

GEOCHEMICAL AND GEOPHYSICAL REPORTS

ON

ALPEN PROPERTY

Ursula, Diddi, Kathrin, Shannon

Madine, Michael and Sarah

Mineral Claims (total 43 units)

Vancouver Mining Division

NTS 92 G / 10 W

Latitude 49° 38' Longitude 122° 25'

Owner of Claims:
Alpen Exploration Ltd.

Operator:
Placer Development Limited

E.T. Kimura
J.M. Thornton

15 October 1982

**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

10,722

TABLE OF CONTENTS

	<u>PAGE</u>
1. Introduction	4
2. Summary	4
3. Property Definition	4
4. Topography and Access	5
5. Economic Assessment	6
6. General Geology	6
7. Geochemical Survey	7
7.1 Soil Geochemical Survey	7
7.2 Soil Development and Glaciation	8
7.3 Vegetation	8
7.4. Soil Sampling	9
7.5 Stream Sediment Survey	9
7.6 Drainage Characteristics	9
7.7 Analytical Procedure	10
77.1 Analysis for Cu, Pb, Zn and Ag	10
77.2 Analysis for Au	10
7.8 Results	11
8. Interpretation of Geochemical Results	12
9. Geophysics	13
9.1 Data Collection	13
9.2 Presentation of Results	13
10. Interpretation of Geophysical Results	14
11. Statement of Expenses	15
12. Conclusion	16

APPENDICES

- I Statement of Qualifications - E.T. Kimura
- II Statement of Qualifications - J.M. Thornton
- III Copper Geochemical Survey Map
- IV Lead Geochemical Survey Map
- V Zinc Geochemical Survey Map
- VI Silver - Gold Geochemical Survey Map
- VII VLF - EM Results
- VIII Ground Magnetometer Results
- IX Geophysical Data

1. INTRODUCTION

Soil and stream sediment geochemical and ground magnetometer and VLF - EM surveys were conducted by Placer Development Limited during the period of 4 August to 5 October, 1982 on Alpen Exploration Ltd.'s mineral claims at Squamish, B.C. The results of this field work are presented for submission of assessment work on the claims.

2. SUMMARY

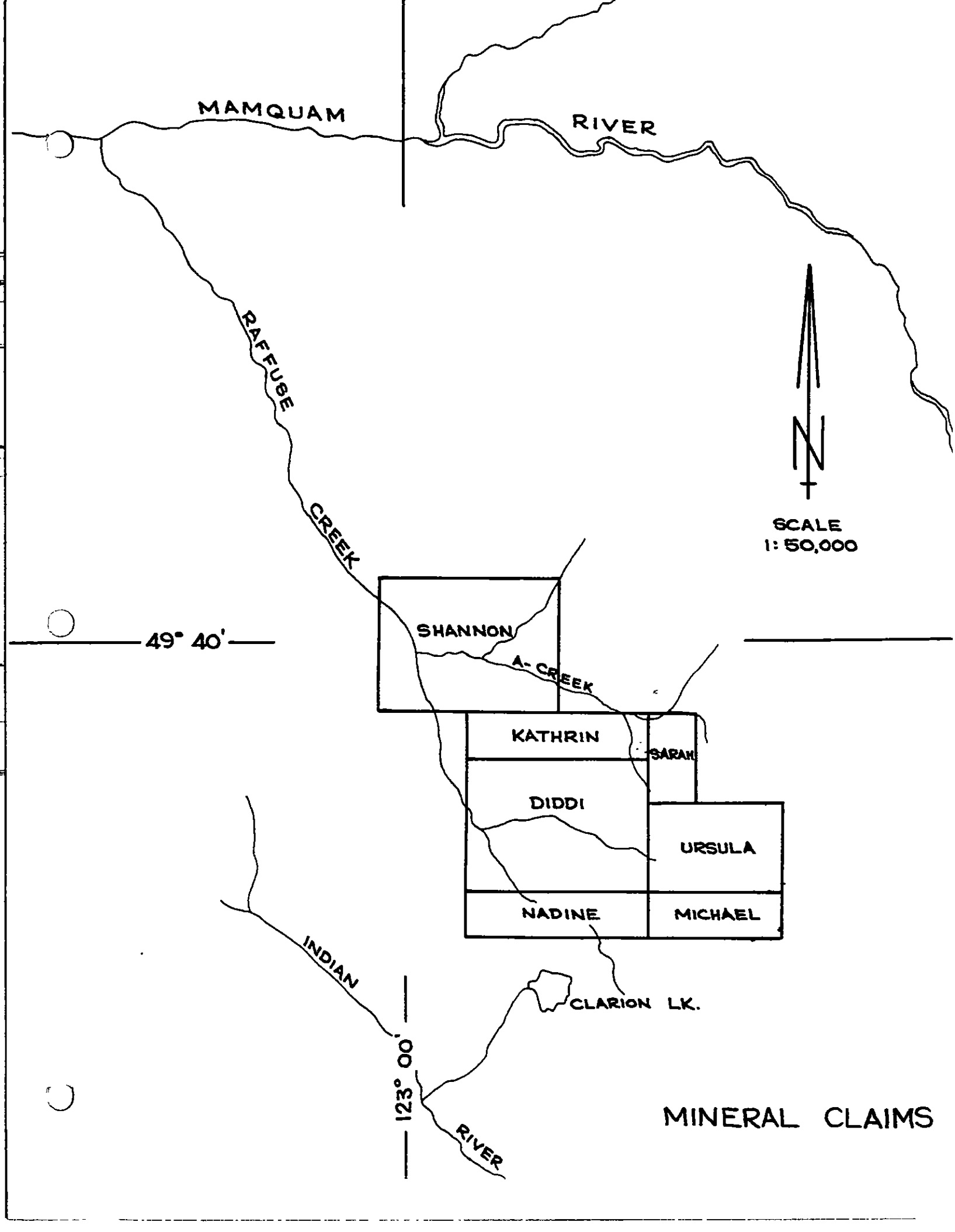
A total of 755 soil and stream sediment samples were collected and analyzed for Cu, Pb, Zn, Ag and Au content. Results from the grid pattern of soil sampling show several broad zinc anomalies; more restricted copper and lead anomalies are outlined within the more prominent zinc anomalies. Gold and silver contents are predominantly non-detectable in soil samples and no anomalous patterns are indicated. Numerous stream sediment samples from main drainages and subsidiary tributaries showed significantly anomalous zinc and copper and to a lesser extent lead contents, especially from those drainages that originate within or cross-cut soil geochemical anomalies.

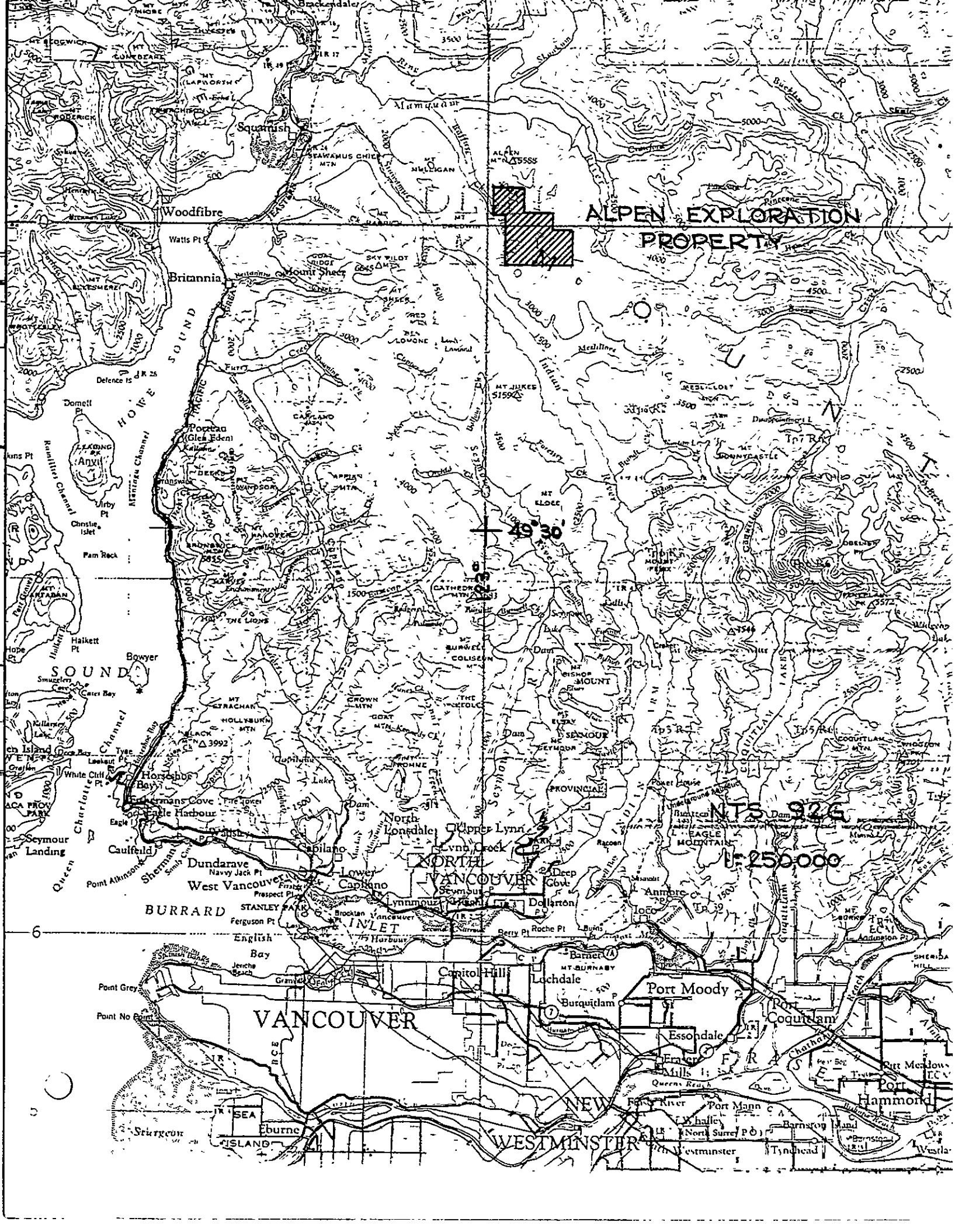
Approximately 25 km of ground magnetometer and VLF -EM data were collected on the property along the geochemical grid lines using a nominal data interval of 12.5 meters. Several strong conductors were encountered some of which correlate with topographic features. Few responses show any line to line correlation at the line spacing used.

Cost of geochemical and geophysical surveys was \$45,685.68.

3. PROPERTY DEFINITION

Property is 16 km east of Squamish, B.C. at headwaters of Raffuse Creek which is a tributary of Mamquam River. The spatial position of seven mineral claims for this property is shown on index map.





ALPEN EXPLORATION
PROPERTY

49° 30'

NTS 926

1:250,000

VANCOUVER

NEW WESTMINSTER

<u>MINERAL CLAIM</u>	<u>UNITS</u>	<u>RECORD NO.</u>	<u>EXPIRY RECORD DATE</u>
Ursula	6	476 (8)	August 20th, 1983
Diddi	12	574 (10)	October 18th, 1984
Kathrin	4	666 (5)	May 8th, 1985
Shannon	12	667 (5)	May 8th, 1983
Nadine	4	696 (6)	June 3rd, 1983
Michael	3	697 (6)	June 3rd, 1983
Sarah	2	710 (6)	June 17th, 1985

Alpen Exploration Ltd. initially conducted basic prospecting and sampling of attractive surface exposures near the southeast corner of the present property. The first claim staking in 1979 was followed by additional staking in the same year and in 1980 as favourable results together with information on general geologic setting became available. This firm continued exploration in 1981 on several mineralized zones on the property.

Placer Development Limited optioned the property from Alpen Exploration Limited in 1982 for purposes of exploring economic mineral potential of the property. All field work for geochemical and geophysical surveys as presented in this report were co-ordinated and undertaken by Placer Development Limited personnel.

4. TOPOGRAPHY AND ACCESS

Property is in heavily-timbered rugged mountainous terrain that is characteristic of coast mountain physiography. General land form at the property is dominated by a steep-sided mountain. Topographic relief from Raffuse Creek, that forms the main drainage, to the mountain peak is 750 to 775 m; the mountain peak rises to 1526 m elevation (see appended map). Mountain slopes and valley floors are heavily-forested and parts of the valley have been logged. Portions of the valley flanks are very steep at 35 to 45 degrees, but for most part these steep slopes are also forested rather than cliff forming. The crown of the mountain is characterized by rounded rolling terrain on which local alpine-type meadows are a common feature. The mountain is cornered by four deeply-carved glaciated valleys. Headwaters of these drainages are in the form of a broad arcuate cirque. Local stream gradient is comparatively steep resulting in development of steep canyon-like ravines. A network of numerous subsidiary small drainages are formed on the steep valley flanks. These streams, many of which have only seasonally intermittent flow are characterized by deep narrow gullies, mini-canyons and small waterfalls.

A network of well-maintained logging roads from Squamish provided excellent access to the property. Approximately 80% of the field work on this project was conducted from these access roads. Helicopters were utilized for part of the program when work was concentrated on crest of the mountain.

5. ECONOMIC ASSESSMENT

Alpen Exploration Ltd. prospected and concentrated their exploration work over five separate mineralized targets on their mineral claims. Additionally a widespread pattern of soil, stream sediment and rock chip sampling complemented the sampling of mineralized zones. This early field work outlined several Cu-Zn geochemical anomalies with superposed but slightly more erratically distributed Pb, Ag and Au anomalies.

General property geology has a sequence of volcanic rocks, correlative with Jurassic Gambier Group, overlying leucocratic granodiorite in the form of a roof pendent. Pyrite, chalcopyrite and sphalerite with minor galena are frequently associated with quartz in narrow faults and shear zones in volcanic rocks. Pyrite and minor chalcopyrite also occur as disseminations and fine fracture fillings in silicified rhyolitic to andesitic volcanoclastic units. Intrusive granodiorite is dominantly unaltered but is locally sheared, altered and mineralized by pyrite.

The geochemical soil sampling program was planned and conducted so as to assess and delineate possible targets. The geophysical surveys were planned to provide information on faults and distribution of lithologic units.

6. GENERAL GEOLOGY

Jurassic Gambier Group volcanic rocks overlie younger intrusive granodiorite as a roof pendent. Preliminary interpretation has indicated an elongated oval-shaped pendent that roughly conforms to the west-northwest trending crest of the mountain. There is evidence that it is a steep-sided keel-shaped body approximately two by one km in size. A much smaller separate outlier of volcanic rocks is exposed near the confluence of A - Creek and Raffuse Creek. (see Generalized Property Geology map).

The volcanic rock sequence consists primarily of light grey and green rhyolitic and dark green andesitic volcanoclastic units. The rhyolitic unit for most part occurs as a peripheral

rind around the roof pendent. A subcircular complex mixture of coarse fragmental agglomerate and poorly-banded tuff and tuffaceous agglomerate is centered in the pendent and forms the topographic crown of the mountain. Angular to subrounded fragments of dark to bright red jasper occasionally form inclusions in andesitic volcanoclastic unit and also occurs as fragments in breccia float.

The intrusive granodiorite is coarse-grained, blockily fractured and usually unaltered. Proximal and along the contact with volcanic rock, granodiorite is often highly shattered and partly altered by chlorite and kaolinite.

Numerous narrow one to ten meter wide rhyolite, dacite and andesite dykes intrude granodiorite. Late-stage vesicular and amygdaloidal basalt dykes have been observed near intrusive-volcanic rock contact. These soft, highly chloritized dykes are intruding granodiorite and also Gambier Group rocks.

7. GEOCHEMICAL SURVEY

Geochemical survey consisted of grid soil and stream sediment sampling program over approximately 75% of the mineral claim area. Field work for this phase of exploration program was conducted during period 4 August to 5 October, 1982.

7.1 SOIL GEOCHEMICAL SURVEY

Alpen Exploration Ltd.'s field results pointed to five separate geochemical and mineralized targets. The soil sampling for this program was designed to obtain more information for the section of the property on which more promising targets were located.

A detailed contour map of the property provided the control for locating and plotting the baseline and grid system. Soil samples were collected at 50 m intervals along north-south lines that were generally spaced at 200 m. Several more closely-spaced fill-in lines and extensions to lines were added to complement the regular grid pattern.

7.2 SOIL DEVELOPMENT AND GLACIATION

Glaciation mainly in the form of valley glaciers has had pronounced effect on terrain development and subsequent soil development. Ice movement from the crest of the mountain and down the respective valleys have left a train of lateral moraines, local terraces and kettle features in the valley floor. Several deep road cuts and creek banks provide excellent exposure of several types of glacial deposits varying from unsorted morainal till, boulder clay and gravel, and stratified glaciofluvial deposits.

Soil development on the property is variable depending on terrain and groundwater conditions, but in general the soil horizons are well-defined. The important B1 horizon is usually rusty red to bright orange red to brown. The depth and development of overlying A horizon are however variable. In particular, the leached A2 horizon is often 10 to 25 cm thick for certain areas whereas it is totally absent in other locations or even at the next sample site.

The deep overburden features are generally restricted to valley bottoms and their lower slopes. Soil is normally well-developed on the steep valley flanks which locally attain 40 degree slopes. Overburden is relatively shallow on these steep slopes. In many stream gullies that down-cut to bedrock, overburden is only one to three meters deep. Evidences of soil slumping or creep have been observed on steep slopes where duplicate soil profiles are developed. Overburden on the more gently sloped upland regions is also relatively thin. The leached A2 horizon is deeper than normal at these higher elevations where groundwater movement is locally more restricted.

7.3 VEGETATION

Valley bottoms and flanks are heavily-forested. Hemlock is dominant coniferous species; balsam and more locally in poorly-drained areas, cedar and spruce are intermixed with hemlock. A variety of underbrush including huckleberry, rosebush, ferns and locally Devil's Club and skunk cabbage cover the ground surface. On the upland regions, hemlock and lesser amounts of balsam still prevail as small stands and clusters. Stature and general growth of trees are stunted at these higher elevations. Alpine-type meadows are a common feature at this level, and these generally support huckleberry bushes, buckbrush, some grass

and two varieties of heather.

Much of the lower slopes have been logged in the past two to four years. This may affect geochemical interpretation of some samples, especially on the western slope of mountain where logging slash was burned. Fireweed prevails in logged-out areas.

7.4 SOIL SAMPLING

Soil samples were collected from small holes that were dug to depths varying from 10 to 40 cm. In most cases, samples averaging 150 gm were collected from B1 horizon and emplaced in a numbered kraft paper envelope. Sampling was frequently hampered when excessive depths of A1 and A2 horizons were encountered at the sample sites.

7.5 STREAM SEDIMENT SURVEY

A series of stream sediment samples was collected from main creeks and numerous small tributary streams and seepages that are draining area of interest. A number of small streams intersected the soil sample lines, and in these cases a sediment sample was normally collected from the stream. Fine silt and sandy material were abundant in the larger creeks; more gravelly sand and silt were available in the smaller streams where gradient is much steeper. Small seepages occur near the toe of talus and colluviated debris slopes. The sediment from these seepages was also sampled.

7.6 DRAINAGE CHARACTERISTICS

The property can be considered as being drained along two main westerly-flowing systems of which the one nearer the north end of property is referred to as A - Creek. Both of these creeks join the larger northerly-flowing Raffuse Creek (see appended map). Another large drainage system flows to the southeast. The two former drainage systems have a well-developed dendritic pattern of subsidiary streams that were available for sediment sampling. These tributaries flow along extremely steep gradients and parts of many are down-cut to bedrock. Flow in some streams are reduced to only a trickle or become dry during parts of the year. Other smaller streams often disappear into the ground

under talus and colluviated debris prior to emerging at the toe of the slope as seepage.

Sampling of subsidiary streams on A - Creek was moreorless restricted to the more geologically favourable southside. Accordingly, sampling of tributaries along the drainage system on south border of property was concentrated on the southwesterly-flowing tributaries.

7.7 ANALYTICAL PROCEDURE

All soil and stream sediment samples were assayed by Placer Development Limited Geochemical Laboratory at Vancouver, B.C.

7.7.1 ANALYSIS FOR Cu, Pb, Zn AND Ag

Samples are dried in a hot-air dryer, then sifted in -80 mesh nylon sieves. A 0.50 gm portion of -80 mesh fraction of soil or sediment is weighed with a precision torsion balance. Samples are digested in hot solution of HNO_3 and HClO_4 for three and a half hours, then cooled, diluted and prepared for analysis on Perkin-Elmer 603 Atomic Absorption Spectrophotometer for Cu, Pb, Zn and Ag.

Detection limits and ranges are listed below:

<u>METAL</u>	<u>DETECTION LIMIT & RANGE</u>
Copper	2 - 4,000 ppm
Lead	2 - 3,000 ppm
Zinc	2 - 3,000 ppm
Silver	0.20 - 20 ppm

7.7.2 ANALYSIS FOR Au

Following the drying and sieving process, a 3.0 gm portion of -80 mesh fraction is heated at 600 degrees Celsius for one and a half hours, then HBr solution is added and allowed to stand overnight. Water and MIBK solution are added, shaken, centrifuged and then 1% HBr in water is added the top organic layer

separate. Solution is shaken prior to analysis for Au by atomic absorption. Detection limit and range are 0.02 to 4.00 ppm.

7.8 RESULTS

Geochemical assays for Cu, Pb, Zn, Ag and Au are plotted on appended maps. With reference to the maps, soil sample sites are designated by a small circle symbol, and stream sediment samples by a small triangle. Sample numbers are not plotted on the maps as the samples were identified by their grid location in the field.

Soil sample results generally indicate the following geochemical features.

- i Several broad zinc anomalies are centered at fairly high topographic elevations on the north, south and southeast facing slopes of the main mountain. Another anomaly with a long downhill dispersion pattern is located on the west-facing slope. Two smaller anomalies are situated at lower elevations close to road-crossing of A - Creek.
- ii Trend of copper anomalies are more restricted than zinc but spatial location of anomalies closely mirrors the zinc positions. Copper is only signally higher near the A - Creek crossing.
- iii Lead anomaly pattern also follows zinc and copper. However the higher lead centers tend to be much tighter or restricted in size as well as being spatially upslope from copper centers.
- iv Silver and gold were largely undetectable in soil samples. A few slightly higher than normal silver values can be grouped as a subtle zone, and these zones tend to correspond closely to lead anomalies.

Stream sediment values are plotted on the same map as soil values. Within the respective soil anomaly zones, sediment values are accordingly anomalous. In most cases the sediment values are significantly higher than adjacent soil sample values, especially for those streams that are shedding through anomalous zones.

8. INTERPRETATION OF GEOCHEMICAL RESULTS

The main emphasis of this geochemical program was to delineate and evaluate the more promising targets that were discovered by Alpen Exploration Ltd. In particular, special attention was focused into determining the source of original geochemical anomalies and the possible effects of glaciation and steep topography on geochemical dispersion patterns.

The coincident or overlapping position of zinc, copper and lead anomalies is suggestive that metals are being shed from a common source. The large anomalies along south, west and north-facing slopes of the mountain closely approximate the silicified and locally pyritized periphery of the roof pendent. The broadly dispersed anomaly patterns especially for zinc, and to a lesser degree copper are indicative of downslope dispersion. Lead is comparatively immobile, and as a result, the restricted zones of higher lead are possibly proximal to a mineral source. The smaller anomaly that "hangs" on the steep north-facing slope of mountain shows a sharp coincident peak for all three elements. Minor pyrite, chalcopyrite and sphalerite have been identified in a creek exposure. It is noted that soil samples show only limited downslope dispersion for this anomaly, but stream sediments 500 m downhill and at the base of slope are anomalous.

The zinc anomaly at the A - Creek road crossing occurs in an area where an outlier of remnant volcanic rocks have been identified. Copper and lead in soil samples do not support the zinc anomaly. The significance of anomalous Cu and Pb in stream sediments can be attributed, in part, to a narrow mineralized shear zone occurrence.

A small Zn - Cu anomaly occurs approximately 0.5 km east of A - Creek road crossing. Samples at this location were collected from a mixture of morainal and glaciofluvial deposits that have been subsequently cut by small stream gullies and locally covered by colluvium. Source of this anomaly is unknown.

Two main lithologies are recognized on this property, volcanic rocks of the roof pendent and younger intrusive granodiorite. It is noted that general geochemical background for Cu, Pb and Zn is lower in granodiorite compared to volcanic rock. This is best illustrated by copper geochemistry.

9. GEOPHYSICS

Ground magnetometer and VLF - EM surveys were conducted along the soil geochemical grid. A total of approximately 25 line km was completed.

9.1 DATA COLLECTION

Ground magnetometer and VLF data were gathered on 14 lines at a sample interval of 12.5 m (nominal). A Scintrex MP-2 proton magnetometer and a Scintrex MBS-2 recording base station magnetometer were employed for gathering the magnetic data. Magnetometer data was normalized to +/- 5nT (gammas) by applying the diurnal corrections as recorded at the base station on the property.

A Geonics EM - 16, tuned to either Cutler, Maine or Annapolis, Maryland was used for the VLF data collection. These two stations are well suited to be used on the N - S lines; (direction to the stations being 070 degrees and 095 degrees respectively). Two stations were used because of the maintenance (shutdown) schedules followed by the U.S. Navy. Both In Phase (% tilt of the polarization ellipse) and Quadrature (minor axis of polarization ellipse in %) were recorded at each station. Frequently, the actual slope of the traversed line was recorded.

9.2 PRESENTATION OF RESULTS

Both magnetic and VLF data were plotted in profile form on 1:5000 scale base maps. Magnetic intensity was plotted at a scale of 1 cm = 200 nT. In addition, the data was filtered using a 7 point filter along the lines (weights 0.015, 0.080, 0.225, 0.35, 0.225, 0.08, 0.015) preparatory to contouring the data.

VLF data was subjected to the "Fraser" filter. This filter was employed for two reasons. First, it is designed to reduce (if not remove entirely) topographically induced anomalies, and second, the filter converts "crossover" to simple peaks which can be simply contoured; However, the filter does have minor drawbacks; some weak anomalies do not survive the filtering process. In addition, sharp topographic changes introduce weak EM "anomalies". Therefore, the raw In Phase data is always plotted along with

the filtered results. These were plotted in profile form at a scale of 1 cm = 20% IP and 1 cm = 10% for Fraser filtered results.

The standard In Phase / Quadrature profiles are also plotted on a similar base map.

10. INTERPRETATION OF RESULTS

Ground magnetometer data is remarkably uniform, due no doubt to the homogenous nature of the granodiorite making up the bulk of the country rock in the lower parts of the property. Surprisingly however, the volcanic units except in one location are also nonmagnetic. Many andesite dykes were encountered with next to no magnetic response. The basalt between lines 22E and 24E gave very strong (up to 4000 nT) responses on those lines. It is possible that this magnetic feature forms part of the contact between the intrusive in the valley bottom and the roof pendant volcanics on the ridge tops. There is some weak evidence of a series of magnetic events including the above mentioned, near or on the proposed geologic contact. Since the trenched area is very close to the basalt, the two are most probably related.

In general however, detailed magnetic interpretation is nearly impossible as exposures in many of the creeks indicated that many of the andesite dykes were striking sub-parallel to the lines.

VLF data is also not very conclusive. A noise level of +/- 3% exists in the data which degrades the interpretation of the weak anomalies expected from 5 - 10% sulfide stringers as seen in a few of the exposures. This noise level is a direct result of the proximity of the VLF station outside Seattle, Washington, which is so powerful as to partially swamp the ability to get the null response of the other stations. Seattle itself could not be used as it is almost due South, rather than East or West as dictated by the line orientation. The station in Honolulu, Hawaii was also tested in an attempt to get better data but was also swamped by Seattle in addition to being poorly located. Nevertheless, one strong semicontinuous trend is visible over lines 8E 14E. A second weaker series of anomalies is interpreted parallel to the creek between lines 10E and 14E. A single strong anomaly marks the location of a N 20 degrees West striking mineralized shear zone on line 32E at 2 +50S. Other moderate strength anomalies exist; some are due in part to sharp topographic changes but line to line continuity is not evident, possible because of the wide (200 meter) line spacing.

11. STATEMENT OF EXPENSES

The following expenses were incurred by Placer Development Limited for conducting the geochemical and geophysical surveys on Alpen Exploration Ltd.'s Squamish, B.C. property. Field work was undertaken during the period of 4 August to 5 October, 1982. Compilation and evaluation of results and assessment report preparation were on-going during above period and completed on 15 October, 1982.

Personnel Costs

<u>Personnel</u>	<u>Period Employed</u>	<u>Man-days & Rate</u>	<u>Cost</u>
T.M. Allen	4 Aug - 23 Sept	5 1/2 @ \$220	\$1210
B. Barde	23 Aug - 9 Sept	5 @ \$200	1000
R.A. Boyce	23 - 30 Aug	3 1/2 @ \$200	700
M.B. Gareau	23 - 30 Aug	3 1/2 @ \$220	770
H.R. Goddard	10 Aug - 1 Oct	10 1/2 @ \$190	1995
P.R. Hodgson	5 Aug - 15 Sept	13 @ \$190	2470
E.T. Kimura	4 Aug - 7 Oct	22 @ \$300	6600
B.S. Ott	23 - 30 Aug	5 @ \$190	950
W.S. Pentland	5 Aug - 7 Oct	13 @ \$250	3250
C.C. Rennie	13 - 16 Sept	2 1/2 @ \$250	625
I. Thomson	13 - 16 Sept	3 @ \$250	750
J.M. Thornton	23 Aug - 23 Sept	15 @ \$220	<u>3300</u>
			\$23,620

Assaying Costs

755 soil and sediment samples for
Cu Pb Zn Ag and Au analyses @ \$9.30/sample \$ 7,021.50

Helicopter Costs

Placer Development Ltd. helicopter (G-VMS)
9 hrs @ \$500./hr during period
23 Aug - 1 Oct \$4500.00
Okanagan Helicopters (F - HTX)
5.2 hrs @ \$512./hr during 24-26 Aug 2560.00 7,060.00

Accommodation and Meal Costs

Motel rooms		
39 crew days @ \$31.00/day	1209.00	
Meals		
44 crew days	<u>1502.18</u>	2,711.18

Vehicle Expense

One 4x4 Suburban 32 days @ \$60.00	1920.00	
One 4x4 Pick-up 4 days @ \$60.00	<u>240.00</u>	2,160.00

Miscellaneous Costs

Map purchase from Weldwood	50.00	
Air photos 19 @ \$2.00	38.00	
Sampling supplies flagging, equip., etc.	<u>250.00</u>	338.00

Report and Map Preparation Costs

<u>Personnel</u>	<u>Man-days and Rate</u>		
D.E. Dussault (typist)	1 day @ \$ 95.00	95.00	
A.W. Kemp (draftsman)	2 days @ 150.00	300.00	
E.T. Kimura (geologist)	5 days @ 300.00	1500.00	
J.M. Thornton (Geophysicist)	4 days @ 220.00	<u>880.00</u>	<u>2,775.00</u>

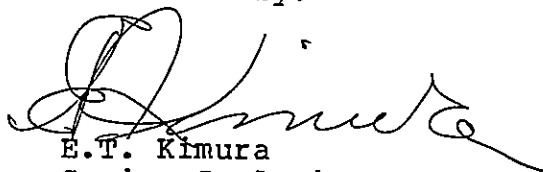
Total Expenditures \$45,685.68

12. CONCLUSION

Soil geochemical survey indicates that a peripheral silicified and locally pyritized volcanoclastic unit of the roof pendent is a possible favourable lithologic horizon.

Ground magnetometer and VLF surveys did not identify any new targets. The geologic contact of the roof pendent with the underlying granodiorite is not evident in the VLF data.

Submitted by:



E.T. Kimura
Senior Geologist
Placer Development Limited

*f by Thornton
Oct 28/82*

J.M. Thornton
Geophysicist
Placer Development Limited

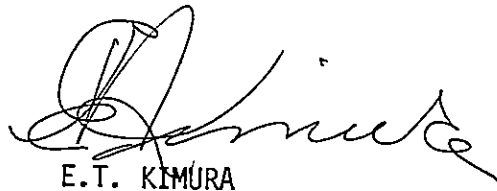
ETK/dd

Appendix I

Statement of Qualifications

I, E.T. Kimura, of Placer Development Limited do hereby certify that:

1. I am a geologist.
2. I am a graduate of University of British Columbia with a BA degree in Geology and Physics in 1955.
3. From 1954 until the present, I have been engaged in mining geology, both in underground and open pit operations, and in exploration geology in British Columbia, Saskatchewan and Yukon Territory.
4. I personally supervised and participated in the field work, and have compiled, reviewed and assessed the data resulting from this work.



E.T. KIMURA

ETK/dd

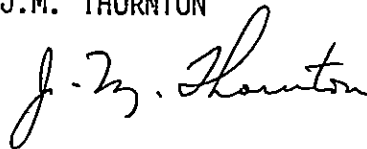
Appendix II

Statement of Qualifications

I, J.M. Thornton, reside at 3393 Fairmont Road, North Vancouver state that:

1. I have gathered, prepared and interpreted the geophysical data presented in this report.
2. I have been practicing as a Geophysical Technician for 15 years.
3. I am employed in the above category by Placer Development Limited, 1055 Dunsmuir, Vancouver, B.C.
4. I am a graduate of B.C.I.T. in the field of Electronics (1967).
5. I have no direct or indirect personal interest in this property.

J.M. THORNTON



JMT/dd

APPENDIX IX

GEOPHYSICAL DATA

ALPEN GROUND MAGNETOMETER SURVEY AUGUST/SEPTEMBER 1982

41	770.	-10.	715.	580.	LINE	8+00E									
6409	6411	6409	6414	6434	6449	6426	6431	6451	6462	6434	6485	6489	6505	6490	
6542	6488	6500	6492	6451	6365	6406	6436	6398	6423	6448	6442	6471	6483	6463	
6464	6494	6472	6455	6477	6438	6457	6478	6451	6442	6459					
105	715.	580.	715.	1830.	LINE	8+00E									
6459	6453	6501	6466	6489	6477	6489	6489	6543	6523	6530	6547	6533	6577	6571	
6586	6603	6588	6493	6424	6397	6461	6401	6447	6441	6495	6542	6516	6509	6517	
6513	6536	6564	6531	6537	6522	6528	6515	6522	6528	6531	6539	6563	6493	6528	
6523	6534	6549	6549	6629	6652	6651	6716	6687	6608	6408	6414	6424	6459	6515	
6553	6588	6526	6583	6603	6635	6566	6528	6522	6519	6557	6586	6550	6608	6515	
6528	6531	6543	6686	6555	6515	6524	6474	6467	6611	6598	6614	6590	6569	6496	
6650	6640	6691	6688	6683	6698	6720	6755	6802	6730	6790	6760	6709	6652	6646	
29	925.	1255.	940.	918.	LINE	9+00E									
6484	6539	6542	6541	6538	6540	6540	6471	6539	6518	6387	6387	6465	6522	6523	
6581	6562	6555	6526	6522	6528	6515	6512	6511	6476	6348	6228	6621	6564		
70	1028.	935.	1010.	1780.	LINE	10+00E									
6594	6574	6555	6565	6568	99999	6565	6593	6605	6620	6597	6569	6565	6374	6440	
6414	6549	6565	6688	6691	6695	6698	6692	6683	6665	6652	6673	6705	6701	6745	
6697	6677	6647	6656	6648	6658	6617	6601	6651	6711	99999	6746	6729	6520	6555	
6791	6624	6770	6697	6721	6728	6695	6759	6741	6669	6704	6648	6701	6689	6607	
6718	6765	6690	6752	6777	6807	6754	6756	6735	6733						
88	1028.	935.	980.	-120.	LINE	10+00E									
6594	6548	99999	6523	6516	6562	6496	6461	6721	6660	6645	6590	6562	6534	6561	
6553	6566	6582	6532	6504	6510	6608	6683	6584	6655	6682	7072	7077	7030	7067	
6869	6760	6652	6745	6869	6710	6603	6550	6536	6517	6509	6502	6492	6539	6515	
6515	6532	6522	6504	6514	6497	6496	6464	6404	6498	6459	6442	6721	6550	6495	
6506	6518	6492	6514	6489	6491	6482	6500	6480	6478	6473	6471	6474	6466	6458	
6453	6435	6441	6452	6486	6470	6465	6467	6446	6466	6439	6454	6442			
145	1190.	-222.	1220.	1605.	LINE	12+00E									
6480	6478	6482	6495	6488	6494	6476	6487	6490	6483	6483	6488	6495	6508	6495	
6494	6480	6500	6495	6519	6495	6507	6525	6474	6472	6492	6510	6483	6490	6492	
6499	6513	6509	6502	6513	6515	6516	6516	6536	6521	6530	6521	6506	6524	6524	
6529	6528	6524	6577	6557	6527	6527	6528	6529	6535	6540	6551	6573	6607	6588	
6592	6588	6608	6607	6622	6665	6602	6622	6611	6610	6625	6624	6633	6660	6685	
6958	6698	6549	6625	6450	6503	6532	6585	6616	6651	6668	6637	6608	6518	6593	
6636	6519	6551	6610	6618	6620	6587	6603	6574	6618	6594	6638	6555	6470	6500	
6523	6606	6627	6653	6650	6685	6644	6628	6666	6706	6691	6691	6672	6733	6671	
6710	6702	6704	6690	6703	6673	6700	6646	6588	6630	6635	6676	6718	6754	6752	
6709	6755	6712	6670	6662	6719	6705	6664	6663	6686						
73	1410.	-20.	1400.	1005.	LINE	14+00E									
6608	6553	6572	6566	6558	6578	6583	6591	6633	6623	6646	6637	6641	6616	6604	
6666	6637	6632	6613	6621	6667	6678	6643	6698	6597	6650	6622	6524	6588	6599	
6585	6564	6578	6569	6578	6591	6585	6581	6590	6592	6601	6599	6626	6619	6626	
6649	6634	6670	6688	6642	6637	6665	6601	6649	6642	6584	6593	6605	6606	6651	
6608	6662	6721	6595	6598	6593	6564	6605	6590	6540	6552	6547	6453			
56	1400.	1005.	1435.	1670.	LINE	14+00E									
6453	6501	6609	6598	6637	6678	6654	6658	6604	6720	6685	6692	6698	6714	6705	
6700	6696	6683	6733	6714	6720	6732	6687	6705	6810	6762	6790	6757	6763	6788	
6753	6677	6672	6618	6624	6551	6679	6605	6622	6550	6597	6896	6718	6770	6708	
6729	6704	6761	6821	6791	6748	6752	6750	6831	6832	6873					
39	1640.	1160.	1675.	695.	LINE	16+00E									
6676	6669	6681	6663	6659	6657	6681	6646	6684	6614	6743	6782	6720	6618	6629	
6655	6673	6645	6640	6661	6747	6662	6615	6635	6526	6561	6551	6508	6583	6576	
6573	6572	6544	6529	6521	6570	6573	6552	6346							

47 1610. -30. 1610. 540. LINE 16+00E
 6477 6465 6477 6525 6613 6641 6513 6541 6574 6536 6574 6563 6548 6567 6576
 6565 6591 6602 6614 6614 6560 6596 6601 6604 6637 6645 6601 6625 6627 6602
 6612 6589 6607 6625 6618 6623 6650 6580 6629 6617 6674 6611 6581 6600 6614
 6615 6619

41 1790. 545. 1805. 30. LINE 18+00E
 6508 6610 6547 6565 6573 6584 6626 6697 6675 6716 6737 6789 6813 6807 6807
 6827 6838 6850 6848 6996 6825 6972 6937 6936 6762 6907 6884 6830 6827 6842
 6825 6821 6796 6815 6748 6714 6681 6653 6651 6616 6609

46 1870. 470. 1875. 1055. LINE 18+00E
 6463 6489 6467 6405 6418 6438 6445 6464 6394 6406 6536 6432 6371 6561 6676
 6988 6702 6655 6697 6709 6737 6669 6770 6753 6756 6679 6772 6727 6696 6686
 6683 6696 6661 6700 6748 6781 6788 6776 6755 6756 6783 6753 6744 6814 6735
 6697

61 1787. -1185. 1850. -385. LINE 18+00E
 6487 6542 6457 6465 6461 6464 6498 6505 6542 6460 6513 6467 6499 6493 6500
 6561 6459 6456 6493 6450 6479 6497 6446 6474 6510 6395 6481 6464 6459 6450
 6467 6480 6489 6459 6473 6474 6479 6476 6526 6537 6539 6899 6665 6170 6540
 6740 6666 6410 6971 7097 6674 6502 6484 6495 6505 6535 6480 6572 6515 6478
 6503

29 1850. -385. 1815. -38. LINE 18+00E
 6503 6577 6569 6576 6510 6514 6536 6560 6534 6519 6478 6215 6594 6581 6569
 6579 6525 6599 6538 6554 6540 6581 6580 6613 6894 6535 6576 6599 6604

37 1995. -1215. 2000. -725. LINE 20+00E
 6612 6424 6537 6527 6484 6513 6561 6468 6393 6535 6461 6450 6424 6405 6422
 6425 6402 6348 6407 6428 6433 6440 6434 6427 6429 6432 6435 6433 6444 6439
 6446 6442 6461 6432 6458 6392 6427

31 2000. -725. 1960. -355. LINE 20+00E
 6427 6413 6424 6380 6400 6396 6400 6403 6411 6426 6422 6445 6456 6436 6445
 6469 6437 6470 6465 6478 6453 6460 6460 6481 6492 6478 6481 6491 6444 6149
 6243

43 2070. 990. 2045. 465. LINE 20+00E
 6618 6639 6642 6653 6662 6669 6660 6680 6676 6664 6649 6654 6658 6621 6653
 6656 6560 6654 6647 6608 6542 6537 6482 6551 6444 6501 6557 6601 6574 6456
 6445 6355 6248 6360 6244 6224 6155 6090 6041 6018 5990 5854 5982

57 2045. 465. 2050. -320. LINE 20+00E
 5982 5819 5598 6201 6522 6976 7211 7274 7571 7110 6933 6861 6721 6947 6909
 6860 6875 6830 6817 6779 6765 6744 6703 6681 6666 6636 6605 6616 6621 6591
 6577 6564 6570 6615 6569 6605 6625 6598 6586 6556 6564 6584 6644 6630 6621
 6576 6569 6539 6592 6598 6590 6574 6570 6563 6657 6581 6590

66 2427. -1190. 2375. -300. LINE 22+00E
 6517 6526 6489 6500 6505 6493 6484 6487 6505 6534 6520 6563 6598 6627 6713
 6873 7046 7152 6808 6207 6006 6136 6241 6284 6303 6319 6246 6133 6244 6345
 6405 6402 6407 6428 6422 6433 6408 6437 6442 6443 6488 6480 6500 6458 6502
 6506 6519 6530 6572 6615 6685 6772 6520 6524 6609 6874 6733 6655 6628 6618
 6620 6632 6609 6603 6625 6647

27 2315. -300. 2282. 33. LINE 22+00E
 6854 6780 6797 6656 6945 7138 7107 7112 7593 7210 6578 6791 7046 7231 6751
 6129 6153 6281 6369 6418 6500 6549 6576 6604 6650 6666 6663

67 2300. 020. 2310. 980. LINE 22+00E
 6663 6680 6671 6662 6695 6744 6680 6696 6674 6693 6665 6671 6593 6590 6539
 6507 6511 6475 6483 6459 6465 6472 6455 6196 6421 6467 6435 6419 6417 6401
 6387 6405 6406 6434 6415 6467 6480 6460 6465 6482 6542 6596 6575 6570 6549
 6528 6831 6592 6583 6561 6600 6565 6575 6573 6541 6545 6552 6481 6443 6416
 6369 6342 6306 6275 6257 6306 6289

65 2620. -1165. 2475. -290. LINE 24+00E
 6595 6560 6511 6467 6435 6415 6407 6416 6435 6419 6415 6419 6435 6427 6415
 6198 6490 6465 6314 7715 7220 6830 6724 6632 6614 6720 7045 7162 6839 6572
 6659 6580 6590 7447 7271 6872 6690 6610 6406 6446 6489 6518 6514 6559 6583
 6578 6560 6584 6573 6576 6579 6567 6550 6561 6546 6536 6536 6542 6560 6563
 6558 6580 6571 6572 6584

21 2475. -290. 2400. 15. LINE 24+00E
 6624 6535 6548 6596 6554 6550 6584 6570 6561 6518 6512 6421 6653 6636 6606
 6553 6539 6543 6554 6557 6588

9 2510. 20. 2495. 115. LINE 24+00E
 6543 6551 6533 6539 6534 6540 6527 6522 6488

23 2495. 895. 2390. 621. LINE 24+00E
 6711 6667 6671 6032 6569 6534 6494 6464 6411 6341 6348 6315 6188 6101 6005
 6043 6099 6224 6401 6387 6427 6437 6469

34 2390. 621. 2445. 240. LINE 24+00E
 6469 6409 6449 6463 6465 6426 6396 6387 6406 6487 6521 6481 6514 6537 6535
 6524 6357 6514 6475 6557 6494 6440 6382 6362 6294 6248 6121 5974 5807 5872
 734210317 9043 7295

57 2748. -1160. 2690. -455. LINE 26+00E
 7142 7048 6717 6873 7088 6663 6599 6503 6416 6391 6305 6259 6517 6473 6490
 6489 6497 6498 6512 6502 6516 6528 6562 6570 6817 6855 6606 6575 6578 6586
 6579 6585 6599 6573 6574 6579 6674 6608 6782 6566 6583 6600 6635 6954 6604
 6525 6524 6550 6563 6571 6698 6634 6633 6611 6601 6618 6594

69 2690. -455. 2715. 480. LINE 26+00E
 6594 6663 6631 6600 6616 6493 6527 6507 6485 6449 6529 6547 6564 6428 6515
 6570 6541 6506 6510 6535 6565 6537 6586 6607 6544 6576 6527 6536 6537 6543
 6539 6554 6500 6636 6589 6597 6595 6573 6522 6602 6585 6614 6566 6549 6531
 6579 6621 6596 6602 6575 6562 6594 6591 6604 6635 6775 6415 6526 6549 6460
 6512 6525 6526 6547 6557 6557 6586 6581 6538

27 2715. 480. 2710. 835. LINE 26+00E
 6538 6472 6522 6516 6531 6558 6547 6626 6483 6579 6554 6539 6607 6633 6585
 6586 6616 6606 6589 6596 6589 6574 6575 6585 6567 6583 6656

88 2866. -22. 2945. -1170. LINE 28+00E
 6684 6801 6713 6022 6600 6580 6555 6571 6577 6574 6584 6580 6584 6478 6822
 6709 6801 6665 6549 6556 6545 6597 6593 6601 6626 6803 6876 6630 6597 6595
 6608 6610 6810 6601 6552 6562 6574 6585 6577 6591 6561 6566 6537 6519 6500
 6470 6389 6383 6501 6512 6532 6681 6575 6518 6525 6514 6515 6508 6535 6530
 6533 6523 6546 6533 6502 6513 6526 6526 6533 6494 6489 6489 6486 6494 6478
 6479 6493 6479 6469 6458 6478 6485 6460 6424 6387 6351 6322 6374

15 2855. 780. 2350. 560. LINE 28+00E
 6542 6614 6602 6583 6573 6615 6577 6626 6480 6490 6539 6498 6534 6561 6489

45 2850. 560. 2920. -20. LINE 28+00E
 6489 6360 6111 6789 6673 6618 6590 6584 6595 6575 6555 6544 6525 6536 6502
 6507 6614 6560 6649 6609 6608 6674 6700 6628 6663 6588 6542 6695 6450 6565
 6550 6027 6591 6579 6560 6545 6506 6501 6585 6599 6685 6759 6799 6809 6692

64 3120. -1032. 3090. -240. LINE 30+00E
 6557 6505 6536 6483 6489 6495 6522 6522 6499 6484 6492 6512 6639 6531 6517
 6509 6510 6516 6524 6538 6528 6513 6455 6336 6535 6573 6551 6575 6573 6537
 6585 6532 6511 6525 6510 6496 6501 6494 6459 6714 685799999 6731 6714 6684
 6694 6633 6631 6629 6636 6673 6636 6640 6685 6658 6624 6680 6678 6637 6564
 6568 6562 6504 6606

21 3090. -240. 3090. 5. LINE 30+00E
 6606 6020 6658 6656 6589 6567 6567 6546 6547 6534 6539 6537 6514 6518 6500
 6517 6507 6501 6474 6468 6480

46 3090. -35. 3112. 555. LINE 30+00E
 6480 6460 6459 6457 6472 6489 6472 6502 6484 6520 6526 6517 6479 6450 6463
 6515 6057 6741 6700 6663 6593 6646 6605 6616 6608 6613 6640 6670 6521 6570
 6573 6592 6608 6580 6576 6567 6559 6567 6573 6570 6509 6632 6428 6505 6565
 6531

21 3112. 555. 3130. 815. LINE 30+00E
 6531 6542 6559 6626 6528 6577 6591 6589 6595 6603 6589 6587 6615 6653 6678
 6681 6678 6663 6697 6682 6653

21 3340. -135. 3315. -395. LINE 32+00E
 6635 6633 6693 6642 6407 6500 6511 6519 6544 6534 6618 6586 6575 6594 6590
 6588 6583 6590 6596 6590 6581

53 3315. -395. 3320. -1118. LINE 32+00E
 6581 6569 6588 6563 6573 6560 6561 6549 6556 6553 6569 6548 6515 6530 6531
 6541 6585 6539 6512 6523 6523 6531 6530 6525 6528 6524 6527 6526 6527 6520
 6553 6525 6526 6519 6532 6535 6535 6531 6534 6536 6539 6547 6529 6519 6547
 6522 6535 6562 6614 6725 6802 6614 6518

69 3328. 810. 3365. -70. LINE 32+00E
 6654 6638 6628 6627 6594 6589 6569 6695 6570 6639 6621 6625 6643 6650 6640
 6623 6586 6613 6596 6613 6591 6618 6610 6635 6622 6608 6640 6634 6629 6609
 6632 6580 6689 6651 6632 6599 6583 6547 6559 6567 6538 6481 6596 6582 6550
 6518 6545 6542 6554 6558 6639 6889 7509 7567 7391 7013 6923 6916 6801 6770
 6706 6646 6537 6253 6476 6565 6569 6569 6562

53	5315.	-395.	3320.	-1118.	LINE 32+00E									
16	19	20	27	30	28	28	28	29	31	31	32	28	31	35
31	45	33	32	31	32	28	31	37	37	28	25	26	22	23
21	21	20	28	28	26	23	23	23	24	24	22	23	20	22
20	19	20	20	19	21	27	23							
69	3328.	810.	3365.	-70.	LINE 32+00E									
33	36	31	28	26	25	29	28	30	26	26	24	26	26	24
22	19	18	16	14	6	5	3	5	2	-2	-3	-8	-12	-15
-14	-14	-17	-22	-19	-22	-23	-19	-20	-22	-24	-25	-20	-27	-32
-33	-37	-35	-30	-27	-28	-27	-30	-26	-26	-23	-26	-25	-21	-21
-22	-26	-29	-27	-24	-23	-21	-25	-29						

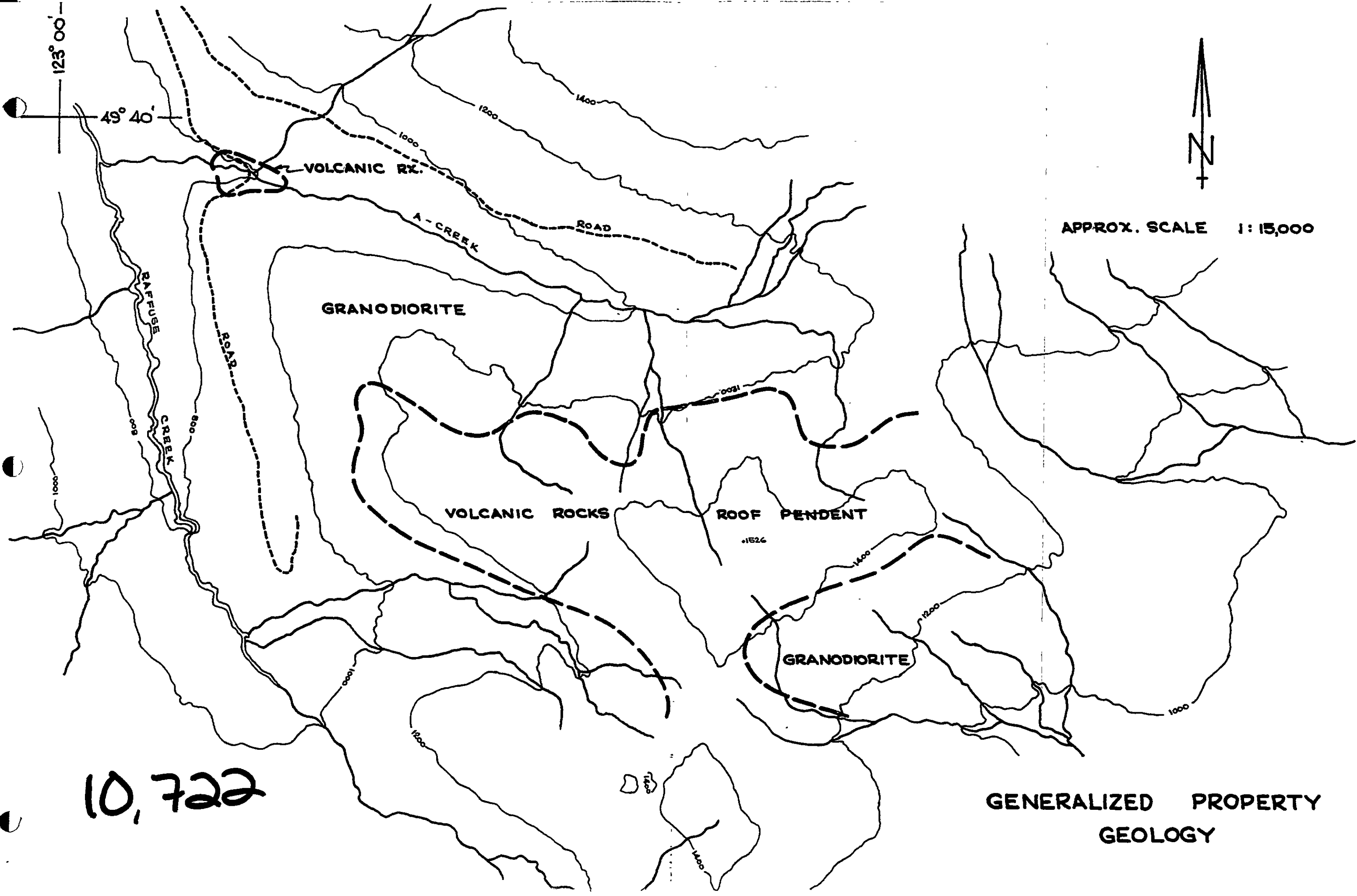
ALPEN	GROUND VLF			EM-16	- QUADRATURE												
41	770.	-10.	715.	580.	LINE	8+00E											
6	6	4	7	3	3	6	8	7	7	8	6	10	10	11			
10	12	14	13	13	11	14	10	8	6	10	11	11	9	12			
10	12	8	6	10	13	12	13	12	12	8							
105	715.	580.	715.	1830.	LINE	8+00E											
8	5	14	12	11	11	10	10	8	7	12	8	8	7	6			
4	8	9	9	8	8	6	7	4	5	4	4	3	2	4			
-4	-2	-1	-4	-3	-2	-4	-7	-14	-7	-7	-11	-13	-17	-10			
-10	-10	-7	-4	-11	-9	-8	-8	-4	-1	-4	0	5	4	7			
6	2	3	4	6	2	-3	-2	0	5	7	0	12	4	2			
10	6	6	6	1	2	7	8	7	6	9	4	7	1	1			
12	4	8	6	4	3	1	2	2	1	-1	0	-1	2	-2			
29	925.	1255.	940.	918.	LINE	9+00E											
4	4	2	2	2	3	2	3	3	4	0	-1	-4	-6	-4			
-7	-10	-8	-11	-13	-11	-14	-12	-12	-13	-14	-15	-14	-12				
70	1010.	1780.	1028.	935.	LINE	10+00E											
6	6	6	6	5	5	10	10	4	6	6	2	4	2	-8			
-3	-6	2	2	-4	0	-4	-1	4	-1	1	-1	-1	-6	-9			
0	-4	-2	0	-2	2	2	-1	1	0	1	2	4	1	2			
1	3	-1	1	-1	0	1	-2	-5	-3	-9	-10	-8	-12	-14			
-11	-16	-28	9	-9	-16	-15	-20	-16	-16								
88	1028.	935.	980.	-120.	LINE	10+00E											
-16	-15	-9	-13	-11	-10	-13	-8	-2	0	4	3	1	3	3			
6	7	4	4	8	5	5	6	1	6	9	5	8	8	5			
7	10	10	11	10	13	10	14	8	11	10	16	16	16	16			
18	18	13	14	13	17	12	11	15	8	7	6	7	11	8			
6	8	9	8	11	13	6	7	3	6	7	6	8	6	8			
6	5	4	10	9	12	11	10	4	5	10	10	10					
145	1190.	-222.	1220.	1605.	LINE	12+00E											
0	2	4	6	2	3	5	3	5	5	6	8	4	2	5			
1	0	2	0	2	0	0	0	2	-2	-1	-2	-1	0	-1			
-2	-2	0	1	-2	-2	-3	-2	-3	0	0	-3	0	-1	-1			
-3	-3	2	0	0	4	4	5	6	7	6	4	2	3	0			
-2	1	1	1	2	0	0	-2	-1	0	-5	-7	-6	-5	-8			
-6	-8	-12	-6	-8	-9	-7	-7	-8	-12	-13	-14	-12	-16	-9			
-9	-5	-11	-6	-6	-11	-6	-8	-4	-3	-3	-2	-5	0	6			
8	6	1	2	0	1	2	4	4	4	-4	3	-2	-1	2			
6	-1	0	4	1	2	-1	4	3	-1	3	2	1	4	4			
0	2	2	4	4	4	3	4	0	-2								
73	1410.	-20.	1400.	1005.	LINE	14+00E											
1	0	1	-1	0	0	0	-2	-4	-4	-2	-4	-3	-2	-1			
1	2	2	4	3	4	4	2	4	3	6	5	5	6	5			
6	6	4	4	2	1	2	-2	1	-1	-4	-5	-5	-10	-8			
-9	-6	-5	-6	-5	-4	-5	-4	-9	-6	-7	-6	-5	-3	-7			
-5	-4	-5	-8	-6	-4	-3	-2	-3	-2	-3	-4	-5					
56	1400.	1005.	1435.	1670.	LINE	14+00E											
-5	-7	-8	-4	-4	2	2	2	3	4	4	6	4	6	5			
8	7	6	3	3	4	7	4	3	1	-1	-2	-2	-4	-2			
-3	-4	-3	-2	0	3	7	4	2	4	4	0	3	3	-2			
2	2	2	2	1	3	-1	3	0	-3	-4							
39	1640.	1160.	1675.	695.	LINE	16+00E											
8	10	10	12	10	9	11	9	6	6	5	6	5	6	5			
6	5	3	0	2	2	2	1	4	3	5	3	2	0	2			
0	0	-2	-1	-3	-3	-4	-4	-8									
47	1610.	-30.	1610.	540.	LINE	16+00E											
0	-3	-3	-1	-2	0	1	2	1	-2	0	2	2	4	3			
1	1	0	1	0	2	2	2	2	7	4	2	2	4	1			
0	0	2	3	5	2	2	1	2	1	-1	-4	-3	-4	-7			

53	3315.	-305.	3320.	-1118.	LINE 32+00E									
7	10	9	11	15	16	15	14	14	12	16	15	15	13	9
9	8	12	8	7	6	4	1	6	8	5	2	-2	1	-1
0	0	-1	1	6	8	5	2	1	2	4	5	7	6	6
4	0	1	2	2	0	3	-3							
69	3328.	610.	3365.	-70.	LINE 32+00E									
12	13	10	9	7	5	5	2	3	5	5	3	2	2	2
-5	-6	-4	-5	-4	-11	-10	-10	-10	-10	-8	-11	-10	-8	-11
-10	-7	-6	-10	-9	-7	-4	-2	-1	-2	-2	-2	-2	-1	0
-2	-2	1	4	4	7	6	6	6	0	4	4	4	3	3
5	2	-2	-2	-1	-4	-5	-8	-10						

123° 00'
49° 40'

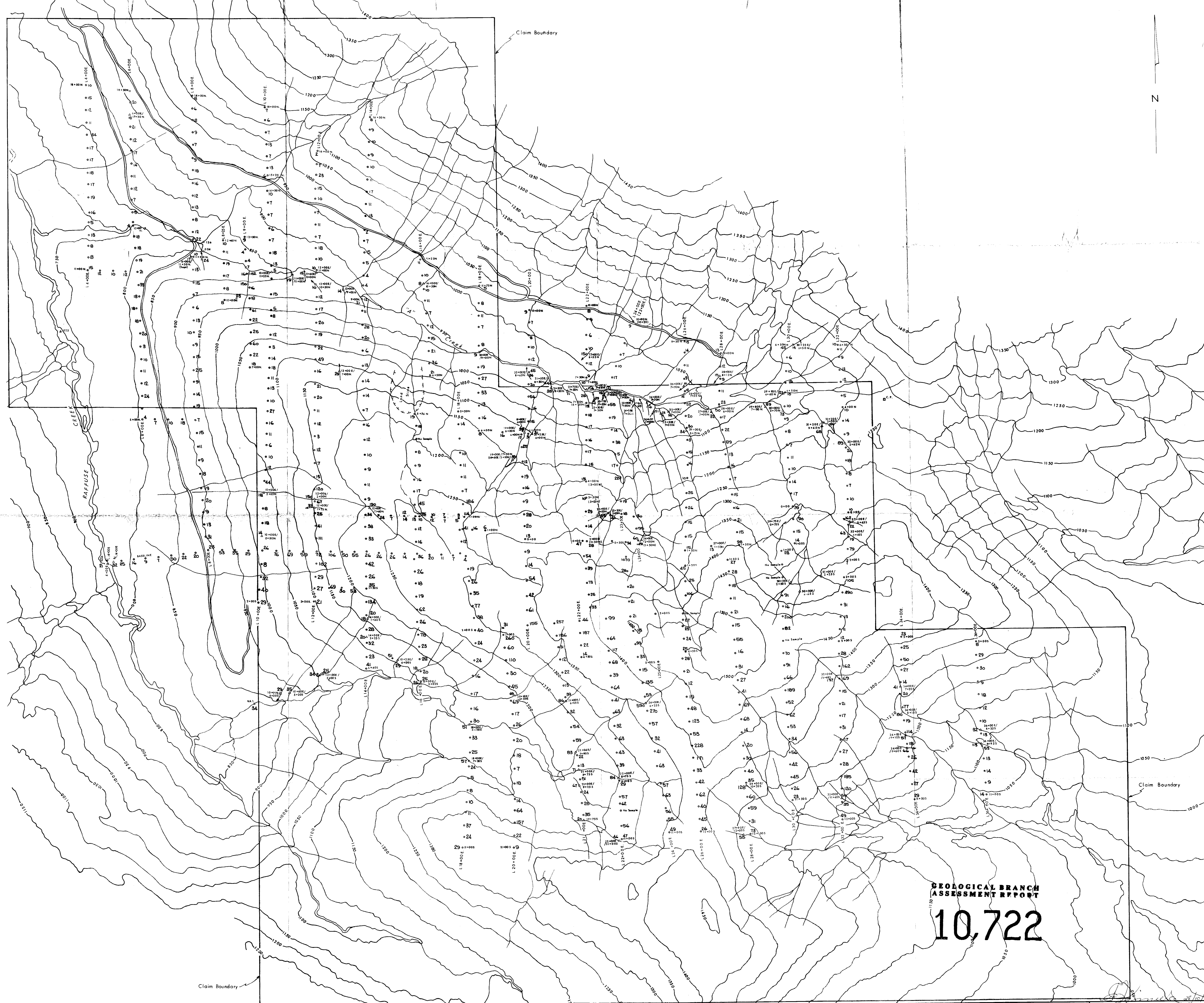


APPROX. SCALE 1:15,000



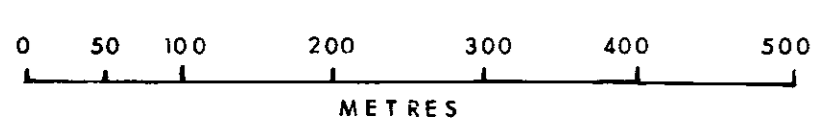
10,722

GENERALIZED PROPERTY
GEOLOGY

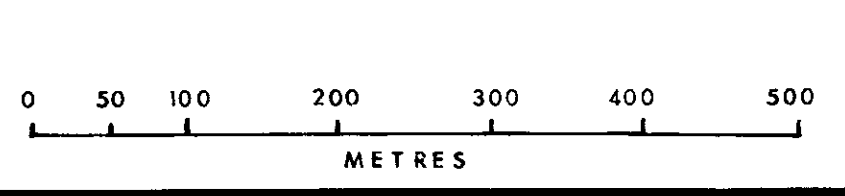
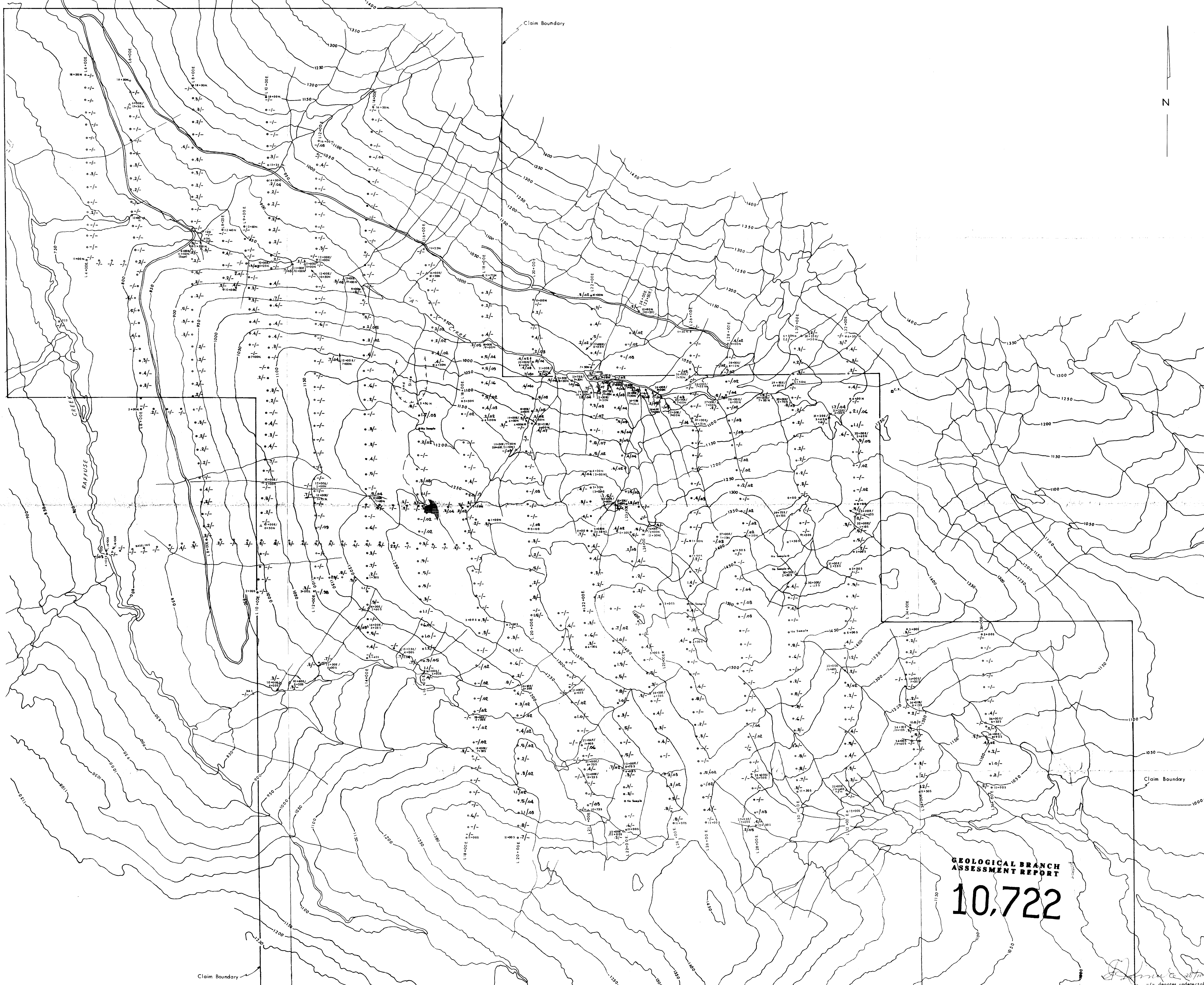


GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,722



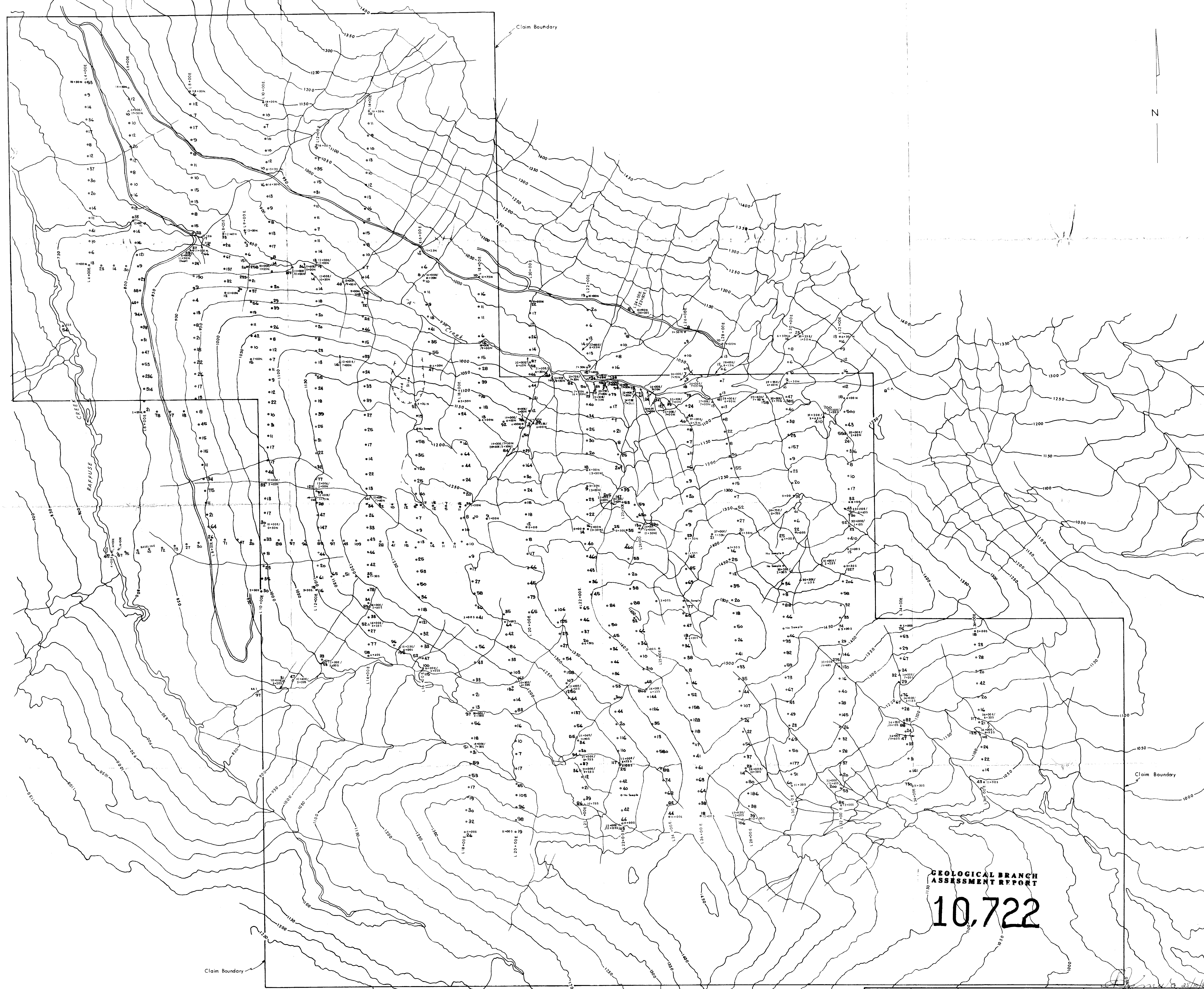
DRAWN: E.T.K	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	SOIL AND STREAM SEDIMENT GEOCHEMICAL SURVEY
DRAFTING: A.K	DATE: 15Oct, 1982	ALPEN PROPERTY	Pb, Cd, Mn
APPROVED:	REVISED:	SQUAMISH, B.C. NTS 92 G / 10 W	FILE REF. No.: Appendix IV



**GEOLOGICAL BRANCH
ASSESSMENT REPORT**
10,722

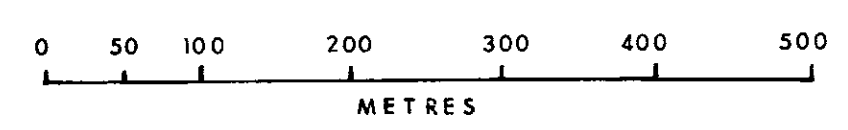
[Signature]
-/- denotes undetectable analysis

DRAWN: E.T.K.	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	SOIL AND STREAM SEDIMENT GEOCHEMICAL SURVEY
DRAFTING: A.K.	DATE: 15 Oct, 1982	ALPEN PROPERTY	Ag ppm / Au ppm
APPROVED:	REVISED:	SQUAMISH, B.C. N.T.S. 92 G / 10 W	FILE REF. No.: Appendix VI

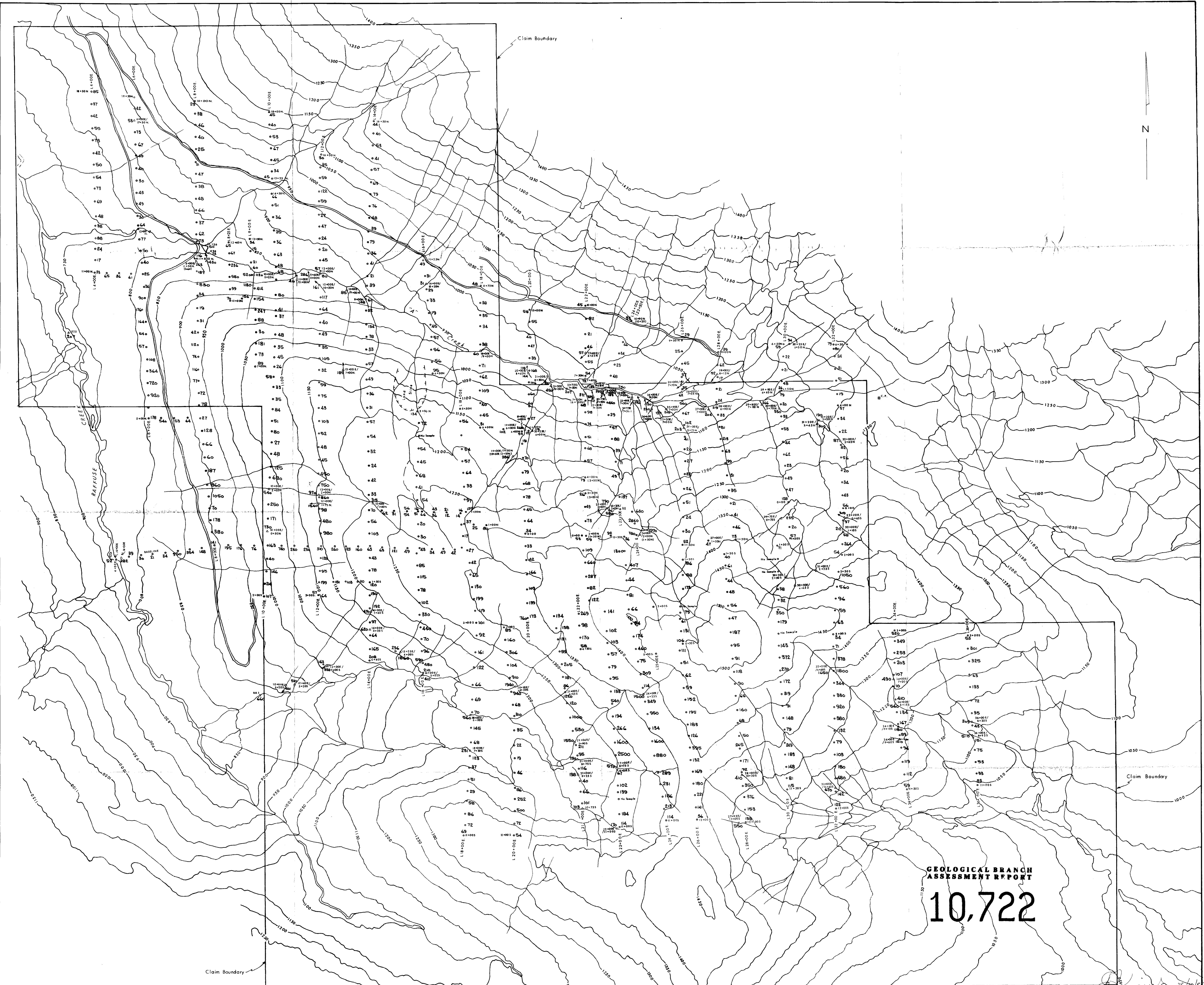


GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,722

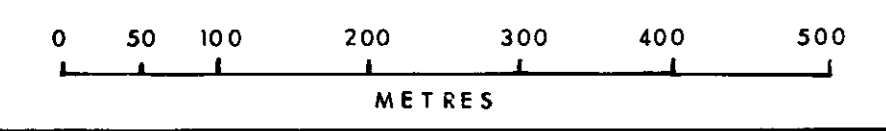


DRAWN: E.T.K.	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	SOIL AND STREAM SEDIMENT
DRAFTING: A.K.	DATE: 15 Oct. 1982	ALPEN PROPERTY	GEOCHEMICAL SURVEY
APPROVED:	REVISED:	SQUAMISH, B.C.	Cu, Pb, Mn
		NTS 92 G / 10 W	FILE REF No.: Appendix III



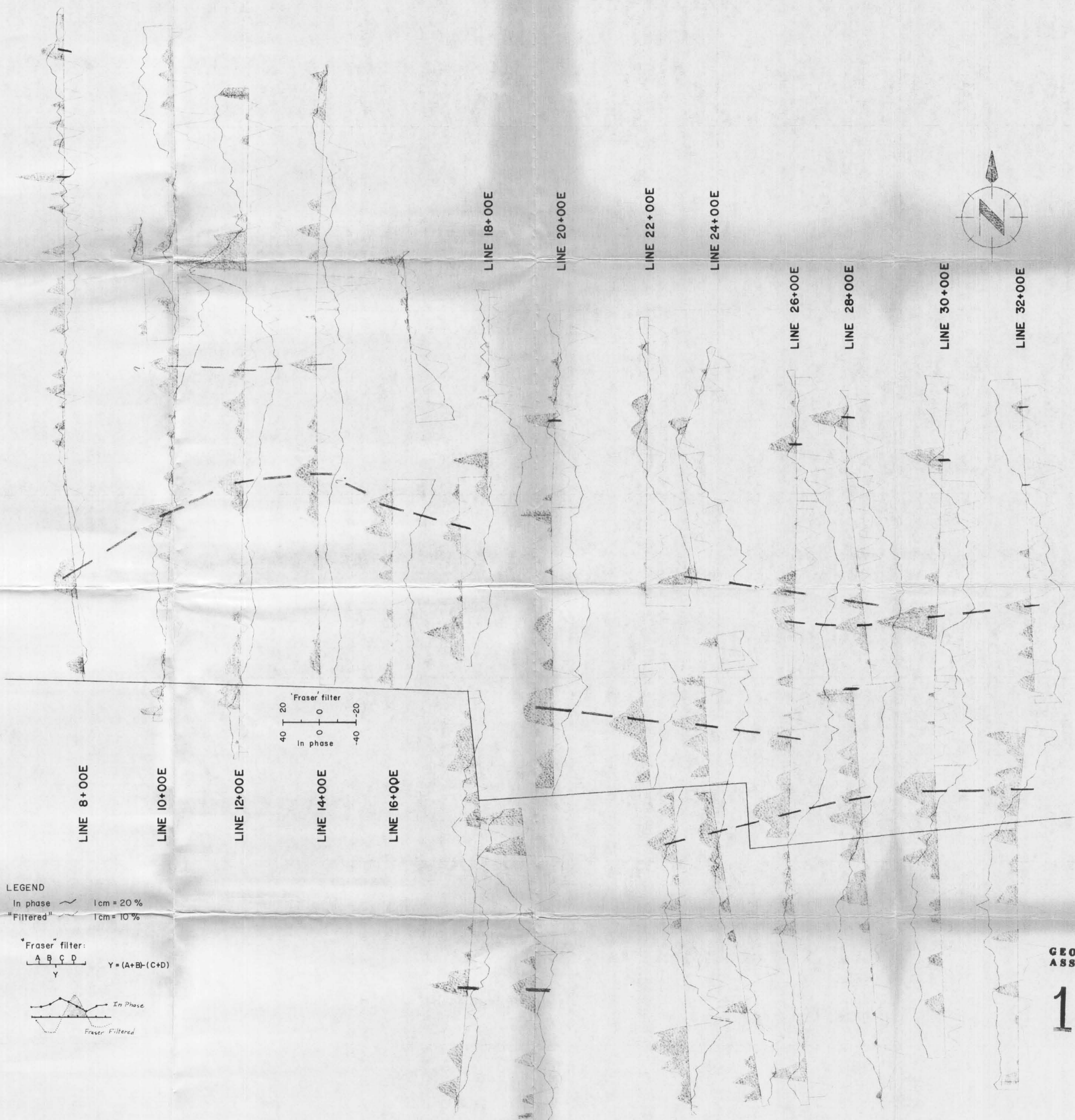
GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,722



DRAWN: E.T.K.	SCALE: 1:5000	PLACER DEVELOPMENT LIMITED	SOIL AND STREAM SEDIMENT GEOCHEMICAL SURVEY
DRAFTING: A.K.	DATE: 15Oct, 1982	ALPEN PROPERTY	Z.N. P.2.M
APPROVED:	REVISED:	SQUAMISH, B.C.	FILE REF. No.: Appendix V
		NTS 92 G / 10 W	

500 1000 1500 2000 2500 3000 3500



LEGEND
 In phase ~ 1cm = 20 %
 "Filtered" ~ 1cm = 10 %

*Fraser filter:
 A B C D
 Y = (A+B) - (C+D)

In Phase
 Fraser Filtered

Fraser filter
 40 20 0 -20 -40
 In phase

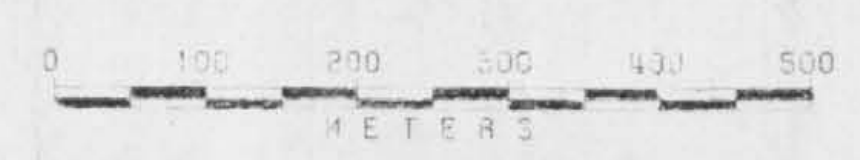
LINE 8+00E
 LINE 10+00E
 LINE 12+00E
 LINE 14+00E
 LINE 16+00E

LINE 18+00E
 LINE 20+00E
 LINE 22+00E
 LINE 24+00E
 LINE 26+00E
 LINE 28+00E
 LINE 30+00E
 LINE 32+00E

**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

10,722

*J. M. Stanton
 Oct 27/82*



PLACER DEVELOPMENT LIMITED	
DRAWN JMT	ALPEN PROPERTY SQUAMISH, B.C. 92-G-10W VLF-EM PROFILES
SCALE 1:5000	
DATE 02/10/15	
No.	

500 1000 1500 2000 2500 3000 3500



LEGEND
 IN PHASE ———
 QUADRATURE ———
 1cm = 20%
 INSTRUMENT
 GEONICS EM-16

Dir of reading →
 Dir to: CUTLER
 ANNAPOLIS

40
 20
 0
 20
 40
 % Primary Field Strength

LINE 8+00E

LINE 10+00E

LINE 12+00E

LINE 14+00E

LINE 16+00E

LINE 18+00E

LINE 20+00E

LINE 22+00E

LINE 24+00E

LINE 26+00E

LINE 28+00E

LINE 30+00E

LINE 32+00E

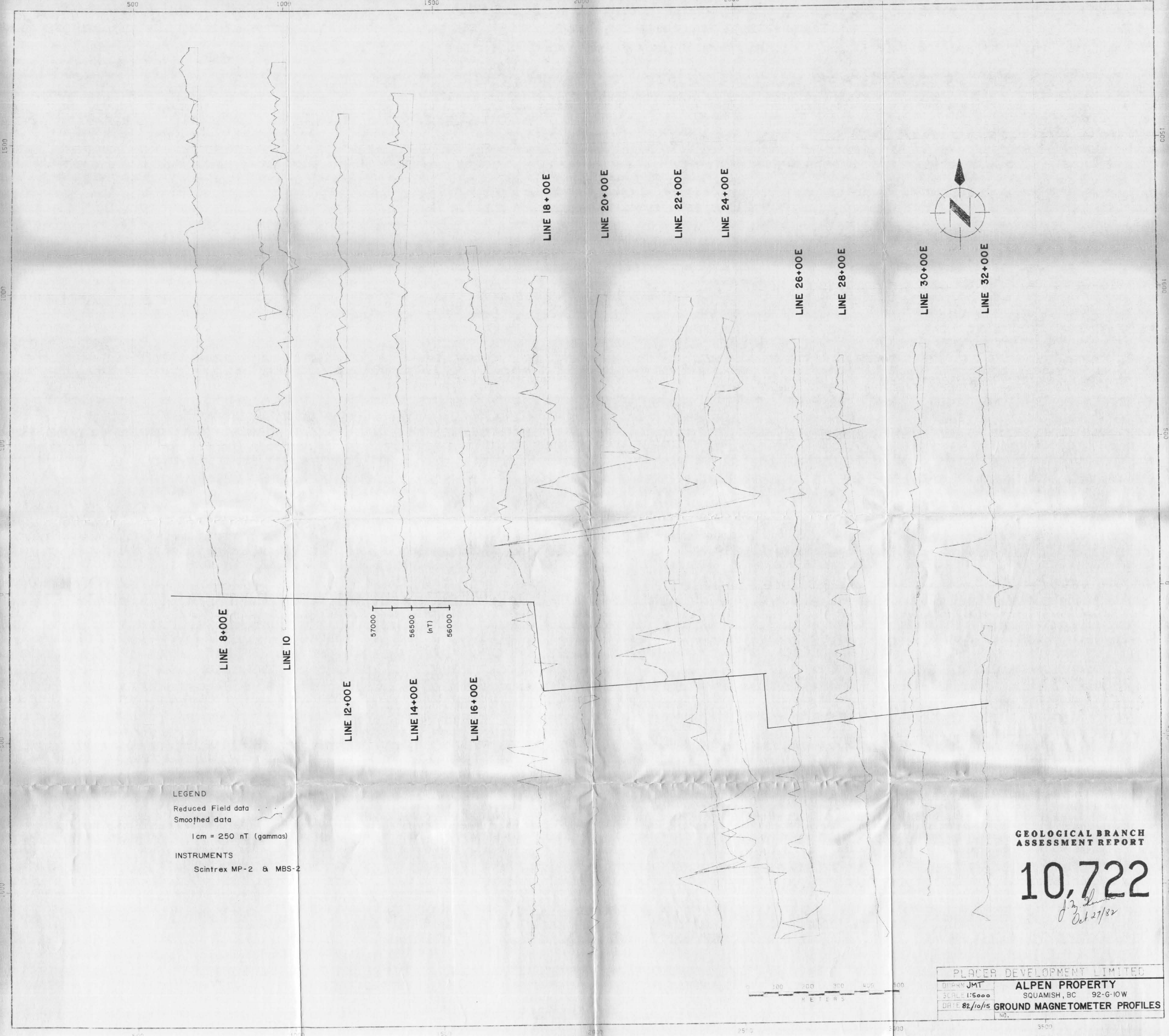
GEOLOGICAL BRANCH
 ASSESSMENT REPORT


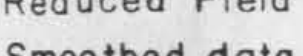
10,722

J. M. Hunter
 Oct. 27/82

0 100 200 300 400 500
 METERS

PLACER DEVELOPMENT LIMITED	
DRAWN JMT	ALPEN PROPERTY SQUAMISH, B.C. 92-G-10W VLF-EM PROFILES
SCALE 1:5000	
DATE 82/10/15	
NO.	



LEGEND
 Reduced Field data 
 Smoothed data 
 1cm = 250 nT (gammas)
INSTRUMENTS
 Scintrex MP-2 & MBS-2

57000
 56500
 (nT)
 56000

0 100 200 300 400 500
 METERS



**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

10,722
J. J. [Signature]
 Oct 27/82

PLACER DEVELOPMENT LIMITED	
DRAWN JMT	ALPEN PROPERTY
SCALE 1:5000	SQUAMISH, BC 92-G-10W
DATE 82/10/15	GROUND MAGNETOMETER PROFILES
NO.	

500 1000 1500 2000 2500 3000 3500

1500 1000 500 0 -500 -1000

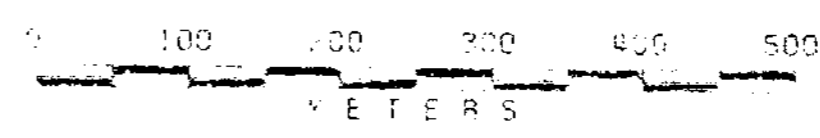
1500 1000 500 0 -500 -1000



LEGEND
 Reduced Field data
 Smoothed data
 1 cm = 250 nT (gammas)
INSTRUMENTS
 Scintrex MP-2 & MBS-2

**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

10,722
Oct 27/82



PLACER DEVELOPMENT LIMITED	
BY: JMT	ALPEN PROPERTY
SCALE: 1:5000	SQUAMISH, BC 92-G-10W
DATE: 8/2/82	GROUND MAGNETOMETER PROFILES
NO.	

500 1000 1500 2000 2500 3000 3500

500 1000 1500 2000 2500 3000 3500

1500

1000

500

0

-500

-1000

0051

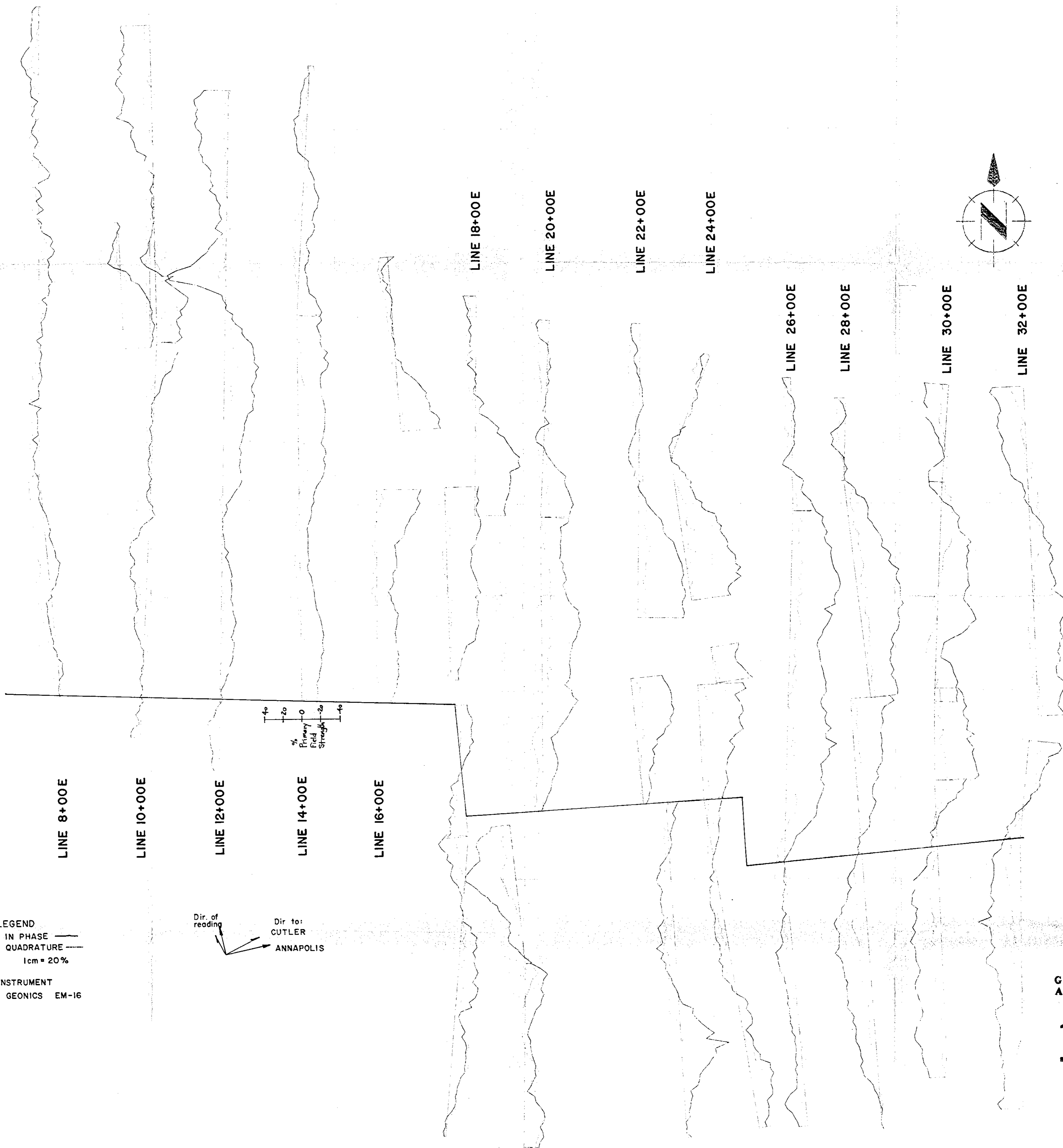
0001

005

0

005

001



LEGEND
 IN PHASE ———
 QUADRATURE - - -
 1cm = 20%
 INSTRUMENT
 GEONICS EM-16

Dir. of reading ↙
 Dir. to: CUTLER ↘
 ANNAPOLIS ↘

4m
 2m
 0
 2m
 4m
 1/4
 Primary
 Field
 Strength

LINE 8+00E

LINE 10+00E

LINE 12+00E

LINE 14+00E

LINE 16+00E

LINE 18+00E

LINE 20+00E

LINE 22+00E

LINE 24+00E

LINE 26+00E

LINE 28+00E

LINE 30+00E

LINE 32+00E

GEOLOGICAL BRANCH
ASSESSMENT REPORT

10,722

J. M. Hunter
Oct. 27/82

0 100 200 300 400 500
METERS

PLACER DEVELOPMENT LIMITED	
DRAWN JMT	ALPEN PROPERTY
SCALE 1:5000	SQUAMISH, B.C. 92-G-10W
DATE 82/10/15	VLF-EM PROFILES
NO.	

500

2000

2500

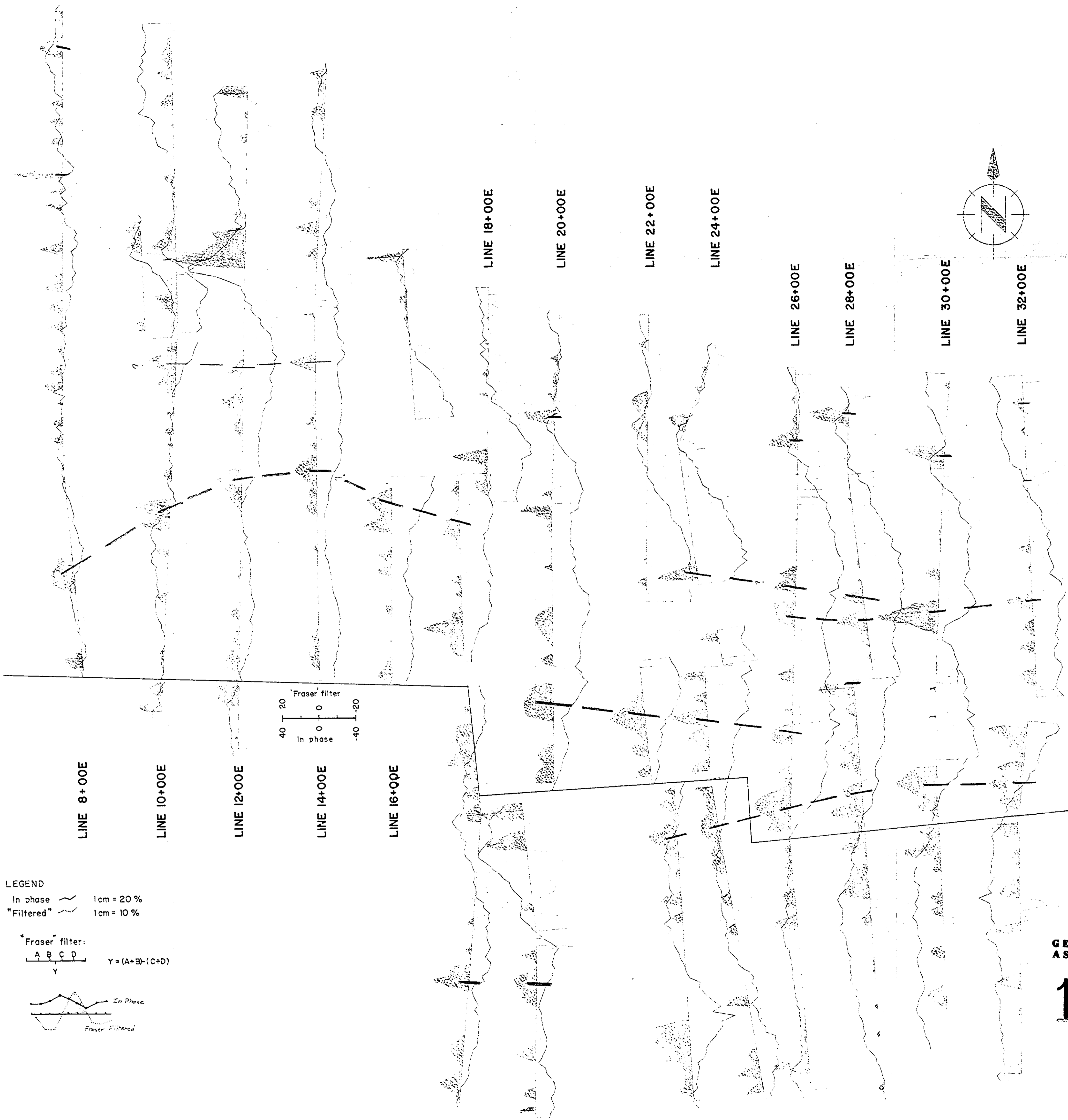
3000

3500

500 1000 1500 2000 2500 3000 3500

1500
1000
500
0
-500
-1000

0951
0001
005
0
035
0001



LEGEND
 In phase 1cm = 20 %
 "Filtered" 1cm = 10 %
 Fraser filter:
 A B C D
 Y = (A+B) - (C+D)

 In Phase
 Fraser Filtered

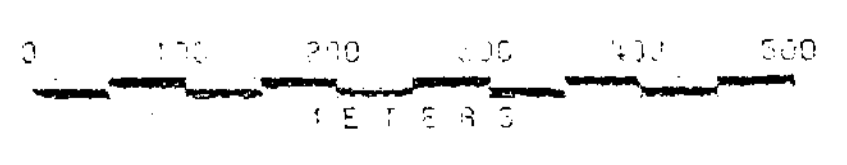
Fraser filter
 40 20 0 -20
 In phase



**GEOLOGICAL BRANCH
 ASSESSMENT REPORT**

10,722

*J. J. Hunter
 Oct 27/82*



PLACER DEVELOPMENT LIMITED	
BY JMT	ALPEN PROPERTY
SCALE 1:5000	SQUAMISH, BC 92-G-10 W
DATE 82/10/15	VLF - EM PROFILES

500 1000 1500 2000 2500 3000 3500