COAL EVACUATION PLAN

FOR

BASUNDHARA (WEST) EXTENSION OPEN CAST PROJECT

(NORMATIVE CAPACITY 7.00 MTY)
(PEAK CAPACITY 8.75 MTY)

IB-VALLEY COALFIELD

MAHANADI COALFIELDS LIMITED

MAY 2017

Project Office, Basundhara (W) OCP, MCL, Basundhara Area, District - Sundergarh, Odisha-770076

BASUNDHARA (WEST EXTENSION OPENCAST PROJECT (7.00MTY)

1.1 Introduction

The Basundhara (West) Extension OCP is located in the north-western central part of IB coalfield of Odisha, known as Gopalpur sector, (Plate G-1). This coalfield is the southern middle part of lower Gondwana basin of Son Mahanadi valley and occupies an area of about 1460 sq.km. The Ib coalfield lies in between latitude 21°31' to 22°14' North and longitude 83°32'00'' to 84°10'00'' East and falls mainly in Sundergarh, Jharsuguda and Sambalpur districts of Odisha.

The proposed Basundhara (West) Extension OCP has been formulated within chaturdhara block in the Gopalpur Sector of Ib-valley Coalfield. Basundhara River separates Chaturdhara block from Basundhara block. Basundhara River is the boundary of Siarmal-Basundhara block and Basundhara-Chaturdhara blocks. But due to river Basundhara on western side, approach to Chaturdhara block has become a major hurdle for its development. Initial overburden from proposed quarry is to be carried to void of Basundhara (West) OCP. Barrier coal between Basundhara and Chaturdhara to be left due to non-diversion of Basundhara River. Diversion of Basundhara River is not possible due to its perennial water supply to that area. The proposed mine area lies on the west of Basundhara (West) OCP (7.0MTY) on the western side of Basundhara River. Basundhara (West) OCP is an ongoing project with remaining life of two year. To its west lies the private captive block Rampia, to its south Chaturdharanala and Banapatra block, to its north incrop (floor line) of Rampur-I seam and to its east Basundhara river and Basundhara (West) OCP.

As per the latest estimate, the projected gap between demand and availability of MCL by the terminal year of XII Plan (2016-17) is estimated to be 28.32Mt from Ib-Valley coalfield alone. Further new coal linkages have been given to MCL for which MCL has already issued LOA. The proposed project will meet the coal demand from the coalfield, especially to the new consumers and reduce the gap between demand and availability.

The coal seams in the block under consideration for the project (Basundhara West Extension-Chaturdhara) are thick and occur at shallow depth. The entire coal reserve of 115.97Mt has high quarriable potentiality.

Considering the coal demand on MCL and quarriable potential of the blocks, formulation of the present opencast mine for rated capacity of 7.0MTY is justified.

2.1 Marketing and Justification

2.1.1 Demand and Supply scenario of MCL

Long-term demand projection of coal is quite complex issue owing to rapid changes in the relative availability & fresh coal linkages or cancellation of linkages under New Coal

Distribution Policy (NCDP) – 2007. However, as the position stands now, the overall coal balance of MCL is given below:

Table 2.1

Projected Coal Demand on MCL
(BothIb-valley and Talcher coalfield)

Sl.No.	Particulars	2011-12	2016-17	2021-22
A.	**Existing units**			
1	Total commitment under FSA & other-wise (based on last three years average) for power (utility)	67.249	67.249	67.249
2	Total commitment under FSA & otherwise for non-power (utility)	28.555	28.555	28.555
Sub-Total (A)		**95.804**	**95.804**	**95.804**
B.	**Future units (LOA issued by MCL)**			
3	LOA Power (U)	92.97	130.085	156.085
4	LOA Power (captive)	16.148	16.148	19.448
5	LOA cement	0.457	0.457	0.457
6	LOA sponge	2.34	2.34	2.34
Sub-Total (B)		**111.195**	**149.03**	**178.33**
Total Demand on MCL (A+B)		**207.719**	**244.834**	**274.134**

The consumers of MCL are linked to the company and not to any specific coalfield. The actual supply from any coalfield of MCL will depend upon the production and transport logistics. Under the above circumstances coalfield wise demand has been assessed based on the production share of these two coalfields which is as below:

Table 2.2

Projected coal demand on MCL from Ib-valley coalfield

Sl.No.	Particulars	2011-12	2016-17	2021-22
1	Total demand on MCL	207.72	244.83	274.134
2	Projected coal demand on Ib-valley coalfield	70.62	97.93	120.56
3	Coal availability	46.39	69.61	70.40
Gap		**(-)24.23**	**(-)28.32**	**(-)50.16**

3.1 Utility of market for the coal from mine/project

It is proposed that the coal produced from the proposed project will be linked to various Thermal Power Stations for power generation, both within the state and outside the state.

Available Linkage or firm Fuel Supply Agreement (FSA)

The proposed Basundhara West Extension OCP has no consumer specific linkage. A basket of new consumers may be linked to the project that has been issued LOA (Letter of Acceptance) by MCL under NCDP-2007. Based on the information collected from MCL and transport logistics, the proposed new consumers for Basundhara West Extension OCP may be as follows:

Table 3.1

New consumers linked to MCL/Ib valley coalfield

Sl.No.	Name of the consumer	Capacity (MW)	Total linked quantity (MTY)
1	Vedanta Aluminium ltd- CPP	675	3.07
2	Sterlite Energy ltd.	600	2.57
3	Vedanta Aluminium ltd.	540	2.46
4	Ind-Bharat Energy ltd	2*250	3.07
5	Talwandsabo Power ltd, PSEB,		7.72
6	Rajiv Gandhi Therma Power Plant, Khedar, Hissar, Phase-I, Haryana		3.24
7	Parli Unit-II, TPS, MSEB	250	1.2
8	Paras Expn-II TPS, MSEB	250	1.2
9	CESC ltd, Phase-I	500	2.83
10	Vishakapatnam TPS of HNPCL		3.24
11	DB Power ltd, Bhopal	500	2.49
12	Thermal Power Tech Corpn. (I) ltd, Hyderabad	1000	4.27
13	Sirkazhi Power Hyderabad	1000	4.27
14	NCC Vansadhara Mega Power Projects, Hyderabad	1000	4.27
15	East Coast Energy Pvt., Hyderabad	1000	4.27
16	Other CPP & Sponge iron plants		4.62
Total			54.79

From the above quantity of 54.79MTY of coal linked to various new consumers who may be supplied coal from Ib-valley coalfield. Basundhara West Extension OCP will meet the demand of 7.0MTY which will replace Basundhara West OCP in future. The consumer wise quantity may be known after signing of FSA, which are to be executed after achieving the desired milestones as per the guidelines of NCDP-2007.

4.1 Mineable Reserve

It is estimated that 92.73MT of mineable coal would be available for extraction within the boundaries. The total overburden to be removed is estimated as 97.22 Mcum. Thus overall stripping ration works out to 1.05cum/t. An annual target of 7.0Mt is proposed. At the target capacity, the mine life would be 15 years. It is envisaged that a peak capacity of 8.75Mty can be achieved under the present geo-mining conditions. Yearly schedule of coal production and overburden removal and stripping ratio for a normative capacity of 7.00MTY and peak capacity of 8.75MTY are given in the table below:

Table 4.1

Production Programme

Sl.No.	Year	Coal (Mt)	OB (M.cum)	SR (cum/t)
1	Yr-1	1.50	2.18	1.45
2	Yr-2	5.50	3.32	0.60
3	Yr-3	7.00	5.45	0.78
4	Yr-4	7.00	6.14	0.88
5	Yr-5	7.00	6.11	0.87
6	Yr-6	7.00	6.07	0.87
7	Yr-7	7.00	8.02	1.15
8	Yr-8	7.00	8.66	1.24
9	Yr-9	7.00	8.65	1.24
10	Yr-10	7.00	8.68	1.24
11	Yr-11	7.00	8.84	1.26
12	Yr-12	7.00	8.85	1.26
13	Yr-13	7.00	9.14	1.31
14	Yr-14	7.00	7.01	1.00
15	Yr-15	1.73	0.10	0.06
Total		**92.73**	**97.22**	**1.05**

5.1 Coal Evacuation arrangement of Basundhara (W) Extension OCP

The nearby rail connectivity will be the Sardega Railway Siding (tentative date of initiation is 31st Dec'2018), which lies in the East side of the mines at a distance of less than 01Km. Besides, Basundhara (W) Extension OCP (7.00Mty), other mines likely Siarmal OCP (50.00Mty), Garjanbahal OCP (10.00Mty) and Kulda OCP (15.00Mty), which are situated near to the Sardega Railway Siding, will evacuate their coal through rail sale, thus reducing the possibility of air pollution.

Table 5.1

Mode of Transportation of coal existing in Basundhara Area

S.No.	Existing consumers of Basundhara Area	Mode of transportation
1	D.B.Power	By Road
2	Jindal Power Limited	
3	Korba West Power Ltd	
4	WBPDCL (Barkreshwar)	By Rail
5	WBPDCL (Kolaghat)	
6	TNEB (Tuticorin)	
7	Rajiv Gandhi (TPS Unit-I)	
8	NTPC (Simhadri)	
9	NTPC (Vellore)	
10	Durgapur Steel (TPS DVC)	
11	APGENCO (Vijayawada)	
12	APGENCO (Rayalseema)	
13	APCPL (Indira Gandhi)	

The table 5.1 shows the list of existing consumers of Basundhara Area and the mode of transportation of coal. The pie chart below shows the percentage distribution of mode of transportation of coal existing in Basundhara Area. As it clearly shows that in Basundhara

Area about 77% of coal is transported through rail (from Kanika Railway Siding), only 23 % of coal is transported through road, the Basundhara (W) Extension OCP which will replace the Basundhara (W) OCP and will follow the same trend of transportation. Hence, it can be expected that 65-70% of coal will be transported through rail.

Graph 5.1

Percentage distribution of mode of transportation of coal existing in Basundhara Area

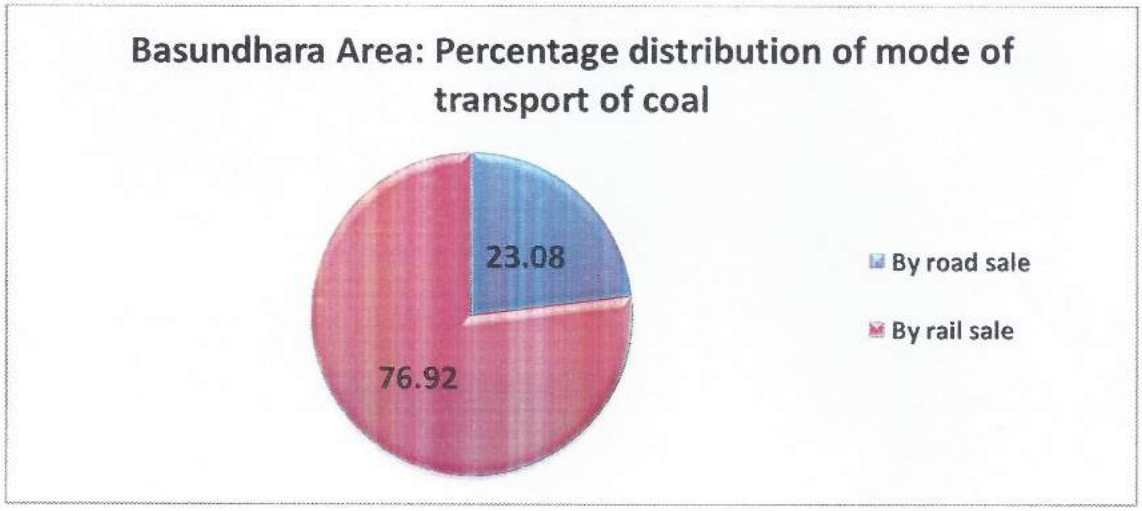


Table 5.2

Evacuation Programme (tentative)

Sl.No.	Year	Coal Production (Mt)	Dispatch through Rail sale from Sardega Railway siding (Mt)	Dispatch through road sale (Mt)
1	Yr-1	1.50	0.98	0.53
2	Yr-2	5.50	3.58	1.93
3	Yr-3	7.00	4.55	2.45
4	Yr-4	7.00	4.55	2.45
5	Yr-5	7.00	4.55	2.45
6	Yr-6	7.00	4.55	2.45
7	Yr-7	7.00	4.55	2.45
8	Yr-8	7.00	4.55	2.45
9	Yr-9	7.00	4.55	2.45
10	Yr-10	7.00	4.55	2.45
11	Yr-11	7.00	4.55	2.45
12	Yr-12	7.00	4.55	2.45
13	Yr-13	7.00	4.55	2.45
14	Yr-14	7.00	4.55	2.45
15	Yr-15	1.73	1.12	0.61
Total		**92.73**	60.27	32.46

As shown in the table above, the total coal production (92.73Mt) of Basundhara (W) Extension OCP (7.00Mty) is distributed tentatively (Rail sale-65% & Road sale-35%) based upon the transportation trend followed by existing Basundhara Area, but it should be noted

that the figure in the above table are tentative, which will depend upon the production and transport logistics, and may change accordingly.

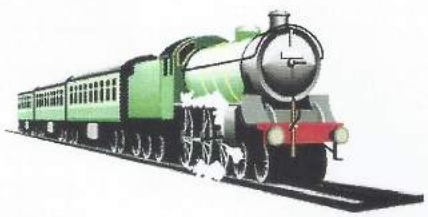
Flow Diagram of Coal Evacuation Arrangement

Basundhara (W) Extension OCP Excavation Area

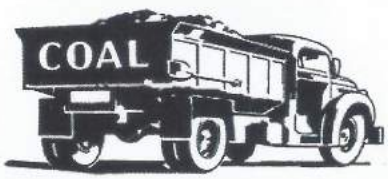
Coal Stock of Basundhara (W) Extension OCP

65%

35%



Dispatch through rail Sale from Sardega railway siding



Dispatch through Road Sale

Raj'v 24/8/17

Project Officer,
Basundhara (W) OCP

Project Officer, Basundhara (W) OCP
परियोजना अधिकारी, बसुंधरा (प) ओसीपी

24/8/17

Nodal Officer (Envt.)
Basundhara (W) OCP

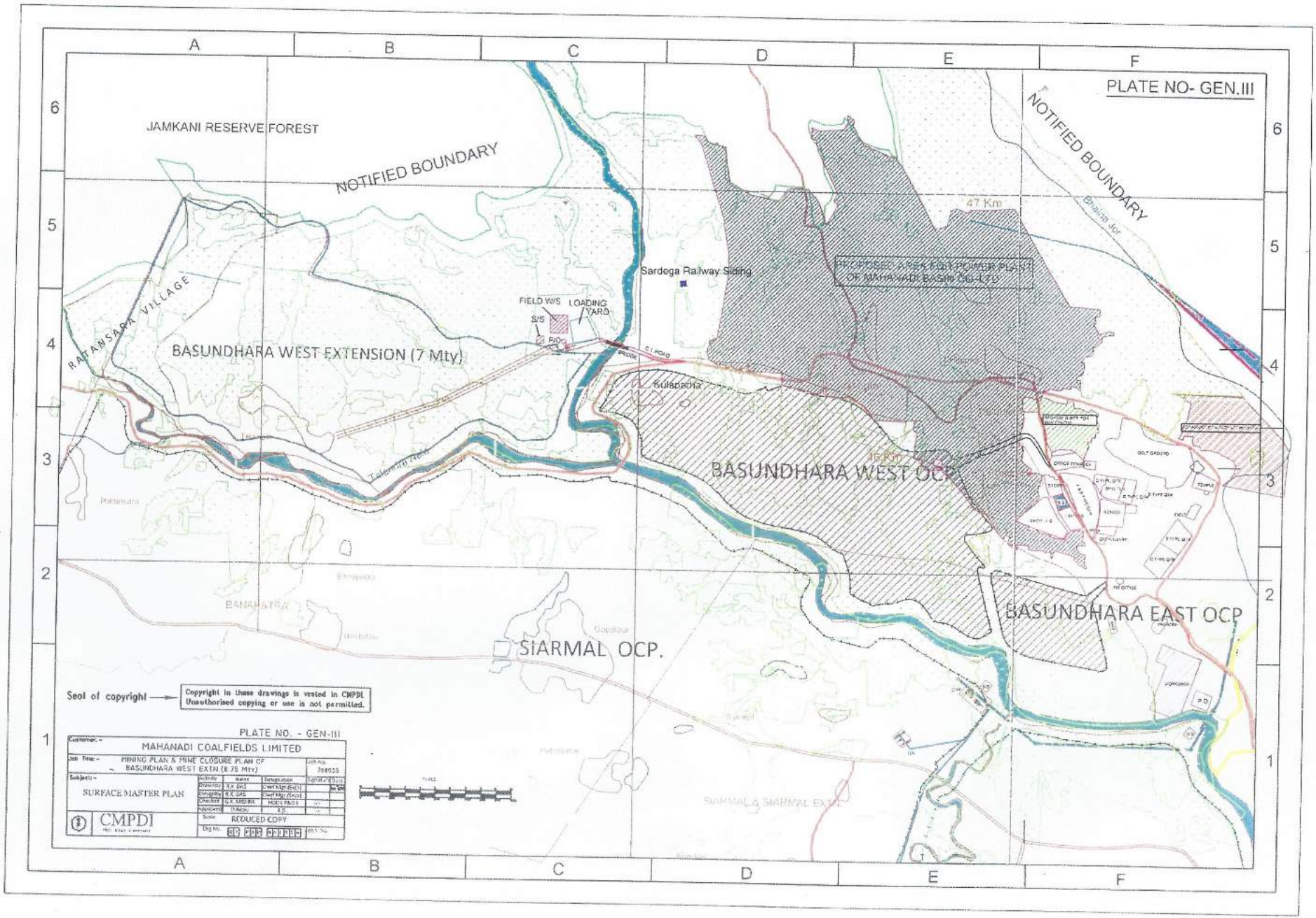


PLATE NO- GEN.III
JAMKANI RESERVE FOREST
NOTIFIED BOUNDARY
NOTIFIED BOUNDARY
RAITANSARA VILLAGE
BASUNDHARA WEST EXTENSION (7 Mty)
Sardega Railway Siding
FIELD W/S
LOADING YARD
S/S
P/O
47 Km
PROPOSED AREA FOR POWER PLANT OF MAHANADI BASIN CO. LTD
Kulapadia
BASUNDHARA WEST OCP
BASUNDHARA EAST OCP
SIARMAL OCP.
BANAPATRA
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PLATE NO. - GEN-III
MAHANADI COALFIELDS LIMITED
MINING PLAN & MINE CLOSURE PLAN OF BASUNDHARA WEST EXTN.(8.75 Mty)
SURFACE MASTER PLAN
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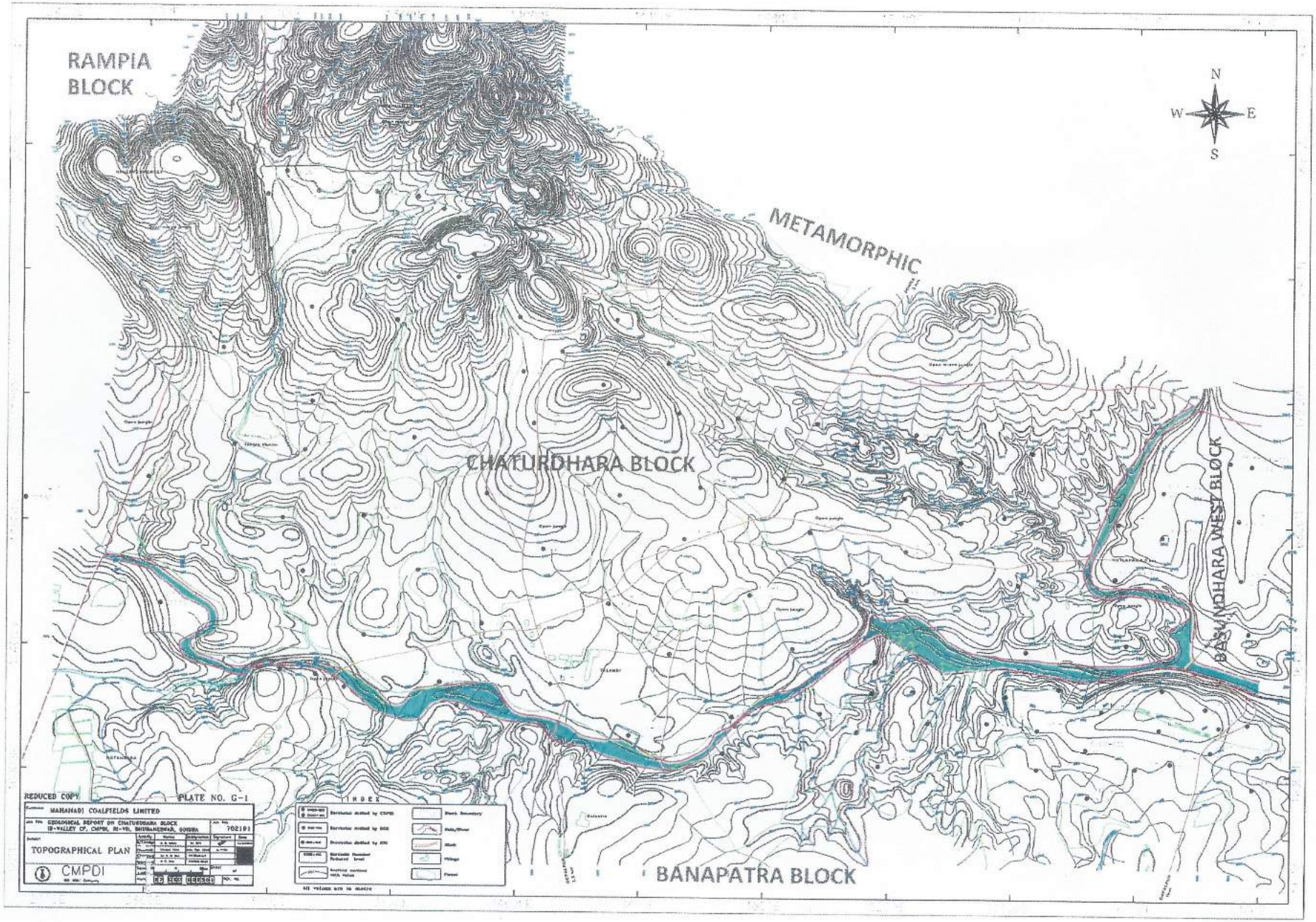
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MAHANADI COALFIELDS LIMITED
GEOLOGICAL REPORT ON CHATURDHARA BLOCK
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TOPOGRAPHICAL PLAN
CMPDI
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