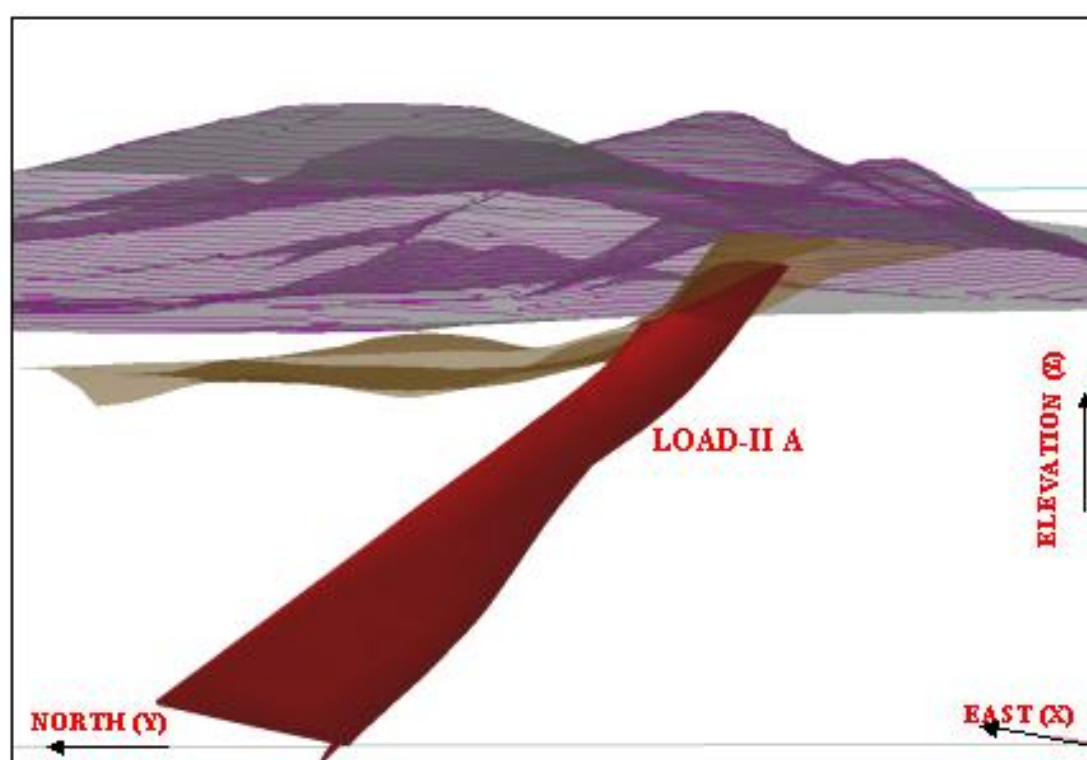


GEOLOGICAL REPORT ON EXPLORATION FOR COPPER

DHADKIDIH BLOCK
SINGHBHUM COPPER BELT
DISTRICT- SINGHBHUM EAST, BIHAR

EXECUTIVE SUMMARY



MINERAL EXPLORATION CORPORATION LIMITED
(A Government of India Enterprise)
REGIONAL EXPLORATION CENTRE, RANCHI
DECEMBER-1999

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1.0 LOCATION

Dhadkidih block falls in the Survey of India, Toposheet No. 73 J/2 and lies in the Singhbhum East district of Bihar. The area is bounded by the latitudes $22^{\circ} 45' 40''$ and $22^{\circ} 46' 40''$ N and the longitudes $86^{\circ} 09' 15''$ and $86^{\circ} 11' 00''$ E. The block is located at a distance of about 7km. South of Tatanagar Railway Station. The copper deposit lies at a distance of about 40 km. NW of Maubhandar Copper Smelter of HCL/ICC. Banking, postal and other communication facilities are available at Sundernagar, a suburb of Jamshedpur, located at about 3 km. from the block. Jamshedpur, the steel city, has all types of workshop and marketing facilities.

2.0 GEOLOGY & STRUCTURE

The regional geology of Singhbhum Copper Belt is primarily based on the work of Dunn & Dey (1942). A major structural feature postulated by them was the existence of an anticlinorium comprising highly metamorphosed rocks of Iron Ore Series and a Great Shear/Thrust Zone, which according to them was formed along the over folded southern limb of the anticlinorium.

The most prominent structural element seen in the area is the axial plane schistosity (S_2). The bedding planes (S_1) are not seen clearly. Strain slip cleavage and crenulation cleavage (S_3) has developed along the axial planes of these folds. The end of tectonic activity is marked by post shearing faults. The different phases of deformation appear to have taken place during a single phase of orogeny.

The Dhadkidih Copper prospect forms a part of the Singhbhum Shear Zone. The rock types occurring in the block are chlorite quartzite/quartz schist, talc-chlorite schist, chlorite-quartz schist, Kyanite-quartz rock and sericite-quartz schist with metabasic intrusives.

The host rock for copper mineralisation is chlorite-quartz schist. The foliation strike varies from $N70^{\circ} E - S70^{\circ} W$ to $N80^{\circ} E - S80^{\circ} W$ with 40° to 50° northerly dips. The linear structure is seen mainly in form of puckers with plunge of 15° to 30° both towards east and west.

3.0 MINERALISATION

The sulphide mineralization in the area is confined to chlorite-quartz schist and occurs as disseminations and stringers sympathetic to the foliation. Thus, both lithological and structural controls of mineralisation are evident in the area. Chalcopyrite, magnetite and pyrite are the major constituent minerals in the decreasing order of abundance.

4.0 QUANTUM OF WORK \

The quantum of work carried out by MECL is as under: -

	Item of work	Phase-I&II	OCP
1	Geological and survey Work a) Geological Mapping b) Topographic Survey	2.0 Sq.K.m. 2.0 Sq.K.m.	0.80 Sq.K.m. 0.80 Sq.K.m.
2	Exploratory Drilling a) No. of boreholes b) Meterage	36 Nos. 8437.45 m.	18Nos. 2936.75 m
3	Borehole Deviation Survey	36 Nos.	15 Nos.
4	Chemical Analysis a) Primary Samples(Cu,Fe,S) b) Check Samples(Cu,Fe,S) c) Duplicate Samples(Cu,Fe,S) d) Composite Samples(Cu,Fe,S,WO ₃) e) Primary samples for Gold f) Composite samples (Cu,Mo,Co,Ni)	1257Nos. 60Nos. 30Nos. 87Nos. - -	574Nos. 25Nos. - - 30Nos. 39Nos.
5	Physical Analysis a) Emission Spectrography b) Fire Assay (Au & Ag) (Au) c) Petrography d) Mineragraphy e) Specific Gravity	87 Nos. 87 Nos. 21 Nos. 50 Nos. 70 Nos. 100 Nos.	39 Nos. 39 Nos. - 30 Nos. 30 Nos. 30 Nos.
6	Ore Beneficiation Studies	1 No.	1 No.
7	Geotechnical studies	-	1BH.

5.0 ORE RESERVES ESTIMATION

The ore zones have been demarcated at 0.5% Cu cut off, 0.8% Cu pay limit, 1.20m. minimum stopping width and 2.50m. parting width. Based on their spatial distribution four sets of lodes have been identified in the block, namely Lode-I (A&B), Lode-II (A&B), Lode-III (A&B) and Lode-IV (A&B). The lode designation is from footwall (Lode-I) to hanging wall (Lode-IV). Out of these four lodes, Lode-II & III are most potential.

A total of 9.25 million tonnes of ore reserves with 1.12% Cu has been estimated over a strike length of 1564m. between cross section I & XIII and a vertical column of 200m. between 150mRL and -50 mRL.

The ore: OB Ratio is 1:6 for Lode IIA developed in the eastern part of the block over a strike length of 360m upto a vertical depth of 100m. The tonnage of ore estimated is 2.26 million tones with 0.94% cu, the average thickness of ore zone being 17.85m. The reserves upto 100 m. depth is a good open cast potential.

Besides copper, the ore zones contain Se, Te, Ni, Co, & Au.

The deposit has been placed under Category 'A' of UNFC 331.

The studies on the baseline data of Environmental studies covering land use / land cover pattern studies have been carried out in the block.

The total cost of exploration is Rs. 445.40 Lakhs.

GEOLOGICAL MAP OF SINGHBHUM COPPER BELT

FIG.1

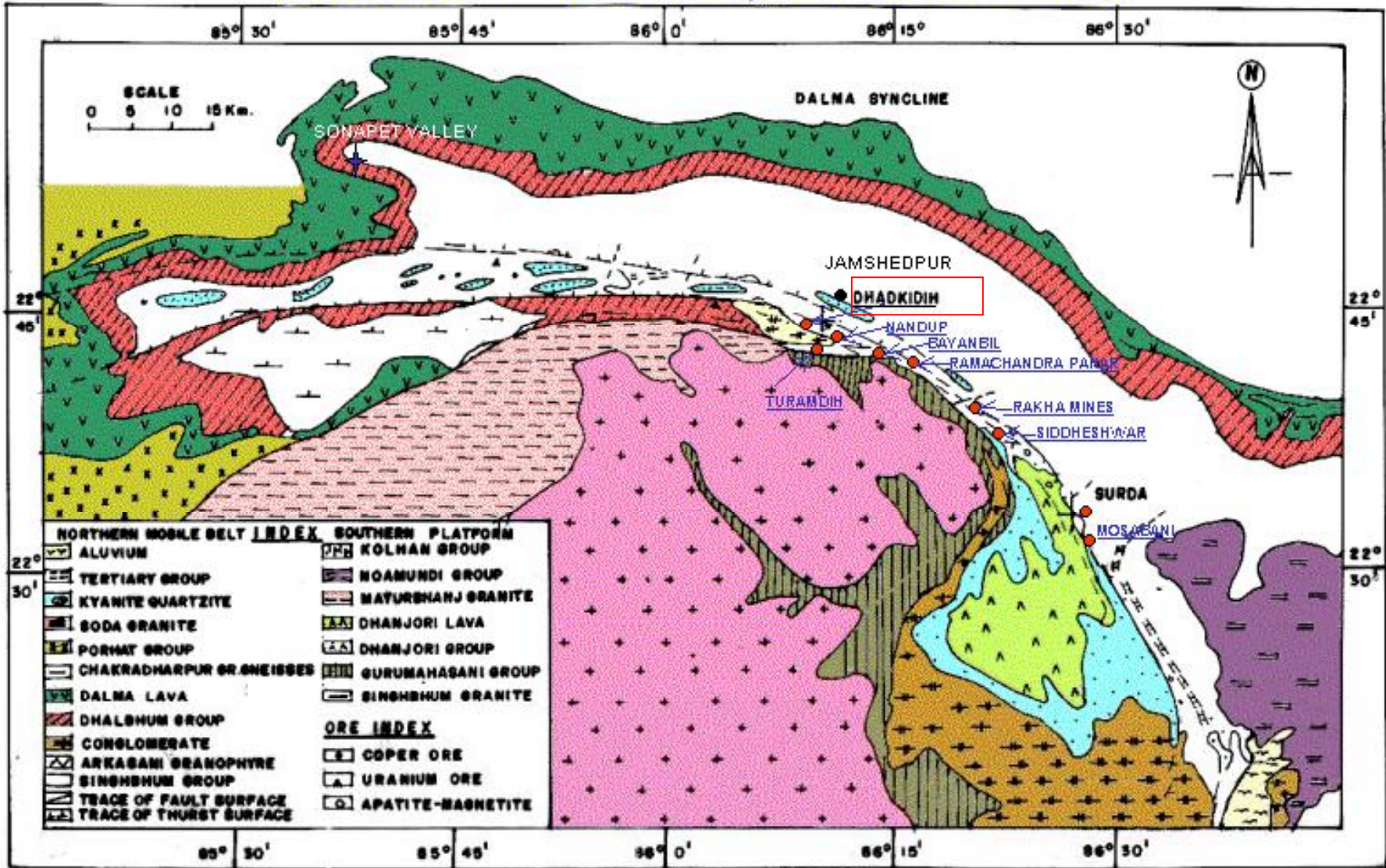
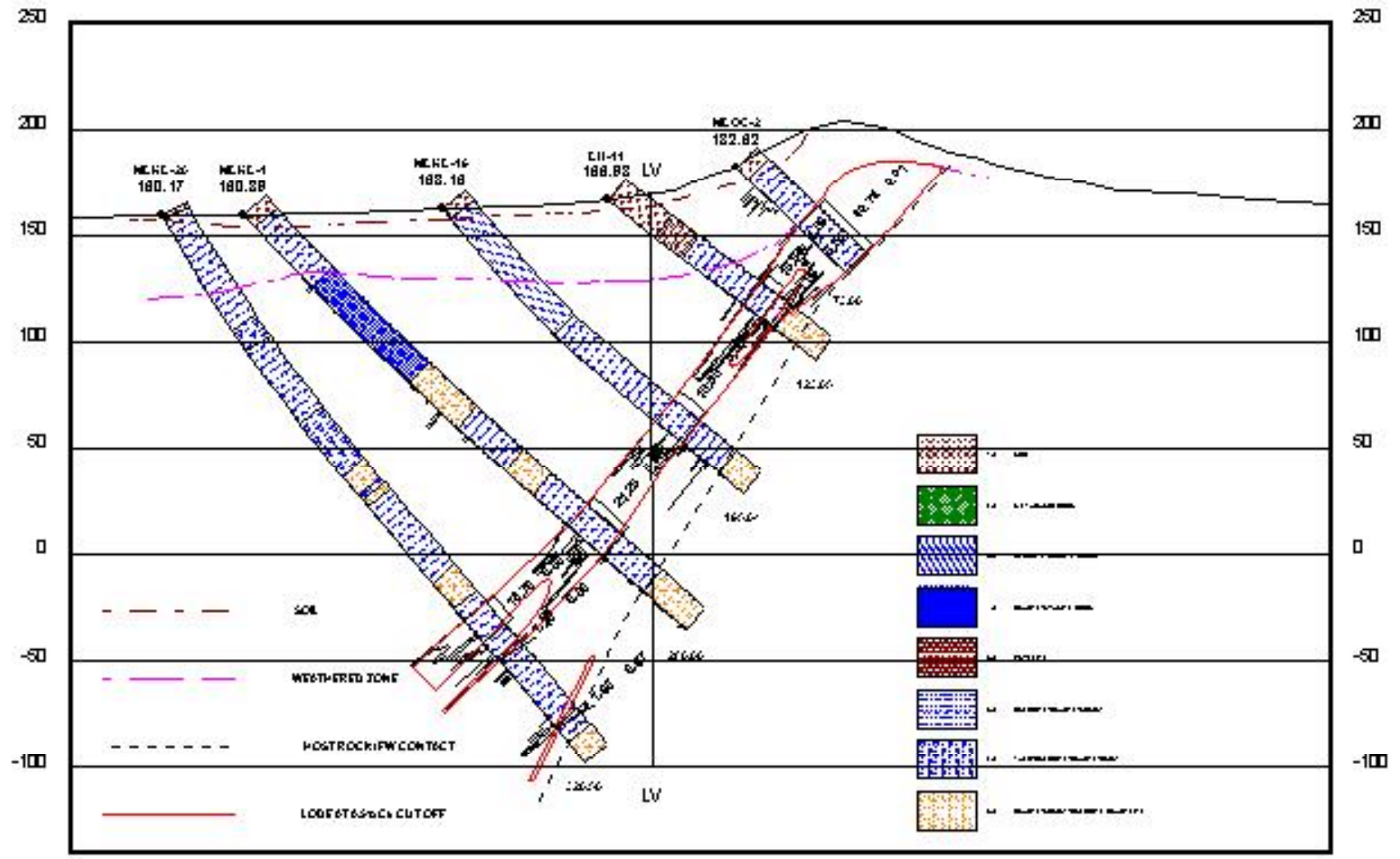


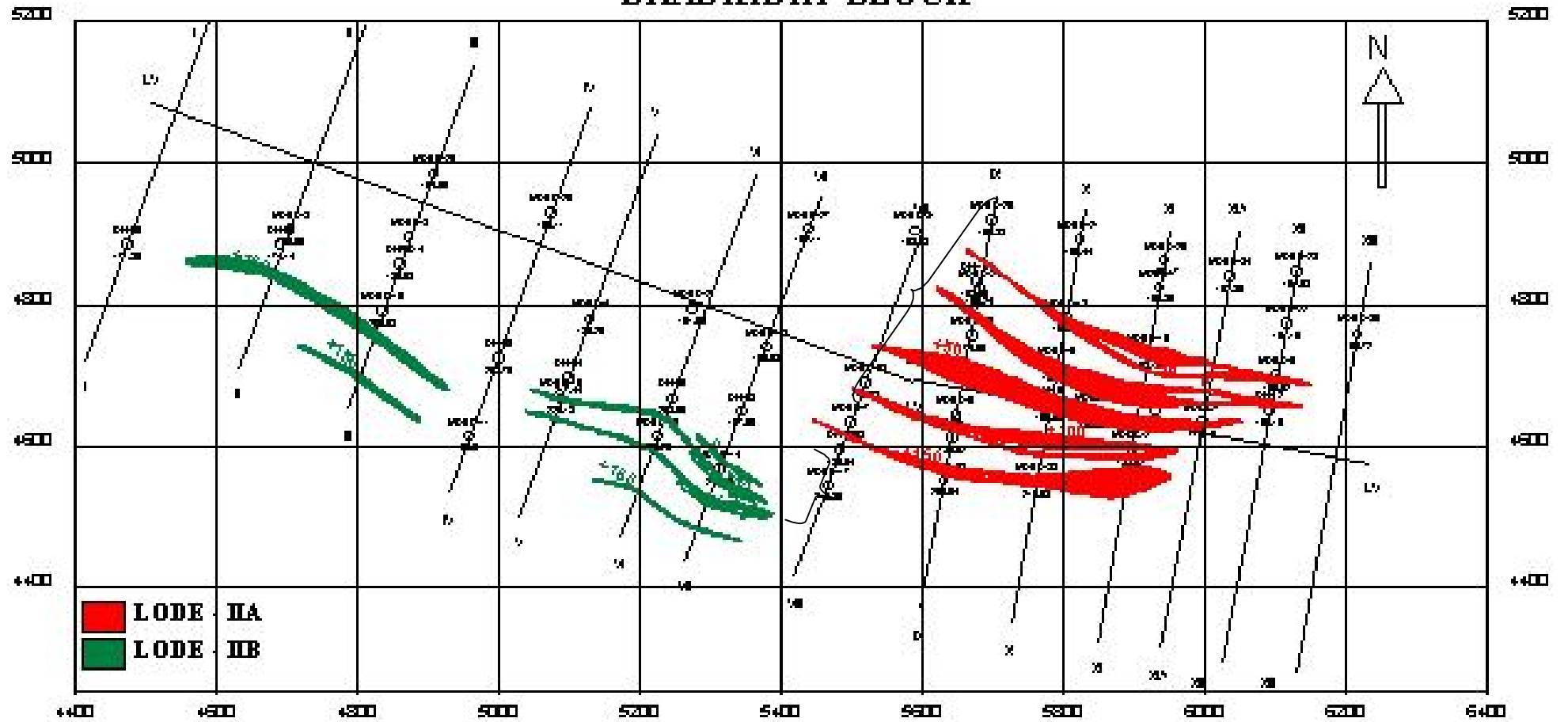
FIG-3

GEOLOGICAL CROSS SECTION ALONG LINE NO : XI DHADKIDIH BLOCK



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COMPOSITE LEVEL PLAN OF LODE - II A & B DHADKIDIH BLOCK



**3D ORE-BODY MODEL OF LODES (AT 0.50% Cu CUTOFF)
DHADKIDIH BLOCK , SINGHBHUM COPPER BELT
(VIEWING ANGLE 315° HORZ & 90° VERT)**

