



ITS TESTING LABORATORY PRIVATE LIMITED

Laboratory: A-114, Sector-80, Phase-II Noida, Gautam Budh Nagar - 201305, (U.P.)

(An ISO 9001: 2015, ISO 14001:2015 & ISO 45001:2018 Certified Laboratory)

Website: www.itslab.in, Email: itrlclab@gmail.com, info@itslab.in, contact@itslab.in

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Test Report of	Report Code	Date of Issue
Ambient Air Quality Analysis	AAQ-250523-19	23-06-2023

Issue To : Mr. Ranjan Kumar
Project Name Location : Sand Mining Project Block – 31 (Gaya Morhar- 18) Sand Ghat on Morhar River, at Village- Sherpur, Barawan P.O, Tehsil/Anchal- Sherghati, District- Gaya, State- Bihar

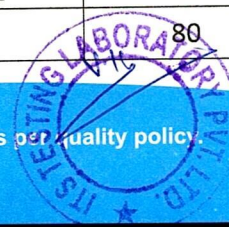
Sampling & Analysis

Sample Description : Ambient Air
Sampling Plan & Procedure : SOP-AAQ/07
Sampling Instrument Used : RDS (PM10), Fine Particulate Sampler (PM2.5) & Gaseous Attachment

Ambient Air Quality Data March 2023 to May 2023				AQ-1 Project Site	
S.No	Date	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³
		IS:5182:Pt-23	Gravimetric	IS:5182:Pt-2	IS:5182:Pt-6
1	02-03-2023	27.30	65.12	6.4	16.9
2	06-03-2023	24.38	67.54	6.7	17.5
3	11-03-2023	25.12	67.10	6.5	19.8
4	15-03-2023	25.38	64.17	6.9	18.2
5	19-03-2023	26.45	67.50	6.6	17.8
6	23-03-2023	24.90	66.26	6.8	16.9
7	26-03-2023	26.65	70.65	7.1	18.2
8	29-03-2023	30.78	73.26	7.5	19.2
9	01-04-2023	32.46	74.35	8.3	18.9
10	05-04-2023	30.17	76.20	9.4	18.0
11	08-04-2023	26.39	69.37	9.3	17.8
12	12-04-2023	29.73	71.54	8.8	17.6
13	16-04-2023	38.49	73.59	8.3	17.9
14	20-04-2023	38.50	77.46	7.9	18.7
15	24-04-2023	35.64	69.82	7.6	20.2
16	27-04-2023	33.19	65.47	7.2	18.7
17	02-05-2023	29.60	70.19	6.9	17.8
18	05-05-2023	32.74	72.90	8.1	18.4
19	08-05-2023	37.54	75.68	8.6	17.7
20	12-05-2023	34.56	73.43	7.3	18.3
21	15-05-2023	32.43	76.50	7.2	17.5
22	18-05-2023	31.10	77.98	8.2	18.7
23	21-05-2023	27.30	74.35	9.1	17.4
24	25-05-2023	25.70	70.43	9.6	17.9
	Min	24.38	64.17	6.4	16.9
	Max	38.50	77.98	9.6	20.2
	Average	30.27	71.29	7.76	18.17
	98 Percentile	38.50	77.74	9.51	20.02
NAAQS, For 24 hourly		100	60	80	80

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Ambient Air Quality Data March 2023 to May 2023				AQ- 3	
S.No	Date	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ µg/m ³ ,	NO ₂ , µg/m ³
		IS:5182:Pt-23	Gravimetric	IS:5182:Pt-2	IS:5182:Pt-6
1	02-03-2023	28.92	66.39	7.9	17.7
2	06-03-2023	23.29	67.83	6.4	17.8
3	11-03-2023	29.45	72.67	6.9	16.7
4	15-03-2023	30.73	77.43	6.4	16.3
5	19-03-2023	32.06	78.33	6.7	18.1
6	23-03-2023	30.48	74.52	6.4	17.4
7	26-03-2023	34.57	80.43	6.9	16.3
8	29-03-2023	35.18	77.49	6.4	16.8
9	01-04-2023	34.50	73.70	6.5	15.7
10	05-04-2023	32.23	76.58	7.4	15.9
11	08-04-2023	34.12	81.56	7.2	16.3
12	12-04-2023	31.70	78.63	7.8	17.4
13	16-04-2023	32.28	73.76	8.4	17.9
14	20-04-2023	33.57	78.83	8.8	18.7
15	24-04-2023	35.74	74.92	9.9	18.2
16	27-04-2023	32.90	77.26	8.5	21.0
17	02-05-2023	29.27	76.77	7.9	20.9
18	05-05-2023	28.70	74.58	7.2	19.6
19	08-05-2023	30.18	73.49	7.7	16.9
20	12-05-2023	32.76	72.87	6.3	17.8
21	15-05-2023	33.18	74.48	6.9	17.9
22	18-05-2023	29.72	72.47	7.2	16.5
23	21-05-2023	32.47	76.24	7.8	17.5
24	25-05-2023	31.89	75.87	7.2	16.8
	Min	23.29	66.39	6.3	15.7
	Max	35.74	81.56	9.9	21.0
	Average	31.66	75.30	7.36	17.59
	98 Percentile	35.48	81.04	9.39	20.95
NAAQS, For 24 hourly		100	60	80	80

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Ambient Air Quality Data March 2023 to May 2023				AQ- 4	
S.No	Date	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ µg/m ³ ,	NO ₂ , µg/m ³
		IS:5182:Pt-23	Gravimetric	IS:5182:Pt-2	IS:5182:Pt-6
1	02-03-2023	29.43	69.21	5.7	16.8
2	06-03-2023	26.87	67.28	5.5	16.9
3	11-03-2023	29.78	65.48	6.2	15.7
4	15-03-2023	28.74	67.39	5.9	15.5
5	19-03-2023	31.59	71.49	5.4	14.9
6	23-03-2023	32.83	75.43	5.7	15.2
7	26-03-2023	34.27	72.78	6.1	15.7
8	29-03-2023	32.28	74.60	6.3	15.4
9	01-04-2023	34.73	78.10	5.9	16.2
10	05-04-2023	31.29	76.38	6.4	15.7
11	08-04-2023	29.13	74.76	5.9	15.8
12	12-04-2023	28.25	73.27	6.3	15.9
13	16-04-2023	27.32	69.50	6.5	15.3
14	20-04-2023	29.48	73.63	6.7	15.7
15	24-04-2023	32.76	78.32	6.2	15.9
16	27-04-2023	35.48	78.93	6.9	16.4
17	02-05-2023	33.67	77.36	7.5	16.3
18	05-05-2023	34.69	76.86	6.8	17.8
19	08-05-2023	29.73	74.68	6.3	17.3
20	12-05-2023	29.97	73.80	6.6	18.9
21	15-05-2023	32.29	77.67	6.1	16.4
22	18-05-2023	29.58	74.55	5.7	15.8
23	21-05-2023	30.93	76.85	5.9	15.3
24	25-05-2023	31.62	78.67	6.3	16.4
	Min	26.87	65.48	5.4	14.9
	Max	35.48	78.93	7.5	18.9
	Average	31.11	74.04	6.20	16.13
	98 Percentile	35.14	78.81	7.22	18.39
NAAQS, For 24 hourly		100	60	60	80

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S.No	Date	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³
		IS:5182:Pt-23	Gravimetric	IS:5182:Pt-2	IS:5182:Pt-6
1	02-03-2023	28.14	72.67	6.7	16.3
2	06-03-2023	28.57	74.45	6.2	17.4
3	11-03-2023	29.76	76.84	7.8	16.9
4	15-03-2023	32.17	74.73	7.2	15.5
5	19-03-2023	33.28	81.78	7.8	16.7
6	23-03-2023	31.67	79.47	6.6	15.9
7	26-03-2023	29.74	74.17	5.9	14.7
8	29-03-2023	30.34	82.00	6.7	14.3
9	01-04-2023	32.43	79.69	6.4	15.3
10	05-04-2023	32.15	82.28	5.9	15.8
11	08-04-2023	34.89	80.67	6.3	16.2
12	12-04-2023	30.75	79.75	7.6	16.7
13	16-04-2023	29.56	73.53	6.7	17.3
14	20-04-2023	32.82	76.23	5.9	17.7
15	24-04-2023	33.38	79.89	6.2	16.5
16	27-04-2023	34.42	75.40	7.4	17.6
17	02-05-2023	36.12	82.63	8.2	18.4
18	05-05-2023	34.32	89.26	8.6	19.9
19	08-05-2023	35.69	84.87	9.7	17.7
20	12-05-2023	32.48	79.63	8.6	20.5
21	15-05-2023	35.87	74.53	7.3	19.6
22	18-05-2023	33.45	77.12	7.9	18.3
23	21-05-2023	29.34	78.39	8.7	18.8
24	25-05-2023	30.64	77.63	7.3	17.9
	Min	28.14	72.67	5.9	14.3
	Max	36.12	89.26	9.7	20.5
	Average	32.17	78.65	7.23	17.16
	98 Percentile	36.01	87.24	8.24	20.22
NAAQS, For 24 hourly		100	60	80	80

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S.No	Date	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ µg/m ³ ,	NO ₂ , µg/m ³
		IS:5182:Pt-23	Gravimetric	IS:5182:Pt-2	IS:5182:Pt-6
1	02-03-2023	30.63	72.7	7.1	17.4
2	06-03-2023	32.62	73.5	7.8	18.8
3	11-03-2023	31.83	71.2	7.5	16.8
4	15-03-2023	28.57	69.5	7.9	18.3
5	19-03-2023	32.56	73.3	8.3	18.9
6	23-03-2023	29.26	68.7	6.9	19.8
7	26-03-2023	32.10	72.6	6.7	21.6
8	29-03-2023	29.84	67.9	7.3	18.9
9	01-04-2023	30.87	75.2	7.9	19.0
10	05-04-2023	30.79	72.9	6.6	21.2
11	08-04-2023	34.17	73.6	8.3	18.9
12	12-04-2023	29.78	74.1	9.2	19.2
13	16-04-2023	30.45	78.6	8.3	18.7
14	20-04-2023	31.01	79.2	7.9	21.3
15	24-04-2023	32.17	74.1	8.2	20.2
16	27-04-2023	31.73	80.6	8.6	18.7
17	02-05-2023	35.15	84.1	7.5	17.2
18	05-05-2023	29.48	85.3	7.6	18.6
19	08-05-2023	30.73	84.3	6.2	17.8
20	12-05-2023	29.18	87.2	6.9	17.5
21	15-05-2023	31.19	84.8	7.2	18.5
22	18-05-2023	32.74	79.6	7.7	19.2
23	21-05-2023	31.44	79.6	6.8	18.4
24	25-05-2023	30.29	75.7	6.7	19.3
	Min	28.57	67.9	6.2	16.8
	Max	35.15	87.2	9.2	21.6
	Average	31.19	76.60	7.55	18.93
	98 Percentile	34.70	86.33	8.92	21.46
NAAQS, For 24 hourly		100	60	80	80

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S.No	Date	PM _{2.5} , µg/m ³	PM ₁₀ , µg/m ³	SO ₂ µg/m ³ ,	NO ₂ µg/m ³
		IS:5182:Pt-23	Gravimetric	IS:5182:Pt-2	IS:5182:Pt-6
1	02-03-2023	24.13	72.54	7.7	16.7
2	06-03-2023	25.27	74.82	7.3	17.1
3	11-03-2023	23.43	73.62	7.2	17.9
4	15-03-2023	29.72	71.49	7.8	16.8
5	19-03-2023	31.23	75.39	6.7	16.7
6	23-03-2023	32.45	73.24	6.9	15.9
7	26-03-2023	32.76	74.25	7.3	14.7
8	29-03-2023	35.63	78.49	6.4	14.3
9	01-04-2023	34.58	75.52	6.9	15.3
10	05-04-2023	30.29	77.56	7.0	15.8
11	08-04-2023	33.18	81.94	7.2	16.9
12	12-04-2023	34.79	78.61	7.5	16.7
13	16-04-2023	32.28	76.37	8.4	17.2
14	20-04-2023	31.57	79.83	8.8	17.7
15	24-04-2023	35.78	73.43	9.2	16.8
16	27-04-2023	36.90	74.76	8.5	15.7
17	02-05-2023	29.29	78.43	7.9	17.3
18	05-05-2023	27.78	73.57	7.2	18.4
19	08-05-2023	35.14	72.63	7.5	19.7
20	12-05-2023	33.79	70.87	6.8	19.3
21	15-05-2023	32.18	74.40	6.2	19.6
22	18-05-2023	32.43	75.43	7.2	18.3
23	21-05-2023	31.47	74.56	7.9	17.8
24	25-05-2023	34.43	75.89	7.3	16.9
	Min	23.43	70.87	6.2	14.3
	Max	36.9	81.94	9.2	19.7
	Average	31.69	75.32	7.45	17.06
	98 Percentile	36.38	80.97	9.02	19.65
NAAQS, For 24 hourly		100	60	80	80

Free SiO₂:

SiO ₂	AAQ-1	AAQ-2	AAQ-3	AAQ-4	AAQ-5	AAQ-6	AAQ-7
Maximum	0.92	0.89	0.85	0.76	0.89	0.97	0.92
Minimum	0.80	0.75	0.60	0.72	0.67	0.85	0.81

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Test Report of	Report Code	Date of Issue
Ground Water Analysis	GW-270523-20	23-06-2023

Issue To : Mr. Ranjan Kumar
Project Name Location : Sand Mining Project Block – 31 (Gaya Morhar- 18) Sand Ghat on Morhar River, at Village- Sherpur, Barawan P.O, Tehsil/Anchal- Sherghati, District- Gaya, State-Bihar

Sample Received On : 27/03/2023
Sample Collected By : Laboratory (ITS)
Sample Description : Ground Water
Sample Quantity : 2.0 Lt. in pet bottle & 500ml sterilizes glass Bottle
Weather Conditions : Normal
Analysis Duration : 15/03/2023 To 25/03/2023

Test Results

S.No	Parameter	Results			Units	Acceptable Limit	Permissible Limit in the Absence of Alternate Source
		Location					
		GW-1	GW-2	GW-3			
1	pH	7.25	6.48	7.45	-	6.5-8.5	-
2	Colour	<5.0	<5.0	<5.0	Hazen	5	15
3	Odour	Agreeable	Agreeable	Agreeable	-	Agreeable	Agreeable
4	Taste	Agreeable	Agreeable	Agreeable	-	Agreeable	Agreeable
5	Turbidity	<1.0	<1.0	<1.0	NTU	1	5
6	Total Hardness (as CaCO ₃)	295	425	414	mg/l	200	600
7	Calcium(as Ca)	47.72	30.92	81.45	mg/l	75	200
8	Magnesium(as Mg)	13.47	14.19	22.69	mg/l	30	100
9	Chloride(as Cl)	192.65	212.75	174.65	mg/l	250	1000
10	Iron(as Fe)	0.49	0.69	0.91	mg/l	0.3	NoRelaxation
11	Fluoride(as F)	0.48	0.65	0.91	mg/l	1	1.5
12	Free Residual chlorine	<0.1	<0.1	<0.1	mg/l	0.2	1
13	Total Dissolved Solid	679	456	984	mg/l	500	2000
14	Phenolic Compound (as C ₆ H ₅ OH)	<0.001	<0.001	<0.001	mg/l	0.001max	0.002 Max
15	Anionic Detergents (as MBAS)	<0.1	<0.1	<0.1	mg/l	0.2	1.0
16	Sulphate (as SO ₄)	45.24	39.54	63.12	mg/l	200	400
17	Nitrate (as NO ₃)	5.49	4.75	6.54	mg/l	45	No Relaxation

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18	Alkalinity(as CaCO ₃)	265	352	396	mg/l	200	600
19	Chloramines (as Cl ₂)	< 1.0	< 1.0	< 1.0	mg/l	4	No Relaxation
20	Cadmium (as Cd)	<0.001	<0.001	<0.001	mg/l	0.003	No Relaxation
21	Lead (as Pb)	<0.01	<0.01	<0.01	mg/l	0.01	No Relaxation
22	Total Chromium (as Cr)	<0.01	<0.01	<0.01	mg/l	0.05	No Relaxation
23	Copper (as Cu)	<0.01	<0.01	<0.01	mg/l	0.05	1.5
24	Total Ammonia	<0.5	<0.5	<0.5	mg/l	0.5	No Relaxation
25	Nickel (as Ni)	<0.01	<0.01	<0.01	mg/l	0.02	0.2
26	Zinc (as Zn)	0.79	0.68	0.98	mg/l	5	15
27	Manganese (as Mn)	<0.1	<0.1	<0.1	mg/l	0.1	0.3
28	Boron (as B)	<0.1	<0.1	<0.1	mg/l	0.5	1
29	Selenium (Se)	<0.01	<0.01	<0.01	mg/l	0.01	No Relaxation
30	Arsenic (as As)	<0.01	<0.01	<0.01	mg/l	0.01	0.05

RESULTS

As per IS 10500:2012

S.No	Parameter	Test Method	Results			Units	Requirements
			GW-1	GW-2	GW3		
1	E.coli	IS-1622	Not Detected (<2)	Not Detected (<2)	Not Detected (<2)	E.Coli/100ml	Shall not be detectable in 100 ml sample
2	Total Coliform	IS-1622	Absent	Absent	Absent	MPN/100ml	Shall not be detectable in 100 ml sample

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Test Report of	Report Code	Date of Issue
Ambient Noise	N-250523-21	23-06-2023

Issue To

Project Name Location

: Mr. Ranjan Kumar

: Sand Mining Project Block – 31 (Gaya Morhar- 18) Sand Ghat on Morhar River, at Village- Sherpur, Barawan P.O, Tehsil/Anchal- Sherghati, District- Gaya, State-Bihar

Sampling & Analysis Data

Sample Drawn by

Sample Quantity

Sample Description

: Laboratory (ITS)

: 24 Hrs

: Ambient Noise

S.No.	PROJECT SITE	ZONE	Leq LIMIT (as per CPCB Guidelines), in dB(A)		Leq Value monitored, in dB(A)	
			DAY*	NIGHT*	DAY*	NIGHT*
1	NQ-1	Industrial Zone (Project Site)	75	70	52.4	44.9
2	NQ-2	Residential Zone	55	45	51.5	40.8
3	NQ-3	Residential Zone	55	45	49.6	43.1
4	NQ-4	Residential Zone	55	45	46.5	38.5
5	NQ-5	Residential Zone	55	45	52.8	34.5

*

Day time

Night time

Leq in dB(A) (6.00AM TO 10.00PM)

Leq in dB(A) (10.00PM TO 6.00AM)

Checked by

Authorized Signatory

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ITS TESTING LABORATORY PRIVATE LIMITED

Laboratory: A-114, Sector-80, Phase-II Noida, Gautam Budh Nagar - 201305, (U.P.)

(An ISO 9001: 2015, ISO 14001:2015 & ISO 45001:2018 Certified Laboratory)

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Test Report of	Report Code	Date of Issue
Surface Water	ww- 250523-23	23-06-2023

Issue To

: Mr. Ranjan Kumar

Project Name Location

: Sand Mining Project Block – 31 (Gaya Morhar- 18) Sand Ghat on Morhar River, at Village- Sherpur, Barawan P.O, Tehsil/Anchal- Sherghati, District- Gaya, State-Bihar

Sampling & Analysis Data

Sample Drawn by

: Laboratory (ITS)

Sample Quantity

: 2litre In Pet Bottle and 500ml in sterilized glass Bottle

Sample Description

: Surface Water

Physico-Chemical Properties of Surface Water

S.No	Parameter	SW-1 Morhar River (Upstream)	SW-2 Morhar River (Downstream)	Units
1	pH	7.45	7.21	-
2	Temperature	18.4	17.6	°C
3	Turbidity	13.2	19.8	NTU
4	Conductivity @25°C	445	615.10	µs/cm.
5	Total Suspended Solid	36.2	29.7	mg/l
6	Total Alkalinity (as CaCO ₃)	145	197	mg/l
7	Biological Oxygen Demand (Max.) (at 270C for 3 days)	5.48	2.84	mg/l
8	Dissolved Oxygen (as O ₂) Min.	5.45	6.56	mg/l
9	Calcium(as Ca)	92.98	22.45	mg/l
10	Magnesium(as Mg)	48.48	13.32	mg/l
11	Chloride(as Cl),Max	64.40	55.48	mg/l
12	Iron(as Fe),Max	0.15	0.19	mg/l
13	Fluoride(as F),Max	0.65	1.18	mg/l
14	Total Dissolved Solid	645	343	mg/l
15	Total Hardness (as CaCO ₃)	195.00	145.65	mg/l
16	Sulphate (as SO ₄)Max	20.45	16.48	mg/l
17	Phosphate (as P)	0.09	<0.2	mg/l
18	Sodium (as Na)	49.45	28.54	mg/l
19	Manganese (as Mn)	0.08	<0.1	mg/l
20	Total Chromium (as Cr)	<0.05	<0.05	mg/l
21	Zinc (as Zn)	1.46	0.89	mg/l
22	Potassium (as K)	2.98	4.16	mg/l
23	Nitrate (as NO ₃),Max	0.85	<0.5	mg/l



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24	Cadmium (as Cd)	<0.01	<0.01	mg/l
25	Lead (as Pb)	<0.01	<0.01	mg/l
26	Copper (as Cu)	<0.01	<0.01	mg/l
27	Chemical Oxygen Demand (asO ₂)	25.0	16.65	mg/l
28	Arsenic (as As)	<0.01	<0.01	mg/l

RESULTS

S.No	Parameter	Test Method	Results	Units	Tolerance Limit as per IS:2296				
					Class A	Class B	Class C	Class D	Class E
SW-1	Total Coli Form	IS:1622	45	MPN/100ml	50	500	5000	-	-
SW-2	Total Coli Form	IS:1622	98	MPN/100ml	50	500	5000	-	-

CHECKED BY

AUTHORIZED SIGNATORY



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Test Report of	Report Code	Date of Issue
Soil	SL-250523-22	23-06-2023

Issue To

Project Name Location

: Mr. Ranjan Kumar

: Sand Mining Project Block – 31 (Gaya Morhar- 18) Sand Ghat on Morhar River, at Village- Sherpur, Barawan P.O, Tehsil/Anchal- Sherghati, District- Gaya, State-Bihar

Sampling & Analysis Data

Sample Drawn by

: Laboratory (ITS)

Sample Quantity

: 2Kg (ZIP Polyethylene Bag)

Sample Description

: Soil sample

Physico-chemical properties of soil

S.No	Parameter	Units	Result		
			Location		
			SQ-1	SQ-2	SQ-3
1	Texture	-	Clay Loam to Silty Loam	Clay Loam	Clay Loam
	Sand	%	44.24	32.27	40.46
	Clay	%	38.54	39.76	35.24
	Silt	%	14.65	32.48	21.32
2	pH(1:2.5 Suspension)	-	6.01	6.21	6.54
3	Electrical Conductivity	µmhos/cm	262.8	354.58	354.9
4	Potassium (as K)	mg/kg	152.60	163.42	151.08
5	Sodium (as Na)	mg/kg	242.47	158.68	165.15
6	Calcium (as Ca)	mg/kg	3891.52	4535.56	3605.25
7	Magnesium (as Mg)	mg/kg	632.80	580.35	672.45
8	Sodium Absorption Ratio	-	0.32	0.54	0.62
9	Water Holding Capacity	%	30.40	32.51	33.24
10	Total Kjeldahl Nitrogen	%	0.084	0.099	0.076
11	Phosphorous	mg/kg	62.42	52.15	54.60
12	Bulk Density	gm/cc	1.24	1.95	1.15
13	Organic Matter	%	0.84	1.75	1.65
14	Porosity	%	39.32	34.52	38.80

CHECKED BY

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