GEOLOGICAL REPORT ON EXPLORATION FOR LEAD & ZINC
CENTRAL SUB-BLOCK
NORTH SINDESAR RIDGE
DISTRICT - RAJSAMAND, RAJASTHAN

EXECUTIVE SUMMARY

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GEOLOGICAL REPORT ON EXPLORATION FOR LEAD-ZINC CENTRAL SUB BLOCK, NORTH SINDESAR RIDGE DARIBA-BETHUMBI-SURAWAS BELT RAJASMAND DISTRICT, RAJASTHAN

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1.0 LOCATION

The Central Sub Block is situated almost in the middle part of the North Sindesar ridge and lies between Sindesar Khurd on the west and Sindesar Kalan on North-North-East. The block is located about 30 km East of Rajasmand, the district Head Quarter. The block is situated 6 km North of Dariba mine of HZL and 7 km East of Relmagra, the Tehsil headquarter. The block is Northeastern extension of Lathio-Ka-khera East block (MECL). The North Sindesar Ridge block falls in Survey of India Toposheet Nos. 45 K/4 and 45 L/1 and is bounded by Latitudes 24° 59′ 30" and 25° 02′ N and Longitude 74° 09′ and 74° 10′ E.

2.0 GEOLOGY AND STRUCTURE

The North Sindesar Ridge is located almost in the central part of Dariba-Bethumbi-Surawas polymetallic belt. This belt is known for contribution of significant lead-zinc reserves.

The area comprises of meta-volcano sediments of Rajpura-Dariba Group occurring as overlying sequence on the gneisses of the Mangalwar Complex, a part of Bhilwara Super group of Archaean/Lower Proterozoic age. The overlying lithounits comprise vein quartz, dolerite dyke, carbonaceous schist, interbanded schist and cherty quartzite, calc-silicate Marble/Dolomite, meta psammites with quartzite and amphibolite. The overlying rocks rest over and are surrounded by the Mangalwar group of rocks comprising psammitic gneisses.

The meta-volcano sedimentary rocks form the crescent shaped Dariba-Bethumbi belt and have undergone three phases of deformation.

The area has witnessed major fault systems; the notable ones are Relmagra-Surawas fault, Mataji-Ka-Khera fault and a number of other parallel faults including Dariba Fault. Shears have also been developed due to deformational activity. One such prominent shear is in the western limb near Gawardi, Dariba to Malikhera in the southern part and around Lathiyakheri and Bamanian.

The major part of the Central Sub-Block is covered by hilly terrain of the North Sindesar Ridge of Dariba-Bethumbi belt.

The block exhibits three phases of deformation imparting complex structural geometry of the rocks. The folds of three deformations are recognized on their different geometry and disposition in the block. The axial trace of F1 fold in general trends NNE-SSW with approximately 45° Easterly dip. These folds generally plunge due NNE or SSW with varying amount of plunge. The F2 fold axis trend NNE-SSW with the axial plane dipping 70° - 80° in Easterly direction and plunging 10° - 30°due North. The axis of F3 folds shows ESE-WNW trend and plunge mostly due E or ESE. The axial plane of these folds generally dips 70° - 80° due North. These cross folds (F3) have refolded the open F2 folds forming culminations and depressions (After GSI

3.0 MINERALISATION

The lead-zinc mineralization is mainly confined to mica schist, calcareous schist and cal-silicate marble/dolomite rocks. The predominant sulphide minerals are Galena, Sphalerite, Pyrite and Pyrrhotite. These sulphides occur as disseminated grains, veins, stringers and replacement structures (Replacing carbonate minerals).

It has been observed in the photomicrographs that mostly Galena replaces Pyrite, Sphalerite and Chalcopyrite. Sphalerite is seen to replace Chalcopyrite and Pyrite. Magnetite, Haematite and Goethite have registered a good representation in the mineral assemblage of the block. Native silver inclusions occasionally seen to occur as fines in Galena. Cadmium may emerge as a by-product of the Lead & Zinc recovery with 100 to 400 ppm representation in some lodes of the block

4.0 QUANTUM OF WORK DONE

MECL has carried out detailed Geological Mapping & Topographical survey covering 1.0 Sq.km. area, 3900m of drilling in 11 boreholes, 890 Nos of primary and check samples for Pb & Zn & 70 Primary & Check samples for Cd & Ag by FireAssay, 7 Nos of composite samples for (6 radicals i.e. Pb, Zn, Cu, Ni,Co & Cd) & Fire Assay for Au & Ag were also analysed. 22 Nos. of composite samples for Emission Spectroscopy (10 radicals) and 20 Nos of composite samples for XRD studies, Petrographic studies on 30 Nos.of samples and Minerographic studies on 30 Nos of samples and 30 Nos of specific gravity determination test were also carried out by MECL in the Block. Based on the above data and earlier data of GSI, an exploration report was submitted by MECL.

5.0 ORE RESERVE ESTIMATION

The mineralized zones have been identified on 3% Total Metal Content (TMC) cut off for Lead + Zinc, 3.0 m parting and 1.50 m minimum stopping width.

Total six nos. of lodes have been identified in the block, namely IA, IB, IIA, IIB, IIC, IIBC (combined in NSRU-60) and IID.

The reserves are calculated for both Eastern and Western limb separately under probable and possible category.The thickness and assay values of GSI boreholes have been taken as it is for lode demarcation.

The limb-wise Reserve has been estimated under the probable and possible category for the lodes IA, IB, IIA, IIB, IIC, IIBC and IID of the block.

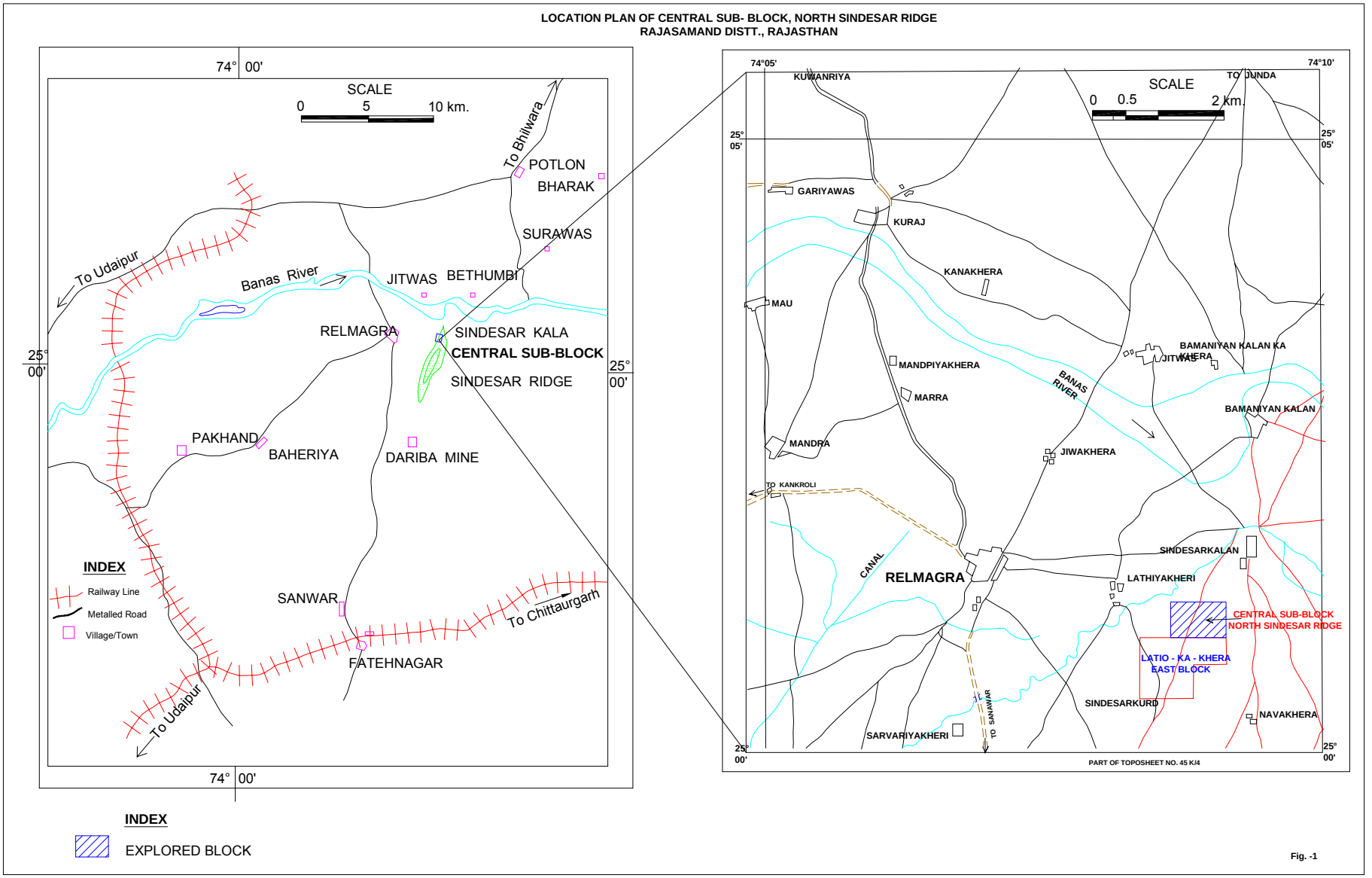
The reserves estimated in the block are placed in Probable & possible category are 3.84 million tonnes with 1.60% Pb & 3.76% Zn (TMC-5.41%).

Ore contains other associated metals like Cadmium (Cd) and Silver (Ag) in significant amount. This will add to the economics of the deposit and can be recovered as a by or co-product. The average value of Cd is 250 ppm and Ag 30 ppm.

The Deposit has been classified as Category 'C' of UNFC 332.

The Total Cost of Exploration is Rs. 199.06 Lakhs.

LOCATION PLAN OF CENTRAL SUB BLOCK



PLAN PROJECTION OF BOREHOLES

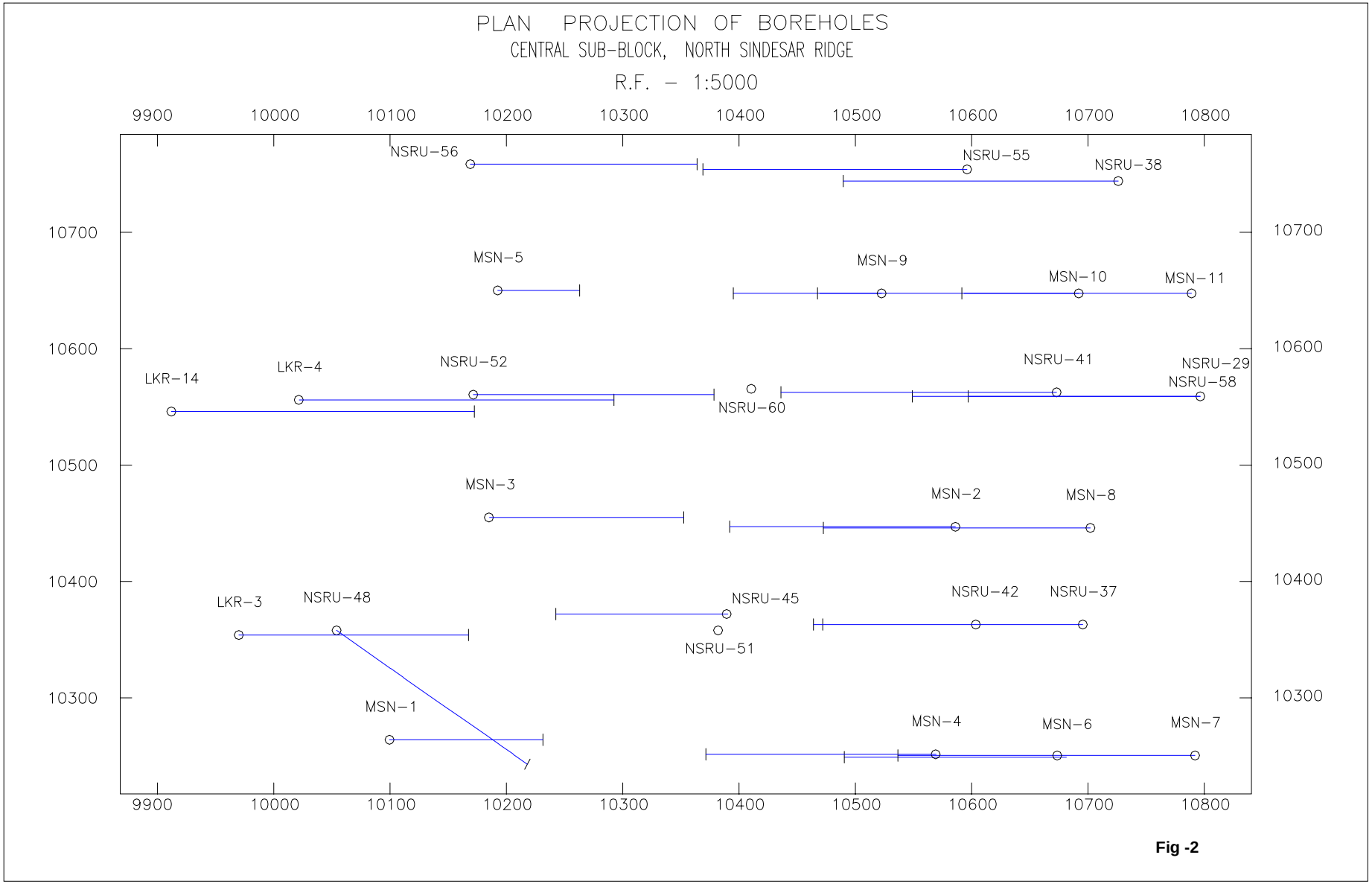


Fig -2

GEOLOGICAL CROSS SECTION

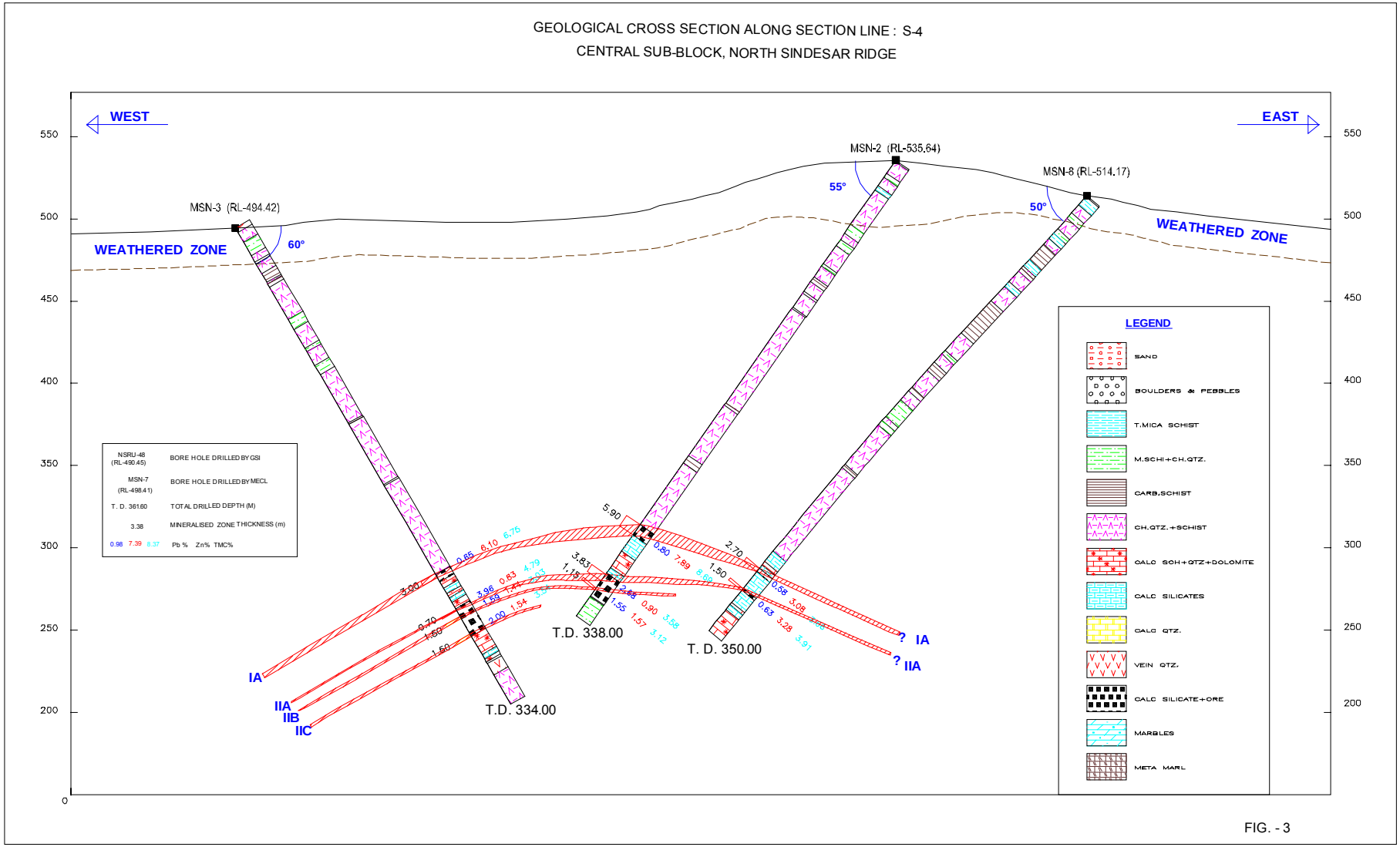


FIG. - 3

LEVEL PLAN AT 200 mRL