1983 ASSESSMENT REPORT
ON INDUCED POLARIZATION, RESITIVITY AND MAGNETIC SURVEYS

by

G. Hendrickson

on the

PIT ZONE OF THE JD CLAIMS,

situated near Moosehorn Creek
in the Omineca Mining Division,
Latitude: 56°26'N Longitude: 127°09'W
NTS 94E

owned by
KIDD CREEK MINES LTD.

work by
KIDD CREEK MINES LTD.

November, 1983 Vancouver, B.C.

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2	Resistivity Plan	1:2,000	pocket
3	Magnetic Plan/Profiles	1:2,000	pocket

INTRODUCTION

During the period June 27 to July 12, 1983, a Kidd Creek Mines Ltd., geophysical crew conducted an Induced Polarization and Resistivity survey of the JD Claims, known as the Pit zone.

The purpose of this geophysical work was to outline possible zones of silicification, carbonization, clay alteration and sulphide concentrations. These types of zones are common in many epithermal gold deposits and often occur along old fault systems. The discovery of basalt dykes encouraged the use of the magnetometer to trace out the spatial position of these dykes. In all, 11 km of Induced Polarization, 11 kms of Resistivity and 4 kms of Magnetics were completed on the Pit zone.

The JD claims are located in the Toodoggone river area of northwestern B.C., which is in the Omineca Mining Division, N.T.S. 94E.

PERSONNEL

Dave Flengte-4th year geophysics student, Vancouver, B.C
Tim Hutteman-2nd year geophysics student, Vancouver, B.C.
Grant Hendrickson - Staff Geophysicist, Kidd Creek Mines Ltd., Vancouver, B.C.
Helper- supplied from geological crew

EQUIPMENT

- Scintrex I.P.R.-10 Receiver (TIME DOMAIN)
- Scintrex 250 Watt Transmitter (TIME DOMAIN)
- Geometrics 836 Magnetometer

DATA PRESENTATION

- The resistivity and chargeability data is presented in contoured plan format at a scale of 1 to 2000.

- The magnetic data is in stacked profile form at a scale of 1 to 500. The data is plotted at 1 cm equals 20 nanotesla with no corrections for diurnal changes.

Survey Procedure

Induced Polarization and Resistivity profiling were done using the Schlumberger array. The current electrode separation "AB" was 140 metres while the potential electrode separation "MN" was 20 metres. The advantages of this array are:

a) simple anomaly shape
b) provides some information on dip
c) least affected by topography
d) better signal to noise ratio for a given depth of investigation. (Important with a small portable transmitter).
e) operational ease in rough topography
f) good lateral resolution provided "MN" is kept small.

Grid lines were established to cross apparent structures as close to right angle as possible. Line separation was 50 m with stations established every 20 metres along the lines. The magnetic survey readings were taken every five metres along the lines. The diurnal variation of the earth's magnetic field was observed periodically during the course of the magnetic survey. Maximum variation was only 20 nanotesla thus no corrections were deemed necessary.

For the induced polarization work the current dipole was separated from the receiving dipole by a few metres. The two dipoles remained parallel. This separation was done to avoid or reduce any electromagnetic and capacitive coupling problems. In addition, three slices of the decay curve were monitored to ensure curve shape was normal. Extra effort was made to ensure electrode contacts with the ground were good. This data can be regarded as quite representative of the 20 metre depth. A curve showing the depth of investigation characteristics for the array is included as Appendix A.

DISCUSSION OF THE RESULTS

The chargeability plan map is interesting and shows the ability of the induced polarization technique to measure very small amounts of sulphides provided signal strength is maintained and the survey is designed to give good lateral resolution. This fact, coupled with the generally low homogeneous background response, allows us to measure the very minor amounts of sulphides often associated with epithermal gold, silver vein systems. Sulphide zones often are related to structures and may provide the clue to old faults that may have been the conduit for mineralized solutions. The gold may or may not be with the sulphides, however, the sulphides are probably the best clue to the location of the vents to which the gold may be proximal.

The resistivity contour patterns relate to structures, alteration or changes in rock type. The apparent strike of faults has been noted on the resistivity plan. Low angle faults will have an irregular strike across the grid due to the influence of substantial topographical changes. Some information on the dip of these faults can be deduced from this fact. Old fault zones if silicified or carbonated should be linear resistive targets, whereas water-filled younger faults probably are low linear resistivity zones. The effects of argillic alteration should show up as lower resistivity zones and this is apparent on the east-central side of the grid. The sulphide content is generally stronger on the east side of the grid. The JD hanging wall rocks appear to have been faulted (south) as you traverse east across the property. The 1982 geochemical anomaly appears to be related to resistive rocks carrying minor sulphide mineralization, however, the data also suggests this target is quite small. The apparent north-east striking fault at 0+75W at the baseline is well mineralized with sulphides at approximately 3+00N. Some idea of the relative ages of these proposed faults can be deduced with the fault along the baseline being the youngest.

It is probable that the basalt dykes near the baseline follow a zone of weakness as well. The detailed magnetic readings (every 2 1/2 m) on lines 2+50W and 2+00W should have continued on to lines 1+50W, 1 W etc., plus additional short lines put in to adequately trace out the dykes. These basalt dykes appear narrow, discontinuous and steeply dipping.

CONCLUSION

The coincidence of a relatively strong sulphide zone along an apparent old fault in the extreme northeast part of the grid should be considered a prime target for associated gold-silver mineralization.

Perhaps more attention should be paid to the weak chargeability anomalies on the east side of the grid. The east side of the grid may hold the strike extension of the GASP zone. The modest sulphides in the GASP zone were detectable despite the zone being quite small.

Initial drilling of these targets should be designed to hit the target 20 to 30 metres below the surface.

The resistivity plan should be considered in conjunction with the geology to provide a coherent view of the structures crossing the grid.

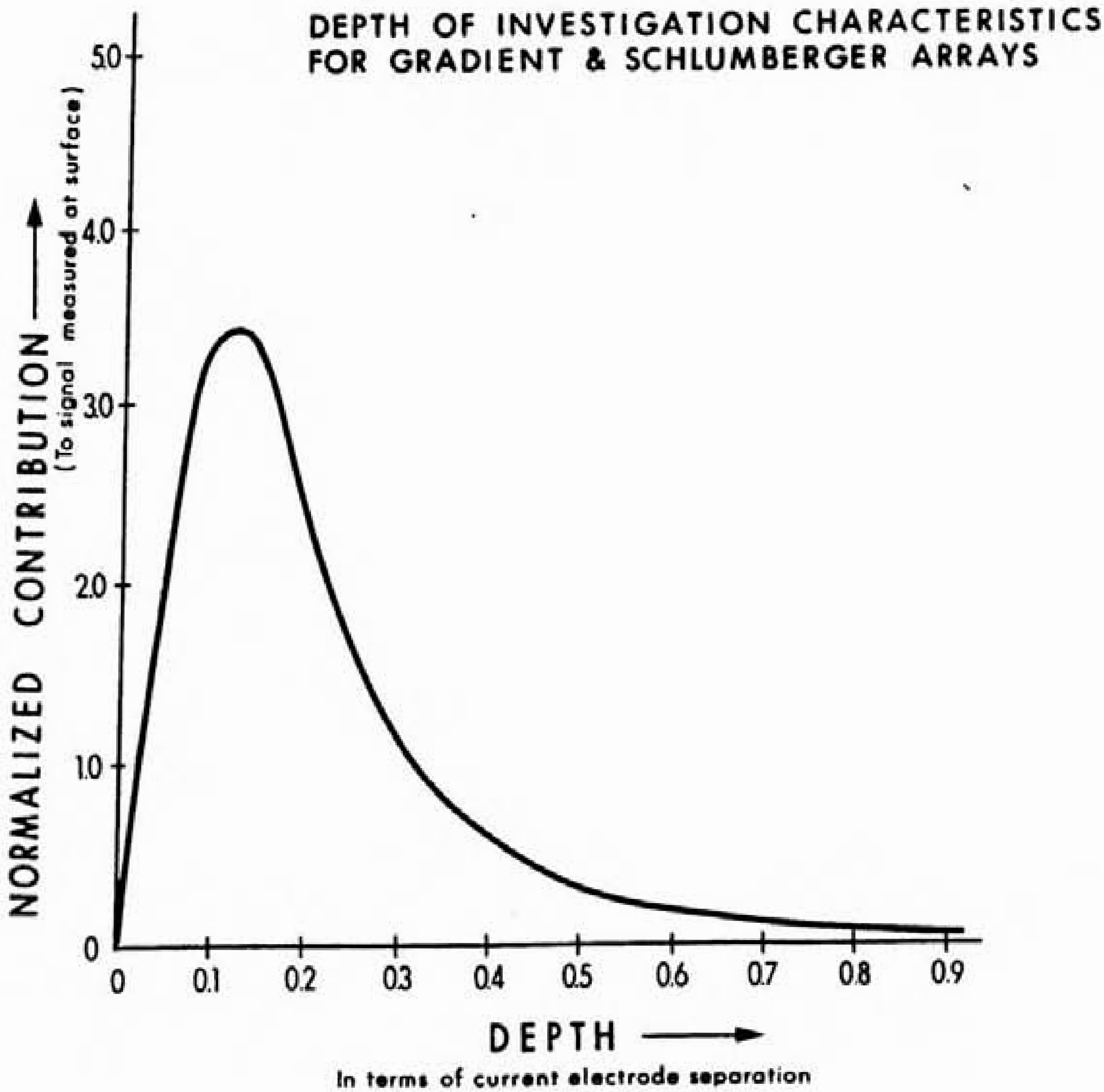
There is a possibility that the resistive zone under old trenches 1 and 2 is related to the GASP zone. Faulting may have offset this zone. Surface trenching discounts this possiblity, however, it may be true at depth.

The apparent low homogeneous sulphide content of subaerial volcanics allows us to detect very minor sulphide zones with confidence.

At this time, geophysics is not a standard tool in epithermal gold exploration, however, I feel it has a unique, useful role to play provided it is applied properly and is considered without prejudice or bias.

G. Hendrickson

APPENDIX A

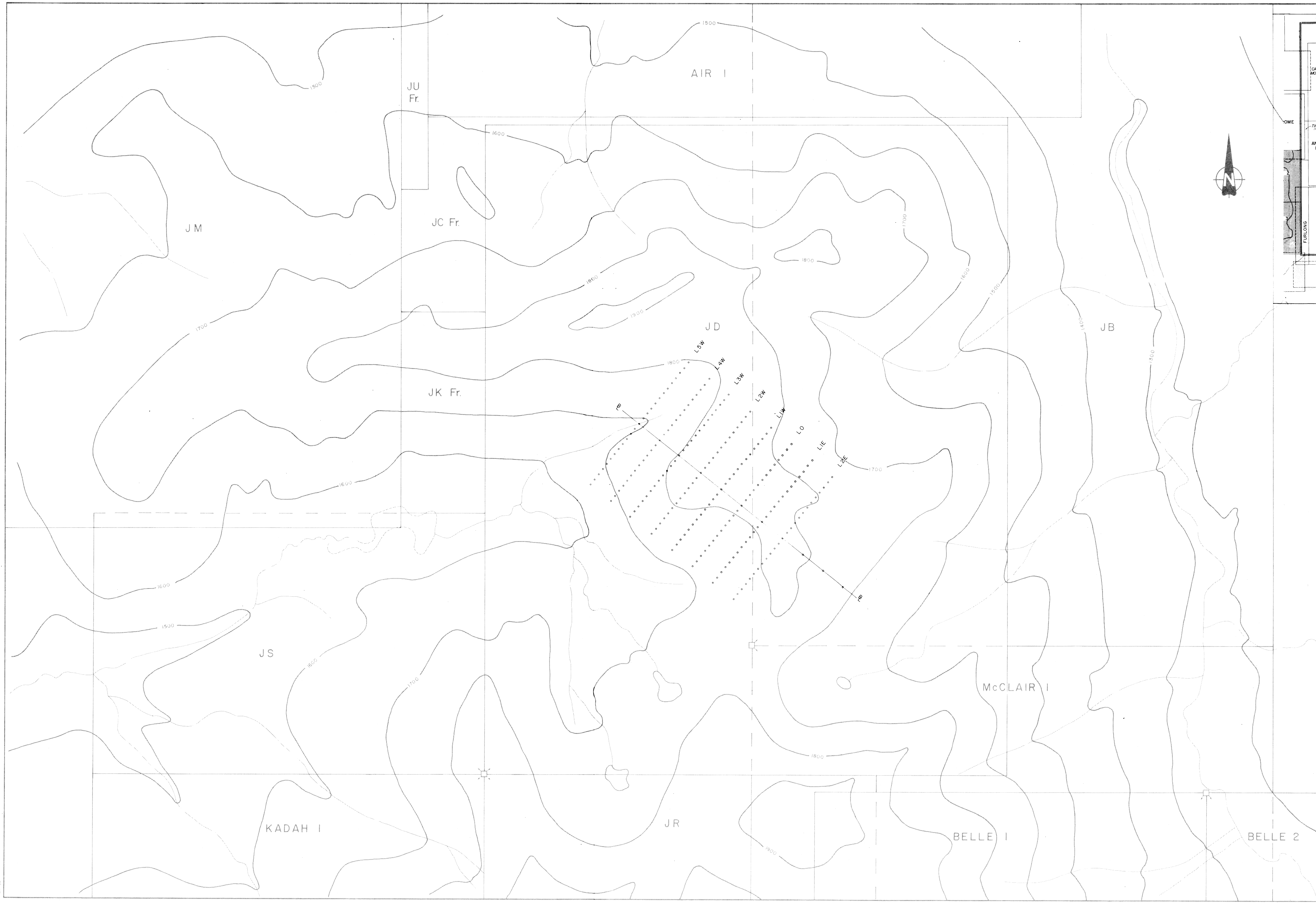


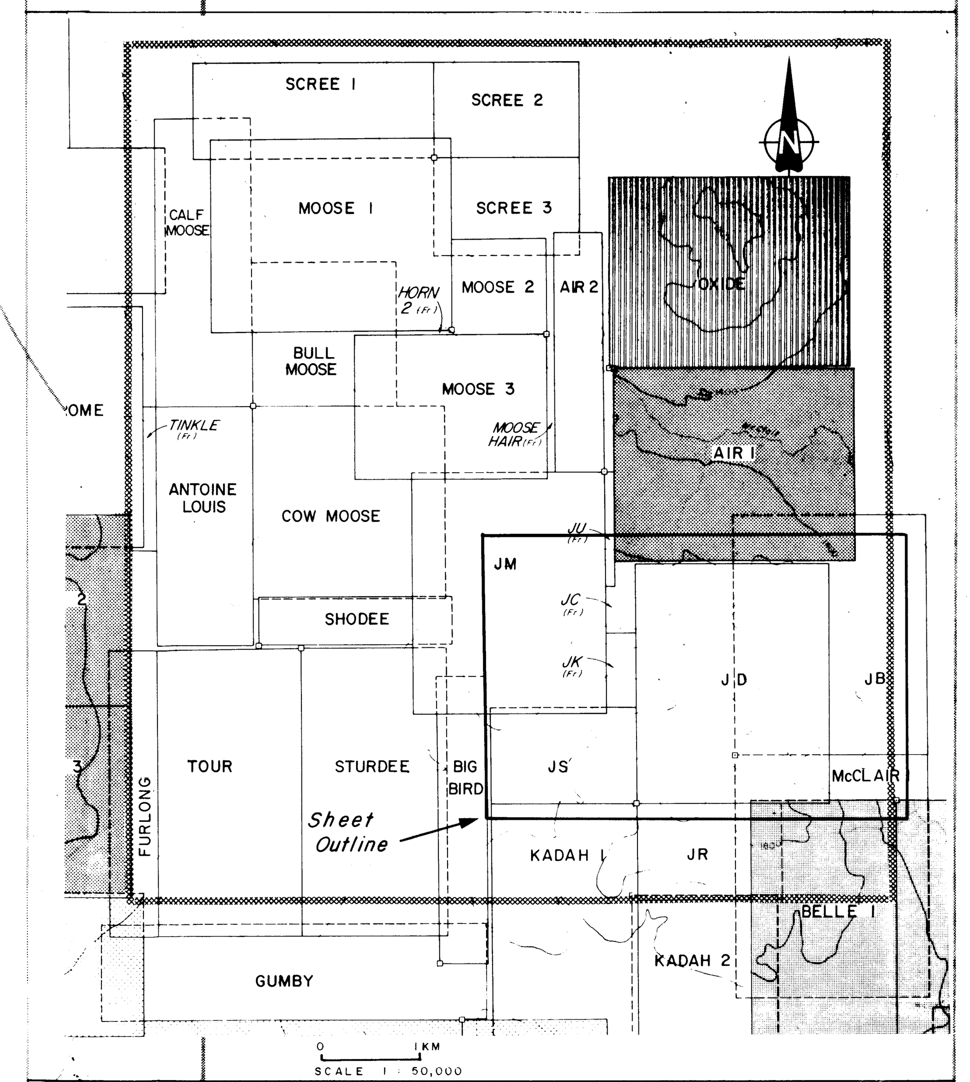
Taken from a paper by: B.B. Bhattacharya & Indrajit Dutta
Geophysics Vol.47 No.8 page 1201

APPENDIX B

STATEMENT OF EXPENSE

Mob-Debmob	1,840.00
Crew Costs 16 days @ $450/day	7,200.00
Accommodation 16 days @ $80/person x 4	5,120.00
Report	1,500.00
	$15,660.00





GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 1 OF 2

Kidd Creek Mines Ltd.

J. D. PROPERTY
PIT GRID

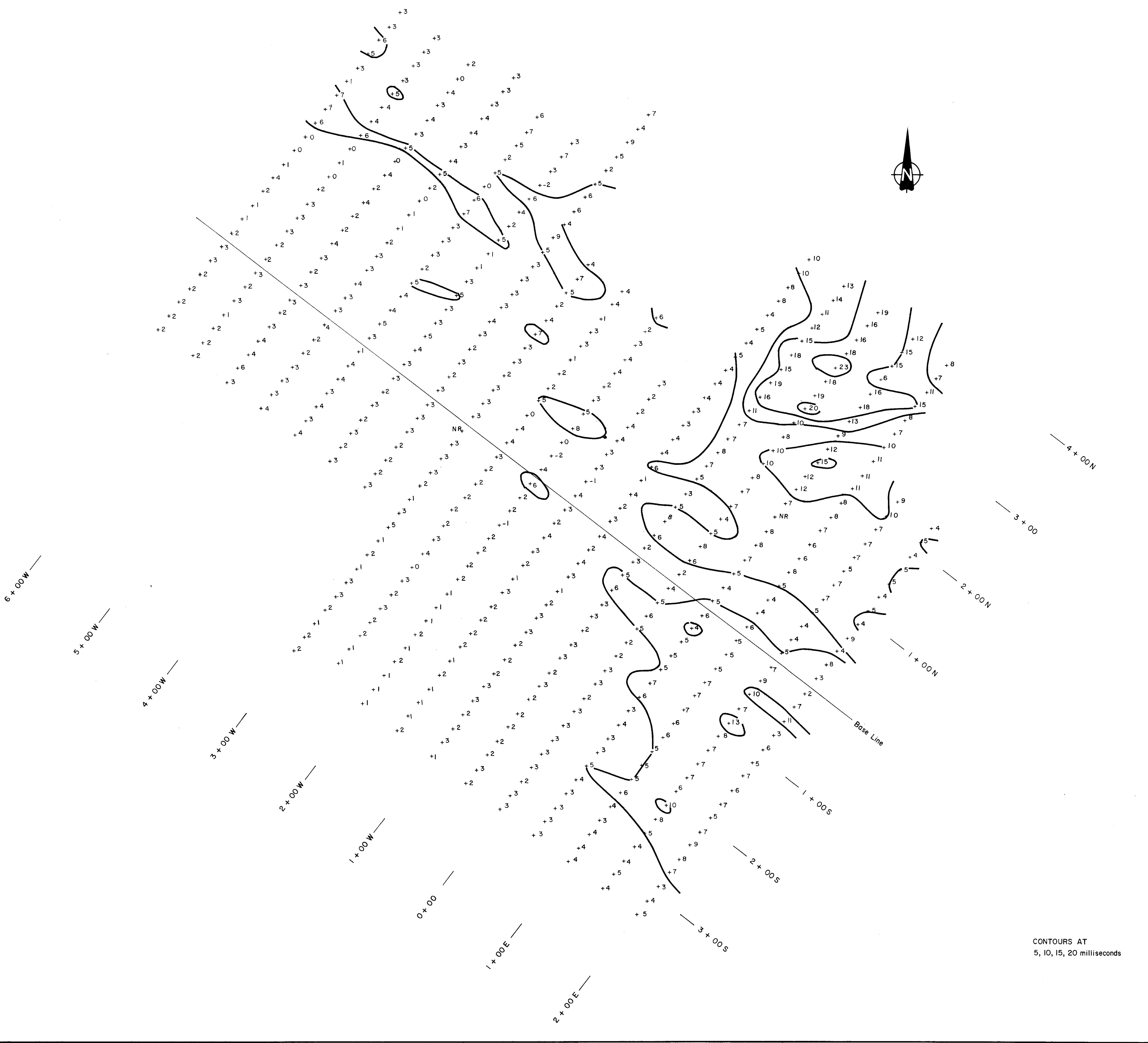
GEOPHYSICAL / GEOLOGICAL
LOCATION MAP

NTS 94E/6E — Proj 04

WORK BY	DRAWN BY	DATE
I.G.S., ver	E.R.	NOVEMBER 23, 1983

100 0 100 200 300 400
SCALE IN METRES 1:5,000

Figure:



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ASSESSMENT REPORT

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PART 1 OF 2

CONTOURS AT
5, 10, 15, 20 milliseconds

Kidd Creek Mines Ltd.

J D PROPERTY
PIT ZONE

CHARGEABILITY PLAN

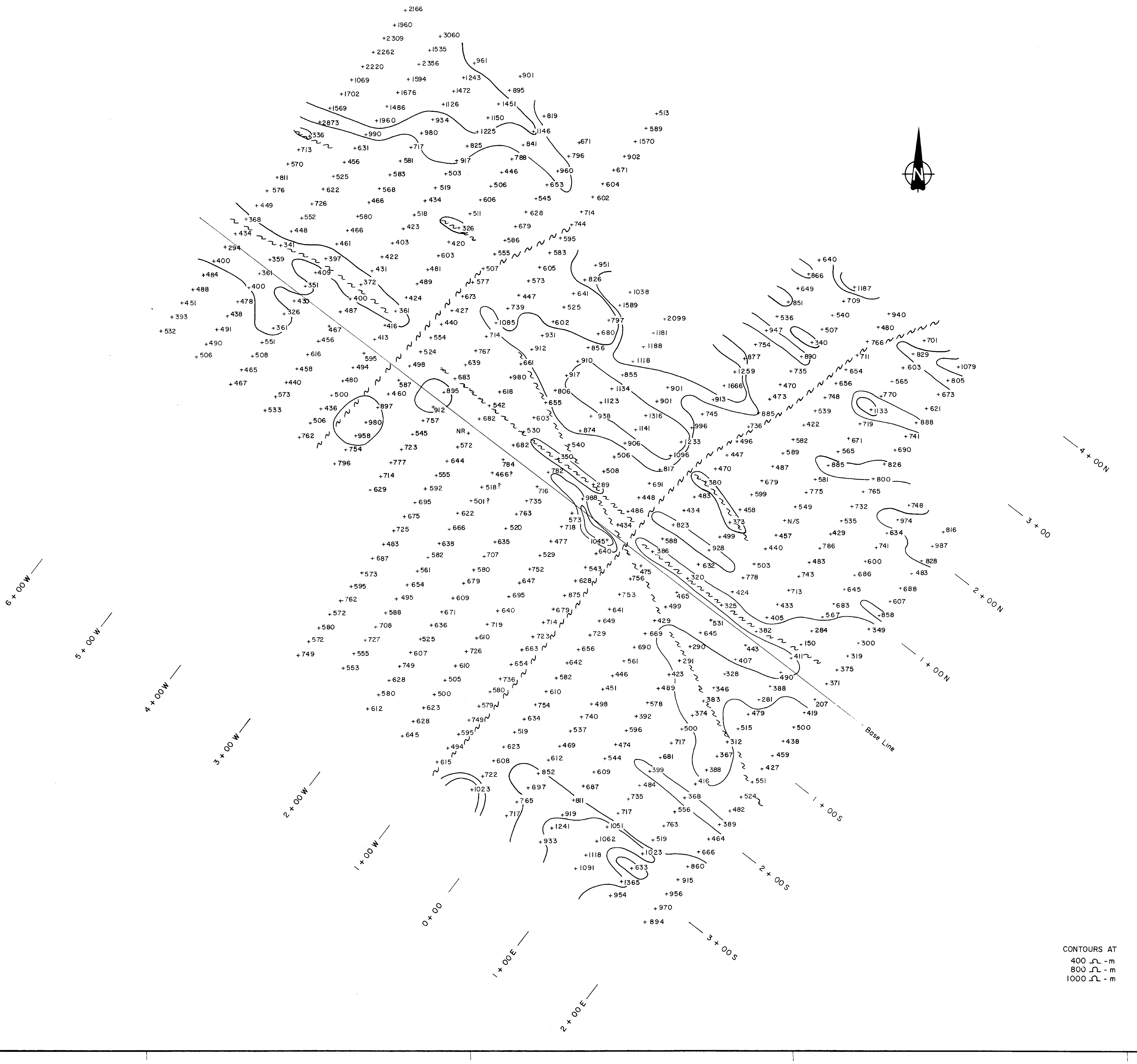
Schlumberger Array
AB = 140m
MN = 20m

Proj. 04

WORK BY	DRAWN BY	
G.H.	E.R.	DATE: SEPTEMBER 19, 1983

50 0 50 100 150
SCALE IN METRES 1 : 2,000

Figure: 1



CONTOURS AT
400 Ω - m
800 Ω - m
1000 Ω - m

GEOLOGICAL BRANCH
ASSESSMENT REPORT

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PART 1 OF 2

Kidd Creek Mines Ltd.

J D PROPERTY
PIT ZONE

RESISTIVITY PLAN

Schlumberger Array
AB = 140 m
MN = 20 m

Proj. 04

WORK BY	DRAWN BY	DATE: SEPTEMBER 19, 1983
G.H.	E.R.	

50 0 50 100 150
SCALE IN METRES 1 : 2,000

Figure: 2

GEOLOGICAL BRANCH
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PART 1 OF 2

Note: Units for magnetic field intensity are x10 Nanotesla

Kidd Creek Mines Ltd.

J D PROPERTY
Pit Grid

MAGNETOMETER SURVEY
LINE PROFILES

SCALE IN METRES 1 : 500

WORK BY	DRAWN BY	DATE
G.H.	E.R.	NOVEMBER 15, 1983

Figure 3