



# Marshal Geo Test Laboratory

An NABL ACCREDITED LABORATORY  
For Testing of Civil Engineering Materials

ISO 9001:2015



Certified By :  
Standardisation Testing  
& Quality Certification  
Directorate  
MSME No.: CG14E0001811

## TEST - REPORT

T.R. No. / MGTL / TRR / R-0807213/001

Date:- 15/07/2021

To,  
The Executive Engineer ( Civil ) HQ. Dn.  
C.S.P.T.C.L, Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed construction work at 132/33 KV S/s Gullu ( Arang ).

Your Ref.:- Letter No.:- E.E.C./HQ.Dn/Ryp/1947 Raipur, Dt.:- 07/07/2021  
Sample ID Mark :- Pit No. -1, Control Room, Depth- 1.50 m. ( As reported )

Dear Sir,  
Vide subject and reference cited above, the test results report is as follows: -

### PARTICULAR OF SAMPLE (S)

Nature:- Undisturbed Soil Sample

Sample No.(S) Details:- One Sample


Dt. of Receipt in the Lab :-08/07/2021


Testing Dt. :- 10/07/2021

LAB JOB NO. :- R-2107083/001		TEST RESULT		
S. No.	Parameters	Test Method	Result	Unit
1	Type of Soil	As per IS 2720 Part XI (RA-2016) ( Unconsolidated - Undrained ) Triaxial Test	Clay of Medium Plasticity ( CI )	
2	Depth of Collection of Sample ( As reported )		1.50 m.	
3	Bulk Density		2.10	t/m <sup>3</sup>
4	Safe Bearing Capacity		10.22	t/m <sup>2</sup>

Note :- 1) Soil Sample is expansive in nature.

Remark:- 1. SBC is calculated based on Shear Failure Criteria.  
2. SBC has been computed taking 1m x 1m footing size.  
3. Soil is susceptible to variation of GWT.

  
Verified by  
( Himanshu R Varma )  
( Geotechnical Engineer )

  
Authorised Signatory  
( Arun Bhawe )

Note:-

- 1 Samples Drawn by us, unless otherwise mentioned.
- 2 Samples may be destroyed / Removed away from Laboratory after Testing, unless otherwise particular request is made.
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- 4 Although Site name has been mentioned, MGTL is not responsible for the actual site conditions.
- 5 This report pertains to only sample submitted by client & Tested at Raipur Laboratory.

\*\*\*\*\*END OF REPORT\*\*\*\*\*

P.S. City Road, Near Kushalpur Chowk,  
Changorabhatha, Ring Road No. -01,  
Raipur (C.G.) , Ph. : 7879798900  
E-mail : raipur\_marshall@yahoo.co.in  
raipur\_marshall@gmail.com  
Website : mgltraipur.co.in





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SHEET 1 OF 2

T. R. No. / MGTL / TRR / R-0807213/002

Date:-15/07/2021

To,

The Executive Engineer ( Civil ) HQ. Dn.  
C.S.P.T.C.L, Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed construction work at 132/33 KV S/s Gullu ( Arang ).

Your Ref.: Letter No.:- E.E.C./HQ.Dn/Ryp/1947 Raipur, Dt.:- 07/07/2021

Sample ID Mark :- Pit No.-1, Control Room, Depth - 1.50 m. ( As reported )

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

**PARTICULAR OF SAMPLES (S) :-**

Nature:- Soil Sample ( UDS )

Sample No.(S) Details:- One Sample

Packing/Container :- Poly Bags

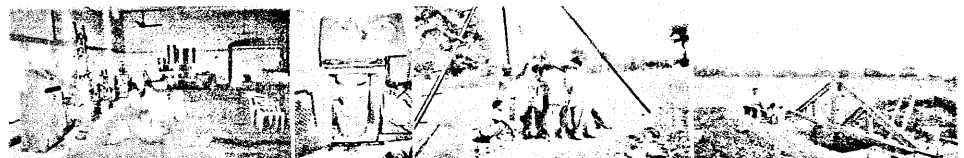
Dt. of Receipt in the Lab:- 08/07/2021

Testing Dt. :- 11/07/2021

LAB JOB NO.- R-2107083/002		TEST RESULTS		
S. No.	Name of Test	Test Method	Results	Unit
A)	<u>Soil Sample ( UDS )</u>			
1	LL, PL & PI	As per IS : 2720 ( Part V )- 1985 (RA-2015)	As per Table 1 Below	%
2	Soil Classification	As per IS : 1498-1970 (RA-2016)	As per Table 1 Below	%
3	Grain Size Analysis	As per IS : 2720 (Part IV )-1985 (RA-2015)	As per table 2 below	%

Table -1

LAB JOB NO.- R-2107083/002		TEST RESULTS				
Sr. No.	% of Fines	Soil Classification	LL	PL	PI	
			%	%	%	
1	82.20	Clay of Medium Plasticity ( CI )	46.00	22.26	23.74	





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## SHEET 2 OF 2

Table -2

LAB JOB NO.- R-2107083/002		TEST RESULTS			
Sr. No.	SIEVE SIZE (MM)	WT. RET.	% OF WT.RET	CUM.WT. RET.	PERCENTAGE FINER (%)
1	10	42.0	8.40	8.40	91.60
2	4.75	6.0	1.20	9.60	90.40
3	2	9.0	1.80	11.40	88.60
4	0.6	21.0	4.20	15.60	84.40
5	0.425	2.0	0.40	16.00	84.00
6	0.75	9.0	1.80	17.80	82.20
Gravel		Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
9.60		1.80	4.60	1.80	82.20

Verified by  
(Himanshu R. Varma)  
(Geotechnical Engineer)

Authorised Signatory  
(Arun Bhavé)

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## TEST - REPORT

T.R. No. / MGTL / TRR / R-0807213/003

Date:- 15/07/2021

To,  
The Executive Engineer ( Civil ) HQ. Dn.  
C.S.P.T.C.L, Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed construction work at 132/33 KV S/s Gullu ( Arang ).

Your Ref.:- Letter No.:- E.E.C./HQ.Dn/Ryp/1947 Raipur, Dt.:- 07/07/2021  
Sample ID Mark :- Pit No. -2, Transformer, Depth- 3.00 m. ( As reported )

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

### PARTICULAR OF SAMPLE (S)

Nature:- Undisturbed Soil Sample

Sample No.(S) Details:- One Sample

Dt. of Receipt in the Lab :-08/07/2021

Testing Dt. :- 10/07/2021

LAB JOB NO. :- R-2107083/003		TEST RESULT		
S. No.	Parameters	Test Method	Result	Unit
1	Type of Soil	As per IS 2720 Part XI (RA-2016) ( Unconsolidated - Undrained ) Triaxial Test	Clay of Medium Plasticity ( CI )	
2	Depth of Collection of Sample, ( As reported )		3.00 m.	
3	Bulk Density		2.07	t/m <sup>3</sup>
4	Safe Bearing Capacity		14.18	t/m <sup>2</sup>

- Note :- 1) Soil Sample is expansive in nature.  
Remark:- 1. SBC is calculated based on Shear Failure Criteria.  
2. SBC has been computed taking 1m x 1m footing size.  
3. Soil is susceptible to variation of GWT.

Verified by  
( Himanshu R Varma )  
( Geotechnical Engineer )

Authorised Signatory  
( Arun Bhawe )

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E-mail : raipur\_marshall@yahoo.co.in  
raipur\_marshall@gmail.com  
Website : mgltraipur.co.in





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SHEET 1 OF 2

T. R. No. / MGTL / TRR / R-0807213/004

Date:-15/07/2021

To,  
The Executive Engineer ( Civil ) HQ. Dn.  
C.S.P.T.C.L, Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed construction work at 132/33 KV S/s Gullu ( Arnag ).

Your Ref.: Letter No.:- E.E.C./HQ.Dn/Ryp/1947 Raipur, Dt.:- 07/07/2021

Sample ID Mark :- Pit No.-2, Transformer, Depth - 3.00 m. ( As reported )

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

**PARTICULAR OF SAMPLES (S) :-**

Nature:- Soil Sample (UDS )

Sample No.(S) Details:- One Sample

Packing/Container :- Poly Bags

Dt. of Receipt in the Lab:- 08/07/2021

Testing Dt. :- 11/07/2021

LAB JOB NO.- R-2107083/004		TEST RESULTS		
S. No.	Name of Test	Test Method	Results	Unit
A)	Soil Sample (UDS )			
1	LL, PL & PI	As per IS : 2720 ( Part V )- 1985 (RA-2015)	As per Table 1 Below	%
2	Soil Classification †	As per IS : 1498-1970 (RA-2016)	As per Table 1 Below	%
3	Grain Size Analysis	As per IS : 2720 (Part IV )-1985 (RA-2015)	As per table 2 below	%

Table -1

LAB JOB NO.- R-2107083/004		TEST RESULTS				
Sr. No.	% of Fines	Soil Classification	LL	PL	PI	
			%	%	%	
1	90.80	Clay of Medium Plasticity ( CI )	45.00	20.03	24.97	

P.S. City Road, Near Kushalpur Chowk,  
Changorabhata, Ring Road No. -01,  
Raipur 492013 (C.G.), Ph. : 7879798900  
E-mail : raipur\_marshall@yahoo.co.in  
raipur\_marshall@gmail.com  
Website : marshalgeoraipur.com





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**SHEET 2 OF 2**

Table -2

LAB JOB NO.- R-2107083/004			TEST RESULTS		
Sr. No.	SIEVE SIZE (MM)	WT. RET.	% OF WT.RET	CUM.WT. RET.	PERCENTAGE FINER (%)
1	10	8.0	1.60	1.60	98.40
2	4.75	5.0	1.00	2.60	97.40
3	2	4.0	0.80	3.40	96.60
4	0.6	19.0	3.80	7.20	92.80
5	0.425	1.0	0.20	7.40	92.60
6	0.75	9.0	1.80	9.20	90.80
Gravel		Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
2.60		0.80	4.00	1.80	90.80

Verified by  
( Himanshu R. Varma )  
( Geotechnical Engineer )

Authorised Signatory  
( Arun Bhawe )

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raipur\_marshall@gmail.com  
Website : marshalgeoraipur.com



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## TEST - REPORT

Date:- 15/07/2021

T.R. No. / MGTL / TRR / R-0807213/005

To,  
The Executive Engineer ( Civil ) HQ. Dn.  
C.S.P.T.C.L, Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed construction work at 132/33 KV S/s Gullu ( Arang ).

Your Ref.:- Letter No.:- E.E.C./HQ.Dn/Ryp/1947 Raipur, Dt.:- 07/07/2021  
Sample ID Mark :- Pit No. -3, Gantry, Depth- 2.00 m. ( As reported )

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

### PARTICULAR OF SAMPLE (S)

Nature:- Undisturbed Soil Sample

Sample No.(S) Details:- One Sample

Dt. of Receipt in the Lab :-08/07/2021

Testing Dt. :- 10/07/2021

LAB JOB NO. :- R-2107083/005		TEST RESULT		
S. No.	Parameters	Test Method	Result	Unit
1	Type of Soil	As per IS 2720 Part XI (RA-2016) ( Unconsolidated - Undrained ) Triaxial Test	Clay of Medium Plasticity ( CI )	
2	Depth of Collection of Sample ( As reported )		2.00 m.	
3	Bulk Density		2.07	t/m <sup>3</sup>
4	Safe Bearing Capacity		12.00	t/m <sup>2</sup>

Note :- 1) Soil Sample is expansive in nature.

Remark:- 1. SBC is calculated based on Shear Failure Criteria.  
2. SBC has been computed taking 1m x 1m footing size.  
3. Soil is susceptible to variation of GWT.

Verified by  
( Himanshu R Varma )  
( Geotechnical Engineer )

Authorised Signatory  
( Arun Bhawe )

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SHEET 1 OF 2

T. R. No. / MGTL / TRR / R-0807213/006

Date:-15/07/2021

To,  
The Executive Engineer ( Civil ) HQ. Dn.  
C.S.P.T.C.L, Raipur (C.G.)

Subject :- Test result of Soil Sample for the proposed construction work at 132/33 KV S/s Gullu ( Arnag ).

Your Ref.: Letter No.:- E.E.C./HQ.Dn/Ryp/1947 Raipur, Dt.:- 07/07/2021

Sample ID Mark :- Pit No.-3, Gantry, Depth - 2.00 m. ( As reported )

Dear Sir,

Vide subject and reference cited above, the test results report is as follows: -

**PARTICULAR OF SAMPLES (S) :-**

Nature:- Soil Sample ( UDS )

Sample No.(S) Details:- One Sample

Packing/Container :- Poly Bags

Dt. of Receipt in the Lab:- 08/07/2021

Testing Dt. :- 11/07/2021

LAB JOB NO.- R-2107083/006		TEST RESULTS		
S. No.	Name of Test	Test Method	Results	Unit
A)	Soil Sample ( UDS )			
1	LL, PL & PI	As per IS : 2720 ( Part V )- 1985 (RA-2015)	As per Table 1 Below	%
2	Soil Classification	As per IS : 1498-1970 (RA-2016)	As per Table 1 Below	
3	Grain Size Analysis	As per IS : 2720 (Part IV )-1985 (RA-2015)	As per table 2 below	%

Table -1

LAB JOB NO.- R-2107083/006		TEST RESULTS				
Sr. No.	% of Fines	Soil Classification	LL	PL	PI	
			%	%	%	
1	90.20	Clay of Medium Plasticity ( CI )	44.00	20.54	23.46	

P.S. City Road, Near Kushalpur Chowk,  
Changorabhata, Ring Road No. -01,  
Raipur 492013 (C.G.) , Ph. : 7879798900  
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raipur\_marshall@gmail.com  
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## SHEET 2 OF 2

Table -2

LAB JOB NO.- R-2107083/006				TEST RESULTS	
Sr. No.	SIEVE SIZE (MM)	WT. RET.	% OF WT.RET	CUM.WT. RET.	PERCENTAGE FINER (%)
1	10	10.0	2.00	2.00	98.00
2	4.75	2.0	0.40	2.40	97.60
3	2	7.0	1.40	3.80	96.20
4	0.6	19.0	3.80	7.60	92.40
5	0.425	2.0	0.40	8.00	92.00
6	0.75	9.0	1.80	9.80	90.20
Gravel		Coarse Sand	Medium Sand	Fine Sand	Silt & Clay
2.40		1.40	4.20	1.80	90.20

Verified by  
( Himanshu R. Varma )  
( Geotechnical Engineer )

Authorised Signatory  
( Arun Bhawe )

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