BORE LOG OF DRILL HOLE DBH - 05

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1423, W-845** | **GROUND LEVEL (m) : 281.912**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 3.00** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 2.40 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 18.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 18.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.75	Medium Stiff, Yellowish, Clay With Medium Plasticity.																										
0.75	1.05			UDS	1									17.75	9.64	54.97	17.64	2.31	Cl									
1.05	1.50																											
1.50	1.95					2	3	5	-	8				10.97	7.49	58.39	23.15	2.73	Cl									
1.95	2.25																											
2.25	2.70					3	5	8	-	13				4.76	4.23	75.48	15.53	2.67	Cl									
2.70	3.00																											
3.00	4.65	Completely Weathered, Brownish, Disintegrated Argillaceous Shale.		SP							23	Nil	W_3															
4.65	6.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	1-11						96	56	W_4							2.68	2.57	2.61	1.56	4.01	193.56	-	-	-
6.00	7.50	Fresh, Brownish, Argillaceous Shale.		CORE	12-21						97	88	W_4							2.77	2.74	2.75	0.41	1.13	229.36	-	-	-
7.50	9.00			CORE	22-28						100	93	W_4							-	-	-	-	-	1083.72	-	-	-
9.00	10.00			CORE	29-31						91	91	W_3															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 06

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1426, W-522** | **GROUND LEVEL (m) : 282.510**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 3.00** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 12.00 | **GROUND W.L BGL (m) : 2.40 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 15.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 17.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS				SPECIFIC GRAVITY	IS CLASSIFICATION									
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %			SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Brownish Soil, Clay & Boulder.																									
0.50	1.50																										
1.50	1.95	Hard, Brownish, Clay with medium Plasticity.				8	15	25	-	40				24.93	5.88	60.23	8.96	2.46	Cl								
1.95	3.35																										
3.35	4.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	1-9						63	40	W_3							2.61	2.6	2.6	0.15	0.4	629.41	-	-	-
4.50	6.00	Fresh, Brownish, Argillaceous Shale.		CORE	10-17						93	87	W_3							-	-	-	-	-	288.67	-	-	-
6.00	7.50			CORE	18-26						97	89	W_4							-	-	-	-	-	654.3	-	-	-
7.50	9.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	27-34						95	91	W_4															
9.00	10.50	Fresh, Brownish, Argillaceous Shale.		CORE	35-47						97	61	W_4															
10.50	12.00			CORE	48-59						100	80	W_3															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SANDSTONE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 07

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1260, W-450** | **GROUND LEVEL (m) : 281.727**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 18.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 18.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Brownis Silty Sand & Boulder.																										
0.50	1.50	Fresh, Brownish, Argillaceous Shale.		CORE	1-8						93	87	W_2							-	-	-	-	-	1063.15	-	-	-
1.50	3.00			CORE	9-21						100	79	W_5							2.78	2.74	2.75	0.59	1.62	367.43	-	74379	0.07
3.00	4.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	22-33						95	72	W_1															
4.50	6.00			CORE	34-49						88	57	W_1															
6.00	7.50			CORE	50-63						97	65	W_2															-
7.50	9.00			CORE	64-74						93	67	W_2															-
9.00	10.00			CORE	75-84						100	75	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 08

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1300, W-825** | **GROUND LEVEL (m) : 282.630**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.80 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 19.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 22.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS				SPECIFIC GRAVITY	IS CLASSIFICATION									
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %			SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	1.50	Filling with Brownish Soil, Clay & Boulder.																									
1.50	1.95	Very Dense, Brownish, Silty Sand.				15	18	31	-	49				41.01	45.18	13.81		2.82	SM								
1.95	3.00	Moderately Weathered, White-Brown, Shale.		CORE	1-4						45	27	W_3							2.69	2.58	2.62	1.59	4.1	-	29.56	-	-
3.00	4.50	Fresh, White-Brown, Shale.		CORE	5-12						95	93	W_1							-	-	-	-	-	1671.23	-	34733	0.02
4.50	6.00			CORE	13-19						100	93	W_1															
6.00	7.50			CORE	20-27						100	98	W_1															
7.50	9.00	Slightly Weathered, White-Brown, Shale.		CORE	28-41						73	45	W_2															
9.00	10.50			CORE	42-47						100	100	W_2															
10.50	12.00			CORE	48-56						73	61	W_2															
12.00	13.50	Fresh, White-Brown, Shale.		CORE	57-67						97	74	W_1															
13.50	15.00			CORE	68-77						97	84	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 09

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1220, W-880** | **GROUND LEVEL (m) : 282.463**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 03.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 04.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.55	Filling with Clayey Silty Sand.																										
0.55	1.50	Slightly Weathered, Brownish, Sandstone.		CORE	1-4						80	80	W_2															
1.50	3.00	Completely Weathered, Brownish, Sandstone.		CORE	5-12						43	20	W_5							2.79	2.77	2.78	0.28	0.76	627.3	-	-	-
3.00	4.50	Fresh, Brownish, Argillaceous Shale.		CORE	13-21						92	79	W_1							2.77	2.73	2.75	0.42	1.15	576.71	-	-	-
4.50	6.00			CORE	22-27						91	91	W_1															
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	28-42						99	70	W_2															-
7.50	9.00			CORE	43-54						99	67	W_2															-
9.00	10.50			CORE	55-67						97	70	W_2															
10.50	12.00	Fresh, Brownish, Argillaceous Shale.		CORE	68-78						99	84	W_1															
12.00	13.50			CORE	79-92						93	72	W_1															
13.50	15.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	93-101						95	63	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 10

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1120354** | **GROUND LEVEL (m) : 282.409**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.00 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.20 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 05.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 06.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS				SPECIFIC GRAVITY	IS CLASSIFICATION									
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %			SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.75	Filling with Clayey Silty Sand.																										
0.75	1.50				1-5						15	Nil	W_2															
1.50	1.95	Hard, Brownish, Inorganic Clay of low to Medium Plasticity.		SPT	1	10	14	19	-	33				19.07	10.76	55.81	14.36	2.4	CL									
1.95	3.00	Completely Weathered, Brownish, Argillaceous Shale.		CORE	6-24						85	Nil	W_5							2.68	2.58	2.62	1.46	3.77	-	2.91	-	
3.00	4.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	25-55						97	27	W_5							2.74	2.68	2.7	0.89	2.38	200.54	-	-	-
4.50	6.00	Completely Weathered, Brownish, Argillaceous Shale.		CORE	56-87						99	Nil	W_5															
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	88-110						100	32	W_2															
7.50	9.00			CORE	111-135						95	22	W_2															
9.00	10.00			CORE	136-146						100	72	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SANDSTONE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya Kadam** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 11

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1040, W-960** | **GROUND LEVEL (m) : 282.167**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.40** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 12.00 | **GROUND W.L BGL (m) : 1.00** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 11.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 13.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.60	Filling with Brownish Soil, Clay & Boulder.																										
0.60	1.50	Completely Weathered, Brown-White, Shale.		CORE	1-12						70	Nil								-	-	-	-	-	-	1.08	-	-
1.50	3.00	Moderately Weathered, Brown-White, Shale.		CORE	13-38						81	11	W_3							2.65	2.58	2.61	0.93	2.4	-	10.09	-	-
3.00	4.50	Slightly Weathered, Brown-White, Shale.		CORE	39-72						93	22	W_1							2.75	2.72	2.73	0.44	1.19	492.65	-	-	-
4.50	6.00			CORE	73-98						95	43	W_1															
6.00	7.50			CORE	99-116						99	57	W_1															
7.50	9.00			CORE	117-135						82	26	W_2															
9.00	10.50			CORE	136-149						96	60	W_2															
10.50	12.00	Fresh, Brown-White, Shale.		CORE	68-77						92	75	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 12

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1050, W-1170** | **GROUND LEVEL (m) : 282.177**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.50** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 14.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 15.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK							
						NO. OF BLOWS								GRAIN SIZE ANALYSIS													
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Brownish Soil, Clay & Boulder.																										
0.50	1.50	Completely Weathered, Brownish, Disintegrated Shale.		CORE	1-3						42	Nil	W_5															
1.50	3.00	Completely Weathered, Brown-White, Shale.		CORE	4-25						48	Nil	W_5							2.58	2.54	2.65	4.25	10.78	-	0.72	-	-
3.00	4.50			CORE	26-53						73	Nil	W_5							2.5	2.3	2.38	3.5	8.03	-	2.88	-	-
4.50	6.00			CORE	54-81						66	Nil	W_5							-	-	-	-	-	-	8.36	-	-
6.00	7.50			CORE	82-100						76	Nil	W_5							-	-	-	-	-	-	4.73	-	-
7.50	9.00	Moderately Weathered, Brown-White, Shale.		CORE	101-127						91	31	W_3															
9.00	10.50			CORE	128-142						75	18	W_3															
10.50	12.00	Slightly Weathered, Brown-White, Shale.		CORE	143-161						94	63	W_2															
12.00	13.50			CORE	162-175						92	65	W_2															
13.50	15.00	Fresh, Brown-White, Shale.		CORE	176-186						99	85	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 13

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -940[illegible]1775** | **GROUND LEVEL (m) : 282.071**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 12.00 | **GROUND W.L BGL (m) : 1.20** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 10.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 10.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK									
						NO. OF BLOWS								GRAIN SIZE ANALYSIS															
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	1.60	Completely Weathered, Brown-White, Shale.		CORE	1-5						22	7	W_5							Disintegrated Sample								
1.60	3.00	Completely Weathered, Brown-White, Shale.		CORE	6-26						78	Nil	W_5							Disintegrated Sample								
3.00	4.50	Moderately Weathered, Brown-White, Shale.		CORE	27-49						99	40	W_3							Sample Cracked During Cutting.								
4.50	6.00			CORE	50-65						95	45	W_3															
6.00	7.50	Slightly Weathered, Brown-White, Shale.		CORE	66-70						89	63	W_2															
7.50	9.00			CORE	71-91						100	45	W_2															
9.00	10.50			CORE	92-111						100	81	W_2															
10.50	12.00	Completely Weathered, Brown-White, Shale.		CORE	112-130						86	20	W_5															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 14

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -947, W-974** | **GROUND LEVEL (m) : 281.903**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 12.00 | **GROUND W.L BGL (m) : 1.20 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 08.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 08.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS				SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %											
0.00	0.50	Filling with Silty Soil and Boulder.																										
0.50	0.75																											
0.75	1.10	Very Stiff, Clay with Medium Plasticity.		UDS	1									9.18	14.37	63.49	12.96	2.59	Cl									
1.10	1.50	Very Stiff, Brownish, Clayey Gravels.																										
1.50	2.30			SPT	1	6	9	11	-	20				47.83	28.09	19.89	4.19	2.35	GC									
2.30	3.00	Moderately Weathered, Brown-White, Shale.		CORE	1-10						75	22	W_3															
3.00	4.50			CORE	11-45						84	9	W_3							Sample Cracked during Hardness Test								
4.50	6.00			CORE	46-66						90	17	W_3							-	2.66	Sample Cracked in Water.						
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	67-83						95	52	W_2															
7.50	9.00			CORE	84-101						94	50	W_2															
9.00	10.50	Moderately Weathered, Brown-White, Shale.		CORE	102-117						89	35	W_3															
10.50	12.00	Highly Weathered,Brown-White, Shale.		CORE	118-131						61	6	W_4															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya Kadam** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 15

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1020847** | **GROUND LEVEL (m) : 282.420**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 2.00 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.65** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 07.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 10.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS				SPECIFIC GRAVITY	IS CLASSIFICATION									
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %			SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Medium Dense, Brownish, Silty Gravels.		DS																								
0.50	1.50																											
1.50	2.00			SPT	1	3	5	8	-	13				75.93	9.8	14.27		2.58	GM									
2.00	3.00	Completely Weathered, Brownish, Argillaceous Shale.		CORE	1-16						75	Nil	W_5							2.46	2.21	2.31	4.46	9.87	-	2.5	-	-
3.00	4.50			CORE	17-45						86	7	W_5							-	-	-	-	-	-	3.27	-	-
4.50	6.00			CORE	46-75						68	Nil	W_5							-	-	-	-	-	-	9.6	-	-
6.00	7.50			CORE	76-98						72	Nil	W_5															
7.50	9.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	99-119						75	19	W_3															
9.00	10.50			CORE	120-139						78	30	W_3															
10.50	12.00			CORE	140-148						59	19	W_3															
12.00	13.50	Completely Weathered, Brown-White, Shale.		CORE	149-160						57	Nil	W_5															
13.50	12.00	Moderately Weathered, Brown-White, Shale.		CORE	161-169						60	15	W_3															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 16

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -936, W-824** | **GROUND LEVEL (m) : 282.103**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 3.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 2.00** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 11.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 12.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK									
						NO. OF BLOWS								GRAIN SIZE ANALYSIS															
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Brownish Sandy Soil With Clay.		DS																								
0.50	0.75	Stiff, Brownish, Clay With High Plasticity.																										
0.75	1.05			UDS	1									18.2	42.16	29.91	9.73	2.44	CH									
1.05	1.50	Stiff, Brownish, Clay With Medium Plasticity.																										
1.50	1.95			SPT		2	3	5	-	8				17.54	49.84	26.47	6.15	2.38	CI									
1.95	3.00	Stiff, Brownish, Clay With Low Plasticity.		SP																								
3.00	3.45			SPT		6	13	12	-	25				21.29	19.14	54.35	5.22	2.44	CL									
3.45	4.55	Completely Weathered, Brownish, Argillaceous Shale.		SP							88	Nil	W_5															
4.55	6.00	Highly Weathered, Brownish, Argillaceous Shale.		CORE	1-11						95	8	W_4							Disintegrated Sample.								
6.00	7.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	12-29						87	40	W_4							-	-	-	-	-	-	21.33	-	-
7.50	9.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	30-47						97	43	W_4							-	-	-	-	-	-	36.62	-	-
9.00	10.50	Moderately Weathered, Brown-White, Shale.		CORE	48-64						90	7	W_3							-	-	-	-	-	254.86	-	-	-
10.50	12.00	Slightly Weathered, Brown-White, Shale.		CORE	65-80						98	53	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 17

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N-790 W-863** | **GROUND LEVEL (m) : 282.638**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 2.60** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 3.00 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 14.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 14.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS				SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT PLI	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %											
0.00	0.75	Filling with Silty soil.																										
0.75	1.05	Yellowish Silty Sand With Clay.		UDS	1									2.84	8.25	74.1	14.81	2.5	CH									
1.05	1.50																											
1.50	1.95			SPT	1	3	4	5	-	9				8.3	44.87	38.26	8.57	2.46	CH									
1.50	2.25																											
2.25	2.55			UDS	2									8.3	44.87	38.26	8.57	2.46	CH									
2.55	3.00																											
3.00	3.45			SPT	2	6	8	7	-	15				30.4	58.35	11.25		2.59	SW--SM									
3.45	4.50	Completely Weathered, Brownish, Argillaceous Shale.		CORE	1-4						31	Nil	W_5							-	2.45	Sample Cracked In Water.						
4.50	6.00	Completely Weathered, Brownish, Argillaceous Shale.		CORE	5-37						90	Nil	W_5							2.7	2.43	2.53	4.03	9.8	-	2.52	-	-
6.00	7.50			CORE	38-62						77	Nil	W_5							-	-	-	-	-	-	4.34	-	-
7.50	9.00			CORE	63-83						75	Nil	W_5							-	-	-	-	-	-	4.99	-	-
9.00	10.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	84-97						91	68	W_2															
10.50	12.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	98-106						70	7	W_3															
12.00	13.50	Moderately Weathered, Brown-White, Shale.		CORE	107-114						73	16	W_3															
13.50	15.00	Completely Weathered, Brown-White, Shale.		CORE	115-132						71	Nil	W_5															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 18

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N-792, W-506** | **GROUND LEVEL (m) : 282.117**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 6.90** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 6.20 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 06.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 10.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS				SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT PLI	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %											
0.00	0.50	Filling with soil & Boulder.																									
0.50	0.75	Very Stiff, Yellowish, Clay with Medium Plasticity.																									
0.75	1.05			UDS	1									4.6	9.9	76	9.5	2.3	Cl								
1.05	1.50																										
1.50	1.95			SPT	1	6	6	7	-	13				6	19	65	10	2.4	Cl								
1.95	2.25																										
1.05	2.55			UDS	2									4.6	13	73	9.5	2.3	Cl								
2.55	3.00																										
3.00	3.45			SPT	2	8	10	12	-	22				7.7	23	63	6.4	2.4	Cl								
3.45	4.50																										
4.50	4.95			SPT	3	9	11	15	-	26				0.8	31	59	8.6	2.5	Cl								
4.95	5.50																										
5.50	5.80			UDS	3									19	19	59	2.5	2.5	Cl								
5.80	6.10			SP																							
6.10	7.50	Completely Weathered, Yellow-White, Disintegrated Shale.		SP							20	Nil	W_5														
7.50	9.00			SP							26	Nil	W_5														
9.00	10.50			SP							27	Nil	W_5														
10.50	12.00			SP							36	Nil	W_5														
12.00	13.50			SP							53	Nil	W_5														
13.50	15.00			SP							65	Nil	W_5														

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 19

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N-879 W-450** | **GROUND LEVEL (m) : 281.869**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 6.30** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 6.00 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 07.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 08.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT PLI	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.75	Filling with soil & Boulder.																										
0.75	1.05			UDS	1									17.9	25.2	49.2	7.76	2.65	Cl									
1.05	1.50																											
1.50	1.95	Medium Stiff, Brownish, Clay With Medium Plasticity.		SPT	1	2	3	4	-	7				0.56	15.2	69	15.3	2.23	Cl									
1.95	2.25																											
2.25	2.55	Stiff, Brownish, Clay With Medium Plasticity.		UDS	2									2.81	10.4	65.9	21	2.37	Cl									
2.55	3.00																											
3.00	3.45			SPT	2	12	6	7	-	13				7.56	23	57.5	11.9	2.35	Cl									
3.45	4.50																											
4.50	4.95	Very Stiff, Brownish, Clay With Medium Plasticity.		SPT	3	10	10	11	-	21				46.6	13.3	32.1	8.08	17.4	Cl									
4.95	5.50																											
5.50	5.80			UDS	3									7.14	11.2	73.6	8.07	2.4	Cl									
5.80	6.10																											
6.10	7.50	Highly Weathered, Brownish,Argillaceous Shale.		CORE	1-16						99	Nil	W_5							-	-	-	-	-	-	2.88	-	-
7.50	9.00	Highly Weathered, Brown-White, Shale.		CORE	17-28						76	7	W_5							2.05	2.12	3.35	6.88	2.2	-	16.72	-	-
9.00	10.00			CORE	29-37						93	12	W_5							Sample Cracked During Cutting.								

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 20

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -987, W-527** | **GROUND LEVEL (m) : 282.290**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 06.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 06.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Silty Soil and Boulder.																										
0.50	1.40	Completely Weathered, Brownish, Disintegrated Argillaceous Shale.		CORE	1-15						58	12	W_5															
1.40	3.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	16-43						94	23	W_3							2.82	2.66	2.72	2.06	5.5	-	1.45	-	-
3.00	4.50			CORE	44-55						90	52	W_3							2.77	2.67	2.71	1.29	3.45	294.16	-	-	-
4.50	6.00	Fresh, Brownish, Argillaceous Shale.		CORE	56-64						100	77	W_1															
6.00	7.50			CORE	65-73						96	87	W_1															
7.50	9.00	Highly Weathered, Brown-White, Shale.		CORE	74-87						93	7	W_4															
9.00	10.00			CORE	88-102						73	11	W_4															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SANDSTONE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya Kadam** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 21

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1300, W-735** | **GROUND LEVEL (m) : 282.733**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 2.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 2.10 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 30.03.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 01.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Clayey Silty Sand.																										
0.50	1.50																											
1.50	1.95	Hard, Brownish, Clay with medium Plasticity.		SPT	1	10	13	18	-	31				16.17	7.5	58.27	18.06	2.64	Cl									
1.95	3.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	1-6						89	58	W_2							2.81	2.76	2.78	0.56	1.56	1033.8	-	-	-
3.00	4.50	Highly Weathered, Brownish, Argillaceous Shale.		CORE	7-10						31	15	W_4							2.72	2.69	2.7	0.44	1.19	-	63.63	-	-
4.50	4.95	Dense,Brownish, Silty Gravels.		SPT	2	12	18	22	-	40				56.76	18.78	23.42	1.04	2.63	GM									
4.95	6.00	Highly Weathered, Brownish, Argillaceous Shale.		CORE	11-15						78	12	W_5															
6.00	7.50			CORE	16-18						49	13	W_5															
7.50	9.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	19-23						70	67	W_3															
9.00	10.50	Slightly Weathered, Brownish,Argillaceous Shale.		CORE	24-31						85	72	W_2															
10.50	12.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	32-37						73	17	W_3															
12.00	13.50			CORE	38-43						72	57	W_3															
13.50	15.00	Fresh, Brownish, Argillaceous Shale.		CORE	44-52						90	84	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 22

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1240, W-610** | **GROUND LEVEL (m) : 282.946**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 30.03.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 01.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.60	Filling with Silty Sand & Boulder.																										
0.60	1.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	1-10						84	19	W_3															
1.50	3.00	Slightly Weathered, Brownish,Argillaceous Shale.		CORE	11-23						83	53	W_2							2.78	2.71	2.74	0.92	2.51	223.19	-	-	-
3.00	4.50			CORE	24-35						93	75	W_2							2.76	2.68	2.71	1.14	3.04	-	4.31	-	-
4.50	6.00			CORE	36-47						98	71	W_2															
6.00	7.50			CORE	48-60						96	67	W_2															-
7.50	9.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	61-82						97	47	W_3															-
9.00	10.50			CORE	83-100						94	44	W_3															
10.50	12.00			CORE	101-117						100	48	W_3															
12.00	13.50			CORE	118-136						99	41	W_3															
13.50	15.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	137-151						100	71	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 23

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1226, W-680** | **GROUND LEVEL (m) : 282.343**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 20.00 | **GROUND W.L BGL (m) : 1.20** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 17.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 18.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.70	Filling with Silty Soil and Boulder.																										
0.70	1.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	1-4						85	50	W_2							2.76	2.73	2.74	0.46	1.26	655.87	-	11935	0.01
1.50	3.00	Fresh, Brownish, Argillaceous Shale.		CORE	5-12						98	88	W_1							2.73	2.71	2.71	0.3	0.81	654.84	-	-	-
3.00	4.50			CORE	13-22						93	78	W_1							-	-	-	-	-	432.68	-	-	-
4.50	6.00			CORE	23-34						100	92	W_1															
6.00	7.50			CORE	35-49						99	81	W_1															
7.50	9.00			CORE	50-62						95	78	W_1															
9.00	10.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	63-83						88	31	W_2															
10.50	12.00			CORE	84-103						90	29	W_2															
12.00	13.50			CORE	104-121						93	40	W_2															
13.50	15.00			CORE	122-133						81	59	W_2															
15.00	16.50	Fresh, Brownish, Argillaceous Shale.		CORE	122-133						93	69	W_1															
16.50	18.00			CORE	122-133						97	82	W_1															
18.00	19.50			CORE	122-133						99	70	W_1															
19.50	20.00			CORE	122-133						85	78	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya Kadam** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 24

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1075, W-718** | **GROUND LEVEL (m) : 282.750**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 2.10 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 17.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 17.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS				SPECIFIC GRAVITY	IS CLASSIFICATION									
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %			SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	1.50	Filling with Silty Sand & Boulder.																										
1.50	1.95	Very Stiff, Brownish, Clay With Medium Plasticity.		SPT	1	7	11	15	-	26				12.35	32.96	46.72	7.97	2.39	Cl									
1.95	2.80	Completely Weathered, Brownish, Disintegrated Shale.		CORE	1-6						75	Nil	W_5															
2.80	4.50	Completely Weathered, Brownish, Argillaceous Shale.		CORE	7-31						93	Nil	W_5							2.54	2.08	2.26	8.65	18	-	1.45	-	-
4.50	6.00			CORE	32-59						91	9	W_5							2.37	2.12	2.23	5.02	10.64	-	2.3	-	-
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	60-80						98	34	W_2							-	-	-	-	-	-	2.52	-	-
7.50	9.00			CORE	81-92						87	61	W_2															
9.00	10.50			CORE	93-104						93	73	W_2															
10.50	12.00	Mooderately Weathered, Brownish, Argillaceous Shale.		CORE	105-118						82	17	W_3															
12.00	13.50	Completely Weathered, Brownish, Argillaceous Shale.		CORE	119-128						79	Nil	W_5															
13.50	15.00	Completely Weathered, Brown-White, Shale.		CORE	129-152						70	Nil	W_5															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 25

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1080, W-633** | **GROUND LEVEL (m) : 282.045**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 28.03.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 29.03.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.45	Filling with Silty Sand & Boulder.																										
0.45	1.50	Highly Weathered, Brownish, Argillaceous Shale.		CORE	1-16						71	Nil	W_4															
1.50	3.00			CORE	17-34						83	31	W_4							Cracked Sample.								
3.00	4.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	35-47						92	70	W_2							2.81	2.74	2.76	0.92	2.53	-	7.21	-	-
4.50	6.00			CORE	48-63						100	65	W_2															
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	64-74						93	68	W_3															
7.50	9.00			CORE	75-86						94	49	W_3															
9.00	10.50	Fresh, Brownish, Argillaceous Shale.		CORE	87-94						95	87	W_3															
10.50	12.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	95-103						88	68	W_3															
12.00	13.50	Fresh, Brownish, Argillaceous Shale.		CORE	104-110						100	97	W_3															
13.50	15.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	111-128						87	21	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 26

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1093, W-460** | **GROUND LEVEL (m) : 282.209**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 12.00 | **GROUND W.L BGL (m) : 1.30 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 07.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 07.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	1.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	1-23						92	30	W_2															
1.50	3.00			CORE	24-42						97	69	W_2							2.74	2.68	2.7	0.85	2.27	-	1.09	-	-
3.00	4.50	Fresh, Brownish, Argillaceous Shale.		CORE	43-54						91	83	W_1							2.77	2.65	2.69	1.63	4.3	-	6.49	-	-
4.50	6.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	55-73						91	23	W_3															
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	74-91						87	57	W_2															
7.50	9.00			CORE	92-105						95	82	W_2															
9.00	10.50			CORE	106-117						96	66	W_2															
10.50	12.00			CORE	118-135						87	51	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya Kadam** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 27

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -870, W-670** | **GROUND LEVEL (m) : 282.402**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 20.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 21.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 21.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.12	Filling with Soil and Concrete.																										
0.12	1.55	Completely Weathered, Brownish, Disintegrated Argillaceous Shale.		CORE	1-10						71	Nil	W_5							-	-	-	-	-	-	12.29	-	-
1.55	3.00			CORE	11-33						85	Nil	W_5							Sample Cracked In Water.								
3.00	4.50			CORE	34-58						83	Nil	W_5							2.44	2.23	2.32	3.79	8.47	-	1.81	-	-
4.50	6.00	Completely Weathered, Brownish, Argillaceous Shale.		CORE	59-79						71	Nil	W_5							-	-	-	-	-	-	5.41	-	-
6.00	7.50			CORE	80-97						67	Nil	W_5															
7.50	9.00			CORE	98-106						56	Nil	W_5															
9.00	10.50			CORE	107-115						66	Nil	W_5															
10.50	12.00	Moderately Weathered, Brown-White, Shale.		CORE	116-126						77	41	W_3															
12.00	13.50			CORE	127-133						65	24	W_3															
13.50	15.00			CORE	134-144						67	33	W_3															
15.00	16.50	Slightly Weathered, Brown-White, Shale.		CORE	145-158						80	41	W_2															
16.50	18.00			CORE	159-166						79	50	W_2															
18.00	19.50	Fresh, Brown-White, Shale.		CORE	167-181						93	53	W_1															
19.50	20.00			CORE	182-185						96	78	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya Kadam** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 28

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -90734W** | **GROUND LEVEL (m) : 282.304**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.20** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 11.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 12.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Brownish Silty Soil With Boulder & Concrete.		DS	1																							
0.50	1.60	Completely,Weathered, Disintegrated, Brownish, Argillaceous Shale		SP							45	NIL	W_5															
1.60	3.00	Completely,Weathered,Brownish, Argillaceous Shale		CORE	1-23						61	NIL	W_5							Sample Cracked In Water.								
3.00	4.50			CORE	24-43						67	NIL	W_5							-	-	-	-	-	-	5.33	-	-
4.50	6.00			CORE	44-51						50	NIL	W_5							-	-	-	-	-	-	9.27	-	-
6.00	7.50			CORE	52-57						50	NIL	W_5															-
7.50	9.00	Highly Weathered, Brown-White, Shale.		CORE	58-64						51	23	W_4															-
9.00	10.50			CORE	65-72						64	7	W_4															
10.50	12.00			CORE	73-77						49	NIL	W_4															
12.00	13.50			CORE	78-88						55	NIL	W_4															
13.50	15.00	Moderately Weathered, Brown-White, Shale		CORE	89-108						81	22	W_3															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 29

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -860, W-833** | **GROUND LEVEL (m) : 282.206**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.20** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 12.00 | **GROUND W.L BGL (m) : 1.00** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 12.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 12.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.70	Brownish Sandish Soil With Bolder																										
0.70	1.50	Completely Weathered, Brownish, Disintegrated Argillaceous Shale.		CORE	1-2						34	NIL	W_5							-	-	-	-	-	-	6.89	-	-
1.50	3.00			CORE	3-27						71	NIL	W_5							2.77	2.55	2.63	3.12	7.95	-	2.53	-	-
3.00	4.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	28-45						90	32	W_3							Sample Cracked During Cutting.								
4.50	6.00	Highly Weathered, Brownish, Argillaceous Shale.		CORE	46-69						83	9	W_4															
6.00	7.50			CORE	70-82						64	NIL	W_4															-
7.50	9.00	Moderately Weathered, Brown-White, Shale.		CORE	83-94						82	53	W_3															-
9.00	10.50			CORE	95-103						65	22	W_3															
10.50	12.00	Completely Weathered, Brown-White, Shale.		CORE	104-115						78	7	W_5															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 30

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -792, W-694** | **GROUND LEVEL (m) : 282.011**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 3.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 2.50** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 19.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 19.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.75	Filling, Brownish Silty Soil With Boulder.		DS	1																							
0.75	1.05	Brownish, Clayey Gravels.												46.52	26.17	21.85	5.46	2.5	GC									
1.05	1.50																											
1.50	1.95	Medium Stiff, Brownish, Clay With Medium Plasticity.		SPT	1	2	2	3	-	5				5.12	31.63	54.14	9.11	2.37	CI									
1.95	3.00																											
3.00	4.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	1-18						79	10	W_3							2.48	2.13	2.27	6.53	13.93	-	1.43	-	-
4.50	6.00	Completely Weathered, Brownish, Argillaceous Shale.		CORE	19-51						96	NIL	W_5							-	-	-	-	-	-	9.95	-	-
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale		CORE	52-65						85	46	W_2							-	-	-	-	-	-	6.13	-	-
7.50	9.00			CORE	66-75						75	59	W_2															
9.00	10.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	76-85						73	9	W_3															
10.50	12.00			CORE	86-92						80	9	W_3															
12.00	13.50			CORE	93-99						53	37	W_3															
13.50	15.00			CORE	100-113						79	9	W_3															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 31

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -550, W-1** | **GROUND LEVEL (m) : 282.090**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 0.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 0.00 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 07.04.23 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 10.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling Brownish Sandi Soil With Bolder.																										
0.50	1.50	Completely Weathered, Brown-White, Disintegrated Shale.		CORE	SP						35	Nil	W_5															
1.50	3.00			CORE	1-3						13	Nil	W_5							2.66	2.58	2.61	1.21	3.13	-	22.23	-	-
3.00	4.50	Completely Weathered, Brown-White, Shale.		CORE	4-5						21	Nil	W_5							2.56	2.51	2.53	0.81	2.03	-	31.29	-	-
4.50	6.00			CORE	6-10						20	Nil	W_5							-	-	-	-	-	-	37.59		
6.00	7.50			CORE	11-14						14	Nil	W_5															-
7.50	9.00			CORE	15						21	Nil	W_5															-
9.00	10.50			CORE	SP						13	Nil	W_5															
10.50	12.00			CORE	16-19						31	Nil	W_5															
12.00	13.50	Highly Weathered, Brown-White, Shale		CORE	20-22						26	17	W_4															
13.50	15.00	Completely Weathered, Brown-White, Shale.		CORE	23-27						32	Nil	W_5															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 32

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1330, W-413** | **GROUND LEVEL (m) : 287.381**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.20** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 20.04.23 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 20.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Blackish Soil With Clay Bolder.			DS																							
0.50	1.50	Slightly Weathered, Brown-White, Shale.		CORE	1-5						75	57	W_2							2.8	2.78	2.79	0.27	0.76	-	39.44	-	-
1.50	3.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	6-12						53	43	W_3							-	-	-	-	-	775.14	-	-	-
3.00	4.50			CORE	13-21						58	39	W_3							-	-	-	-	-	-	67.46	-	-
4.50	6.00	Fresh, Brownish, Argillaceous Shale.		CORE	22-27						97	91	W_1							-	-	-	-	-	-	66.88	-	-
6.00	7.50	Moderately Weathered, Brownish, Argillaceous Shale		CORE	28-39						92	69	W_3															
7.50	9.00	Fresh, Brownish,Argillaceous Shale.		CORE	40-51						100	88	W_1															
9.00	10.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	52-67						91	41	W_2															
10.50	12.00			CORE	68-83						87	29	W_2															
12.00	13.50			CORE	84-102						87	34	W_2															
13.50	15.00			CORE	103-115						90	43	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 33

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1340, W-760** | **GROUND LEVEL (m) : 282.710**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 3.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 3.00 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 19.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 19.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	1.50	Filling, Brownish Silty Soil WithBoulder.		DS	1																							
1.50	1.95	Hard,Yellowish,Clay with Medium Plasticity.		SPT	1	7	11	14	-	25				9.09	29.23	56.07	5.61	2.79	-									
1.95	2.25																											
2.25	2.70			SPT	2	6	19	31	-	50				27.55	12.45	46.87	13.13	2.44	CI									
2.70	3.55																											
3.55	4.50	Slightly Weathered, Brown-White, Shale.		CORE	1-9						74	53	W_4							2.78	2.76	2.77	0.29	0.8	1106.47	-	79445	0.04
4.50	6.00	Fresh, Brown-White, Shale.		CORE	10-14						97	97	W_4							-	-	-	-	-	1045.77	-	-	-
6.00	7.50			CORE	15-21						93	87	W_3							-	-	-	-	-	-	40.37	-	-
7.50	9.00			CORE	22-28						90	90	W_3															
9.00	10.00			CORE	29-32						90	90	W_3															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 34

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1210, W-787** | **GROUND LEVEL (m) : 282.156**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : N.A** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.10 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 15.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 15.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	1.50	Moderately Weathered, Brown-White, Shale		CORE	1-5						60	28	W_3							2.79	2.78	2.78	0.21	0.57	749.79	-	-	-
1.50	3.00			CORE	6-15						99	87	W_1							2.75	2.72	2.73	0.43	1.16	961.57		102805	0.05
3.00	4.50	Fresh, Brown-White, Shale.		CORE	16-28						99	81	W_1							-	-	-	-	-	9.83	-	-	-
4.50	6.00			CORE	29-42						96	75	W_1															
6.00	7.50	Moderately Weathered, Brown-White, Shale		CORE	43-60						95	35	W_3															
7.50	9.00			CORE	61-73						96	75	W_1															-
9.00	10.00	Fresh, Brown-White, Shale.		CORE	74-82						98	82	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 35

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1261, W-932** | **GROUND LEVEL (m) : 283.260**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.50** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 19.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 19.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling Concrete With Boulder.		DS	1																							
0.50	1.50	Moderately Weathered, Brownish-White, Shale		CORE	1-2						69	51	W_3							-	-	-	-	-	855.00	-	-	-
1.50	3.00	Fresh, Brown-White, Shale.		CORE	3-8						96	88	W_1							2.76	2.75	2.75	0.14	0.39	579.43	-	-	-
3.00	4.50			CORE	9-13						91	91	W_1							-	-	-	-	-	582.84	-	-	-
4.50	6.00			CORE	14-16						97	97	W_1															
6.00	7.50	Slightly Weathered, Brown-White, Shale.		CORE	19-22						90	84	W_2															-
7.50	9.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	23-31						86	70	W_2															-
9.00	10.00	Fresh, Brownish, Argillaceous Shale.		CORE	32-36						92	92	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 36

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1177, W-987** | **GROUND LEVEL (m) : 282.860**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 2.20** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 17.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 18.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Brownish Silty Soil With Filling Bolder			DS1																							
0.50	1.50	Moderately Weathered, Brown-White, Shale		CORE	1-5						77	19	W_3							-	-	-	-	-	1775.54	-	-	-
1.50	3.00	Slightly Weathered, Brown-White, Shale.		CORE	6-15						76	51	W_2							2.68	2.67	2.68	0.15	0.39	1422.62	-	-	-
3.00	4.50			CORE	16-23						88	74	W_2							-	-	-	-	-	393.53	-	-	-
4.50	6.00	Fresh, Brown-White, Shale.		CORE	24-36						99	77	W_1															
6.00	7.50			CORE	37-48						97	81	W_1															-
7.50	9.00	Slightly Weathered, Brown-White, Shale.		CORE	49-63						93	49	W_2															-
9.00	10.00	Fresh, Brown-White, Shale.		CORE	64-72						98	79	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 37

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1001, W-1070** | **GROUND LEVEL (m) : 282.299**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.10** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.50** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 10.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 10.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling Brownish Silty Soil With Clay Boulder.		DS	1																							
0.50	1.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	1-12						85	14	W_3							2.73	2.66	2.69	0.93	2.48	-	2.86	-	-
1.50	3.00	Highly Weathered, Brownish, Argillaceous Shale.		CORE	13-43						90	NIL	W_4							-	-	-	-	-	-	20.07	-	-
3.00	4.50			CORE	44-72						90	7.3	W_4							-	-	-	-	-	-	3.98	-	-
4.50	6.00			CORE	73-100						93	NIL	W_4															
6.00	7.50	Moderately Weathered, Brownish, Argillaceous Shale		CORE	101-130						87	15	W_3															
7.50	9.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	131-161						91	NIL	W_3															
9.00	10.00			CORE	162-172						90	35	W_3															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 38

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -681, W-968** | **GROUND LEVEL (m) : 282.049**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 4.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.50** | **DRILLING ORIENTATION: VERTICAL**

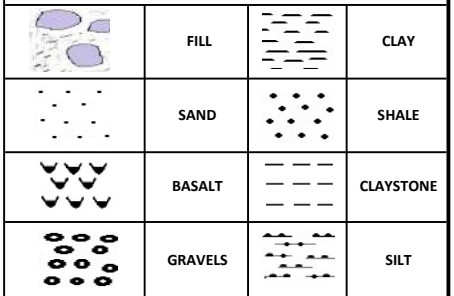
STARTED: 13.04.23 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 13.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK									
						NO. OF BLOWS								GRAIN SIZE ANALYSIS															
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling, Brownish Silty Soil With Clay.		DS																								
0.50	0.75																											
0.75	1.05			UDS	1									5.79	11.28	67.57	15.36	2.39	CH									
1.05	1.50																											
1.50	1.95			SPT	1	2	3	4	-	7				2.89	26.54	57.17	13.4	2.3	CH									
1.95	2.25																											
2.25	2.55	Medium Stiff, Brownish, Clay With High Plasticity.		UDS	2									22.76	13.55	47.28	16.41	2.45	CH									
2.55	3.00																											
3.00	3.45			SPT	2	3	12	46	-	58				19.08	21.9	50.67	8.35	2.37	CI									
3.45	4.50	Completely Weathered, Brown-White, Disintegrated Shale.		SP							48	NIL	W_5															
4.50	6.00	Moderately Weathered, Brown-White, Shale.		CORE	1-6						74	29	W_3							Sample Cracked During Cutting.									
6.00	7.50	Highly Weathered, Brown-White, Shale.		CORE	7-10						35	27	W_4							Sample Cracked During Cutting.									
7.50	9.00			CORE	11-12						41	NIL	W_4															
9.00	10.00			CORE	13-15						46	9	W_4															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY



Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 39

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -704, W-425** | **GROUND LEVEL (m) : 282.927**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 06.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 07.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Silty Sand and Boulders.		DS																								
0.50	1.50	Highly Weathered, Brown-White, Shale.		CORE	1-2						53	15	W_4															
1.50	3.00	Completely Weathered, Brown-White, Shale.		CORE	3-6						27	Nil	W_5							Testing Not Possible Due to Cracked Sample.								
3.00	4.50			CORE	7-9						26	Nil	W_5							2.36	2.31	2.33	0.93	2.15	-	18.8	-	-
4.50	6.00	Highly Weathered, Brown-White, Shale.		CORE	10-18						40	7	W_4															
6.00	7.50	Moderately Weathered, Brown-White, Shale.		CORE	19-32						69	17	W_3															
7.50	9.00	Fresh, Brown-White, Shale		CORE	33-41						91	75	W_1															
9.00	10.00			CORE	42-45						90	84	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 40

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -689, W-410** | **GROUND LEVEL (m) : 282.443**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 05.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 05.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK							
						NO. OF BLOWS								GRAIN SIZE ANALYSIS													
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Silty Soil and Boulder.																										
0.50	1.50	Completely Weathered, Brown-White, Shale.		CORE	1-2						65	Nil	W_5															
1.50	3.00	Slightly Weathered, Brown-White, Shale.		CORE	3-15						79	57	W_4							2.69	2.67	2.68	0.3	0.8	1097	-	-	-
3.00	4.50			CORE	16-25						87	73	W_4							-	2.75	Unsoak			620.09	-	-	-
4.50	6.00			CORE	26-36						90	67	W_2															
6.00	7.50	Fresh, Brown-White, Shale.		CORE	37-46						92	80	W_2															
7.50	9.00	Slightly Weathered, Brown-White, Shale		CORE	47-63						87	29	W_4															
9.00	10.00	Fresh, Brown-White, Shale.		CORE	64-66						95	89	W_4															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya Kadam** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 41

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -884, W-526** | **GROUND LEVEL (m) : 282.067**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 1.20 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 06.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 06.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Silty Soil and Boulder.																										
0.50	0.75																											
0.75	1.05	Very Stiff, Brownish, Clay with low Plasticity.												15.47	12.53	64.8	7.2	2.6	CL									
1.05	1.50	Completely Weathered, Brown-White, Shale.		CORE	1-4						65	Nil	W_5															
1.50	1.95	Very Stiff, Brownish, Clay with Medium Plasticity.		SPT	1	8	11	16	-	27				9.34	15.5	59.93	15.23	2.61	Cl									
1.95	2.30																											
2.30	3.00	Highly Weathered, Brown-White, Shale.		CORE	5-29						100	23	W_4							2.6	2.38	2.46	3.48	8.28	-	2.91	-	-
3.00	4.50			CORE	30-59						75	Nil	W_4							2.55	2.25	2.6	5.26	11.82	-	2.92	-	-
4.50	6.00	Slightly Weathered, Brown-White, Shale.		CORE	60-81						91	23	W_2							2.62	2.44	2.51	2.77	6.76	-	1.45	-	-
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	82-98						93	45	W_2															
7.50	9.00	Highly Weathered, Brown-White, Shale.		CORE	99-113						80	Nil	W_4															
9.00	10.00			CORE	114-125						61	Nil	W_4															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya Kadam** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 42

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -932, W-610** | **GROUND LEVEL (m) : 282.149**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.00 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 2.00 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 04.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 04.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	1.50	Completely Weathered, Brownish, Argillaceous Shale.		CORE	1-19						81	Nil	W_5														
1.50	3.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	20-39						90	39	W_2							2.72	2.64	2.67	1.14	3.01	-	0.72	-	-
3.00	4.50			CORE	40-56						95	54	W_2							2.78	2.65	2.7	1.77	4.7	799.83	-	-	-
4.50	6.00			CORE	57-74						92	36	W_2															
6.00	7.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	75-91						91	23	W_3															
7.50	9.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	92-108						97	46	W_2															
9.00	10.00			CORE	109-114						93	65	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya Kadam** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 43

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -986, W-621** | **GROUND LEVEL (m) : 283.501**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 05.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 05.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Silty Sand & Boulder.																										
0.50	1.50	Completely Weathered, Brownish, Disintegrated Argillaceous Shale		CORE	1-16						77	Nil	W_4															
1.50	3.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	17-39						92	44	W_2							2.65	2.56	2.59	1.33	3.4	-	0.72	-	-
3.00	4.50			CORE	40-62						91	37	W_2							2.8	2.68	2.72	1.61	4.3	-	1.81	-	-
4.50	6.00			CORE	63-74						96	81	W_2															
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	75-85						95	57	W_2															-
7.50	9.00			CORE	86-99						94	56	W_2															-
9.00	10.50	Fresh, Brownish, Argillaceous Shale.		CORE	100-103						93	73	W_1															
10.50	12.00			CORE	104-109						93	91	W_1															
12.00	13.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	110-128						94	39	W_2															
13.50	15.00	Slightly Weathered, Brown-White, Shale.		CORE	129-140						100	71	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 44

SOILTECH (INDIA) PRIVATE LIMITE
GROUND ENGINEERS & CONSULTAN

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -983, W-737** | **GROUND LEVEL (m) : 282.746**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 2.50** | **DRILLING METHOD: ROTARY DRILLIN**

TERMINATION DEPTH BGL (m) : 12.00 | **GROUND W.L BGL (m) : 2.00 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 20.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 20.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	1.50	Filling Brownish Soil With Boulder.		DS	1																							
1.50	2.00	Brownish Silt Soil With Clay.																										
2.00	2.55			SPT	1	15	30	45	-	75				52.79	22.1	22.37	2.74	2.49	GM									
2.55	3.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	1-8						89	18	W_3							2.8	2.75	2.76	0.68	1.88	-	36.2	-	-
3.00	4.50	Completely Weathered, Brownish, Argillaceous Shale.		CORE	9-31						66	NIL	W_5							2.29	2.23	2.26	1.28	2.85	-	12.09		
4.50	6.00			CORE	32-54						74	NIL	W_5							-	-	-	-	-	-	1.8		-
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	55-65						85	63	W_2							-	-	-	-	-	-	8.15		-
7.50	9.00	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	66-86						83	19	W_3															
9.00	10.50	Moderately Weathered, Brown-White, Shale.		CORE	87-96						75	14	W_3															
10.50	12.00	Slightly Weathered, Brown-White, Shale.		CORE	97-111						100	51	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

FILL | CLAY
SAND | SHALE
BASALT | LIMESTONE
GRAVELS | SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 45

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1160, W-709** | **GROUND LEVEL (m) : 282.138**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.50** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 24.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 24.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	1.50	Filling Brownish Silt Soil With Bolder		DS	1																							
1.50	3.00	Slightly Weathered, Brown-White, Shale.		CORE	1-18						93	61	W_2							Cracked During Cutting.								
3.00	4.50			CORE	19-31						95	72	W_2							2.71	2.6	2.64	1.6	4.15	-	7.57	-	-
4.50	6.00			CORE	32-43						90	58	W_2							-	-	-	-	-	698.27	-	-	-
6.00	7.50	Fresh, Brown-White, Shale.		CORE	44-55						95	85	W_1															
7.50	9.00			CORE	56-66						97	86	W_1															-
9.00	10.50			CORE	67-76						98	77	W_1															-
10.50	12.00			CORE	77-87						93	73	W_1															
12.00	13.50			CORE	88-101						93	50	W_1															
13.50	15.00	Slightly Weathered, Brown-White, Shale.		CORE	102-114						86	61	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 46

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1298, W-573** | **GROUND LEVEL (m) : 282.310**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 2.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 12.00 | **GROUND W.L BGL (m) : 1.60 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 04.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 05.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK							
						NO. OF BLOWS								GRAIN SIZE ANALYSIS													
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Silty Sand & Boulder.																										
0.50	1.50	Moderately Weathered, Brown-White, Shale.		CORE	1-4						75	50	W_3															
1.50	3.00	Slightly Weathered, Brown-White, Shale.		CORE	5-13						97	79	W_2							2.82	2.77	2.78	0.66	1.82	-	35.49	-	-
3.00	4.50			CORE	14-19						87	85	W_2							-	2.79	Unsoak			661.59	-	-	-
4.50	6.00	Moderately Weathered, Brown-White, Shale.		CORE	20-38						73	19	W_3															
6.00	7.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	39-49						75	60	W_2															-
7.50	9.00	Slightly Weathered, Brown-White, Shale.		CORE	50-61						89	26	W_2															-
9.00	10.50			CORE	62-72						88	51	W_2															
10.50	15.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	73-93						100	29	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 47

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1484, W-423** | **GROUND LEVEL (m) : 282.860**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 1.00** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.00** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 17.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 18.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS															
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Brownish Silty Soil With Filling Bolder		DS	1																								
0.50	1.50	Moderately Weathered, Brown-White, Shale		CORE	1-4						42	12	W_3							-	-	-	-	-	-	22.84		
1.50	3.00	Slightly Weathered, Brown-White, Shale.		CORE	5-8						69	67	W_2							-	-	-	-	-	-	19.13	-	-
3.00	4.50			CORE	9-14						95	90	W_2							2.66	2.61	2.63	0.66	1.73	-	45.63	-	-
4.50	6.00	Fresh, Brown-White, Shale.		CORE	15-26						96	81	W_1															
6.00	7.50			CORE	27-38						95	76	W_1															
7.50	9.00	Slightly Weathered, Brown-White, Shale.		CORE	39-47						89	63	W_2															
9.00	10.50			CORE	48-59						96	73	W_2															
10.50	12.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	60-79						100	51	W_2															
12.00	13.50			CORE	80-91						96	73	W_2															
13.50	15.00			CORE	92-104						97	73	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 48

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -516, W-1200** | **GROUND LEVEL (m) : 281.735**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 3.50** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 3.20** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 14.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 15.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling Brownish Sandish Soil With Clay.		DS	1																							
0.50	0.75	Brownish,Clay with High Plasticity.																										
0.75	1.05			UDS	1									17.98	24.22	43.02	14.8	2.44	CH							-	-	-
1.05	1.50	Completely Weathered, Brown-White, Disintegrated Pieces Of Shale.		SP							46	NIL	W_5													-	-	-
1.50	3.00			SP							13	NIL	W_5															
3.00	3.45	Brownish Silty Soil With Boulder.		SPT	1	18	19	22	-	41				24.94	42.7	27.88	4.48	2.51	-									-
3.45	4.50			SP																								-
4.50	4.95			SPT	2	15	18	25	-	43				75.29	11.69	13.02		2.52	GM									
4.95	6.00			SP																								
6.00	6.45			SPT	3	13	15	35	-	50				60.7	27.73	11.57			GW-GM									
6.45	7.50	Completely Weathered, Brown-White, Disintegrated Shale.		SP							14	NIL	W_5															
7.50	9.00			SP							10	NIL	W_5															
9.00	10.00			CORE	1-4						17	NIL	W_5							-	-	-	-	-	-	7.72	-	-

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 49

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1490, E -850** | **GROUND LEVEL (m) : 282**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 3.00** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 2.50 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 10.04.23 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 10.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling Brownish Silty Soil With Clay.		DS	1																							
0.50	1.50	Filling Brownish Sandish Soil With Bolder																										
1.50	3.00																											
3.00	4.50																											
4.50	6.00	Slightly Weathered, Brown-White, Shale.		CORE	1-10						86	70	W_2							2.84	2.82	2.83	0.31	0.89	-		23509	0.03
6.00	7.50	Fresh, Brown-White, Shale.		CORE	11-16						92	78	W_1							-	-	-	-	-	319.11	-	-	-
7.50	9.00	Highly Weathered, Brown-White, Shale		CORE	17-27						60	9	W_4															
9.00	10.00	Slightly Weathered, Brown-White, Shale.		CORE	28-35						93	76	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DBH - 50

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANT

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1430 E /-89** | **GROUND LEVEL (m) : 282**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 2.80** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 10.00 | **GROUND W.L BGL (m) : 2.00 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 24.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 25.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling Brownish Silty Soil With Clay.		DS	1																							
0.50	1.50	Filling Brownish Sandy & Silty Soil With Bolder																										
1.50	3.00																											
3.00	4.50																											
4.50	6.00	Moderately Weathered, Brown-White, Shale.		CORE	1-3						69	62	W_3							2.74	2.71	2.72	0.44	1.18	682.31	-	-	-
6.00	7.50	Fresh, Brown-White, Shale.		CORE	4-12						100	90	W_1							-	-	-	-	-	1589.72	-	98115	0.08
7.50	9.00	Fresh, Brownish, Argillaceous Shale		CORE	13-19						90	73	W_1							-	-	-	-	-	-	58.39		-
9.00	10.00			CORE	20-22						96	96	W_1															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DCHST- 01

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1238, W-642** | **GROUND LEVEL (m) : 282**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 0.80 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.10 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 30.03.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 31.03.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Brownish Soil, Clay & Boulder.																										
0.50	1.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	1-6						92	49	W_2							-	2.71	2.72	-	-	-	-	-	-
1.50	3.00			CORE	7-17						96	87	W_1															
3.00	4.50			CORE	18-28						97	80	W_1															
4.50	6.00			CORE	29-26						91	85	W_1															
6.00	7.50			CORE	27-43						91	81	W_1							-	2.55	2.57	-	-	-	-	-	-
7.50	9.00	Fresh, Brownish, Argillaceous Shale.		CORE	44-52						89	78	W_1															
9.00	10.50			CORE	53-65						100	76	W_1															
10.50	12.00			CORE	65-73						92	77	W_1															
12.00	13.50			CORE	74-81						94	81	W_1															
13.50	15.00			CORE	82-91						100	93	W_1							-	2.73	2.74	-	-	-	-	-	-

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DCHST- 1 A

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1238, W-642**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 0.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.10 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 31.03.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 01.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS															
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.70	Filling with Brownish Soil, Clay & Boulder.																										
0.70	1.50	Highly Weathered, Brownish, Argillaceous Shale.		CORE	1-10						71	NIL	W_4							-	2.39	2.45	-	-	-	-	-	-
1.50	3.00			CORE	11-24						93	50	W_2															
3.00	4.50			CORE	25-44						87	38	W_2															
4.50	6.00			CORE	45-59						94	67	W_2															
6.00	7.50			CORE	60-85						85	33	W_2							-	2.67	2.71	-	-	-	-	-	-
7.50	9.00	Slightly Weathered to Fresh, Brownish, Argillaceous Shale.		CORE	86-96						97	79	W_1															
9.00	10.50			CORE	97-111						95	61	W_2															
10.50	12.00			CORE	112-123						85	53	W_2															
12.00	13.50			CORE	124-137						92	67	W_2															
13.50	15.00			CORE	138-148						91	71	W_2							-	2.74	2.77	-	-	-	-	-	-

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DCHST- 1 B

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -1238, W-642**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 0.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.10 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 01.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 01.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS															
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Brownish Soil, Clay & Boulder.																										
0.50	1.50	Fresh, Brownish, Argillaceous Shale.		CORE	1-5						98	79	W_1							-	2.84	2.87	-	-	-	-	-	-
1.50	3.00			CORE	6-13						95	88	W_1															
3.00	4.50			CORE	14-22						95	83	W_1															
4.50	6.00			CORE	23-29						93	80	W_1															
6.00	7.50			CORE	30-38						95	84	W_1							-	2.66	2.68	-	-	-	-	-	-
7.50	9.00			CORE	39-50						93	79	W_1															
9.00	10.50			CORE	51-62						91	65	W_1															
10.50	12.00			CORE	63-75						90	63	W_1															
12.00	13.50			CORE	76-88						97	74	W_1															
13.50	15.00	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	89-102						73	28	W_2							-	2.7	2.73	-	-	-	-	-	-

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DCHST- 02

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -899, W-588**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 0.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.20 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 03.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 03.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.50	Filling with Brownish Soil, Clay & Boulder.																										
0.50	1.50	Slightly Weathered, Brownish, Argillaceous Shale.		CORE	1-16						94	21	W_2							-	2.63	2.67	-	-	-	-	-	-
1.50	3.00			CORE	17-38						87	36	W_2															
3.00	4.50			CORE	39-57						97	39	W_2															
4.50	6.00			CORE	58-77						95	46	W_2															
6.00	7.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	78-100						94	11	W_3							-	2.61	2.63	-	-	-	-	-	-
7.50	9.00			CORE	101-114						95	49	W_3															
9.00	10.50	Moderately Weathered, Brown-White, Shale.		CORE	115-133						94	31	W_3															
10.50	12.00			CORE	134-153						97	7	W_3															
12.00	13.50	Slightly Weathered, Brown-White, Shale.		CORE	154-162						84	27	W_2							-	2.41	2.47	-	-	-	-	-	-
13.50	15.00			CORE	163-172						91	53	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DCHST- 2A

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -899, W-588**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : 0.50 M** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.20 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 03.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 03.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
0.00	0.30	Filling with Brownish Soil, Clay & Boulder.																										
0.30	1.50	Completely Weathered, Brownish, Argillaceous Shale.		CORE	1-18						100	9	W_5							-	2.6	2.62	-	-	-	-	-	-
1.50	3.00			CORE	19-53						92	NIL	W_5															
3.00	4.50			CORE	54-88						96	NIL	W_5															
4.50	6.00			CORE	89-122						95	7	W_5															
6.00	7.50			CORE	123-145						89	7	W_5							-	2.41	2.47	-	-	-	-	-	-
7.50	9.00	Moderately Weathered, Brown-White, Shale.		CORE	146-163						99	33	W_3															
9.00	10.50			CORE	164-173						95	33	W_3															
10.50	12.00	Highly Weathered, Brown-White, Shale.		CORE	174-196						96	NIL	W_4															
12.00	13.50			CORE	197-205						98	22	W_4							-	2.31	Sample Cracked In Water.						
13.50	15.00			CORE	206-212						97	14	W_4															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

BORE LOG OF DRILL HOLE DCHST- 2B

SOILTECH (INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

PROJECT: GEOTECHNICAL INVESTIGATION WORK FOR PROPOSED SIPAT STPP STAGE-III, BILASPUR, CHATTISGARH.

CLIENT: NTPC LIMITED | **CO-ORDINATES : N -899, W-588**

LOCATION: SIPAT, CHATTISGARH. | **CASING DEPTH (m) : N.A.** | **DRILLING METHOD: ROTARY DRILLING**

TERMINATION DEPTH BGL (m) : 15.00 | **GROUND W.L BGL (m) : 1.20 M** | **DRILLING ORIENTATION: VERTICAL**

STARTED: 04.04.2023 | **CORE DIAMETER (mm) : 54** | **COMPLETED: 04.04.2023**

DEPTH (m)		DESCRIPTION OF STRATA	LITHOLOGY	TYPE OF SAMPLE	SERIAL NO OF CORE'S	SPT					ROCK DETAILS			LAB TEST ON SOIL						LAB TEST ON ROCK								
						NO. OF BLOWS								GRAIN SIZE ANALYSIS														
FROM	TO					15 cm	30 cm	45 cm	60 cm	"SPT N" VALUE	TCR %	RQD %	WEATHERING GRADE	GRAVELS %	SAND %	SILT %	CLAY %	SPECIFIC GRAVITY	IS CLASSIFICATION	SPECIFIC GRAVITY	DRY DENSITY g/cc	BULK DENSITY g/cc	WATER ABSORPTION %	POROSITY %	UNCONFINED COMPRESSIVE STRENGTH Kg/cm2	POINT LOAD INDEX Kg/cm2	MODULUS OF ELASTICITY	POISSON'S RATIO (μ)
#REF!	1.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	1-27						94	23	W_3							-	2.6	2.62	-	-	-	-	-	-
1.50	3.00			CORE	28-52						87	28	W_3															
3.00	4.50			CORE	53-72						95	39	W_3															
4.50	6.00	Highly Weathered, Brownish, Argillaceous Shale.		CORE	73-102						97	7	W_4															
6.00	7.50	Moderately Weathered, Brownish, Argillaceous Shale.		CORE	103-125						95	20	W_3							-	2.53	2.56	-	-	-	-	-	-
7.50	9.00			CORE	126-144						92	27	W_3															
9.00	10.50	Highly Weathered, Brown-White, Shale.		CORE	145-164						87	NIL	W_4															
10.50	12.00			CORE	165-181						93	8	W_4															
12.00	13.50	SlightlyWeathered, Brown-White, Shale.		CORE	182-188						91	55	W_2							-	2.57	2.61	-	-	-	-	-	-
13.50	15.00			CORE	189-196						95	89	W_2															

ABBREVIATION

SPT : STANDARD PENETRATION TEST
UDS : UNDISTURB SAMPLE
DS : DISTURB SAMPLE
RQD : ROCK QUALITY DESIGNATION
TCR : TOTAL CORE RECOVERY
SCR : SOLID CORE RECOVERY
R : SPT REFUSAL
WL : WATER LOSS

LEGEND : LITHOLOGY

	FILL		CLAY
	SAND		SHALE
	BASALT		CLAYSTONE
	GRAVELS		SILT

Site Engineer - Ramkaran | **Prepared By- Ajinkya K** | **Checked By - Rupa Jagdale**

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classific-ation	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
BH02	DS01	0.50	Reddish brown, clayey silt with decomposed rock fragments.													Fill	9	48	43	(Silt+Clay)	*See the notes
BH03	DS01	0.20	Brownish grey, clayey silt with decomposed rock.													Fill	4	44	52	(Silt+Clay)	Do
BH07	DS01	0.20	Reddish brown, clayey silt with decomposed rock fragments.										36	17		Fill					Do
BH12	DS01	0.50	Brownish grey, siltty sand with decomposed rock pieces.			2.60										CI*	2	31	67	(Silt+Clay)	Do
BH15	DS01	0.30	Brownish grey, siltty sand with decomposed rock pieces.													Fill	36	50	14	(Silt+Clay)	Do
BH16	DS01	0.40	Brownish grey, siltty sand with decomposed rock pieces.													Fill	53	32	15	(Silt+Clay)	Do
BH33	SPT01	1.50	Reddish grey, silty sand with rock pieces.										Non-Plastic			SM*					Do
BH35	SPT01	1.00	Reddish brown, silty clay with decomposed rock pieces.			2.58							38	19		CI		40	45	15	Do
BH38	DS01	0.20	Reddish brown, silty clay with decomposed rock pieces.													CI*	8	34	58	(Silt+Clay)	Do
BH44	DS01	0.50	Light brown, clayey silt with sand mixure.													CI*	6	37	57	(Silt+Clay)	Do

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classific-ation	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
BH45	SPT01	1.45	Brownish grey, clayey silt with sand mixture.										43	20		CI					Do
BH46	SPT01	1.50	Brownish grey, clayey silt with traces of sand mixture.			2.58										CI*		21	62	17	Do
BH48	SPT01	1.50	Reddish brown, silty clay with traces of kankars.										40	18		CI					Do
BH51	SPT01	2.00	Brownish grey, silty clay / clayey silt with sand mixture.			2.56										SM		70	26	4	Do
BH53	SPT01	1.00	Reddish brown, clayey silt with decomposed rock poeces.										41	20		CI					Do
BH55	DS01	0.50	Reddish brown, silty clay / clayey silt with traces of sand mixture and kankars.													CI*		15	85 (Silt+Clay)		Do
BH56	DS01	0.40	Brownish grey, silty sand with decomposed rock fragments.			2.59										SM	12	71	17 (Silt+Clay)		Do
BH60	SPT01	1.00	Brownish grey, silty clay.										51	19	8	CH		21	79 (Silt+Clay)		Do
BH63	DS01	0.50	Reddish brown, silty clay / clayey silt.													CI*		27	73 (Silt+Clay)		Do
BH63	SPT01	1.50	Reddish brown, silty clay / clayey silt.										42	18	13	CI					Do

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classific-ation	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
BH66	SPT01	1.00	Brownish grey, silty clay / clayey silt with traces of sand mixture.			2.65										CI*		18	64	18	Do
BH71	SPT01	1.40	Reddish brown, silty clay / clayey silt.										42	21	15	CI					Do
BH75	SPT01	1.00	Brownish grey, silty clay / clayey silt with traces of sand mixture.			2.46										CI*		9	63	28	Do
BH75	UDS01	2.00	Reddish brown, silty clay with kankars & traces of sand mixture.	2.10	1.76		19 S 19 T 12 C	0.463	TRSH-UU 3.00 2.00 1.00 UNCONFD 0.00 0.00 0.00 REMOULD 0.00 0.00 0.00	 0.728 0.720 0.673 0.573 0.576 0.656 0.452 0.509 0.523	0.71 0.60 0.50	0 0 0	47	21	8	CI					Do
BH75	SPT03	4.00	Brownish grey, silty clay / clayey silt with traces of sand mixture.			2.46										CI*		18	66	16	Do
BH76	SPT01	1.50	Deep brown, clayey silt.										55	21	19	CH					Do
BH81	DS01	0.20	Reddish brown, silty clay / clayey silt with decomposed rock pieces.													CI*	11	37	52 (Silt+Clay)		Do

Bore Hole	Sample Number	Depth M	Sample Description	Bulk Dens. gms/cc	Dry Dens. gms/cc	Spec. Grav.	Nat. Mois. %	Void Ratio	Strength Test Results				Atter. Limits			IS Classific-ation	Grain Size				Test Method
									Pc/Pn kg/sqcm	Shear kg/sqcm	Cohesn kg/sqcm	Frictn Deg.	LL %	PL %	SL %		Gravl %	Sand %	Silt %	Clay %	
PMT08	SPT01	1.50	Brownish grey, clayey silt.			2.59										CI*		6	76	18	Do

* - Classification in this case is based on average layer properties

LABORATORY ROCK TEST RESULTS

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohr Scale)	Soundness (%) Loss	Deformability (kg/sqcm)	Impact Value (%)	Test Method
				Bulk	Dry	(%)			In-situ	Saturated								
1	2	2.00-2.75	Highly weathered, reddish brown, fine grained, fractured shale.	2.832	2.809	0.82	2.6395	--	--	--	--	4.87	--	--	18.28	--	--	**See the Notes
1	16	12.50-13.25	Moderately weathered, reddish brown, fine grained, fractured shale.	2.884	2.879	0.17	0.5450	2.895	801	647	0.808	--	--	--	--	--	--	Do
2	1	1.50-2.25	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	242	--	--	--	Soft	--	--	--	Do
2	24	18.75-19.50	Moderately weathered, reddish brown, fine grained, fractured shale.	2.786	2.759	0.98	3.1823	--	851	470	0.552	--	--	--	--	--	--	Do
3	2	1.05 - 1.80	Moderately weathered, reddish brown, fine grained, fractured shale.	2.688	2.670	0.68	3.4897	2.757	--	--	--	10.69	--	--	17.34	--	--	Do
4	8	6.25 - 7.00	Highly weathered, reddish brown, fine grained, moderately fractured shale.	--	--	--	--	--	--	--	--	--	98.08	--	--	--	--	Do
5	8	5.75 - 6.50	Moderately weathered, reddish brown, fine grained, fractured shale.	2.829	2.810	0.67	1.9532	2.747	--	782	--	14.60	98.69	--	--	--	--	Do
6	2	1.15 - 1.90	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	335	--	--	--	Soft	--	18519	--	Do
7	2	1.15 - 1.90	Highly weathered, reddish brown, fine grained, moderately strong fractured shale.	2.525	2.488	1.48	8.8687	--	--	--	--	--	90.41	--	19.29	--	--	Do
7	18	13.15 - 13.90	Moderately weathered, reddish brown, fine grained, moderately fractured shale.	--	--	--	--	--	--	241	--	--	--	--	23.64	--	--	Do
8	1	0.80 - 1.25	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.751	--	--	--	17.93	--	--	--	--	37.25	Do
8	18	13.25 - 14.00	Moderately weathered, light grey to dark grey, fractured shale.	--	--	--	--	--	542	361	0.666	--	--	--	--	--	--	Do
9	19	14.00 - 14.75	Moderately weathered, light grey to dark grey, fine garined, fractured shale.	2.533	2.485	1.91	11.5804	--	--	--	--	9.80	--	--	--	--	--	Do
10	2	4.75 - 5.50	Highly weathered, reddish brown, fine grained, fractured shale.	2.674	2.653	0.79	3.2231	--	--	--	--	--	98.82	Soft	16.32	--	--	Do
10	9	10.00 - 10.75	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	651	--	--	--	--	--	--	--	Do
11	2	1.75 - 2.50	Moderately weathered, reddish brown, fine grained, fractured shale.	2.818	2.812	0.25	0.7799	2.788	--	574	--	--	--	--	15.67	--	--	Do
12	2	2.25-3.00	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	43.37	98.15	Soft	--	--	35.93	Do
14	2	1.25 - 2.00	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	507	--	--	--	Soft	--	--	--	Do
15	1	0.50 - 1.25	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	447	--	--	--	--	19.16	30786	--	Do

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohr Scale)	Soundness (%) Loss	Deformability (kg/sqcm)	Impact Value (%)	Test Method
				Bulk	Dry	(%)			In-situ	Saturated								
15	7	5.00 - 5.75	Slightly weathered, reddish to greyish brown, fine grained, fractured shale.	--	--	--	--	--	--	816	--	--	--	--	--	--	--	Do
16	3	2.00 - 2.75	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	555	--	9.89	--	--	--	--	39.17	Do
16	14	10.25 - 11.00	Slightly weathered, reddish brown, fine garined, fractured shale.	--	--	--	--	--	539	493	0.914	48.65	--	--	--	--	31.42	Do
17	2	1.35 - 2.10	Fresh, yellowish to reddish brown, fine grained, fractured shale.	2.852	2.843	0.33	0.9819	2.764	701	508	0.725	--	99.28	--	--	41876	--	Do
18	2	1.15 - 1.90	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	666	574	0.861	--	--	Soft	13.67	34215	--	Do
19	1	0.70 - 1.45	Moderately weathered, reddish brown, fine grained, fractured shale.	2.780	2.751	1.04	3.0545	2.756	--	--	--	--	--	--	--	--	33.62	Do
20	1	0.40 - 1.15	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.760	--	--	--	4.05	--	Soft	--	--	--	Do
21	1	0.50 - 1.25	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	8.11	99.27	--	24.37	--	--	Do
21	15	11.00 - 11.75	Fresh, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	824	--	--	--	--	--	--	--	Do
22	8	5.75 - 6.50	Moderately weathered, reddish brown, fine grained, fractured shale.	2.744	2.718	0.95	2.9779	--	--	--	--	--	--	Soft	--	--	--	Do
22	18	13.25 - 14.00	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	381	--	--	--	--	--	19476	--	Do
23	6	4.15 - 4.90	Slightly weathered, reddish brown, fine garined, fractured shale.	2.805	2.793	0.43	1.2451	2.746	--	466	--	--	--	Soft	16.48	--	--	Do
23	13	9.40 - 10.15	Slightly weathered, reddish brown, fine garined, fractured shale.	--	--	--	--	--	649	358	0.552	87.97	--	--	--	35445	--	Do
24	6	4.15 - 4.90	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.792	--	--	--	--	--	--	21.49	--	--	Do
25	1	0.50 - 1.25	Highly weathered, reddish brown, fine grained, fractured shale.	2.659	2.643	0.61	2.3201	--	--	--	--	--	--	--	--	--	33.12	Do
26	18	13.45 - 14.20	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	543	--	45.41	--	--	--	35437	--	Do
27	2	1.50 - 2.25	Highly weathered, reddish brown, fine grained, fractured shale.	2.702	2.685	0.64	2.5731	2.830	--	--	--	--	--	--	15.67	--	36.75	Do
27	8	6.00 - 6.75	Moderately weathered, reddish brown, fine grained fractured shale.	--	--	--	--	--	--	--	--	20.81	--	--	--	--	--	Do
27	14	10.50 - 11.25	Slightly weathered, reddish brown, fine grained fractured shale.	--	--	--	--	--	--	458	--	--	--	--	--	--	--	Do
28	1	1.70 - 2.45	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	--	--	--	22.39	--	--	Do

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				Bulk	Dry	(%)			In-situ	Saturated								
29	2	0.75 - 1.50	Highly weathered, reddish brown, fine grained, highly fractured shale.	2.813	2.800	0.47	1.4406	2.799	--	--	--	4.45	--	Soft	23.18	--	--	Do
29	8	5.25 - 6.00	Highly weathered, reddish brown, fine grained, highly fractured shale.	2.838	2.823	0.53	1.5560	--	--	--	--	13.08	--	--	--	--	--	Do
30	1	0.60- 1.35	Moderately weathered, reddish to greyish brown, fine grained, fractured shale.	--	--	--	--	2.882	--	--	--	17.41	--	Soft	--	--	--	Do
31	2	3.75 - 4.50	Moderately weathered, reddish brown, fine grained, fractured shale.	2.875	2.862	0.46	1.4182	--	--	--	--	--	99.05	--	11.73	--	--	Do
32	1	4.70 - 5.25	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	408	--	--	9.21	--	--	--	--	--	Do
32	2	5.25 - 6.00	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	--	--	--	--	--	41.61	Do
32	6	8.25 - 9.00	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	836	--	100.55	--	--	--	--	--	Do
33	1	2.50- 3.25	Highly weathered, reddish brown, fine grained, fractured shale.	2.108	1.975	6.73	15.4913	2.537	--	--	--	11.00	91.38	Soft	--	--	--	Do
33	9	8.50- 9.25	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	19.88	--	Moderately hard	17.62	--	--	Do
34	7	7.25- 8.00	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	4.05	--	--	19.47	--	--	Do
35	2	2.00 - 2.75	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	24.52	81.67	--	--	--	--	Do
35	14	10.75 - 11.50	Moderately weathered, light grey to dark grey, fine grained, fractured shale.	2.569	2.529	1.57	6.6869	--	--	207	--	--	--	--	19.76	--	--	Do
36	1	0.80 - 1.50	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	--	--	Soft	--	--	39.55	Do
37	2	1.25 - 2.00	Moderately weathered, reddish brown, fine grained, fractured shale.	2.798	2.778	0.70	2.0835	2.773	--	--	--	0.81	98.78	--	--	--	--	Do
38	7	4.80 - 5.55	Slightly weathered, reddish brown, fine garined, fractured shale.	--	--	--	--	--	--	240	--	--	--	Soft	--	12179	--	Do
39	3	2.20 - 2.95	Slightly weathered, reddish brown, fine grained, fractured shale.	2.867	2.857	0.34	1.0271	--	--	370	--	--	--	Soft	17.93	--	--	Do
40	1	0.00- 0.75	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	10.72	93.64	--	--	--	--	Do
40	22	15.75- 16.50	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	593	350	0.590	--	--	--	--	32800	--	Do
41	11	7.50 - 8.25	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	709	--	--	--	--	--	--	--	Do
42	1	0.70 - 1.25	Highly weathered, reddish brown, fine grained, moderately strong, fractured shale.	--	--	--	--	2.742	--	--	--	9.73	--	--	--	--	--	Do

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				Bulk	Dry	(%)			In-situ	Saturated								
42	11	8.00 - 8.75	Moderately weathered, reddish brown, fine grained, moderately strong, fractured shale.	2.719	2.674	1.67	10.0285	--	297	210	0.707	--	--	--	--	23756	--	Do
43	1	0.40 - 1.00	Highly weathered, reddish brown, fine grained, fractured shale.	2.637	2.608	1.11	5.3482	2.741	--	--	--	15.05	--	--	--	--	37.98	Do
44	2	2.25- 3.00	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	--	--	Soft	--	--	42.49	Do
45	8	8.00- 8.75	Moderately weathered, reddish brown, fine grained, fractured shale.	2.812	2.802	0.36	1.0565	--	--	--	--	8.02	--	--	19.75	--	--	Do
46	1	2.80- 3.50	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.606	--	--	--	3.64	--	--	21.62	--	--	Do
47	16	12.75- 13.50	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	724	--	--	--	--	--	33000	32.71	Do
48	2	3.15 - 3.90	Highly weathered, reddish brown/greyish brown, fine grained, fractured shale.	2.450	2.386	2.67	7.9666	2.789	--	--	--	1.62	--	Soft	24.86	--	--	Do
49	13	10.00- 10.75	Moderately weathered, reddish brown, fine grained, fractured shale.	2.806	2.792	0.50	1.9894	--	--	373	--	--	--	Moderately hard	--	--	--	Do
50	3	4.50- 5.25	Highly weathered, dark grey to light grey, fine grained, fractured shale.	2.519	2.450	2.82	11.8657	--	--	--	--	0.81	80.62	--	--	--	--	Do
50	16	14.25- 15.00	Highly weathered, dark grery to light grey, fine grained, fractured shale.	--	--	--	--	2.794	--	--	--	--	--	--	16.52	--	--	Do
51	3	4.25- 5.00	Highly weathered, light grey, fine grained, fractured shale.	2.539	2.493	1.85	7.2000	2.686	--	141	--	--	--	--	--	12634	--	Do
51	10	9.50- 10.25	Highly weathered, light grey, fine grained, fractured shale.	2.558	2.517	1.63	7.7309	--	--	236	--	--	--	--	--	17342	--	Do
52	2	3.75- 4.50	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	6.45	91.47	--	--	--	--	Do
53	6	5.25 - 6.00	Moderately weathered, yellowish grey to light grey, fine grained, fractured shale.	--	--	--	--	--	--	--	--	--	--	Soft	15.48	--	--	Do
54	1	0.40 - 1.00	Moderately weathered, reddish brown, fine grained, fractured shale.	2.720	2.699	0.76	4.7748	--	--	311	--	--	--	Soft	--	18617	--	Do
54	7	4.75 - 5.50	Fresh, reddish brown, fine grained, fractured shale.	--	--	--	--	--	597	498	0.834	--	--	--	--	--	--	Do
55	3	3.00 - 3.75	Highly weathered, yellowish brown, fine grained, highly fractured shale.	2.649	2.597	1.97	7.1435	--	--	--	--	--	--	--	20.37	--	--	Do
56	12	9.00- 9.75	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.615	--	218	--	--	--	--	19.35	18661	--	Do
56	24	18.00- 18.75	Moderately weathered, reddish brown, fine grained, fractured shale.	2.788	2.775	0.47	1.4130	--	--	314	--	--	--	Moderately hard	--	--	--	Do
57	10	7.25- 8.00	Moderately weathered, reddish brown, fine grained, fractured shale.	2.795	2.773	0.79	2.2539	2.837	--	--	--	53.52	--	--	--	--	--	Do

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohr Scale)	Soundness (%) Loss	Deformability (kg/sqcm)	Impact Value (%)	Test Method
				Bulk	Dry	(%)			In-situ	Saturated								
58	8	8.00-8.75	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	884	768	0.869	--	--	--	13.84	39645	--	Do
59	2	1.75-2.50	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	--	95.41	Soft	--	--	--	Do
59	14	10.75-11.50	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.821	--	645	--	--	--	--	--	--	--	Do
60	8	7.55-8.30	Highly weathered, reddish brown, fine grained, fractured shale.	2.578	2.526	2.06	8.8518	--	261	--	--	--	--	--	--	--	--	Do
61	1	2.00-2.75	Completely weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	33.62	--	--	16.39	--	--	Do
62	14	11.95-12.70	Highly weathered, light greenish grey, fine grained, fractured shale.	2.546	2.481	2.62	10.2637	--	--	--	--	3.24	--	Moderately hard	--	--	40.82	Do
63	2	2.95-3.70	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	349	--	--	--	--	18.36	--	38.67	Do
65	2	1.55-2.30	Moderately weathered, reddish to greyish brown, fine grained, fractured shale.	--	--	--	--	--	724	580	0.801	--	--	Soft	15.73	42184	--	Do
66	10	8.55-9.30	Moderately weathered, reddish brown, fine grained, fractured shale.	2.821	2.799	0.79	2.2893	--	--	596	--	--	--	--	--	--	--	Do
67	17	13.50-14.25	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.898	789	458	0.580	--	--	--	--	--	--	Do
68	6	4.75-5.50	Highly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.739	--	431	--	--	--	--	--	35966	--	Do
69	1	0.80-1.50	Highly weathered, reddish brown, fine grained, fractured shale.	2.812	2.799	0.44	1.3639	--	--	--	--	--	99.27	--	11.91	--	--	Do
70	2	1.75-2.50	Highly weathered, reddish brown, fine grained, fractured shale.	2.794	2.786	0.29	2.0137	--	--	672	--	--	--	--	19.61	--	--	Do
70	16	12.25-13.00	Fresh, reddish brown, fine grained, fractured shale.	--	--	--	--	--	773	559	0.723	--	--	--	--	30463	--	Do
71	16	13.50-14.25	Highly weathered, reddish brown, fine grained, fractured shale.	2.834	2.823	0.39	1.3356	--	793	470	0.593	--	--	Moderately hard	--	--	--	Do
72	10	7.75-8.50	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	585	431	0.737	--	--	--	16.35	--	33.18	Do
73	1	1.00-1.75	Highly weathered, reddish brown, fine grained, fractured shale.	2.777	2.760	0.62	1.7503	--	--	--	--	44.15	--	--	--	--	--	Do
74	16	12.25-13.00	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	717	498	0.695	--	98.78	--	--	--	--	Do
75	7	9.20-9.95	Slightly weathered, reddish brown, fine grained, fractured shale.	2.830	2.817	0.46	2.6795	--	659	451	0.684	--	--	--	--	30719	--	Do
76	1	2.50-3.25	Slightly weathered, reddish brown, fine grained, fractured shale.	2.667	2.645	0.83	5.3754	--	--	--	--	--	--	--	17.62	--	36.85	Do

BH No.	Run No.	Depth (M)	Description	Density (gm/cc)		Water Content	Porosity %	Specific Gravity	Unconfined Compressive strength (kg/sqcm)		Coefficient of softening	Point Load Strength Index (kg/sqcm)	Slake Durability Index (%)	Hardness (based on Mohr Scale)	Soundness (%) Loss	Deformability (kg/sqcm)	Impact Value (%)	Test Method
				Bulk	Dry	(%)			In-situ	Saturated								
77	1	0.50-1.25	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.879	749	254	0.339	--	--	--	--	--	--	Do
78	7	5.00-5.75	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.927	--	--	--	7.30	--	--	--	--	--	Do
79	1	0.90-1.65	Moderately weathered, reddish brown, fine grained, fractured shale.	2.772	2.754	0.65	3.2893	--	401	--	--	14.60	--	Soft	21.92	33619	--	Do
79	6	4.65-5.40	Slightly weathered, reddish brown, fine grained, fractured shale.	2.784	2.770	0.51	1.6416	--	--	585	--	--	--	--	--	35658	--	Do
80	2	1.35-2.10	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	4.52	--	--	--	--	39.19	Do
80	9	6.60-7.35	Slightly weathered, reddish to greyish brown, fine grained, fractured shale.	2.808	2.796	0.43	1.3294	--	--	563	--	--	96.89	--	--	--	--	Do
80	15	11.10-11.85	Moderately weathered, reddish to greyish brown, fine grained, fractured shale.	--	--	--	--	--	908	744	0.819	--	--	--	13.75	--	--	Do
81	2	1.15-1.90	Moderately weathered, reddish to greyish brown, fine grained, fractured shale.	2.527	2.510	0.68	3.1855	--	--	--	--	4.28	--	Soft	--	--	43.12	Do
81	12	8.65-9.40	Slightly weathered, reddish to greyish brown, fine grained, fractured shale.	--	--	--	--	--	913	845	0.926	--	99.34	--	--	--	--	Do
82	1	0.40-1.15	Moderately weathered, reddish to greyish brown, fine grained, fractured shale.	2.763	2.748	0.55	2.3566	2.814	--	418	--	--	--	--	17.62	--	--	Do
82	9	6.40-7.15	Slightly weathered, reddish to greyish brown, fine grained, fractured shale.	--	--	--	--	--	--	--	--	8.91	95.67	--	--	--	34.52	Do
83	2	0.75-1.50	Slightly weathered, reddish brown, fine grained, fractured shale.	2.804	2.791	0.47	1.4015	--	803	664	0.827	--	--	Soft	12.85	--	--	Do
83	6	3.75-4.50	Moderately weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.855	835	621	0.744	--	--	--	--	--	--	Do
83	11	7.50-8.25	Slightly weathered, reddish brown, fine grained, fractured shale.	--	--	--	--	2.790	--	--	--	--	--	--	16.67	--	--	Do

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Summary of Rock Test Results

Client:	NTPC Limited	**Report No.**	SIPL/TCF-172, 232/RK-123-136, 179-220/2023
Project:	Geotechnical Investigation Work for Proposed Sipat STPP Stage-III at Bilaspur, Chattisgarh.	**Report Date:**	16.05.2023
ULR No.	TC635723000001632F to TC635723000001645F, TC635723000002227F to TC635723000002271F		

					Test Methods:	*IS:13030*					*IS:1122*	*IS:9143*	*IS:8764*
BH No.	Piece No.	Depth (m)	Sample Type	LAB No.	Condition	Dry Density *	Bulk Density *	Water Absorption	Porosity	Hardness	Specific Gravity	Unconfined Compressive Strength	Point Load Strength Index
						g/cc	g/cc	%	%	-	-	Kg/cm²	kg/cm²
DBH-1	2	3.00-4.50	Core	185/1	Soak	2.81	2.82	0.45	1.25	43.58	2.85	1330.10	-
DBH-1	7	4.50-6.00	Core	185/2	Unsoak	2.74	-	-	-	45.66	-	656.36	-
DBH-1	14	6.00-7.50	Core	185/3	Unsoak	-	-	-	-	-	-	-	51.40
DBH-2	1	1.95-3.00	Core	186/1	Soak	2.76	2.77	0.43	1.18	40.10	2.79	556.67	-
DBH-2	4	3.00-4.50	Core	186/2	Unsoak	-	-	-	-	-	-	-	34.89
DBH-2	11	4.50-6.00	Core	186/3	Soak	2.56	2.60	1.42	3.63	-	2.66	-	13.45
DBH-2	17	6.00-7.50	Core	186/5	Unsoak	-	-	-	-	-	-	-	29.00
DBH-3	1	0.50-1.50	Core	187/1	Unsoak	-	-	-	-	-	-	-	27.55
DBH-3	2	6.00-7.50	Core	187/2	Soak	2.74	2.76	0.72	1.98	-	2.80	-	43.62
DBH-3	12	7.50-9.00	Core	187/3	Unsoak	-	-	-	-	-	-	-	40.01
DBH-4	1	6.45-7.50	Core	188/1	Soak	2.63	2.66	1.10	2.89	38.55	2.71	506.28	-
DBH-4	3	7.50-9.00	Core	188/2	Unsoak	-	-	-	-	-	-	769.00	-
DBH-4	15	9.00-10.00	Core	188/3	Unsoak	-	-	-	-	-	-	-	31.51
DBH-5	1	4.50-6.00	Core	189/1	Soak	2.57	2.61	1.56	4.01	-	2.68	193.56	-
DBH-5	12	6.00-7.50	Core	189/2	Soak	2.74	2.75	0.41	1.13	-	2.77	229.36	-
DBH-5	22	7.50-9.00	Core	189/3	Unsoak	-	-	-	-	38.17	-	1083.72	-
DBH-6	2	3.00-4.50	Core	190/1	Unsoak	2.60	2.60	0.15	0.40	-	2.61	629.41	-
DBH-6	10	4.50-6.00	Core	190/2	Soak	-	-	-	-	35.62	-	288.67	-
DBH-6	18	6.00-7.50	Core	190/3	Unsoak	-	-	-	-	40.18	-	654.30	-
DBH-7	3	0.50-1.50	Core	191/1	Unsoak	-	-	-	-	42.80	-	1063.15	-
DBH-7	10	1.50-3.00	Core	191/2	Soak	2.74	2.75	0.59	1.62	38.86	2.78	367.43	-
DBH-7	23	3.00-4.50	Core	191/3	Unsoak	-	-	-	-	-	-	712.83	-
DBH-7	23	3.00-4.50	Core	191/3	Unsoak	Sample Cracked during Hardness Test							
DBH-8	2	1.95-3.00	Core	192/1	Soak	2.58	2.62	1.59	4.10	-	2.69	-	29.56
DBH-8	7	3.00-4.50	Core	192/2	Unsoak	-	-	-	-	37.71	-	1671.23	-

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Summary of Rock Test Results

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Project:	Geotechnical Investigation Work for Proposed Sipat STPP Stage-III at Bilaspur, Chattisgarh.	**Report Date:**	16.05.2023
ULR No.	TC635723000001632F to TC635723000001645F, TC635723000002227F to TC635723000002271F		

					Test Methods:	*IS:13030*					*IS:1122*	*IS:9143*	*IS:8764*
BH No.	Piece No.	Depth (m)	Sample Type	LAB No.	Condition	Dry Density *	Bulk Density *	Water Absorption	Porosity	Hardness	Specific Gravity	Unconfined Compressive Strength	Point Load Strength Index
						g/cc	g/cc	%	%	-	-	Kg/cm²	kg/cm²
DBH-9	7	1.50-3.00	Core	123/1	Soak	2.77	2.78	0.28	0.76	-	2.79	627.30	-
DBH-9	15	3.00-4.50	Core	123/2	Soak	2.73	2.75	0.42	1.15	-	2.77	576.71	-
DBH-10	10	1.50-3.00	Core	124/1	Soak	2.58	2.62	1.46	3.77	-	2.68	-	2.91
DBH-10	25	3.00-4.50	Core	124/2	Soak	2.68	2.70	0.89	2.38	-	2.74	200.54	-
DBH-11	3	0.50-1.50	Core	193/1	Unsoak	-	-	-	-	-	-	-	1.08
DBH-11	32	1.50-3.00	Core	193/2	Soak	2.58	2.61	0.93	2.40	-	2.65	-	10.09
DBH-11	50	3.00-4.50	Core	193/3	Soak	2.72	2.73	0.44	1.19	-	2.75	492.65	-
DBH-11	50	3.00-4.50	Core	193/3	Unsoak	-	-	-	-	35.72	-	-	-
DBH-11	73	4.50-6.00	Core	193/4	Unsoak	-	-	-	-	-	-	-	7.63
DBH-12	9	1.50-3.00	Core	194/1	Soak	2.54	2.65	4.25	10.78	-	2.85	-	0.72
DBH-12	40	3.00-4.50	Core	194/2	Soak	2.30	2.38	3.50	8.03	-	2.50	-	2.88
DBH-12	61	4.50-6.00	Core	194/3	Unsoak	-	-	-	-	-	-	-	8.36
DBH-12	88	6.00-7.50	Core	194/4	Unsoak	-	-	-	-	-	-	-	4.73
DBH-13	3	0.00-1.50	Core	195/1	-	Testing Not Possible due to Crumbled Sample							
DBH-13	6	1.50-3.00	Core	195/2	-	Testing Not Possible due to Cracked Sample							
DBH-13	47	3.00-4.50	Core	195/4	-	Sample Cracked during Cutting							
DBH-14	11	3.00-4.50	Core	125/1	Unsoak	2.74	Sample Cracked during Hardness Test						
DBH-14	66	4.50-6.00	Core	125/2	Soak	2.66	Sample Cracked In Water						
DBH-15	6	1.95-3.00	Core	196/1	Soak	2.21	2.31	4.46	9.87	-	2.46	-	2.50
DBH-15	26	3.00-4.50	Core	196/2	-	Testing Not Possible due to Cracked Sample							
DBH-15	57	4.50-6.00	Core	196/3	Unsoak	2.01	-	-	-	-	-	-	3.27
DBH-16	7	4.50-6.00	Core	197/1	-	Testing Not Possible due to Cracked Sample							
DBH-16	18	6.00-7.50	Core	197/2	Unsoak	-	-	-	-	-	-	-	21.33
DBH-16	33	7.50-9.00	Core	197/4	Unsoak	-	-	-	-	-	-	254.86	-

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Summary of Rock Test Results

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					Test Methods:	*IS:13030*					*IS:1122*	*IS:9143*	*IS:8764*
BH No.	Piece No.	Depth (m)	Sample Type	LAB No.	Condition	Dry Density *	Bulk Density *	Water Absorption	Porosity	Hardness	Specific Gravity	Unconfined Compressive Strength	Point Load Strength Index
						g/cc	g/cc	%	%	-	-	Kg/cm²	kg/cm²
DBH-17	1	3.45-4.50	Core	198/1	Soak	2.45	Sample Cracked In Water						
DBH-17	11	4.50-6.00	Core	198/2	Soak	2.43	2.53	4.03	9.80	-	2.70	-	2.52
DBH-17	43	6.00-7.50	Core	198/3	Unsoak	-	-	-	-	-	-	-	4.99
DBH-17	66	7.50-9.00	Core	198/4	-	Sample Cracked during Cutting							
DBH-19	3	6.00-7.50	Core	200/2	Unsoak	-	-	-	-	-	-	-	1.43
DBH-19	21	7.50-9.00	Core	200/3	Soak	2.05	2.12	3.35	6.88	-	2.20	-	16.72
DBH-19	33	9.00-10.00	Core	200/4	-	Sample Cracked during Cutting							
DBH-20	31	1.50-3.00	Core	126/1	Soak	2.66	2.72	2.06	5.50		2.82	-	1.45
DBH-20	52	3.00-4.50	Core	126/2	Soak	2.67	2.71	1.29	3.45		2.77	294.16	-
DBH-21	4	1.95-3.00	Core	127/1	Soak	2.76	2.78	0.56	1.56		2.81	1033.75	-
DBH-21	7	3.00-4.50	Core	127/2	Soak	2.69	2.70	0.44	1.19		2.72	-	63.63
DBH-22	14	1.50-3.00	Core	128/1	Soak	2.71	2.74	0.92	2.51		2.78	223.19	-
DBH-22	24	3.00-4.50	Core	128/2	Soak	2.68	2.71	1.14	3.04		2.76	-	4.31
DBH-23	3	0.12-1.50	Core	201/1	Soak	2.73	2.74	0.46	1.26	-	2.76	655.87	-
DBH-23	5	1.50-3.00	Core	201/2	Unsoak	2.71	2.71	0.30	0.81	-	2.73	654.84	-
DBH-23	14	3.00-4.50	Core	201/3	Unsoak	-	-	-	-	-	-	432.68	-
DBH-24	10	3.00-4.50	Core	202/1	Soak	2.08	2.26	8.65	18.00	-	2.54	-	1.45
DBH-24	12	3.00-4.50	Core	202/2	Soak	2.12	2.23	5.02	10.64	-	2.37	-	2.30
DBH-24	67	6.00-7.50	Core	202/4	Unsoak	-	-	-	-	-	-	-	2.52
DBH-25	30	1.50-3.00	Core	129/1	-	Testing Not Possible due to Cracked Sample							
DBH-25	40	3.00-4.50	Core	129/2	Soak	2.74	2.76	0.92	2.53		2.81	-	7.21
DBH-26	28	1.50-3.00	Core	130/1	Soak	2.68	2.70	0.85	2.27		2.74	-	1.09
DBH-26	43	3.00-4.50	Core	130/2	Soak	2.65	2.69	1.63	4.30		2.77	-	6.49

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Summary of Rock Test Results

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					Test Methods:	*IS:13030*					*IS:1122*	*IS:9143*	*IS:8764*
BH No.	Piece No.	Depth (m)	Sample Type	LAB No.	Condition	Dry Density *	Bulk Density *	Water Absorption	Porosity	Hardness	Specific Gravity	Unconfined Compressive Strength	Point Load Strength Index
						g/cc	g/cc	%	%	-	-	Kg/cm²	kg/cm²
DBH-27	1	0.12-1.50	Core	203/1	Unsoak	-	-	-	-	-	-	-	12.29
DBH-27	10	0.12-1.50	Core	203/3	Unsoak	-	-	-	-	-	-	-	5.09
DBH-27	16	1.50-3.00	Core	203/4	Soak	2.47	Sample Cracked In Water						
DBH-27	36	3.00-4.50	Core	203/5	Soak	2.23	2.32	3.79	8.47	-	2.44	-	1.81
DBH-27	66	4.50-6.00	Core	203/6	Unsoak	-	-	-	-	-	-	-	5.41
DBH-28	10	1.50-3.00	Core	204/1	Soak	2.52	Sample Cracked In Water						
DBH-28	37	3.00-4.50	Core	204/2	Unsoak	-	-	-	-	-	-	-	5.33
DBH-28	47	4.50-6.00	Core	204/3	Unsoak	-	-	-	-	-	-	-	9.27
DBH-28	55	6.00-7.50	Core	204/4	-	Sample Cracked during Cutting							
DBH-29	2	0.50-1.50	Core	205/1	Unsoak	-	-	-	-	-	-	-	6.89
DBH-29	14	1.50-3.00	Core	205/2	Soak	2.55	2.63	3.12	7.95	-	2.77	-	2.53
DBH-29	33	3.00-4.50	Core	205/3	-	Sample Cracked during Cutting							
DBH-29	59	4.50-6.00	Core	205/4	Unsoak	-	-	-	-	-	-	-	2.52
DBH-30	6	3.00-4.50	Core	206/1	Soak	2.13	2.27	6.53	13.93	-	2.48	-	1.43
DBH-30	26	4.50-6.00	Core	206/2	Unsoak	-	-	-	-	-	-	-	9.95
DBH-30	54	6.00-7.50	Core	206/3	Unsoak	-	-	-	-	-	-	-	6.13
DBH-31	1	1.50-3.00	Core	207/1	Soak	2.58	2.61	1.21	3.13	-	2.66	-	22.23
DBH-31	4	3.00-4.50	Core	207/2	Unsoak	2.51	2.53	0.81	2.03	-	2.56	-	31.29
DBH-31	6	4.50-6.00	Core	207/4	Soak	-	-	-	-	-	-	-	37.59
DBH-32	2	0.50-1.50	Core	208/1	Soak	2.78	2.79	0.27	0.76	-	2.80	-	39.44
DBH-32	6	1.50-3.00	Core	208/3	Unsoak	-	-	-	-	-	-	-	67.46
DBH-32	13	3.00-4.50	Core	208/4	Unsoak	-	-	-	-	-	-	-	66.88
DBH-33	7	3.00-4.50	Core	209/1	Soak	2.76	2.77	0.29	0.80	35.95	2.78	1106.47	-
DBH-33	10	4.50-6.00	Core	209/2	Unsoak	-	-	-	-	35.74	-	1045.77	-
DBH-33	15	6.00-7.50	Core	209/3	Unsoak	-	-	-	-	-	-	-	40.37

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TC-6357

Summary of Rock Test Results

Client:	NTPC Limited	**Report No.**	SIPL/TCF-172, 232/RK-123-136, 179-220/2023
Project:	Geotechnical Investigation Work for Proposed Sipat STPP Stage-III at Bilaspur, Chattisgarh.	**Report Date:**	16.05.2023
ULR No.	TC635723000001632F to TC635723000001645F, TC635723000002227F to TC635723000002271F		

						Test Methods:	*IS:13030*				*IS:1122*	*IS:9143*	*IS:8764*
BH No.	Piece No.	Depth (m)	Sample Type	LAB No.	Condition	Dry Density *	Bulk Density *	Water Absorption	Porosity	Hardness	Specific Gravity	Unconfined Compressive Strength	Point Load Strength Index
						g/cc	g/cc	%	%	-	-	Kg/cm²	kg/cm²
DBH-34	1	0.00-1.50	Core	210/1	Soak	2.78	2.78	0.21	0.57	37.79	2.79	749.79	-
DBH-34	9	1.50-3.00	Core	210/2	Soak	2.72	2.73	0.43	1.16		2.75	961.57	-
DBH-34	9	1.50-3.00	Core	210/2	Unsoak	Sample Cracked during Hardness Test							
DBH-34	10	1.50-3.00	Core	210/3	Unsoak	-	-	-	-	-	-	983.16	-
DBH-34	17	3.00-4.50	Core	210/4	Unsoak	-	-	-	-	37.10	-	-	-
DBH-34	17	3.00-4.50	Core	210/4	-	Sample Cracked during Cutting							
DBH-35	1	0.50-1.50	Core	211/1	Unsoak	-	-	-	-	39.02	-	855.00	-
DBH-35	4	1.50-3.00	Core	211/2	Soak	2.75	2.75	0.14	0.39	-	2.76	579.43	-
DBH-35	4	1.50-3.00	Core	211/2	Unsoak	Sample Cracked during Hardness Test							
DBH-35	9	3.00-4.50	Core	211/3	Unsoak	-	-	-	-	-	-	582.84	-
DBH-36	5	0.50-1.50	Core	212/1	Unsoak	-	-	-	-	37.87	-	1775.54	-
DBH-36	6	1.50-3.00	Core	212/2	Unsoak	2.67	2.68	0.15	0.39	-	2.68	1422.62	-
DBH-36	6	1.50-3.00	Core	212/2	Unsoak	-	-	-	-	35.74	-	-	-
DBH-36	18	3.00-4.50	Core	212/3	Soak	-	-	-	-	-	-	393.53	-
DBH-37	4	0.50-1.50	Core	213/1	Soak	2.66	2.69	0.93	2.48	-	2.73	-	2.86
DBH-37	18	1.50-3.00	Core	213/2	Unsoak	-	-	-	-	-	-	-	20.07
DBH-37	45	3.00-4.50	Core	213/4	Unsoak	-	-	-	-	-	-	-	1.82
DBH-37	54	3.00-4.50	Core	213/6	-	Testing Not Possible due to Cracked Sample							
DBH-38	4	4.50-6.00	Core	214/1	-	Sample Cracked during Cutting							
DBH-38	7	6.00-7.50	Core	214/2	-	Sample Cracked during Cutting							
DBH-38	14	7.50-9.00	Core	214/4	Unsoak	-	-	-	-	-	-	-	13.08
DBH-39	6	1.50-3.00	Core	131/1	-	Testing Not Possible due to Cracked Sample							
DBH-39	8	3.00-4.50	Core	131/2	Soak	2.31	2.33	0.93	2.15		2.36	-	18.80
DBH-40	7	1.50-3.00	Core	132/1	Soak	2.67	2.68	0.30	0.80		2.69	1097.81	-
DBH-40	16	3.00-4.50	Core	132/2	Unsoak	2.75	-	-	-		-	620.09	-
DBH-41	2	1.05-1.95	Core	133/1	Soak	2.38	2.46	3.48	8.28		2.60	-	2.91
DBH-41	22	1.95-3.00	Core	133/2	Soak	2.25	2.36	5.26	11.82		2.55	-	2.92
DBH-41	32	3.00-4.50	Core	133/3	Soak	2.44	2.51	2.77	6.76		2.62	-	1.45

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TC-6357

Summary of Rock Test Results

Client:	NTPC Limited	**Report No.**	SIPL/TCF-172, 232/RK-123-136, 179-220/2023
Project:	Geotechnical Investigation Work for Proposed Sipat STPP Stage-III at Bilaspur, Chattisgarh.	**Report Date:**	16.05.2023
ULR No.	TC635723000001632F to TC635723000001645F, TC635723000002227F to TC635723000002271F		

					Test Methods:	*IS:13030*					*IS:1122*	*IS:9143*	*IS:8764*
BH No.	Piece No.	Depth (m)	Sample Type	LAB No.	Condition	Dry Density *	Bulk Density *	Water Absorption	Porosity	Hardness	Specific Gravity	Unconfined Compressive Strength	Point Load Strength Index
						g/cc	g/cc	%	%	-	-	Kg/cm²	kg/cm²
DBH-42	31	1.50-3.00	Core	134/1	Soak	2.64	2.67	1.14	3.01		2.72	-	0.72
DBH-42	44	3.00-4.50	Core	134/2	Soak	2.65	2.70	1.77	4.70		2.78	799.83	-
DBH-43	24	1.50-3.00	Core	135/1	Soak	2.56	2.59	1.33	3.40		2.65	-	0.72
DBH-43	62	3.00-4.50	Core	135/2	Soak	2.68	2.72	1.61	4.30		2.80	-	1.81
DBH-44	1	2.45-3.00	Core	215/1	Unsoak	2.75	2.76	0.68	1.88	-	2.80	-	36.20
DBH-44	10	3.00-4.50	Core	215/2	Soak	2.23	2.26	1.28	2.85	-	2.29	-	12.09
DBH-44	36	4.50-6.00	Core	215/3	Unsoak	-	-	-	-	-	-	-	1.80
DBH-44	56	6.00-7.50	Core	215/4	Unsoak	-	-	-	-	-	-	-	8.15
DBH-45	11	1.50-3.00	Core	216/1	-	Sample Cracked during Cutting							
DBH-45	20	3.00-4.50	Core	216/2	Soak	2.60	2.64	1.60	4.15	-	2.71	-	7.57
DBH-45	33	4.50-6.00	Core	216/3	Unsoak	-	-	-	-	-	-	698.27	-
DBH-46	7	1.50-3.00	Core	136/1	Soak	2.77	2.78	0.66	1.82		2.82	-	35.49
DBH-46	14	3.00-4.50	Core	136/2	Unsoak	2.79	-	-	-		-	661.59	-
DBH-47	3	0.50-1.50	Core	217/2	Unsoak	-	-	-	-	-	-	-	19.13
DBH-47	5	1.50-3.00	Core	217/3	Soak	2.61	2.63	0.66	1.73	-	2.66	-	45.63
DBH-48	1	9.00-10.00	Core	218/1	Unsoak	-	-	-	-	-	-	-	7.72
DBH-48	3	9.00-10.00	Core	218/2	Unsoak	-	-	-	-	-	-	-	7.78
DBH-49	7	4.50-6.00	Core	219/1	Unsoak	2.82	2.83	0.31	0.89	-	2.84	703.36	-
DBH-49	7	4.50-6.00	Core	219/1	Unsoak	Sample Cracked during Hardness Test							
DBH-49	12	6.00-7.50	Core	219/2	Unsoak	-	-	-	-	-	-	319.11	-
DBH-50	3	4.50-6.00	Core	220/1	Soak	2.71	2.72	0.44	1.18	-	2.74	682.31	-
DBH-50	3	4.50-6.00	Core	220/1	Unsoak	-	-	-	-	35.89	-	-	-
DBH-50	6	6.00-7.50	Core	220/2	Soak	-	-	-	-	42.49	-	1589.72	-
DBH-50	13	7.50-9.00	Core	220/3	Unsoak	-	-	-	-	-	-	-	58.39

Note : Test marked with " * " is not NABL Accredited.

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Summary of Impact Value Test Results

Client:	**NTPC Limited**	**Report No.**	**SIPL/RK-Impact Value/2023**
Project:	**Geotechnical Investigation Work for Proposed Sipat STPP Stage-III at Bilaspur, Chattisgarh**	**Report Date:**	**31.05.2023**
		Test Methods:	***IS:2386 (P4)***

BH No.	Piece No.	Depth (m)	Sample Type	LAB No.	Impact Value %
DBH-5	22	7.50-9.00	Core	189/4	25.07
DBH-6	18	6.00-7.50	Core	190/5	26.74
DBH-16	27	6.00-7.50	Core	197/5	28.22
DBH-23	14	3.00-4.50	Core	201/4	26.14
DBH-28	37	3.00-4.50	Core	204/6	27.69
DBH-30	54	6.00-7.50	Core	206/4	28.55
DBH-33	15	6.00-7.50	Core	209/5	29.12
DBH-34	1	0.00-1.50	Core	210/5	26.87
DBH-36	6	1.50-3.00	Core	212/4	28.93
DBH-38	7	6.00-7.50	Core	214/5	28.10

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Summary of Slake Durability Test Results

Client:	**NTPC Limited**	**Report No.**	**SIPL/RK-Slake Durability/2023**
Project:	**Geotechnical Investigation Work for Proposed Sipat STPP Stage-III at Bilaspur, Chattisgarh**	**Report Date:**	**31.05.2023**
	Test Methods:		***IS:10050***

BH No.	Piece No.	Depth (m)	Sample Type	LAB No.	Slake Durability Index (I_{d2})	Slake Durability Index (I_{d1})
					%	%
DBH-1	7	4.50-6.00	Core	185/4	99.17	99.54
DBH-2	1	1.95-3.00	Core	186/6	98.52	99.06
DBH-6	18	6.00-7.50	Core	190/4	98.19	99.47
DBH-33	7	3.00-4.50	Core	209/4	99.03	99.26
DBH-50	3	4.50-6.00	Core	220/4	98.20	98.62

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2.10. ELECTRICAL RESISTIVITY TEST:

Twenty three (23) nos. Electrical Resistivity Tests were carried out at the following locations around Plant Area. The test procedure and results are presented under Section-8.

ERT No.	Co-ordinates		Reduced Level (M)	ERT No.	Co-ordinates		Reduced Level (M)
	Easting	Northing			Easting	Northing	
ERT-1	(-)879.00	1630	282.655	ERT-13	(-)755.00	868	282.780
ERT-2	(-)488.00	1466	282.315	ERT-14	(-)688.00	781	282.480
ERT-3	(-)471.000	1341	282.200	ERT-15	(-)824.00	720	282.265
ERT-4	(-)721.000	1326	284.510	ERT-16	(-)511.00	694	282.112
ERT-5	(-)643.000	1338	282.560	ERT-17	(-)926.00	571	282.719
ERT-6	(-)529.000	1284	282.360	ERT-18	(-)1035.00	362	282.670
ERT-7	(-)869.000	1296	282.570	ERT-19	(-)1532.00	945	283.170
ERT-8	(-)575.000	1200	282.460	ERT-20	(-)460.00	1666	282.218
ERT-9	(-)769.000	1125	282.290	ERT-21	148.00	1814	282.454
ERT-10	(-)772.000	1018	282.820	ERT-22	36.00	1620	282.110
ERT-11	(-)669.000	1008	282.482	ERT-23	(-)607.00	1514	283.072
ERT-12	(-)605.000	969	282.920				

2.11. CROSS HOLE SHEAR TEST:

Five (05) nos. Cross Hole Shear Test were carried out to determine the dynamic properties of the layer for the construction of machine foundations at the following locations. The test procedure and results are presented and discussed under Section-9.

GEOLOGY:

The study area belongs to the Chhattisgarh Basin. The succession of the basin (~2500 m thick) comprises dominantly of sandstones, shale, and carbonates with subordinate conglomerate and tuffs at different stratigraphic levels. The succession is designated as Chhattisgarh Supergroup, which is further classified into different groups. Shale is the only rock type encountered in the study area. The color of the shale varies from reddish brown to olive green depending on degree of weathering. The upper reaches of the rock layer is weathered and fractured. This rock layer is conformably underlies by filled up soil or clayey soil.

Summarized result of the resistivity measurements at different locations in the area are given in the following tables.

It may be indicated here that in case of highly resistive formations, current penetrates much deeper into the earth than when the subsurface formations are conducting. Further, in the present investigation only apparent resistivity is measured which may be taken (as a first approximation) as the weighted average of the true resistivity of the subsurface formations in which current lines flow.

APPARENT RESISTIVITY VALUES

ERT No. 01

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	85.59	85.75	85.44	85.75	85.63
2	1	49.01	49.95	49.64	49.95	49.64
3	2	35.06	35.18	35.18	35.18	35.15
4	3	31.10	31.01	30.82	31.10	31.01
5	4	31.79	31.79	32.04	31.92	31.89
6	5	35.18	35.66	35.03	35.66	35.38
7	6	39.39	39.77	39.96	39.77	39.72
8	7	45.74	46.18	46.18	45.52	45.91
9	8	49.01	49.01	48.76	49.76	49.13
10	10	59.06	59.06	58.75	60.00	59.22

Mean Resistivity at ERT-01 is 46.27 Ohm - m.

ERT No. 02

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	30.50	30.50	30.53	30.48	30.50
2	1	27.27	27.24	27.27	27.36	27.28
3	2	35.94	35.94	35.81	35.94	35.91
4	3	42.79	42.98	42.88	43.35	43.00
5	4	49.01	49.38	49.26	48.76	49.10
6	5	53.72	53.25	53.25	53.41	53.41
7	6	60.13	60.88	60.70	60.51	60.55
8	7	60.70	60.91	61.13	61.57	61.08
9	8	67.61	67.35	66.85	66.35	67.04
10	10	76.34	75.08	75.71	76.03	75.79

Mean Resistivity at ERT-02 is 50.37 Ohm - m.

ERT No. 03

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	17.78	17.78	17.75	17.79	17.77
2	1	19.41	19.38	19.45	19.41	19.41
3	2	25.89	26.26	25.82	26.20	26.04
4	3	31.67	32.04	32.04	31.85	31.90
5	4	38.70	38.20	38.20	37.82	38.23
6	5	43.82	43.82	43.98	44.30	43.98
7	6	50.52	50.89	50.70	51.27	50.85
8	7	56.74	57.40	57.62	57.40	57.29
9	8	62.83	63.33	63.59	63.33	63.27
10	10	66.29	66.60	66.60	66.91	66.60

Mean Resistivity at ERT-03 is 41.53 Ohm - m.

ERT No. 04

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	197.88	197.88	191.88	197.41	196.26
2	1	163.99	163.99	163.67	164.93	164.14
3	2	101.16	102.41	101.16	103.67	102.10
4	3	59.94	60.41	60.13	60.32	60.20
5	4	60.57	60.69	61.20	60.57	60.76
6	5	56.86	57.02	56.86	56.86	56.90
7	6	52.40	53.16	53.16	53.34	53.01
8	7	53.88	53.66	53.88	55.20	54.15
9	8	57.30	57.80	57.55	58.56	57.80
10	10	57.18	56.23	56.86	56.55	56.70

Mean Resistivity at ERT-04 is 86.20 Ohm - m.

ERT No. 05

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	24.22	24.19	24.20	24.19	24.20
2	1	28.02	27.99	27.96	27.99	27.99
3	2	19.80	20.17	20.23	20.23	20.11
4	3	19.04	18.85	19.04	18.75	18.92
5	4	21.24	21.49	21.36	21.36	21.36
6	5	22.93	22.93	22.93	22.62	22.85
7	6	26.20	26.58	26.95	26.77	26.62
8	7	29.25	29.91	29.47	29.25	29.47
9	8	34.93	34.93	33.44	35.94	34.81
10	10	41.47	41.78	42.41	43.67	42.33

Mean Resistivity at ERT-05 is 26.87 Ohm - m.

ERT No. 06

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	21.34	21.36	21.37	21.36	21.36
2	1	27.36	27.39	27.39	27.39	27.39
3	2	48.63	48.57	48.38	54.98	50.14
4	3	57.58	57.87	57.68	57.87	57.75
5	4	57.68	58.43	57.80	58.18	58.02
6	5	60.00	59.69	60.16	59.69	59.88
7	6	66.73	67.10	66.73	67.67	67.06
8	7	68.17	69.05	68.61	69.93	68.94
9	8	72.38	73.14	72.13	72.13	72.44
10	10	76.34	76.65	76.63	76.65	76.57

Mean Resistivity at ERT-06 is 55.95 Ohm - m.

ERT No. 07

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	25.18	25.13	25.17	25.16	25.16
2	1	32.58	32.64	32.77	32.64	32.66
3	2	39.71	39.90	39.90	39.90	39.85
4	3	47.31	47.22	47.40	47.40	47.33
5	4	53.87	54.28	53.78	53.91	53.96
6	5	59.53	59.69	59.85	60.00	59.77
7	6	66.92	66.92	67.10	67.10	67.01
8	7	75.87	76.75	75.21	75.43	75.81
9	8	81.93	81.68	82.18	82.43	82.06
10	10	94.25	95.82	94.25	95.19	94.87

Mean Resistivity at ERT-07 is 57.85 Ohm - m.

ERT No. 08

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	28.94	28.93	28.96	29.04	28.97
2	1	26.39	26.48	26.51	26.48	26.47
3	2	37.82	37.70	37.89	37.63	37.76
4	3	41.47	42.03	42.03	42.03	41.89
5	4	51.52	51.77	51.52	51.65	51.61
6	5	56.86	56.86	57.02	57.02	56.94
7	6	62.77	62.77	62.96	63.33	62.96
8	7	71.00	71.03	69.93	71.25	70.80
9	8	79.42	80.17	79.17	79.67	79.61
10	10	96.13	95.19	96.13	96.76	96.05

Mean Resistivity at ERT-08 is 55.31 Ohm - m.

ERT No. 09

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	30.07	30.06	30.07	30.06	30.07
2	1	23.75	23.81	23.84	23.91	23.83
3	2	30.03	30.03	30.16	30.28	30.13
4	3	39.30	38.82	39.02	39.30	39.11
5	4	47.50	47.88	47.25	47.37	47.50
6	5	58.59	58.43	57.18	57.02	57.80
7	6	65.97	66.54	66.54	66.35	66.35
8	7	67.73	66.85	67.73	67.73	67.51
9	8	72.38	72.13	72.13	72.13	72.19
10	10	87.33	87.02	87.96	87.65	87.49

Mean Resistivity at ERT-09 is 52.20 Ohm - m.

ERT No. 10

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	22.93	22.98	22.93	22.94	22.94
2	1	27.14	27.08	27.14	27.11	27.12
3	2	35.25	35.25	35.25	35.31	35.26
4	3	47.88	47.40	47.97	47.22	47.62
5	4	52.02	52.02	52.65	52.02	52.18
6	5	62.83	62.67	62.52	62.52	62.63
7	6	72.01	72.19	72.01	71.25	71.86
8	7	73.45	73.23	73.67	73.23	73.39
9	8	75.40	76.40	76.15	75.90	75.96
10	10	92.05	92.99	92.05	94.25	92.83

Mean Resistivity at ERT-10 is 56.18 Ohm - m.

ERT No. 11

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	117.79	116.88	117.32	116.85	117.21
2	1	83.56	85.13	83.56	83.25	83.88
3	2	74.33	74.14	74.33	74.52	74.33
4	3	66.25	66.44	66.35	66.07	66.28
5	4	55.54	55.67	55.54	55.54	55.57
6	5	66.44	67.07	66.13	67.86	66.87
7	6	57.68	57.11	57.68	58.06	57.63
8	7	63.11	63.33	63.99	63.99	63.61
9	8	70.87	71.12	70.87	70.37	70.81
10	10	84.82	86.71	86.39	86.08	86.00

Mean Resistivity at ERT-11 is 74.22 Ohm - m.

ERT No. 12

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	43.66	43.82	43.35	43.66	43.62
2	1	34.96	35.00	35.03	34.96	34.99
3	2	42.85	42.98	42.98	42.91	42.93
4	3	45.43	45.33	45.24	45.24	45.31
5	4	53.78	54.28	54.41	54.79	54.32
6	5	52.62	52.62	52.31	52.46	52.50
7	6	55.79	56.36	56.36	55.98	56.12
8	7	53.22	53.22	53.66	53.22	53.33
9	8	58.31	59.06	57.80	58.06	58.31
10	10	69.43	68.80	69.11	70.68	69.51

Mean Resistivity at ERT-12 is 51.09 Ohm - m.

ERT No. 13

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	38.32	37.85	38.01	37.85	38.01
2	1	33.33	33.36	33.33	33.39	33.35
3	2	35.18	35.31	35.18	35.06	35.18
4	3	32.70	32.80	32.80	33.08	32.84
5	4	33.68	34.05	34.56	34.30	34.15
6	5	34.71	34.87	35.18	35.34	35.03
7	6	37.70	36.95	38.45	37.32	37.60
8	7	38.92	38.70	39.36	39.36	39.09
9	8	40.46	41.47	42.47	40.97	41.34
10	10	39.90	40.21	39.90	40.21	40.05

Mean Resistivity at ERT-13 is 36.67 Ohm - m.

ERT No. 14

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	26.45	26.45	26.46	26.40	26.44
2	1	30.16	30.16	30.22	30.22	30.19
3	2	37.76	38.14	37.51	37.57	37.74
4	3	33.83	33.93	33.55	33.55	33.72
5	4	30.41	30.91	31.29	31.04	30.91
6	5	36.13	35.66	36.13	36.76	36.17
7	6	40.90	40.90	41.09	41.09	41.00
8	7	44.20	44.20	45.08	43.98	44.37
9	8	50.77	51.52	51.27	50.77	51.08
10	10	62.20	63.46	61.89	61.57	62.28

Mean Resistivity at ERT-14 is 39.39 Ohm - m.

ERT No. 15

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	109.78	109.94	110.09	109.62	109.86
2	1	85.13	85.76	85.45	85.76	85.53
3	2	97.01	96.82	96.82	96.82	96.87
4	3	85.39	85.29	85.57	85.76	85.50
5	4	93.11	93.11	92.99	93.49	93.18
6	5	97.23	97.70	97.86	97.39	97.54
7	6	91.23	90.85	90.85	91.80	91.18
8	7	101.38	101.38	101.16	101.60	101.38
9	8	110.08	110.58	100.08	110.58	107.83
10	10	126.29	125.98	126.29	125.35	125.98

Mean Resistivity at ERT-15 is 99.48 Ohm - m.

ERT No. 16

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	83.24	83.24	82.92	83.08	83.12
2	1	125.03	125.66	125.66	125.66	125.50
3	2	116.86	117.05	116.80	116.93	116.91
4	3	89.82	89.88	89.91	89.82	89.85
5	4	80.67	80.67	80.92	46.75	72.25
6	5	58.59	59.06	59.06	58.43	58.78
7	6	43.73	43.73	44.67	44.11	44.06
8	7	31.45	31.23	31.67	32.11	31.61
9	8	30.91	30.91	31.92	31.67	31.35
10	10	32.99	33.61	33.61	33.61	33.46

Mean Resistivity at ERT-16 is 68.69 Ohm - m.

ERT No. 17

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	172.283	173.226	173.069	172.755	172.83
2	1	126.288	125.66	136.602	124.446	128.25
3	2	87.773	88.212	87.898	87.962	87.96
4	3	65.971	66.065	66.015	66.065	66.03
5	4	54.662	55.164	55.415	54.787	55.01
6	5	60.002	30.159	60.316	60.473	52.74
7	6	69.366	69.554	69.931	69.931	69.70
8	7	78.97	79.607	79.607	79.607	79.45
9	8	87.209	86.958	87.209	86.455	86.96
10	10	103.209	103.356	103.042	102.414	103.01

Mean Resistivity at ERT-17 is 90.19 Ohm - m.

ERT No. 18

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	94.54	94.23	94.30	94.23	94.33
2	1	76.65	77.28	76.65	76.65	76.81
3	2	63.46	63.46	63.27	63.46	63.41
4	3	58.43	58.24	58.43	58.34	58.36
5	4	66.73	67.23	66.98	66.47	66.85
6	5	73.67	73.83	74.14	72.88	73.63
7	6	82.94	83.69	82.37	82.56	82.89
8	7	94.34	94.56	93.90	95.00	94.45
9	8	101.79	101.03	101.28	101.54	101.41
10	10	125.35	125.66	124.41	125.98	125.35

Mean Resistivity at ERT-18 is 83.75 Ohm - m.

ERT No. 19

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	48.37	48.37	47.59	48.21	48.14
2	1	26.95	27.05	27.05	27.05	27.02
3	2	35.69	35.69	35.75	35.69	35.70
4	3	47.78	47.78	47.50	47.40	47.62
5	4	53.28	53.53	53.78	53.66	53.56
6	5	54.35	53.41	53.88	54.03	53.92
7	6	49.01	50.52	50.52	48.95	49.75
8	7	51.68	52.56	52.78	52.39	52.35
9	8	52.28	52.53	54.03	53.03	52.97
10	10	61.57	63.46	63.46	62.20	62.67

Mean Resistivity at ERT-19 is 48.37 Ohm - m.

ERT No. 20

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	59.68	59.99	59.99	59.99	59.91
2	1	65.66	65.97	65.03	65.03	65.42
3	2	77.78	77.72	77.72	77.85	77.77
4	3	86.89	86.52	86.14	86.42	86.49
5	4	95.50	95.12	94.87	94.50	95.00
6	5	102.26	101.16	101.00	100.69	101.27
7	6	112.72	112.34	111.97	112.34	112.34
8	7	109.96	109.30	109.30	109.30	109.46
9	8	115.36	115.86	114.60	115.11	115.23
10	10	131.95	131.32	131.32	131.63	131.55

Mean Resistivity at ERT-20 is 95.45 Ohm - m.

ERT No. 21

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	94.54	93.92	93.92	94.23	94.15
2	1	86.39	87.33	87.65	87.02	87.10
3	2	78.54	78.41	78.22	78.35	78.38
4	3	81.90	81.71	81.52	81.80	81.73
5	4	89.47	89.72	89.47	84.97	88.41
6	5	96.92	97.07	97.23	96.92	97.03
7	6	104.80	104.80	104.61	104.80	104.76
8	7	114.35	113.03	113.03	113.69	113.53
9	8	118.63	118.63	118.12	118.37	118.44
10	10	143.57	144.20	144.51	144.83	144.28

Mean Resistivity at ERT-21 is 100.78 Ohm - m.

ERT No. 22

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	132.24	132.08	132.55	132.39	132.31
2	1	94.87	95.50	94.56	95.50	95.11
3	2	76.72	77.85	77.91	77.91	77.59
4	3	67.48	67.57	67.29	67.10	67.36
5	4	78.16	78.54	78.54	78.03	78.32
6	5	84.19	83.88	84.19	84.51	84.19
7	6	93.68	93.30	93.68	94.06	93.68
8	7	96.76	96.76	96.98	96.76	96.82
9	8	102.54	102.29	103.29	102.79	102.73
10	10	121.89	122.21	99.12	121.58	116.20

Mean Resistivity at ERT-22 is 94.43 Ohm - m.

ERT No. 23

Sl No.	S (M)	Apparent Electrical Resistivity (Ohm-m)				
		(N - S)	(E - W)	(NE - SW)	(NW-SE)	Mean
1	0.5	173.25	173.54	174.33	173.23	173.59
2	1	188.49	187.23	187.23	188.18	187.78
3	2	174.04	174.67	175.92	173.41	174.51
4	3	153.62	153.62	154.56	154.56	154.09
5	4	126.04	126.04	125.91	125.91	125.97
6	5	100.84	100.21	101.00	100.37	100.61
7	6	89.72	89.91	90.48	90.67	90.19
8	7	98.96	98.30	98.74	98.30	98.57
9	8	107.32	108.07	107.06	107.32	107.44
10	10	127.86	127.55	127.55	127.55	127.62

Mean Resistivity at ERT-23 is 134.04 Ohm - m.

The above Mean Resistivity values are summarized below.

Sl No.	ERT No.	Mean Resisivity Values Ohm-m.
1	ERT-01	46.27
2	ERT-02	50.37
3	ERT-03	41.53
4	ERT-04	86.20
5	ERT-05	26.87
6	ERT-06	55.95
7	ERT-07	57.85
8	ERT-08	55.31
9	ERT-09	52.20
10	ERT-10	56.18
11	ERT-11	74.22
12	ERT-12	51.09
13	ERT-13	36.67
14	ERT-14	39.39
15	ERT-15	99.48
16	ERT-16	68.69
17	ERT-17	90.19
18	ERT-18	83.75
19	ERT-19	48.37
20	ERT-20	95.45
21	ERT-21	100.78
22	ERT-22	94.43
23	ERT-23	134.04

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 29.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -2784.001, W-422.001

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 281.764

DERT →		1																Average Apparent Resistivity ρ_{avg}
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, **a**	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	50.000	471.2	56.300	530.6	69.700	656.9	61.400	578.7	50.000	471.2	56.300	530.6	69.700	656.9	61.400	578.7	559.36
2	3	36.700	691.8	36.300	684.2	34.800	656.0	38.100	718.2	36.700	691.8	36.300	684.2	34.800	656.0	38.100	718.2	687.54
3	6	26.900	1014.1	27.100	1021.6	25.400	957.6	26.400	995.3	26.900	1014.1	27.100	1021.6	25.400	957.6	26.400	995.3	997.14
4	9	23.000	1300.6	21.600	1221.5	22.300	1261.0	23.800	1345.9	23.000	1300.6	21.600	1221.5	22.300	1261.0	23.800	1345.9	1282.24
5	12	18.850	1421.3	17.140	1292.3	16.400	1236.5	18.420	1388.8	18.850	1421.3	17.140	1292.3	16.400	1236.5	18.420	1388.8	1334.74
6	15	15.850	1493.8	15.400	1451.4	16.220	1528.7	11.130	1049.0	15.850	1493.8	15.400	1451.4	16.220	1528.7	11.130	1049.0	1380.73
7	18	14.260	1612.8	13.370	1512.1	15.140	1712.3	13.930	1575.4	14.260	1612.8	13.370	1512.1	15.140	1712.3	13.930	1575.4	1603.15
8	21	12.270	1619.0	12.560	1657.3	13.830	1824.8	11.010	1452.7	12.270	1619.0	12.560	1657.3	13.830	1824.8	11.010	1452.7	1638.45
9	24	10.060	1517.0	11.040	1664.8	13.460	2029.7	10.540	1589.4	10.060	1517.0	11.040	1664.8	13.460	2029.7	10.540	1589.4	1700.23
10	27	8.680	1472.5	9.830	1667.6	8.560	1452.2	9.410	1596.4	8.680	1472.5	9.830	1667.6	8.560	1452.2	9.410	1596.4	1547.17
11	30	14.260	2687.9	8.050	1517.4	6.980	1315.7	7.210	1359.1	14.260	2687.9	8.050	1517.4	6.980	1315.7	7.210	1359.1	1720.02

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,

R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 29.03.2023

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /2

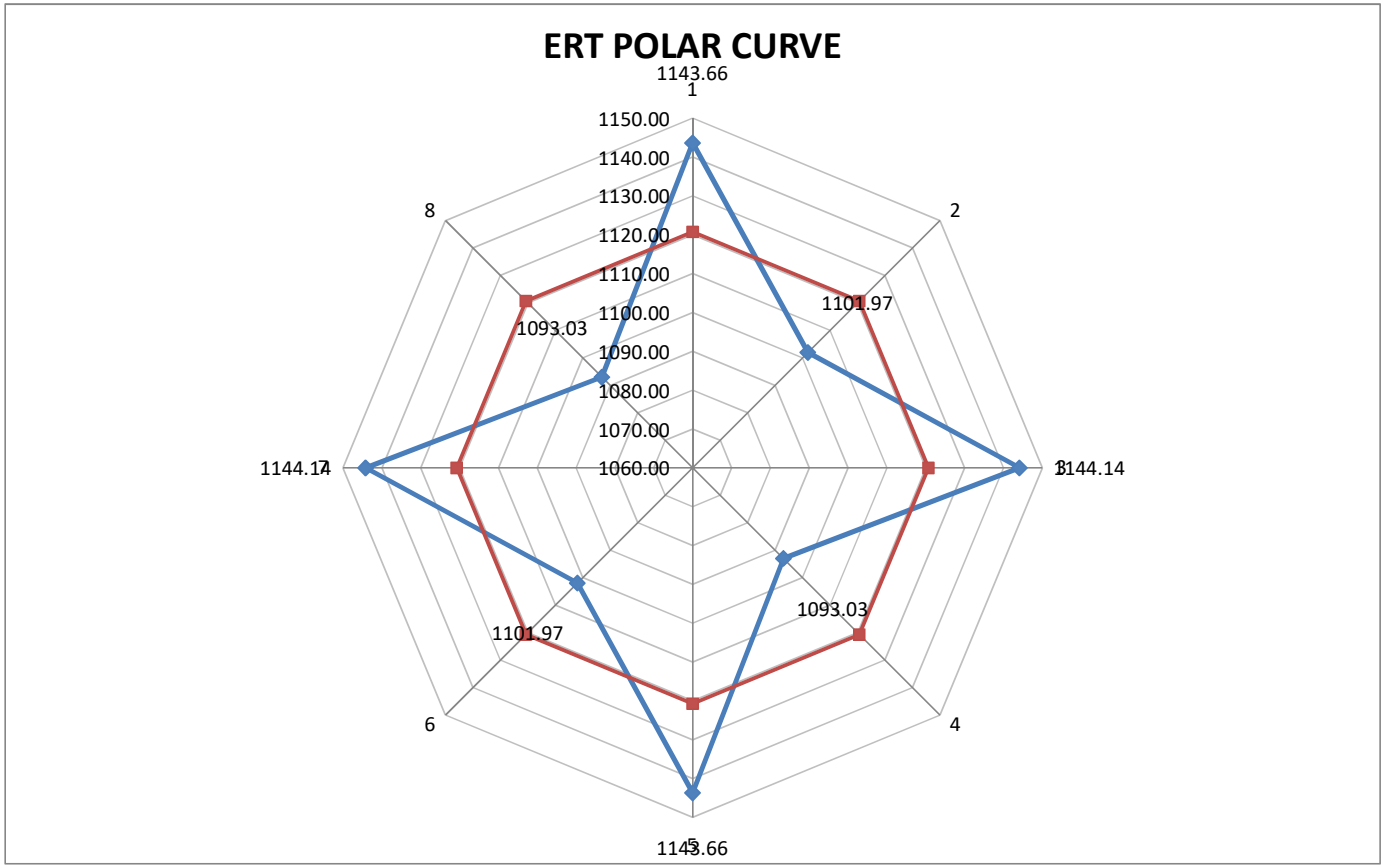
LOCATION : SIPAT

CO-ORDINATES : N -2784.001, W-422.001

Method Used: Wenner Four Pin Equal Probe Spacing.

GROUND LEVEL (m) : 281.764

POLAR CURVE



Mean Resistivity =	994.79	Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 29.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -2491.360, W-419.634

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 281.639

ERT →		2																
Direction →		N		NE		E		SE		S		SW		W		NW		Average Apparent Resistivity ρ_{avg}
Sr. No.	Electrodes Spacing, **a**	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	35.800	337.4	33.100	312.0	38.200	360.0	31.500	296.9	35.800	337.4	33.100	312.0	38.200	360.0	31.500	296.9	326.57
2	3	10.390	195.8	13.000	245.0	13.240	249.6	13.130	247.5	10.390	195.8	13.000	245.0	13.240	249.6	13.130	247.5	234.49
3	6	5.280	199.1	6.100	230.0	5.860	220.9	5.190	195.7	5.280	199.1	6.100	230.0	5.860	220.9	5.190	195.7	211.40
4	9	3.750	212.1	4.080	230.7	3.480	196.8	3.980	225.1	3.750	212.1	4.080	230.7	3.480	196.8	3.980	225.1	216.16
5	12	2.970	223.9	3.030	228.5	3.020	227.7	3.090	233.0	2.970	223.9	3.030	228.5	3.020	227.7	3.090	233.0	228.27
6	15	2.570	242.2	2.300	216.8	2.310	217.7	2.430	229.0	2.570	242.2	2.300	216.8	2.310	217.7	2.430	229.0	226.43
7	18	2.190	247.7	2.000	226.2	2.110	238.6	2.090	236.4	2.190	247.7	2.000	226.2	2.110	238.6	2.090	236.4	237.22
8	21	1.871	246.9	1.663	219.4	1.788	235.9	1.734	228.8	1.871	246.9	1.663	219.4	1.788	235.9	1.734	228.8	232.75
9	24	1.613	243.2	1.652	249.1	2.090	315.2	1.660	250.3	1.613	243.2	1.652	249.1	2.090	315.2	1.660	250.3	264.46
10	27	1.474	250.1	1.449	245.8	1.650	279.9	1.580	268.0	1.474	250.1	1.449	245.8	1.650	279.9	1.580	268.0	260.96
11	30	1.447	272.8	1.499	282.6	1.703	321.0	1.460	275.2	1.447	272.8	1.499	282.6	1.703	321.0	1.460	275.2	287.88

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,

R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 29.03.2023

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /2

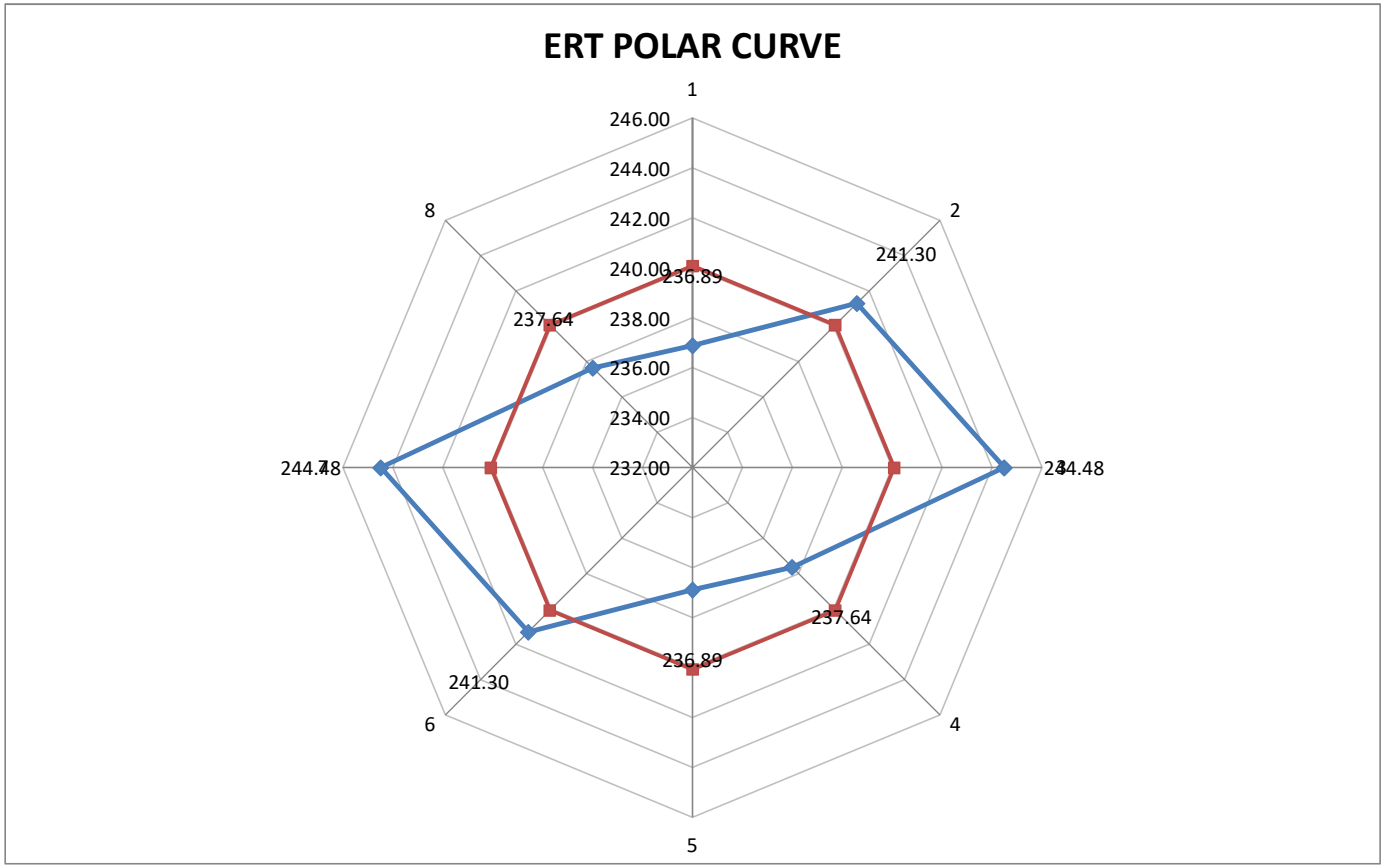
LOCATION : SIPAT

CO-ORDINATES : N -2491.360, W-419.634

Method Used: Wenner Four Pin Equal Probe Spacing.

GROUND LEVEL (m) : 281.639

POLAR CURVE



Mean Resistivity = 213.44 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 24.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /02**

LOCATION : SIPAT **CO-ORDINATES :** N -1428.183, W-540.489

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 281.764

DERT →		3																
Direction →		N		NE		E		SE		S		SW		W		NW		Average Apparent Resistivity ρ_{avg}
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	44.000	414.690	54.600	514.6	36.400	343.1	36.700	345.9	44.000	414.7	54.600	514.6	36.400	343.1	36.700	345.9	404.56
2	3	16.210	305.6	10.850	204.5	7.700	145.1	6.770	127.6	16.210	305.6	10.850	204.5	7.700	145.1	6.770	127.6	195.71
3	6	1.473	55.5	0.945	35.6	0.968	36.5	0.911	34.3	1.473	55.5	0.945	35.6	0.968	36.5	0.911	34.3	40.50
4	9	0.772	43.7	0.842	47.6	0.711	40.2	0.761	43.0	0.772	43.7	0.842	47.6	0.711	40.2	0.761	43.0	43.63
5	12	0.645	48.6	0.725	54.7	0.654	49.3	0.637	48.0	0.645	48.6	0.725	54.7	0.654	49.3	0.637	48.0	50.16
6	15	0.629	59.3	0.653	61.5	0.578	54.5	0.594	56.0	0.629	59.3	0.653	61.5	0.578	54.5	0.594	56.0	57.82
7	18	0.612	69.2	0.638	72.2	0.608	68.8	0.585	66.2	0.612	69.2	0.638	72.2	0.608	68.8	0.585	66.2	69.07
8	21	0.485	64.0	0.505	66.6	0.594	78.4	0.550	72.6	0.485	64.0	0.505	66.6	0.594	78.4	0.550	72.6	70.39
9	24	0.600	90.5	0.692	104.4	0.569	85.8	0.536	80.8	0.600	90.5	0.692	104.4	0.569	85.8	0.536	80.8	90.36
10	27	0.489	83.0	0.559	94.8	0.559	94.8	0.574	97.4	0.489	83.0	0.559	94.8	0.559	94.8	0.574	97.4	92.50
11	30	0.605	114.0	0.546	102.9	0.479	90.3	0.531	100.1	0.605	114.0	0.546	102.9	0.479	90.3	0.531	100.1	101.83

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 24.03.2023

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /02

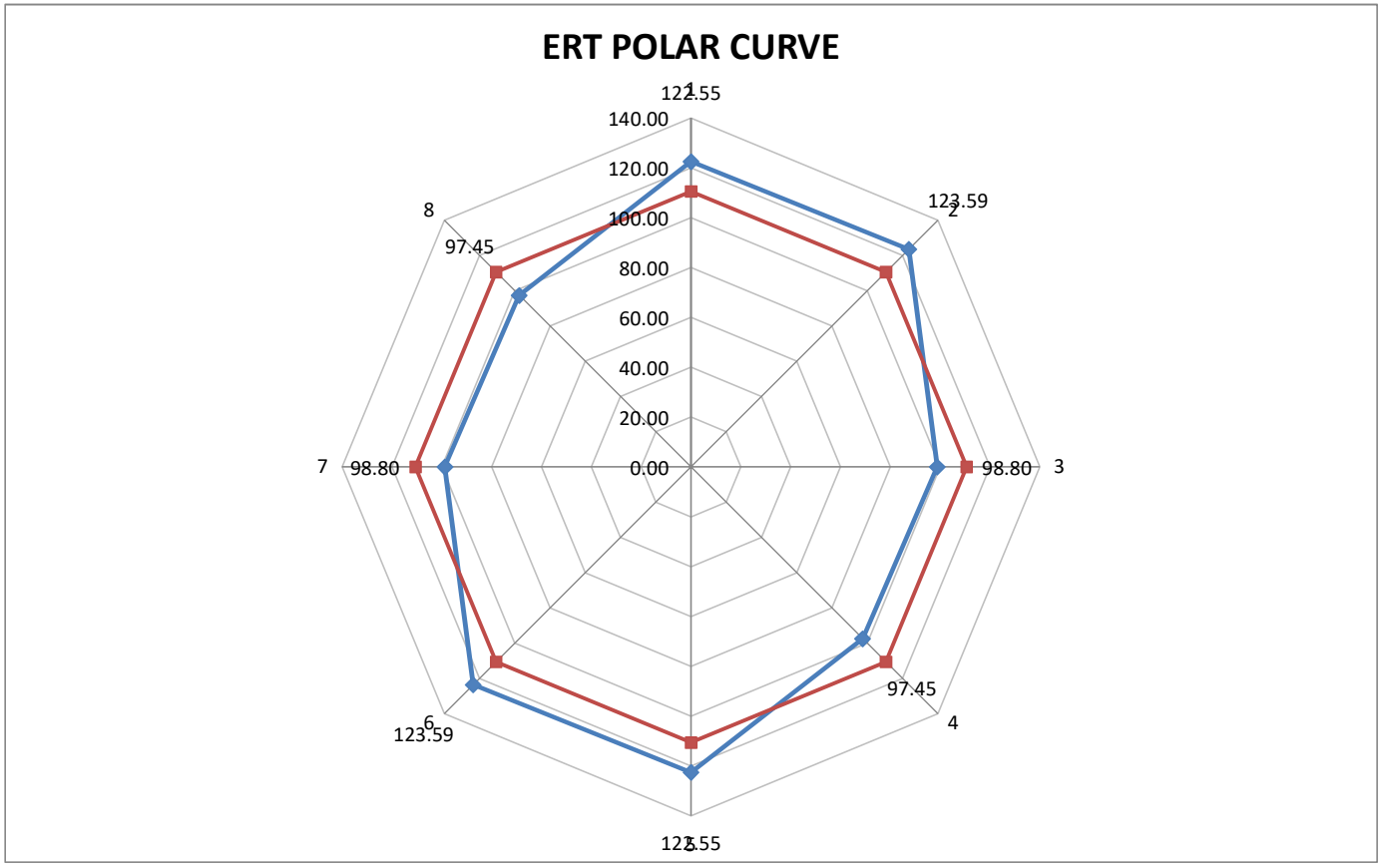
LOCATION : SIPAT

CO-ORDINATES : N -1428.183, W-540.489

Method Used: Wenner Four Pin Equal Probe Spacing.

GROUND LEVEL (m) : 281.764

POLAR CURVE



Mean Resistivity =	98.33	Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 24.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1397.934, W-489.536

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 283.167

DERT →		4																Average Apparent Resistivity ρ_{avg}
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	21.600	203.6	22.400	211.1	26.500	249.8	21.200	199.8	21.600	203.6	22.400	211.1	26.500	249.8	21.200	199.8	216.06
2	3	10.190	192.1	11.800	222.4	8.600	162.1	16.660	314.0	10.190	192.1	11.800	222.4	8.600	162.1	16.660	314.0	222.66
3	6	2.210	83.3	1.480	55.8	1.130	42.6	1.302	49.1	2.210	83.3	1.480	55.8	1.130	42.6	1.302	49.1	57.70
4	9	0.833	47.1	0.880	49.8	0.797	45.1	0.973	55.0	0.833	47.1	0.880	49.8	0.797	45.1	0.973	55.0	49.24
5	12	0.612	46.1	0.748	56.4	0.708	53.4	0.772	58.2	0.612	46.1	0.748	56.4	0.708	53.4	0.772	58.2	53.53
6	15	0.651	61.4	0.648	61.1	0.606	57.1	0.651	61.4	0.651	61.4	0.648	61.1	0.606	57.1	0.651	61.4	60.22
7	18	0.550	62.2	0.638	72.2	0.722	81.7	0.609	68.9	0.550	62.2	0.638	72.2	0.722	81.7	0.609	68.9	71.22
8	21	0.544	71.8	0.520	68.6	0.613	80.9	0.629	83.0	0.544	71.8	0.520	68.6	0.613	80.9	0.629	83.0	76.07
9	24	0.607	91.5	0.668	100.7	0.682	102.8	0.622	93.8	0.607	91.5	0.668	100.7	0.682	102.8	0.622	93.8	97.23
10	27	0.722	122.5	0.644	109.3	0.562	95.3	0.569	96.5	0.722	122.5	0.644	109.3	0.562	95.3	0.569	96.5	105.90
11	30	0.620	116.9	0.642	121.0	0.653	123.1	0.514	96.9	0.620	116.9	0.642	121.0	0.653	123.1	0.514	96.9	114.46

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 24.03.2023

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /2

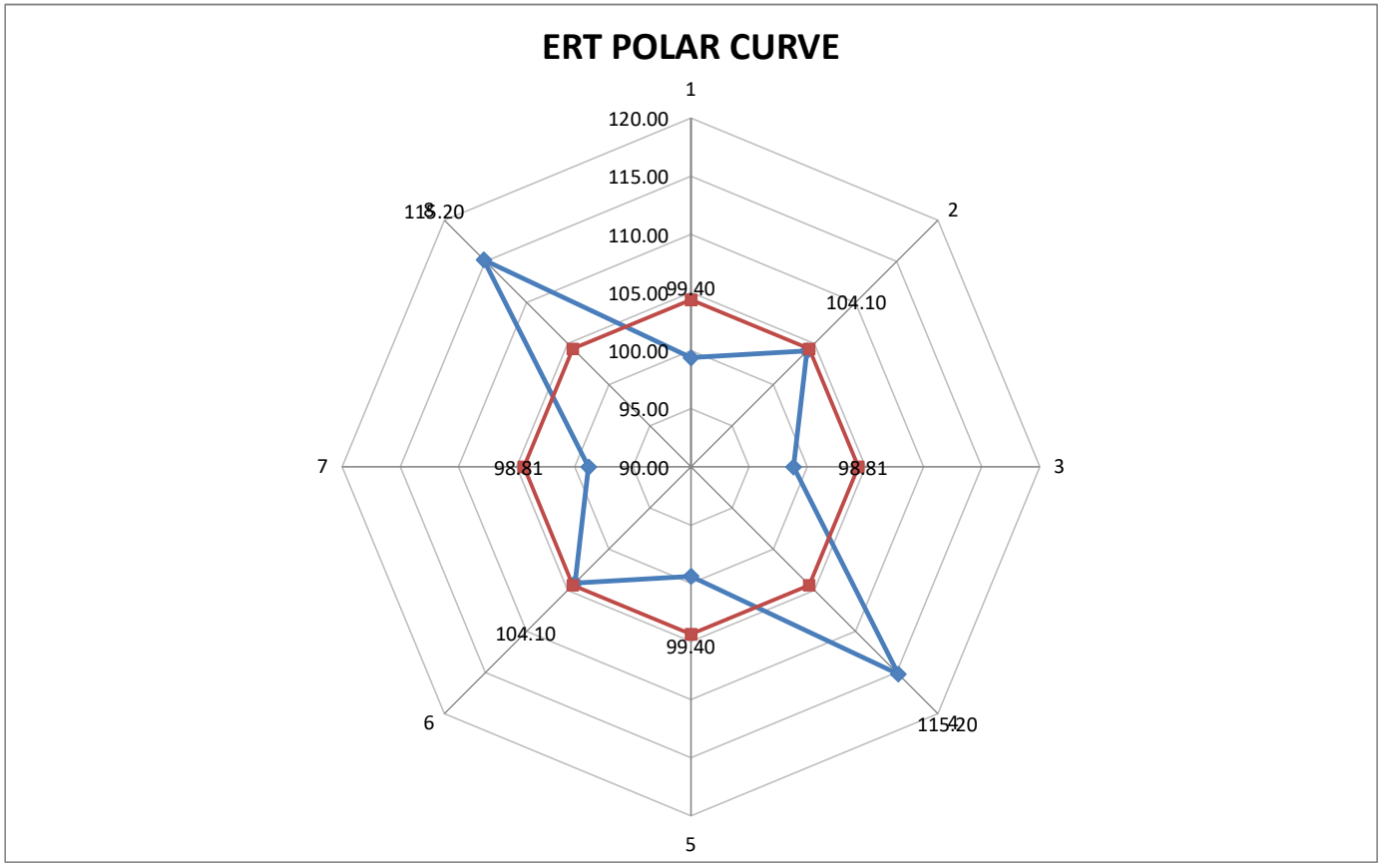
LOCATION : SIPAT

CO-ORDINATES : N -1397.934, W-489.536

Method Used: Wenner Four Pin Equal Probe Spacing.

GROUND LEVEL (m) : 283.167

POLAR CURVE



Mean Resistivity =	92.17	Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 24.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1348.354, W-517.275

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.690

DERT →		5																
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	Average Apparent Resistivity ρ_{avg}
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	18.460	174.0	27.800	262.0	18.880	177.9	17.950	169.2	18.460	174.0	27.800	262.0	18.880	177.9	17.950	169.2	195.78
2	3	8.415	158.6	11.670	220.0	8.550	161.2	9.070	171.0	8.415	158.6	11.670	220.0	8.550	161.2	9.070	171.0	177.68
3	6	4.310	162.5	4.770	179.8	5.110	192.6	4.870	183.6	4.310	162.5	4.770	179.8	5.110	192.6	4.870	183.6	179.64
4	9	3.810	215.5	3.290	186.0	4.100	231.8	3.810	215.5	3.810	215.5	3.290	186.0	4.100	231.8	3.810	215.5	212.20
5	12	2.440	184.0	2.510	189.2	3.620	272.9	2.810	211.9	2.440	184.0	2.510	189.2	3.620	272.9	2.810	211.9	214.51
6	15	2.960	279.0	2.160	203.6	3.090	291.2	2.340	220.5	2.960	279.0	2.160	203.6	3.090	291.2	2.340	220.5	248.58
7	18	2.040	230.7	2.300	260.1	2.140	242.0	2.390	270.3	2.040	230.7	2.300	260.1	2.140	242.0	2.390	270.3	250.79
8	21	1.980	261.3	2.140	282.4	2.080	274.4	1.755	231.6	1.980	261.3	2.140	282.4	2.080	274.4	1.755	231.6	262.41
9	24	1.600	241.3	1.920	289.5	1.595	240.5	1.375	207.3	1.600	241.3	1.920	289.5	1.595	240.5	1.375	207.3	244.67
10	27	1.413	239.7	1.740	295.2	1.615	274.0	1.435	243.4	1.413	239.7	1.740	295.2	1.615	274.0	1.435	243.4	263.08
11	30	1.411	266.0	1.688	318.2	1.245	234.7	1.188	223.9	1.411	266.0	1.688	318.2	1.245	234.7	1.188	223.9	260.69

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 24.03.2023

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /2

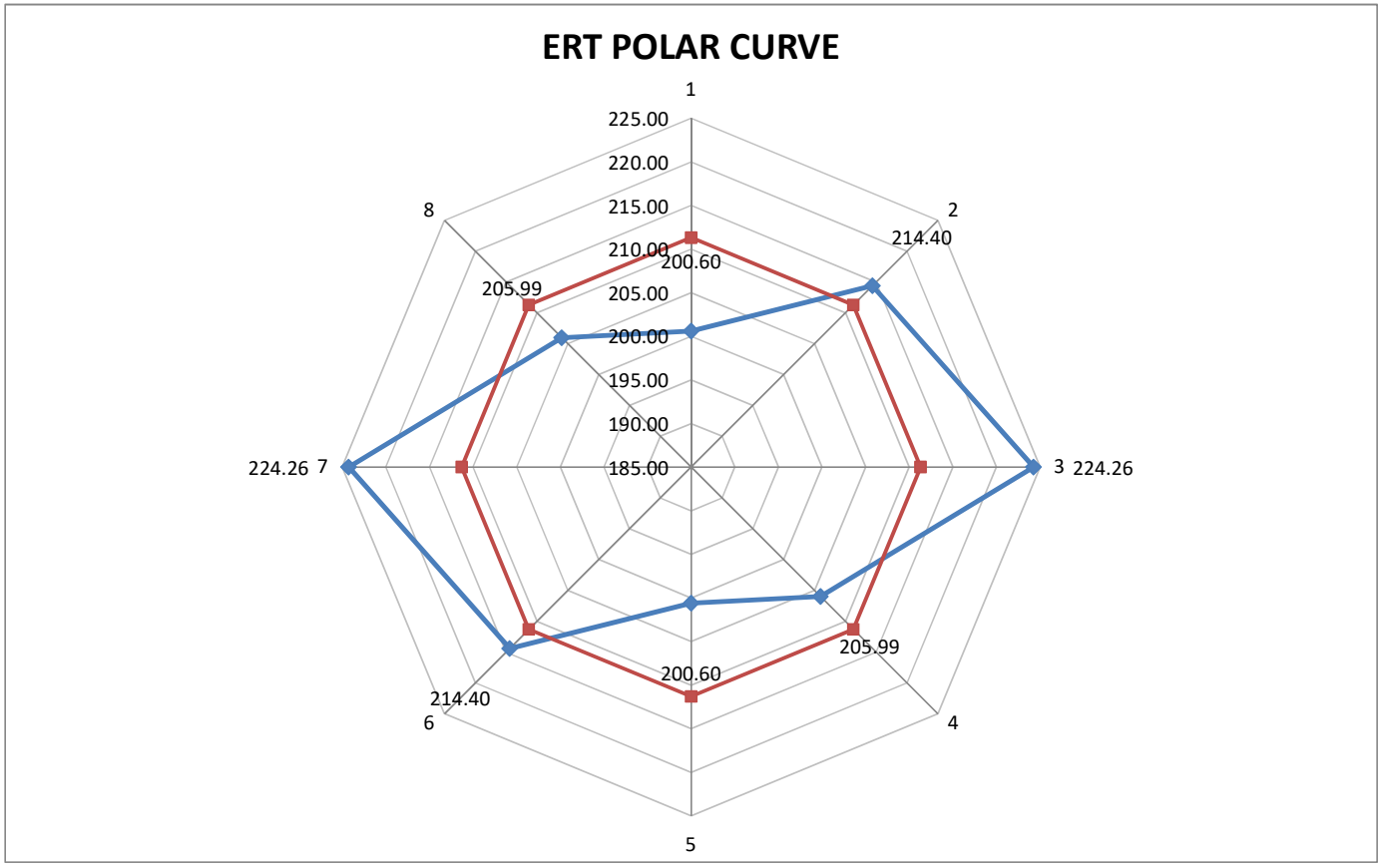
LOCATION : SIPAT

CO-ORDINATES : N -1348.354, W-517.275

Method Used: Wenner Four Pin Equal Probe Spacing.

GROUND LEVEL (m) : 282.690

POLAR CURVE



Mean Resistivity = 188.55 **Ohm M**

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 28.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1140.998, W-1088.005

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.117

DERT →		6																
Direction →		N		NE		E		SE		S		SW		W		NW		Average Apparent Resistivity ρ_{avg}
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	0.133	1.3	0.261	2.5	0.275	2.6	0.198	1.9	0.133	1.3	0.261	2.5	0.275	2.6	0.198	1.9	2.04
2	3	0.049	0.9	0.028	0.5	0.037	0.7	0.278	5.2	0.049	0.9	0.028	0.5	0.037	0.7	0.278	5.2	1.85
3	6	4.180	157.6	2.460	92.7	1.474	55.6	0.186	7.0	4.180	157.6	2.460	92.7	1.474	55.6	0.186	7.0	78.23
4	9	0.692	39.1	0.875	49.5	0.793	44.8	0.765	43.3	0.692	39.1	0.875	49.5	0.793	44.8	0.765	43.3	44.18
5	12	0.422	31.8	0.648	48.9	0.504	38.0	0.669	50.4	0.422	31.8	0.648	48.9	0.504	38.0	0.669	50.4	42.28
6	15	0.335	31.6	0.526	49.6	0.194	18.3	0.345	32.5	0.335	31.6	0.526	49.6	0.194	18.3	0.345	32.5	32.99
7	18	0.366	41.4	0.542	61.3	0.296	33.5	0.368	41.6	0.366	41.4	0.542	61.3	0.296	33.5	0.368	41.6	44.45
8	21	0.315	41.6	0.182	24.0	0.143	18.9	0.285	37.6	0.315	41.6	0.182	24.0	0.143	18.9	0.285	37.6	30.51
9	24	0.302	45.5	0.242	36.5	0.097	14.6	0.214	32.3	0.302	45.5	0.242	36.5	0.097	14.6	0.214	32.3	32.23
10	27	0.263	44.6	0.863	146.4	0.080	13.6	0.680	115.4	0.263	44.6	0.863	146.4	0.080	13.6	0.680	115.4	79.99
11	30	0.234	44.1	0.243	45.8	0.297	56.0	0.276	52.0	0.234	44.1	0.243	45.8	0.297	56.0	0.276	52.0	49.48

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 28.03.2023

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /2

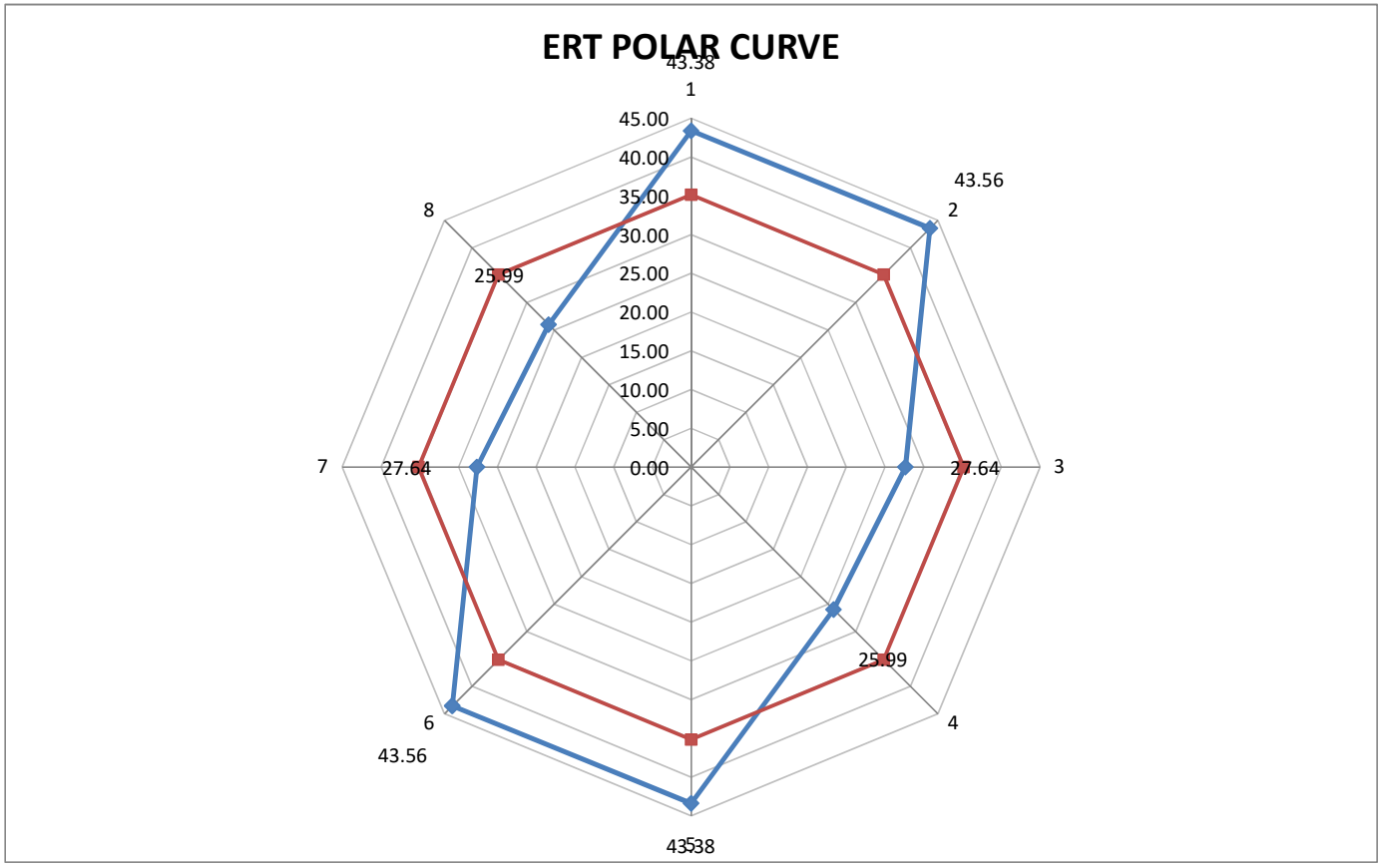
LOCATION : SIPAT

CO-ORDINATES : N -1140.998, W-1088.005

Method Used: Wenner Four Pin Equal Probe Spacing.

GROUND LEVEL (m) : 282.117

POLAR CURVE



Mean Resistivity =	31.38	Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 28.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1138.009, W-829.997

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.878

ERT →		7																Average Apparent Resistivity ρ_{avg}
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	26.500	249.8	22.400	211.1	20.400	192.3	0.166	1.6	26.500	249.8	22.400	211.1	20.400	192.3	0.166	1.6	163.68
2	3	11.050	208.3	10.400	196.0	9.965	187.8	0.174	3.3	11.050	208.3	10.400	196.0	9.965	187.8	0.174	3.3	148.86
3	6	2.960	111.6	2.410	90.9	3.430	129.3	0.040	1.5	2.960	111.6	2.410	90.9	3.430	129.3	0.040	1.5	83.32
4	9	1.704	96.4	1.841	104.1	1.431	80.9	0.004	0.2	1.704	96.4	1.841	104.1	1.431	80.9	0.004	0.2	70.40
5	12	1.425	107.4	1.506	113.5	1.231	92.8	0.001	0.1	1.425	107.4	1.506	113.5	1.231	92.8	0.001	0.1	78.47
6	15	1.234	116.3	1.246	117.4	1.113	104.9	0.001	0.1	1.234	116.3	1.246	117.4	1.113	104.9	0.001	0.1	84.68
7	18	0.965	109.1	0.986	111.5	0.946	107.0	1.260	142.5	0.965	109.1	0.986	111.5	0.946	107.0	1.260	142.5	117.54
8	21	1.226	161.8	1.130	149.1	1.460	192.6	1.310	172.9	1.226	161.8	1.130	149.1	1.460	192.6	1.310	172.9	169.09
9	24	0.960	144.8	0.980	147.8	1.139	171.8	1.206	181.9	0.960	144.8	0.980	147.8	1.139	171.8	1.206	181.9	161.54
10	27	1.346	228.3	1.460	247.7	1.140	193.4	1.053	178.6	1.346	228.3	1.460	247.7	1.140	193.4	1.053	178.6	212.02
11	30	1.116	210.4	0.960	181.0	0.946	178.3	0.896	168.9	1.116	210.4	0.960	181.0	0.946	178.3	0.896	168.9	184.63

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 28.03.2023

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /2

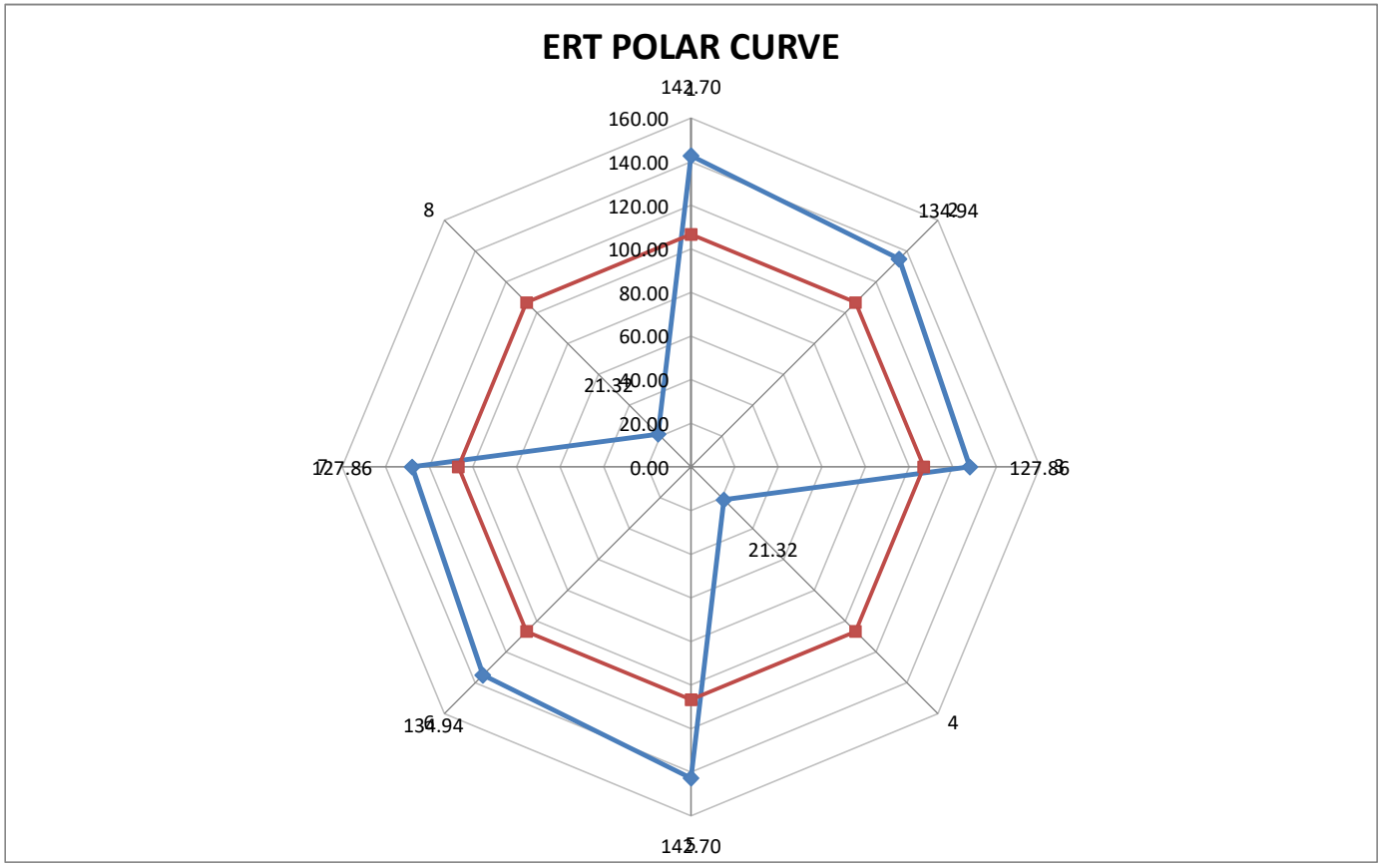
LOCATION : SIPAT

CO-ORDINATES : N -1138.009, W-829.997

Method Used: Wenner Four Pin Equal Probe Spacing.

GROUND LEVEL (m) : 282.878

POLAR CURVE



Mean Resistivity = 95.78 **Ohm M**

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 28.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -988.999, W-1160.001

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.113

ERT →		8																Average Apparent Resistivity ρ_{avg}
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	11.490	108.3	11.720	110.5	11.860	111.8	12.460	117.4	11.490	108.3	11.720	110.5	11.860	111.8	12.460	117.4	111.99
2	3	5.640	106.3	6.310	118.9	6.450	121.6	5.310	100.1	5.640	106.3	6.310	118.9	6.450	121.6	5.310	100.1	111.73
3	6	2.920	110.1	3.380	127.4	2.860	107.8	3.090	116.5	2.920	110.1	3.380	127.4	2.860	107.8	3.090	116.5	115.45
4	9	1.949	110.2	2.140	121.0	1.960	110.8	2.080	117.6	1.949	110.2	2.140	121.0	1.960	110.8	2.080	117.6	114.92
5	12	1.711	129.0	1.735	130.8	1.810	136.5	1.730	130.4	1.711	129.0	1.735	130.8	1.810	136.5	1.730	130.4	131.68
6	15	1.332	125.5	1.422	134.0	1.443	136.0	1.300	122.5	1.332	125.5	1.422	134.0	1.443	136.0	1.300	122.5	129.52
7	18	1.339	151.4	1.327	150.1	1.380	156.1	1.360	153.8	1.339	151.4	1.327	150.1	1.380	156.1	1.360	153.8	152.85
8	21	1.077	142.1	1.079	142.4	1.110	146.5	1.090	143.8	1.077	142.1	1.079	142.4	1.110	146.5	1.090	143.8	143.69
9	24	1.145	172.7	1.161	175.1	1.260	190.0	1.490	224.7	1.145	172.7	1.161	175.1	1.260	190.0	1.490	224.7	190.61
10	27	0.993	168.5	0.928	157.4	0.967	164.0	0.843	143.0	0.993	168.5	0.928	157.4	0.967	164.0	0.843	143.0	158.24
11	30	1.026	193.4	0.957	180.4	0.936	176.4	0.868	163.6	1.026	193.4	0.957	180.4	0.936	176.4	0.868	163.6	178.46

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 28.03.2023

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /2

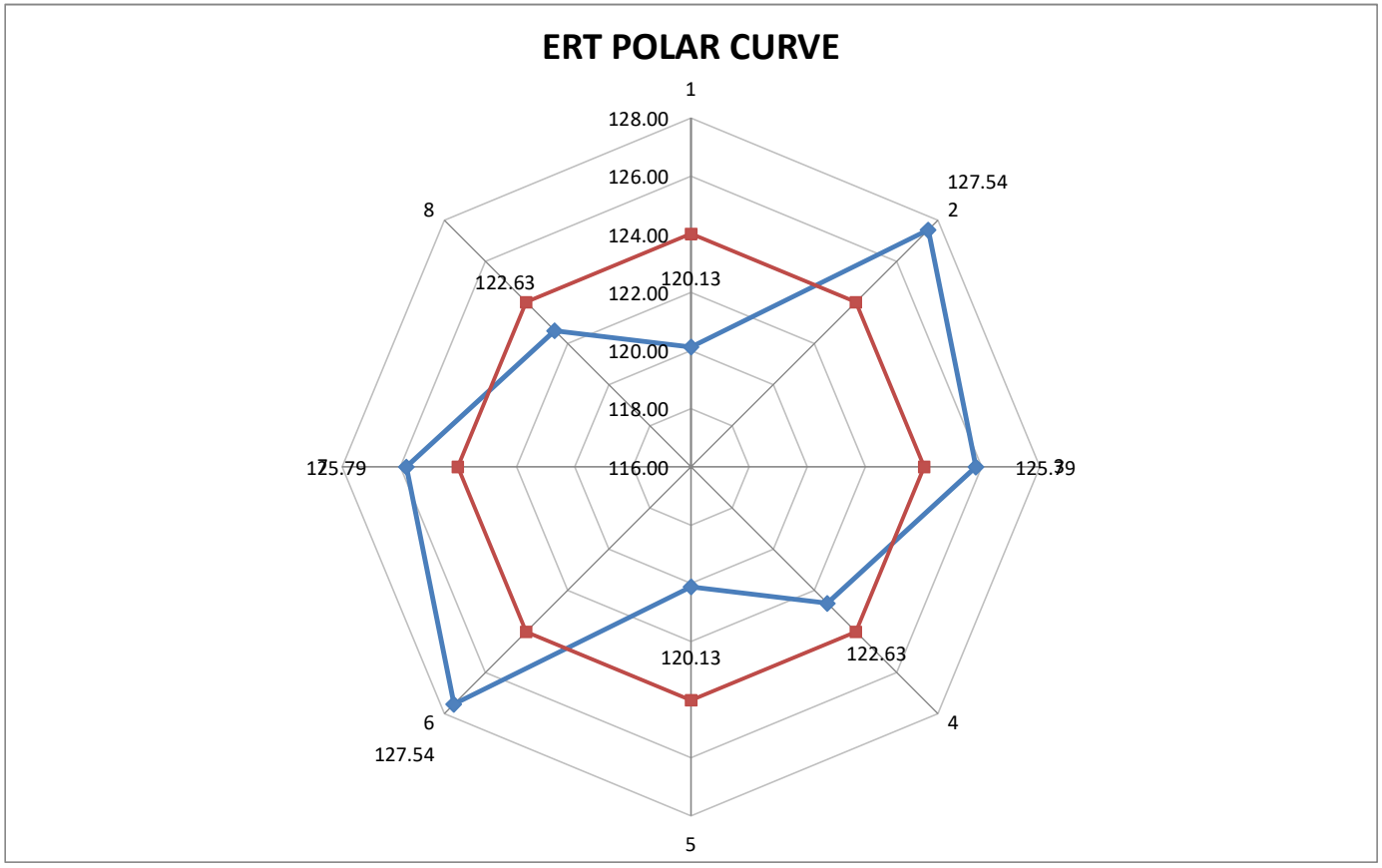
LOCATION : SIPAT

CO-ORDINATES : N -988.999, W-1160.001

Method Used: Wenner Four Pin Equal Probe Spacing.

GROUND LEVEL (m) : 282.113

POLAR CURVE



Mean Resistivity =	110.40	Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 28.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1060.001, W-974.001

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.128

DERT →		9																
Direction →		N		NE		E		SE		S		SW		W		NW		Average Apparent Resistivity ρ_{avg}
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	7.400	69.7	7.940	74.8	8.480	79.9	8.580	80.9	7.400	69.7	7.940	74.8	8.480	79.9	8.580	80.9	76.34
2	3	3.030	57.1	2.980	56.2	2.190	41.3	3.460	65.2	3.030	57.1	2.980	56.2	2.190	41.3	3.460	65.2	54.95
3	6	2.160	81.4	2.460	92.7	1.825	68.8	2.020	76.2	2.160	81.4	2.460	92.7	1.825	68.8	2.020	76.2	79.78
4	9	1.347	76.2	1.680	95.0	1.561	88.3	1.388	78.5	1.347	76.2	1.680	95.0	1.561	88.3	1.388	78.5	84.48
5	12	1.200	90.5	1.360	102.5	1.212	91.4	1.161	87.5	1.200	90.5	1.360	102.5	1.212	91.4	1.161	87.5	92.98
6	15	0.988	93.1	1.100	103.7	1.128	106.3	1.173	110.6	0.988	93.1	1.100	103.7	1.128	106.3	1.173	110.6	103.41
7	18	1.123	127.0	1.056	119.4	1.018	115.1	1.045	118.2	1.123	127.0	1.056	119.4	1.018	115.1	1.045	118.2	119.94
8	21	1.063	140.3	0.956	126.1	1.055	139.2	0.968	127.7	1.063	140.3	0.956	126.1	1.055	139.2	0.968	127.7	133.33
9	24	1.003	151.2	0.843	127.1	0.872	131.5	0.973	146.7	1.003	151.2	0.843	127.1	0.872	131.5	0.973	146.7	139.15
10	27	0.797	135.2	0.814	138.1	0.958	162.5	0.938	159.1	0.797	135.2	0.814	138.1	0.958	162.5	0.938	159.1	148.74
11	30	0.814	153.4	0.805	151.7	0.858	161.7	0.838	158.0	0.814	153.4	0.805	151.7	0.858	161.7	0.838	158.0	156.22

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

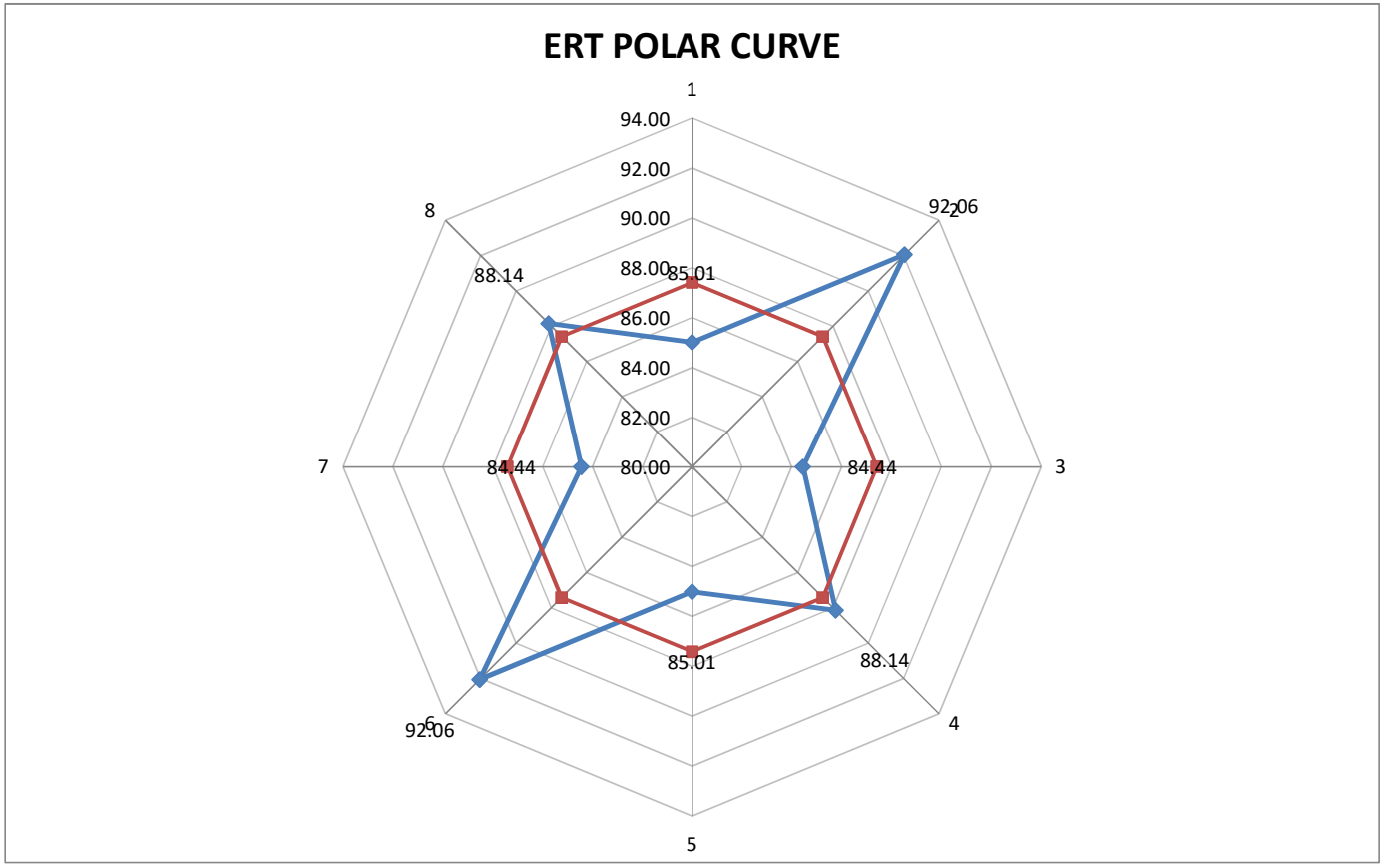
CLIENT : NTPC **Date : 28.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -1060.001, W-974.001**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 282.128**

POLAR CURVE



Mean Resistivity =	77.65	Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 28.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -697.498, W-1014.627

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 281.908

DERT →		10																
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	Average Apparent Resistivity ρ_{avg}
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	5.340	50.3	4.980	46.9	4.420	41.7	4.640	43.7	5.340	50.3	4.980	46.9	4.420	41.7	4.640	43.7	45.66
2	3	1.674	31.6	1.630	30.7	1.483	28.0	1.580	29.8	1.674	31.6	1.630	30.7	1.483	28.0	1.580	29.8	30.00
3	6	0.737	27.8	0.789	29.7	0.807	30.4	0.746	28.1	0.737	27.8	0.789	29.7	0.807	30.4	0.746	28.1	29.02
4	9	0.552	31.2	0.618	34.9	0.624	35.3	0.604	34.2	0.552	31.2	0.618	34.9	0.624	35.3	0.604	34.2	33.90
5	12	0.511	38.5	0.500	37.7	0.482	36.3	0.496	37.4	0.511	38.5	0.500	37.7	0.482	36.3	0.496	37.4	37.49
6	15	0.525	49.5	0.459	43.3	0.387	36.5	0.401	37.8	0.525	49.5	0.459	43.3	0.387	36.5	0.401	37.8	41.75
7	18	0.405	45.8	0.494	55.9	0.433	49.0	0.416	47.0	0.405	45.8	0.494	55.9	0.433	49.0	0.416	47.0	49.42
8	21	0.418	55.2	0.413	54.5	0.372	49.1	0.364	48.0	0.418	55.2	0.413	54.5	0.372	49.1	0.364	48.0	51.69
9	24	0.391	59.0	0.385	58.1	0.424	63.9	0.396	59.7	0.391	59.0	0.385	58.1	0.424	63.9	0.396	59.7	60.17
10	27	0.440	74.6	0.406	68.9	0.337	57.2	0.346	58.7	0.440	74.6	0.406	68.9	0.337	57.2	0.346	58.7	64.85
11	30	0.396	74.6	0.401	75.6	0.370	69.7	0.367	69.2	0.396	74.6	0.401	75.6	0.370	69.7	0.367	69.2	72.29

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

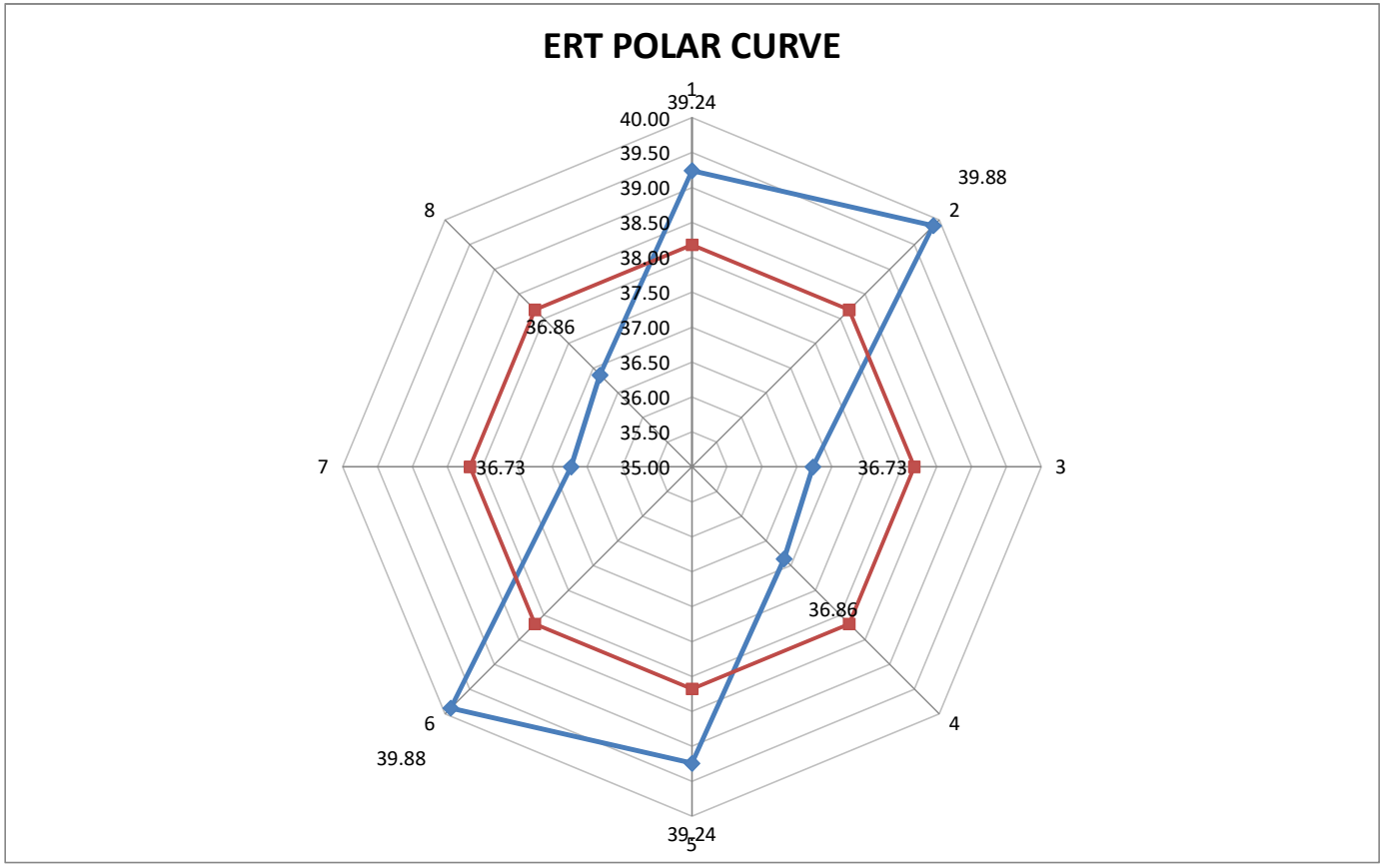
CLIENT : NTPC **Date : 28.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -697.498, W-1014.627**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 281.908**

POLAR CURVE



Mean Resistivity = 33.90 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -867.1440, W-638.080

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 281.946

DERT →		11																
Direction →		N		NE		E		SE		S		SW		W		NW		Average Apparent Resistivity ρ_{avg}
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	24.400	230.0	21.900	206.4	26.400	248.8	28.500	268.6	24.400	230.0	21.900	206.4	26.400	248.8	28.500	268.6	238.45
2	3	12.610	237.7	14.100	265.8	12.410	233.9	11.050	208.3	12.610	237.7	14.100	265.8	12.410	233.9	11.050	208.3	236.42
3	6	5.630	212.2	6.270	236.4	5.630	212.2	2.910	109.7	5.630	212.2	6.270	236.4	5.630	212.2	2.910	109.7	192.64
4	9	3.670	207.5	4.160	235.2	1.460	82.6	1.704	96.4	3.670	207.5	4.160	235.2	1.460	82.6	1.704	96.4	155.42
5	12	2.690	202.8	2.930	220.9	1.340	101.0	1.425	107.4	2.690	202.8	2.930	220.9	1.340	101.0	1.425	107.4	158.05
6	15	2.220	209.2	2.340	220.5	1.210	114.0	1.247	117.5	2.220	209.2	2.340	220.5	1.210	114.0	1.247	117.5	165.33
7	18	1.957	221.3	1.733	196.0	1.060	119.9	0.959	108.5	1.957	221.3	1.733	196.0	1.060	119.9	0.959	108.5	161.42
8	21	1.675	221.0	1.690	223.0	1.010	133.3	1.226	161.8	1.675	221.0	1.690	223.0	1.010	133.3	1.226	161.8	184.76
9	24	1.450	218.7	1.457	219.7	0.964	145.4	0.970	146.3	1.450	218.7	1.457	219.7	0.964	145.4	0.970	146.3	182.50
10	27	1.248	211.7	1.473	249.9	1.040	176.4	1.305	221.4	1.248	211.7	1.473	249.9	1.040	176.4	1.305	221.4	214.86
11	30	1.169	220.4	1.316	248.1	1.090	205.5	1.119	210.9	1.169	220.4	1.316	248.1	1.090	205.5	1.119	210.9	221.20

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 27.03.2023

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /2

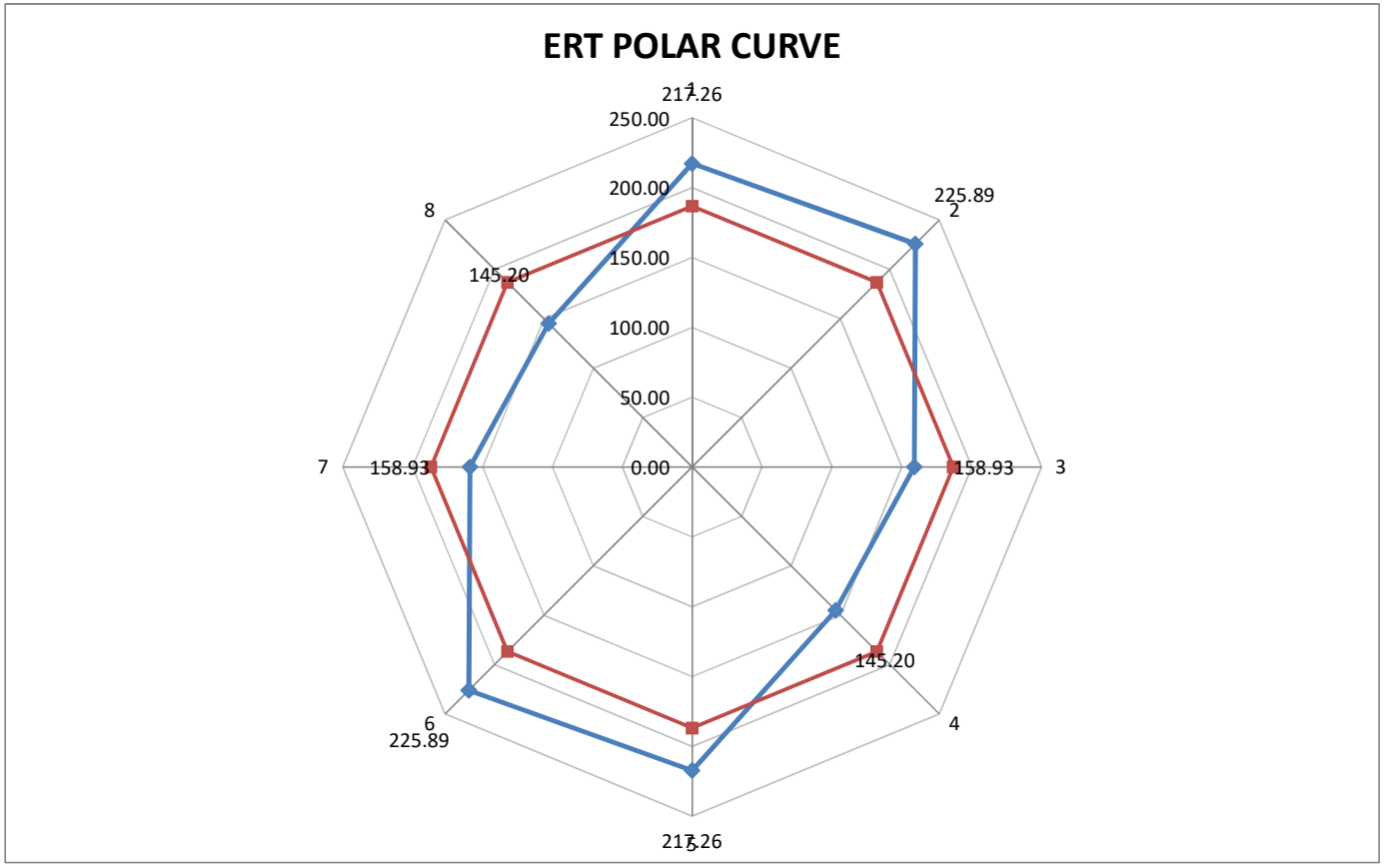
LOCATION : SIPAT

CO-ORDINATES : N -867.1440, W-638.080

Method Used: Wenner Four Pin Equal Probe Spacing.

GROUND LEVEL (m) : 281.946

POLAR CURVE



Mean Resistivity = 166.95 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -915.855, W-788.320

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.263

DERT →		12																Average Apparent Resistivity ρ_{avg}
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	7.760	73.1	7.760	73.1	10.210	96.2	9.610	90.6	7.760	73.1	7.760	73.1	10.210	96.2	9.610	90.6	83.27
2	3	4.470	84.3	4.860	91.6	4.650	87.7	4.860	91.6	4.470	84.3	4.860	91.6	4.650	87.7	4.860	91.6	88.78
3	6	2.120	79.9	2.410	90.9	2.310	87.1	2.890	109.0	2.120	79.9	2.410	90.9	2.310	87.1	2.890	109.0	91.70
4	9	1.487	84.1	1.860	105.2	1.636	92.5	1.890	106.9	1.487	84.1	1.860	105.2	1.636	92.5	1.890	106.9	97.16
5	12	1.215	91.6	1.220	92.0	1.225	92.4	1.460	110.1	1.215	91.6	1.220	92.0	1.225	92.4	1.460	110.1	96.51
6	15	0.969	91.3	0.996	93.9	1.042	98.2	1.118	105.4	0.969	91.3	0.996	93.9	1.042	98.2	1.118	105.4	97.19
7	18	0.832	94.1	0.841	95.1	0.884	100.0	1.090	123.3	0.832	94.1	0.841	95.1	0.884	100.0	1.090	123.3	103.12
8	21	0.638	84.2	0.674	88.9	0.824	108.7	0.740	97.6	0.638	84.2	0.674	88.9	0.824	108.7	0.740	97.6	94.87
9	24	0.691	104.2	0.605	91.2	0.650	98.0	0.640	96.5	0.691	104.2	0.605	91.2	0.650	98.0	0.640	96.5	97.49
10	27	0.541	91.8	0.586	99.4	0.615	104.3	0.598	101.4	0.541	91.8	0.586	99.4	0.615	104.3	0.598	101.4	99.24
11	30	0.597	112.5	0.546	102.9	0.517	97.5	0.538	101.4	0.597	112.5	0.546	102.9	0.517	97.5	0.538	101.4	103.58

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

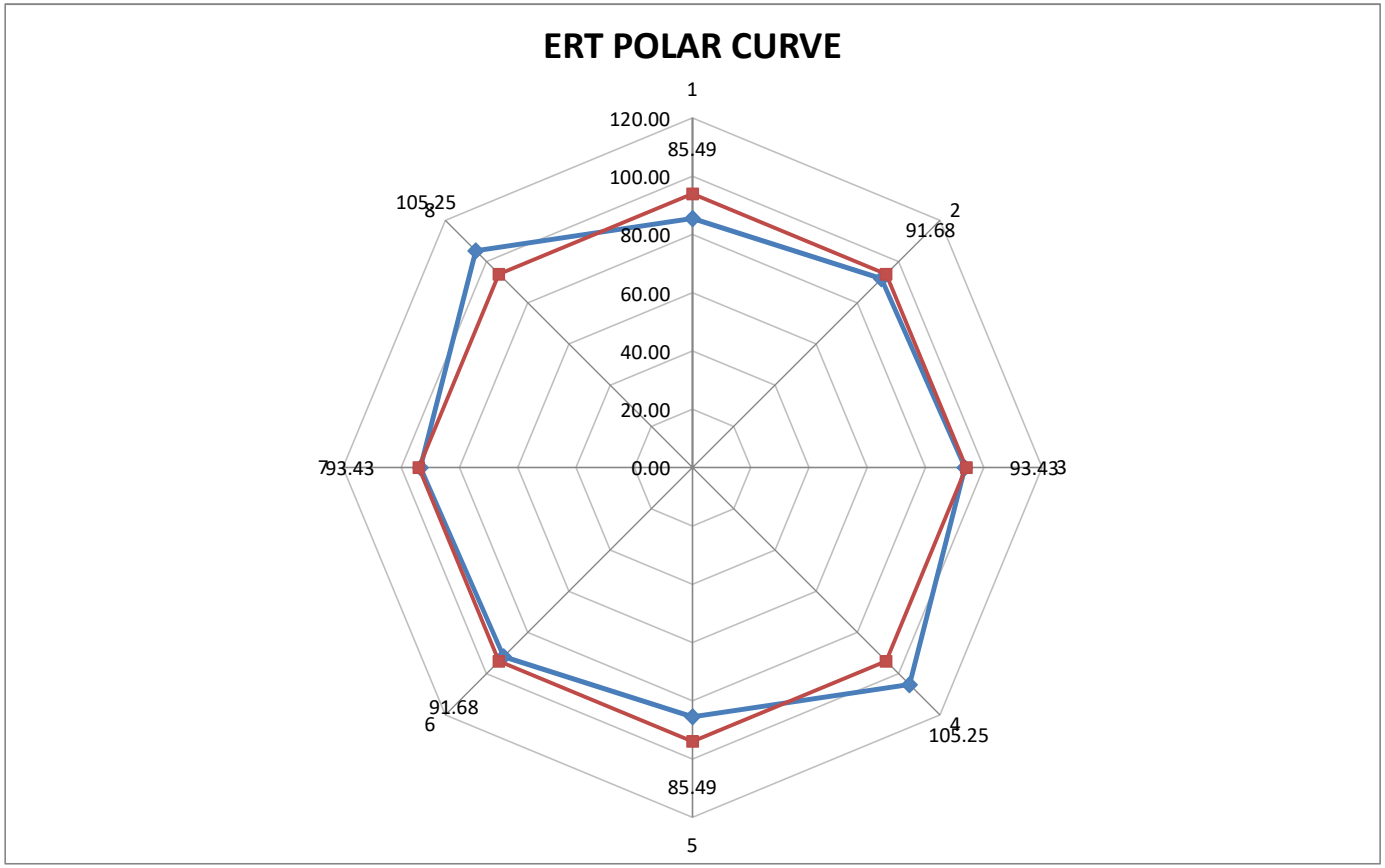
CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -915.855, W-788.320**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 282.263**

POLAR CURVE



Mean Resistivity = 83.17 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -937.119, W-746.517

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.122

DERT →		13																Average Apparent Resistivity ρ_{avg}
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	13.980	131.8	12.730	120.0	15.380	145.0	14.840	139.9	13.980	131.8	12.730	120.0	15.380	145.0	14.840	139.9	134.14
2	3	6.050	114.0	5.440	102.5	5.690	107.3	5.490	103.5	6.050	114.0	5.440	102.5	5.690	107.3	5.490	103.5	106.83
3	6	2.650	99.9	2.830	106.7	2.880	108.6	2.550	96.1	2.650	99.9	2.830	106.7	2.880	108.6	2.550	96.1	102.82
4	9	1.711	96.8	2.000	113.1	1.927	109.0	1.653	93.5	1.711	96.8	2.000	113.1	1.927	109.0	1.653	93.5	103.07
5	12	1.446	109.0	1.430	107.8	1.566	118.1	1.543	116.3	1.446	109.0	1.430	107.8	1.566	118.1	1.543	116.3	112.81
6	15	1.261	118.8	1.207	113.8	1.182	111.4	1.209	113.9	1.261	118.8	1.207	113.8	1.182	111.4	1.209	113.9	114.49
7	18	1.058	119.7	1.092	123.5	1.083	122.5	1.086	122.8	1.058	119.7	1.092	123.5	1.083	122.5	1.086	122.8	122.12
8	21	0.894	118.0	0.943	124.4	0.842	111.1	1.032	136.2	0.894	118.0	0.943	124.4	0.842	111.1	1.032	136.2	122.41
9	24	0.738	111.3	0.826	124.6	0.865	130.4	0.764	115.2	0.738	111.3	0.826	124.6	0.865	130.4	0.764	115.2	120.37
10	27	0.627	106.4	0.780	132.3	0.686	116.4	0.783	132.8	0.627	106.4	0.780	132.3	0.686	116.4	0.783	132.8	121.98
11	30	0.594	112.0	0.674	127.0	0.662	124.8	0.583	109.9	0.594	112.0	0.674	127.0	0.662	124.8	0.583	109.9	118.42

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,

R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

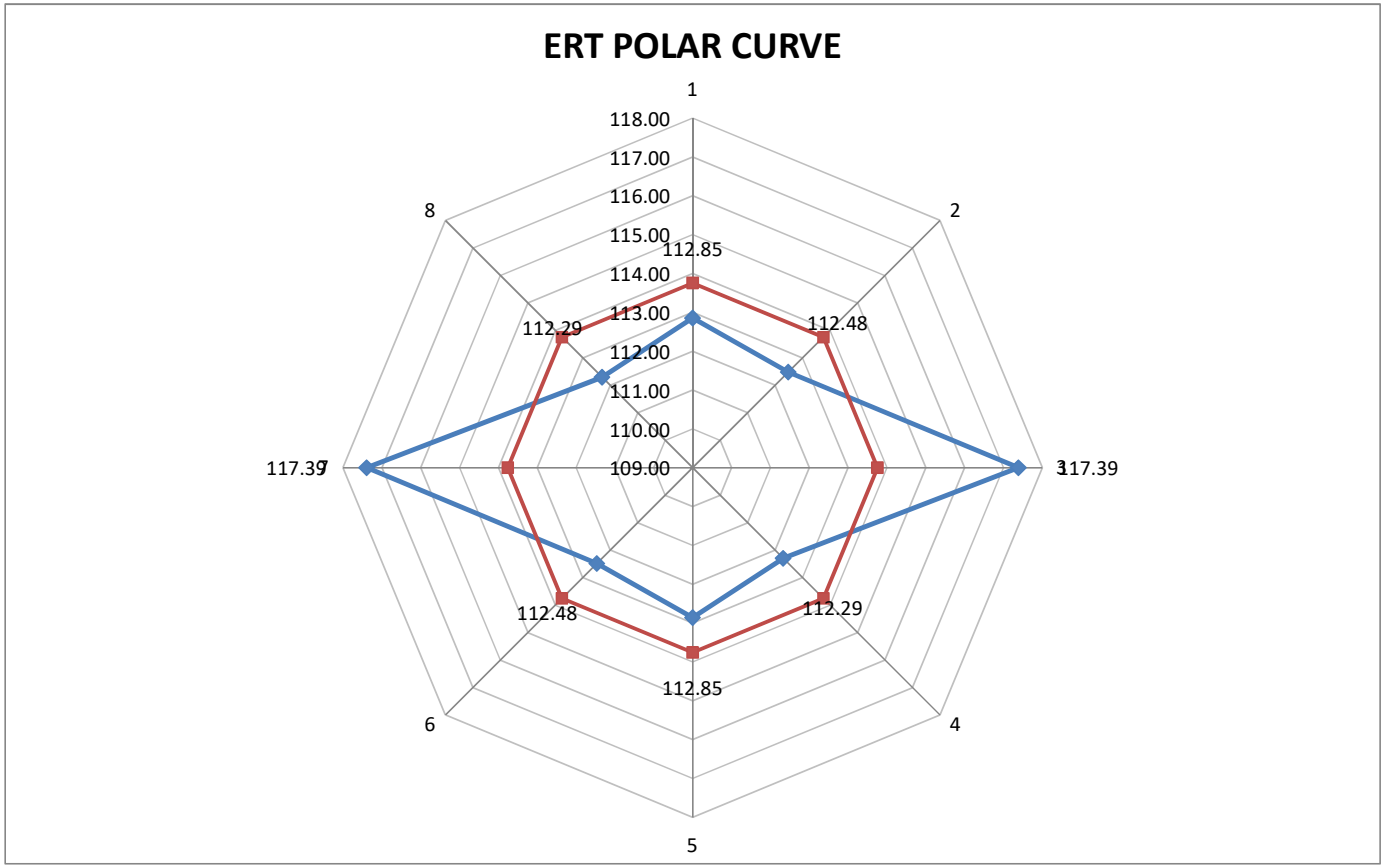
CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -937.119, W-746.517**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 282.122**

POLAR CURVE



Mean Resistivity = 101.11 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT

Method Used: Wenner Four Pin Equal Probe Spacing.

ERT →		14																
Direction →		N		NE		E		SE		S		SW		W		NW		Average Apparent Resistivity ρ_{avg}
Sr. No.	Electrodes Spacing, a	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	29.200	275.2	35.400	333.6	27.200	256.4	22.700	213.9	29.200	275.2	35.400	333.6	27.200	256.4	22.700	213.9	269.78
2	3	12.940	243.9	12.740	240.1	10.030	189.1	11.780	222.0	12.940	243.9	12.740	240.1	10.030	189.1	11.780	222.0	223.79
3	6	4.930	185.9	4.750	179.1	4.230	159.5	5.060	190.8	4.930	185.9	4.750	179.1	4.230	159.5	5.060	190.8	178.79
4	9	3.240	183.2	3.160	178.7	2.880	162.9	3.210	181.5	3.240	183.2	3.160	178.7	2.880	162.9	3.210	181.5	176.57
5	12	1.884	142.1	2.110	159.1	2.350	177.2	2.070	156.1	1.884	142.1	2.110	159.1	2.350	177.2	2.070	156.1	158.60
6	15	1.630	153.6	1.602	151.0	1.950	183.8	1.825	172.0	1.630	153.6	1.602	151.0	1.950	183.8	1.825	172.0	165.10
7	18	1.310	148.2	1.341	151.7	1.547	175.0	1.455	164.6	1.310	148.2	1.341	151.7	1.547	175.0	1.455	164.6	159.83
8	21	1.194	157.5	1.191	157.1	1.449	191.2	1.220	161.0	1.194	157.5	1.191	157.1	1.449	191.2	1.220	161.0	166.71
9	24	0.982	148.1	1.014	152.9	1.152	173.7	1.056	159.2	0.982	148.1	1.014	152.9	1.152	173.7	1.056	159.2	158.49
10	27	0.940	159.5	0.908	154.0	0.983	166.8	0.947	160.7	0.940	159.5	0.908	154.0	0.983	166.8	0.947	160.7	160.23
11	30	0.797	150.2	0.796	150.0	0.678	127.8	0.739	139.3	0.797	150.2	0.796	150.0	0.678	127.8	0.739	139.3	141.84

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC

Date : 27.03.2023

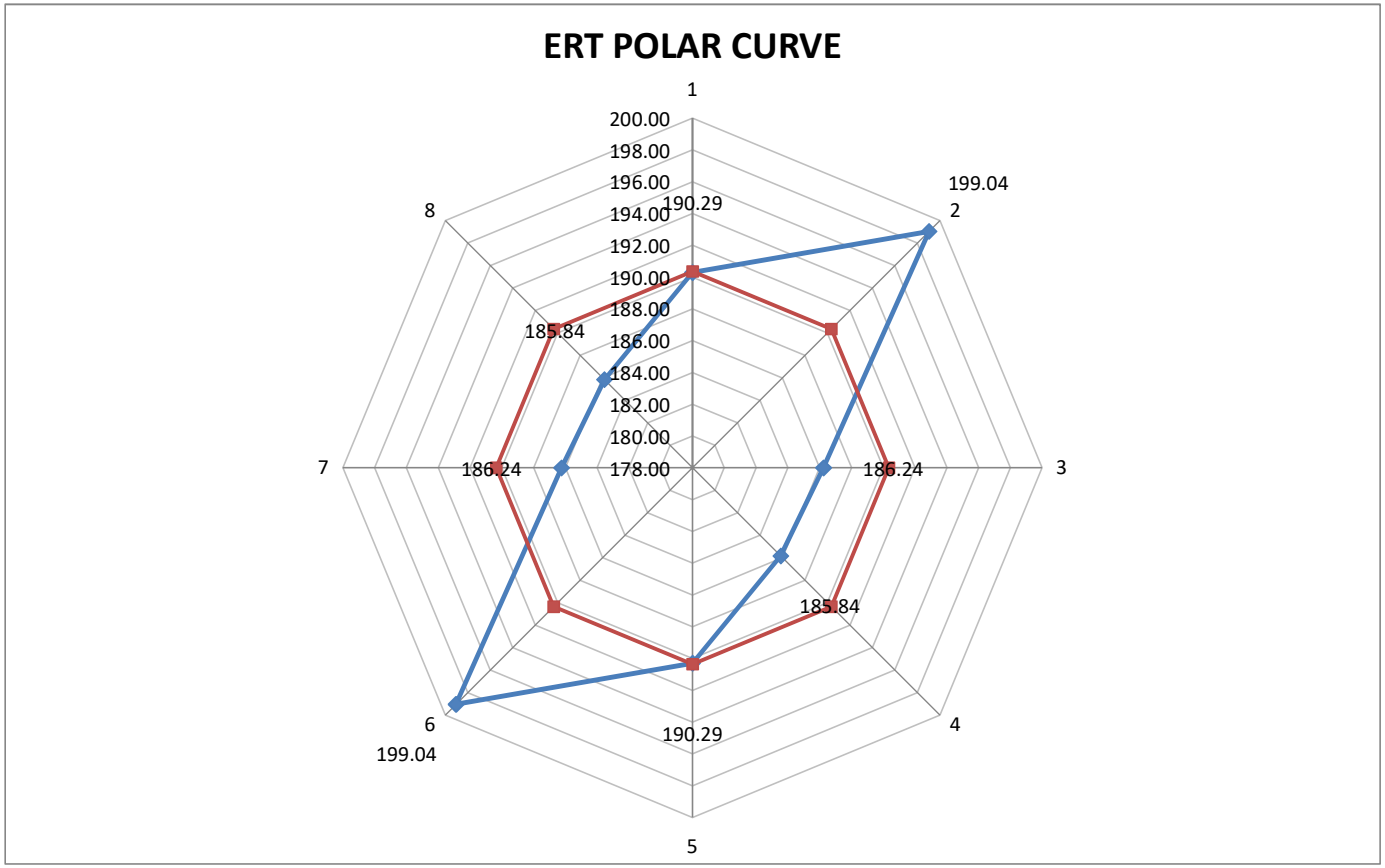
PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT.

SIPL/23-24 /2

LOCATION : SIPAT

Method Used: Wenner Four Pin Equal Probe Spacing.

POLAR CURVE



Mean Resistivity = 169.23 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1070.615, W-713.222

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 283.056

ERT →		15																Average Apparent Resistivity ρ_{avg}
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	23.100	217.7	22.400	211.1	24.300	229.0	27.400	258.2	23.100	217.7	22.400	211.1	24.300	229.0	27.400	258.2	229.02
2	3	8.990	169.5	7.340	138.4	8.460	159.5	9.410	177.4	8.990	169.5	7.340	138.4	8.460	159.5	9.410	177.4	161.16
3	6	3.870	145.9	3.610	136.1	3.340	125.9	3.440	129.7	3.870	145.9	3.610	136.1	3.340	125.9	3.440	129.7	134.40
4	9	2.860	161.7	2.170	122.7	2.090	118.2	2.410	136.3	2.860	161.7	2.170	122.7	2.090	118.2	2.410	136.3	134.73
5	12	1.990	150.0	1.873	141.2	2.030	153.1	1.970	148.5	1.990	150.0	1.873	141.2	2.030	153.1	1.970	148.5	148.21
6	15	1.840	173.4	1.730	163.0	1.780	167.8	1.930	181.9	1.840	173.4	1.730	163.0	1.780	167.8	1.930	181.9	171.53
7	18	1.730	195.7	1.700	192.3	1.730	195.7	1.711	193.5	1.730	195.7	1.700	192.3	1.730	195.7	1.711	193.5	194.27
8	21	1.540	203.2	1.680	221.7	1.640	216.4	1.540	203.2	1.540	203.2	1.680	221.7	1.640	216.4	1.540	203.2	211.12
9	24	1.480	223.2	1.610	242.8	1.600	241.3	1.360	205.1	1.480	223.2	1.610	242.8	1.600	241.3	1.360	205.1	228.08
10	27	1.310	222.2	1.531	259.7	1.490	252.8	1.260	213.8	1.310	222.2	1.531	259.7	1.490	252.8	1.260	213.8	237.12
11	30	1.290	243.2	1.370	258.2	1.340	252.6	1.210	228.1	1.290	243.2	1.370	258.2	1.340	252.6	1.210	228.1	245.52

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

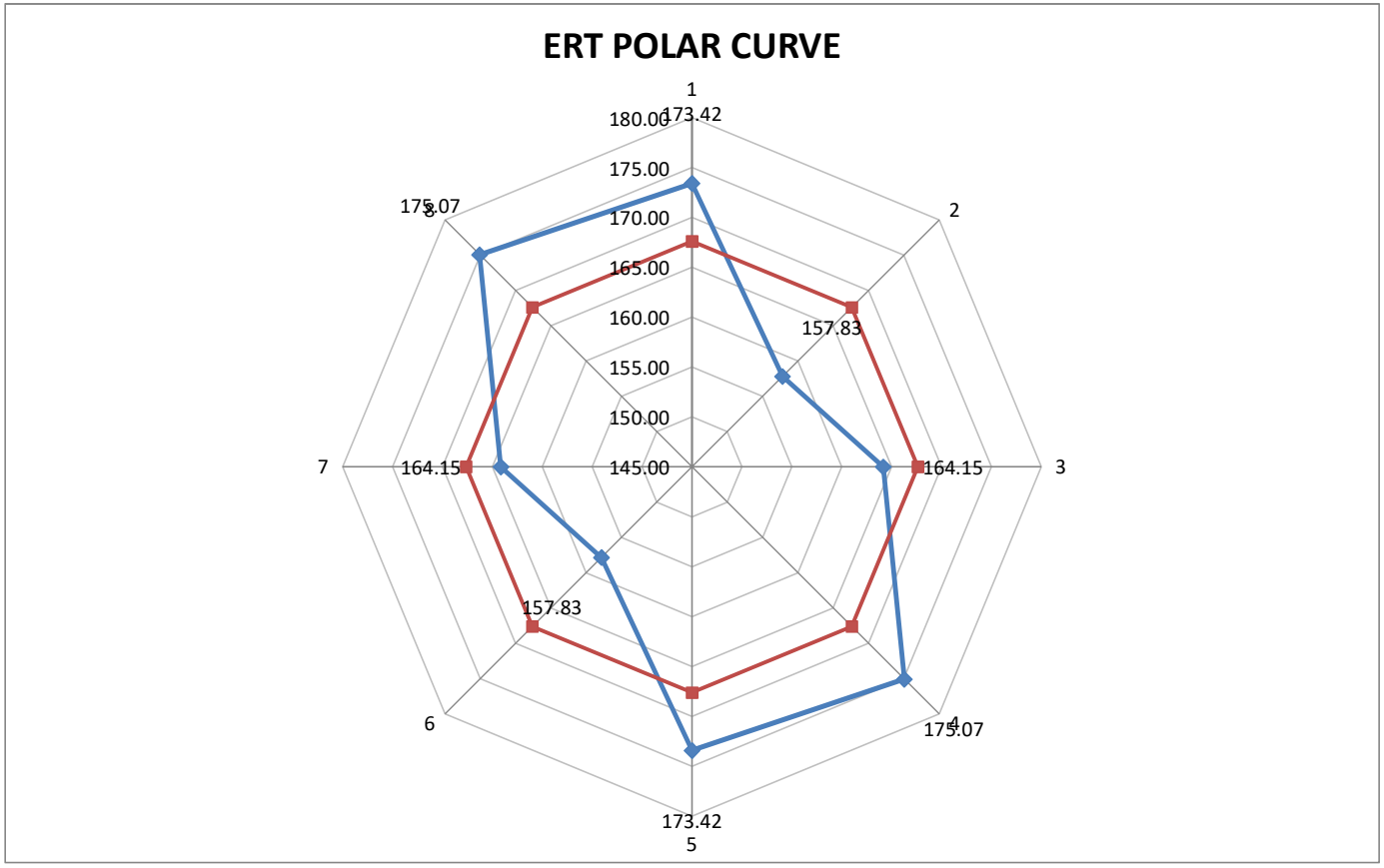
CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -1070.615, W-713.222**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 283.056**

POLAR CURVE



Mean Resistivity = 147.91 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1187.000, W-706.997

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.231

DERT →		16																Average Apparent Resistivity ρ_{avg}
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	21.400	201.7	24.000	226.2	23.400	220.5	20.600	194.2	21.400	201.7	24.000	226.2	23.400	220.5	20.600	194.2	210.64
2	3	8.820	166.3	8.690	163.8	10.200	192.3	10.480	197.5	8.820	166.3	8.690	163.8	10.200	192.3	10.480	197.5	179.97
3	6	4.230	159.5	3.380	127.4	3.640	137.2	3.800	143.3	4.230	159.5	3.380	127.4	3.640	137.2	3.800	143.3	141.84
4	9	2.710	153.2	2.430	137.4	2.560	144.8	2.500	141.4	2.710	153.2	2.430	137.4	2.560	144.8	2.500	141.4	144.20
5	12	1.913	144.2	2.230	168.1	2.090	157.6	1.946	146.7	1.913	144.2	2.230	168.1	2.090	157.6	1.946	146.7	154.17
6	15	1.769	166.7	1.951	183.9	1.823	171.8	1.714	161.5	1.769	166.7	1.951	183.9	1.823	171.8	1.714	161.5	170.99
7	18	1.738	196.6	1.657	187.4	1.597	180.6	1.489	168.4	1.738	196.6	1.657	187.4	1.597	180.6	1.489	168.4	183.25
8	21	1.711	225.8	1.637	216.0	1.616	213.2	1.355	178.8	1.711	225.8	1.637	216.0	1.616	213.2	1.355	178.8	208.44
9	24	1.531	230.9	1.359	204.9	1.463	220.6	1.388	209.3	1.531	230.9	1.359	204.9	1.463	220.6	1.388	209.3	216.43
10	27	1.361	230.9	1.361	230.9	1.520	257.9	1.310	222.2	1.361	230.9	1.361	230.9	1.520	257.9	1.310	222.2	235.47
11	30	1.274	240.1	1.329	250.5	1.447	272.8	1.306	246.2	1.274	240.1	1.329	250.5	1.447	272.8	1.306	246.2	252.40

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

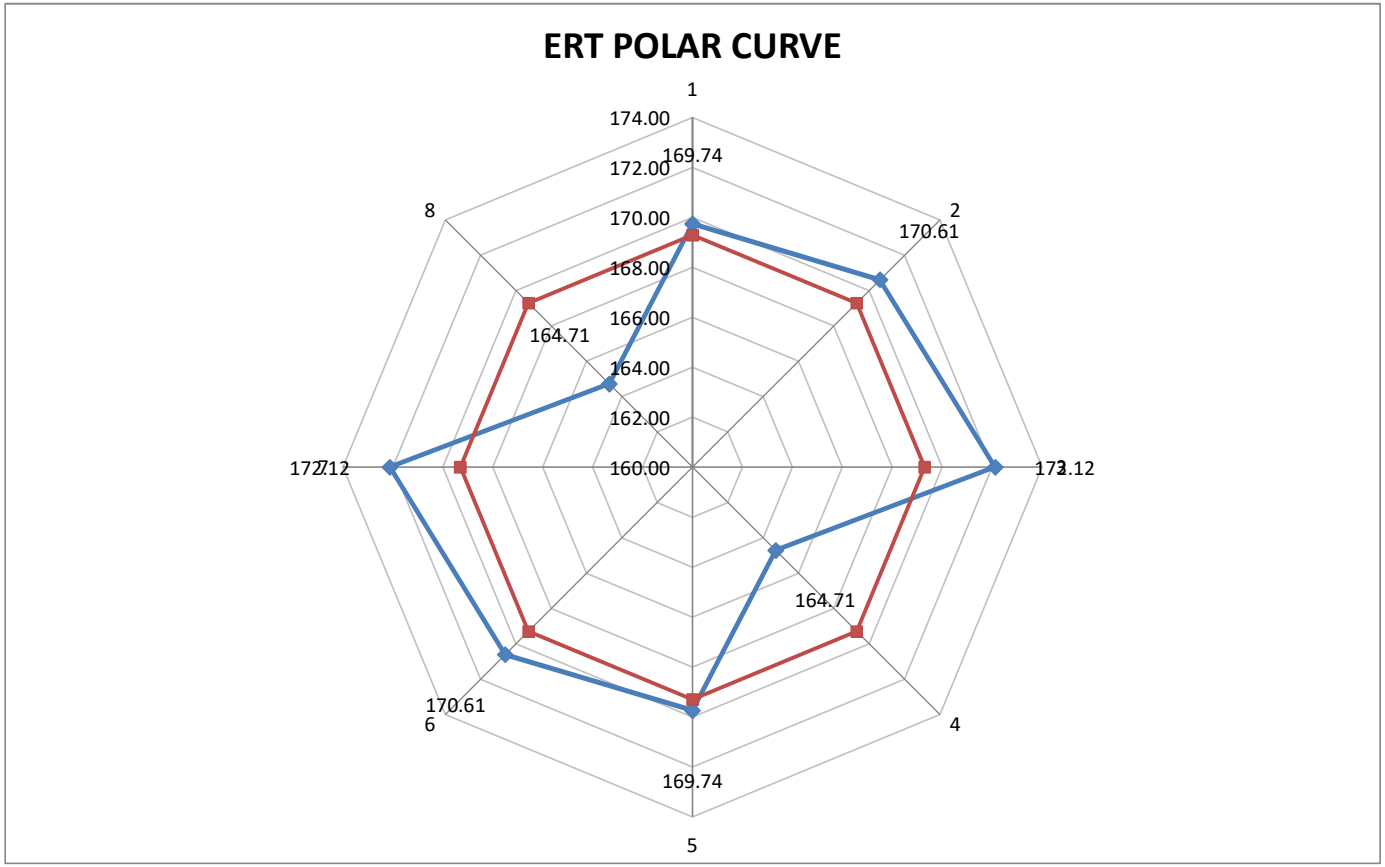
CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -1187.000, W-706.997**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 282.231**

POLAR CURVE



Mean Resistivity = 150.51 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1126.001, W-597.998

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.544

DERT →		17																Average Apparent Resistivity ρ_{avg}
Direction →		N		NE		E		SE		S		SW		W		NW		
Sr. No.	Electrodes Spacing, a	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	41.000	386.4	56.400	531.6	48.400	456.2	55.900	526.8	41.000	386.4	56.400	531.6	48.400	456.2	55.900	526.8	475.24
2	3	38.100	718.2	33.100	623.9	34.800	656.0	34.600	652.2	38.100	718.2	33.100	623.9	34.800	656.0	34.600	652.2	662.56
3	6	13.670	515.3	12.720	479.5	14.180	534.6	17.550	661.6	13.670	515.3	12.720	479.5	14.180	534.6	17.550	661.6	547.77
4	9	9.150	517.4	8.290	468.8	9.440	533.8	9.820	555.3	9.150	517.4	8.290	468.8	9.440	533.8	9.820	555.3	518.83
5	12	6.360	479.5	6.120	461.4	6.940	523.3	6.980	526.3	6.360	479.5	6.120	461.4	6.940	523.3	6.980	526.3	497.63
6	15	5.090	479.7	4.830	455.2	5.160	486.3	5.350	504.2	5.090	479.7	4.830	455.2	5.160	486.3	5.350	504.2	481.37
7	18	4.210	476.1	4.000	452.4	4.160	470.5	4.150	469.4	4.210	476.1	4.000	452.4	4.160	470.5	4.150	469.4	467.09
8	21	3.630	479.0	3.490	460.5	3.330	439.4	3.760	496.1	3.630	479.0	3.490	460.5	3.330	439.4	3.760	496.1	468.74
9	24	3.210	484.1	3.090	466.0	3.190	481.0	3.230	487.1	3.210	484.1	3.090	466.0	3.190	481.0	3.230	487.1	479.53
10	27	6.170	1046.7	2.990	507.2	2.680	454.7	2.990	507.2	6.170	1046.7	2.990	507.2	2.680	454.7	2.990	507.2	628.96
11	30	2.440	459.9	2.680	505.2	2.310	435.4	2.480	467.5	2.440	459.9	2.680	505.2	2.310	435.4	2.480	467.5	467.00

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

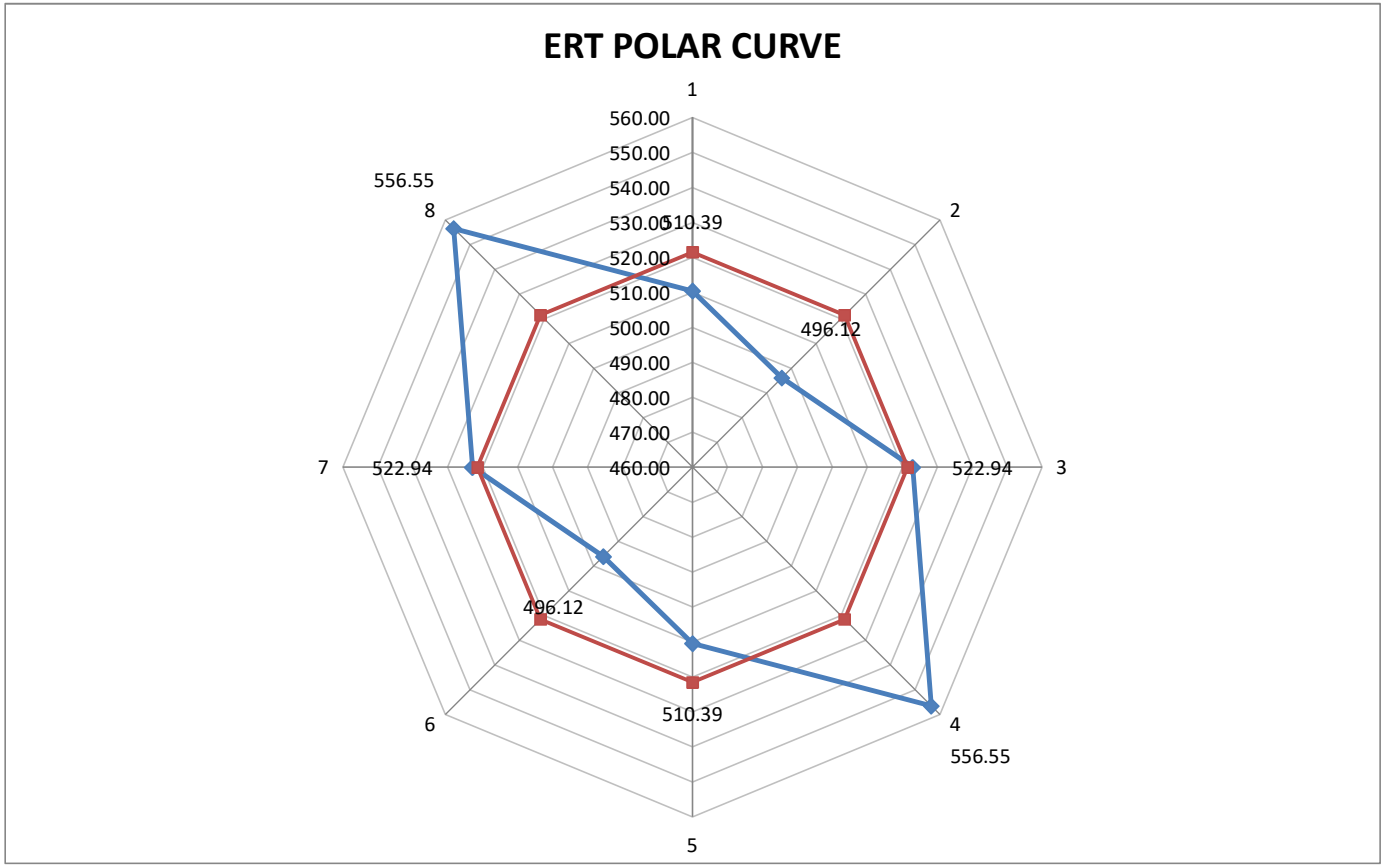
CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -1126.001, W-597.998**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 282.544**

POLAR CURVE



Mean Resistivity = 461.37 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1247.999, W-692.996

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.544

DERT →		18																
Direction →		N		NE		E		SE		S		SW		W		NW		Average Apparent Resistivity ρ_{avg}
Sr. No.	Electrodes Spacing, a	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	30.600	288.4	22.400	211.1	24.300	229.0	27.400	258.2	30.600	288.4	22.400	211.1	24.300	229.0	27.400	258.2	246.69
2	3	8.550	161.2	7.340	138.4	8.460	159.5	9.410	177.4	8.550	161.2	7.340	138.4	8.460	159.5	9.410	177.4	159.09
3	6	2.710	102.2	3.610	136.1	3.340	125.9	3.440	129.7	2.710	102.2	3.610	136.1	3.340	125.9	3.440	129.7	123.46
4	9	2.120	119.9	2.170	122.7	2.090	118.2	2.410	136.3	2.120	119.9	2.170	122.7	2.090	118.2	2.410	136.3	124.27
5	12	2.110	159.1	1.873	141.2	2.030	153.1	1.970	148.5	2.110	159.1	1.873	141.2	2.030	153.1	1.970	148.5	150.48
6	15	1.869	176.1	1.730	163.0	1.780	167.8	1.930	181.9	1.869	176.1	1.730	163.0	1.780	167.8	1.930	181.9	172.21
7	18	1.910	216.0	1.700	192.3	1.730	195.7	1.711	193.5	1.910	216.0	1.700	192.3	1.730	195.7	1.711	193.5	199.36
8	21	1.771	233.7	1.680	221.7	1.640	216.4	1.540	203.2	1.771	233.7	1.680	221.7	1.640	216.4	1.540	203.2	218.73
9	24	1.697	255.9	1.610	242.8	1.600	241.3	1.360	205.1	1.697	255.9	1.610	242.8	1.600	241.3	1.360	205.1	236.26
10	27	1.536	260.6	1.531	259.7	1.490	252.8	1.260	213.8	1.536	260.6	1.531	259.7	1.490	252.8	1.260	213.8	246.71
11	30	1.380	260.1	1.370	258.2	1.340	252.6	1.210	228.1	1.380	260.1	1.370	258.2	1.340	252.6	1.210	228.1	249.76

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

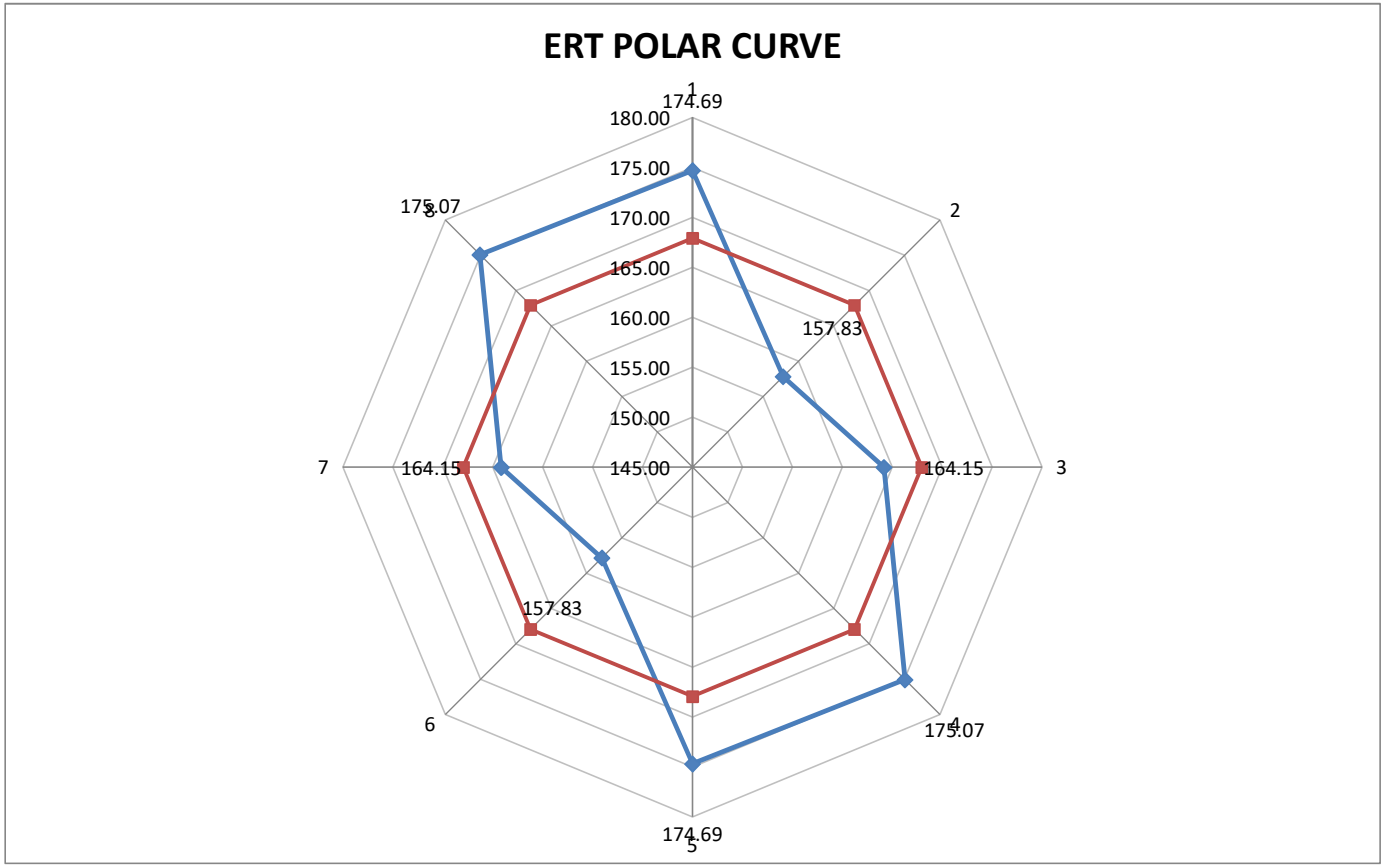
CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -1247.999, W-692.996**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 282.544**

POLAR CURVE



Mean Resistivity = 148.15 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1263.356, W-626.173

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.659

DERT →		19																
Direction →		N		NE		E		SE		S		SW		W		NW		Average Apparent Resistivity ρ_{avg}
Sr. No.	Electrodes Spacing, a	Resistance	ρ (N)	Resistance	ρ (NE)	Resistance	ρ (E)	Resistance	ρ (SE)	Resistance	ρ (S)	Resistance	ρ (SW)	Resistance	ρ (W)	Resistance	ρ (NW)	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	48.600	458.0	42.300	398.7	58.400	550.4	41.300	389.2	48.600	458.0	42.300	398.7	58.400	550.4	41.300	389.2	449.09
2	3	34.300	646.5	33.400	629.6	33.410	629.8	38.810	731.6	34.300	646.5	33.400	629.6	33.410	629.8	38.810	731.6	659.36
3	6	12.400	467.5	10.310	388.7	17.410	656.3	10.480	395.1	12.400	467.5	10.310	388.7	17.410	656.3	10.480	395.1	476.89
4	9	9.400	531.6	8.910	503.8	9.560	540.6	9.980	564.4	9.400	531.6	8.910	503.8	9.560	540.6	9.980	564.4	535.09
5	12	6.610	498.4	6.490	489.3	6.740	508.2	6.090	459.2	6.610	498.4	6.490	489.3	6.740	508.2	6.090	459.2	488.77
6	15	5.100	480.7	5.360	505.2	4.890	460.9	4.960	467.5	5.100	480.7	5.360	505.2	4.890	460.9	4.960	467.5	478.54
7	18	4.310	487.4	4.810	544.0	4.840	547.4	4.280	484.1	4.310	487.4	4.810	544.0	4.840	547.4	4.280	484.1	515.72
8	21	3.440	453.9	3.000	395.8	3.940	519.9	3.060	403.8	3.440	453.9	3.000	395.8	3.940	519.9	3.060	403.8	443.34
9	24	2.880	434.3	2.470	372.5	2.040	307.6	2.730	411.7	2.880	434.3	2.470	372.5	2.040	307.6	2.730	411.7	381.52
10	27	2.980	505.5	3.010	510.6	2.310	391.9	2.470	419.0	2.980	505.5	3.010	510.6	2.310	391.9	2.470	419.0	456.77
11	30	1.110	209.2	2.730	514.6	2.080	392.1	2.410	454.3	1.110	209.2	2.730	514.6	2.080	392.1	2.410	454.3	392.54

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

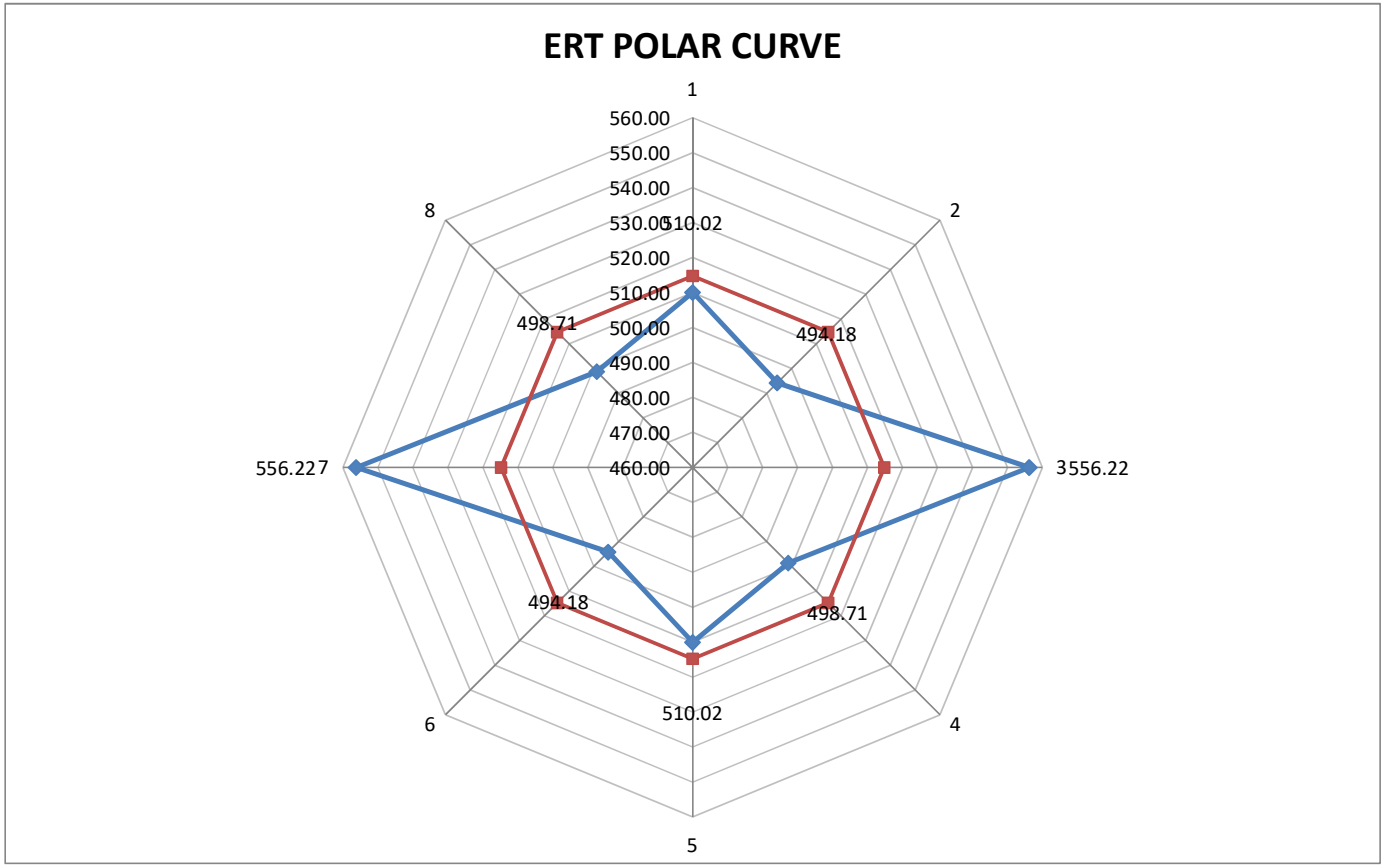
CLIENT : NTPC **Date : 27.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -1263.356, W-626.173**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 282.659**

POLAR CURVE



Mean Resistivity = 457.88 Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

CLIENT : NTPC **Date : 24.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES :** N -1225.000, W-610.003

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) :** 282.900

DERT →		20																
Direction →		N		NE		E		SE		S		SW		W		NW		Average Apparent Resistivity ρ_{avg}
Sr. No.	Electrodes Spacing, a	Resistance	$\rho_{(N)}$	Resistance	$\rho_{(NE)}$	Resistance	$\rho_{(E)}$	Resistance	$\rho_{(SE)}$	Resistance	$\rho_{(S)}$	Resistance	$\rho_{(SW)}$	Resistance	$\rho_{(W)}$	Resistance	$\rho_{(NW)}$	
	(m)	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	Ohm	Ohm-m	
1	1.5	25.200	237.5	18.460	174.0	16.600	156.5	18.410	173.5	25.200	237.5	18.460	174.0	16.600	156.5	18.410	173.5	185.36
2	3	12.720	239.8	11.640	219.4	11.880	223.9	11.440	215.6	12.720	239.8	11.640	219.4	11.880	223.9	11.440	215.6	224.69
3	6	7.460	281.2	8.310	313.3	8.620	325.0	8.430	317.8	7.460	281.2	8.310	313.3	8.620	325.0	8.430	317.8	309.32
4	9	6.030	341.0	6.410	362.5	6.640	375.5	6.890	389.6	6.030	341.0	6.410	362.5	6.640	375.5	6.890	389.6	367.14
5	12	5.220	393.6	5.460	411.7	5.530	417.0	5.910	445.6	5.220	393.6	5.460	411.7	5.530	417.0	5.910	445.6	416.95
6	15	4.340	409.0	4.060	382.6	3.960	373.2	3.840	361.9	4.340	409.0	4.060	382.6	3.960	373.2	3.840	361.9	381.70
7	18	3.560	402.6	3.680	416.2	3.470	392.4	3.340	377.7	3.560	402.6	3.680	416.2	3.470	392.4	3.340	377.7	397.25
8	21	3.240	427.5	3.240	427.5	2.990	394.5	3.060	403.8	3.240	427.5	3.240	427.5	2.990	394.5	3.060	403.8	413.32
9	24	2.730	411.7	2.410	363.4	2.700	407.2	2.360	355.9	2.730	411.7	2.410	363.4	2.700	407.2	2.360	355.9	384.53
10	27	2.540	430.9	2.340	397.0	2.260	383.4	2.210	374.9	2.540	430.9	2.340	397.0	2.260	383.4	2.210	374.9	396.55
11	30	2.210	416.6	2.140	403.4	2.180	410.9	2.090	394.0	2.210	416.6	2.140	403.4	2.180	410.9	2.090	394.0	406.21

Resistivity , $\rho = 2 \pi a R$

Where, a= Distance between successive electrodes in metres,
R =megger reading in ohm

For SOILTECH INDIA PVT. LTD.

EARTH RESISTIVITY TEST

IS: 3043 - 2018

SOILTECH
(INDIA) PRIVATE LIMITED
GROUND ENGINEERS & CONSULTANTS

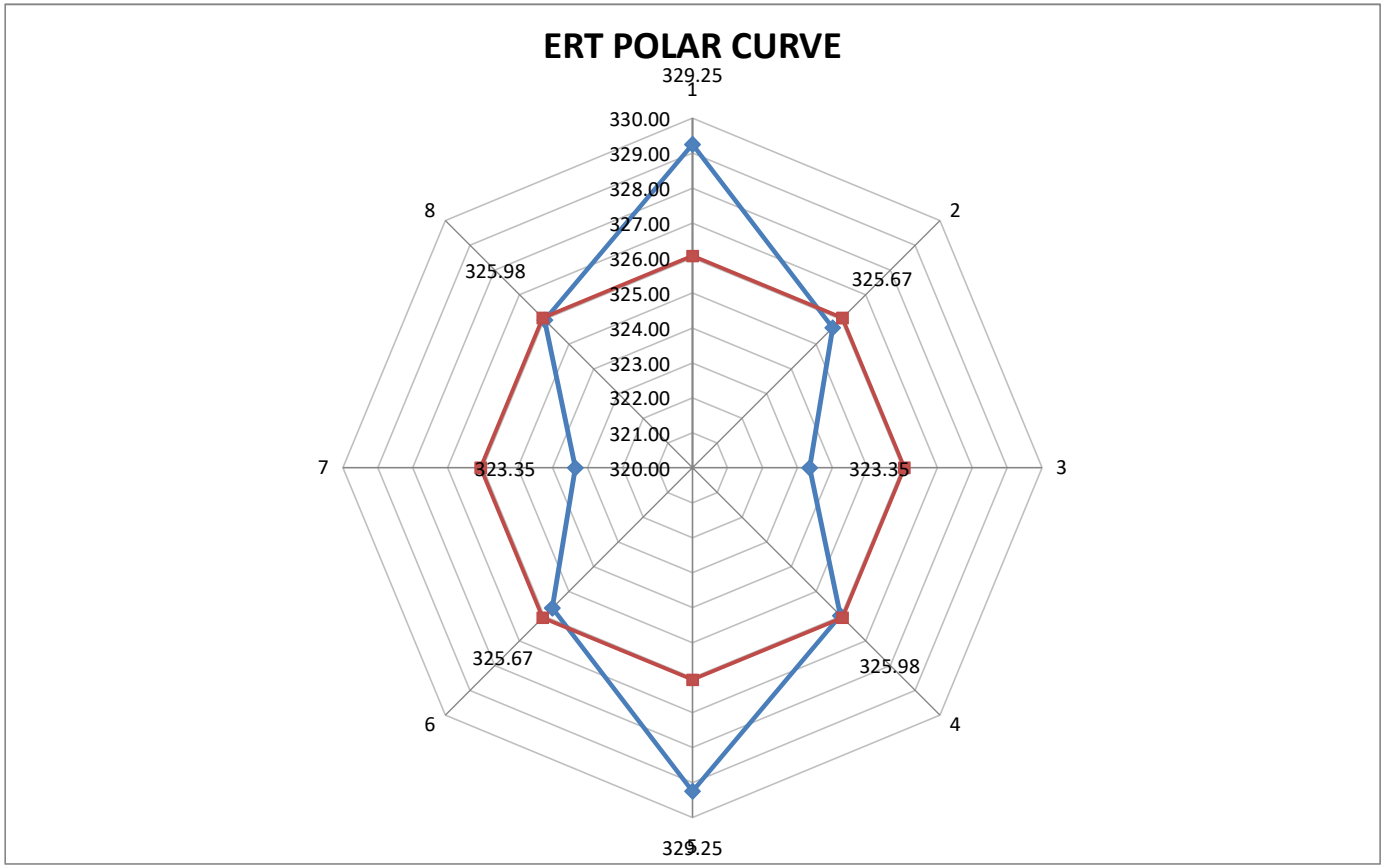
CLIENT : NTPC **Date : 24.03.2023**

PROJECT : ELECRTICAL RESISITIVITY TEST FOR PROPOSED PROJECT AT SIPAT. **SIPL/23-24 /2**

LOCATION : SIPAT **CO-ORDINATES : N -1225.000, W-610.003**

Method Used: Wenner Four Pin Equal Probe Spacing. **GROUND LEVEL (m) : 282.900**

POLAR CURVE



Mean Resistivity =	289.20	Ohm M

Note: 1=N, 2=NE, 3=E, 4=SE, 5=S, 6=SW, 7=W, 8=NW

For SOILTECH INDIA PVT. LTD.

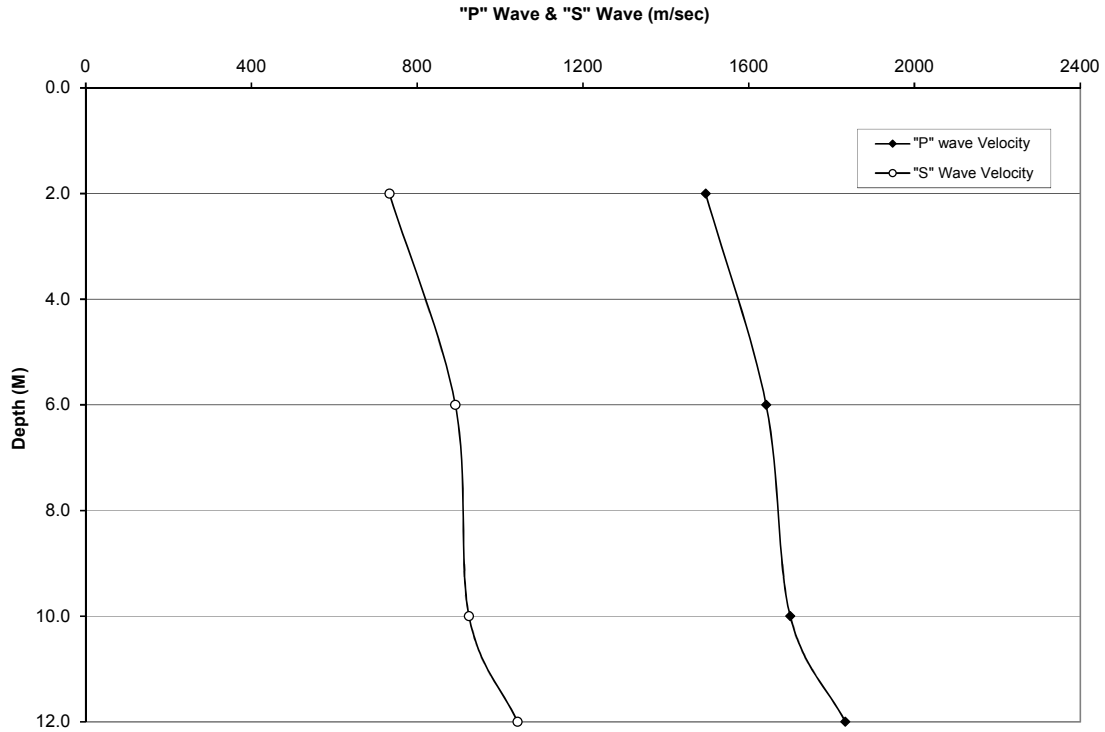
CST No.	Co-ordinates		R. L. (M)
	E	N	
CHST-01	(-)594	1311	283.460
CHST-02	(-)660	1253	282.482
CHST-03	(-)709	1150	282.482
CHST-04	(-)697	867	281.520
CHST-05	(-)523	857	282.250

.

Cross Hole Shear Test: CHST-1

Calculated Values of Dynamic Parameters

Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($kN.s^2/m^4$)	m = V_p/V_s	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	1496	733	2.55	2.0409	0.342	3675148	3675.1	1369238	1369.2
6.0	1642	892	2.55	1.8408	0.291	5234146	5234.1	2027686	2027.7
10.0	1700	925	2.55	1.8378	0.290	5624396	5624.4	2180492	2180.5
12.0	1833	1042	2.55	1.7591	0.261	6979873	6979.9	2766983	2767.0

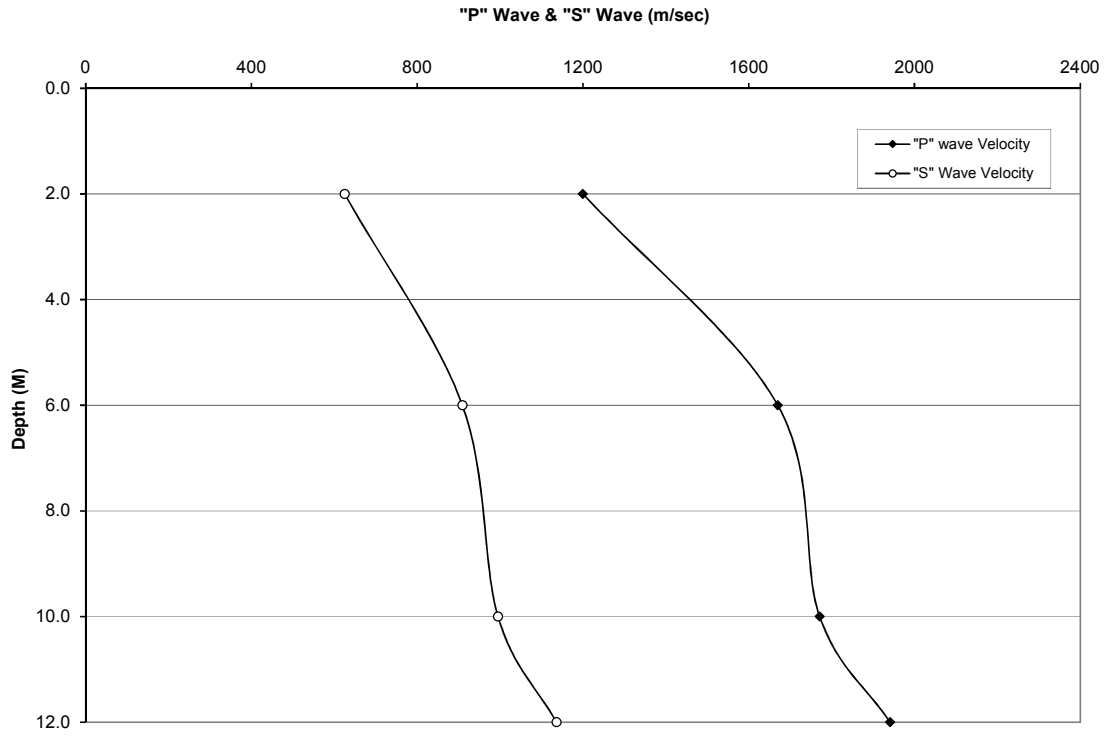


Variation of "P" & "S" wave Velocity with Depth

Cross Hole Shear Test: CHST-2

Calculated Values of Dynamic Parameters

Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($kN.s^2/m^4$)	m = V_p/V_s	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	1200	625	2.55	1.9200	0.314	2615868	2615.9	995477	995.5
6.0	1670	909	2.55	1.8372	0.289	5430609	5430.6	2105711	2105.7
10.0	1771	995	2.55	1.7799	0.269	6405276	6405.3	2522999	2523.0
12.0	1941	1136	2.55	1.7086	0.240	8152769	8152.8	3288726	3288.7

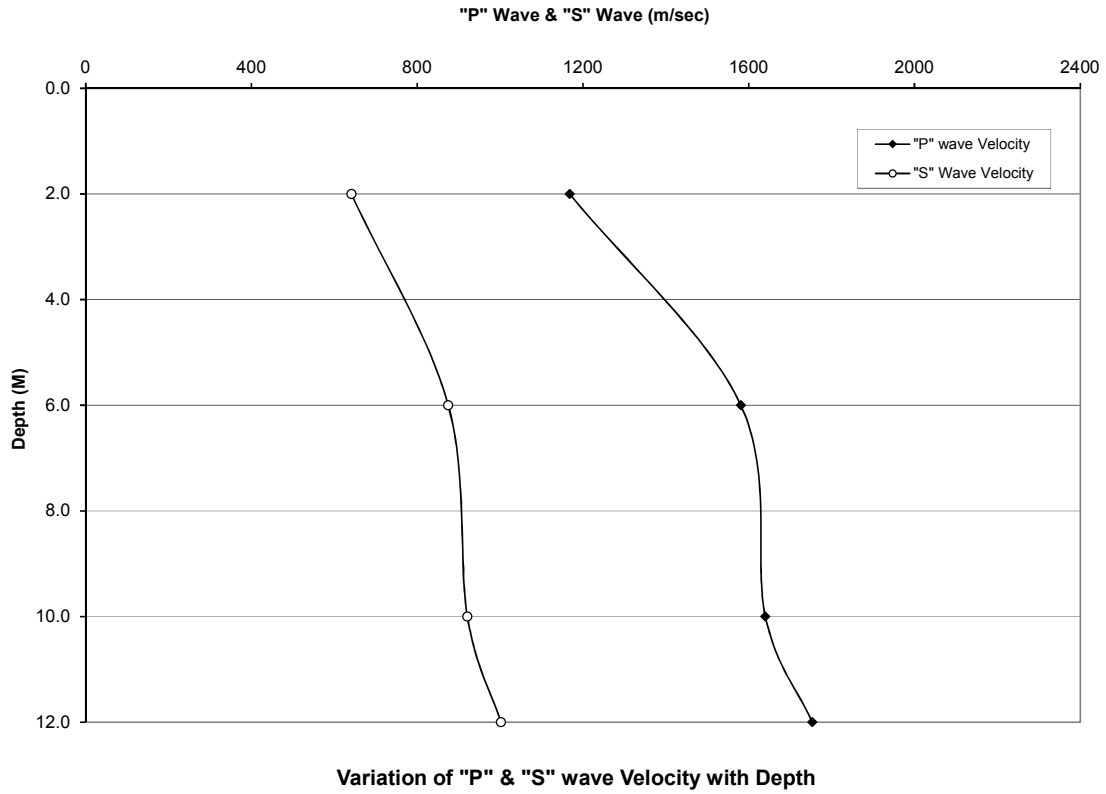


Variation of "P" & "S" wave Velocity with Depth

Cross Hole Shear Test: CHST-3

Calculated Values of Dynamic Parameters

Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($kN.s^2/m^4$)	m = V_p/V_s	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	1168	641	2.55	1.8222	0.285	2690004	2690.0	1047097	1047.1
6.0	1581	875	2.55	1.8069	0.279	4991873	4991.9	1951134	1951.1
10.0	1640	921	2.55	1.7807	0.270	5489225	5489.2	2161674	2161.7
12.0	1753	1002	2.55	1.7495	0.257	6434275	6434.3	2558624	2558.6

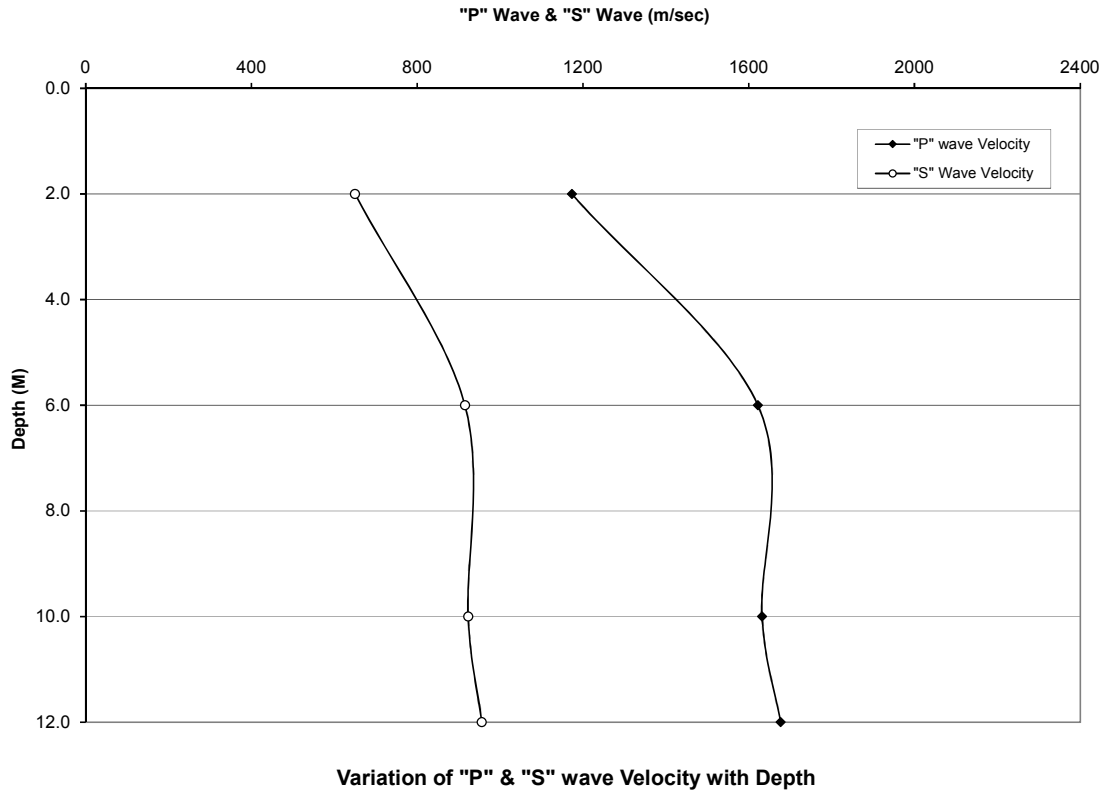


Variation of "P" & "S" wave Velocity with Depth

Cross Hole Shear Test: CHST-4

Calculated Values of Dynamic Parameters

Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($kN.s^2/m^4$)	m = V_p/V_s	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	1173	650	2.55	1.8046	0.278	2752993	2753.0	1076707	1076.7
6.0	1622	915	2.55	1.7727	0.267	5404903	5404.9	2133601	2133.6
10.0	1632	923	2.55	1.7681	0.265	5492184	5492.2	2171073	2171.1
12.0	1677	956	2.55	1.7542	0.259	5865992	5866.0	2329093	2329.1

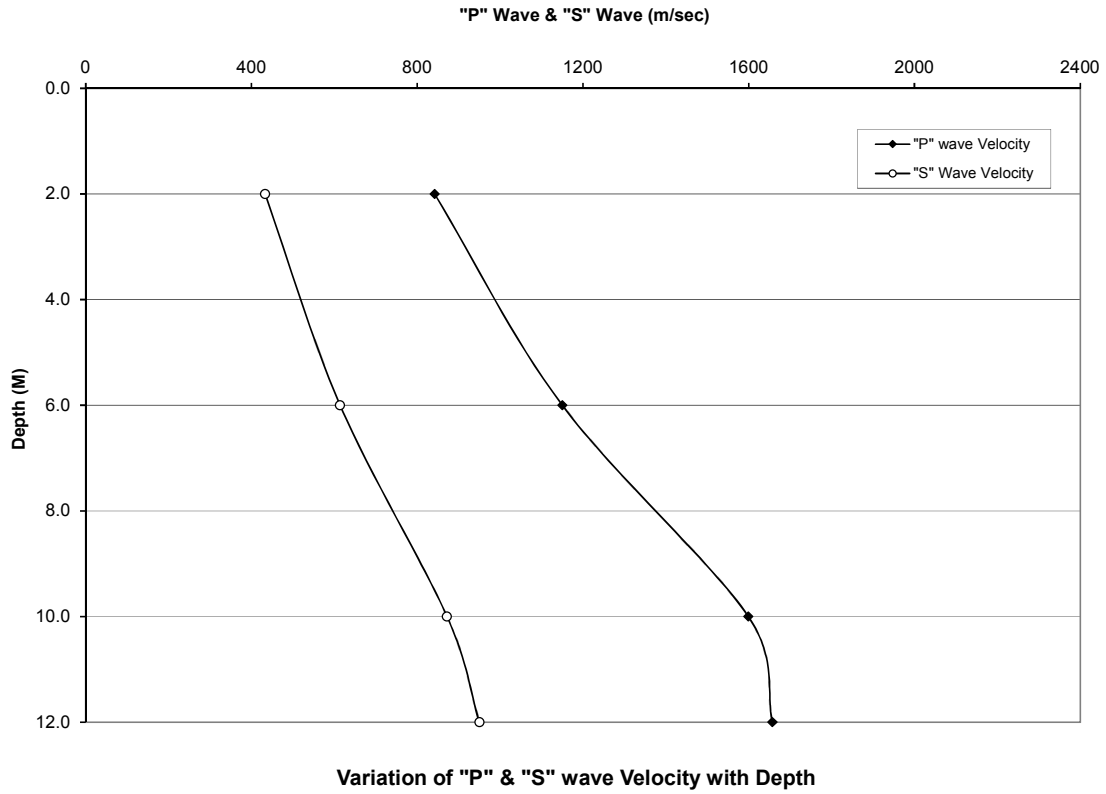


Variation of "P" & "S" wave Velocity with Depth

Cross Hole Shear Test: CHST-5

Calculated Values of Dynamic Parameters

Depth (M) BGL	V_p (m/s)	V_s (m/s)	Mass Density ($kN.s^2/m^4$)	m = V_p/V_s	Poisson Ratio, σ	Young's Modulus (kN/m^2)	Young's Modulus (MPa)	Shear Modulus (kN/m^2)	Shear Modulus (MPa)
2.0	842	433	2.55	1.9446	0.320	1261616	1261.6	477801	477.8
6.0	1150	614	2.55	1.8730	0.301	2499160	2499.2	960744	960.7
10.0	1599	872	2.55	1.8337	0.288	4993114	4993.1	1937778	1937.8
12.0	1657	950	2.55	1.7442	0.255	5773674	5773.7	2299949	2299.9



Variation of "P" & "S" wave Velocity with Depth

CROSSHOLE SONIC TEST RESULTS

Depth, m	Measured Compression Wave Velocity, V_p (m/s)	Measured Shear Wave Velocity, V_s (m/s)	Bulk Density, γ (kg/m^3)	Mass Density, ρ (kg.s^2/m^3)	Calculated Poisson's Ratio, μ	Dynamic Young's Modulus		Dynamic Shear Modulus		Coefficient of Elastic Uniform Compression, c_u (kg/cm^3)	Coefficient of Elastic Uniform Shear, c_τ (kg/cm^3)	Coefficient of Elastic Non-Uniform Compression, c_φ (kg/cm^3)	Coefficient of Elastic non-uniform Shear, c_ψ (kg/cm^3)	UBC Classification
						MPa	kg/cm^2	MPa	kg/cm^2					
CHST - 1														
2.0	1643	709	2700	275	0.39	3834	39082	1384	14103	1609.3	965.6	3340.9	5011.3	Sc
6.0	2100	821	2700	275	0.41	5231	53321	1855	18911	2246.4	1347.8	4663.5	6995.2	Sb
10.0	2277	837	2700	275	0.42	5483	55895	1928	19655	2383.6	1430.2	4948.4	7422.6	Sb
12.0	2328	936	2700	275	0.40	6769	69000	2411	24580	2889.4	1733.6	5998.4	8997.6	Sb
CHST - 2														
2.0	1855	945	2700	275	0.32	6512	66383	2458	25055	2601.4	1560.8	5400.5	8100.8	Sb
6.0	1901	962	2700	275	0.33	6764	68955	2547	25964	2708.4	1625.0	5622.6	8433.8	Sb
10.0	1949	993	2700	275	0.32	7190	73295	2714	27665	2872.2	1723.3	5962.6	8943.9	Sb
12.0	2351	1047	2700	275	0.38	8305	84657	3017	30755	3457.2	2074.3	7177.1	10765.7	Sb

Measured Wave Velocities and Computed Dynamic Parameters at the two Crosshole Seismic Test Locations

NTPC SIPAT

D-1-12(D)

Annexure- (D)

CRITERIA FOR WIND RESISTANT DESIGN OF STRUCTURES AND EQUIPMENT

All structures shall be designed for wind forces in accordance with IS:875 (Part-3) and as specified in this document. See Annexure – B for site specific information.

Along wind forces shall generally be computed by the Peak (i.e. 3 second gust) Wind Speed method as defined in the standard.

Along wind forces on slender and wind sensitive structures and structural elements shall also be computed, for dynamic effects, using the Gust Factor or Gust Effectiveness Factor Method as defined in the standard. The structures shall be designed for the higher of the forces obtained from Gust Factor method and the Peak Wind Speed method.

Analysis for dynamic effects of wind must be undertaken for any structure which has a height to minimum lateral dimension ratio greater than “5” and/or if the fundamental frequency of the structure is less than 1 Hz.

Susceptibility of structures to across-wind forces, galloping, flutter, ovalling etc. should be examined and designed/detailed accordingly following the recommendations of IS:875(Part-3) and other relevant Indian standards.

It should be estimated if size and relative position of other structures are likely to enhance the wind loading on the structure under consideration. Enhancement factor, if necessary, shall suitably be estimated and applied to the wind loading to account for the interference effects.

Damping in Structures

The damping factor (as a percentage of critical damping) to be adopted shall not be more than as indicated below for:

a) Welded steel structures : 1.0%

b) Bolted steel structures/RCC structures : 2.0%

c) Prestressed concrete structures : 1.6%

d) Steel stacks : As per IS:6533 & CICIN Model Code whichever is more critical.

ANNEXURE-B

SITE SPECIFIC DESIGN PARAMETERS

The various design parameters, as defined in IS: 875 (Part-3), to be adopted for the project site shall be as follows:

a) The basic wind speed “Vb” at ten meters above the mean ground level : 47 meters/second

b) The risk coefficient “K1” : 1.07

c) Category of terrain : Category-2