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GEOPHYSICAL ASSESSMENT REPORT  
ON A  
GRADIENT ARRAY INDUCED POLARIZATION SURVEY  
AND TEST GENIE SE-88 SURVEY  
ON THE

JR SHOWING - CHALICE I CLAIM - TENURE # 258192

**RECEIVED**  
APR 30 1992  
Gold Commissioner's Office  
VANCOUVER, B.C.

Vancouver Mining Division  
Front Area, British Columbia

Latitude 49 deg. 45 min. N      Longitude 123 deg. 57 min. W

by  
Douglas R. MacQuarrie, Geophysicist

April 20, 1992

**GEOLOGICAL BRANCH**  
**ASSESSMENT REPORT**  
Vancouver, B.C.

22,286

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SUMMARY AND CONCLUSIONS

During the period February 1 to 4 1992, a program of detail geophysics over the "JR" zone was completed. The work consisted of brushing out the roads, re-establishing the grid, four lines of gradient array induced polarization, totalling 73 stations, and two lines of Genie horizontal loop electromagnetics, totalling 24 observations.

The object of the work program was to delineate zones of sulfide mineralization in the vicinity of the "JR" showing and in DDH-JR-9, which previously returned 11.0 feet grading 0.913 oz/ton gold.

The gradient array method proved to be an efficient and effective technique. The induced polarization survey outlined three areas with higher than average chargeabilities, one of which partially corresponds with the known area of gold-sulfide mineralization in the "JR" trench and two others which are untested.

Observed apparent resistivities are consistent with an intrusive environment such as granodiorite as previously mapped in the vicinity. The "JR" zone occurs in an area of average resistivities within a broad resistivity high. Sharp resistivity low values in the vicinity of the access road are interpreted to represent a possible fault zone.

The Genie horizontal loop electromagnetic survey did not detect any significant conductive zones suggesting the source sulfides are either disseminated or pod like in nature.

### RECOMMENDATION

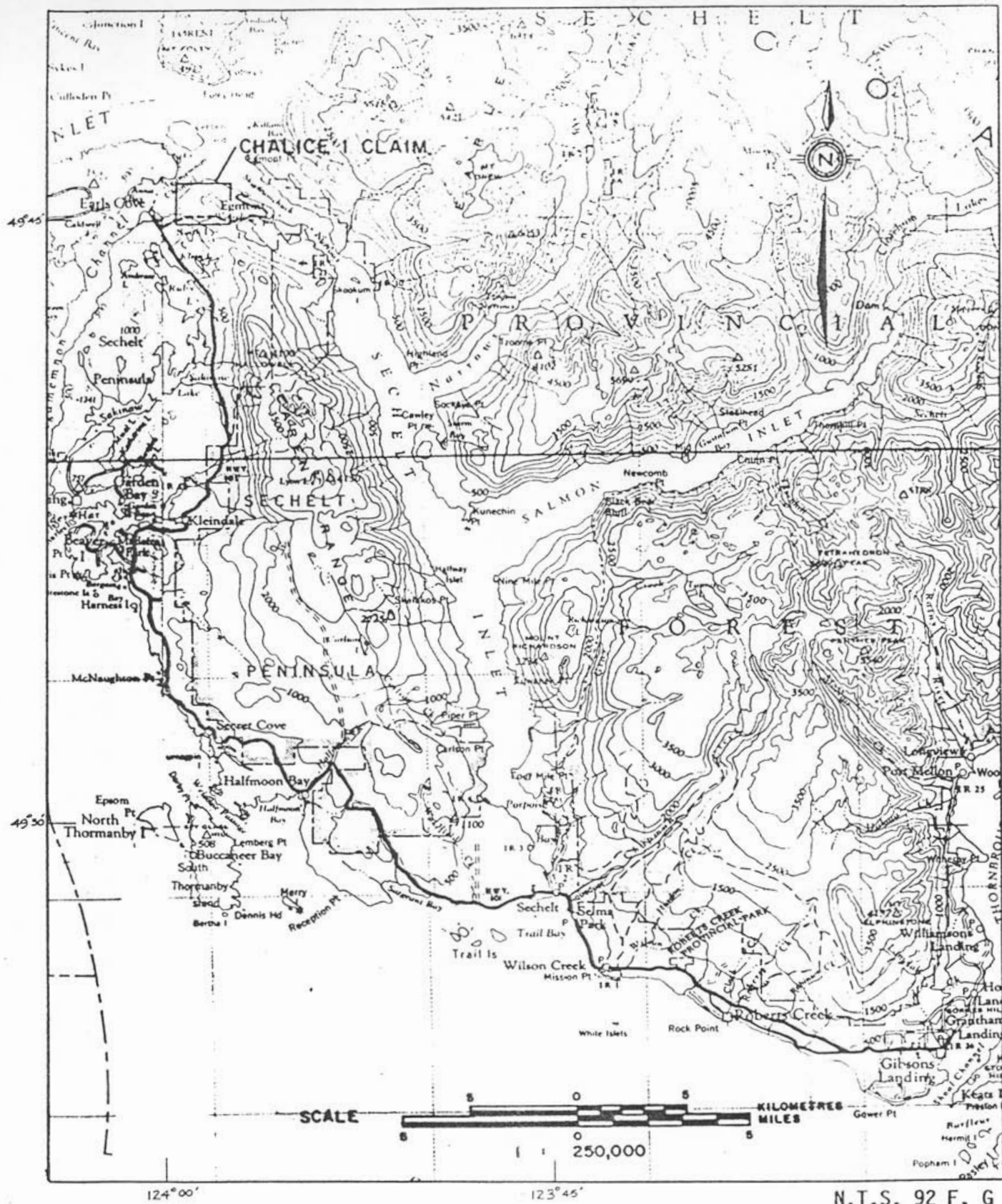
Given the good gold values obtained in drill hole DDH-JR-9 which were associated with sulfide mineralization it is recommended that the induced polarization anomalies outlined by this survey be tested by backhoe trenching or diamond drilling depending on overburden conditions. In particular the anomalous IP responses on Line 25W at station 3+67.5N (24 msec), Line 0W at 3+56N (19 msec) and L25E at 3+68N (19 msec) should be further tested.

### INTRODUCTION

Previous survey work dating back to 1981 as summarized in various reports by Chalice Mining Inc., Grove, MacQuarrie, Allen, Brownlee, and Mark noted significant gold values in the "JR" showing and in a 1984 drill intersection, drill hole JR-9.

D.R. MacQuarrie, Geophysicist, carried out a detailed induced polarization survey and test low frequency electromagnetic survey on a detail grid in the "JR" showing area of the Chalice I Claim, to test for continuity of mineralization.

The claim area is located on the northern end of the Sechelt Peninsula, west of Earls Cove, eighty kilometres north west of Vancouver, British Columbia. (Figure 1, 2).



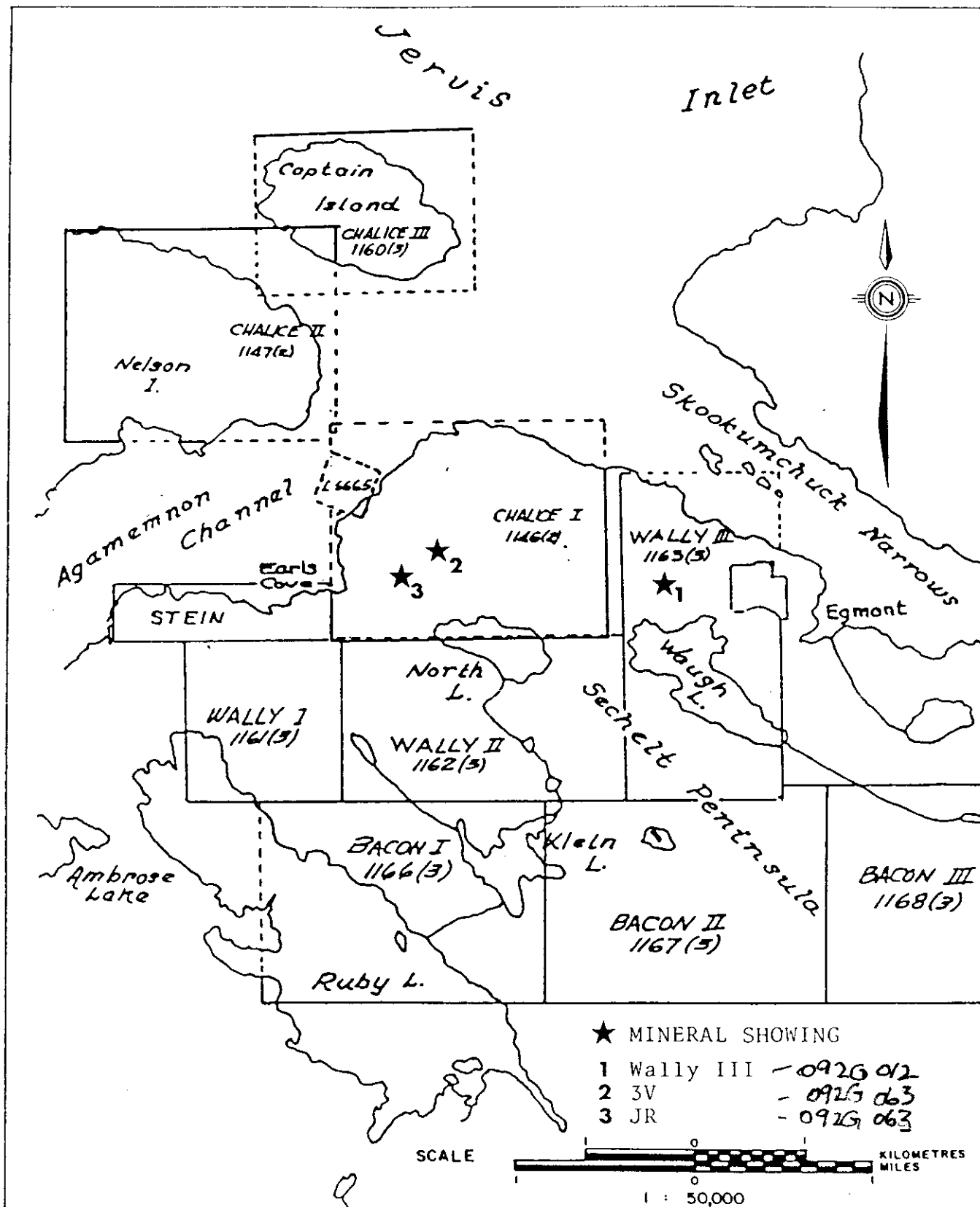
# LOCATION MAP

CHALICE MINING INC.

EGMONT PROPERTY

Vancouver Mining Division - British Columbia

Figure 1



N.T.S. 92F/16E, 92G/13W

CHALICE MINING INC.  
CLAIM MAP  
EGMONT PROPERTY

Vancouver Mining Division - British Columbia

Access to the property is via Highway 101 north from the Langdale ferry terminal to the Egmont road, and then easterly towards Egmont and to the showings via various overgrown logging and cat trails.

#### GRADIENT ARRAY INDUCED POLARIZATION SURVEY

Previous induced polarization surveys on the Chalice property (MacQuarrie 1983, 1985) have proven to be effective in outlining zones of sulfide mineralization, however data in the vicinity of the "JR" showing was at 25 metre intervals on lines 50 metres apart and was too coarse to define the trend of the noted mineralization.

In order to facilitate the survey, a grid was established at right angles to the previous one, with lines trending 045/225 degrees and stations at 12.5 metre intervals. The grid was centered on the "JR" showing at 4+00N on L 0W (old baseline).

A time domain 2.5 kw induced polarization system manufactured by SCINTREX was used for the survey. An IPR-10a receiver and IPC-7 transmitter with a 1/2 second cycle time was used for all observations.

The current wire was laid along the baseline with C1 located at 7+25 N and C2 at 0+10 N. The receiver dipole utilized porous pots separated by 12.5 metres.

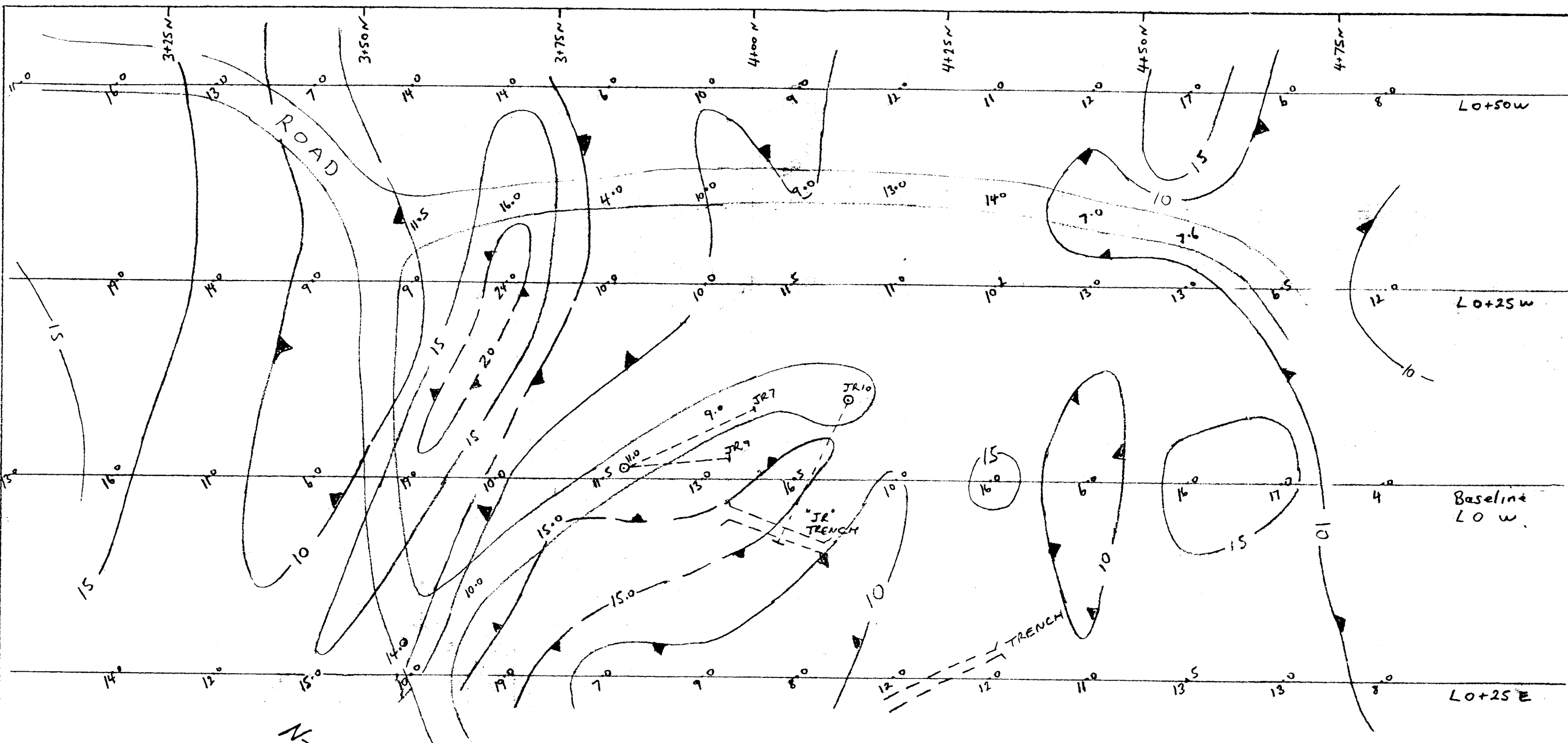
The receiver was operated in the "three slice" mode with the middle slice, M32, recorded for the chargeability reading. The data is attached at the back of this report.

A total of 73 observations were completed on 4 survey lines and on the two access roads. Apparent resistivities were calculated for each station on the survey lines but not on the roads as the receiver dipole was not parallel to the baseline as required by this technique. The IP/App. Resistivity data is presented in plan on Figures 3 & 4 and in profile form on Figures 5 & 6 respectively.

Three areas of anomalous chargeability have been outlined. The first zone trends northerly from station 3+68N on L 0+25E, 50 metres to 4+05N on L 0W. Values vary from 15 to 19 msec., with the northern portion coinciding with the western, mineralized, portion of the "JR" trench. Apparent resistivities range from 2200 to 3000 ohm metres.

The second and strongest anomaly trends north north westerly from 3+44N on L 25E to the area of 3+50 to 3+70N on L 50W. Chargeabilities vary from 14 to 24 msec or up to 3 times background. This zone corresponds with an area of generally lower apparent resistivities, varying from 850 to 2987 ohm metres which may represent either a different geological unit or more fractured granodiorite - containing disseminated sulfides or perhaps an extensional fracture containing "JR" type mineralization.





L0+50w

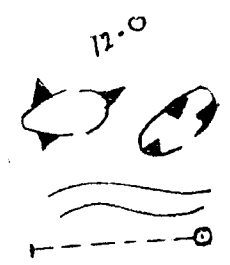
L0+25w

Baseline  
L0 w

L0+25 E

INSTRUMENT  
SCINTREX IPR-10  
RECEIVER  
IPC-7 TRANSMITTER

LEGEND

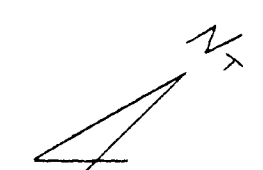
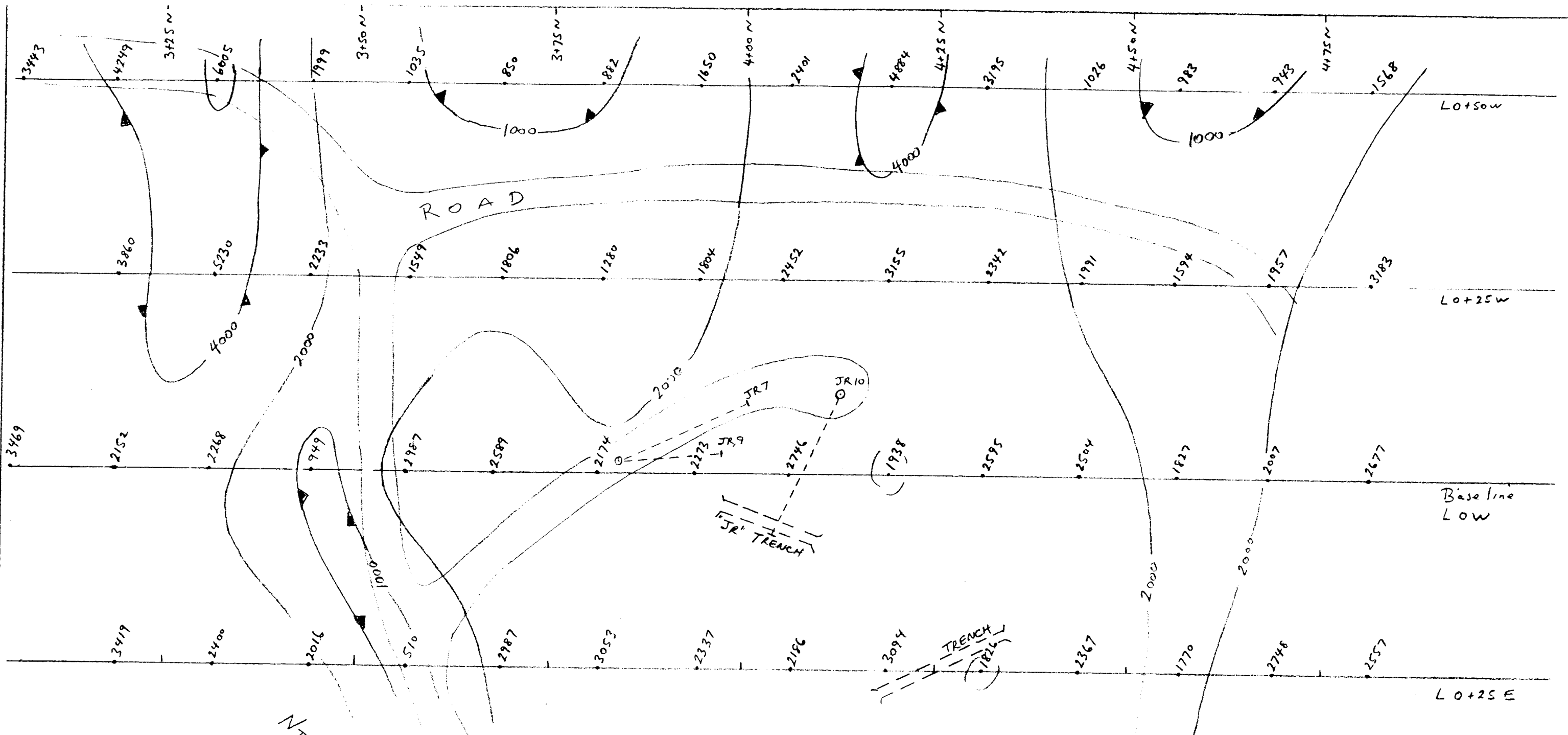


Gradient I.P.  
Chargeability, msec.  
Contour Interval = 5.0 msec  
I.P. HIGH, LOW  
Road  
Drillhole

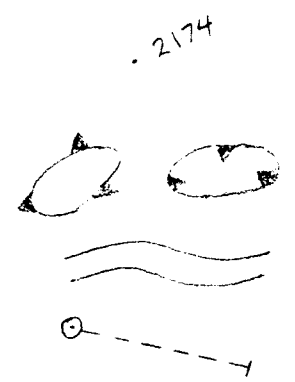
I.P. PLAN  
GRADIENT ARRAY  
CHALICE I CLAIM

SCALE = 1:500

FIGURE 3



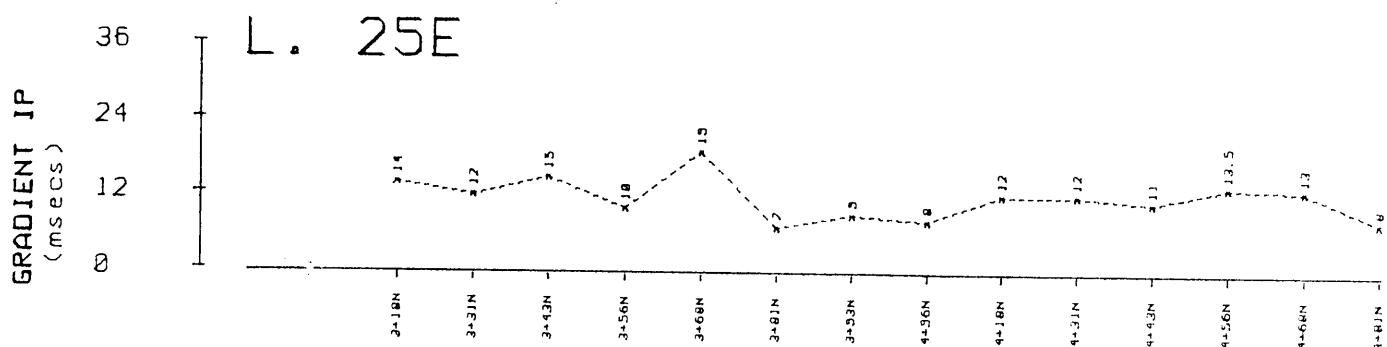
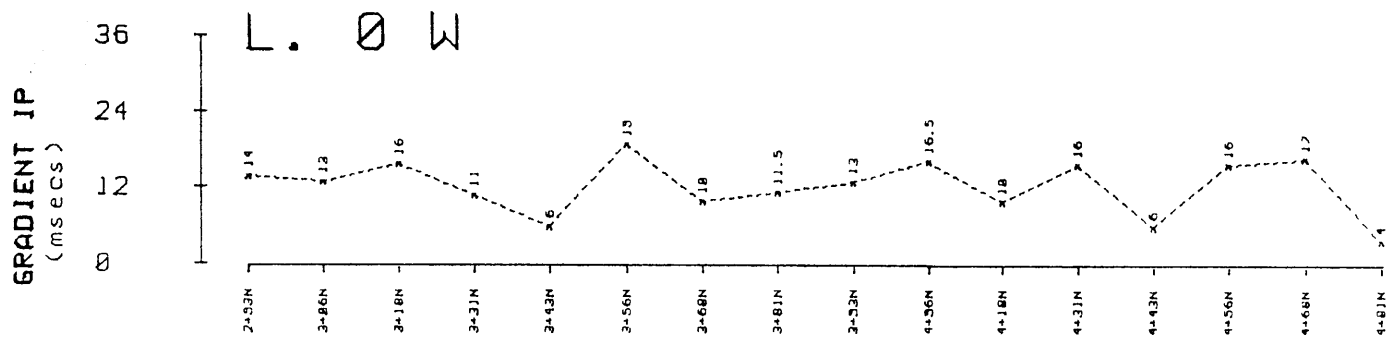
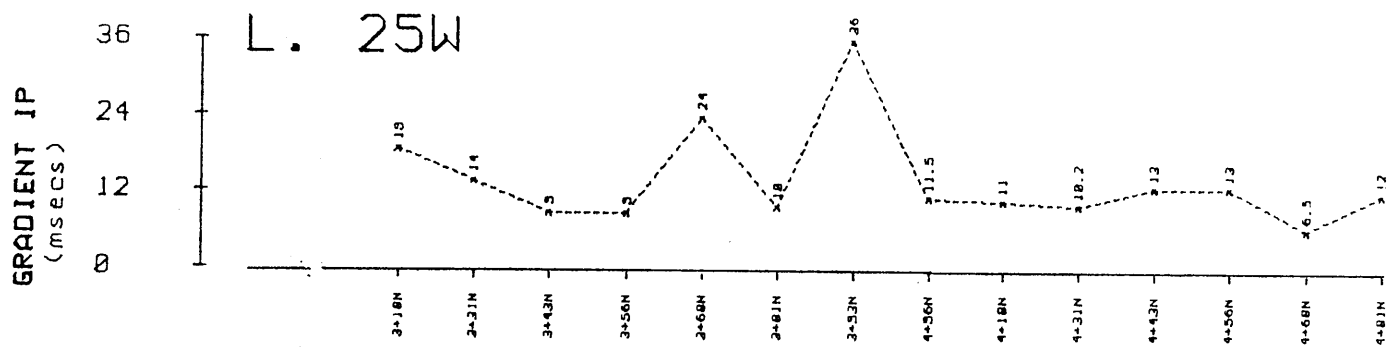
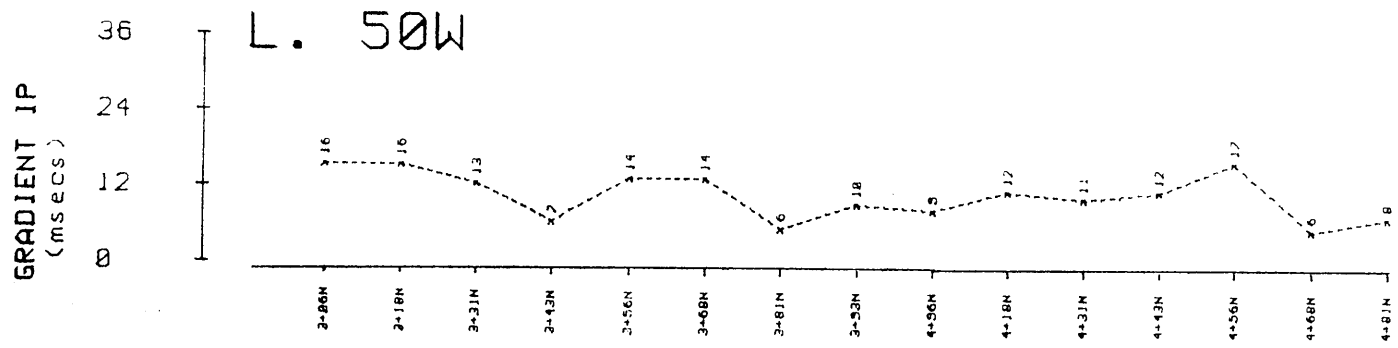
INSTRUMENT  
SCINTREX IPR-10  
RECEIVER  
IPC-7 TRANSMITTER



LEGEND  
App. Resistivity  
(KOH METRES)  
Contour Interval = 5000 LGE.  
APP. RESISTIVITY  
HIGH, LOW  
Road  
Drillhole

RESISTIVITY  
PLAN  
CHALICE I CLAIM  
GRADIENT ARRAY  
SCALE = 1:500

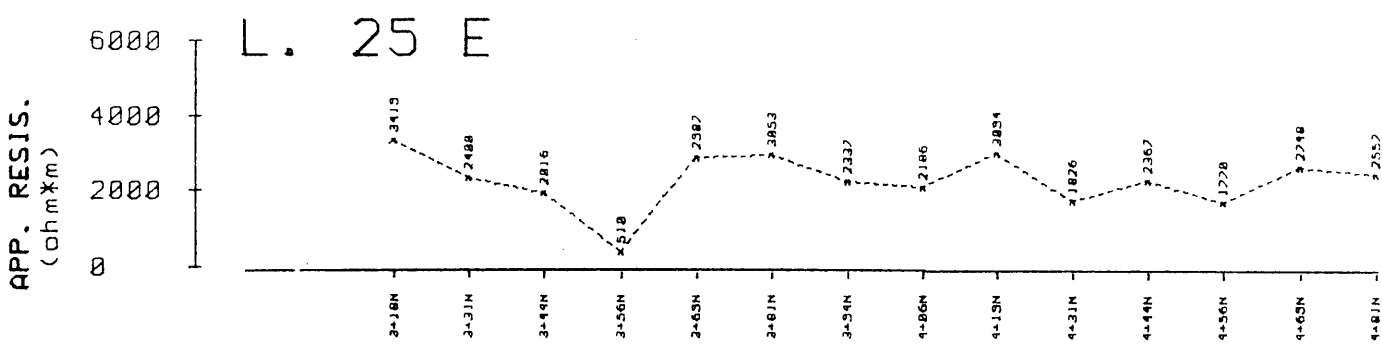
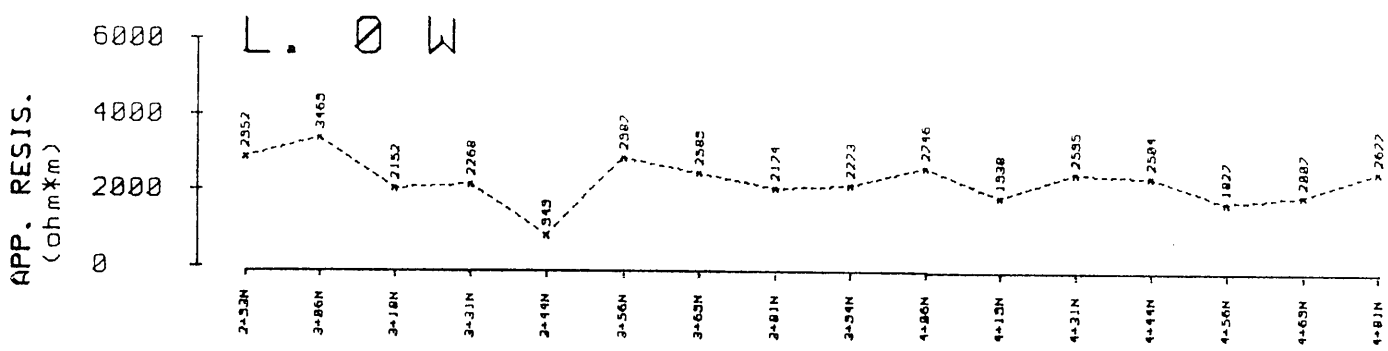
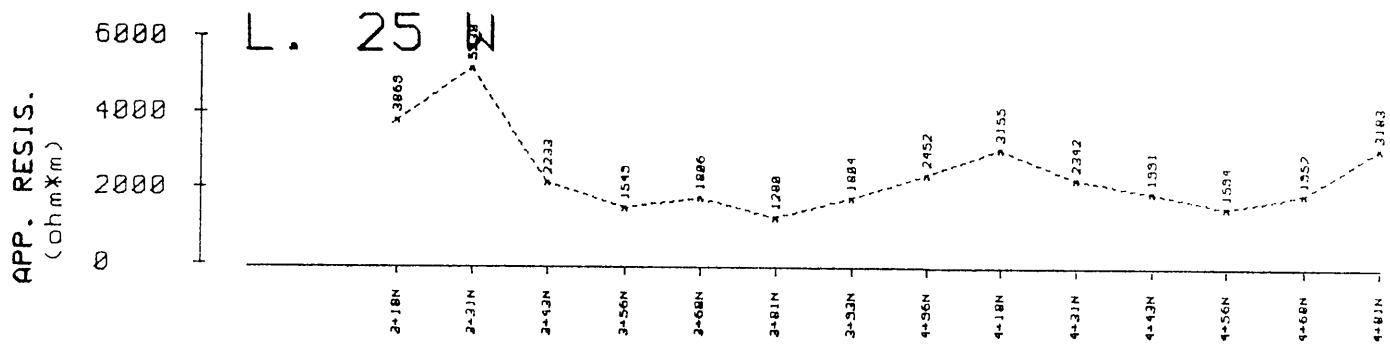
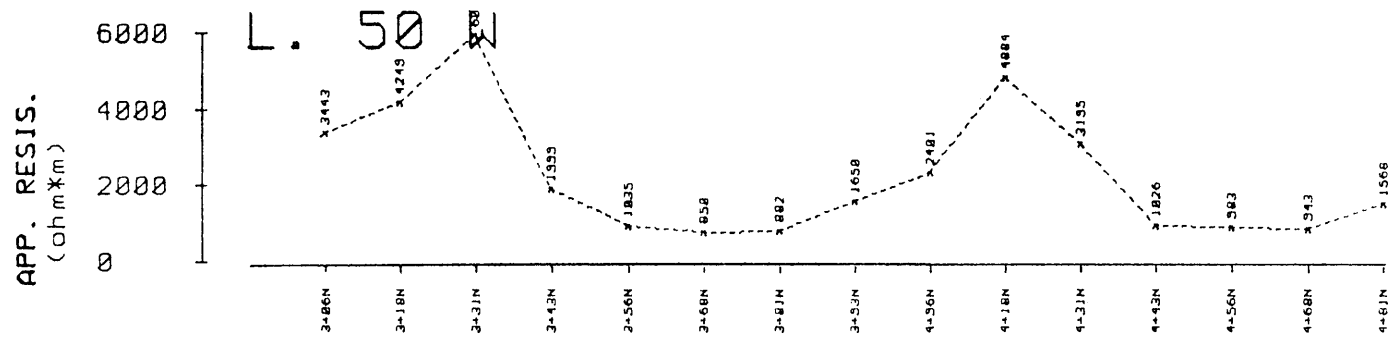
FIGURE 4



I.P. PROFILES  
 CHALICE I CLAIM  
 VANCOUVER M.D.

SCALE= 1:1250

FIGURE 5



APP. RESISTIVITY  
 PROFILES  
 CHALICE I CLAIM  
 VANCOUVER M.D.

SCALE= 1:1250

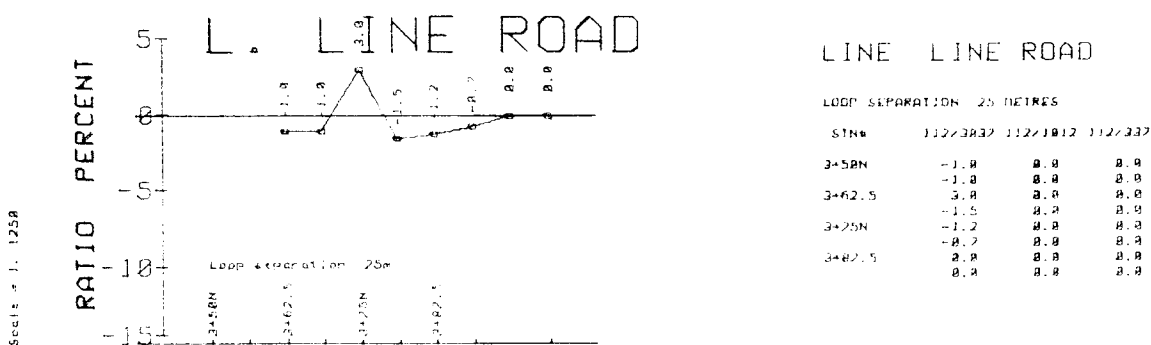
FIGURE 6

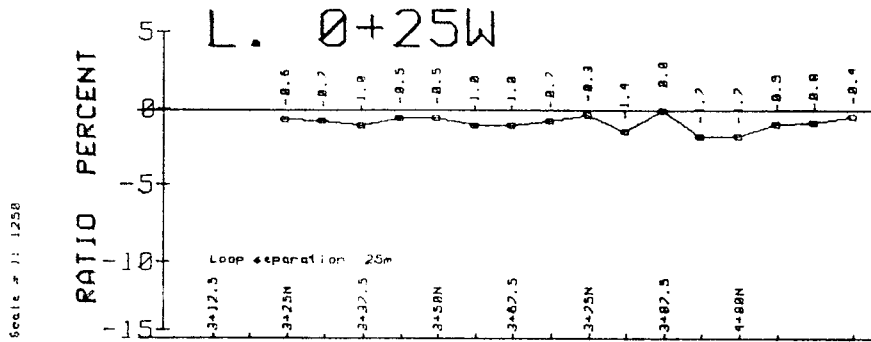
The third zone occurs at the south west end of the grid from 3+18N on L 0W to 3+05 to 3+25N on L 50W with chargeabilities to 19 msec. This anomaly correlates with a strong app. resistivity high with values to 6000 ohm metres. The anomaly is quite broad and probably related to a widespread disseminated sulfide source.

GENIE SE-88 TEST LINES

Previous VLF-EM surveys were conducted in the vicinity of the "JR" showing using transmitters located in Seattle, Washington and Cutler, Maine (MacQuarrie 1983). This data was not definitive in the area of the "JR" zone.

In order to ascertain the trend and nature of the high grade gold intersection obtained in DDH-JR-9, two lines of single frequency Genie electromagnetic surveying was completed on L 25W and on the drill access road to DDH-JR-7/9/10. The 112/3037 hz. frequency pair was utilized, with a 25 metre loop separation.





LINE 0+25W

LOOP SEPARATION 25 METRES

STM#	112/3827	112/1812	112/327
3+12.5	-0.6	0.0	0.0
3+25N	-0.7	0.0	0.0
3+37.5	-1.0	0.0	0.0
3+50N	-0.5	0.0	0.0
3+62.5	-1.0	0.0	0.0
3+75N	-0.7	0.0	0.0
3+87.5	-1.0	0.0	0.0
4+00N	-0.7	0.0	0.0
	-0.3	0.0	0.0
	-1.4	0.0	0.0
	0.0	0.0	0.0
	-1.7	0.0	0.0
	-1.7	0.0	0.0
	0.5	0.0	0.0
	0.0	0.0	0.0
	-0.4	0.0	0.0

No significant conductors were located by the Line Road survey, suggesting that the mineralization noted in DDH-JR-9 is "pod" like and of limited extent.

Likewise, the results from L 25W do not suggest massive sulfide type conductors as the source of the sulfides in the IP anomaly at 3+68N, and are probably related to disseminated type sulfides.

Respectfully submitted,

Douglas R. MacQuarrie  
B.Sc.

STATEMENT OF COSTS

I Douglas R. MacQuarrie hereby certify that the following costs were incurred in completing the work program contained in this report on the Chalice I Claim, Vancouver Mining Division:

1.	Mobilization Demobilization	\$ 350.00
2.	Labor, Geophysicist 3 days@ <b>\$450/day,</b>	\$1,350.00
	Technician 3 days@ <b>\$200/day,</b>	\$ 600.00
3.	Equipment rental, IP equipment, complete,	\$ 750.00
	Genie SE88,	\$ 450.00
	Chainsaws	\$ 75.00
	Field supplies consumed,	\$ 50.00
4.	Room and Board, 6 man days @ \$50/day,	\$ 300.00
5.	Report, complete,	\$ 500.00
		<hr/>
	Total costs	\$4,425.00



Douglas R. MacQuarrie,  
Geophysicist

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- Allen, D.G. and Brownlee, D.J. (1986). Geological and Lithogeochemical Report on the JR, Trench 2, 3V, DF, TY, Wally III, and Wally IIIa Zones. Private report dated July, 1986.
- Grove, E.W. (1985). Geological Report and Work Proposal on the Chalice Mining Inc. Egmont Property in the Lower Jervis Inlet Area, Southwestern B.C. Private Report dated July, 1985.
- MacQuarrie, D.R. (1983). Geophysical Report on Induced Polarization, Magnetometer and VLF-EM Surveys on the Chalice I Claim. Private report dated April 14, 1983.
- MacQuarrie, D.R. (1984). Soil Geochemistry and Geophysical Surveys, Chalice Claims. Private Report dated October 1, 1984.
- MacQuarrie, D.R. (1985). Geophysical Report on Induced Polarization, Magnetometer, and VLF-EM surveys on the Chalice I Claim, Sechelt Peninsula Area. Private Report dated April 1985.



CERTIFICATE

I, Douglas R. MacQuarrie, certify that:

1. I am a Consulting Geophysicist with offices at 704 - 850 West Hastings Street, Vancouver, B.C., V6C 1E1.
2. I am a graduate of the University of British Columbia with a Combined Honors degree in Geology and Geophysics, (B.Sc., 1975).
3. I have been practicing my profession since 1975 and have been active in the mining industry since 1971.
4. This report is based on fieldwork carried out under my direct supervision and on data listed under references.
5. I am a Director of Chalice Mining Inc.

April 27, 1992  
Vancouver, B.C.



Douglas R. MacQuarrie  
B.Sc.

# APPENDIX 1

CHALICE IP FEBRUARY 1 TO 3/92 - "JR" GRID AREA  
 GRADIENT ARRAY- SCINTREX IPR10-A RX, 1PC-7 TX  
 CURRENT ELECTRODES AT BLO ON AND 7+25N

STATION					OHM/M			
LINE #	LINE MOD. NORTHING	Vp MV.	I MA	M32	MSECS	GEOMK	RESISTIV	SP
50 W	293.75		200					
	306.25	71.2	200	16.0	0.92	3443	407	
	318.75	86.0	200	16.0	0.94	4249	384	
	331.25	119.0	200	13.0	0.96	6005	313	
	343.75	39.2	200	7.0	0.97	1999	428	
	356.25	20.1	200	14.0	0.98	1035	515	
	368.75	16.5	200	14.0	0.98	850	62	
	381.25	17.3	200	6.0	0.97	882	126	
	393.75	32.7	200	10.0	0.96	1650	70	
	406.25	48.6	200	9.0	0.94	2401	33	
	418.75	101.0	200	12.0	0.92	4884	-8	
	431.25	68.3	200	11.0	0.89	3195	69	
	443.75	22.7	200	12.0	0.86	1026	-2	
	456.25	22.8	200	17.0	0.82	983	137	
	468.75	23.0	200	6.0	0.78	943	78	
481.25	40.3	200	8.0	0.74	1568	24		
25 W	293.75		200					
	306.25		200					
	318.75	80.0	200	19.0	0.92	3869	103	
	331.25	107.0	200	14.0	0.93	5230	38	
	343.75	45.2	200	9.0	0.94	2233	152	
	356.25	30.7	200	9.0	0.96	1549	185	
	368.75	35.8	200	24.0	0.96	1806	64	
	381.25	25.9	200	10.0	0.94	1280	565	
	393.75	36.9	200	10.0	0.93	1804	122	
	406.25	50.7	200	11.5	0.92	2452	38	
	418.75	66.7	200	11.0	0.9	3155	144	
	431.25	51.8	200	10.2	0.86	2342	129	
	443.75	45.1	200	13.0	0.84	1991	512	
	456.25	37.9	200	13.0	0.8	1594	716	
	468.75	49.0	200	6.5	0.76	1957	550	
481.25	86.5	200	12.0	0.7	3183	331		
0 W	293.75	65.3	200	14.0	0.86	2952	317	
	306.25	75.0	200	13.0	0.88	3469	461	
	318.75	45.0	200	16.0	0.91	2152	248	
	331.25	46.4	200	11.0	0.93	2268	310	
	343.75	19.2	200	6.0	0.94	949	77	
	356.25	59.2	200	19.0	0.96	2987	106	
	368.75	51.3	200	10.0	0.96	2589	288	
	381.25	44.0	200	11.5	0.94	2174	143	
	393.75	46.5	200	13.0	0.93	2273	15	
	406.25	57.4	200	16.5	0.91	2746	94	
	418.75	41.9	200	10.0	0.88	1938	198	
	431.25	57.4	200	16.0	0.86	2595	34	

443.75	57.4	200	6.0	0.83	2504	164
456.25	44.0	200	16.0	0.79	1827	205
468.75	51.6	200	17.0	0.74	2007	75
481.25	73.8	200	4.0	0.69	2677	450

25 E

293.75		200				
306.25		200				
318.75	70.7	200	14.0	0.92	3419	126
331.25	49.1	200	12.0	0.93	2400	287
343.75	40.8	200	15.0	0.94	2016	239
356.25	10.1	200	10.0	0.96	510	519
368.75	59.2	200	19.0	0.96	2987	292
381.25	61.8	200	7.0	0.94	3053	395
393.75	47.8	200	9.0	0.93	2337	167
406.25	45.2	200	8.0	0.92	2186	152
418.75	65.4	200	12.0	0.9	3094	272
431.25	40.4	200	12.0	0.86	1826	373
443.75	53.6	200	11.0	0.84	2367	97
456.25	42.1	200	13.5	0.8	1770	209
468.75	68.8	200	13.0	0.76	2748	-110
481.25	69.5	200	8.0	0.7	2557	613

AVERAGE ALL DATA	11.96	2388.72
STANDARD DEVIATION	3.87	1052.38