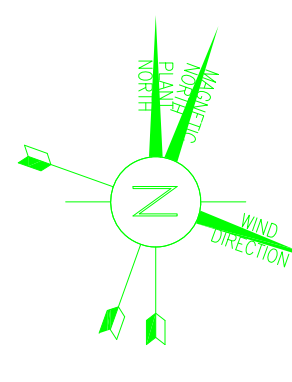


PROJECT : COAL GASIFICATION BASED FERTILISER PLANT AT TALCHER, ODISHA  
TENDER NO. : PNMM/PC-183/E- 4011/NCB OFFSITE AND UTILITY COOLING TOWER  
SUBJECT : REPLY TO PRE-BID QUERIES : LOT 4 Dated 18.07.2022

PROJECT : COAL GASIFICATION BASED FERTILISER PLANT AT TALCHER, ODISHA

SL. NO.	REFERENCE OF TENDER DOCUMENT				Description	Bidder Query	PDIL/TFL's Reply
	Section. No.	PDF Page No.	Clause No.	Subject			
1				GENERAL	SOIL INVESTIGATION	As per revised Plot Plan Drawing No PC183-0000-0001, Rev 1_OP, the proposed Cooling Tower Package is located at around 300° N / 800° E.  report of nearby area should have been shared for the reference. The Soil report enclosed as part of your Response to Pre-Bid Queries Lot 1 for Zone 01 (BH-01 to 14 & BH-16 to 33) and for Zone 2 (BH-15). Based on the available Borelog Data, BH-01 is located at 20°91'23.16"N / 85°16'37.22" E. Borelog Data for BH-02 to 14 & BH-16 to 33 and BH-15 is not available with us.  Based on the above, it is evident that BH-01 is not for an area near to the proposed cooling tower package location.  We understand that the bidders have to conduct fresh soil investigation during execution of the contract & all type of foundations shall be in Contractor's scope based on fresh soil investigation report recommendations. However, for bidding purpose, we require detailed soil report along with borelog data, topographical survey report and FGL / NGL details for a location at least near to the cooling tower package location, as confirmed by you in your pre-bid response.  We therefore, request you to furnish the detailed soil report along with borelog data, topographical survey report and FGL / NGL details for the cooling tower package location or at least for a location nearby.	Soil investigation data for nearby area is now available and attached herewith. But kindly note that it is for reference purpose only. And successful Bidder has to conduct fresh soil investigation in their area for design purpose. (2) For FGL/NGL details, kindly refer attached Layout plan for balance land development plan. (it was already attached in NIT but now updated drg is available)
2				GENERAL	SOIL INVESTIGATION	Based on our recently conducted site visit, the location earmarked for the cooling tower package is a filled-up soil / dumping ground with EGL almost 5.0 M above surrounding levels. As per tender document & based on your response to Pre-Bid Queries Lot 1, we understand that graded site will be handed over to cooling tower contractor i.e. all excavation, cutting of bushes, clearing of Cooling Tower area & grading works are in Purchaser's scope. So kindly re-confirm the same	Confirmed. Graded land shall be provided by TFL/PDIL. However, micro grading works to be carried out by successful Bidder.
3				GENERAL	SOIL INVESTIGATION	As per the available net safe soil bearing capacity as well as N values appearing in the soil report for a different location, pile foundation is not applicable. However, based on our site visit and the available soil profile, we are skeptical about the available SBC and the basis of design.  In view of the above discrepancy, we are not in a position to proceed with design of the Civil structures / costing. Hence request you to provide sufficient clarity on this matter so that we could make a precise technical and commercial bid.	Soil investigation data for nearby area is now available and attached herewith. But kindly note that it is for reference purpose only. Bidder to study and derive soil parameters on their own understanding. Bidder shall not be allowed to claim any additional charges in future, if any variation in soil profile would be observed in their fresh report.
4	SECTION-VI		1.17		Design Philosophy - Electrical	Pertaining to SI No. 1.17 of Section VI- 6.0 Design Philosophy - Electrical, we understand the following:  1. For LT Switch gear, protection / control of outgoing feeder of 415V Switchboard at Purchaser's Offsite & Utilities Substation to LSTK contractor's Switchboard (including CT for protection, relay, breaker, etc.) will be arranged by Owner / Consultant / Others. Please confirm.  We confirm that LSTK contractor's scope includes (only) outgoing cables from Purchaser's 415V Switchboard located at Offsite & Utilities Substation upto LSTK contractor Switchboard.	Bidder's understanding is correct. However, all the cables (Power, Control, Inter-tripping, Protection, Signal, Communication etc.), its termination at both end, cable laying including cable tray and its support structure shall be in bidder's scope.
5				GENERAL	Electrical	For HT Switch gear, protection / control for outgoing feeder of Purchaser's 3.3kV/11kV Switchboard at Offsite & Utilities Substation to LSTK contractor's motors for CW Pumps (including CT for protection, relay, breaker, etc.) will be arranged by Owner / Consultant / Others. We confirm that we will consider only outgoing cables (Power & Control) from Purchaser's 3.3kV/11kV Switchboard located at Offsite & Utilities Substation upto CW Pumps. Please confirm.  However, we need the distance / route length to be considered for including above cables to enable us estimate our cabling cost accurately.	Bidder to consider exactly identical CT for differential protection (as provided in the switchboard in owner's scope installed at offsite & utilities substation-OUSS), so that the motor protection considered in switchboard works perfectly fine without any issue due to mismatch in the same. Details of the same will be provided during detailed engineering. Also, all the cables (Power, Control, Protection, Signal, Communication etc.), its termination at both end, cable laying including cable tray and its support structure shall be in bidder's scope.  Refer Plot plan attached with the NIT. Offsite & utilities substation (OUSS) and Cooling Tower Area both are marked in the Plot Plan.
6				General	pipng	As per your Response No. 115 to Pre-Bid Queries Lot 1, our scope of hot water piping includes only riser pipes (1 no. per cell) each terminating at basin curb level. Hence we are ignoring your your Response No. 27 to Pre-Bid Queries Lot 3. Kindly confirm.	Bidder shall provide their piping with isolation valve upto the cooling tower package area battery limit.



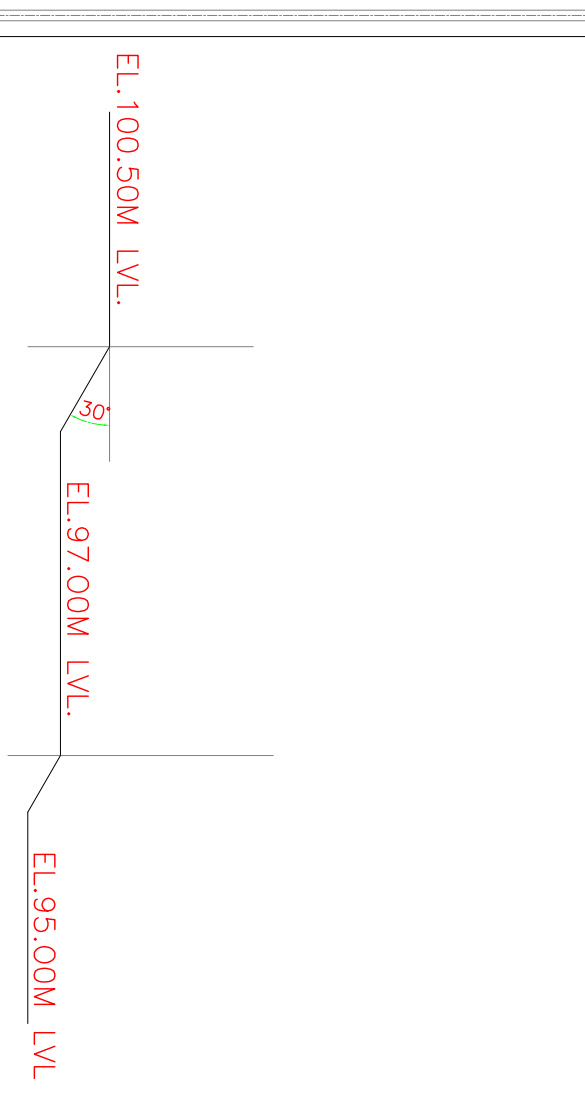


LAYOUT PLAN FOR BALANCE LAND DEVELOPMENT  
(SCALE : NTS)

S.NO.	REFERENCE DRG.	DRAWING NO.
1.	PLOT PLAN OF PROPOSED INTEGRATED COAL BASED FERTILIZER AND CHEMICALS COMPLEX	PC183-0000-0001

**LEGEND:-**

	EL.106.000M LVL.
	EL.98.000M LVL.
	EL.97.000M LVL.
	EL.94.500M LVL.
	EL.92.000M LVL.
	EL.91.000M LVL.
	EL.88.000M LVL. (REF. NOTE-7)
	EL.85.500M LVL.
	EL.89.500M LVL.
	EL.89.000M LVL.



**GENERAL NOTES:-**

1. ALL DIMENSIONS ARE IN MM AND LEVELS IN M. UNLESS NOTED OTHERWISE.
2. THE DRAWING SHOULD NOT BE SCALED, ONLY FIGURE DIMENSION ARE TO BE FOLLOWED.
3. THE RESPECTIVE R/S. SHALL BE RECKONED FROM THE PERMANENT BENCH MARK.
4. MINIMUM SLOPE OF 1 VERTICAL AND 2 HORIZONTAL SHALL BE PROVIDED ON BOTH SIDE OF ROADS IF REQUIRED.
5. CONSIDERING ELEVATION DIFFERENCE, PROPER SLOPE IS TO BE PROVIDED BETWEEN BAGGING BUILDING ZONE AND WHULAN BATTERY LIMIT, AS DECIDED BY EIC.
6. AS PER DPR PRODUCED BY RITES - THE DIFFERENCE IN LEVEL BETWEEN THE BENCH MARK AND RAILWAYS MOTHER BENCH MARK IS 921MM. RAILWAY MOTHER BENCH MARK IS HIGHER. SITE TEAM TO VERIFY AND TAKE CARE ACCORDINGLY.
7. LAND GRADING WORKS IN RAILWAY SIDING AREA (TOWARDS SOUTH SIDE) SHALL CONSIST OF CLEANING AND REMOVAL OF TREE/BUSHES/VEGETATION ALONG WITH REMOVAL OF ASH/DIBENS ETC. THEN CONTRACTOR SHALL INFORM PWD/PTL FOR GETTING FURTHER ORDERS REGARDING CUTTING OR FILLING WORKS.
8. CONTRACTOR TO PROVIDE SUITABLE SLOPE WITH PROPER COMPACTION TO PLANT DRAINS WHILE PERFORMING LAND GRADING ACTIVITIES IN ALL AREAS SPECIALLY IN W/P/EP/SIP AREA AS PER DIRECTION OF TRU/POIL ETC.
9. CONTRACTOR TO PROVIDE HORTICULTURE AS SUITED SITE AS PER DIRECTION OF TRU/POIL ETC.

2	23.05.22	REVISED AS MARKED	JPR	SS	RNS
1	16.03.22	ISSUED FOR CONSTRUCTION	JPR	SS	RNS
0	16.02.22	ISSUED FOR CONSTRUCTION	JPR	SS	RNS
REV	DATE	DESCRIPTION	BY	CHKD	APPD.

Fertilizers  
M/S TALCHER FERTILIZER LIMITED

LOCATION  
TALCHER, ANGUL DISTRICT, ODISHA (INDIA)

TITLE  
LAYOUT PLAN FOR BALANCE LAND DEVELOPMENT WORKS

PROJECTS & DEVELOPMENT INDIA LIMITED  
NODA

## GEO-TECHNICAL DATA OF DM PLANT FOR REFERENCE PURPOSE

### SUMMARY OF FIELD WORK

Borehole ID	Structure	Total depth of boring in m	Field investigation date		Field coordinates in m		Reduce level in m.
			From	To	Northing	Easting	
19	DM PLANT	16.50	06/04/2022	10/04/2022	2313589.147	309386.358	91.010
20	DM PLANT	15.00	08/04/2022	13/04/2022	2313549.079	309404.733	91.070
21	DM PLANT	19.50	01/04/2022	07/04/2022	2313535.322	309375.119	90.954
22	DM PLANT	15.00	25/03/2022	28/03/2022	2313573.519	309346.672	91.050
23	DM PLANT	20.50	29/03/2022	05/04/2022	2313526.467	309350.673	90.997
24	DM PLANT	18.50	19/03/2022	24/03/2022	2313562.822	309301.443	91.038
25	DM PLANT	15.00	10/03/2022	12/03/2022	2313519.848	309315.953	90.967
26	DM PLANT	12.00	13/03/2022	18/03/2022	2313554.411	309278.605	91.008
27	DM PLANT	20.00	04/03/2022	06/03/2022	2313548.075	309261.196	91.169
28	DM PLANT	15.00	07/03/2022	09/03/2022	2313505.494	309276.516	91.112

### **➤ DETAILS OF FIELD INVESTIGATION & LABORATORY TEST**

#### **Boring / Drilling**

It is the main part of sub soil investigation work as the soil/rock samples were collected for different tests at different levels. The sub-soil exploration work at the proposed site was carried out mechanically using 150 mm diameter power operated shell and auger equipment with provision of the casing of internal diameter 150 mm in



soft strata and power operated Mechanical boring in hard strata using diamond cutter as per IS : 1892 – 1979 and as per the instruction of authority.

### **Sampling and Labeling**

Representative soil or Rock samples were collected from the borehole. The samples were sealed in polythene bags or core box and labeled properly by indicating the depth, location, borehole no, reference no. etc. Sampling and labeling is done confirming to IS: 1892-1979.

#### **Bore hole wise Subsoil Stratum and its Classification**

<b>BH NO</b>	<b>Stratum (From-To) M</b>	<b>Type of Strata</b>	<b>IS Classification</b>
19	0 - 3.80	Clayey Sand mixed with gravel	SC
	3.80 - 5.20	Silty Sand	SM
	5.20 - 9.60	DI Rock	DI
	9.60 - 13.50	Weathered Rock	WR
	13.50 - 16.50	Soft Rock	SR
20	0 – 3.00	Clayey Sand mixed with gravel	SC
	3.00– 4.50	Silty Sand mixed with gravel	SM
	3.00 – 5.30	Silty Sand Gravel With Boulder	SM
	5.30 – 11.70	Boulder	B
	11.70 – 15.00	Weathered Rock	WR
21	0 – 4.50	Clayey Sand mixed with gravel	SC
	4.50 – 5.30	Silty Sand mixed with gravel	SM
	5.30 – 6.80	DI Rock	DI
	6.80 – 8.10	Silty Sand Gravel With Boulder	SM
	8.10 – 15.50	Weathered Rock	WR
	15.50 – 19.50	Soft Rock	SR
22	0 – 3.30	Clay sand mixed with Boulder	SC
	3.30 – 4.70	DI Rock	DI
	4.70 – 8.00	Boulder	B
	8.00 – 13.00	Weathered Rock	WR
	13.00 – 15.00	Soft Rock	SR
23	0 – 3.00	Clayey Sand mixed with gravel	SC
	3.00 – 6.70	Silty Sand mixed with gravel	SM
	6.70 – 8.00	DI Rock	DI

	8.00 – 15.50	Weathered Rock	WR
	15.50 – 20.50	Soft Rock	SR

BH NO	Stratum (From-To) M	Type of Strata	IS Classification
24	0 – 7.50	Silty Sand Gravel With Boulder	SM
	7.50 – 9.30	Silty Gravel	GM
	9.30 – 14.50	Weathered Rock	WR
	14.50 – 18.50	Soft Rock	SR
25	0 – 3.00	Clayey Sand mixed with gravel	SC
	3.00 – 5.00	Silty Sand mixed with gravel	SM
	5.00 - 6.50	Silty Gravel	GM
	6.50 – 8.20	DI Rock	DI
	8.20 – 12.00	Weathered Rock	WR
	12.00 – 15.00	Soft Rock	SR
26	0 – 2.00	Silty Sand mixed with gravel	SM
	2.00 – 7.00	Silty Sand Gravel With Boulder	B
	7.00 – 8.50	DI Rock	DI
	8.50 – 10.00	Boulder	B
	10.00 - 12.00	Soft Rock	SR
27	0 – 4.50	Clayey Sand mixed with gravel	SC
	4.50 – 5.10	Silty Gravel	GM
	5.10 – 6.00	Boulder	B
	6.00 – 10.80	DI Rock	DI
	10.80 – 15.30	Soft Fractured Rock	SR
	15.30 – 20.00	Soft Rock	SR
28	0 – 6.45	Clayey Sand mixed with gravel	SC
	6.45 – 9.50	Silty Gravel	GM
	9.50 – 12.00	Soft Fractured Rock	SR
	12.00 – 15.00	Soft Rock	SR

### **Ground water table**

Observation of ground water table is important since it influences the bearing capacity of soil in different seasons. When the foundation remains submerged under water the bearing capacity is to be calculated considering the water table correction factor. Therefore while conducting tests during dry season, it is always

necessary to enquire about the ground water table. At first the initial ground water level is recorded. For confirmation it was again measured and recorded after 24 hours of removal of casings.

**Bore Hole wise Summary of Ground Water Table:-**

Bore hole No	19	20	21	22	23	24	25	26	27	28	Avg water table
Water Table in m	3.40	2.80	3.10	3.20	3.40	2.90	3.30	3.20	3.50	3.25	<b>3.20 m</b>

\* The average ground water table of 3.20m from NGL shall be considered for structural design purpose.

**Standard Penitration Test (SPT)**

Standard penetration tests (SPT) was conducted at 1.50 m interval or change in strata and the samples were brought to the laboratory with proper identification and labeling. Standard split spoon sampler was used for conducting Standard Penetration Test. The number of blows required to drive the sampler for the 1st, 2nd & 3rd 15cm depths were recorded. The total number of blows required to drive the split spoon sampler due to the free fall of a 63.5kg hammer through a distance of 75 cm for the 2nd and 3rd 15cm penetration were taken together as the field ‘N’ value or the standard penetration test (resistance) of the soil. After the penetration to full depth, the sampler was carefully pulled out. The cutting shoe and the head were removed. The samples were carefully collected & transported to laboratory for testing purpose. The field ‘N’ values recorded at various depths have been reported in the summarized data sheets.

**Collection of Soil and Rock samples**

UDS sample were collected by thin seamless tube and the tube was properly sealed by wax at both the ends. Then UDS samples were transported to laboratory with proper labeling & identification marks for testing purposes.

From SPT test, Soil samples were collected from split spoon sampler for Laboratory test.

Sufficient quantity of disturb samples were collected from boreholes for different tests.

From the rock strata, rock cores were also collected and brought to the laboratory with proper labeling for different test.

### **Determination of TCR and RQD**

**TCR:** Rock core samples are kept in the same order as recovered from the bore hole run wise (marked arrow on cores in the increasing order of depth). The length of all the core samples is measured. Core recovery is the ratio of the sum of the lengths of all the cores recovered from drilling per run.

$$\text{TCR (\%)} = (\text{Total length of core pieces recovered} / \text{Length of run (1.5m)}) \times 100$$

**RQD:** Rock Quality Designation indicates the quality of the rock. RQD is defined as the ratio of the sum of the total length of the cores of length 10cm or longer recovered from a core run.

$$\text{RQD (\%)} = (\text{Total length of cores in pieces of 10cm length or longer} / \text{length of the run (1.5m)}) \times 100$$

### **Bore Hole wise Summary of SPT-N value and TCR%, RQD %:**

BH No	Depth in m	SPT N-Value	TCR %	RQD %
19	1.50	9	-	-
	3.00	12	-	-
	4.50	48	-	-
	6.00	N>50	-	-
	7.50	N>50	-	-
	9.00	N>50	-	-
	9.00-10.50	-	32	NIL
	10.50-11.50	-	53	NIL
	11.50-12.50	-	60	NIL
	12.50-13.50	-	80	NIL
	13.50-14.50	-	68	27
	14.50-15.50	-	80	29
	15.50-16.50	-	81	31

BH No	Depth in m	SPT N-Value	TCR %	RQD %
20	1.50	8	-	-
	3.00	14	-	-
	4.50	N>50	-	-
	5.30-6.00	-	9	NIL
	6.00-7.50	-	13	NIL
	7.50-8.50	-	15	NIL
	8.50-9.50	-	18	NIL
	9.50-10.50	-	14	NIL
	10.50-11.50	-	17	NIL
	11.50-12.50	-	28	NIL
	12.50-13.50	-	53	NIL
	13.50-15.00	-	84	NIL

BH No	Depth in m	SPT N-Value	TCR %	RQD %
21	1.50	9	-	-
	3.00	14	-	-
	4.50	17	-	-
	6.00	N>50	-	-
	7.50	N>50	-	-
	8.10-9.00	-	27	NIL
	9.00-10.50	-	52	24
	10.50-11.50	-	41	NIL
	11.50-12.50	-	68	21
	12.50-13.50	-	40	17
	13.50-14.50	-	48	NIL
	14.50-15.50	-	33	NIL
	15.50-16.50	-	55	23
	16.50-17.50	-	60	27
	17.50-18.50	-	81	30
	18.50-19.50	-	79	25

BH No	Depth in m	SPT N-Value	TCR %	RQD %
22	1.50	N>50	-	-
	3.00	N>50	-	-
	4.50	N>50	-	-
	4.70-5.70	-	25	18
	5.70-6.70	-	19	15
	6.70-8.00	-	9	NIL
	8.00-9.00	-	12	NIL
	9.00-10.00	-	8	NIL
	10.00-11.00	-	33	NIL
	11.00-12.00	-	31	NIL
	12.00-13.00	-	45	12
	13.00-14.00	-	54	15
	14.00-15.00	-	74	22

BH No	Depth in m	SPT N-Value	TCR %	RQD %
23	1.50	11	-	-
	3.00	18	-	-
	4.50	31	-	-
	6.00	45	-	-
	7.50	N>50	-	-
	8.00-9.00	-	24	NIL
	9.00-10.50	-	54	10
	10.50-11.50	-	64	14
	11.50-12.50	-	42	NIL
	12.50-13.50	-	84	22
	13.50-14.50	-	43	10
	14.50-15.50	-	68	19

BH No	Depth in m	SPT N-Value	TCR %	RQD %
24	1.50	47	-	-
	3.00	N>50	-	-
	4.50	N>50	-	-
	6.00	N>50	-	-
	7.50	N>50	-	-
	9.00	N>50	-	-
	9.30-10.50	-	41	NIL
	10.50-11.50	-	34	NIL
	11.50-12.50	-	39	NIL
	12.50-13.50	-	44	NIL
	13.50-14.50	-	37	NIL
	14.50-15.50	-	66	31
	15.50-16.50	-	78	43
	16.50-17.50	-	91	62
	17.50-18.50	-	95	46



BH No	Depth in m	SPT N-Value	TCR %	RQD %
25	1.50	21	-	-
	3.00	27	-	-
	4.50	33	-	-
	6.00	N>50	-	-
	7.50	N>50	-	-
	8.20-9.00	-	9	NIL
	9.00-10.50	-	22	10
	10.50-12.00	-	35	19
	12.00-13.50	-	39	23
	13.50-15.00	-	47	28

BH No	Depth in m	SPT N-Value	TCR %	RQD %
26	1.50	N>50	-	-
	2.00-3.50	-	5	NIL
	3.50-4.50	-	8	NIL
	4.50-6.50	-	12	NIL
	7.50	N>50	-	-
	8.50-10.00	-	18	NIL
	10.00-11.00	-	44	12
	11.00-12.00	-	39	NIL

BH No	Depth in m	SPT N-Value	TCR %	RQD %
27	1.50	11	-	-
	3.00	19	-	-
	4.50	42	-	-
	5.10-6.00	-	11	NIL
	7.50	N>50	-	-
	9.00	N>50	-	-
	10.50	N>50	-	-
	10.80-12.00	-	17	NIL
	12.00-13.50	-	19	NIL
	13.50-15.30	-	24	NIL
	15.30-16.80	-	31	13
	16.80-18.30	-	35	18
	18.30-20.00	-	43	21

BH No	Depth in m	SPT N-Value	TCR %	RQD %
28	1.50	13	-	-
	3.00	21	-	-
	4.50	33	-	-
	6.00	N>50	-	-
	7.50	N>50	-	-
	9.00	N>50	-	-
	9.50-10.50	-	18	NIL
	10.50-12.00	-	30	13
	12.00-13.50	-	39	24
	13.50-15.00	-	48	35

## **DETAILS OF LABORATORY TEST**

Laboratory tests were carried out on soil and Rock samples as per the relevant Indian Standard Specifications. Details of various tests conducted are presented below.

### **List of Test on Soil , Rock and water Sample**

<b>SL NO</b>	<b>TYPE OF TEST</b>	<b>STANDARD CODE FOLLOWED FOR CARRYING OUT THE TEST</b>
1	Grain size Analysis	IS:2720 (Part-4)
2	Hydrometer analysis	IS:2720 (Part-4)
3	Liquid limit	IS:2720 (Part-5)
4	Plastic Limit	IS:2720 (Part-5)
5	Shrinkage Limit	IS: 2720(Part 6)
6	Free Swell Index	IS:2720 (Part-40)
7	Direct shear test	IS:2720 (Part-13)
8	Triaxial Shear Test	IS-2720 (Part-11)
9	Unconfined Compressive Strength	IS:9143
10	Point Load Strength	IS:8764
11	CBR test	IS-2720 (PART-16)
12	Sulphates (SO <sub>3</sub> )	IS:3025 (Part 24) & IS:2720 (Part-27)
13	Chlorides (Cl)	IS:3025 (Part 32)
14	pH	IS:2720 (Part-26)

**SECTION-C**

**SUMMERY AND  
RECOMMENDATION**

# BORELOG

<b>NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD &amp; SEWAGE TREATMENT PLANT AT TALCHER</b>	
<b>NAME OF THE AUTHORITY:- "LARSEN &amp; TOUBRO CONSTRUCTION"</b>	
<b>DATE OF BORING:- 06-04-2022 TO 10-04-2022</b>	<b>BORE HOLE NO: 19</b>
<b>TYPE OF BORING:- ROTARY BORING</b>	<b>GROUND WATER TABLE: 3.40 M.</b>
<b>INCLINATION:- VERTICAL</b>	<b>GROUND LEVEL (RL) : 91.010 M</b>
<b>DIAMETER OF BORING :- 150 MM</b>	<b>GEO TAGGING : N: 2313589.147 M E: 309386.358 M</b>

Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sampe in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark
0		<b>Clayey Sand mixed with Gravel (SC)</b> Brown color, loose to medium & stiff Clayey Sand mixed with Gravel	91.010	3.80		↓	1.50	SPT-1	4,4,5	N=9	0.45	9.00	---	---	
0.5			3.00	SPT-2			5,6,6	N=12	0.45	12.00	---	---			
1		4.50	SPT-3	15,23,25			N=48	0.45	31.50	---	---				
1.5		6.00	SPT-4	34,50,-			N>50	0.19	32.50	---	---	SPT rebounded DS collected			
2		7.50	SPT-5	50,-,-			N>50	0.02	32.50	---	---	SPT rebounded DS collected			
2.5		9.00	SPT-6	50,-,-			N>50	0.01	32.50	---	---	SPT rebounded DS collected			
3		<b>Silty Sand mixed with Boulder (SM)</b> Brown color, dense & hard Silty Sand mixed with Boulder	87.210	1.40											
3.5		<b>Disintegrated Rock Strata</b> Compacted Sand Strata in Disintegrated Rock Form	85.810	4.40											
4			81.410			9.60 to 10.50	CORE	---	---	---	---	32%	NIL		
4.5			80.510			10.50 to 11.50	CORE	---	---	---	---	53%	NIL		
5			79.510	3.90		11.50 to 12.50	CORE	---	---	---	---	60%	NIL		
5.5			78.510			12.50 to 13.50	CORE	---	---	---	---	80%	NIL		
6			77.510			13.50 to 14.50	CORE	---	---	---	---	68%	27%		
6.5			76.510	3.00		14.50 to 15.50	CORE	---	---	---	---	80%	29%		
7			75.510			15.50 to 16.50	CORE	---	---	---	---	81%	31%		
7.5															
8															

NOTATIONS: ↓ SPT    ⊠ UDS    ⊞ DS    ■ CORE

# BORELOG

<b>NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD &amp; SEWAGE TREATMENT PLANT AT TALCHER</b>	
<b>NAME OF THE AUTHORITY:- "LARSEN &amp; TOUBRO CONSTRUCTION"</b>	
<b>DATE OF BORING:- 08-04-2022 TO 13-04-2022</b>	<b>BORE HOLE NO: 20</b>
<b>TYPE OF BORING:- ROTARY BORING</b>	<b>GROUND WATER TABLE: 2.80 M.</b>
<b>INCLINATION:- VERTICAL</b>	<b>GROUND LEVEL (RL) : 91.070 M</b>
<b>DIAMETER OF BORING :- 150 MM</b>	<b>GEO TAGGING : N: 2313549.079 M E: 309404.733 M</b>

Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sample in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark
0		<b>Clayey Sand mixed with Gravel (SC)</b> Brown color, loose & stiff Clayey Sand mixed with Gravel	91.070	3.00		↓	1.50	SPT-1	2,2,6	N=8	0.45	8.00	---	---	
0.5			88.070	0.60			3.00	SPT-2	5,6,8	N=14	0.45	14.00	---	---	
1			87.470	1.70			4.50	SPT-3	50,-,-	N>50	0.03	32.50	---	---	SPT rebounded DS collected
2		<b>Silty Sand mixed with Gravel (SM)</b> Brown color, medium & stiff Silty Sand mixed with Gravel	85.770		↓	5.30 to 6.00	CORE	---	---	---	---	9%	NIL		
2.5			85.070			6.00 to 7.50	CORE	---	---	---	13%	NIL			
3			83.570			7.50 to 8.50	CORE	---	---	---	15%	NIL			
3.5			82.570			8.50 to 9.50	CORE	---	---	---	18%	NIL			
4			81.570			9.50 to 10.50	CORE	---	---	---	14%	NIL			
4.5			80.570			10.50 to 11.70	CORE	---	---	---	17%	NIL			
5			79.370			11.70 to 12.50	CORE	---	---	---	28%	NIL			
5.5			78.570			12.50 to 13.50	CORE	---	---	---	53%	NIL			
6			77.570			13.50 to 15.00	CORE	---	---	---	84%	NIL			
6.5							76.070								

NOTATIONS: ↓ SPT    ⊠ UDS    ⊞ DS    ■ CORE    PAGE: 1 OF 1



# BORELOG

<b>NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD &amp; SEWAGE TREATMENT PLANT AT TALCHER</b>																		
<b>NAME OF THE AUTHORITY:- " LARSEN &amp; TOUBRO CONSTRUCTION "</b>																		
<b>DATE OF BORING:- 01-04-2022 TO 07-04-2022</b>							<b>BORE HOLE NO: 21</b>											
<b>TYPE OF BORING:- ROTARY BORING</b>							<b>GROUND WATER TABLE: 3.10 M.</b>											
<b>INCLINATION:- VERTICAL</b>							<b>GROUND LEVEL (RL) : 90.954 M</b>											
<b>DIAMETER OF BORING :- 150 MM</b>							<b>GEO TAGGING : N: 2313535.322 M E: 309375.119 M</b>											
Depth in Meter	Sub soil Profile as per I.S. 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sampe in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark			
																10	20	30
0		<i>Clayey Sand mixed with Gravel (SC)</i> Brown color, loose to medium & stiff Clayey Sand mixed with Gravel	90.954	4.50			1.50	SPT-1	4,4,5	N=9	0.45	9.00	---	---				
0.5																		
1																		
1.5																		
2																		
2.5		<i>Silty Sand mixed with Gravel (SM)</i> Brown color, medium & very stiff Silty Sand mixed with gravel	86.545	0.80			4.50	SPT-3	6,8,9	N=17	0.45	16.00	---	---				
3																		
3.5																		
4		<i>Disintegrated Rock Strata</i> Compacted Sand Strata in Disintegrated Rock Form	85.654	1.50			6.00	SPT-4	36,50,-	N>50	0.18	32.50	---	---	SPT rebounded DS collected			
4.5																		
5		<i>Silty Sand Gravel mixed with Boulder (SM)</i> Brown color, very dense & hard Silty Sand Gravel mixed with Boulder	84.154	1.30			7.50	SPT-5	50,-,-	N>50	0.03	32.50	---	---	SPT rebounded DS collected			
5.5																		
6																		
6.5		<i>Weathered Rock Strata</i> Broken Rock Cores were Collected	82.854	2.40			8.10 to 9.00	CORE	----	---	---	---	27%	NIL				
7																		
7.5		<i>Weathered Rock Strata</i> Broken Rock Cores were Collected	81.954	2.40			9.00 to 10.50	CORE	----	---	---	---	52%	24%				
8																		
8.5																		
9																		
9.5																		
10																		
10.5			80.454															

NOTATIONS: SPT UDS DS CORE

# BORELOG

<b>NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD &amp; SEWAGE TREATMENT PLANT AT TALCHER</b>																				
<b>NAME OF THE AUTHORITY:- "LARSEN &amp; TOUBRO CONSTRUCTION"</b>																				
<b>DATE OF BORING:- 01-04-2022 TO 07-04-2022</b>							<b>BORE HOLE NO: 21</b>													
<b>TYPE OF BORING:- ROTARY BORING</b>							<b>GROUND WATER TABLE: 3.10 M.</b>													
<b>INCLINATION:- VERTICAL</b>							<b>GROUND LEVEL (RL) : 90.954 M</b>													
<b>DIAMETER OF BORING :- 150 MM</b>							<b>GEO TAGGING : N: 2313535.322 M E: 309375.119 M</b>													
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance					Type of In situ test	Depth of sampe in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark	
					10	20	30	40	50											N>50
10.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	80.454	5.00							10.50 to 11.50	CORE	----	---	---	---	41%	NIL		
11		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	79.454								11.50 to 12.50	CORE	----	---	---	---	68%	21%		
11.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	78.454								12.50 to 13.50	CORE	----	---	---	---	40%	17%		
12		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	77.454								13.50 to 14.50	CORE	----	---	---	---	48%	NIL		
12.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	76.454								14.50 to 15.50	CORE	----	---	---	---	33%	NIL		
13		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	75.454		4.00							15.50 to 16.50	CORE	----	---	---	---	55%	23%	
13.5		<b>Soft Rock Strata</b> Rock Cores were Collected	74.454								16.50 to 17.50	CORE	----	---	---	---	60%	27%		
14		<b>Soft Rock Strata</b> Rock Cores were Collected	73.454								17.50 to 18.50	CORE	----	---	---	---	81%	30%		
14.5		<b>Soft Rock Strata</b> Rock Cores were Collected	72.454								18.50 to 19.50	CORE	----	---	---	---	79%	25%		
15		<b>Soft Rock Strata</b> Rock Cores were Collected	71.454																	
15.5																				
16																				
16.5																				
17																				
17.5																				
18																				
18.5																				
19																				
19.5																				

NOTATIONS: SPT

UDS

DS

CORE

# BORELOG

NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD & SEWAGE TREATMENT PLANT AT TALCHER																
NAME OF THE AUTHORITY:- "LARSEN & TOUBRO CONSTRUCTION"																
DATE OF BORING:- 25-03-2022 TO 28-03-2022										BORE HOLE NO: 22						
TYPE OF BORING:- ROTARY BORING										GROUND WATER TABLE: 3.20 M.						
INCLINATION:- VERTICAL										GROUND LEVEL (RL) : 91.050 M						
DIAMETER OF BORING :- 150 MM										GEO TAGGING : N: 2313573.519 M E: 309346.672 M						
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sample in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark	
																10
0			91.050													
0.5																
1																
1.5		<i>Clayey Sand mixed with Boulder (SC)</i> Brown color, very dense & hard Clayey Sand mixed with Gravel		3.30			1.50	SPT-1	37,50,--	N > 50	0.17	32.50	---	---	SPT rebounded DS collected	
2																
2.5																
3							3.00	SPT-2	50,--,--	N > 50	0.08	32.50	---	---	SPT rebounded DS collected	
3.5		<i>Disintegrated Rock Strata</i> Compacted Sand Strata in Disintegrated Rock Form	87.750	1.40												
4																
4.5							4.50	SPT-3	44,50,--	N > 50	0.17	32.50	---	---	SPT rebounded DS collected	
5		<i>Boulder Strata</i> Small Boulders were Collected	86.350				4.70 to 5.70	CORE	---	---	---	---	25%	18%		
5.5																
6		<i>Boulder Strata</i> Small Boulders were Collected	85.350				5.70 to 6.70	CORE	---	---	---	---	19%	15%		
6.5																
7		<i>Boulder Strata</i> Small Boulders were Collected	84.350	3.30			6.70 to 8.00	CORE	---	---	---	---	9%	NIL		
7.5																
8		<i>Weathered Rock Strata</i> Broken Rock Cores were Collected	83.050				8.00 to 9.00	CORE	---	---	---	---	12%	NIL		
8.5																
9		<i>Weathered Rock Strata</i> Broken Rock Cores were Collected	82.050				9.00 to 10.00	CORE	---	---	---	---	8%	NIL		
9.5																
10		<i>Weathered Rock Strata</i> Broken Rock Cores were Collected	81.050				10.00 to 11.00	CORE	---	---	---	---	33%	NIL		
10.5																
11		<i>Weathered Rock Strata</i> Broken Rock Cores were Collected	80.050	5.00			11.00 to 12.00	CORE	---	---	---	---	31%	NIL		
11.5																
12		<i>Weathered Rock Strata</i> Broken Rock Cores were Collected	79.050				12.00 to 13.00	CORE	---	---	---	---	45%	12%		
12.5																
13		<i>Soft Rock Strata</i> Rock Cores were Collected	78.050				13.00 to 14.00	CORE	---	---	---	---	54%	15%		
13.5																
14		<i>Soft Rock Strata</i> Rock Cores were Collected	77.050	2.00			14.00 to 15.00	CORE	---	---	---	---	74%	22%		
14.5																
15			76.050													

NOTATIONS: ↓ SPT    ⊠ UDS    ⊞ DS    ■ CORE

# BORELOG

NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD & SEWAGE TREATMENT PLANT AT TALCHER																		
NAME OF THE AUTHORITY:- " LARSEN & TOUBRO CONSTRUCTION "																		
DATE OF BORING:- 29-03-2022 TO 05-04-2022							BORE HOLE NO: 23											
TYPE OF BORING:- ROTARY BORING							GROUND WATER TABLE: 3.40 M.											
INCLINATION:- VERTICAL							GROUND LEVEL (RL) : 90.997 M											
DIAMETER OF BORING :- 150 MM							GEO TAGGING : N: 2313526.467 M E: 309350.673 M											
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance		Type of In situ test	Depth of sample in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark		
																	10	20
0			90.997															
0.5		<b>Clayey Sand mixed with Gravel (SC)</b> Brown color, medium & stiff Clayey Sand mixed with Gravel		3.00			1.50	SPT-1	5,6,5	N=11	0.45	11.00	---	---				
1																		
1.5																		
2																		
2.5																		
3			87.997				3.00	SPT-2	6,9,9	N=18	0.45	16.50	---	---				
3.5		<b>Silty Sand mixed with Gravel (SM)</b> Brown color, medium to dense & very stiff to hard Silty Sand mixed with Gravel																
4																		
4.5																		
5																		
5.5																		
6			84.297				4.50	SPT-3	9,13,18	N=31	0.45	23.00	---	---				
6.5		<b>Disintegrated Rock Strata</b> Compacted Sand Strata in Disintegrated Rock Form																
7																		
7.5																		
8																		
8.5																		
9			82.997				6.00	SPT-4	14,19,26	N=45	0.45	30.00	---	---				
9.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected																
10																		
10.5																		
11																		
11.5																		
			82.997				7.50	SPT-5	38,44,50	N>50	0.34	32.50	---	---				
			81.997				8.00 to 9.00	CORE	----	---	---	---	24%	NIL				
			80.497				9.00 to 10.50	CORE	----	---	---	---	54%	10%				
			79.497				10.50 to 11.50	CORE	----	---	---	---	64%	14%				

NOTATIONS: SPT UDS DS CORE

# BORELOG

<b>NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD &amp; SEWAGE TREATMENT PLANT AT TALCHER</b>															
<b>NAME OF THE AUTHORITY:- "LARSEN &amp; TOUBRO CONSTRUCTION"</b>															
<b>DATE OF BORING:- 29-03-2022 TO 05-04-2022</b>							<b>BORE HOLE NO: 23</b>								
<b>TYPE OF BORING:- ROTARY BORING</b>							<b>GROUND WATER TABLE: 3.40 M.</b>								
<b>INCLINATION:- VERTICAL</b>							<b>GROUND LEVEL (RL) : 90.997 M</b>								
<b>DIAMETER OF BORING :- 150 MM</b>							<b>GEO TAGGING : N: 2313526.467° E: 309350.673°</b>								
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sampe in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark
11.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	79.497	4.00		Type of In situ test	11.50 to 12.50	CORE	----	---	---	---	42%	NIL	
12		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	78.497				12.50 to 13.50	CORE	----	---	---	84%	22%		
12.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	77.497				13.50 to 14.50	CORE	----	---	---	43%	10%		
13		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	76.497				14.50 to 15.50	CORE	----	---	---	68%	19%		
13.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	75.497	5.00			15.50 to 16.50	CORE	----	---	---	94%	34%		
14		<b>Soft Rock Strata</b> Rock Cores were Collected	74.497				16.50 to 17.50	CORE	----	---	---	60%	13%		
14.5		<b>Soft Rock Strata</b> Rock Cores were Collected	73.497	17.50 to 18.50			CORE	----	---	---	57%	33%			
15		<b>Soft Rock Strata</b> Rock Cores were Collected	72.497	18.50 to 19.50			CORE	----	---	---	68%	28%			
15.5		<b>Soft Rock Strata</b> Rock Cores were Collected	71.497	19.50 to 20.50			CORE	----	---	---	58%	26%			
16		<b>Soft Rock Strata</b> Rock Cores were Collected	70.497												

NOTATIONS: SPT    UDS    DS    CORE



# BORELOG

NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD & SEWAGE TREATMENT PLANT AT TALCHER															
NAME OF THE AUTHORITY:- "LARSEN & TOUBRO CONSTRUCTION "															
DATE OF BORING:- 19-03-2022 TO 24-03-2022							BORE HOLE NO: 24								
TYPE OF BORING:- ROTARY BORING							GROUND WATER TABLE: 2.90 M.								
INCLINATION:- VERTICAL							GROUND LEVEL (RL) : 91.038 M								
DIAMETER OF BORING :- 150 MM							GEO TAGGING : N: 2313562.822 M E: 309301.443 M								
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sampe in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	RQD %	Remark
0		<i>Silty Sand Gravel mixed with Boulder (SM)</i> Brown color, dense to very dense & hard Silty Sand Gravel mixed with Boulder	91.038	7.50		Type of In situ test	1.50	SPT-1	12,18,29	N=47	0.45	31.00	---	---	
0.5			3.00				SPT-2	16,31,36	N>50	0.45	32.50	---	---	SPT rebounded DS collected	
1			4.50				SPT-3	19,29,35	N>50	0.33	32.50	---	---	SPT rebounded DS collected	
1.5			6.00				SPT-4	38,47,50	N>50	0.32	32.50	---	---	SPT rebounded DS collected	
2			7.50				SPT-5	44,50,--	N>50	0.18	32.50	---	---	SPT rebounded DS collected	
2.5			83.538				<i>Silty Gravel (GM)</i> Brown color, very dense & hard Silty Gravel	1.80		Type of In situ test	9.00	SPT-6	50,--,--	N>50	0.02
3	81.738	<i>Weathered Rock Strata</i> Broken Rock Cores were Collected	1.20		Type of In situ test	9.30 to 10.50					CORE	----	---	---	41%
3.5	80.538														

NOTATIONS: SPT UDS DS CORE

# BORELOG

<b>NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD &amp; SEWAGE TREATMENT PLANT AT TALCHER</b>																						
<b>NAME OF THE AUTHORITY:- "LARSEN &amp; TOUBRO CONSTRUCTION "</b>																						
<b>DATE OF BORING:- 19-03-2022 TO 24-03-2022</b>							<b>BORE HOLE NO: 24</b>															
<b>TYPE OF BORING:- ROTARY BORING</b>							<b>GROUND WATER TABLE: 2.90 M.</b>															
<b>INCLINATION:- VERTICAL</b>							<b>GROUND LEVEL (RL) : 91.038 M</b>															
<b>DIAMETER OF BORING :- 150 MM</b>							<b>GEO TAGGING : N: 2313562.822 M E: 309301.443 M</b>															
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance					Type of In situ test	Depth of sampe in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark			
					10	20	30	40	50											N>50		
10.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected	80.538	4.00																		
11																						
11.5																						
12																						
12.5																						
13																						
13.5																						
14																						
14.5																						
15																						
15.5																						
16																						
16.5																						
17																						
17.5																						
18																						
18.5																						

NOTATIONS: SPT    UDS    DS    CORE

# BORELOG

NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD & SEWAGE TREATMENT PLANT AT TALCHER																
NAME OF THE AUTHORITY:- "LARSEN & TOUBRO CONSTRUCTION"																
DATE OF BORING:- 10-03-2022 TO 12-03-2022							BORE HOLE NO: 25									
TYPE OF BORING:- ROTARY BORING							GROUND WATER TABLE: 3.30 M.									
INCLINATION:- VERTICAL							GROUND LEVEL (RL) : 90.967 M									
DIAMETER OF BORING :- 150 MM							GEO TAGGING : N: 2313519.848 M E: 309315.953 M									
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sample in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark	
																10
0			90.967													
0.5																
1																
1.5		<b>Clayey Sand mixed with Gravel (SC)</b> Brown color, medium & very stiff Clayey Sand mixed with Gravel		3.00			1.50	SPT-1	5,9,13	N=21	0.45	18.00	---	---		
2																
2.5																
3			87.967				3.00	SPT-2	7,11,16	N=27	0.45	21.00	---	---		
3.5		<b>Silty Sand mixed with Gravel (SM)</b> Brown color, medium to dense & very stiff to hard Silty Sand mixed with Gravel														
4																
4.5							4.50	SPT-3	9,14,19	N=33	0.45	24.00	---	---		
5			85.967													
5.5		<b>Silty Gravel (GM)</b> Brown color, very dense & hard Silty Gravel														
6							6.00	SPT-4	15,25,50	N>50	0.37	32.50	---	---		SPT rebounded DS collected
6.5			84.467													
7		<b>Disintegrated Rock Strata</b> Compacted Sand Strata in Disintegrated Rock Form														
7.5							7.50	SPT-5	38,50,--	N>50	0.16	32.50	---	---		SPT rebounded DS collected
8			82.767													
8.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected					8.20 to 9.00	CORE	----	---	---	---	9%	NIL		
9			81.967													
9.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected					9.00 to 10.50	CORE	----	---	---	---	22%	10%		
10			80.467													
10.5		<b>Weathered Rock Strata</b> Broken Rock Cores were Collected					10.50 to 12.00	CORE	----	---	---	---	35%	19%		
11			78.967													
11.5		<b>Soft Rock Strata</b> Rock Cores were Collected					12.00 to 13.50	CORE	----	---	---	---	39%	23%		
12			77.467													
12.5		<b>Soft Rock Strata</b> Rock Cores were Collected					13.50 to 15.00	CORE	----	---	---	---	47%	28%		
13			75.967													
13.5																
14																
14.5																
15																

NOTATIONS: SPT UDS DS CORE

# BORELOG

NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD & SEWAGE TREATMENT PLANT AT TALCHER																			
NAME OF THE AUTHORITY:- "LARSEN & TOUBRO CONSTRUCTION "																			
DATE OF BORING:- 22-02-2022 TO 22-02-2022							BORE HOLE NO: 02												
TYPE OF BORING:- ROTARY BORING							GROUND WATER TABLE: 2222 M												
INCLINATION:- VERTICAL							GROUND LEVEL RL: 2222 M												
DIAMETER OF BORING :- 222 MM							GEO TAGGING : N: 2222222222 M E: 2222222222 M												
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.					Type of In situ test	Depth of sample in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark	
				10	20	30	40	50											N>50
0			91.008																
0.5		<i>Silty Sand mixed with Gravel (SM)</i> Brown color, very dense & hard Silty Sand mixed with Gravel		2.00															
1																			
1.5																			
2		<i>Silty Sand Gravel mixed with Boulder</i> Silty Sand Gravel mixed with Boulder		89.008															
2.5																			
3																			
3.5		<i>Silty Sand Gravel mixed with Boulder</i> Silty Sand Gravel mixed with Boulder		87.508															
4																			
4.5		<i>Silty Sand Gravel mixed with Boulder</i> Silty Sand Gravel mixed with Boulder		86.508															
5																			
5.5		<i>Silty Sand Gravel mixed with Boulder</i> Silty Sand Gravel mixed with Boulder		85.008															
6																			
6.5	<i>Disintegrated Rock Strata</i> Compacted Sand Strata in Disintegrated Rock Form		84.008																
7																			
7.5	<i>Boulder Strata</i> Small Boulders were Collected		82.508																
8																			
8.5	<i>Soft Rock Strata</i> Rock Cores were Collected		81.008																
9																			
9.5	<i>Soft Rock Strata</i> Rock Cores were Collected		80.008																
10																			
10.5	<i>Soft Rock Strata</i> Rock Cores were Collected		79.008																
11																			
11.5																			
12																			

NOTATIONS: SPT    UDS    DS    CORE

# BORELOG

NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD & SEWAGE TREATMENT PLANT AT TALCHER																
NAME OF THE AUTHORITY:- "LARSEN & TOUBRO CONSTRUCTION"																
DATE OF BORING:- 22-02-2022 TO 22-02-2022							BORE HOLE NO: 02									
TYPE OF BORING:- ROTARY BORING							GROUND WATER TABLE: 0.77 M									
INCLINATION:- VERTICAL							GROUND LEVEL RL: 000.00 M									
DIAMETER OF BORING :- 100 MM							GEO TAGGING : N: 000000000 M E: 000000000 M									
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sample in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark	
0		<b>Clayey Sand mixed with Gravel (SC)</b> Brown color, medium & stiff to very stiff Clayey Sand mixed with Gravel	91.169	4.50		Type of In situ test	1.50	SPT-1	3,5,6	N=11	0.45	11.00	---	---		
1.5				3.00			SPT-2	5,8,11	N=19	0.45	17.00	---	---			
3.0				4.50			SPT-3	14,18,24	N=42	0.45	28.50	---	---			
4.5		<b>Silty Gravel (GM)</b> Brown color, dense & hard Silty Gravel	86.669	0.60			5.10 to 6.00	CORE	---	---	---	---	11%	NIL		
5.1		<b>Boulder Strata</b> Small Boulders were Collected	86.069	0.90			5.10 to 6.00	CORE	---	---	---	---	---	---	---	
6.0		<b>Disintegrated Rock Strata</b> Compacted Sand Strata in Disintegrated Rock Form	85.169	4.80		Type of In situ test	7.50	SPT-4	44,50,--	N>50	0.17	32.50	---	---	---	SPT rebounded DS collected
7.5				9.00			SPT-5	50,--,--	N>50	0.01	32.50	---	---	---	SPT rebounded DS collected	
9.0				10.50			SPT-6	50,--,--	N>50	0.00	32.50	---	---	---	---	SPT rebounded DS collected
10.5				80.369												

NOTATIONS: ↓ SPT

☒ UDS

☐ DS

■ CORE

PAGE: 1 OF 2



# BORELOG

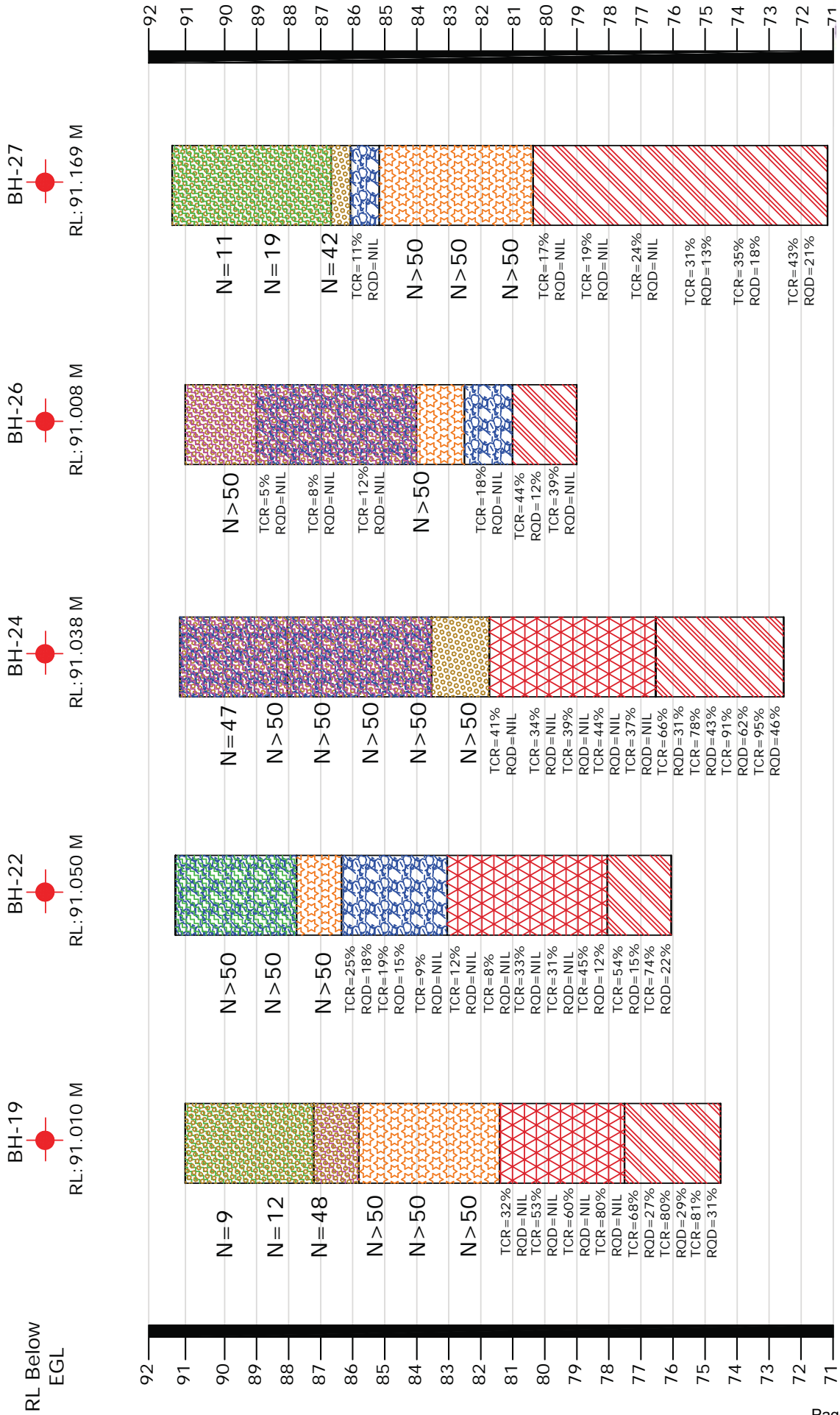
<b>NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD &amp; SEWAGE TREATMENT PLANT AT TALCHER</b>															
<b>NAME OF THE AUTHORITY:- "LARSEN &amp; TOUBRO CONSTRUCTION "</b>															
<b>DATE OF BORING:- 22-07-2022 TO 22-07-2022</b>							<b>BORE HOLE NO: 22</b>								
<b>TYPE OF BORING:- ROTARY BORING</b>							<b>GROUND WATER TABLE: 22.2 M</b>								
<b>INCLINATION:- VERTICAL</b>							<b>GROUND LEVEL RL: 22.22 M</b>								
<b>DIAMETER OF BORING :- 222 MM</b>							<b>GEO TAGGING : N: 2222222222 M E: 222222222 M</b>								
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sampe in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark
10.5		<i>Soft Rock Strata with Fractures</i> Broken Rock Cores were Collected	80.369	4.50		CORE	10.80 to 12.00	CORE	---	---	---	---	17%	NIL	
11			79.169				12.00 to 13.50	CORE	---	---	---	19%	NIL		
11.5			77.669	13.50 to 15.30			CORE	---	---	---	24%	NIL			
12			75.869	15.30 to 16.80			CORE	---	---	---	31%	13%			
12.5			74.369	16.80 to 18.30			CORE	---	---	---	35%	18%			
13			72.869	18.30 to 20.00			CORE	---	---	---	43%	21%			
13.5			71.169												
NOTATIONS:  SPT     UDS     DS     CORE															

# BORELOG

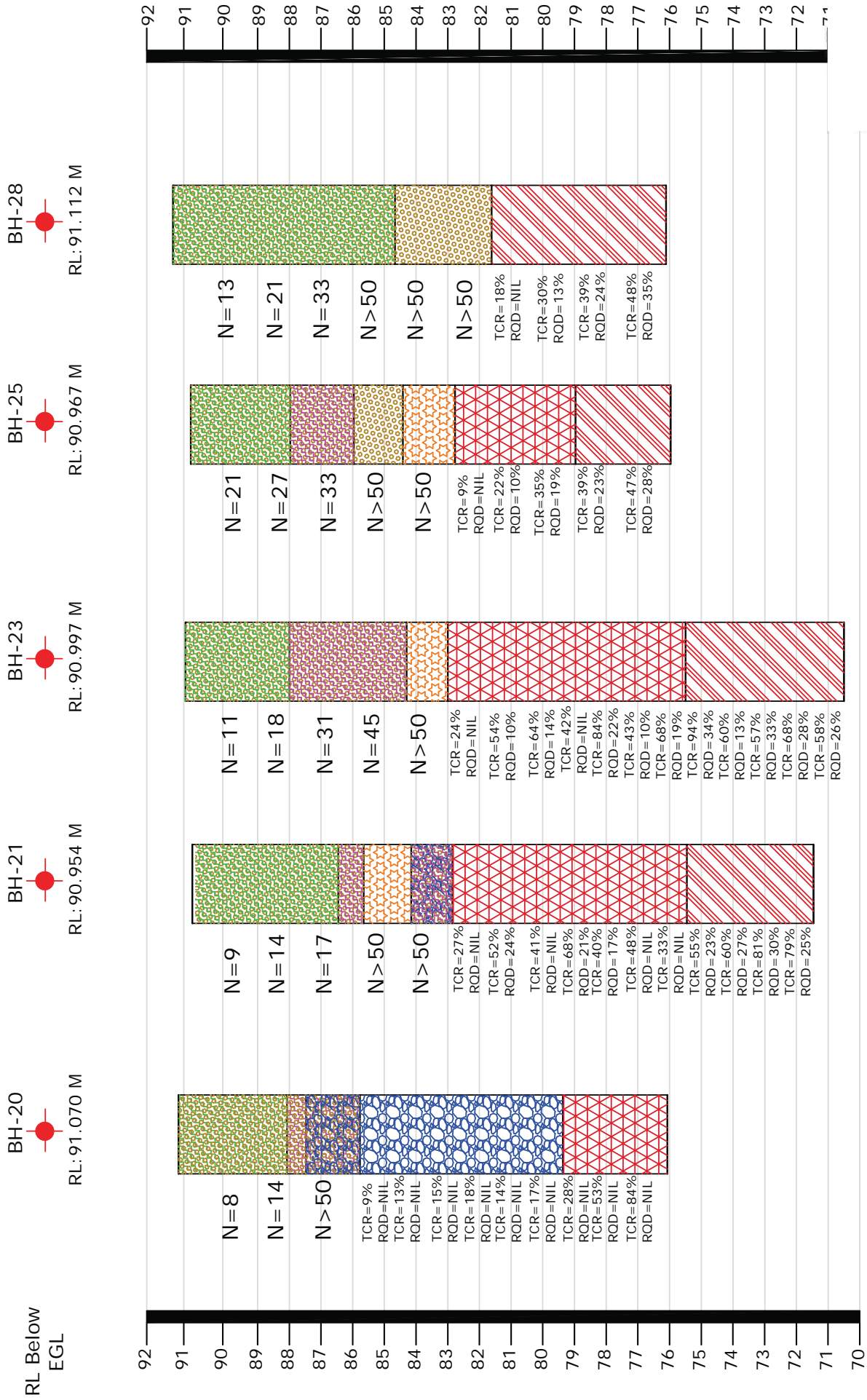
NAME OF THE WORK:- CONSTRUCTION OF PROPOSED RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD & SEWAGE TREATMENT PLANT AT TALCHER															
NAME OF THE AUTHORITY:- "LARSEN & TOUBRO CONSTRUCTION"															
DATE OF BORING:- 22-02-2022 TO 22-02-2022							BORE HOLE NO: 22								
TYPE OF BORING:- ROTARY BORING							GROUND WATER TABLE: 222 M								
INCLINATION:- VERTICAL							GROUND LEVEL RL: 22222 M								
DIAMETER OF BORING :- 222 MM							GEO TAGGING : N: 222222222 M E: 222222222 M								
Depth in Meter	Sub soil Profile as per I.S 1498-1970	Description of strata and Classification of the soil sample as per I.S 1498-1970	Depth/RL of strata in m.	Thickness of Strata in m.	Graphical Representation of Penetration resistance	Type of In situ test	Depth of sample in m	Type of Sample	SPT blow counts	Field SPT "N" value	Penetration of soil strata in mt.	Corrected "N" value as per Calculation	TCR %	ROD %	Remark
0		<b>Clayey Sand mixed with Gravel (SC)</b> Brown color, medium to very dense & stiff to hard Clayey Sand mixed with Gravel	91.112	6.45		Type of In situ test	1.50	SPT-1	3,6,7	N=13	0.45	13.00	---	---	
0.5			3.00				SPT-2	5,8,13	N=21	0.45	18.00	---	---		
1			4.50				SPT-3	7,15,18	N=33	0.45	24.00	---	---		
1.5			6.00				SPT-4	13,24,50	N>50	0.39	32.50	---	---	SPT rebounded DS collected	
2			7.50				SPT-5	38,46,50	N>50	0.32	32.50	---	---	SPT rebounded DS collected	
2.5			9.00				SPT-6	49,50,--	N>50	0.16	32.50	---	---	SPT rebounded DS collected	
3		<b>Silty Gravel (GM)</b> Brown color, dense & hard Silty Gravel	84.662	3.05		Type of In situ test	9.50 to 10.50	CORE	----	---	---	---	18%	NIL	
3.5			10.50 to 12.00				CORE	----	---	---	---	30%	13%		
4			12.00 to 13.50				CORE	----	---	---	---	39%	24%		
4.5			13.50 to 15.00				CORE	----	---	---	---	48%	35%		
4.5		<b>Soft Rock Strata with Fractures</b> Broken Rock Cores were Collected	81.612	2.50		Type of In situ test	9.50 to 10.50	CORE	----	---	---	---	18%	NIL	
5			10.50 to 12.00				CORE	----	---	---	---	30%	13%		
5.5			12.00 to 13.50				CORE	----	---	---	---	39%	24%		
6			13.50 to 15.00				CORE	----	---	---	---	48%	35%		
6.5		<b>Soft Rock Strata with Fractures</b> Broken Rock Cores were Collected	80.612	2.50		Type of In situ test	9.50 to 10.50	CORE	----	---	---	---	18%	NIL	
7			10.50 to 12.00				CORE	----	---	---	---	30%	13%		
7.5			12.00 to 13.50				CORE	----	---	---	---	39%	24%		
8			13.50 to 15.00				CORE	----	---	---	---	48%	35%		
8.5		<b>Soft Rock Strata</b> Rock Cores were Collected	79.112	3.00		Type of In situ test	9.50 to 10.50	CORE	----	---	---	---	18%	NIL	
9			10.50 to 12.00				CORE	----	---	---	---	30%	13%		
9.5			12.00 to 13.50				CORE	----	---	---	---	39%	24%		
10			13.50 to 15.00				CORE	----	---	---	---	48%	35%		
10.5		<b>Soft Rock Strata</b> Rock Cores were Collected	77.612	3.00		Type of In situ test	9.50 to 10.50	CORE	----	---	---	---	18%	NIL	
11			10.50 to 12.00				CORE	----	---	---	---	30%	13%		
11.5			12.00 to 13.50				CORE	----	---	---	---	39%	24%		
12			13.50 to 15.00				CORE	----	---	---	---	48%	35%		
12.5		<b>Soft Rock Strata</b> Rock Cores were Collected	76.112	3.00		Type of In situ test	9.50 to 10.50	CORE	----	---	---	---	18%	NIL	
13			10.50 to 12.00				CORE	----	---	---	---	30%	13%		
13.5			12.00 to 13.50				CORE	----	---	---	---	39%	24%		
14			13.50 to 15.00				CORE	----	---	---	---	48%	35%		

NOTATIONS: SPT UDS DS CORE

CROSS SECTION OF BORE HOLE



CROSS SECTION OF BORE HOLE



LEGEND:

- Clayey Sand
- Silty Sand
- Gravel
- Boulder
- Disintegrated Rock
- Weathered Rock
- Soft Rock

## **CONCLUSION & RECOMMENDATION**

This report describes the information obtained through geotechnical investigation carried out for the “**RAW WATER TREATMENT PLANT, DM WATER, CONDENSATE POLISHING UNIT, EFFLUENT TREATMENT PLANT WITH ZLD & SEWAGE TREATMENT PLANT AT TALCHER, ODISHA (INDIA)**”. The data incorporated have been obtained and processed using procedures specified in various codes of practices, good engineering norms and conventions. The field/ laboratory results and records reported here are relevant for the test locations and time at which the tests have been conducted.

### **Site Stratigraphy:**

- Geotechnical investigation for 10 no boreholes was conducted at site.
- The average ground water table of 3.20m from NGL shall be considered for structural design purpose.

### **General recommendation of foundation:**

- Considering all the engineering properties of the sub soil stratas met at different depths inside the bore holes and position of water table it can be suggested that **Shallow Foundation** may be made considering depth and ABP in the below mentioned table or as per structural load and designers requirement the type, depth and dimension of footing can be made considering the bearing capacity at different depths mentioned in the Abstract sheet.
- The result of chemical test on selected soil and water samples are presented in the result sheet which is within permissible limit as per IS 456-2000 . In our opinion the soil and water at the site is not aggressive to the foundation concrete.
- SBC for foundation resting on filled up soil shall be considered as 5T/Sq.m by considering following procedure:
  - 1.Filling shall be done with sandy type of soil below the foundation.
  - 2.Each layer shall be watered, rammed and properly compacted to achieved degree of compaction probably 95% MDD.
  - 3.The compacted thickness of each layer of embankment formation shall not exceed 200m.
- Allowable settlement for steel tank with suitable foundation
  1. At center- 300 mm
  2. At edge-150 mm



**RECOMMENDED ABP FOR BORE HOLE NO - 19**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	11.20 T/m2	12.60 T/m2	12.10 mm	11.20 T/m2	11.20 T/m2
	2	2.00	12.80 T/m2	14.70 T/m2	13.00 mm	12.80 T/m2	12.80 T/m2
	3	2.50	14.50 T/m2	16.90 T/m2	13.90 mm	14.50 T/m2	14.50 T/m2
	4	3.00	17.90 T/m2	20.80 T/m2	14.60 mm	17.90 T/m2	17.90 T/m2
	5	3.50	20.00 T/m2	23.30 T/m2	15.80 mm	20.00 T/m2	20.00 T/m2
	6	4.00	22.10 T/m2	25.90 T/m2	17.20 mm	22.10 T/m2	22.10 T/m2
3X3 M SQUARE	1	1.50	11.20 T/m2	12.60 T/m2	19.80 mm	11.20 T/m2	11.20 T/m2
	2	2.00	12.60 T/m2	14.50 T/m2	21.00 mm	12.60 T/m2	12.60 T/m2
	3	2.50	14.10 T/m2	16.40 T/m2	22.60 mm	14.10 T/m2	14.10 T/m2
	4	3.00	17.10 T/m2	20.00 T/m2	23.10 mm	17.10 T/m2	17.10 T/m2
	5	3.50	18.90 T/m2	22.20 T/m2	24.20 mm	18.90 T/m2	18.90 T/m2
	6	4.00	20.60 T/m2	24.40 T/m2	26.00 mm	19.80 T/m2	20.60 T/m2
4X4 M SQUARE	1	1.50	11.50 T/m2	12.90 T/m2	28.80 mm	10.00 T/m2	11.50 T/m2
	2	2.00	12.80 T/m2	14.70 T/m2	30.20 mm	10.50 T/m2	12.80 T/m2
	3	2.50	14.10 T/m2	16.50 T/m2	32.10 mm	10.90 T/m2	14.10 T/m2
	4	3.00	17.10 T/m2	19.90 T/m2	32.50 mm	13.10 T/m2	17.10 T/m2
	5	3.50	18.60 T/m2	21.90 T/m2	34.50 mm	13.40 T/m2	18.60 T/m2
	6	4.00	20.20 T/m2	24.00 T/m2	35.90 mm	14.00 T/m2	20.20 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	9.40 T/m2	10.80 T/m2	10.20 mm	9.40 T/m2	9.40 T/m2
	2	2.00	10.70 T/m2	12.60 T/m2	10.90 mm	10.70 T/m2	10.70 T/m2
	3	2.50	12.10 T/m2	14.50 T/m2	11.60 mm	12.10 T/m2	12.10 T/m2
	4	3.00	15.00 T/m2	17.90 T/m2	12.20 mm	15.00 T/m2	15.00 T/m2
	5	3.50	16.70 T/m2	20.10 T/m2	13.20 mm	16.70 T/m2	16.70 T/m2
	6	4.00	18.50 T/m2	22.30 T/m2	14.40 mm	18.50 T/m2	18.50 T/m2
3M WIDTH STRIP	1	1.50	9.70 T/m2	11.10 T/m2	17.20 mm	9.70 T/m2	9.70 T/m2
	2	2.00	10.80 T/m2	12.70 T/m2	18.00 mm	10.80 T/m2	10.80 T/m2
	3	2.50	12.10 T/m2	14.40 T/m2	19.40 mm	12.10 T/m2	12.10 T/m2
	4	3.00	14.70 T/m2	17.60 T/m2	19.90 mm	14.70 T/m2	14.70 T/m2
	5	3.50	16.10 T/m2	19.50 T/m2	20.60 mm	16.10 T/m2	16.10 T/m2
	6	4.00	17.60 T/m2	21.40 T/m2	22.20 mm	17.60 T/m2	17.60 T/m2
4M WIDTH STRIP	1	1.50	10.20 T/m2	11.60 T/m2	25.50 mm	10.00 T/m2	10.20 T/m2
	2	2.00	11.20 T/m2	13.10 T/m2	26.50 mm	10.50 T/m2	11.20 T/m2
	3	2.50	12.40 T/m2	14.70 T/m2	28.30 mm	10.90 T/m2	12.40 T/m2
	4	3.00	15.00 T/m2	17.80 T/m2	28.50 mm	13.10 T/m2	15.00 T/m2
	5	3.50	16.30 T/m2	19.60 T/m2	30.20 mm	13.40 T/m2	16.30 T/m2
	6	4.00	17.60 T/m2	21.40 T/m2	31.30 mm	14.00 T/m2	17.60 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	12.40 T/m2	13.80 T/m2	38.90 mm	7.90 T/m2	12.40 T/m2
	2	2.00	13.50 T/m2	15.40 T/m2	41.00 mm	8.20 T/m2	13.10 T/m2
	3	2.50	14.70 T/m2	17.10 T/m2	43.10 mm	8.50 T/m2	13.60 T/m2
	4	3.00	17.60 T/m2	20.50 T/m2	44.30 mm	9.90 T/m2	15.80 T/m2
	5	3.50	19.00 T/m2	22.40 T/m2	46.70 mm	10.10 T/m2	16.20 T/m2
	6	4.00	20.50 T/m2	24.30 T/m2	48.60 mm	10.50 T/m2	16.80 T/m2
8X8 M RAFT	1	1.50	13.40 T/m2	14.80 T/m2	56.60 mm	5.90 T/m2	9.40 T/m2
	2	2.00	14.50 T/m2	16.40 T/m2	60.00 mm	6.00 T/m2	9.60 T/m2
	3	2.50	15.60 T/m2	18.00 T/m2	63.10 mm	6.10 T/m2	9.80 T/m2
	4	3.00	18.60 T/m2	21.40 T/m2	62.20 mm	7.00 T/m2	11.20 T/m2
	5	3.50	19.90 T/m2	23.20 T/m2	69.20 mm	7.10 T/m2	11.50 T/m2
	6	4.00	21.50 T/m2	25.00 T/m2	70.50 mm	7.60 T/m2	12.20 T/m2
10X10 M RAFT	1	1.50	14.40 T/m2	15.80 T/m2	77.60 mm	4.60 T/m2	7.40 T/m2
	2	2.00	15.50 T/m2	17.40 T/m2	81.80 mm	4.70 T/m2	7.50 T/m2
	3	2.50	16.60 T/m2	19.00 T/m2	85.80 mm	4.80 T/m2	7.70 T/m2
	4	3.00	19.70 T/m2	22.50 T/m2	88.60 mm	5.50 T/m2	8.90 T/m2
	5	3.50	20.90 T/m2	24.30 T/m2	92.90 mm	5.60 T/m2	9.00 T/m2
	6	4.00	22.20 T/m2	26.00 T/m2	96.50 mm	5.70 T/m2	9.20 T/m2

<b>ABSTRACT OF CALCULATION OF ROCK SPECIMEN</b>			
<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	9.60 TO 10.50	WEATHERED ROCK	<b>84.60 T/m2</b>
2	10.50 TO 11.50	WEATHERED ROCK	<b>86.60 T/m2</b>
3	11.50 TO 12.50	WEATHERED ROCK	<b>87.40 T/m2</b>
4	12.50 TO 13.50	WEATHERED ROCK	<b>92.50 T/m2</b>
5	13.50 TO 14.50	SOFT ROCK	<b>102.60 T/m2</b>
6	14.50 TO 15.50	SOFT ROCK	<b>104.40 T/m2</b>
7	15.50 TO 16.50	SOFT ROCK	<b>107.90 T/m2</b>

**RECOMMENDED ABP FOR BORE HOLE NO - 20**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	10.10 T/m2	11.50 T/m2	11.40 mm	10.10 T/m2	10.10 T/m2
	2	2.00	12.10 T/m2	14.00 T/m2	12.80 mm	12.10 T/m2	12.10 T/m2
	3	2.50	13.80 T/m2	16.10 T/m2	13.80 mm	13.80 T/m2	13.80 T/m2
	4	3.00	18.70 T/m2	21.50 T/m2	14.20 mm	18.70 T/m2	18.70 T/m2
	5	3.50	20.90 T/m2	24.10 T/m2	15.40 mm	20.90 T/m2	20.90 T/m2
	6	4.00	23.20 T/m2	26.90 T/m2	16.80 mm	23.20 T/m2	23.20 T/m2
3X3 M SQUARE	1	1.50	10.10 T/m2	11.50 T/m2	18.70 mm	10.10 T/m2	10.10 T/m2
	2	2.00	12.00 T/m2	13.90 T/m2	20.90 mm	12.00 T/m2	12.00 T/m2
	3	2.50	13.40 T/m2	15.70 T/m2	22.40 mm	13.40 T/m2	13.40 T/m2
	4	3.00	17.90 T/m2	20.70 T/m2	22.50 mm	17.90 T/m2	17.90 T/m2
	5	3.50	19.80 T/m2	23.00 T/m2	23.60 mm	19.80 T/m2	19.80 T/m2
	6	4.00	21.70 T/m2	25.40 T/m2	25.50 mm	21.30 T/m2	21.70 T/m2
4X4 M SQUARE	1	1.50	10.30 T/m2	11.70 T/m2	26.90 mm	9.50 T/m2	10.30 T/m2
	2	2.00	12.20 T/m2	14.10 T/m2	30.10 mm	10.10 T/m2	12.20 T/m2
	3	2.50	13.50 T/m2	15.80 T/m2	32.10 mm	10.50 T/m2	13.50 T/m2
	4	3.00	17.90 T/m2	20.70 T/m2	31.70 mm	14.10 T/m2	17.90 T/m2
	5	3.50	19.60 T/m2	22.80 T/m2	33.80 mm	14.50 T/m2	19.60 T/m2
	6	4.00	21.30 T/m2	25.00 T/m2	35.30 mm	15.10 T/m2	21.30 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	8.40 T/m2	9.80 T/m2	9.50 mm	8.40 T/m2	8.40 T/m2
	2	2.00	10.20 T/m2	12.10 T/m2	10.80 mm	10.20 T/m2	10.20 T/m2
	3	2.50	11.60 T/m2	13.90 T/m2	11.60 mm	11.60 T/m2	11.60 T/m2
	4	3.00	15.70 T/m2	18.50 T/m2	11.90 mm	15.70 T/m2	15.70 T/m2
	5	3.50	17.60 T/m2	20.80 T/m2	13.00 mm	17.60 T/m2	17.60 T/m2
	6	4.00	19.50 T/m2	23.20 T/m2	14.10 mm	19.50 T/m2	19.50 T/m2
3M WIDTH STRIP	1	1.50	8.70 T/m2	10.10 T/m2	16.10 mm	8.70 T/m2	8.70 T/m2
	2	2.00	10.40 T/m2	12.20 T/m2	18.10 mm	10.40 T/m2	10.40 T/m2
	3	2.50	11.50 T/m2	13.80 T/m2	19.30 mm	11.50 T/m2	11.50 T/m2
	4	3.00	15.50 T/m2	18.20 T/m2	19.50 mm	15.50 T/m2	15.50 T/m2
	5	3.50	17.00 T/m2	20.30 T/m2	20.20 mm	17.00 T/m2	17.00 T/m2
	6	4.00	18.60 T/m2	22.40 T/m2	21.80 mm	18.60 T/m2	18.60 T/m2
4M WIDTH STRIP	1	1.50	9.10 T/m2	10.50 T/m2	23.80 mm	9.10 T/m2	9.10 T/m2
	2	2.00	10.80 T/m2	12.70 T/m2	26.60 mm	10.10 T/m2	10.80 T/m2
	3	2.50	11.80 T/m2	14.20 T/m2	28.10 mm	10.50 T/m2	11.80 T/m2
	4	3.00	15.80 T/m2	18.60 T/m2	28.00 mm	14.10 T/m2	15.80 T/m2
	5	3.50	17.20 T/m2	20.40 T/m2	29.70 mm	14.40 T/m2	17.20 T/m2
	6	4.00	18.60 T/m2	22.40 T/m2	30.80 mm	15.10 T/m2	18.60 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	11.00 T/m2	12.50 T/m2	36.00 mm	7.60 T/m2	11.00 T/m2
	2	2.00	13.00 T/m2	14.80 T/m2	41.20 mm	7.90 T/m2	12.60 T/m2
	3	2.50	14.10 T/m2	16.40 T/m2	43.20 mm	8.10 T/m2	13.00 T/m2
	4	3.00	18.60 T/m2	21.40 T/m2	43.60 mm	10.60 T/m2	17.00 T/m2
	5	3.50	20.10 T/m2	23.30 T/m2	46.00 mm	10.90 T/m2	17.40 T/m2
	6	4.00	21.60 T/m2	25.40 T/m2	47.70 mm	11.30 T/m2	18.10 T/m2
8X8 M RAFT	1	1.50	11.90 T/m2	13.30 T/m2	52.40 mm	5.60 T/m2	9.00 T/m2
	2	2.00	13.90 T/m2	15.80 T/m2	60.00 mm	5.70 T/m2	9.20 T/m2
	3	2.50	15.00 T/m2	17.30 T/m2	63.30 mm	5.90 T/m2	9.40 T/m2
	4	3.00	19.60 T/m2	22.40 T/m2	64.90 mm	7.50 T/m2	12.00 T/m2
	5	3.50	21.10 T/m2	24.30 T/m2	68.30 mm	7.70 T/m2	12.30 T/m2
	6	4.00	22.50 T/m2	26.20 T/m2	68.70 mm	8.10 T/m2	13.10 T/m2
10X10 M RAFT	1	1.50	12.80 T/m2	14.20 T/m2	72.00 mm	4.40 T/m2	7.10 T/m2
	2	2.00	14.90 T/m2	16.80 T/m2	82.10 mm	4.50 T/m2	7.20 T/m2
	3	2.50	15.90 T/m2	18.30 T/m2	85.80 mm	4.60 T/m2	7.40 T/m2
	4	3.00	20.90 T/m2	23.70 T/m2	87.50 mm	5.90 T/m2	9.50 T/m2
	5	3.50	22.20 T/m2	25.50 T/m2	91.90 mm	6.00 T/m2	9.60 T/m2
	6	4.00	23.60 T/m2	27.30 T/m2	95.50 mm	6.10 T/m2	9.80 T/m2

<b>ABSTRACT OF CALCULATION OF ROCK SPECIMEN</b>			
<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	11.70 TO 12.50	WEATHERED ROCK	<b>86.20 T/m2</b>
2	12.50 TO 13.50	WEATHERED ROCK	<b>90.90 T/m2</b>
3	13.50 TO 15.00	WEATHERED ROCK	<b>97.60 T/m2</b>

**RECOMMENDED ABP FOR BORE HOLE NO - 21**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	8.50 T/m2	9.90 T/m2	9.20 mm	8.50 T/m2	8.50 T/m2
	2	2.00	11.00 T/m2	12.90 T/m2	11.20 mm	11.00 T/m2	11.00 T/m2
	3	2.50	13.90 T/m2	16.30 T/m2	13.30 mm	13.90 T/m2	13.90 T/m2
	4	3.00	18.90 T/m2	21.70 T/m2	14.30 mm	18.90 T/m2	18.90 T/m2
	5	3.50	21.10 T/m2	24.40 T/m2	15.50 mm	21.10 T/m2	21.10 T/m2
	6	4.00	23.40 T/m2	27.20 T/m2	17.00 mm	23.40 T/m2	23.40 T/m2
3X3 M SQUARE	1	1.50	8.50 T/m2	9.90 T/m2	14.90 mm	8.50 T/m2	8.50 T/m2
	2	2.00	10.90 T/m2	12.80 T/m2	18.20 mm	10.90 T/m2	10.90 T/m2
	3	2.50	13.50 T/m2	15.90 T/m2	21.70 mm	13.50 T/m2	13.50 T/m2
	4	3.00	18.10 T/m2	20.90 T/m2	22.80 mm	18.10 T/m2	18.10 T/m2
	5	3.50	20.00 T/m2	23.30 T/m2	23.80 mm	20.00 T/m2	20.00 T/m2
	6	4.00	21.90 T/m2	25.70 T/m2	25.70 mm	21.90 T/m2	21.90 T/m2
4X4 M SQUARE	1	1.50	8.60 T/m2	10.00 T/m2	21.50 mm	8.60 T/m2	8.60 T/m2
	2	2.00	11.00 T/m2	12.90 T/m2	26.00 mm	10.50 T/m2	11.00 T/m2
	3	2.50	13.60 T/m2	16.00 T/m2	31.00 mm	10.90 T/m2	13.60 T/m2
	4	3.00	18.10 T/m2	20.90 T/m2	32.10 mm	14.10 T/m2	18.10 T/m2
	5	3.50	19.80 T/m2	23.10 T/m2	34.20 mm	14.40 T/m2	19.80 T/m2
	6	4.00	21.50 T/m2	25.30 T/m2	35.60 mm	15.10 T/m2	21.50 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	7.00 T/m2	8.50 T/m2	7.60 mm	7.00 T/m2	7.00 T/m2
	2	2.00	9.20 T/m2	11.10 T/m2	9.30 mm	9.20 T/m2	9.20 T/m2
	3	2.50	11.70 T/m2	14.10 T/m2	11.20 mm	11.70 T/m2	11.70 T/m2
	4	3.00	15.90 T/m2	18.80 T/m2	12.10 mm	15.90 T/m2	15.90 T/m2
	5	3.50	17.80 T/m2	21.10 T/m2	13.10 mm	17.80 T/m2	17.80 T/m2
	6	4.00	19.70 T/m2	23.50 T/m2	14.30 mm	19.70 T/m2	19.70 T/m2
3M WIDTH STRIP	1	1.50	7.20 T/m2	8.60 T/m2	12.80 mm	7.20 T/m2	7.20 T/m2
	2	2.00	9.30 T/m2	11.20 T/m2	15.50 mm	9.30 T/m2	9.30 T/m2
	3	2.50	11.60 T/m2	14.00 T/m2	18.60 mm	11.60 T/m2	11.60 T/m2
	4	3.00	15.60 T/m2	18.50 T/m2	19.60 mm	15.60 T/m2	15.60 T/m2
	5	3.50	17.20 T/m2	20.50 T/m2	20.50 mm	17.20 T/m2	17.20 T/m2
	6	4.00	18.80 T/m2	22.60 T/m2	22.10 mm	18.80 T/m2	18.80 T/m2
4M WIDTH STRIP	1	1.50	7.50 T/m2	8.90 T/m2	18.80 mm	7.50 T/m2	7.50 T/m2
	2	2.00	9.70 T/m2	11.60 T/m2	22.90 mm	9.70 T/m2	9.70 T/m2
	3	2.50	12.00 T/m2	14.30 T/m2	27.30 mm	10.90 T/m2	12.00 T/m2
	4	3.00	16.00 T/m2	18.80 T/m2	28.30 mm	14.10 T/m2	16.00 T/m2
	5	3.50	17.40 T/m2	20.70 T/m2	30.00 mm	14.50 T/m2	17.40 T/m2
	6	4.00	18.90 T/m2	22.70 T/m2	31.30 mm	15.10 T/m2	18.90 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	9.10 T/m2	10.50 T/m2	28.50 mm	7.90 T/m2	9.10 T/m2
	2	2.00	11.70 T/m2	13.60 T/m2	35.50 mm	8.20 T/m2	11.70 T/m2
	3	2.50	14.20 T/m2	16.60 T/m2	41.70 mm	8.50 T/m2	13.60 T/m2
	4	3.00	18.80 T/m2	21.60 T/m2	44.10 mm	10.60 T/m2	17.00 T/m2
	5	3.50	20.30 T/m2	23.60 T/m2	46.50 mm	10.90 T/m2	17.40 T/m2
	6	4.00	21.90 T/m2	25.70 T/m2	48.30 mm	11.30 T/m2	18.10 T/m2
8X8 M RAFT	1	1.50	9.70 T/m2	11.20 T/m2	41.00 mm	5.90 T/m2	9.40 T/m2
	2	2.00	12.50 T/m2	14.40 T/m2	51.70 mm	6.00 T/m2	9.60 T/m2
	3	2.50	15.10 T/m2	17.50 T/m2	61.10 mm	6.10 T/m2	9.80 T/m2
	4	3.00	19.90 T/m2	22.70 T/m2	65.90 mm	7.50 T/m2	12.00 T/m2
	5	3.50	21.30 T/m2	24.60 T/m2	69.00 mm	7.70 T/m2	12.30 T/m2
	6	4.00	22.80 T/m2	26.60 T/m2	69.60 mm	8.10 T/m2	13.10 T/m2
10X10 M RAFT	1	1.50	10.40 T/m2	11.80 T/m2	56.10 mm	4.60 T/m2	7.40 T/m2
	2	2.00	13.40 T/m2	15.30 T/m2	70.70 mm	4.70 T/m2	7.50 T/m2
	3	2.50	16.10 T/m2	18.50 T/m2	83.20 mm	4.80 T/m2	7.70 T/m2
	4	3.00	21.10 T/m2	24.00 T/m2	88.30 mm	5.90 T/m2	9.50 T/m2
	5	3.50	22.50 T/m2	25.80 T/m2	93.10 mm	6.00 T/m2	9.60 T/m2
	6	4.00	23.90 T/m2	27.70 T/m2	96.70 mm	6.10 T/m2	9.80 T/m2

<b>ABSTRACT OF CALCULATION OF ROCK SPECIMEN</b>			
<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	8.10 TO 9.00	WEATHERED ROCK	<b>84.60 T/m2</b>
2	9.00 TO 10.50	WEATHERED ROCK	<b>85.60 T/m2</b>
3	10.50 TO 11.50	WEATHERED ROCK	<b>85.40 T/m2</b>
4	11.50 TO 12.50	WEATHERED ROCK	<b>88.20 T/m2</b>
5	12.50 TO 13.50	WEATHERED ROCK	<b>90.60 T/m2</b>
6	13.50 TO 14.50	WEATHERED ROCK	<b>96.40 T/m2</b>
7	14.50 TO 15.50	WEATHERED ROCK	<b>98.70 T/m2</b>
8	15.50 TO 16.50	SOFT ROCK	<b>106.80 T/m2</b>
9	16.50 TO 17.50	SOFT ROCK	<b>113.50 T/m2</b>
10	17.50 TO 18.50	SOFT ROCK	<b>126.40 T/m2</b>
11	18.50 TO 19.50	SOFT ROCK	<b>129.50 T/m2</b>



**RECOMMENDED ABP FOR BORE HOLE NO - 22**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	53.90 T/m2	55.40 T/m2	21.60 mm	62.47 T/m2	99.95 T/m2
	2	2.00	67.30 T/m2	69.30 T/m2	25.20 mm	66.77 T/m2	106.82 T/m2
	3	2.50	81.60 T/m2	84.10 T/m2	28.90 mm	70.64 T/m2	113.02 T/m2
	4	3.00	96.80 T/m2	99.80 T/m2	32.80 mm	73.85 T/m2	118.16 T/m2
	5	3.50	112.90 T/m2	116.40 T/m2	37.10 mm	76.14 T/m2	121.82 T/m2
	6	4.00	129.90 T/m2	133.90 T/m2	42.00 mm	77.36 T/m2	123.77 T/m2
3X3 M SQUARE	1	1.50	62.20 T/m2	63.70 T/m2	40.70 mm	25.23 T/m2	61.16 T/m2
	2	2.00	74.50 T/m2	76.50 T/m2	45.90 mm	40.61 T/m2	64.98 T/m2
	3	2.50	87.50 T/m2	90.00 T/m2	51.90 mm	42.19 T/m2	67.50 T/m2
	4	3.00	101.00 T/m2	104.00 T/m2	56.70 mm	44.50 T/m2	71.20 T/m2
	5	3.50	115.10 T/m2	118.60 T/m2	61.10 mm	47.09 T/m2	75.34 T/m2
	6	4.00	129.80 T/m2	133.80 T/m2	67.90 mm	47.78 T/m2	76.44 T/m2
4X4 M SQUARE	1	1.50	71.20 T/m2	72.70 T/m2	65.80 mm	27.07 T/m2	43.32 T/m2
	2	2.00	83.00 T/m2	85.00 T/m2	72.40 mm	28.67 T/m2	45.87 T/m2
	3	2.50	95.20 T/m2	97.70 T/m2	80.10 mm	29.72 T/m2	47.55 T/m2
	4	3.00	107.90 T/m2	110.90 T/m2	85.20 mm	31.65 T/m2	50.63 T/m2
	5	3.50	121.10 T/m2	124.60 T/m2	93.20 mm	32.49 T/m2	51.98 T/m2
	6	4.00	134.70 T/m2	138.70 T/m2	99.50 mm	33.84 T/m2	54.15 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	54.20 T/m2	55.70 T/m2	21.70 mm	62.47 T/m2	99.95 T/m2
	2	2.00	65.70 T/m2	67.70 T/m2	24.60 mm	66.77 T/m2	106.83 T/m2
	3	2.50	78.00 T/m2	80.50 T/m2	27.60 mm	70.63 T/m2	113.00 T/m2
	4	3.00	91.10 T/m2	94.10 T/m2	30.80 mm	73.85 T/m2	118.16 T/m2
	5	3.50	104.90 T/m2	108.40 T/m2	34.40 mm	76.15 T/m2	121.86 T/m2
	6	4.00	119.50 T/m2	123.50 T/m2	38.60 mm	77.36 T/m2	123.77 T/m2
3M WIDTH STRIP	1	1.50	65.10 T/m2	66.60 T/m2	42.60 mm	38.22 T/m2	61.16 T/m2
	2	2.00	75.80 T/m2	77.80 T/m2	46.70 mm	40.61 T/m2	64.98 T/m2
	3	2.50	86.90 T/m2	89.40 T/m2	51.60 mm	42.19 T/m2	67.51 T/m2
	4	3.00	98.60 T/m2	101.60 T/m2	55.40 mm	44.50 T/m2	71.20 T/m2
	5	3.50	110.70 T/m2	114.20 T/m2	58.80 mm	47.08 T/m2	75.33 T/m2
	6	4.00	123.40 T/m2	127.40 T/m2	64.60 mm	47.78 T/m2	76.44 T/m2
4M WIDTH STRIP	1	1.50	76.60 T/m2	78.10 T/m2	70.70 mm	27.07 T/m2	43.32 T/m2
	2	2.00	86.80 T/m2	88.80 T/m2	75.70 mm	28.67 T/m2	45.87 T/m2
	3	2.50	97.30 T/m2	99.80 T/m2	81.90 mm	29.72 T/m2	47.54 T/m2
	4	3.00	108.40 T/m2	111.40 T/m2	85.60 mm	31.64 T/m2	50.63 T/m2
	5	3.50	119.70 T/m2	123.20 T/m2	92.10 mm	32.49 T/m2	51.98 T/m2
	6	4.00	131.50 T/m2	135.50 T/m2	97.10 mm	33.84 T/m2	54.15 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	89.80 T/m2	91.30 T/m2	103.90 mm	21.60 T/m2	34.56 T/m2
	2	2.00	101.10 T/m2	103.10 T/m2	113.30 mm	22.31 T/m2	35.70 T/m2
	3	2.50	112.60 T/m2	115.10 T/m2	122.00 mm	23.07 T/m2	36.92 T/m2
	4	3.00	124.50 T/m2	127.50 T/m2	130.30 mm	23.89 T/m2	38.22 T/m2
	5	3.50	136.60 T/m2	140.10 T/m2	139.60 mm	24.46 T/m2	39.14 T/m2
	6	4.00	149.10 T/m2	153.10 T/m2	146.90 mm	25.38 T/m2	40.61 T/m2
8X8 M RAFT	1	1.50	108.70 T/m2	110.20 T/m2	169.50 mm	16.03 T/m2	25.65 T/m2
	2	2.00	119.70 T/m2	121.70 T/m2	182.70 mm	16.38 T/m2	26.20 T/m2
	3	2.50	131.00 T/m2	133.50 T/m2	195.70 mm	16.74 T/m2	26.78 T/m2
	4	3.00	142.40 T/m2	145.40 T/m2	210.40 mm	16.92 T/m2	27.07 T/m2
	5	3.50	154.00 T/m2	157.00 T/m2	222.50 mm	17.31 T/m2	27.69 T/m2
	6	4.00	166.00 T/m2	170.00 T/m2	226.20 mm	18.35 T/m2	29.36 T/m2
10X10 M RAFT	1	1.50	127.90 T/m2	129.40 T/m2	254.60 mm	12.56 T/m2	20.10 T/m2
	2	2.00	138.70 T/m2	140.70 T/m2	270.40 mm	12.82 T/m2	20.52 T/m2
	3	2.50	149.60 T/m2	152.10 T/m2	285.50 mm	13.10 T/m2	20.96 T/m2
	4	3.00	160.80 T/m2	163.80 T/m2	300.30 mm	13.39 T/m2	21.42 T/m2
	5	3.50	172.20 T/m2	175.70 T/m2	318.00 mm	13.54 T/m2	21.66 T/m2
	6	4.00	183.80 T/m2	187.80 T/m2	331.90 mm	13.84 T/m2	22.15 T/m2

<b>ABSTRACT OF CALCULATION OF ROCK SPECIMEN</b>			
<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	8.00 TO 9.00	WEATHERED ROCK	<b>83.80 T/m2</b>
2	9.00 TO 10.00	WEATHERED ROCK	<b>84.60 T/m2</b>
3	10.00 TO 11.00	WEATHERED ROCK	<b>86.20 T/m2</b>
4	11.00 TO 12.00	WEATHERED ROCK	<b>87.40 T/m2</b>
5	12.00 TO 13.00	WEATHERED ROCK	<b>91.50 T/m2</b>
6	13.00 TO 14.00	SOFT ROCK	<b>101.80 T/m2</b>
7	14.00 TO 15.00	SOFT ROCK	<b>103.70 T/m2</b>

**RECOMMENDED ABP FOR BORE HOLE NO - 23**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	10.10 T/m2	11.50 T/m2	10.10 mm	10.10 T/m2	10.10 T/m2
	2	2.00	13.00 T/m2	15.00 T/m2	12.20 mm	13.00 T/m2	13.00 T/m2
	3	2.50	19.30 T/m2	21.70 T/m2	17.10 mm	19.30 T/m2	19.30 T/m2
	4	3.00	29.10 T/m2	32.10 T/m2	19.40 mm	29.10 T/m2	29.10 T/m2
	5	3.50	33.30 T/m2	36.70 T/m2	21.50 mm	33.30 T/m2	33.30 T/m2
	6	4.00	37.60 T/m2	41.60 T/m2	23.90 mm	37.60 T/m2	37.60 T/m2
3X3 M SQUARE	1	1.50	10.20 T/m2	11.60 T/m2	16.70 mm	10.20 T/m2	10.20 T/m2
	2	2.00	13.00 T/m2	15.00 T/m2	20.00 mm	13.00 T/m2	13.00 T/m2
	3	2.50	19.20 T/m2	21.70 T/m2	28.40 mm	16.80 T/m2	19.20 T/m2
	4	3.00	29.00 T/m2	32.00 T/m2	32.10 mm	22.50 T/m2	29.00 T/m2
	5	3.50	32.60 T/m2	36.00 T/m2	34.10 mm	23.90 T/m2	32.60 T/m2
	6	4.00	36.30 T/m2	40.30 T/m2	37.40 mm	24.20 T/m2	36.30 T/m2
4X4 M SQUARE	1	1.50	10.50 T/m2	11.90 T/m2	24.20 mm	10.50 T/m2	10.50 T/m2
	2	2.00	13.40 T/m2	15.30 T/m2	29.20 mm	11.40 T/m2	13.40 T/m2
	3	2.50	19.80 T/m2	22.20 T/m2	41.70 mm	11.80 T/m2	19.00 T/m2
	4	3.00	29.90 T/m2	32.80 T/m2	46.50 mm	16.00 T/m2	25.70 T/m2
	5	3.50	33.20 T/m2	36.60 T/m2	50.30 mm	16.40 T/m2	26.30 T/m2
	6	4.00	36.00 T/m2	40.50 T/m2	52.40 mm	17.10 T/m2	27.40 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	8.60 T/m2	10.00 T/m2	8.60 mm	8.60 T/m2	8.60 T/m2
	2	2.00	11.20 T/m2	13.10 T/m2	10.50 mm	11.20 T/m2	11.20 T/m2
	3	2.50	16.70 T/m2	19.20 T/m2	14.80 mm	16.70 T/m2	16.70 T/m2
	4	3.00	25.70 T/m2	28.70 T/m2	17.10 mm	25.70 T/m2	25.70 T/m2
	5	3.50	29.20 T/m2	32.70 T/m2	18.90 mm	29.20 T/m2	29.20 T/m2
	6	4.00	32.90 T/m2	36.80 T/m2	20.90 mm	32.90 T/m2	32.90 T/m2
3M WIDTH STRIP	1	1.50	8.90 T/m2	10.30 T/m2	14.60 mm	8.90 T/m2	8.90 T/m2
	2	2.00	11.50 T/m2	13.40 T/m2	16.20 mm	11.50 T/m2	11.50 T/m2
	3	2.50	17.20 T/m2	19.70 T/m2	25.50 mm	16.80 T/m2	17.20 T/m2
	4	3.00	26.40 T/m2	29.40 T/m2	29.20 mm	22.60 T/m2	26.40 T/m2
	5	3.50	29.50 T/m2	32.90 T/m2	30.90 mm	23.90 T/m2	29.50 T/m2
	6	4.00	32.60 T/m2	36.60 T/m2	33.60 mm	24.20 T/m2	32.60 T/m2
4M WIDTH STRIP	1	1.50	9.40 T/m2	10.80 T/m2	21.70 mm	9.40 T/m2	9.40 T/m2
	2	2.00	12.10 T/m2	14.10 T/m2	26.40 mm	11.40 T/m2	12.10 T/m2
	3	2.50	18.20 T/m2	20.60 T/m2	38.30 mm	11.80 T/m2	18.20 T/m2
	4	3.00	27.90 T/m2	30.90 T/m2	43.40 mm	16.00 T/m2	25.70 T/m2
	5	3.50	30.80 T/m2	34.20 T/m2	46.70 mm	15.50 T/m2	26.30 T/m2
	6	4.00	33.60 T/m2	37.60 T/m2	48.90 mm	17.10 T/m2	27.40 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	11.40 T/m2	12.80 T/m2	33.00 mm	8.60 T/m2	11.40 T/m2
	2	2.00	14.50 T/m2	16.40 T/m2	40.60 mm	8.90 T/m2	14.20 T/m2
	3	2.50	21.50 T/m2	23.90 T/m2	58.20 mm	9.20 T/m2	14.70 T/m2
	4	3.00	32.50 T/m2	35.50 T/m2	67.00 mm	12.10 T/m2	19.40 T/m2
	5	3.50	35.60 T/m2	39.00 T/m2	71.70 mm	12.40 T/m2	19.80 T/m2
	6	4.00	38.70 T/m2	42.60 T/m2	75.10 mm	12.80 T/m2	20.60 T/m2
8X8 M RAFT	1	1.50	12.50 T/m2	13.90 T/m2	48.70 mm	6.40 T/m2	10.20 T/m2
	2	2.00	15.80 T/m2	17.70 T/m2	60.30 mm	6.50 T/m2	10.40 T/m2
	3	2.50	23.50 T/m2	25.90 T/m2	87.80 mm	6.60 T/m2	10.70 T/m2
	4	3.00	35.70 T/m2	38.70 T/m2	103.90 mm	8.50 T/m2	13.70 T/m2
	5	3.50	38.60 T/m2	42.10 T/m2	109.80 mm	8.70 T/m2	14.00 T/m2
	6	4.00	41.60 T/m2	45.50 T/m2	111.60 mm	9.30 T/m2	14.90 T/m2
10X10 M RAFT	1	1.50	13.50 T/m2	14.90 T/m2	67.20 mm	5.00 T/m2	8.00 T/m2
	2	2.00	17.20 T/m2	19.10 T/m2	83.80 mm	5.10 T/m2	8.20 T/m2
	3	2.50	25.60 T/m2	28.10 T/m2	122.10 mm	5.20 T/m2	8.30 T/m2
	4	3.00	39.20 T/m2	42.10 T/m2	143.80 mm	6.80 T/m2	10.80 T/m2
	5	3.50	41.90 T/m2	45.40 T/m2	152.40 mm	6.80 T/m2	11.00 T/m2
	6	4.00	44.80 T/m2	48.70 T/m2	159.30 mm	7.00 T/m2	11.20 T/m2

<b>ABSTRACT OF CALCULATION OF ROCK SPECIMEN</b>			
<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	8.00 TO 9.00	WEATHERED ROCK	<b>84.60 T/m2</b>
2	9.00 TO 10.50	WEATHERED ROCK	<b>85.40 T/m2</b>
3	10.50 TO 11.50	WEATHERED ROCK	<b>87.30 T/m2</b>
4	11.50 TO 12.50	WEATHERED ROCK	<b>87.80 T/m2</b>
5	12.50 TO 13.50	WEATHERED ROCK	<b>92.60 T/m2</b>
6	13.50 TO 14.50	WEATHERED ROCK	<b>95.40 T/m2</b>
7	13.50 TO 15.50	WEATHERED ROCK	<b>99.10 T/m2</b>
8	15.50 TO 16.50	SOFT ROCK	<b>107.20 T/m2</b>
9	16.50 TO 17.50	SOFT ROCK	<b>112.90 T/m2</b>
10	17.50 TO 18.50	SOFT ROCK	<b>125.30 T/m2</b>
11	18.50 TO 19.50	SOFT ROCK	<b>128.40 T/m2</b>
12	19.50 TO 20.50	SOFT ROCK	<b>134.70 T/m2</b>

**RECOMMENDED ABP FOR BORE HOLE NO - 24**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	50.60 T/m2	52.20 T/m2	21.20 mm	50.60 T/m2	50.60 T/m2
	2	2.00	62.80 T/m2	65.00 T/m2	24.70 mm	62.80 T/m2	62.80 T/m2
	3	2.50	75.80 T/m2	78.50 T/m2	28.10 mm	67.30 T/m2	75.80 T/m2
	4	3.00	96.80 T/m2	99.80 T/m2	32.80 mm	73.80 T/m2	96.80 T/m2
	5	3.50	112.90 T/m2	116.40 T/m2	37.10 mm	76.10 T/m2	112.90 T/m2
	6	4.00	129.90 T/m2	133.90 T/m2	42.00 mm	77.30 T/m2	123.70 T/m2
3X3 M SQUARE	1	1.50	57.50 T/m2	59.10 T/m2	39.40 mm	36.40 T/m2	57.50 T/m2
	2	2.00	68.60 T/m2	70.80 T/m2	44.30 mm	38.70 T/m2	61.90 T/m2
	3	2.50	80.30 T/m2	83.00 T/m2	49.90 mm	40.20 T/m2	64.30 T/m2
	4	3.00	101.00 T/m2	104.00 T/m2	56.70 mm	44.50 T/m2	71.20 T/m2
	5	3.50	115.10 T/m2	118.60 T/m2	61.10 mm	47.00 T/m2	75.30 T/m2
	6	4.00	129.80 T/m2	133.80 T/m2	67.90 mm	47.70 T/m2	76.40 T/m2
4X4 M SQUARE	1	1.50	65.00 T/m2	66.70 T/m2	62.90 mm	25.80 T/m2	41.30 T/m2
	2	2.00	75.70 T/m2	77.90 T/m2	69.20 mm	27.30 T/m2	43.70 T/m2
	3	2.50	86.80 T/m2	89.50 T/m2	76.60 mm	28.30 T/m2	45.30 T/m2
	4	3.00	107.90 T/m2	110.90 T/m2	85.20 mm	31.60 T/m2	50.60 T/m2
	5	3.50	121.10 T/m2	124.60 T/m2	93.20 mm	32.40 T/m2	51.90 T/m2
	6	4.00	134.70 T/m2	138.70 T/m2	99.50 mm	33.80 T/m2	54.70 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	49.90 T/m2	51.50 T/m2	20.90 mm	49.90 T/m2	49.90 T/m2
	2	2.00	60.30 T/m2	62.50 T/m2	23.70 mm	60.30 T/m2	60.30 T/m2
	3	2.50	71.50 T/m2	74.20 T/m2	26.50 mm	67.30 T/m2	71.50 T/m2
	4	3.00	91.10 T/m2	94.10 T/m2	30.80 mm	73.80 T/m2	91.10 T/m2
	5	3.50	104.90 T/m2	108.40 T/m2	34.40 mm	76.10 T/m2	104.90 T/m2
	6	4.00	119.50 T/m2	123.50 T/m2	38.60 mm	77.30 T/m2	119.50 T/m2
3M WIDTH STRIP	1	1.50	59.00 T/m2	60.70 T/m2	40.50 mm	36.40 T/m2	58.30 T/m2
	2	2.00	68.70 T/m2	70.80 T/m2	44.30 mm	38.70 T/m2	61.90 T/m2
	3	2.50	78.70 T/m2	81.40 T/m2	48.90 mm	40.20 T/m2	64.30 T/m2
	4	3.00	98.60 T/m2	101.60 T/m2	55.40 mm	44.50 T/m2	71.20 T/m2
	5	3.50	110.70 T/m2	114.20 T/m2	58.80 mm	47.00 T/m2	75.30 T/m2
	6	4.00	123.40 T/m2	127.40 T/m2	64.60 mm	47.70 T/m2	76.40 T/m2
4M WIDTH STRIP	1	1.50	68.80 T/m2	70.40 T/m2	66.60 mm	25.80 T/m2	41.30 T/m2
	2	2.00	78.00 T/m2	80.20 T/m2	71.30 mm	27.30 T/m2	43.70 T/m2
	3	2.50	87.60 T/m2	90.20 T/m2	77.30 mm	28.30 T/m2	45.30 T/m2
	4	3.00	108.40 T/m2	111.40 T/m2	85.60 mm	31.60 T/m2	50.60 T/m2
	5	3.50	119.70 T/m2	123.20 T/m2	92.10 mm	32.40 T/m2	51.90 T/m2
	6	4.00	131.50 T/m2	135.50 T/m2	97.10 mm	33.80 T/m2	54.10 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	80.90 T/m2	82.50 T/m2	98.20 mm	20.60 T/m2	32.90 T/m2
	2	2.00	91.00 T/m2	93.20 T/m2	106.90 mm	21.20 T/m2	34.00 T/m2
	3	2.50	101.50 T/m2	104.10 T/m2	115.30 mm	22.00 T/m2	35.20 T/m2
	4	3.00	124.50 T/m2	127.50 T/m2	130.30 mm	23.80 T/m2	38.20 T/m2
	5	3.50	136.60 T/m2	140.10 T/m2	139.60 mm	24.40 T/m2	39.10 T/m2
	6	4.00	149.10 T/m2	153.10 T/m2	146.90 mm	25.30 T/m2	40.60 T/m2
8X8 M RAFT	1	1.50	97.10 T/m2	98.70 T/m2	158.80 mm	15.20 T/m2	24.40 T/m2
	2	2.00	107.00 T/m2	109.10 T/m2	171.30 mm	15.60 T/m2	24.90 T/m2
	3	2.50	117.10 T/m2	119.80 T/m2	183.40 mm	15.90 T/m2	25.50 T/m2
	4	3.00	142.40 T/m2	145.40 T/m2	210.40 mm	16.90 T/m2	27.00 T/m2
	5	3.50	154.00 T/m2	157.50 T/m2	222.30 mm	17.30 T/m2	27.60 T/m2
	6	4.00	166.00 T/m2	170.00 T/m2	226.20 mm	18.30 T/m2	29.30 T/m2
10X10 M RAFT	1	1.50	113.40 T/m2	115.00 T/m2	236.60 mm	11.90 T/m2	19.10 T/m2
	2	2.00	123.10 T/m2	125.30 T/m2	251.60 mm	12.20 T/m2	19.50 T/m2
	3	2.50	133.10 T/m2	135.80 T/m2	266.30 mm	12.50 T/m2	19.90 T/m2
	4	3.00	160.80 T/m2	163.80 T/m2	300.30 mm	13.30 T/m2	21.40 T/m2
	5	3.50	172.20 T/m2	175.70 T/m2	318.00 mm	13.50 T/m2	21.60 T/m2
	6	4.00	183.80 T/m2	187.80 T/m2	331.90 mm	13.80 T/m2	22.10 T/m2

<b>ABSTRACT OF CALCULATION OF ROCK SPECIMEN</b>			
<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	9.30 TO 10.50	WEATHERED ROCK	<b>85.40 T/m2</b>
2	10.50 TO 11.50	WEATHERED ROCK	<b>87.00 T/m2</b>
3	11.50 TO 12.50	WEATHERED ROCK	<b>87.80 T/m2</b>
4	12.50 TO 13.50	WEATHERED ROCK	<b>91.70 T/m2</b>
5	13.50 TO 14.50	WEATHERED ROCK	<b>96.40 T/m2</b>
6	14.50 TO 15.50	SOFT ROCK	<b>103.50 T/m2</b>
7	15.50 TO 16.50	SOFT ROCK	<b>108.30 T/m2</b>
8	16.50 TO 17.50	SOFT ROCK	<b>114.40 T/m2</b>
9	17.50 TO 18.50	SOFT ROCK	<b>127.50 T/m2</b>

**RECOMMENDED ABP FOR BORE HOLE NO - 25**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	19.50 T/m2	20.90 T/m2	14.10 mm	19.50 T/m2	19.50 T/m2
	2	2.00	25.40 T/m2	27.40 T/m2	17.20 mm	25.40 T/m2	25.40 T/m2
	3	2.50	30.80 T/m2	33.30 T/m2	19.70 mm	30.80 T/m2	30.80 T/m2
	4	3.00	44.10 T/m2	47.10 T/m2	23.10 mm	44.10 T/m2	44.10 T/m2
	5	3.50	50.00 T/m2	53.60 T/m2	25.40 mm	49.10 T/m2	50.00 T/m2
	6	4.00	56.30 T/m2	60.40 T/m2	28.20 mm	49.10 T/m2	56.30 T/m2
3X3 M SQUARE	1	1.50	20.10 T/m2	21.60 T/m2	23.70 mm	20.10 T/m2	20.10 T/m2
	2	2.00	25.90 T/m2	27.90 T/m2	28.80 mm	22.40 T/m2	25.90 T/m2
	3	2.50	31.00 T/m2	33.50 T/m2	33.20 mm	23.30 T/m2	31.00 T/m2
	4	3.00	43.60 T/m2	46.70 T/m2	37.90 mm	28.70 T/m2	43.60 T/m2
	5	3.50	48.80 T/m2	52.30 T/m2	40.10 mm	30.40 T/m2	48.60 T/m2
	6	4.00	54.10 T/m2	58.20 T/m2	43.80 mm	30.80 T/m2	49.40 T/m2
4X4 M SQUARE	1	1.50	21.20 T/m2	22.70 T/m2	35.40 mm	14.90 T/m2	21.20 T/m2
	2	2.00	27.00 T/m2	29.00 T/m2	42.50 mm	15.80 T/m2	25.40 T/m2
	3	2.50	32.10 T/m2	34.60 T/m2	48.80 mm	16.40 T/m2	26.30 T/m2
	4	3.00	44.70 T/m2	47.80 T/m2	54.70 mm	20.40 T/m2	32.70 T/m2
	5	3.50	49.50 T/m2	53.00 T/m2	59.00 mm	20.90 T/m2	33.50 T/m2
	6	4.00	54.30 T/m2	58.40 T/m2	82.10 mm	21.80 T/m2	34.90 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	17.10 T/m2	18.60 T/m2	12.40 mm	17.10 T/m2	17.10 T/m2
	2	2.00	22.30 T/m2	24.30 T/m2	15.10 mm	22.30 T/m2	22.30 T/m2
	3	2.50	27.10 T/m2	29.60 T/m2	17.30 mm	27.10 T/m2	27.10 T/m2
	4	3.00	38.70 T/m2	41.70 T/m2	20.30 mm	38.70 T/m2	38.70 T/m2
	5	3.50	43.70 T/m2	47.30 T/m2	22.20 mm	43.70 T/m2	43.70 T/m2
	6	4.00	49.00 T/m2	53.10 T/m2	24.50 mm	49.00 T/m2	49.00 T/m2
3M WIDTH STRIP	1	1.50	18.30 T/m2	19.80 T/m2	21.60 mm	18.30 T/m2	18.30 T/m2
	2	2.00	23.50 T/m2	25.50 T/m2	26.10 mm	22.40 T/m2	23.50 T/m2
	3	2.50	28.20 T/m2	30.70 T/m2	30.20 mm	23.30 T/m2	28.20 T/m2
	4	3.00	39.50 T/m2	42.60 T/m2	34.30 mm	28.70 T/m2	39.50 T/m2
	5	3.50	43.90 T/m2	47.40 T/m2	36.10 mm	30.40 T/m2	43.90 T/m2
	6	4.00	48.40 T/m2	52.40 T/m2	39.20 mm	30.80 T/m2	48.40 T/m2
4M WIDTH STRIP	1	1.50	19.90 T/m2	21.40 T/m2	33.20 mm	14.90 T/m2	19.90 T/m2
	2	2.00	25.30 T/m2	27.30 T/m2	39.80 mm	15.80 T/m2	25.30 T/m2
	3	2.50	30.00 T/m2	32.50 T/m2	45.60 mm	16.40 T/m2	26.30 T/m2
	4	3.00	41.60 T/m2	44.70 T/m2	50.90 mm	20.40 T/m2	32.70 T/m2
	5	3.50	45.60 T/m2	49.20 T/m2	54.30 mm	20.90 T/m2	33.50 T/m2
	6	4.00	44.80 T/m2	53.80 T/m2	56.90 mm	21.80 T/m2	34.90 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	23.90 T/m2	25.40 T/m2	49.90 mm	11.90 T/m2	19.10 T/m2
	2	2.00	30.10 T/m2	32.10 T/m2	60.90 mm	12.30 T/m2	19.70 T/m2
	3	2.50	35.30 T/m2	37.80 T/m2	69.10 mm	12.70 T/m2	20.40 T/m2
	4	3.00	48.50 T/m2	51.60 T/m2	78.60 mm	15.40 T/m2	24.70 T/m2
	5	3.50	52.80 T/m2	56.40 T/m2	83.50 mm	15.80 T/m2	25.20 T/m2
	6	4.00	57.20 T/m2	61.30 T/m2	87.20 mm	16.40 T/m2	26.20 T/m2
8X8 M RAFT	1	1.50	26.80 T/m2	28.30 T/m2	75.50 mm	8.80 T/m2	14.20 T/m2
	2	2.00	33.40 T/m2	35.40 T/m2	92.10 mm	9.00 T/m2	14.50 T/m2
	3	2.50	38.90 T/m2	41.40 T/m2	104.90 mm	9.20 T/m2	14.80 T/m2
	4	3.00	53.10 T/m2	56.20 T/m2	121.40 mm	10.90 T/m2	17.40 T/m2
	5	3.50	57.20 T/m2	60.80 T/m2	127.90 mm	11.10 T/m2	17.80 T/m2
	6	4.00	61.40 T/m2	65.50 T/m2	129.50 mm	11.80 T/m2	18.90 T/m2
10X10 M RAFT	1	1.50	29.80 T/m2	31.30 T/m2	107.10 mm	6.90 T/m2	11.10 T/m2
	2	2.00	36.90 T/m2	38.90 T/m2	129.90 mm	7.10 T/m2	11.30 T/m2
	3	2.50	42.80 T/m2	45.30 T/m2	147.50 mm	7.20 T/m2	11.60 T/m2
	4	3.00	58.00 T/m2	61.10 T/m2	167.60 mm	8.60 T/m2	13.80 T/m2
	5	3.50	61.90 T/m2	65.50 T/m2	176.90 mm	8.70 T/m2	14.00 T/m2
	6	4.00	66.00 T/m2	70.21 T/m2	184.40 mm	8.90 T/m2	14.30 T/m2



**ABSTRACT OF CALCULATION OF ROCK SPECIMEN**

<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	8.20 TO 9.00	WEATHERED ROCK	<b>82.30 T/m<sup>2</sup></b>
2	9.00 TO 10.50	WEATHERED ROCK	<b>84.10 T/m<sup>2</sup></b>
3	10.50 TO 12.00	WEATHERED ROCK	<b>87.80 T/m<sup>2</sup></b>
4	12.00 TO 13.50	SOFT ROCK	<b>101.50 T/m<sup>2</sup></b>
5	13.50 TO 15.00	SOFT ROCK	<b>105.70 T/m<sup>2</sup></b>

**RECOMMENDED ABP FOR BORE HOLE NO - 26**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	53.90 T/m2	55.40 T/m2	21.60 mm	53.90 T/m2	53.90 T/m2
	2	2.00	67.30 T/m2	69.30 T/m2	25.20 mm	66.70 T/m2	67.30 T/m2
	3	2.50	81.60 T/m2	84.10 T/m2	28.40 mm	70.60 T/m2	81.60 T/m2
	4	3.00	96.80 T/m2	99.80 T/m2	32.80 mm	73.80 T/m2	96.80 T/m2
	5	3.50	112.90 T/m2	116.40 T/m2	37.10 mm	76.10 T/m2	112.90 T/m2
	6	4.00	129.90 T/m2	133.90 T/m2	42.00 mm	77.30 T/m2	123.70 T/m2
3X3 M SQUARE	1	1.50	62.20 T/m2	63.70 T/m2	40.70 mm	38.20 T/m2	61.10 T/m2
	2	2.00	74.50 T/m2	76.50 T/m2	45.90 mm	40.60 T/m2	64.90 T/m2
	3	2.50	87.50 T/m2	90.00 T/m2	51.90 mm	42.10 T/m2	67.50 T/m2
	4	3.00	101.00 T/m2	104.00 T/m2	56.70 mm	44.50 T/m2	71.20 T/m2
	5	3.50	115.10 T/m2	118.60 T/m2	61.10 mm	47.00 T/m2	75.30 T/m2
	6	4.00	129.80 T/m2	133.80 T/m2	67.90 mm	47.70 T/m2	76.40 T/m2
4X4 M SQUARE	1	1.50	71.20 T/m2	72.70 T/m2	65.80 mm	27.00 T/m2	43.30 T/m2
	2	2.00	83.00 T/m2	85.00 T/m2	72.40 mm	28.60 T/m2	45.80 T/m2
	3	2.50	95.20 T/m2	97.70 T/m2	80.10 mm	29.70 T/m2	47.50 T/m2
	4	3.00	107.90 T/m2	110.90 T/m2	85.20 mm	31.60 T/m2	50.60 T/m2
	5	3.50	121.10 T/m2	124.60 T/m2	93.20 mm	32.40 T/m2	51.90 T/m2
	6	4.00	134.70 T/m2	138.70 T/m2	99.50 mm	33.80 T/m2	54.10 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	54.20 T/m2	55.70 T/m2	21.70 mm	54.20 T/m2	54.20 T/m2
	2	2.00	65.70 T/m2	67.70 T/m2	24.60 mm	65.70 T/m2	65.70 T/m2
	3	2.50	78.00 T/m2	80.50 T/m2	27.60 mm	70.60 T/m2	78.00 T/m2
	4	3.00	91.10 T/m2	94.10 T/m2	30.80 mm	73.80 T/m2	91.10 T/m2
	5	3.50	104.90 T/m2	108.40 T/m2	34.40 mm	76.10 T/m2	104.90 T/m2
	6	4.00	119.50 T/m2	123.50 T/m2	38.60 mm	77.30 T/m2	119.50 T/m2
3M WIDTH STRIP	1	1.50	65.10 T/m2	66.60 T/m2	42.60 mm	38.20 T/m2	61.10 T/m2
	2	2.00	75.80 T/m2	77.80 T/m2	46.70 mm	40.60 T/m2	64.90 T/m2
	3	2.50	86.90 T/m2	89.40 T/m2	51.50 mm	42.10 T/m2	67.50 T/m2
	4	3.00	98.60 T/m2	101.60 T/m2	55.40 mm	44.50 T/m2	71.20 T/m2
	5	3.50	110.70 T/m2	114.20 T/m2	58.80 mm	47.00 T/m2	75.30 T/m2
	6	4.00	123.40 T/m2	127.40 T/m2	64.60 mm	47.70 T/m2	76.40 T/m2
4M WIDTH STRIP	1	1.50	76.60 T/m2	78.10 T/m2	70.70 mm	27.00 T/m2	43.30 T/m2
	2	2.00	86.80 T/m2	88.80 T/m2	75.70 mm	28.60 T/m2	45.80 T/m2
	3	2.50	97.30 T/m2	99.80 T/m2	81.90 mm	29.70 T/m2	47.50 T/m2
	4	3.00	108.40 T/m2	111.40 T/m2	85.60 mm	31.60 T/m2	50.60 T/m2
	5	3.50	119.70 T/m2	123.20 T/m2	92.10 mm	32.40 T/m2	51.90 T/m2
	6	4.00	132.50 T/m2	135.50 T/m2	97.10 mm	33.80 T/m2	54.10 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	89.80 T/m2	91.30 T/m2	103.90 mm	21.60 T/m2	34.50 T/m2
	2	2.00	101.10 T/m2	103.10 T/m2	113.30 mm	22.30 T/m2	35.70 T/m2
	3	2.50	112.60 T/m2	115.10 T/m2	112.00 mm	23.00 T/m2	36.90 T/m2
	4	3.00	124.50 T/m2	127.50 T/m2	130.30 mm	23.80 T/m2	38.20 T/m2
	5	3.50	136.60 T/m2	140.10 T/m2	134.60 mm	24.40 T/m2	39.10 T/m2
	6	4.00	149.10 T/m2	153.10 T/m2	146.90 mm	25.30 T/m2	40.60 T/m2
8X8 M RAFT	1	1.50	108.70 T/m2	110.20 T/m2	169.50 mm	16.00 T/m2	25.60 T/m2
	2	2.00	119.70 T/m2	121.70 T/m2	182.70 mm	16.30 T/m2	26.20 T/m2
	3	2.50	131.00 T/m2	133.50 T/m2	195.70 mm	16.70 T/m2	26.70 T/m2
	4	3.00	142.40 T/m2	145.40 T/m2	210.40 mm	16.90 T/m2	27.00 T/m2
	5	3.50	154.00 T/m2	157.50 T/m2	222.50 mm	17.30 T/m2	27.60 T/m2
	6	4.00	166.00 T/m2	170.00 T/m2	226.20 mm	18.30 T/m2	29.30 T/m2
10X10 M RAFT	1	1.50	127.90 T/m2	129.40 T/m2	254.60 mm	12.50 T/m2	20.10 T/m2
	2	2.00	138.70 T/m2	140.70 T/m2	270.40 mm	12.80 T/m2	20.50 T/m2
	3	2.50	149.60 T/m2	152.10 T/m2	285.50 mm	13.10 T/m2	20.90 T/m2
	4	3.00	160.80 T/m2	163.80 T/m2	300.30 mm	13.30 T/m2	21.40 T/m2
	5	3.50	172.20 T/m2	175.70 T/m2	318.00 mm	13.50 T/m2	21.60 T/m2
	6	4.00	183.80 T/m2	187.80 T/m2	331.90 mm	13.80 T/m2	22.10 T/m2

**ABSTRACT OF CALCULATION OF ROCK SPECIMEN**

<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	10.00 TO 11.00	SOFT ROCK	<b>105.80 T/m<sup>2</sup></b>
2	11.00 TO 12.00	SOFT ROCK	<b>109.20 T/m<sup>2</sup></b>

**RECOMMENDED ABP FOR BORE HOLE NO - 27**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	10.10 T/m2	11.40 T/m2	10.00 mm	10.10 T/m2	10.10 T/m2
	2	2.00	12.80 T/m2	14.80 T/m2	12.00 mm	12.80 T/m2	12.80 T/m2
	3	2.50	19.00 T/m2	21.40 T/m2	16.80 mm	19.00 T/m2	19.00 T/m2
	4	3.00	28.30 T/m2	31.30 T/m2	18.40 mm	28.30 T/m2	28.30 T/m2
	5	3.50	32.00 T/m2	35.40 T/m2	20.10 mm	32.00 T/m2	32.00 T/m2
	6	4.00	35.80 T/m2	39.70 T/m2	22.10 mm	35.80 T/m2	35.80 T/m2
3X3 M SQUARE	1	1.50	10.10 T/m2	11.50 T/m2	16.50 mm	10.10 T/m2	10.10 T/m2
	2	2.00	12.80 T/m2	14.70 T/m2	19.70 mm	12.80 T/m2	12.80 T/m2
	3	2.50	18.80 T/m2	21.20 T/m2	27.90 mm	16.80 T/m2	18.80 T/m2
	4	3.00	27.60 T/m2	30.60 T/m2	29.60 mm	23.20 T/m2	27.60 T/m2
	5	3.50	30.70 T/m2	34.20 T/m2	31.20 mm	24.60 T/m2	30.70 T/m2
	6	4.00	34.00 T/m2	37.90 T/m2	34.00 mm	24.90 T/m2	34.00 T/m2
4X4 M SQUARE	1	1.50	10.50 T/m2	11.90 T/m2	24.20 mm	10.50 T/m2	10.50 T/m2
	2	2.00	13.10 T/m2	15.00 T/m2	28.60 mm	11.40 T/m2	13.10 T/m2
	3	2.50	19.20 T/m2	21.60 T/m2	40.40 mm	11.80 T/m2	19.00 T/m2
	4	3.00	28.00 T/m2	31.00 T/m2	42.30 mm	16.50 T/m2	26.40 T/m2
	5	3.50	30.90 T/m2	34.30 T/m2	45.50 mm	16.90 T/m2	27.10 T/m2
	6	4.00	33.80 T/m2	37.70 T/m2	47.70 mm	17.70 T/m2	28.30 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	8.50 T/m2	9.90 T/m2	8.50 mm	8.50 T/m2	8.50 T/m2
	2	2.00	10.90 T/m2	12.80 T/m2	10.20 mm	10.90 T/m2	10.90 T/m2
	3	2.50	16.30 T/m2	18.70 T/m2	14.40 mm	16.30 T/m2	16.30 T/m2
	4	3.00	24.40 T/m2	27.40 T/m2	15.80 mm	24.40 T/m2	24.40 T/m2
	5	3.50	27.50 T/m2	30.90 T/m2	17.30 mm	27.50 T/m2	27.50 T/m2
	6	4.00	30.70 T/m2	34.60 T/m2	19.00 mm	30.70 T/m2	30.70 T/m2
3M WIDTH STRIP	1	1.50	8.80 T/m2	10.30 T/m2	14.40 mm	8.80 T/m2	8.80 T/m2
	2	2.00	11.20 T/m2	13.10 T/m2	17.20 mm	11.20 T/m2	11.20 T/m2
	3	2.50	16.60 T/m2	19.00 T/m2	24.60 mm	16.60 T/m2	16.60 T/m2
	4	3.00	24.50 T/m2	27.50 T/m2	26.30 mm	23.20 T/m2	24.50 T/m2
	5	3.50	27.10 T/m2	30.60 T/m2	27.50 mm	24.60 T/m2	27.10 T/m2
	6	4.00	29.90 T/m2	33.80 T/m2	29.90 mm	24.90 T/m2	29.90 T/m2
4M WIDTH STRIP	1	1.50	9.40 T/m2	10.80 T/m2	21.70 mm	9.40 T/m2	9.40 T/m2
	2	2.00	11.80 T/m2	13.70 T/m2	25.70 mm	11.40 T/m2	11.80 T/m2
	3	2.50	17.40 T/m2	19.80 T/m2	36.60 mm	11.80 T/m2	17.40 T/m2
	4	3.00	25.50 T/m2	28.50 T/m2	38.50 mm	16.50 T/m2	25.50 T/m2
	5	3.50	27.90 T/m2	31.40 T/m2	41.00 mm	17.00 T/m2	27.10 T/m2
	6	4.00	30.30 T/m2	34.30 T/m2	42.80 mm	17.70 T/m2	28.30 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	11.30 T/m2	12.80 T/m2	32.70 mm	8.60 T/m2	11.30 T/m2
	2	2.00	14.10 T/m2	16.00 T/m2	39.50 mm	8.90 T/m2	14.10 T/m2
	3	2.50	20.60 T/m2	23.00 T/m2	55.80 mm	9.20 T/m2	14.70 T/m2
	4	3.00	29.80 T/m2	32.80 T/m2	59.60 mm	12.40 T/m2	19.90 T/m2
	5	3.50	32.40 T/m2	35.90 T/m2	63.30 mm	12.80 T/m2	20.40 T/m2
	6	4.00	35.10 T/m2	39.00 T/m2	66.10 mm	13.20 T/m2	21.20 T/m2
8X8 M RAFT	1	1.50	12.40 T/m2	13.80 T/m2	48.30 mm	6.40 T/m2	10.20 T/m2
	2	2.00	15.30 T/m2	17.20 T/m2	58.40 mm	6.50 T/m2	10.40 T/m2
	3	2.50	22.30 T/m2	24.70 T/m2	83.30 mm	6.60 T/m2	10.70 T/m2
	4	3.00	32.20 T/m2	35.20 T/m2	91.00 mm	8.80 T/m2	14.10 T/m2
	5	3.50	34.70 T/m2	38.10 T/m2	95.80 mm	9.00 T/m2	14.40 T/m2
	6	4.00	37.10 T/m2	41.10 T/m2	96.60 mm	9.60 T/m2	15.30 T/m2
10X10 M RAFT	1	1.50	13.40 T/m2	14.80 T/m2	66.70 mm	5.00 T/m2	8.00 T/m2
	2	2.00	16.50 T/m2	18.40 T/m2	80.40 mm	5.10 T/m2	8.20 T/m2
	3	2.50	24.10 T/m2	26.50 T/m2	115.00 mm	5.20 T/m2	8.30 T/m2
	4	3.00	34.80 T/m2	37.70 T/m2	124.20 mm	7.00 T/m2	11.20 T/m2
	5	3.50	37.10 T/m2	40.60 T/m2	131.30 mm	7.00 T/m2	11.30 T/m2
	6	4.00	39.50 T/m2	43.50 T/m2	136.40 mm	7.20 T/m2	11.50 T/m2

<b>ABSTRACT OF CALCULATION OF ROCK SPECIMEN</b>			
<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	10.80 TO 12.00	SOFT ROCK WITH FRACTURES	<b>109.80 T/m2</b>
2	12.00 TO 13.50	SOFT ROCK WITH FRACTURES	<b>112.10 T/m2</b>
3	13.50 TO 15.30	SOFT ROCK WITH FRACTURES	<b>117.60 T/m2</b>
4	15.30 TO 16.80	SOFT ROCK	<b>128.80 T/m2</b>
5	16.80 TO 18.30	SOFT ROCK	<b>129.30 T/m2</b>
6	18.30 TO 20.00	SOFT ROCK	<b>132.80 T/m2</b>

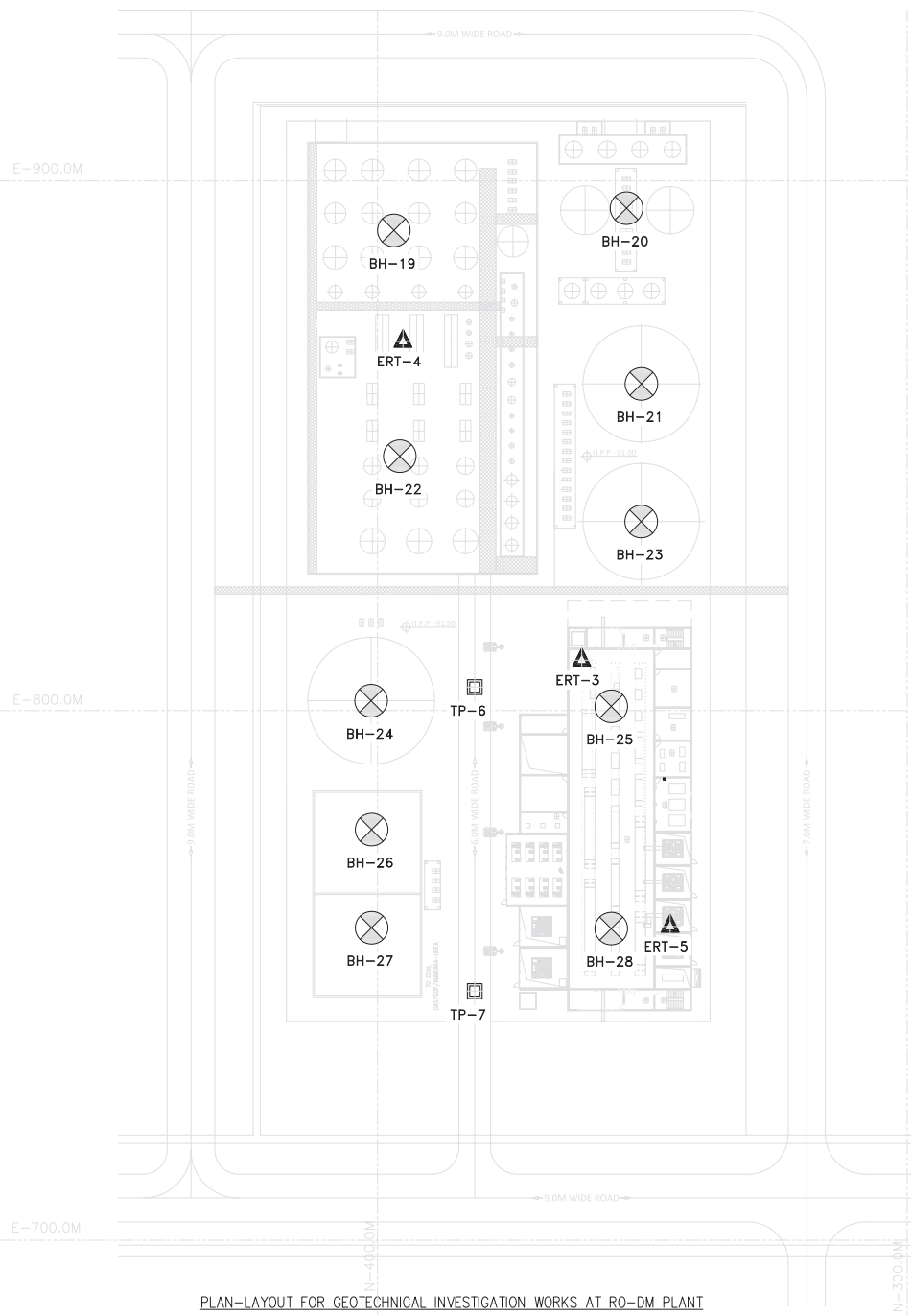
**RECOMMENDED ABP FOR BORE HOLE NO - 28**

SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2X2 M SQUARE	1	1.50	11.10 T/m2	12.50 T/m2	10.30 mm	11.10 T/m2	11.10 T/m2
	2	2.00	15.30 T/m2	17.20 T/m2	13.30 mm	15.30 T/m2	15.30 T/m2
	3	2.50	23.40 T/m2	25.80 T/m2	19.20 mm	23.40 T/m2	23.40 T/m2
	4	3.00	36.50 T/m2	39.50 T/m2	22.30 mm	36.50 T/m2	36.50 T/m2
	5	3.50	41.00 T/m2	44.50 T/m2	24.30 mm	41.00 T/m2	41.00 T/m2
	6	4.00	45.80 T/m2	49.80 T/m2	26.70 mm	42.80 T/m2	45.80 T/m2
3X3 M SQUARE	1	1.50	11.20 T/m2	12.60 T/m2	17.00 mm	11.20 T/m2	11.20 T/m2
	2	2.00	15.30 T/m2	17.20 T/m2	21.90 mm	15.30 T/m2	15.30 T/m2
	3	2.50	23.10 T/m2	25.50 T/m2	31.80 mm	18.10 T/m2	23.10 T/m2
	4	3.00	35.60 T/m2	38.60 T/m2	36.10 mm	24.60 T/m2	35.60 T/m2
	5	3.50	39.50 T/m2	43.00 T/m2	37.90 mm	26.00 T/m2	39.50 T/m2
	6	4.00	43.50 T/m2	47.50 T/m2	41.10 mm	26.40 T/m2	42.30 T/m2
4X4 M SQUARE	1	1.50	11.60 T/m2	13.00 T/m2	24.90 mm	11.60 T/m2	11.60 T/m2
	2	2.00	15.70 T/m2	17.60 T/m2	31.80 mm	12.30 T/m2	15.70 T/m2
	3	2.50	23.60 T/m2	26.00 T/m2	46.10 mm	12.80 T/m2	20.40 T/m2
	4	3.00	36.10 T/m2	39.10 T/m2	52.50 mm	17.50 T/m2	28.00 T/m2
	5	3.50	39.60 T/m2	43.10 T/m2	55.00 mm	17.90 T/m2	28.70 T/m2
	6	4.00	43.20 T/m2	47.20 T/m2	57.60 mm	18.70 T/m2	29.90 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
2M WIDTH STRIP	1	1.50	9.40 T/m2	10.80 T/m2	8.70 mm	9.40 T/m2	9.40 T/m2
	2	2.00	13.10 T/m2	15.00 T/m2	11.40 mm	13.10 T/m2	13.10 T/m2
	3	2.50	20.10 T/m2	22.50 T/m2	16.50 mm	20.10 T/m2	20.10 T/m2
	4	3.00	31.40 T/m2	34.40 T/m2	19.20 mm	31.40 T/m2	31.40 T/m2
	5	3.50	35.20 T/m2	38.70 T/m2	20.90 mm	35.20 T/m2	35.20 T/m2
	6	4.00	39.20 T/m2	43.20 T/m2	22.90 mm	39.20 T/m2	39.20 T/m2
3M WIDTH STRIP	1	1.50	9.80 T/m2	11.20 T/m2	14.90 mm	9.80 T/m2	9.80 T/m2
	2	2.00	13.50 T/m2	15.40 T/m2	19.30 mm	13.50 T/m2	13.50 T/m2
	3	2.50	20.40 T/m2	22.90 T/m2	28.10 mm	18.10 T/m2	20.40 T/m2
	4	3.00	31.50 T/m2	34.50 T/m2	32.00 mm	24.60 T/m2	31.50 T/m2
	5	3.50	34.80 T/m2	38.30 T/m2	33.40 mm	26.00 T/m2	34.80 T/m2
	6	4.00	38.20 T/m2	42.20 T/m2	36.10 mm	26.40 T/m2	38.20 T/m2
4M WIDTH STRIP	1	1.50	10.40 T/m2	11.80 T/m2	22.33 mm	10.40 T/m2	10.40 T/m2
	2	2.00	14.20 T/m2	16.10 T/m2	28.80 mm	12.30 T/m2	14.20 T/m2
	3	2.50	21.40 T/m2	23.80 T/m2	41.80 mm	12.80 T/m2	20.40 T/m2
	4	3.00	32.80 T/m2	35.80 T/m2	46.80 mm	17.50 T/m2	28.00 T/m2
	5	3.50	35.80 T/m2	39.30 T/m2	49.70 mm	17.90 T/m2	28.70 T/m2
	6	4.00	38.80 T/m2	42.80 T/m2	51.80 mm	18.70 T/m2	29.90 T/m2
SIZE OF FOOTING	SL NO.	DEPTH IN M.	NET SAFE BEARING CAPACITY FOR SHEAR CRITERIA	GROSS SAFE BEARING CAPACITY FOR SHEAR CRITERIA	SETTLEMENT	RECOMMENDED NSBC FOR 25 MM SETTLEMENT	RECOMMENDED NSBC FOR 40 MM SETTLEMENT
6X6 M RAFT	1	1.50	12.60 T/m2	14.00 T/m2	33.80 mm	9.30 T/m2	12.60 T/m2
	2	2.00	17.00 T/m2	18.90 T/m2	44.20 mm	9.60 T/m2	15.30 T/m2
	3	2.50	25.30 T/m2	27.70 T/m2	63.60 mm	9.90 T/m2	18.90 T/m2
	4	3.00	38.40 T/m2	41.40 T/m2	72.60 mm	13.20 T/m2	21.10 T/m2
	5	3.50	41.60 T/m2	45.10 T/m2	76.80 mm	13.50 T/m2	21.60 T/m2
	6	4.00	44.90 T/m2	48.90 T/m2	79.80 mm	14.00 T/m2	22.40 T/m2
8X8 M RAFT	1	1.50	13.80 T/m2	15.20 T/m2	50.00 mm	6.90 T/m2	11.00 T/m2
	2	2.00	18.50 T/m2	20.40 T/m2	65.60 mm	7.00 T/m2	11.20 T/m2
	3	2.50	27.40 T/m2	29.90 T/m2	95.00 mm	7.20 T/m2	11.50 T/m2
	4	3.00	41.40 T/m2	44.40 T/m2	110.40 mm	9.30 T/m2	14.90 T/m2
	5	3.50	44.40 T/m2	47.90 T/m2	115.80 mm	9.50 T/m2	15.30 T/m2
	6	4.00	47.50 T/m2	51.50 T/m2	116.90 mm	10.10 T/m2	16.20 T/m2
10X10 M RAFT	1	1.50	15.00 T/m2	16.40 T/m2	69.30 mm	5.40 T/m2	8.60 T/m2
	2	2.00	20.10 T/m2	22.00 T/m2	91.00 mm	5.50 T/m2	8.80 T/m2
	3	2.50	29.70 T/m2	32.10 T/m2	131.60 mm	5.60 T/m2	9.00 T/m2
	4	3.00	44.70 T/m2	47.70 T/m2	150.70 mm	7.40 T/m2	11.80 T/m2
	5	3.50	47.60 T/m2	51.10 T/m2	158.70 mm	7.50 T/m2	12.00 T/m2
	6	4.00	50.60 T/m2	54.60 T/m2	165.00 mm	7.60 T/m2	12.10 T/m2

**ABSTRACT OF CALCULATION OF ROCK SPECIMEN**

<b>SL NO.</b>	<b>DEPTH IN M.</b>	<b>TYPE OF ROCK</b>	<b>RECOMMENDED ABP</b>
1	9.50 TO 10.50	SOFT ROCK WITH FRACTURES	<b>109.80 T/m2</b>
2	10.50 TO 12.00	SOFT ROCK WITH FRACTURES	<b>113.50 T/m2</b>
3	12.00 TO 13.50	SOFT ROCK	<b>120.10 T/m2</b>
4	13.50 TO 15.00	SOFT ROCK	<b>129.70 T/m2</b>





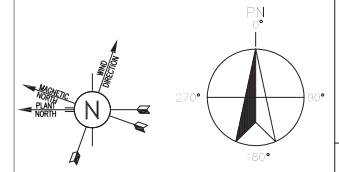
PLAN-LAYOUT FOR GEOTECHNICAL INVESTIGATION WORKS AT RO-DM PLANT

**SCHEDULE OF BORE HOLES:**

SL. NO.	BORE HOLE ID	GLOBAL CO-ORDINATES		LOCAL CO-ORDINATES		DEPTH OF BORE HOLE IN 'm'
		NORTH	EAST	NORTH	EAST	
1	BH-19	2313589.147	309386.358	392.018	898.439	20
2	BH-20	2313549.079	309404.733	342.808	899.394	15
3	BH-21	2313535.322	309375.119	350.009	866.237	25
4	BH-22	2313573.519	309346.672	395.632	852.570	15
5	BH-23	2313526.467	309350.673	350.048	840.237	25
6	BH-24	2313562.822	309301.443	401.048	806.409	25
7	BH-25	2313519.848	309315.953	355.703	805.346	15
8	BH-26	2313554.411	309278.605	400.956	782.072	20
9	BH-27	2313548.075	309261.196	400.956	763.546	20
10	BH-28	2313505.494	309276.516	355.703	763.378	15

**SCHEDULE OF TRIAL PIT:**

SL. NO.	TRIAL PIT ID	GLOBAL CO-ORDINATES		LOCAL CO-ORDINATES		DEPTH OF TRIAL PIT IN 'm'
		NORTH	EAST	NORTH	EAST	
1	TP-6	2313545.304	309310.544	381.475	808.970	3
2	TP-7	2313525.678	309256.621	381.475	791.586	3



**TERMINATION CRITERIA:**  
 THE BORE HOLES SHALL BE TERMINATED AT A DEPTH WHICHEVER IS EARLIER AS PER THE FOLLOWING 3 CONDITIONS:  
 1. DEPTH AS MENTIONED IN SCHEDULE OF BORE HOLES.  
 2. DEPTH AT WHICH SPT - 'N' VALUE MORE THAN 100 AT THREE CONSECUTIVE LEVELS BEYOND THE FOUNDATION DEPTH.  
 3. IN CASE OF BEDROCK, DRILLING HAS TO BE DONE UNTIL RQD > 25% FOR CONTINUOUS 3 M BEYOND THE FOUNDATION DEPTH.

**LEGEND:-**  
 ⊗ BH - BORE HOLE  
 ▲ ERT - ELECTRICAL RESISTIVITY TEST  
 □ TP - TRIAL PIT

**NOTES:-**  
 1. ALL DIMENSIONS ARE IN M UNLESS SPECIFIED  
 2. ALL QUANTITIES GIVEN ARE TENTATIVE AND SUBJECT TO CHANGE  
 3. FIELD CBR SHALL BE CONDUCTED IN TRIAL PIT LOCATION AFTER REACHING THE FINAL DEPTH.

LAYOUT FOR GEOTECHNICAL INVESTIGATION FOR RO-DM AREA