PROPOSAL FOR PRELIMINARY EXPLORATION (G-3 STAGE) FOR COAL

NORTH OF SAONER

NMET FUNDED PROJECT

KAMPTEE COALFIELD

DISTRICT– NAGPUR, MAHARASHTRA

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CORPORATE IDENTITY NUMBER – U14292JH1975GOI001223

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PROPOSAL FOR PRELIMINARY EXPLORATION FOR COAL (G-3 STAGE) IN NORTH OF SAONER BLOCK, KAMPTEE COALFIELD DISTRICT-NAGPUR, MAHARASHTRA

1.0 INTRODUCTION

The Kamptee Coalfield has a unique locational advantage in respect of the major consumer industries for Coal. The Koradi and Khaparkheda Thermal Power Stations of Maharashtra State Electricity Board are the two 'pit head' power stations located in Kamptee Coalfield. With the expansion of the capacities of these power stations and also the increased demand of other industrial, domestic and agricultural sectors, it became imperative to explore and identify new potential blocks to meet the enhanced demands. Keeping this in view and based on the data of regional exploration carried out by DGM (MS), several blocks of the Saoner–Bharatwada Sub basin were identified. Detailed exploration in these blocks is being carried out by CMPDI since 1983 which has resulted in opening of a number of new projects/mines.

1.1 North of Saoner block lies in the North Western part of this coalfield. It lies to the North/ North West of Saoner Rationalized Block.

1.4 Regional & Detailed exploration in the adjacent Saoner Rationalized block was carried out by DGM (MS) and CMPDI respectively,. In assumption that similar geological structure occurs in the block in continuation CMPDI proposed for detailed drilling. Several Geological Reports on Exploration for Coal in Saoner Sub Blocks, Kamptee Coalfield were prepared.

1.5 North of Saoner Block is the up dip side extension of Saoner Rationalized Block due north.

1.6 North of Saoner Block is located in the north western part of Kamptee CF District Nagpur. The area is covered in the toposheet **55 K/15**. The area falls in the Saoner tehsil of Nagpur district of Maharashtra state.

1.7 CMPDI has drawn proposal for exploration for coal in North of Saoner Block, involving **2500 m** of drilling in **7** boreholes.

2.0 OBJECTIVES

2.1 The G3 stage of Exploration in the block is proposed to fulfill following objectives-

1. To establish the existence and continuity of coal seams occurring in the block as significant coal resources are present in adjoining block such as Saoner Rationalized.
2. To establish the lay, disposition and potentiality of coal seams.
3. To assess the coal resource by G3 stage of exploration in the block.

3.0 LOCATION, COMMUNICATION AND ACCESSIBILITY

3.1 The Block falls in Saoner Tehsil of Nagpur district in Maharashtra, which is a Tehsil town on Nagpur- Bhopal National Highway no. 69.The block is situated about 37 Km north of Nagpur. The block can also be approached from Nagpur by the Nagpur-Kalmeshwar- Saoner road, the distance being about 45 km.

3.2 Saoner railway station on the Nagpur- Chindwara line is situated north east of the area under consideration. The block is also well connected with working mines of Kamptee CF by all-weather metal roads.

3.3 North of Saoner Block is located in the north western part of Kamptee CF District Nagpur. The area is covered in the toposheet **55 K/15**. The geographical co-ordinates of the block defined are as follows:

(Co-ordinates based on WGS-84 System The block boundary is provisional and the bounding coordinates are approximate.)

Latitude : **N –21° 22' 30.64" N to 21° 26' 40.54" N**
Longitude : **E – 78° 50' 5.50" E to 78° 52' 42.30" E**

The cardinal points of block boundary of North of Saoner Block is presented in Table-I

Table-I

CARDINAL POINT OF NORTH OF SAONER BLOCK, KAMPTEE COALFIELD, NAGPUR DISTRICT, MAHARASHTRA IN COAL GRID & WGS84					
Sl. No.	CP	Easting	Northing	Longitude	Latitude
1	S1	2984695.928	1242207.836	78° 51' 3.39284252"	21° 26' 36.92362050
2	S2	2984764.937	1241952.907	78° 51' 5.79672860"	21° 26' 28.63790868
3	S3	2984756.179	1241883.375	78° 51' 5.49467355"	21° 26' 26.37718535
4	S4	2984604.219	1241674.748	78° 51' 0.22427105"	21° 26' 19.59053993
5	S5	2984508.56	1241438.324	78° 50' 56.90979766	21° 26' 11.90177935
6	S6	2984473.686	1241285.351	78° 50' 55.70348823	21° 26' 6.92768580"
7	S7	2984477.904	1241197.282	78° 50' 55.85260151	21° 26' 4.06469346"
8	S8	2984555.601	1240956.267	78° 50' 58.55769962	21° 25' 56.23152665
9	S9	2984599.561	1240703.154	78° 51' 0.09169660"	21° 25' 48.00407414

10	S10	2985080.353	1240462.234	78° 51' 16.79258656	21° 25' 40.18507737
11	S11	2985240.587	1240355.661	78° 51' 22.35916237	21° 25' 36.72474204
12	S12	2985314.141	1240253.703	78° 51' 24.91596976	21° 25' 33.41207203
13	S13	2985370.33	1240128.566	78° 51' 26.87046155	21° 25' 29.34535001
14	S14	2985361.293	1239836.546	78° 51' 26.56501636	21° 25' 19.85153256
15	S15	2985308.793	1239451.816	78° 51' 24.75321417	21° 25' 7.34247250"
16	S16	2985364.961	1239308.139	78° 51' 26.70743711	21° 25' 2.67301034"
17	S17	2985512.083	1239104.226	78° 51' 31.82112428	21° 24' 56.04765755
18	S18	2985706.885	1238895.689	78° 51' 38.59019505	21° 24' 49.27317757
19	S19	2985854.278	1238904.993	78° 51' 43.70713872	21° 24' 49.57946648
20	S20	2986086.45	1239003.976	78° 51' 51.76505527	21° 24' 52.80339236
21	S21	2986152.767	1239045.016	78° 51' 54.06636696	21° 24' 54.13928966
22	S22	2986214.533	1238754.911	78° 51' 56.21860098	21° 24' 44.70944997
23	S23	2986646.216	1238263.897	78° 52' 11.21852623	21° 24' 28.75707445
24	S24	2987201.28	1237733.821	78° 52' 30.50189784	21° 24' 11.53726494
25	S25	2987540.849	1237451.629	78° 52' 42.29721934	21° 24' 2.37084957"
26	S26	2987458.339	1237446.533	78° 52' 39.43297223	21° 24' 2.20331565"
27	S27	2987221.866	1237412.1	78° 52' 31.22458691	21° 24' 1.07837435"
28	S28	2986842.525	1237608.865	78° 52' 18.05059124	21° 24' 7.46635725"
29	S29	2986353.418	1237768.953	78° 52' 1.06663478"	21° 24' 12.65893324
30	S30	2985555.814	1234631.712	78° 51' 33.46529077	21° 22' 30.64382484
31	S31	2983588.777	1235793.099	78° 50' 25.15239812	21° 23' 8.34652752"
32	S32	2983564.585	1239274.007	78° 50' 24.20132061	21° 25' 1.51236405"
33	S33	2983447.967	1239575.262	78° 50' 20.14276937	21° 25' 11.30273533
34	S34	2983404.881	1239865.157	78° 50' 18.63748541	21° 25' 20.72596216
35	S35	2983397.235	1240602.14	78° 50' 18.34820264	21° 25' 44.68505464
36	S36	2983319.458	1240773.624	78° 50' 15.64207560	21° 25' 50.25763037
37	S37	2983159.69	1241200.026	78° 50' 10.08069516	21° 26' 4.11499719"
38	S38	2983121.068	1241473.494	78° 50' 8.73065047"	21° 26' 13.00421248
39	S39	2983043.854	1241577.043	78° 50' 6.04612715"	21° 26' 16.36817546
40	S40	2983028.002	1241628.135	78° 50' 5.49398065"	21° 26' 18.02866505
41	S41	2983147.955	1241637.324	78° 50' 9.65886035"	21° 26' 18.33111309
42	S42	2983468.9	1241804.267	78° 50' 20.79781225	21° 26' 23.76812792
43	S43	2983655.469	1241957.275	78° 50' 27.27132098	21° 26' 28.74795765
44	S44	2983824.711	1242119.552	78° 50' 33.14299250	21° 26' 34.02852046
45	S45	2983829.171	1242212.259	78° 50' 33.29495077	21° 26' 37.04254056
46	S46	2983876.906	1242258.624	78° 50' 34.95107237	21° 26' 38.55125188
47	S47	2983950.593	1242267.913	78° 50' 37.50954161	21° 26' 38.85538142
48	S48	2983985.251	1242258.65	78° 50' 38.71331498	21° 26' 38.55527800
49	S49	2984032.829	1242189.132	78° 50' 40.36760687	21° 26' 36.29664231
50	S50	2984115.085	1242124.257	78° 50' 43.22589750	21° 26' 34.18997177
51	S51	2984206.033	1242077.925	78° 50' 46.38545524	21° 26' 32.68638033
52	S52	2984262.38	1242082.574	78° 50' 48.34189933	21° 26' 32.83914076
53	S53	2984396.803	1242138.231	78° 50' 53.00796220	21° 26' 34.65237229
54	S54	2984487.985	1242268.045	78° 50' 56.17027521	21° 26' 38.87512829
55	S55	2984574.728	1242319.055	78° 50' 59.18086517	21° 26' 40.53591086
56	S56	2984644.038	1242295.896	78° 51' 1.58833611"	21° 26' 39.78494528
57	S57	2984695.928	1242207.836	78° 51' 3.39284252"	21° 26' 36.92362050

4.0 PHYSIOGRAPHY, DRAINAGE

4.1 The block exhibits relatively flat terrain with gentle slope towards north. The easterly flowing Kolar River, a tributary of the Kanhan River flowing across the northern – part of the block forms the main drainage of the block. A few seasonal nallas mainly carrying rain water during mansoon discharge into the Kolar River.

The gentle undulating topography is formed by low lying cotton and paddy fields. The only depression is the narrow valley formed by the Kolar River.

5.0 CLIMATE AND VEGETATION

5.1 The area experiences typical tropical climate. The summer season is from April to June with the maximum temperature touching 48^0C and relative humidity dropping upto 20% during May. Winters are moderate with minimum temperature generally ranging from 8^0C to 10^0C. Monsoon generally extends from July to September. The average annual rainfall is around 1500 mm with peak precipitation of about 900 mm during the monsoon months.

6.0 IMPORTANT SURFACE FEATURES IN THE AREA :

6.1 The western and southern parts of the block are mostly agricultural land, whereas the eastern part is covered by a part of Saoner Township consisting of residential constructions.

6.2 Easterly flowing perennial Kolar river passess across the northern part of the block.

6.3 The Saoner – Katol road passes across the southern part of the block. This is a major link catering to all types of road transport ie. Goods & passenger traffic in this region.

6.4 The block is traversed by a network of high tension power lines catering to requirements of domestic, agricultural and industrial sectors of the region.

7.0 BROAD GEOLOGICAL SET UP

7.1 Stratigraphic Sequence

The geological succession in this basin as per published report of DGM (MS), CMPDI in the study area are as given below.

TABLE-II

STRATIGRAPHIC SUCCESSION OF THE COALFIELD

Age	Formation	Drilled Thickness range (m)	Lithology
Recent to Sub – recent	Alluvium	0 to 53.20	Black cotton soil and sandy soil with pebbles.
Eocene to Cretaceous	Deccan Trap	0 to 107.00	Basalt & Intertrappeans
	Lametas	0 to 25.95	Cherty limestone and sandstone etc.
---------- Unconformity ----------			
Upper Permian	Kamthi	0 to 225.30	Yellowish brown medium to coarse grained ferruginous sandstone with occasional shale/clay bands
---------- Unconformity (overlap) ----------			
Middle Permian	Moturs	0 to 348.00	Thick variegated clays, greenish white sandstone with occasional shale/carb shale bands
Lower Permian	Barakars	15.35 – 284.40	Fine to coarse grained sandstone, sandy shale & carb shale and coal seams
Upper Carboniferous to Lower Permian	Talchirs	3.75 to117.80	Greenish shale and siltstone.
---------- Unconformity ----------			
Archaeans	Metamorphics	Nil-5.90	Gneisses and schists etc.

8.0 Geology of the block

8.1 On the basis of Surface and Subsurface data of exploratory boreholes drilled by DGM (MS)/CMPDI in and around the Saoner Rationalized Block the generalised sequence of the different formations in the area under study is given below in Table III

TABLE-III

STRATIGRAPHIC SUCCESSION OF THE BLOCK

Age	Formation	Drilled Thickness range (m)	Lithology
Recent to sub-recent	Alluvium/Weathered Mantle	(CMKSN – 490) to 32.0 (CMKSN – 471)	Black cotton soil sandy with pebbles & weathered Basalt.
Eocene	Deccan Trap	1.01 (CMKSN – 231) to 35.90 (CMKSN – 482)	Basalts & intratrappeans
Mid Cretaceous	Lametas	Not encountered within the block	Cherty sandstones and claystone etc.
---------- Unconformity ----------			
Upper Permian	Kamthis	1.00 (CMKSN – 482) to 62.10 (CMKSN – 236)	Yellowish brown medium to coarse grained ferruginous sandstone, shale and clay.
---------- Unconformity (overlap)----------			
Middle Permian	Moturs	10.05 (CMKSN – 236) to 127.25 (CMKSN - 483)	Thick variegated clays greenish white sandstone with occasional shale/carb shale bands.
Lower Permian	Barakars	67.00 (CMKSN – 483) to 242.47 (M.S. -99)	Fine to coarse grained sandstone, sandy shale alternate shale & sst shale, carb shale and coal seams.
Upper Carboniferous	Talchirs	Not encountered	Fine grained greenish sst. and greenish shale.
---------- Unconformity ----------			
Archaeans	Metamorphics	Not encountered	Crystalline limestones, Quartizites etc.

9.0 Regional Structure

9.1 **BASIN CONFIGURATION :**

The Kamptee coalfield is a horseshoe shaped master basin aligned in NW-SE direction covering an area of about 605 sq. km. Since the western and southern boundaries of this coalfield are obscured by deccan traps, continuity of the coalfield beyond the presently known limits is not predictable. The coalfield is entirely concealed under a

thick cover of detrital mantle. On the basis of Geophysical investigations carried out by GSI in the years 1958, 1971 and 1973 at the instance of the erstwhile NCDC and subsequent studies by Shri B B P Srivastava of CMPDI, three sub-basins were identified within the Kamptee coalfield. (Ref. document entitled "Kamptee Coalfield, Present Status of Exploration & Future Potentiality, June' 95" – published by CMPDI, RI – IV, Nagpur.) These sub-basins are:

i) Kamptee-Patansaongi sub basin in the eastern part

ii) Bokhara sub-basin in the southern part

iii) Saoner-Bharatwada sub-basin in the western part. Subsequently based on the exploration carried out by MECL and CMPDI another sub basin viz, Hingna-Bazargaon sub-basin was located south west of the Saoner-Bharatwada sub basin.

The first two sub-basins are separated by a metamorphic high around Mahadulla-Koradi area near Koradi Thermal power Station. Another metamorphic high separates the Kamptee-Patansaongi sub-basin from Saoner-Bharatwada sub-basin exposing Talchirs directly below the detrital mantle between the two sub-basins. Further, the Saoner-Bharatwada Sub Basin is separated from the Hingna-Bazargaon Sub Basin by metamorphics occurring at shallow depths below the Deccan Trap.

9.0 Sequence and quality of coal seams:

9.1 The Kamptee coalfield exhibits 5 important correlatable seams which have been designated as Seams I, II, III, IV and V in the ascending order. While Seams II, III and V generally occur as Composite Seams over major part of the coalfield, seam I and IV exhibit splitting tendency throughout the coalfield. The split sections have been designated as Top, Bottom etc. It has generally been observed that there is a progressive reduction in thickness of individual seams when traced from east to west. In the western part of the coalfield i.e. "Saoner-Bharatwada sub basin" this phenomenon is more pronounced when traced from north to south. Further, splitting of seams II and III also is observed.

Thus the splitting pattern of seams in the block under report is as follow:

a) Seam V occurs as a Composite interbanded seam

b) Seam IV comprises several thin seams/sections which have been grouped together for geological reasons. The 4 correlatable sections of this seam are designated as IV (Top), IV Top A, IV Mid, and IV Bot.

c) Seams III, II and I occur as two sections i.e. Top and Bottom.

9.3 On perusal of seam structure and correlation of seams it is apparent that the seams V, IV MID, IV (BOT), III (TOP) & III (BOT) are potential. The other seams / sections are either deteriorated to carb shale, not developed, or not attained workable thickness.

The variation in stratigraphic and effective thickness of different seams/sections and their intervening parting as encountered in different boreholes in Saoner Phase-II Extn. Block is furnished in the following table.

SEQUENCE OF SEAMS AND THEIR INTERVENING PARTINGS IN SAONER PHASE-II EXTN. BLOCK

Table-IV

SEAM	STRATIGRAPHIC THICKNESS (m)		PARTING (m)		DOMINANT RANGE (m)
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	
V	2.03	5.42	-	-	3.00-5.00
PARTING	-	-	22.28	36.72	
IV (Top)	0.35	1.47	-	-	
PARTING	-	-	1.545	11.53	
IV (Top) A	0.94	2.25*	-	-	
PARTING	-	-	2.14	4.89	
IV Mid	4.48	8.12	-	-	6.00-7.00
PARTING	-	-	7.16	9.26	
IV (Bot)	1.15	2.30	-	-	1.50-2.20
PARTING	-	-	7.75	14.70	
III (Top)	0.35	3.20	-	-	2.00-3.00
PARTING	-	-	3.85	7.45	

SEAM	STRATIGRAPHIC THICKNESS (m)		PARTING (m)		DOMINANT RANGE (m)
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	
III (Bot)	0.75	1.90	-	-	1.20-1.70
PARTING	-	-	6.97	13.28	
II (Top)	0.45	1.25	-	-	
PARTING	-	-	3.71	7.26	
II (Bot)	0.05		-	22.75-	-
PARTING	-	-			
I (Top)		0.20	-	-	-
PARTING	-	-	3.40		
I (Bot)		0.45	-	-	-

Potentiality has been assessed for five seams i.e. V, IV (Mid), IV Bot, III Top & III Bot. The thickness range and quality parameters are given in the following table.

Table-V

Coal seams/ Parting	Thickness Range (m) From -To	Depth of Occurrence (m) From - To	G.C.V. K. Cal. / kg.	U. H. V. K. Cal. / kg. .	General Grade
			Min. - Max.	Min. Max.	
V	2.03- 5.42	107.50- 202.75	3845- 4830	2567- 3670	E –F (G9-G12)
IV. (Mid)	4.48- 8.12	135.55- 223.25	4435- 5805	3670- 5602	C - D (G6-G10)
IV (Bot)	1.15- 2.10	166.76 – 237.66	4840 – 5625	2201- 4967	D (G7-G8)
III (Top)	2.00 – 3.20	180.00 – 246.55	4755-5845	4167- 5892	B-C (G4-G6)
III (BOT)	0.75 – 1.90	186.55- 257.20	4580 – 5970	3739- 6071	B-C (G4-G6)

10.0 EXPLORATION SCHEME

10.1 Drilling:

Drilling of approximately **2550 m** in 7 boreholes has been proposed in 1600x1600 m grid for the North of Saoner Block. The depth of intersection for seam I Bot has been proposed from 180 m to 480 m at minimum to maximum range. (Table IV)

TABLE-VI

Depth of Proposed Boreholes in North of Saoner block, Kamptee Coalfield

G3 LEVEL EXPLORATION IN NORTH OF SAONER BLOCK, KAMPTEE CF	
TENTATIVE CLOSING DEPTH OF PROPOSED BOREHOLE FOR G3 EXPLORATION:-	
PROPOSED BOREHOLE	**EXPECTED BH CLOSING DEPTH METERAGE(M)**
PBH-1	200
PBH-2	350
PBH-3	500
PBH-4	350
PBH-5	350
PBH-6	550
PBH-7	250
TOTAL	**2550m**
Note: Meterage of proposed boreholes may also vary due to, surface R.L., change in trend and throw amount of faults if any. Existence of faults cannot be ruled out.	

Some boreholes may be extended beyond proposed expected depth due to structural complexities like faulting/ to encounter the Talchir formation & for establishing the complete strati-graphical sequence in the region.

In view of soft and friable nature of Motur clays and sandstone which causes problem in the drilling appropriate technology, combination of drilling method be adopted to complete the project in the time schedule.

10.2 Geophysical Investigation:

All the boreholes will be geophysical logged. The parameters involved are Sonic, Dual density, Natural Gamma, caliper, SPR, deviation, Resistivity etc.

10.3 **Laboratory Studies**: Band by Band Analysis, overall analysis, special tests, & Geotechnical studies will be carried out on coal samples.

10.4 Quantum of Work Proposed: Details of proposed work for detailed exploration for coal in North of Saoner block is given below in Table-V

TABLE-VII

QUANTUM OF WORK

S.No.	Activity	Quantity
1.	Geological Mapping	15.16 Sq km
2.	Drilling:	
	i) Boreholes	07 BHs.
	ii) Meterage	2500 m
3.	i) Levelling and Triangulation	As per requirement
	ii) RL and Co-ordinates	07 BHs.
4.	Drill Core Logging	2550 m
5.	Geophysical Logging	07 boreholes 2550.00
7.	Chemical Analysis:	
	i) Band by Band	420 Samples
	ii) Overall	150 Samples
	iii) Calorific Value	150 Samples
8	Special Tests	One Borehole all Seam

11.0 LIMITATIONS

11.1 Some of the boreholes may require shifting due to non-approachability due to gullies / villages/ forest cover, geological structure etc.

11.2 As the proposed meterage is based on the tentative structure as per Regional reports and data of adjoining blocks, actual meterage may vary during course of exploration.

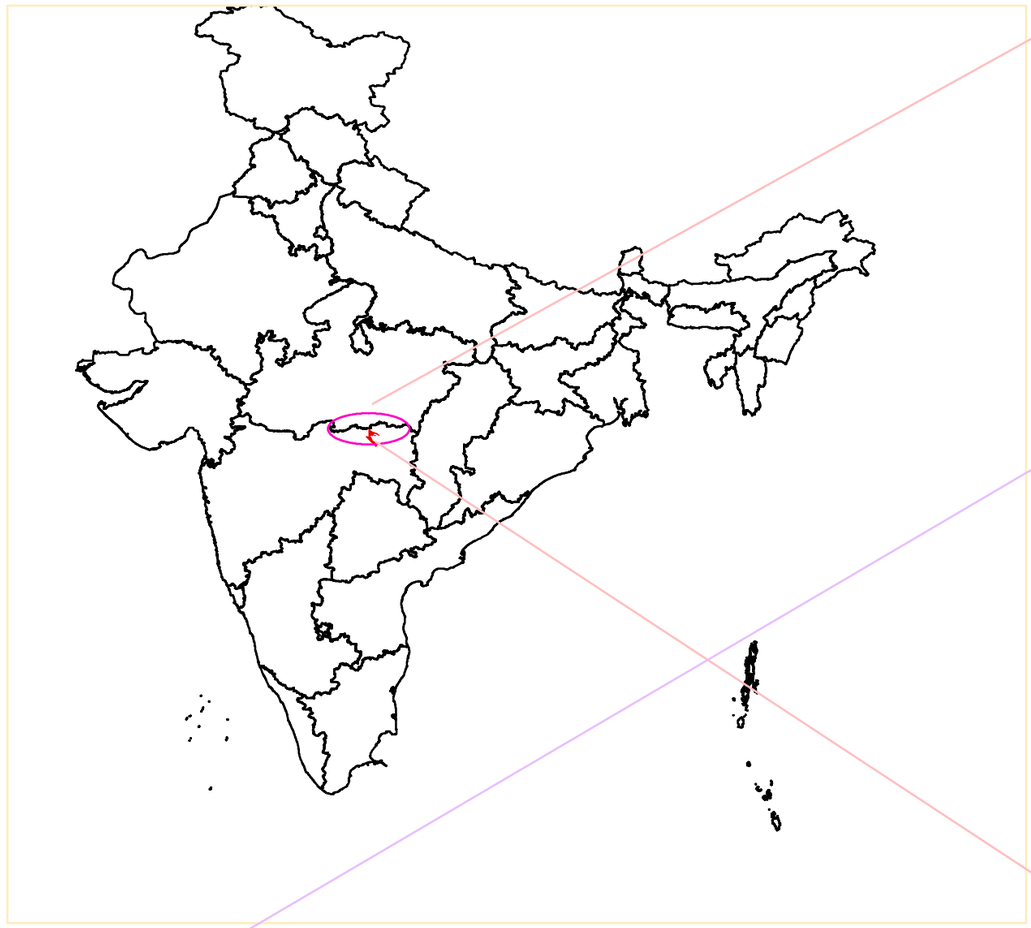
11.3 The tentative R.L. of every proposed borehole point was taken from Google earth i.e. tentative and may change at the time of actual survey.

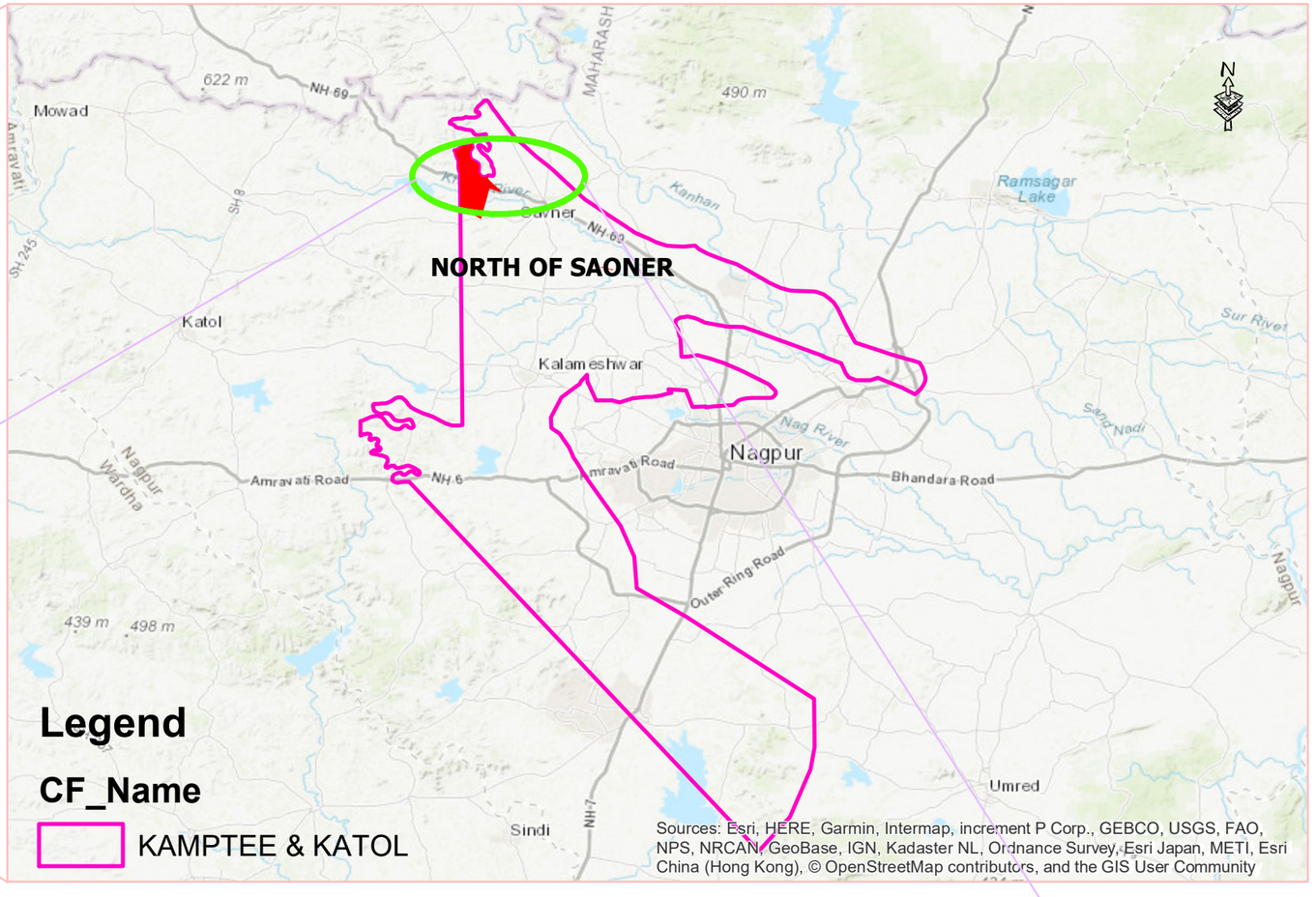
12.0 LIST OF PLATES

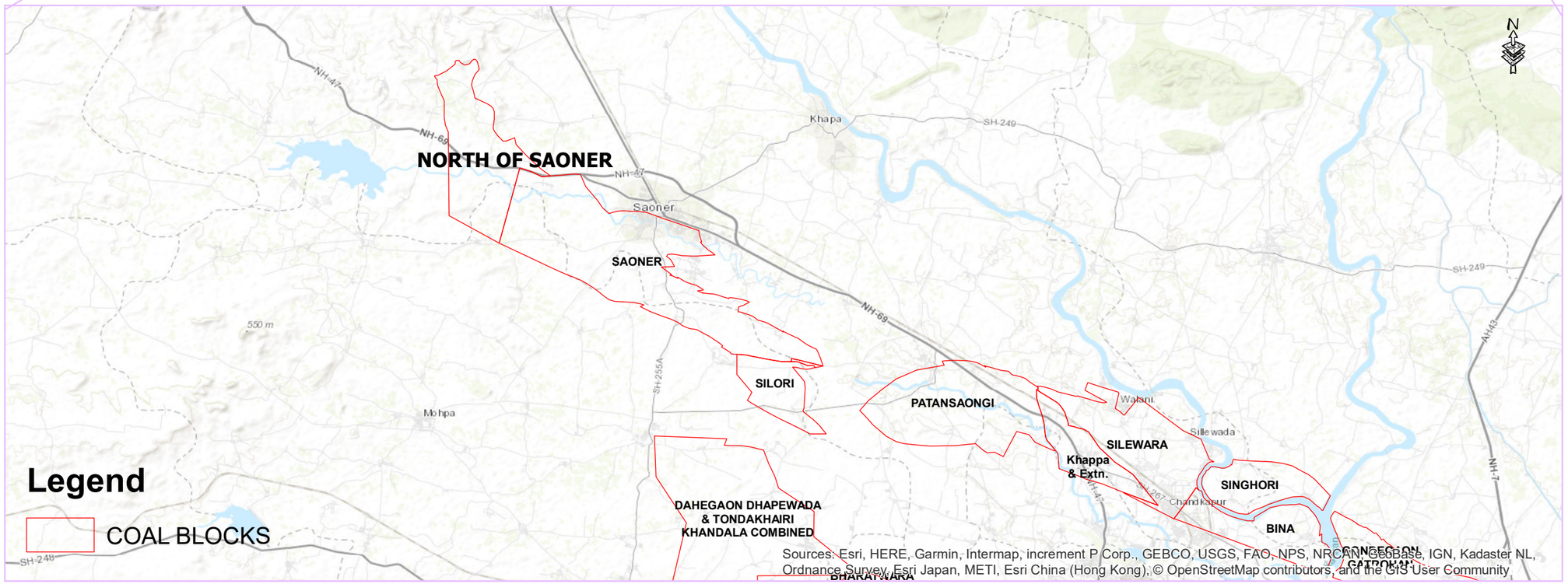
12.1 Following plates are enclosed with the proposal:

I. Borehole Location Plan.
II. Location Plan
III. Geological Plan (1:50000 Scale)
IV. Graphic logs of boreholes drilled by CMPDI.

LOCATION MAP NORTH OF SAONER BLOCK,KAMPTEE COALFIELD,MH, INDIA







ALL MAPS NOT TO SCALE

78°47'30"E
78°50'0"E
78°52'30"E
78°55'0"E
21°27'30"N
21°25'0"N
21°22'30"N

NORTH OF SAONER BLOCK

N

0 0.5 1 2 3 4

Kilometers

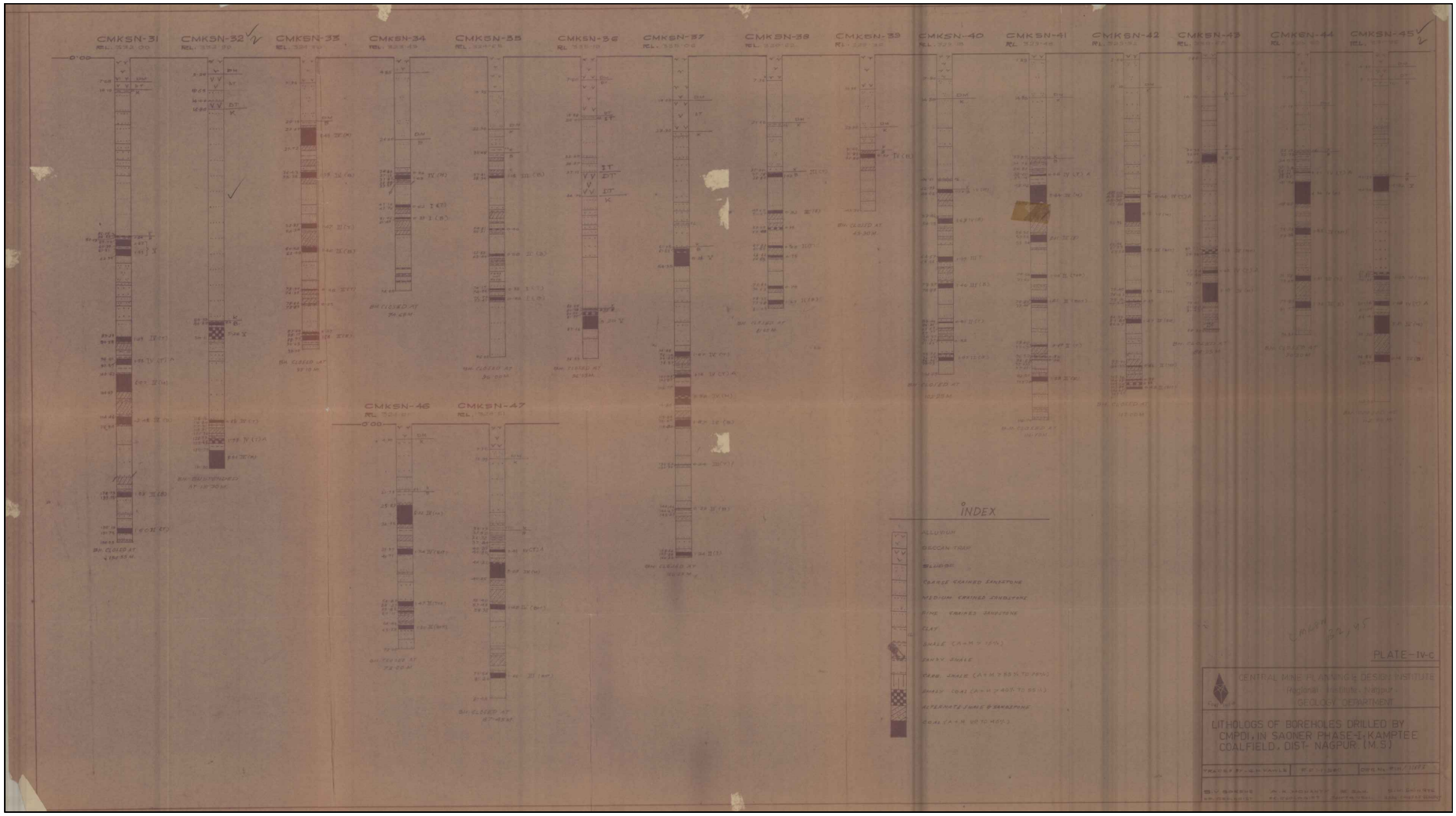
1:50,000

GEOLGICAL MAP OF A PART OF KAMPTEE COALFIELD SOI TS 55K/15, NAGPUR DISTRICT

Source-
(GSI,BHUKOSH)

Legend

- North_of_Saoner
- DECCAN TRAP
- KAMTHI
- LAMETA
- MANSAR
- METAMORPHICS


CMKSN-31
CMKSN-32
CMKSN-33
CMKSN-34
CMKSN-35
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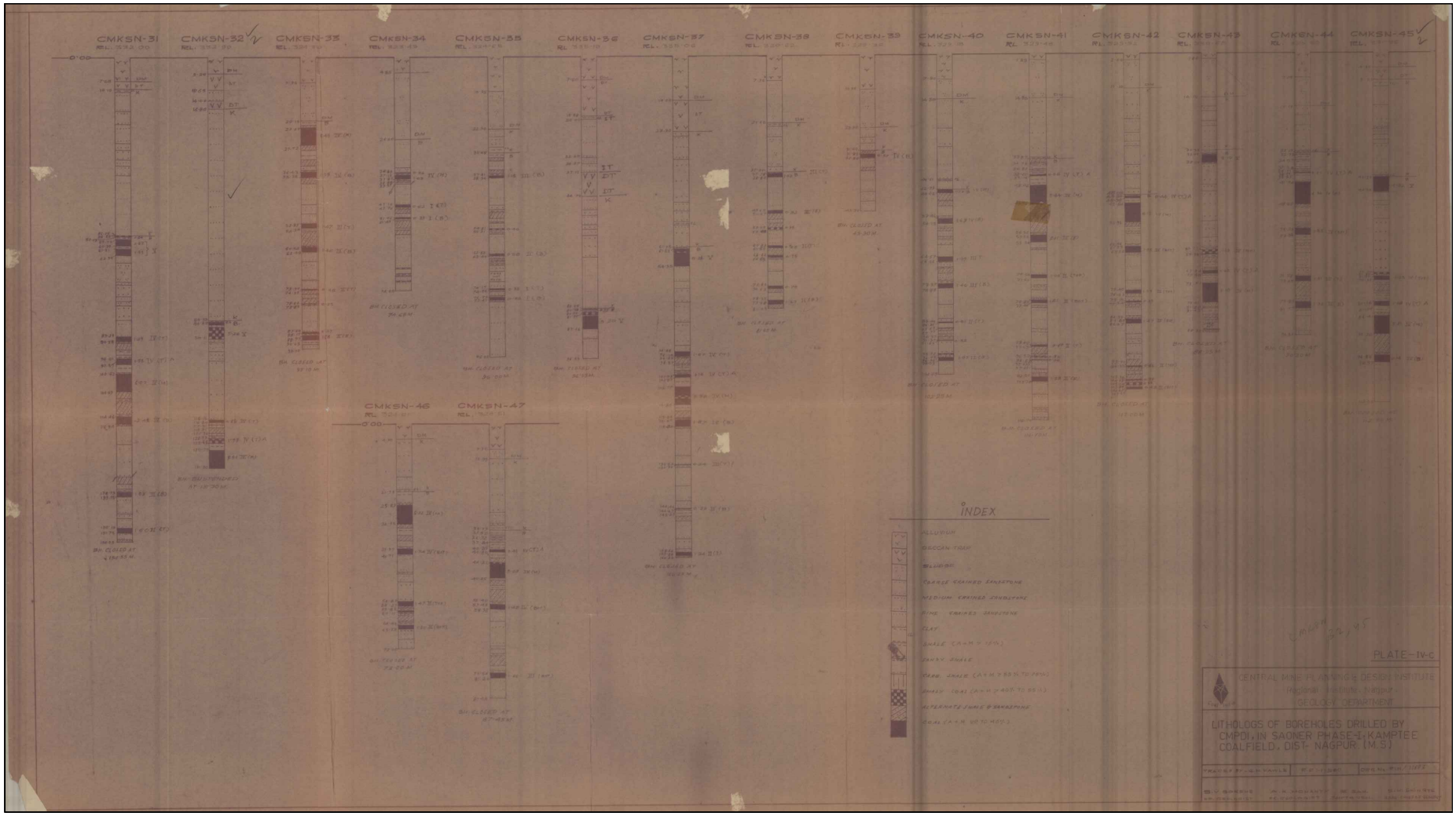
GEOLOGY DEPARTMENT
LITHOLOGS OF BOREHOLES DRILLED BY CMPDI, IN SAONER PHASE-I, KAMPTEE COALFIELD, DIST- NAGPUR (M.S.)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Project Cost Estimate for Preliminary Exploration (G3 Stage) of Coal in North of Saoner , Kamptee CF (Area-15.16 sq.km)

Sl. No	Item Work	Item no in Soc	Unit	Rates as per SoC of NMET	Rate (Rs)	Qty.	Amount (Rs)
	I- Field operations						
A	**DRILLING**						
1	Drilling	2.2.1.1b	m	5619	6775	2550	17276250
B	**GEOPHYSICAL STUDIES**						
1	Borehole Geophysical logging	3.11	m	656	470	2550	1198500
2							
	Field operations Total (A+B)						**18474750**
	II- Field Study						
A	**GEOLOGICAL WORK**						
1	Survey Work-1 surveyor	1.6.1a	Day	8300	8300	30	249000
2a	Geological Party days-Field (Mapping, Field work)- 1 Geologist	1.5.1a	Day	11000	11000	120	1320000
2b	Geological Party days-HQ 1 Geologist	1.5.1a	Day	9000	9000	45	405000
	Sub Total A						**1974000**
B	**GEOPHYSICAL STUDIES**						
2a	Geophysicst Party days-Field - - 1 Geophysict	3.19	Day	11000	11000	12	132000
2c	Geophysicst l Party days-HQ - 1 Geophysict	3.19	Day	9000	9000	7	63000
	Sub Total B						**195000**
	Field Work Total (A+B)						**2169000**
	III-Laboratory Studies						
1	***Band By Band Analysis***						
a	Ash+Moisture	4.2.6	per sample	700	700	430	301000
b	House Keeping	4.2.1	per sample	115	115	430	49450
2	***Overall analysis***						
a	Proximate analysis	4.2.7	per sample	935	935	150	140250
b	Moisture at 60% RH & 40C	4.2.8	per sample	1010	1010	150	151500
c	GCV	4.2.11	per sample	1505	1505	150	225750
d	Sample preparation & House Keeping	4.2.3	per sample	795	795	150	119250
3	***Special Test***						
a	Ultimate analysis	4.2.17	per sample	9945	9945	15	149175
b	Total Sulphur	4.2.14	per sample	1900	1900	15	28500
c	Distribution of Sulpher	4.2.15	per sample	3695	3695	15	55425
d	Phosphorus	4.2.21	per sample	2480	2480	15	37200
e	HGI including sample preparation	4.2.18	per sample	3805	3805	15	57075
f	AFT (Ash Fusion Temperature)	4.2.20	per sample	2745	2745	15	41175

g	Ash analysis	4.2.25	per sample	325	325	15	4875
4	**Petrographic analysis**						
a	Pellet preparation	4.3.14a	per sample	1160	1160	5	5800
b	Maceral Analysis (with photomicrography)	4.3.14e	per sample	25000	25000	5	125000
c	Microlithotype Analysis (with photomicrography)	4.3.14g	per sample	25000	25000	5	125000
d	Mean Ro%	4.3.14j	per sample	16345	16345	5	81725
	Laboratory Studies Total						**1698150**
	IV. Miscellaneous Charges						
a	Preparation of Exploration Proposal	5.1	lump sum	380000	380000		380000
b	Outsourcing process cost (2% of approved project cost or 5 Lakh, whichever is lower)	2.3	lump sum	500000			482061
c	Operational charges for CMPDI	Point 3 of SOC			1500000		1298738
d	Geological Report preparation (3% of work value or 7.5 Lakh Max)	5.2					750000
e	Borehole pillaring	2.2.7	Per bh	2000	2000	7	14000
f	Land crop compensation	5.6	Per bh	20000	20000	7	140000
g	DGPS Survey of bundary, borehole points (7 boreholes & 10 boundary point)	1.6.2	per point	19200	19200	17	326400
h	Peer review			10000	10000		10000
	Miscellaneous Charges Total						**3401198.25**
	Total (I- Field op +II Field Study +III Lab+ IV Misc)						25743098
	GST (@18%)						4633758
	Grand Total						30376856

Note- 1) Above rate of drilling, GPL, Chemical are budgeted rates.

2) There are numerous items in chemical anlysis.The CIMFR rates will be applied for actual payment.

3) The Drilling rate for coal is Rs 6775/- is as per approved rate of Promotional exploration MoC.

4)For Geophysical Survey the approved rates of MoC for FY 2020-21 has been taken other rates are as per approved SoC rates.

5) GPL rates is Rs 470/- per meter of minimum 6 parameters, the break up is as follow

	Probe	SoC item No	Rate 2020-21 (in Rs)
1	Base Log	3.11a	162
2	Dual Density	3.11d	110
3	Natural Gamma	3.11h	96
4	Caliper	3.11g	20
5	SPR	3.11i	41
6	Resistivity	3.11c	41
	Total		**470**

6) Rs 10000/- for Peer review is budgeted rate.

Time Schedule/Action Plan for North of Saoner Block, Kamptee Coalfield														
S. No	**Activities**													**Remarks**
		Months	1	2	3	4	5	6	7	8	9	10	11	12	
1	Outsourcing	Months	<------>												3 Months
2	Mobilising	Months				↔									1 months
3	Drilling (Nos of rigs-1 rigs)	Months					<---------->								2550
4	Borehole Geophysical logging	Days					<---------->								2520
5	Survey Party days (1 Party)	Days					<---------->								30 Days
6	Geologist Party days, Field (1 Party)	Days					<---------->								120 Days
7	Geophysict Party days, Field (1 Party)	Days					<---------->								12 Days
8	Laboratory Studies (Band By Band)	Nos.						<---------->							430 sample
9	Laboratory Studies (Overall)	Nos.								<--------->					150 sample
10	Laboratory Studies (Special) & (Petrography)	Nos.										↔			15 & 5 Sample
11	Geologist Party days, HQ (1 Party)	Days									<---------->				45 Days
12	Geophysict Party days, HQ (1 Party)	Days									<---------->				7 Days
13	Report Writing & Peer Review	Months									<---------->				4 Months

Note: Please add activities accordingly and timelime (months)

Total Time Period of Completion of Project- *12 months from Sanction of Project*