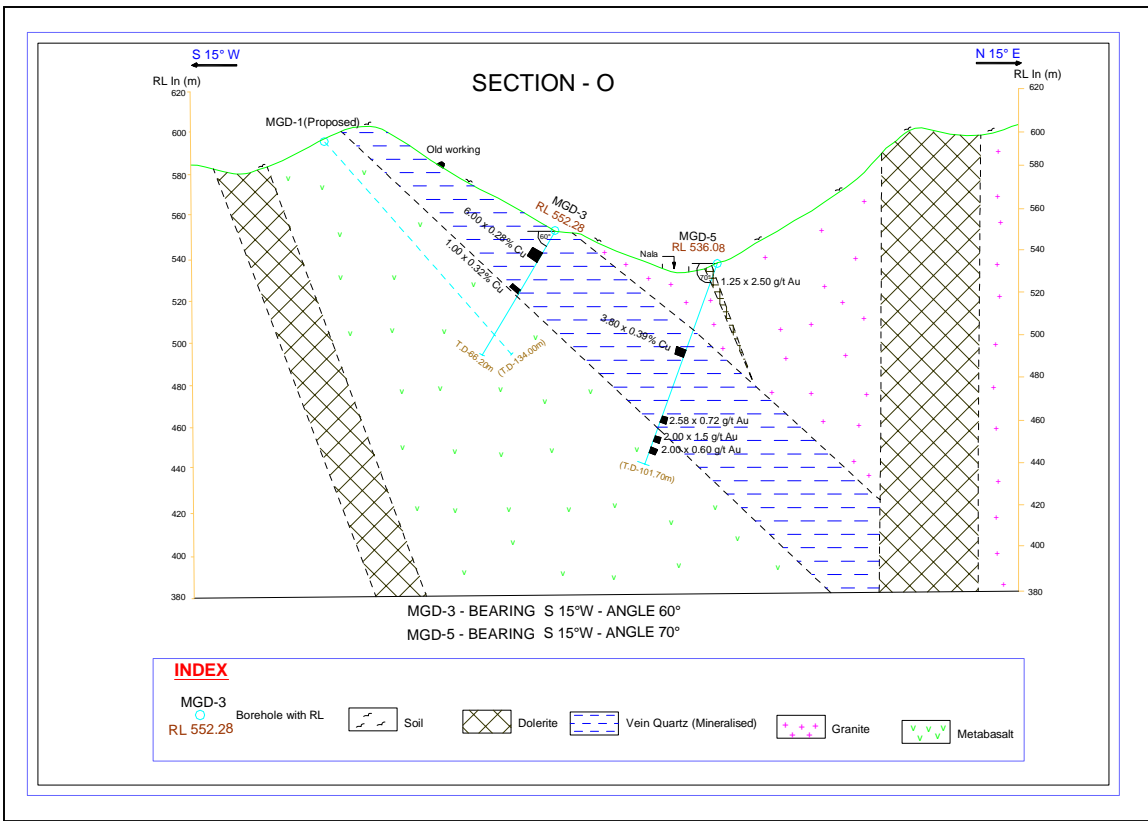


**GEOLOGICAL REPORT ON INTEGRATED EXPLORATION FOR  
GOLD & COPPER  
GARHI-DONGRI BLOCK PHASE-I +(ADDITIONAL WORK)  
MALANJKHAND GRANITOID  
DISTRICT: BALAGHAT, MADHYA PRADESH**

**EXECUTIVE SUMMARY**



**MINERAL EXPLORATION CORPORATION LIMITED  
(A Government of India Enterprise)  
Seminary Hills, Nagpur**

OCTOBER- 2001

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**1.0 LOCATION**

The block located 30 kms south of Malanjkhand opencast mine of HCL in Baihar tehsil of Balaghat district, M.P. It lies between Latitudes 21° 48' 40" to 21° 49' 05" N and Longitudes 80° 45' 21" to 80° 46' 36" E and form a part of Survey of India Toposheet No.64C/13.

**2.0 GEOLOGY AND STRUCTURE**

The Garhi - Dongri block is covered by fine-grained metabasaltic rocks, intruded by younger Malanjkhand granitoid, mineralized quartz veins and basic dykes. The older quartz sericite schist of Amgaon Group and quartzites of Nandgaon Group are seen as enclaves in Metabasalt and Granitoids. The older rock shows foliation trending NNW – SSE. The main host rock of mineralisation, vein quartz extending East to West and dipping 40° to 55° due North, attain a maximum thickness of 40 m (OC-1).

The geological succession as worked out from the geological mapping and subsurface data from the boreholes is given below:

**Stratigraphic Sequence in Garhi Dongri Block**

	Soil
Intrusive Rock	Basic dyke Microgranitoids Quartz veins (mineralized) Malanjkhhand granitoids
Nandgaon Group	Metabasalt, Andesitic basalt and quartzites
Amgaon Group	Quartz – Sericite Schist.

### 3.0 MINERALISATION

The vein quartz in the main host rock for mineralisation. The granitoids also show feeble mineralisation. Pyrite & Chalcopyrite are the main ore minerals, besides Haematite, Magnetite, Pyrrhotite, Sphalerite, Galena and Covelite are also present. Carbonates of copper – Malachite and Azurite, are seen in the outcrops. Chromite and Molybdenite are also present in traces. Goethite and Limonite are present in minor amounts. Gold presence is evidenced by analysis of trench and drill core samples. The panning for gold by tribals in the Ama Nala south of borehole MGD-11 of earlier phase and further downstream and the old mine working over OC-1 located on vein quartz are indications of presence of gold in Garhi Dongri block.

### 4. QUANTUM OF WORK DONE

MECL has carried out detailed Geological Mapping & Topographical survey covering 1.00 Sq.km area, 1639.65mtrs of drilling in 12 boreholes (769.30mtrs Phase-I in 7 Bhs+870.35 Addl. In 5 Bhs.), Trenching 500m<sup>3</sup> in 19 trenches (Addl.), and Geophysical Survey i.e. I.P. Profiling 11.9L.Km (3.0LK-Phase-I&8.9L.K.Addtl.), S.P. Survey - 430 stations (130 stations Phase-I & 300 stations- Addtl.), Magnetic Survey –430 stations (130 stations Phase-I & 300 stations- Addtl and Vertical Electrical Sounding- 16Nos (10Nos points Phase-I & 6Nos points- Addtl.) was carried out by MECL in the Block. 1024 (793 Drill core + 231 Trench & outcrop) Nos of primary samples for Copper, 1846 (749Phase-I &1097 Addtl.) Nos of primary samples for Gold, 91Nos (62nos Phase-I & 29 Nos Addtl.) of primary samples for Ag and 99 (59 Phase-I & 40 Addtl) Nos of check samples for copper from drill core & outcrop, 31 (14 Phase-I + 17 Addtl.) Nos samples for seven radicals, 20 (10 Phase-I + 10 Addtl.) Nos of samples for complete rock analysis, 39 (22 Phase-I +17 Addtl.) Nos of composite samples for Emission

Spectroscopy (10 radicals) studies were analysed. Petrographic studies on 50 Nos (25 Phase-I +25 Addtl.) of samples and Minerographic studies on 50 Nos (25 Phase-I +25 Addtl.) of samples and 66 Nos 26 Phase-I + 40 Addtl.) of specific gravity determination test were also carried out by MECL in the Block. Based on the above data final geological report is prepared by MECL.

## **5. ORE RESERVE ESTIMATION**

The vein quartz is the main carrier of gold/copper mineralisation though mineralisation is also present in granite, dolerite and metabasaltic rocks. Randomly collected 7 chip samples analysed more than 0.5 g/t Au with maximum Au of 20 g/t (OC-8). Similarly twelve zones of 2 m to 8 m widths analysing more than 0.5 g/t Au have been reported from 6 trenches with a maximum Au content of 5.5 g/t (Tr-5 of OC-6). Copper mineralisation is feeble except two chip sample values in OC-1 (0.15% & 0.23% Cu) and two trench sample values in Tr-11 & 12 (0.29% each) the other results for copper are low (<0.03%).

The overall results of geophysical survey carried out over 400 m. strike in the east and 1000 m in the west are not very much encouraging for sulphide mineralisation.

Test drilling carried out in total 12 boreholes covering 1.5 km strike length of the block has indicated presence of gold and copper mineralisation. However it is to mention that the data is not sufficient to draw logical conclusions.

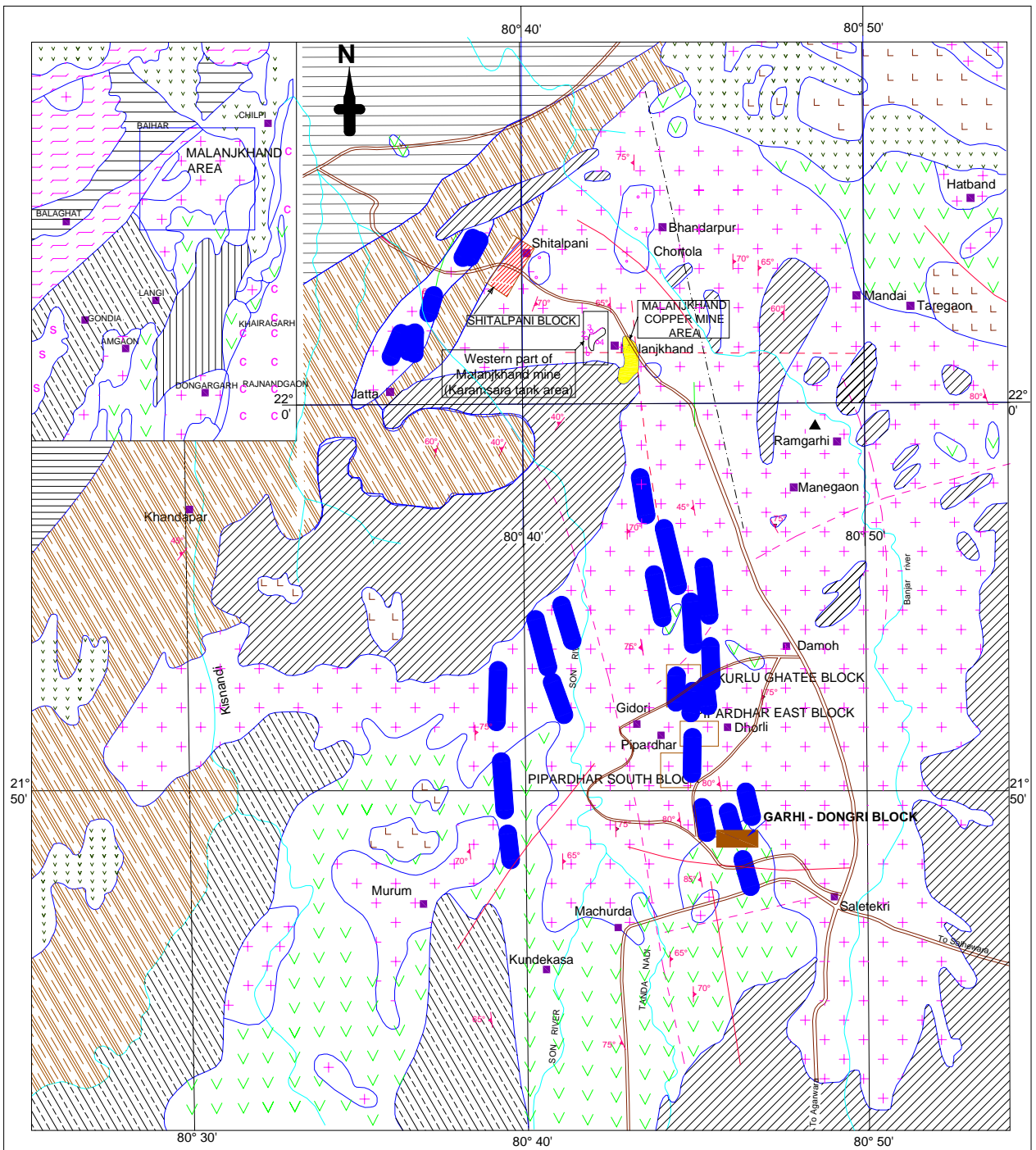
Significant gold values have been intersected only in few boreholes / trench samples and not intersected in all boreholes and trench samples hence strike & dip continuity as expected could not be established. Mineralised Zones could not be computed hence reserve estimation has not been attempted. In Garhi-Dongri block only gold occurrences could be established without any significant gold values.

**The Deposit has been classified as Category 'D' of UNFC 333.**

**The Total Cost of Exploration is Rs. 143.52 Lakhs.**



# REGIONAL GEOLOGICAL MAP OF MALANJKHAND AREA



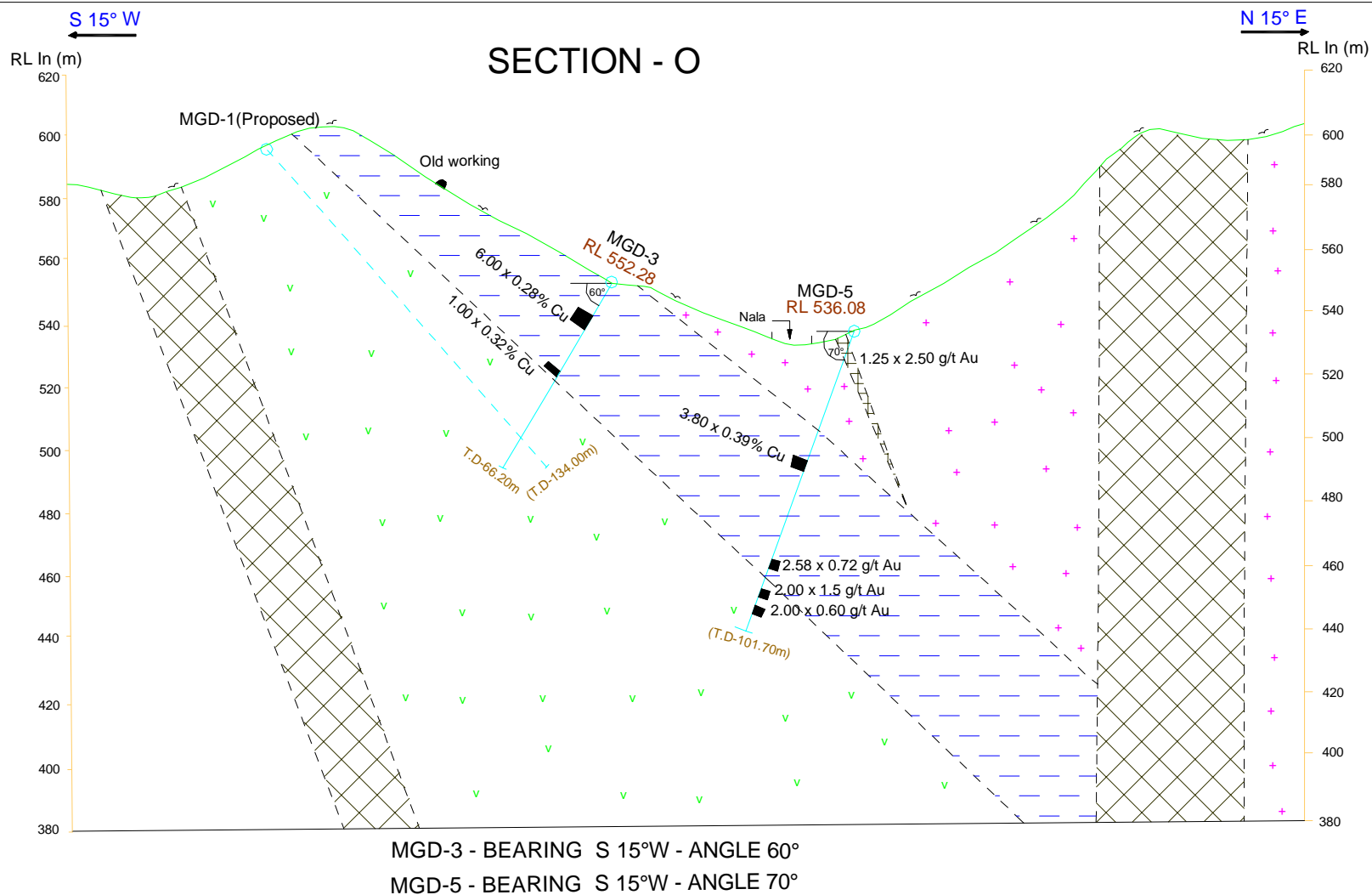
## INDEX

(After Pal & Bhargava 1987, Journal Geol. Soc. of India, Vol 56 No. 4, Oct 2000.)

	Tirodi gneisses		Laterite
	Chhattisgah group		Deccan basalt
	Khairagarh group		Chilpi metasediments
	Sakoli group		Sausar schist
	Quartz vein / basic dykes		Amgaon schist and gneisses
	Porphyritic granitoids		Locality / mineralisation
	Grey and pink Malanjkhand granitoids		Zone of intense tectonic and magmatic activity
	Nandgaon volcanics		Lineament and foliation

MINERAL EXPLORATION CORPORATION LIMITED	
REGIONAL GEOLOGICAL MAP OF MALANJKHAND AREA	
GARHI - DONGRI BLOCK MALANJKHAND GRANITOIDS, DISTT.: BALAGHAT, M.P.	
0 ————— 5 Km.	
Processed at : I. T. Centre, M.E.C.L.	TRACED BY : P.S. VAIDYA, T.A (SDM) R.J. KAMBLE, T.A (SDM)

# GEOLOGICAL CROSS SECTION



<b>INDEX</b>	
MGD-3 RL 552.28 	Borehole with RL
	Soil
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	Vein Quartz (Mineralised)
	Granite
	Metabasalt