

VOLUME I

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of \$ 11,200.00

SUMMARY REPORT

A.R. Craig

Resident Geologist or
Resident Mining Engineer

ON THE

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

HARRISON CREEK OPTION

GOZ CREEK AREA
MAYO MINING DISTRICT, Y.T.

N.T.S. 106-C-7
Lat. 64°24'N; Long. 132°49'W

[Signature]
Commissioner of Yukon Territory

061097

FOR

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.
736 - 8th Avenue S.W.
Calgary, Alberta

BY

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CORDILLERAN ENGINEERING LIMITED
1418 - 355 Burrard Street
Vancouver, B.C. V6C 2G8

CLAIMS: Bob #1-8, Gep #1-8, Gyk #1-8, Kis #1-8, Ray #1-8
LOCATION: 113 air miles northeast of Mayo, Yukon Territory.
DATE: May 29 - June 30; August 16 - September 17, 1974.

Date Compiled: November, 1974

061097

O.S. Hairsine

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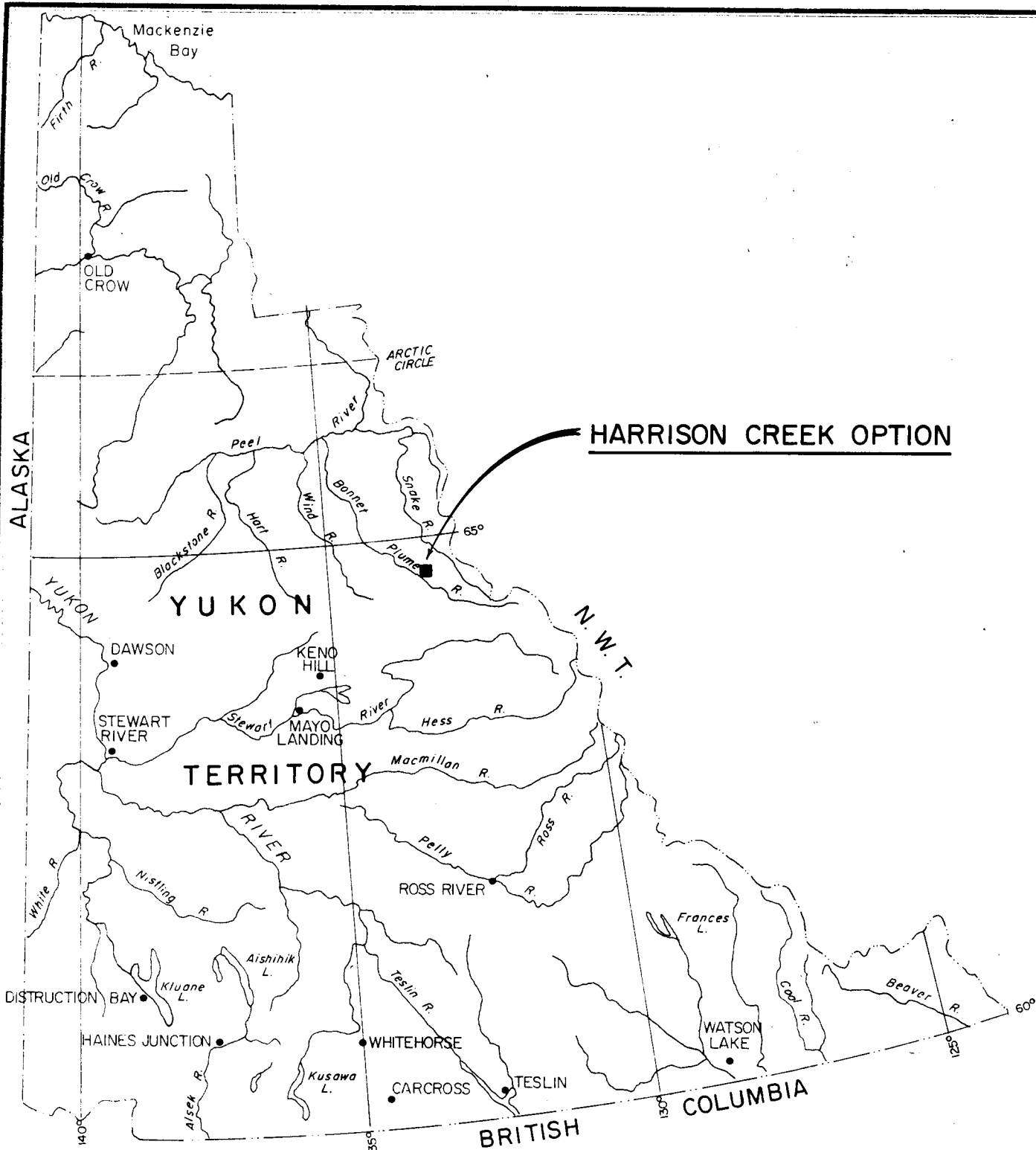
Harrison Creek Property, Mayo Mining District
Bonnet Plume Area, Yukon Territory

For: Great Plains Development Company of Canada Ltd.

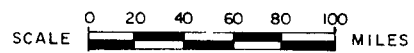
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LOCATION MAP HARRISON CREEK OPTION



BY

CORDILLERAN ENGINEERING LTD.

1418 - 355 BARRARD STREET

VANCOUVER 1, B.C.

NOV. 1973

FIGURE 1



FIGURE 2: View looking south across the eastern side of the Harrison Creek Option.



FIGURE 3: View looking south across the western side of the Harrison Creek Option.

I N T R O D U C T I O N

(Figures 1,2,3)

This report has been written at the request of Great Plains Development Company of Canada Ltd. and describes the results of a field programme conducted on the Harrison Creek Option by Cordilleran Engineering Limited from May 29th to June 30th and August 16th to September 17th, 1974.

The Harrison Creek Option was staked in July, 1973 by Cordilleran Engineering Limited for Barrier Reef Resources Ltd. (N.P.L.). During this field season a geo-chemical soil test grid was laid over part of the property and a geological map was made of the discovery showing.

The purpose of this programme was to investigate for further extensions of the zinc-lead mineralization discovered

INTRODUCTION (cont'd)

in 1973. This was undertaken by prospecting, geological mapping, geochemical soil sampling and an induced polarization survey. Five diamond drill holes totalling 1,298 feet were bored to further explore resultant anomalies.

The Harrison Creek Option is located in the Mayo Mining District of the Yukon Territory (refer to N.T.S. Map 106-C-7), latitude $64^{\circ}24'N$ and longitude $132^{\circ}49'W$, and covers an area of approximately 3.2 square miles. The property is situated on Harrison Creek, 2 miles from the confluence of this creek and the Bonnet Plume River. Access to the claims is by float plane from Mayo to "Porter Puddle" (110 miles) and then by helicopter to a camp on the property, a distance of 3 miles.

P R O P E R T Y

(Plate 1)

The Harrison Creek Option consists of 40 contiguous mineral claims, listed below. These claims were located and tagged during the course of work on the property. The work described in this report has been submitted to the Mayo Mining Recorder for assessment and if accepted the claims will be in good standing until December 31, 1978.

<u>CLAIMS</u>	<u>GRANT NUMBERS</u>
Bob 1 - 8	Y 69424 - Y 69431
Gep 1 - 8	Y 69516 - Y 69523
Gyk 1 - 8	Y 69652 - Y 69659
Kis 1 - 8	Y 69492 - Y 69499
Ray 1 - 8	Y 69644 - Y 69651

PHYSIOGRAPHY VEGETATION AND CLIMATE

The Harrison Creek Option is situated in the U-shaped valley of Harrison Creek and covers an area varying in elevation from 3,000 feet A.S.L. to 5,300 feet A.S.L. Most of the property is forest covered as the tree line occurs between 3,500 and 4,000 feet. Vegetation varies from the typical alpine flora of the highlands to swampy areas with dense buck brush growth. Outcrop development is poor over most of the property except on the high western side and in Harrison Creek where a nearly complete geological section of the property is exposed.

The climate of this part of the Yukon is one of extremes. Summers are mild to warm with high ground usually snow-free by the beginning of June. Winters are harsh with

PHYSIOGRAPHY, VEGETATION AND CLIMATE (cont'd)

temperatures commonly around -40°F ; snow fall for this area is generally light. Freeze-up usually begins in the last two weeks of September.

G E O L O G Y

(Plates 2,3,4; Figures 4,5)

INTRODUCTION

Sedimentary rocks mapped in the Harrison Creek area consist of steep northeasterly dipping shales, dolostones, and limestones, of probable Lower Cambrian age*. J. O. Wheeler of the Geological Survey conducted reconnaissance mapping in this area in the early 1950's. Most recently S. L. Blusson has undertaken more detailed mapping at 1:50,000 scale (refer to G.S.C. Open File #206).

The Harrison Creek area had only been lightly prospected before the summer of 1973; difficult access and limited geological knowledge being the main reason for little exploration.

*Initially mapped as Hadrynian by S.L.Blusson,G.S.C.

GEOLOGY (cont'd)

LITHOLOGIES

Detailed mapping at a scale of 1 inch to 500 feet has enabled rocks of the Harrison Creek Option to be subdivided into six units, which are described below in descending order:

UNIT S

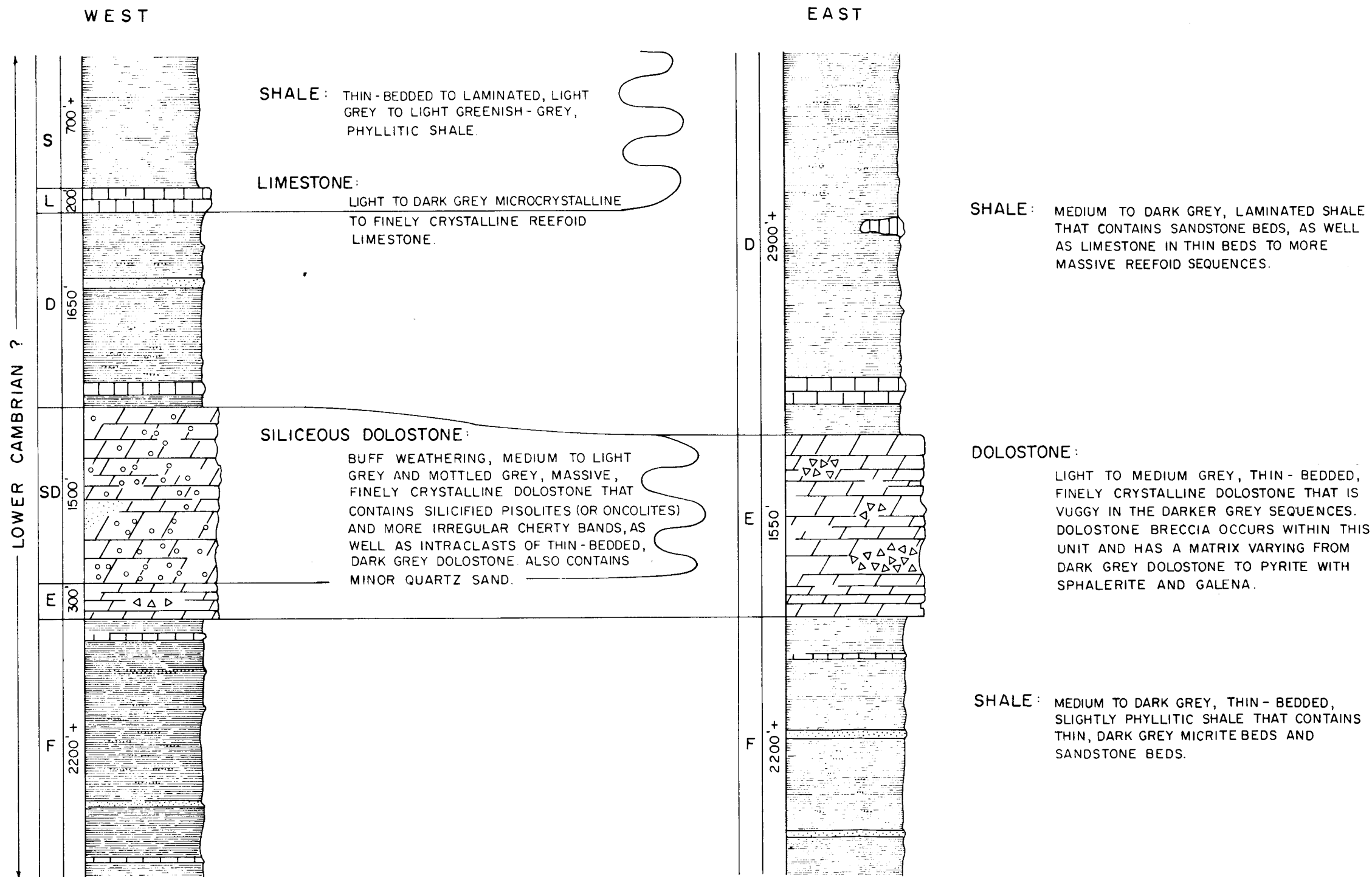
This unit consists of brown weathering, light grey to light greenish-grey, thin-bedded to laminated, phyllitic shale which frequently has black laminations. The bottom of Unit S contains a light brown shale that commonly contains well rounded, black sand grains (or ostracods?).

UNIT L

Unit L is a grey weathering, light to dark grey, microcrystalline to finely crystalline "refoid" limestone, that contains breccia beds, as well as thin-bedded and massive sequences. This locally pyritic unit, which is approximately 200 feet thick, contains tetracorals. The age of these fossils has not been determined, but they may be younger than Lower Cambrian, in which case some of the strata that normally underlie this unit may have been faulted out. Unit L pinches out toward the west and apparently toward the east.

GENERALIZED STRATIGRAPHIC SECTION

HARRISON CREEK OPTION



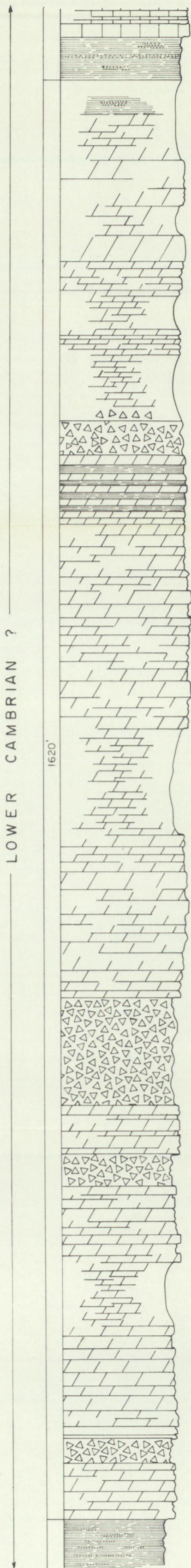
VERTICAL SCALE : 1" = 1000'

FIGURE 4

STRATIGRAPHIC SECTION

OF DOLOSTONE UNIT IN HARRISON CREEK

HARRISON CREEK OPTION



SHALE : THIN-BEDDED TO LAMINATED, MEDIUM TO DARK GREY SHALE. CONTAINS RUSTY WEATHERING, THIN QUARTZ SANDSTONE AND THIN, AS WELL AS THICK SEQUENCES OF GENERALLY DARK GREY, FINELY CRYSTALLINE LIMESTONE.

DOLOSTONE: GENERALLY THICK-BEDDED LIGHT GREY TO CREAMY COLORED, FINELY CRYSTALLINE, WITH SOME THIN-BEDDED DOLOSTONE.

— THIN-BEDDED, COARSELY CRYSTALLINE, CREAMY COLORED DOLOSTONE THAT CONTAINS LAMELLAE OF BLACK BITUMINOUS MATERIAL. IN SOME BEDS THESE BLACK LAMELLAE HAVE BEEN DISRUPTED, LOCALLY PRODUCING INTRAFORMATIONAL BRECCIA.

— THIN-BEDDED, FINELY CRYSTALLINE, DARK GREY DOLOSTONE, VUGGY.

DOLOSTONE BRECCIA : CLASTS OF FINELY CRYSTALLINE, DARK GREY DOLOSTONE OCCUR IN A MATRIX OF CRYSTALLINE, WHITE DOLOMITE, SPHALERITE AND GALENA.

— THIN BEDDED, DARK GREY, FINELY CRYSTALLINE DOLOSTONE, SOME BEDS OF WHICH CONTAIN TABULAR MICRITIC CLASTS. DOLOSTONE ALTERNATES WITH LAMINATED BLACK SHALE BEDS.

— THIN BEDDED, MEDIUM TO DARK GREY, FINELY CRYSTALLINE DOLOSTONE: POROUS, VUGS ARE LINED WITH SMALL, WHITE DOLOMITE CRYSTALS, AND LATER QUARTZ. ZEBRA STRUCTURES ARE PREVALENT IN THIS PART OF THE SECTION.

DOLOSTONE BRECCIA: DARK GREY, FINELY CRYSTALLINE CLASTS OF THIN-BEDDED DOLOSTONE OCCUR IN A DOLOMICRITE MATRIX. PYRITE ALSO OCCURS AS A MATRIX TO THE BRECCIA. SPHALERITE, GALENA, DOLOMITE AND QUARTZ APPEAR TO FILL REMAINING SPACES AND FRACTURES.

— BRECCIA, AS ABOVE

— THIN BEDDED DOLOSTONE, AS ABOVE

— BRECCIA, AS ABOVE

SHALE : MEDIUM TO DARK GREY, THIN-BEDDED, SLIGHTLY PHYLLITIC SHALE THAT CONTAINS RUSTY WEATHERING LAMINATIONS AS WELL AS THIN DARK GREY MICRITE BEDS AND SANDSTONE BEDS.

SCALE: 1" = 100'

FIGURE 5

GEOLOGY - Lithologies (cont'd)UNIT D

This is a dark grey to rusty brown weathering, medium to dark grey, thin-bedded to laminated shale that contains reddish-brown weathering quartz sandstone beds (up to 2 feet thick). Limestone, in thin beds to more massive "refoid" units and lenses occurs in Unit D. A well developed cleavage cuts the shales giving it a shattered or sheared appearance. This unit is believed to be in excess of 3,000 feet in thickness and it thins to 1,650 feet in thickness toward the west.

UNIT E

Unit E consists of light to dark grey, thin-bedded to laminated, finely crystalline dolostone (see Figure 5, Page 9). Light grey sequences are commonly thick-bedded and buff coloured on weathered surfaces. The dark grey sequences contain vugs commonly filled with secondary dolomite, quartz, pyrobitumen and rarely, sulphides (pyrite, sphalerite, and galena). Bedding in the dark grey sequences is commonly disrupted, producing a zebra-structured rock where layers of white sparry dolomite alternate with layers of finely crystalline, dark grey dolostone. The disrupted zones frequently develop into small breccia zones or larger, mappable dolostone breccias. The dolostone breccia is made up of fragments that range in size from twelve inches to one-tenth of an inch with a mode of two inches. These fragments consist of dark grey dolostone in a matrix that varies from a

GEOLOGY - Lithologies (Unit E cont'd)

dark grey dolomicrite to white, coarsely crystalline, sparry dolomite with pyrite, sphalerite and galena. The presence of pyrite gives the breccia zones a rusty appearance on weathered surfaces. Minor intraformational breccia appears to have developed locally in some beds.

Unit E is between 1,500 and 1,600 feet thick over the eastern half of the Harrison Creek Option, but it thins considerably towards the west. The lower contact of this unit appears to be a normal depositional contact; the dolostone grades into an argillaceous dolostone, then shale. The upper contact is assumed to be a normal contact although there has been some shearing along it. This shearing may have been produced during folding as a result of the difference in competency between the shale and dolostone. Exposures of the upper and lower contacts of Unit E are restricted to Harrison Creek.

UNIT SD

This unit is buff weathering, medium to light grey and mottled grey, massive, medium crystalline dolostone that contains silicified pisolites (or oncolites ?) and irregular cherty bands, as well as, rare intraclasts of thin-bedded, dark grey dolostone. The western part of this unit contains sandy lenses consisting of coarse, colourless, frosted, well rounded quartz grains. The sand varies in abundance locally producing sandstone.

Unit SD may be a facies equivalent of Unit E (as

GEOLOGY - Lithologies (Unit SD cont'd)

represented in Figure 4, page 8) evidence for this being that Unit E, in part, appears to underlie Unit SD, intraclasts of E are found in SD, and a lense of SD occurs in an eastern exposure of E. On the other hand, the very rapid pinching out of Unit SD, the fact that it appears to be cut by numerous northerly striking faults, which are roughly parallel to Harrison Creek, and the abrupt change in topography suggest that perhaps Unit SD is separated from Unit E by a fault. No exposures of the contacts of SD occur on the Harrison Creek property.

UNIT F

Unit F consists of medium to dark grey, thin-bedded, slightly phyllitic shale that contains rusty weathering laminations, as well as, thin dark grey micrite and sandstone beds. In southern exposures of this unit some micrite beds have a phyllitic sheen on cleavage surfaces. These beds are commonly 1/2 inch thick and are separated by black less-resistant laminations. Unit F is graphitic near the top.

GEOLOGY (cont'd)STRUCTURE

Tight, mesoscopic, similar folds with fold axes plunging steeply to the west and axial planes with steep southwesterly dips are well developed in shales occurring near the southern boundary of the property and appear to be the oldest deformational features. A prominent fold axis lineation, of the same attitude as the fold axes of the minor folds, is developed in the shales in this area.

Small scale monoclines and open folds with almost horizontal westerly trending axes occur in the shales. The sense of shear exhibited by these S-like folds suggests the southern limb has moved down relative to the northern limb. A well developed cleavage in Units E and F with a consistent attitude is probably an axial plane cleavage that has been developed by northeast-southwesterly trending compressive forces. This compression is believed to have caused regional folding which may have produced an anticline whose hinge lies south of the property. The predominant faults, which are inferred to cut the dolostone units, have a northerly trend and assumed displacements of up to 400 feet. These faults are probably related to the regional folding.

MINERALIZATION

(Figure 6)

Lead-zinc mineralization on the Harrison Creek Option is restricted to the dolostone Units E and SD. Sphalerite and galena occur as open space fillings.

In Unit SD occurrences of sphalerite and galena were found as fillings (up to 1/2 inch wide) in a few fractures and can be traced intermittently for up to 50 feet. One mineralized fracture set has a moderate dip to the south and may contribute significantly to geochemical anomalies on the southern slopes of the ridge formed by Unit SD. Other mineralized fractures have nearly vertical dips and a north-northwesterly orientation. Coatings of smithsonite and/or zinc oxides are common on weathered surfaces of this unit around fracture zones.

Lead-zinc mineralization in Unit E occurs as fillings

MINERALIZATION (cont'd)

in vugs and as breccia matrix. The paragenetic sequence of sphalerite, galena, pyrite, and dolomite is complex. "Snow-on-roof" textures as well as colloform textures of these minerals are developed around fragments. In some specimens, repetitions of layers of pyrite and sphalerite suggest that mineralizing fluids may have been introduced more than once. In some areas minerals in the paragenetic sequence are missing. Precipitation from mineralizing solutions may lower and eventually stop the permeability of some parts of the breccia, thus blocking local areas to further mineralization. When this blocking occurs mineralizing solutions would be restricted to only the most porous and permeable parts of the dolostone and dolostone breccia. Galena appears to have developed after sphalerite and it is frequently fracture controlled. In the main showing, in Harrison Creek, galena and white sparry dolomite occur as a vein in a fracture zone. In one occurrence galena appeared to be introduced after quartz. Fractures filled with white sparry dolomite are commonly found cutting across pyrite and sphalerite. A generalized mineral paragenesis is illustrated in Figure 6 following.

MINERALIZATION (cont'd)

Pyrite	xxxxxxxx			
Sphalerite		xxxxxxxxxxxx		
Galena			xxxxx ? xx	xx ? xx
Dolomite			xxxxxxxxxxxxxxxx	
Quartz				xxxxxxxx

----- T I M E ----->

FIGURE 6: Generalized paragenetic sequence for mineralization on the Harrison Creek Option.

Large breccia zones in Unit E are believed to be solution collapse breccias. The large and irregular extent of the breccia zones suggests that tectonism is not an important factor in their formation. Minor intraformational breccias do occur in this unit, but are distinguished from the solution collapse breccias in which the clasts are angular and open spaces have been filled with secondary minerals.

Dolomitization and dissolution of carbonate rock leading to the development of vugs and the formation of solution collapse breccias has probably been caused by seepage refluction (Adams, J.E., and Rhodes, M.L., 1960). The introduction of sulphides into the porous zones produced by seepage refluction

MINERALIZATION (cont'd)

may occur during the later stages of diagenesis. Beales and Jackson (1967) contend that Pine Point and some Mississippi Valley-type deposits have developed by way of a similar sequence of events. Unit E, in view of these ideas and the results of diamond drilling, has been demonstrated to be a favourable unit for hosting lead-zinc mineralization and warrants further exploration to determine the extent and economic potential of this mineralization. In order to fully evaluate mineralized solution collapse breccias, knowledge must be acquired of the structural and textural variations that may indicate position or location with respect to roof, floor, or sides of breccia zones and in which positions lead-zinc sulphides are most frequently concentrated.

Fracture controlled mineralization, which appears to be younger than the mineralization in the solution collapse breccias, may have been caused by deformation that produced regional folds in the host unit and surrounding rocks. This deformation may have remobilized sulphides from breccia zones and injected them into open spaces generated by tension. In general these tensional features are believed to occur as narrow fracture fillings of limited economic importance. There exists the possibility that some openings may have formed in which sufficient quantities of lead-zinc sulphides could be concentrated to produce economic mineral bodies.

G E O C H E M I S T R Y

(Plates 5,6; Appendix "A")

A geochemical soil survey for lead and zinc was undertaken with a total of 675 samples being collected; 156 of these were collected during the 1973 field season. Samples were taken by grub hoe at 200-foot intervals along lines spaced 300 feet apart over a total of 25 miles of line. Each sample site was flagged and labelled. Sample lines were run from a baseline that was oriented at 110° azimuth.

Soil samples were taken from the B horizon which was fairly well developed over most of the property. The sample depth, soil type, colour, drainage, and slope were recorded for each site. Samples were placed in numbered kraft envelopes and delivered to the laboratory of Bondar Clegg and Company, Ltd. in Whitehorse. There, each sample was dried, sieved, and the minus 80 mesh fraction digested by hydrochloric and nitric acids. The atomic absorption method was used for both

GEOCHEMISTRY (cont'd)

lead and zinc analysis.

Rock chip samples were taken over the shales and over mineralized sections of Unit E. Results of the assayed rock chip samples and descriptions of the sample sites are found in Appendix "A", locations are shown on plates 2 and 4.

RESULTS

Zinc values range from 16 ppm to 16,250 ppm and lead from 12 ppm to 30,500 ppm. From frequency distribution diagrams of the lead and zinc analyses levels for background, above background, and anomalous values were visually estimated and are listed below.

	<u>Zinc</u>	<u>Lead</u>
Background	0 - 129 ppm	0 - 49 ppm
Above Background	130 - 279 ppm	50 - 109 ppm
Possible Anomaly	280 - 359 ppm	110 - 149 ppm
Probable Anomaly	360 - 499 ppm	150 - 299 ppm
Strong Anomaly	500+ ppm	300+ ppm

GEOCHEMISTRY - Results (cont'd)

Anomalous samples extend along the strike of the dolostone units and are roughly localized into four groups which are indicated on Plates 5 and 6, and are referred to in the following discussion.

AREA I

The strongest coincident lead and zinc anomalies occur in this area which have moderately steep slopes. Dispersion and a mineralized fracture set that dips down slope may distort the true intensities of these anomalies. Galena and dolostone with zinc oxide coatings has been found in a large talus slide that lies over part of this area. Since IP anomalies are coincident with the two geochemically anomalous zones, this area warrants further investigation.

AREA II

Anomalous lead and zinc values in this area are an expression of the underlying mineralized dolostone breccia, exposures of which occur in Harrison Creek. Diamond Drill Hole #GPD 74-1 intersected 171 feet of 2% zinc under this area.

GEOCHEMISTRY - Results (cont'd)AREA III

Area III has a broad zinc anomaly, the highest parts of which are coincident with small lead anomalies. Only a few exposures of the underlying Unit E occur in this area, but some of these outcrops have smithsonite on weathered surfaces and dolostone breccia occurs in one outcrop. Diamond Drill Hole #GPD 74-4 intersected only weakly mineralized dolostone breccia in the least anomalous part of this area. The gentle to moderate slope of this area may have produced a dispersed zinc anomaly.

AREA IV

The coincident lead-zinc anomaly here probably reflects mineralization in the silicious dolostone, some outcrops of which have zinc oxides on weathered surfaces. A northerly trending fault appears to have disturbed the dolostone at the western edge of this anomaly. Unfortunately Diamond Drill Hole #GPD 74-2 was collared in this fault and was lost prior to adequately testing this anomaly.

G E O P H Y S I C S

(Plate 11)

An induced polarization survey was conducted over the dolostone units by McPhar Geophysics Ltd. The results of this survey are described in detail in Volume II of this report. The IP method was chosen since lead-zinc mineralization is closely associated with pyrite which occurs as matrix to dolostone breccia.

In general, anomalous IP responses were produced in a band that extends along the strike of the dolostone units. Geochemical anomalies are coincident with IP anomalies and the contacts of the dolostone and shales are frequently anomalous indicating the shale in these areas is graphitic and/or pyritic. Near surface resistivity highs are common on many lines and may have been caused by permafrost lenses or, in the steeper areas, talus.

GEOPHYSICS (cont'd)

An interpreted resistivity plan (Plate 11) has been compiled from survey data. It should be noted that resistivity variation may be attributed to pyrite, graphite, and/or changes in bedrock composition or porosity. Low resistivities are closely associated with the western and central IP anomalies and may be caused by the graphitic shale that underlies the dolostone. Moderate to high resistivities occur in the eastern IP anomalies and it is suggested that this may be a reflection of pyrite in Unit E.

The testing of different types of IP anomalies with diamond drilling is incomplete and firm conclusions cannot be drawn as to what kinds of IP anomalies may be indicative of lead-zinc mineralization. Further drilling will be required to evaluate the potential of IP as a tool for locating lead-zinc mineralization on the Harrison Creek Option.

DIAMOND DRILLING

(Plates 7 to 10)

Seven drill targets were proposed on the basis of geochemical and geophysical anomalies in the favourable dolostone units. Four of the targets were drilled and a fifth hole (GPD 74-5) was started, but due to mechanical difficulties no core was recovered from this hole. All holes were drilled at an inclination of 45° toward 200° azimuth. Sections of diamond drill holes (Plates 7 to 10) are located in Appendix G. A brief summary of the drill results is listed below; complete drill results are contained in Volume III.

DIAMOND DRILL
HOLE NUMBER

RESULTS

GPD 74-1	<ul style="list-style-type: none"> - grid location: 57+00E, 0+50S. - Total depth: 643 feet. - Intersected 437 feet of dolostone breccia. - 171 feet of 2% Zn (total) in the dolostone breccia.
GPD 74-2	<ul style="list-style-type: none"> - Grid location: 40+00E, 4+50S. - Total depth: 124 feet. - Intersected 96 feet of calcareous shale.

DIAMOND DRILLING (cont'd)

<u>DIAMOND DRILL HOLE NUMBER</u>	<u>RESULTS</u>
GPD 74-3	<ul style="list-style-type: none">- Grid location: 27+00E, 14N.- Total depth: 93 feet.- Intersected 80 feet of shale.- Terminated due to caving in a fault zone.
GPD 74-4	<ul style="list-style-type: none">- Grid location: 80+60E, 00N.- Total depth: 395 feet.- Intersected 296 feet of dolostone breccia.- Breccia contained approximately 2% pyrite and minor sphalerite.
GPD 74-5	<ul style="list-style-type: none">- Grid location: 63+30E, 0+20S.- Total depth: 43 feet.- Stopped due to mechanical difficulties.- No core recovered.

SUMMARY AND CONCLUSIONS

(Plate 12)

The Harrison Creek Option consists of 40 mineral claims located in the Mayo Mining District, Yukon Territory. Access to the property is by float plane and/or helicopter from Mayo, a distance of 113 miles.

The claims are underlain by probable Lower Cambrian shales, limestones, and dolostones which dip steeply to the northeast. Mineralization located in dolostone breccias consists of pyrite, sphalerite, and galena.

A geochemical survey was conducted on the property with 675 samples being collected and analyzed for lead and zinc. A reconnaissance IP survey was conducted over dolostone units. Seven diamond drill targets were proposed from information gained by these surveys and geological mapping; four of these targets were drilled during the 1974 field season, with the

SUMMARY AND CONCLUSIONS (cont'd)

best result being an intersection of 171 feet of 2% zinc located in the first hole.

Untested geochemical and geophysical anomalies (compiled on Plate 12) warrant further drilling. A drilling policy should be adapted that first endeavours to acquire knowledge of the structural and textural variations of the dolostone breccia and the relation of lead-zinc mineralization to these features. Later drilling should test areas where lead-zinc geochemical anomalies and IP anomalies are coincident over favourable dolostone units. Different IP anomalies should be tested by drilling to determine whether bodies of lead-zinc mineralization can be detected using this geophysical technique on the Harrison Creek property.

RECOMMENDATIONS

The Harrison Creek Option, has on the basis of initial diamond drilling and untested geochemical and geophysical anomalies, been demonstrated to warrant further investigation as follows:

DIAMOND DRILLING

To fully evaluate the Harrison Creek Option an additional 12,000 feet of diamond drilling is recommended on a success contingent basis. This additional drilling has three objectives:

1. To outline the extent and nature of mineralization in the vicinity of diamond drill hole GPD 74-1. Drilling should be conducted on a grid basis with 400-foot centers.
2. To test the dolostone units, SD and E, on a reconnaissance basis with 1000-foot centers.

RECOMMENDATIONS (cont'd)

3. To drill geochemical and geophysical anomalies that remain untested. In particular, attention should be focused on coincident lead-zinc and IP anomalies.

To effectively follow these objectives through and fully evaluate the property a two-phase exploration programme is recommended.

Phase I Diamond drilling, in 8 holes (see Plate 12) with a total depth of 5,200 feet, to test the extent of mineralization around diamond drill hole GPD 74-1 and to investigate two geochemical anomalies.

Phase II Contingent upon the success of Phase I a further 6,800 feet of diamond drilling should be conducted on a reconnaissance basis. Drill holes should be inclined at 45° toward 200° azimuth, where practical.

INDUCED POLARIZATION

Detailed IP should be considered in the vicinity of diamond drill hole GPD 74-1. The results of IP in this area, in conjunction with the proposed diamond drilling, will facilitate the interpretation of other IP anomalies.

RECOMMENDATIONS (cont'd)

The programme described above would cost approximately \$100,000 for Phase I and \$150,000 for Phase II, depending on the sharing of support costs with others in the area. This programme could be accomplished with one drill during a 3 1/2 month period from June 1st to September 15th, 1975.

Respectfully submitted

CORDILLERAN ENGINEERING LIMITED

Carl Verley

C. G. Verley, Geologist

SUPERVISED BY:

O. S. Hairsine
O. S. Hairsine, P. Eng.

November, 1974.

LIST OF ASSAYS AND LOCATIONS OF ROCK CHIP SAMPLESHARRISON CREEK OPTION

<u>Sample No.</u>	<u>Zinc</u>	<u>Lead</u>	<u>Sample Width Horizontal</u>	<u>Location</u>
6851*	0.23%	0.07%	10'	East side of Harrison Creek opposite main showing.
6852*	2.00%	0.12%	10'	East side of Harrison Creek opposite main showing.
6853*	0.23%	0.04%	10'	600' up Harrison Creek from main showing.
6854*	3.50%	0.02%	10'	800' up Harrison Creek from main showing.
6855*	2.20%	<0.02%	10'	800' up Harrison Creek from main showing.
6856*	0.75%	<0.02%	10'	900' up Harrison Creek from main showing.
6857*	0.06%	0.03%	10'	100' down Harrison Creek from main showing.
6858	0.36%	0.01%	5'	At 108E in dolostone.
6867	4000 ppm	93 ppm	15'	In shale at southern shale-dolostone contact.
6868	7000 ppm	34 ppm	10'	In shale 150' south of 6867.
6869	2100 ppm	44 ppm	10'	In shale 150' south of 6868.
6870	405 ppm	30 ppm	10'	In shale 150' south of 6869.
6871	166 ppm	42 ppm	10'	In shale 600' south of 6870.
6872	220 ppm	29 ppm	10'	In shale just north of northern shale-dolostone contact.
6873	126 ppm	32 ppm	10'	In shale 150' north of 6972.

*These samples are plotted on Plate 4,
other samples are plotted on Plate 2.

LIST OF ASSAYS AND LOCATIONS OF ROCK CHIP SAMPLES (cont'd)

<u>Sample No.</u>	<u>Zinc</u>	<u>Lead</u>	<u>Sample Width Horizontal</u>	<u>Location</u>
6874	104 ppm	33 ppm	10'	In shale 150' north of 6973.
6877	262 ppm	23 ppm	10'	In shale south of Unit E. 111E, 8S.
6878	162 ppm	28 ppm	10'	In shale south of Unit E. 90E, 13+50S.
6879	174 ppm	29 ppm	Rubble	In shale south of Unit E. 87E, 14+00S.

To: Cordilleran Engineering Ltd.

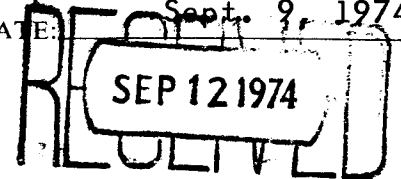
REPORT No 44-117

PAGE No. Page #3

BONDAR-CLEGG & COMPANY LTD.

DATE: Sept. 9, 1974

CERTIFICATE OF ASSAY



I hereby certify that the following are the results of assays made by us upon the herein described Core samples.

MARKED	GOLD		SILVER	Zn Tot.	Zn Sol.	Pb					TOTAL VALUE PER TON (2000 LBS.)
	Ounces per Ton	Value per Ton	Ounces per Ton	Percent	Percent	Percent	Percent	Percent	Percent		
6957				5.48							
6958				0.50							
6959				0.46							
6960				1.80							
6961				3.00							
6962				0.78							
6963				0.15							
6964				0.04	0.03	10.01					



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764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110 TELEX: 053-3548

Certificate of Analysis

TO Cordilleran Engineering Limited
1418 - 355 Burrard St.
Vancouver I, B.C.

REPORT NO. A 44-04

DATE June 11, 1974

Project G.P.D.

I hereby certify that the following are the results of analyses made by us upon the herein described Rock samples

MARKED	Pb	Zn							
	%	%							
6851	0.07	0.23							
6852	0.12	2.00							
6853	0.04	0.23							
6854	0.02	3.50							
6855	L0.02	2.20							
6856	L0.02	0.75							
6857	0.03	0.06							

L means Less Than

BONDAR-CLEGG & COMPANY LTD.

NOTE:

Rejects retained two weeks
Pulps retained three months

APPENDIX B IV

To: Corc leran Engineering Ltd.

REPORT No A2 791

PAGE No. 1

BONDAR-CLEGG & COMPANY LTD.

DATE: October 10, 1974

1418 - 3 55 Burrard Street
Vancouver, B. C.

CERTIFICATE OF ASSAY


Samples submitted: October 7, 1974
Results completed: October 10, 1974

RECEIVED
OCT 15 1974
ulp

I hereby certify that the following are the results of assays made by us upon the herein described samples.

MARKED	GOLD		SILVER	Zn*							TOTAL VALUE PER TON (2000 LBS.)
	Ounces per Ton	Value per Ton	Ounces per Ton	Percent	Percent	Percent	Percent	Percent	Percent		
6943				0.05							
6944				0.10							
6945				0.07							
6946				0.11							
6947				0.07							
6948				0.02							
6949				0.02							
6950				0.03							
6951				0.04							
6952				0.02							
6953				0.02							
6954				0.08							
6955				0.04							
6956				0.04							
6957				0.05							
6958				0.02							

cc Bondar-Clegg - Whitehorse


Registered Assayer Province of British Columbia

APPENDIX "B" v.

To: Corcoran Engineering Ltd.

REPORT No A2 771

PAGE No. 1

BONDAR-CLEGG & COMPANY LTD.

DATE: October 8, 1974

1418 - 355 Burrard Street
Vancouver, B. C.

CERTIFICATE OF ASSAY

Samples submitted: Sept. 30, 1974
Results completed: October 8, 1974

OCT 10 1974

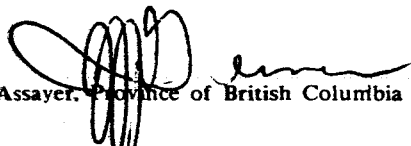
PROJECT: G. P. D.

I hereby certify that the following are the results of assays made by us upon the herein described core samples.

MARKED	GOLD		SILVER	Zn							TOTAL VALUE PER TON (2000 LBS.)
	Ounces per Ton	Value per Ton	Ounces per Ton	Percent	Percent	Percent	Percent	Percent	Percent		
6966				L0.05							
6967				L0.05							
6968				L0.05							

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L denotes 'less than'


Registered Assayer, Province of British Columbia

APPENDIX "B" VI



BONDAR-CLEGG & COMPANY LTD.

1500 PEMBERTON AVE., NORTH VANCOUVER, B.C. PHONE: 985-0681 TELEEX: 04-54554

Geochemical Lab Report

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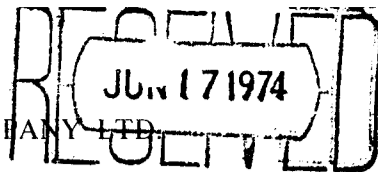
 Extraction Hot Aqua Regia
 Method Atomic Absorption
 Fraction Used -80 Mesh

 Report No. 44 - 07
 From Cordilleran Engineering Ltd.
 Date June 12, G.P.D. 19 74

SAMPLE NO.	Pb ppm	Zn ppm			SAMPLE NO.	Pb ppm	Zn ppm		
H.C.39E8N	47	194			H.C.42E36N	30	104		
10N	56	262			38N	33	84		
12N	32	140			40N	30	87		
14N	49	132			42N	30	128		
16N	24	116			44N	25	112		
18N	30	164			H.C.45E8N	44	74		
20N	32	160			10N	68	520		
22N	25	108			12N	32	124		
24N	32	128			14N	33	140		
26N	32	120			16N	40	131		
H.C.39E28N	28	88			18N	34	102		
30N	24	84			20N	30	132		
32N	16	16			22N	30	108		
34N	51	102			24N	32	116		
38N	57	102			26N	40	92		
42N	44	160			28N	32	112		
44N	31	152			30N	32	104		
H.C.42E8N	33	126			32N	33	112		
10N	36	160			34N	28	84		
12N	32	188			36N	36	72		
14N	24	174			38N	28	92		
16N	30	152			40N	35	100		
18N	32	140			42N	32	116		
20N	36	124			44N	33	154		
22N	36	124			H.C.48E 8N	43	230		
24N	33	119			10N	32	100		
26N	36	118			12N	48	112		
28N	29	92			14N	34	72		
30N	36	85			16N	85	310		
32N	39	92			18N	46	140		
34N	36	82			20N	54	120		

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GEOCHEMICAL LAB REPORT

SAMPLE NO.	Pb ppm	Zn ppm	SAMPLE NO.	Pb ppm	Zn ppm	REMARKS
H.C. 48E22N	28	104	H.C. 54E24N	20	88	
24N	24	121	26N	58	120	
26N	31	80	28N	28	84	
28N	25	78	30N	32	100	
30N	32	99	32N	32	100	
32N	32	92	34N	32	108	
34N	32	80	36N	32	77	
36N	31	76	38N	38	128	
38N	36	92	40N	30	136	
40N	32	100	42N	32	140	
42N	32	104	44N	32	120	
44N	33	104	H.C. 57E 8N	32	128	
H.C. 51E 8N	39	195	10N	34	85	
10N	36	195	12N	17	36	
14N	60	128	14N	56	320	
16N	48	108	16N	48	120	
18N	21	62	18N	49	128	
20N	35	100	20N	30	124	
22N	29	39	22N	43	120	
24N	33	120	24N	20	55	
26N	36	128	26N	32	92	
28N	45	146	28N	28	66	
30N	38	68	30N	22	160	
32N	31	82	32N	44	108	
34N	31	76	34N	54	82	
36N	40	45	36N	28	52	
38N	20	72	38N	34	96	
40N	22	115	40N	28	154	
42N	12	21	42N	32	120	
44N	25	88	44N	28	120	
H.C. 54E 8N	32	106				
10N	28	94				
16N	36	94				
18N	44	152				
20N	22	49				
22N	43	160				



Geochemical Lab Report Project # GPD

Extraction Hot Aqua Regia
Method Atomic Absorption
Fraction Used -80 Mesh

Report No. 44 - 12 *slip # 2*
From Cordilleran Engineering Ltd.
Date June 18, GPD 19 74

SAMPLE NO.	Pb ppm	Zn ppm			SAMPLE NO.	Pb ppm	Zn ppm		
H.C.30E8N	54	216			H.C.60E10N	46	81		
10N	84	72			12N	46	168		
12N	56	84			14N	32	52		
14N	30	124			16N	32	52		
16N	68	400			18N	36	86		
18N	39	120			20N	32	112		
H.C.33E8N	40	116			H.C.27E8S	53	304		
10N	38	120			10S	32	72		
12N	32	74			12S	44	88		
14N	56	252			14S	36	70		
16N	40	130			H.C.30E8S	39	148		
18N	36	100			10S	56	128		
H.C.36E8N	32	60			12S	32	104		
10N	45	156			14S	46	96		
12N	51	245			H.C.33E8S	39	80		
14N	28	132			10S	44	80		
16N	40	122			12S	28	42		
18N	38	116			14S	28	52		
20N	38	112			H.C.36E8S	68	216		
22N	45	88			10S	48	345		
24N	44	70			12S	60	171		
26N	38	42			14S	93	72		
28N	52	132			H.C.39E8S	168	1920		
30N	52	64			10S	364	284		
32N	50	132			12S	67	156		
34N	57	84			14S	58	128		
38N	32	125			H.C.42E8S	35	132		
40N	32	140			10S	50	192		
42N	40	188			12S	40	105		
44N	36	158			14S	65	124		
H.C.60E8N	56	127			H.C.45E8S	47	124		

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Geochemical Lab Report

JUN 24 1974

Extraction Hot Aqua Regia

Report No. 44-17

Method Atomic Absorption

From Cordilleran Engineering

Fraction Used -80 Mesh

Date June 20, G.P.A. 19 74

SAMPLE NO.	Pb ppm	Zn ppm			SAMPLE NO.	Pb ppm	Zn ppm		
H.C.63E8N	55	176			H.C.72E12S	56	350		
10N	66	128			14S	68	205		
H.C.63E8S	53	165			H.C.75E8N	38	104		
10S	20	85			10N	38	154		
12S	68	800			12N	40	60		
14S	40	92			H.C.75E14N	44	114		
H.C.66E8N	36	74			16N	40	86		
10N	30	68			H.C.75E8S	100	1060		
12N	54	132			10S	52	325		
14N	52	129			12S	49	172		
16N	40	108			14S	40	66		
H.C.66E8S	44	138			H.C.78E8N	40	96		
10S	35	128			10N	40	126		
12S	52	270			12N	52	285		
14S	42	104			14N	32	68		
H.C.69E8N	37	92			16N	44	156		
10N	36	49			H.C.78E8S	128	1040		
12N	60	186			10S	88	620		
14N	56	205			12S	36	158		
16N	40	136			14S	36	80		
H.C.69E8S	58	310			H.C.81E8N	36	180		
10S	100	820			10N	38	204		
12S	56	265			12N	44	230		
14S	60	176			14N	36	92		
H.C.72E8N	36	104			16N	68	190		
10N	40	62			H.C.81E8S	116	660		
12N	48	76			10S	60	315		
14N	42	84			12S	60	620		
16N	32	60			14S	100	330		
H.C.72E8S	86	660			H.C.84E8N	48	184		
10S	68	680			10N	70	640		

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44-17

Report No.

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JUN 24 1974

2

Page No.

GEOCHEMICAL LAB REPORT

SAMPLE NO.	Pb ppm	Zn ppm	SAMPLE NO.	Pb ppm	Zn ppm	REMARKS
H.C.84E12N	36	120	H.C.98E2S	104	3700	
14N	36	100	4S	80	1600	
16N	28	84	6S	84	1020	
H.C.84E8S	88	1080	8S	124	1380	
10S	78	980	10S	40	94	
12S	92	620	12S	56	128	
14S	64	300	H.C.108E0N	138	390	
H.C.87E8N	72	1000	2N	80	1780	
10N	40	116	4N	68	1800	
12N	30	80	6N	76	4800	
14N	20	76	H.C.108E8N	140	3450	
16N	20	36	H.C.108E2S	36	112	
H.C.87E8S	100	1000	4S	60	880	
10S	32	245	6S	48	880	
12S	76	960	H.C.2W0N	128	320	
14S	100	1000	2N	80	3200	
H.C.90E8N	104	1160	4N	71	360	
10N	26	86	6N	180	5700	
12N	12	80	8N	62	640	
14N	30	112	10N	820	2650	
16N	22	108	12N	440	3900	
H.C.90E8S	72	480	14N	40	108	
10S	64	320				
12S	108	960				
14S	74	600				
H.C.98E0N	196	2600				
2N	176	900				
4N	68	1800				
6N	100	1600				
8N	70	7000				
10N	60	124				
12N	40	560				
14N	40	600				
16N	25	255				
18N	28	1360				
20N	24	145				

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Geochemical Lab Report

Extraction Hoi Aqua Regia

Report No. 44-22

G.P.D.

Method Atomic Absorption

From Cordilleran Engineering

Fraction Used Soils - 80 Mesh
Rocks - 100 Mesh

Date June 26,

19 74

SAMPLE NO.	Pb ppm	Zn ppm			SAMPLE NO.	Pb ppm	Zn ppm		
H.C.1WON	112	700			H.C.27E18N	48	132		
2N	220	1560			H.C.90E8S	76	480		
4N	180	2900			6S	104	2700		
6N	188	2400			4S	180	640		
8N	375	3050			2S	390	2400		
10N	2350	8800			H.C.90E0N	180	3450		
12N	4000	5600			2N	132	1650		
14N	4000	13200			4N	108	1000		
16N	1900	10000			6N	136	1120		
18N	115	1700			ROCK 6858	128	3600		
20N	70	530							
22N	140	680							
24N	365	3150							
26N	78	1060							
28N	72	160							
30N	85	128							
32N	104	85							
34N	120	336							
36N	64	185							
HC27E	6S	44	116						
	4S	100	1160						
	2S	1650	3400						
	oN	1250	560						
	2N	180	160						
	4N	64	140						
	6N	124	1650						
	8N	88	700						
	10N	48	176						
	12N	56	138						
	14N	28	52						
	16N	72	210						

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Geochemical Lab Report

JUL 12 1974

Extraction Hot Aqua Regia Report No. 44-33
 Method Atomic Absorption From Cordilleran Engineering Limited
 Fraction Used -80 Mesh Date July 9, G.P.R. Ship # 5 19 74

SAMPLE NO.	Pb ppm	Zn ppm			SAMPLE NO.	Pb ppm	Zn ppm		
HC-LOE-2S	124	1920			HCL-12E-8S	1400	10800		
4S	96	880			10S	252	2240		
6S	140	2360			12S	Insufficient Sample			
8S	120	1880			14S	40	840		
10S	100	1040			HCL-15E-0S	1000	6400		
12S	100	1080			2S	800	360		
14S	68	680			4S	2000	9600		
HC-L3E-2S	192	1400			6S	320	6000		
4S	680	2480			8S	1960	11200		
6S	520	6800			10S	960	6400		
8S	80	1960			12S	124	880		
10S	48	440			14S	56	200		
12S	40	280			HCL-18E-0S	104	2200		
14S	48	180			2S	1280	7200		
HC-L6E-2S	1480	7200			4S	4700	10800		
4S	560	2680			6S	280	3600		
6S	800	4000			8S	480	3600		
8S	880	2920			10S	40	148		
10S	600	2120			12S	32	96		
12S	68	520			14S	48	100		
14S	720	5800			HCL-21E-0S	56	500		
HCL 9E-2S	244	3800			2S	220	1640		
4S	520	2080			4S	800	10400		
6S	600	3160			6S	480	7200		
8S	228	6400			8S	128	2560		
10S	640	4000			10S	28	116		
12S	60	2320			12S	24	80		
14S	Insufficient Sample				14S	44	88		
HCL 12E-2S	2680	800			HCL-24E-0S	1000	1260		
4S	30500	15400			2S	108	1800		
6S	2480	9000			4S	800	6800		

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SAMPLE NO.	Pb ppm	Zn ppm	SAMPLE NO.	Pb ppm	Zn ppm	REMARKS
HCL-24E-8S	56	128	HCL-96E-8N	56	3240	
10S	28	96	10N	76	300	
12S	36	88	12N	28	88	
14S	44	96	14N	28	160	
HC0W -2N	204	2580	16N	92	318	
4N	600	2360	18N	240	1480	
6N	260	3140	20N	20	60	
8N	800	2120	HCL-108E-8S	Insufficient		Sample
10N	880	7800	12N	68	880	
HCL-93E-2S	164	600	14N	84	3080	
4S	120	620	16N	Insufficient		Sample
6S	104	1440	18N	Insufficient		Sample
8S	48	148	20N	Insufficient		Sample
10S	40	144	HCL-111E-2S	72	240	
12S	40	136	4S	Insufficient		Sample
00N	224	3040	6S	40	720	
2N	96	980	8S	Insufficient		Sample
4N	120	2000	12S	60	1600	
6N	120	1200	00N	56	400	
8N	116	2040	2N	40	200	
10N	20	88	4N	80	2000	
12N	Insufficient		6N	56	1360	Sample
14N	20	108	8N	48	1760	
16N	40	124	10N	120	3520	
18N	36	116	14N	72	840	
20N	Insufficient		16N	36	520	Sample
HCL-96E-2S	120	2280	18N	40	560	
4S	104	2000	20N	40	262	
6S	180	1200	HCL-114E-2S	60	284	
8S	36	140	4S	80	720	
10S	40	92	6S	56	248	
12S	34	92	8S	48	156	
0N	160	2000	00N	20	116	
2N	100	920	2N	72	1680	
4N	72	1440	4N	76	160	
6N	112	1840	6N	60	1480	

PERSONNELRudolf Durfeld#112 - 1915 Haro Street
Vancouver, B.C.Glen HolmesR.R. #1
North Bay, OntarioGrant PaulsonR.R. #2
404 Polaris Drive
Prince George, B.C.Carl Verley3829 West 35th Avenue
Vancouver, B.C.

REFERENCESADAMS, J.E. and RHODES, M.L.:

- 1960: "Dolomitization by Seepage Refluction"
Amer.Assn.Pet.Geol. Bull 44, pp.1912-1920.

JACKSON, S.P. and BEALES, F.W.:

- 1967: "An Aspect of Sedimentary Basin
Evolution: The concentration of
Mississippi Valley-Type Ores During
Late Stages of Diagenesis"
Bull. of Can.Pet.Geol., Vol 15, No. 4,
pp. 384-433.

WHEELER, J.O.:

- 1954: "A Geological Reconnaissance of the
Northern Selwyn Mountains Region,
Yukon and North West Territories".
G.S.C. Paper 53-7.

CANADA)
)
 TO WIT:) In the matter of a geological and geochemical report on behalf of Great Plains Development Company of Canada Ltd.

I, John W. Stollery, Agent for Cordilleran Engineering Limited
 of city of Vancouver, Province of British Columbia.

do solemnly declare, - that geological mapping, prospecting and geochemical sampling were conducted on the Bob 1-8, Gep 1-8, Kis 1-8, Gyk 1-8 and Ray 1-8 mineral claims, Mayo Mining District, Y.T., during the period May 29th to June 30th, 1974 at a cost of:

Consulting Fees	.....	\$7,200.87	
Salaries	.....	2,420.01	
Fixed-Wing and Helicopter	.....	4,861.08	
Geochemical analysis	.....	731.00	
Office supplies, telephone, freight etc ..		174.21	
Travel	.....	828.71	
Camp supplies and food	.....	<u>10,011.98</u>	<u>\$26,227.86</u>

And I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of The Canada Evidence Act.

Declared before me at Vancouver)
 Province of)
 in the British Columbia this)
29th day of November 1974)

Anthony J. Jasich
 A Commissioner for Oaths for Yukon
 Territory OR Notary Public for
 BRITISH COLUMBIA

CORDILLERAN ENGINEERING LIMITED

MINERAL EXPLORATION
MANAGEMENT AND
ENGINEERING CONSULTANTS

1418 - 355 BURRARD STREET
VANCOUVER, B.C.
V6C 2P8
TELEPHONE (604) 681-8381

WRITER'S CERTIFICATE

I, Carl G. Verley of Vancouver, British Columbia hereby certify that:

1. I am a geologist residing at 3829 West 35th Avenue, and employed by Cordilleran Engineering Limited of 1418 - 355 Burrard Street, Vancouver, B. C. V6C 2G8.
2. I am a graduate of the University of British Columbia, B.Sc., in 1974, and have practiced my profession since that time.
3. I am the author of this report which is based on work conducted during the period May 29th to June 30th and August 16th to September 17th, 1974, undertaken on behalf of Great Plains Development Company of Canada Ltd.
4. I have no beneficial interest in the properties or securities of Great Plains Development Company of Canada Ltd. nor do I expect to receive any.

CORDILLERAN ENGINEERING LIMITED

Carl Verley

C. G. Verley, B.Sc.
Geologist

November, 1974
Vancouver, B.C.

CORDILLERAN ENGINEERING LIMITED

MINERAL EXPLORATION
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VANCOUVER, B.C.
V6C 2P8
TELEPHONE (604) 681-8381

SUPERVISOR'S CERTIFICATE

I, Owen S. Hairsine of Port Moody, British Columbia hereby certify that:

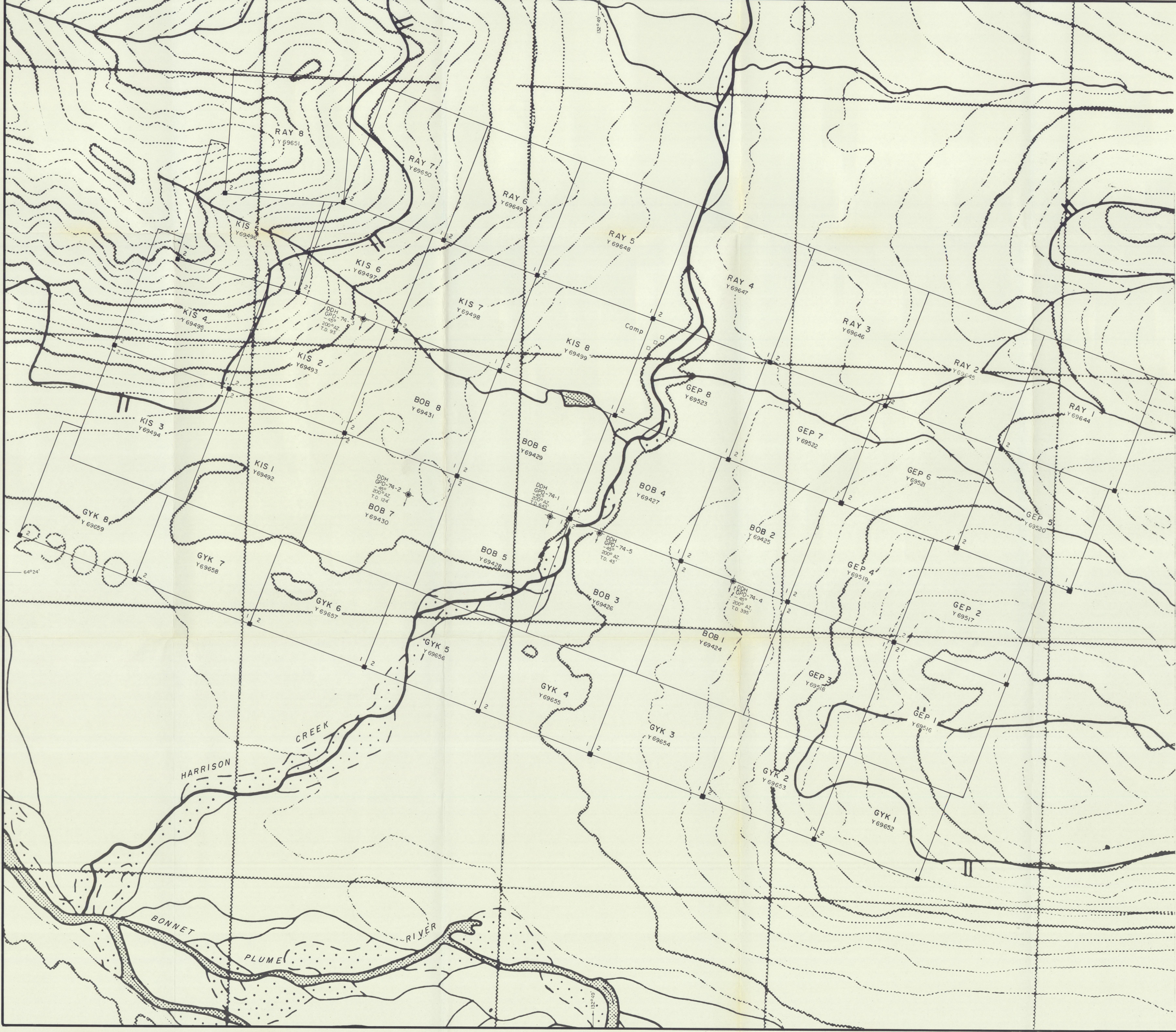
1. I am a geological engineer residing at 1069 Cecile Drive, Port Moody, B.C.
2. I am employed by Cordilleran Engineering Limited of 1418 - 355 Burrard Street, Vancouver, B.C., V6C 2G8.
3. I received a Bachelor of Science degree from Michigan Technological University, Houghton, Michigan in 1969 and have practiced my profession since that time.
4. I am a member of the Association of Professional Engineers of the Province of British Columbia.
5. I supervised the writing of this report and the field work upon which it is based.
6. I have no beneficial interest in Great Plains Development Company of Canada Ltd. or the mineral claims described in this report, nor do I expect to receive any.

CORDILLERAN ENGINEERING LIMITED



O. S. Hairsine, P.Eng.
Geologist

November, 1974
Vancouver, B.C.



LEGEND

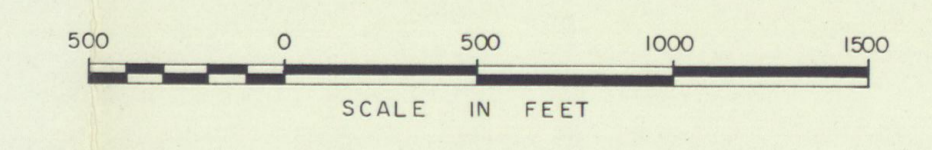
- CLAIM POST LOCATION (1 = INITIAL POST, 2 = FINAL POST)
- DIAMOND DRILL HOLE (INCLINATION, AZIMUTH AND TOTAL DEPTH)
- CREEK AND DIRECTION OF FLOW
- DRY RIVER BED
- TIMBERLINE

NOTES:
 MAGNETIC DECLINATION 34° 30' (1973)
 TOPOGRAPHIC BASE FROM N.T.S. MAP 106 C/7
 CONTOUR INTERVAL: 100 FEET

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.

CLAIM MAP

HARRISON CREEK OPTION
 NADALEEN RIVER AREA (N.T.S. 106 C)
 MAYO MINING DISTRICT, YUKON TERRITORY



BY
 CORDILLERAN ENGINEERING LTD.
 1418 - 355 BARRARD STREET
 VANCOUVER 1, B.C.
 NOV. 1974

Handwritten signature
 PLATE 1

LEGEND

- S** SHALE:
THIN-BEDDED TO LAMINATED, LIGHT GREY TO LIGHT GREENISH-GREY, BROWNISH WEATHERING, PHYLITIC SHALE. THE BOTTOM OF THIS UNIT CONTAINS A LIGHT BROWN SHALE THAT COMMONLY CONTAINS WELL-ROUNDED, BLACK SAND GRAINS (OR OSTRACODS?).
- L** LIMESTONE:
LIGHT TO DARK GREY, MICROCRYSTALLINE TO FINELY CRYSTALLINE REEFOLD LIMESTONE, CONTAINS BRECCIA BEDS AS WELL AS THIN-BEDDED AND MASSIVE SEQUENCES. ALSO CONTAINS TETRACORALS (?) AND OTHER FOSSILS, LOCALLY PYRITIC.
- D** SHALE:
MEDIUM TO DARK GREY, LAMINATED SHALE THAT CONTAINS REDDISH-BROWN WEATHERING, QUARTZ SANDSTONE BEDS (UP TO 2 FEET THICK), AND LIMESTONE IN THIN BEDS TO MORE MASSIVE REEFOLD UNITS. ON A WEATHERED SURFACE THIS UNIT VARIES FROM A DARK GREY TO A RUSTY BROWN COLOR. A WELL DEVELOPED CLEAVAGE CUTS THE SHALE GIVING IT A SHATTERED OR SHEARED APPEARANCE.
- E** DOLOSTONE:
LIGHT TO MEDIUM GREY, THIN-BEDDED, FINELY CRYSTALLINE DOLOSTONE THAT IS VUGGY IN THE DARKER GREY SEQUENCES, VUGS BEING FILLED WITH DOLOMITE, QUARTZ, PYROBITUMIN AND SULPHIDES (PYRITE, SPHALERITE, AND GALENA). LIGHT GREY SEQUENCES ARE COMMONLY THIN-BEDDED AND BUFF COLORED ON WEATHERED SURFACES.
- DOLOSTONE BRECCIA:** OCCURS WITHIN THE DOLOSTONE AND IS MADE UP OF GENERALLY COBBLE-SIZED CLASTS OF DARK GREY, THIN-BEDDED, FINELY CRYSTALLINE DOLOSTONE IN A MATRIX THAT VARIES FROM DARK GREY DOLOSTONE TO PYRITE TO CREAMY COLORED, COARSELY CRYSTALLINE DOLOMITE WITH SPHALERITE AND GALENA. THE PRESENCE OF PYRITE GIVES THE BRECCIA ZONES A RUSTY APPEARANCE ON WEATHERED SURFACES.
- SD** SILICEOUS DOLOSTONE:
BUFF WEATHERING, MEDIUM TO LIGHT GREY AND MOTTLED GREY, MASSIVE, MEDIUM CRYSTALLINE DOLOSTONE THAT CONTAINS SILICIFIED PISOLITES (OR ONCOLITES?) AND MORE IRREGULAR CHERTY BANDS, AS WELL AS RARE INTRACLASTS OF THIN-BEDDED DOLOSTONE. THE WESTERN PART OF THIS UNIT CONTAINS SANDY LENSES, THE SAND BEING COLORLESS, FROSTED, WELL ROUNDED QUARTZ GRAINS, WHICH VARY IN ABUNDANCE LOCALLY PRODUCING SANDSTONE.
- F** SHALE:
MEDIUM TO DARK GREY, THIN-BEDDED, SLIGHTLY PHYLITIC SHALE THAT CONTAINS RUSTY WEATHERING LAMINATIONS AS WELL AS THIN, DARK GREY MICRITE BEDS AND SANDSTONE BEDS. GRAPHIC NEAR THE TOP.

- STRIKE AND DIP OF BEDDING
STRIKE AND DIP OF FRACTURES
STRIKE AND DIP OF CLEAVAGE
STRIKE AND DIP OF AXIAL PLANES TO MINOR FOLDS
TREND AND PLUNGE OF FOLD AXIS TO MINOR FOLDS
TREND AND PLUNGE OF PENCIL LINEATIONS
FAULT, DEFINITE, INFERRED
GEOLOGICAL CONTACT, DEFINITE, INFERRED, ASSUMED
- MINERALIZATION, GALENA, SPHALERITE, SMITHSONITE
FOSSIL LOCALITY
ROCK CHIP SAMPLE SITE AND NUMBER SEE APPENDIX FOR RESULTS.
OUTCROP
TALUS
AREA MAPPED AT 1" = 100' SEE PLATE 4
DIAMOND DRILL HOLE INCLINATION, AZIMUTH AND TOTAL DEPTH
DIAMOND DRILL HOLE CROSS-SECTIONS
STRUCTURAL CROSS-SECTIONS

NOTES:

MAGNETIC INCLINATION 34° 30' (1973)
TOPOGRAPHIC BASE FROM N.T.S. MAP 106 C/7
CONTOUR INTERVAL: 100 FEET

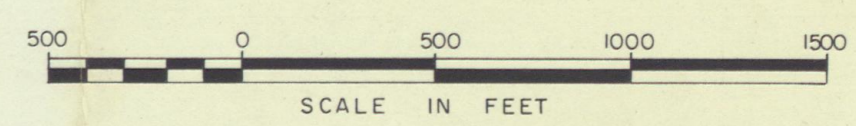
GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.

GEOLOGY MAP

HARRISON CREEK OPTION

NADALEEN RIVER AREA (N.T.S. 106 C)

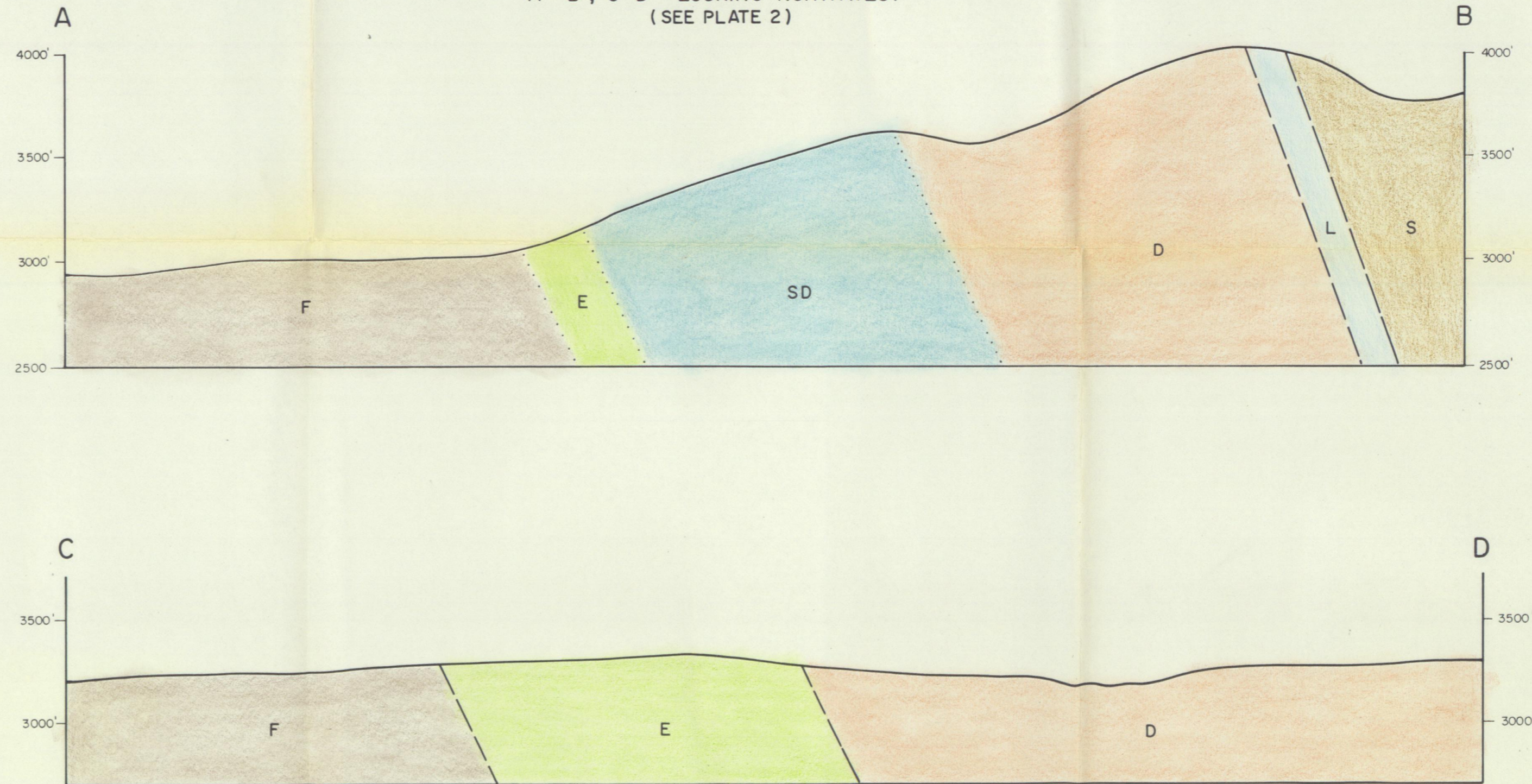
MAYO MINING DISTRICT, YUKON TERRITORY



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NOV. 1974

GENERALIZED STRUCTURAL CROSS-SECTIONS

A - B, C-D LOOKING NORTHWEST
(SEE PLATE 2)



LEGEND

S

SHALE:

THIN-BEDDED TO LAMINATED, LIGHT GREY TO LIGHT GREENISH-GREY, BROWNISH WEATHERING, PHYLLITIC SHALE. THE BOTTOM OF THIS UNIT CONTAINS A LIGHT BROWN SHALE THAT COMMONLY CONTAINS WELL-ROUNDED, BLACK SAND GRAINS (OR OSTRACODS?).

L

LIMESTONE:

LIGHT TO DARK GREY, MICROCRYSTALLINE TO FINELY CRYSTALLINE REEFROID LIMESTONE, CONTAINS BRECCIA BEDS AS WELL AS THIN-BEDDED AND MASSIVE SEQUENCES. ALSO CONTAINS TETRACORALS (?) AND OTHER FOSSILS. LOCALLY PYRITIC.

D

SHALE:

MEDIUM TO DARK GREY, LAMINATED SHALE THAT CONTAINS REDDISH-BROWN WEATHERING, QUARTZ SANDSTONE BEDS (UP TO 2 FEET THICK), AND LIMESTONE IN THIN BEDS TO MORE MASSIVE REEFROID UNITS. ON A WEATHERED SURFACE THIS UNIT VARIES FROM A DARK GREY TO A RUSTY BROWN COLOR. A WELL DEVELOPED CLEAVAGE CUTS THE SHALE GIVING IT A SHATTERED OR SHEARED APPEARANCE.

E

DOLOSTONE:

LIGHT TO MEDIUM GREY, THIN-BEDDED, FINELY CRYSTALLINE DOLOSTONE THAT IS VUGGY IN THE DARKER GREY SEQUENCES, VUGS BEING FILLED WITH DOLOMITE, QUARTZ, PYROBITUMIN AND SULPHIDES (PYRITE, SPHALERITE, AND GALENA). LIGHT GREY SEQUENCES ARE COMMONLY THICK-BEDDED AND BUFF COLORED ON WEATHERED SURFACES.

DOLOSTONE BRECCIA

OCCURS WITHIN THE DOLOSTONE AND IS MADE UP OF GENERALLY COBBLE-SIZED CLASTS OF DARK GREY, THIN-BEDDED, FINELY CRYSTALLINE DOLOSTONE IN A MATRIX THAT VARIES FROM DARK GREY DOLOSTONE TO PYRITE TO CREAMY COLORED, COARSELY CRYSTALLINE DOLOMITE WITH SPHALERITE AND GALENA. THE PRESENCE OF PYRITE GIVES THE BRECCIA ZONES A RUSTY APPEARANCE ON WEATHERED SURFACES.

SD

SILICEOUS DOLOSTONE:

BUFF WEATHERING, MEDIUM TO LIGHT GREY AND MOTTLED GREY, MASSIVE, MEDIUM CRYSTALLINE DOLOSTONE THAT CONTAINS SILICIFIED PISOLITES (OR ONCOLITES?) AND MORE IRREGULAR CHERTY BANDS, AS WELL AS RARE INTRACLASTS OF THIN-BEDDED DOLOSTONE. THE WESTERN PART OF THIS UNIT CONTAINS SANDY LENSES, THE SAND BEING COLORLESS, FROSTED, WELL-ROUNDED QUARTZ GRAINS, WHICH VARY IN ABUNDANCE LOCALLY PRODUCING SANDSTONE.

F

SHALE:

MEDIUM TO DARK GREY, THIN-BEDDED, SLIGHTLY PHYLLITIC SHALE THAT CONTAINS RUSTY WEATHERING LAMINATIONS AS WELL AS THIN, DARK GREY MICRITE BEDS AND SANDSTONE BEDS.

GEOLOGICAL CONTACT: INFERRED, ASSUMED

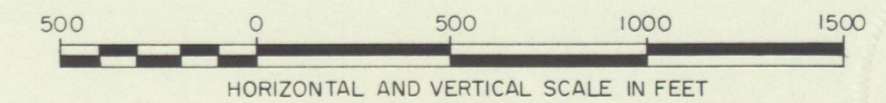
GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.

STRUCTURAL CROSS-SECTIONS

HARRISON CREEK OPTION

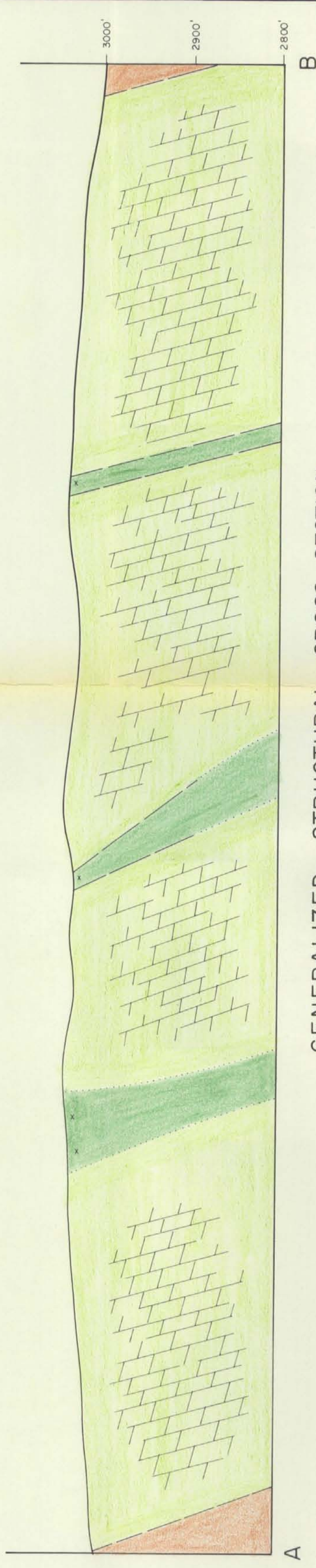
NADALEEN RIVER AREA (N.T.S. 106 C)

MAYO MINING DISTRICT, YUKON TERRITORY



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PROFESSIONAL
ENGINEER
O.S. HARRIS
CRITIC
PLATE 3



GENERALIZED STRUCTURAL CROSS-SECTION FROM A TO B

LEGEND

- SHALE:**
 MEDIUM TO DARK GREY, LAMINATED, LOCALLY PHYLLITIC SHALE THAT CONTAINS REDDISH-BROWN WEATHERING, QUARTZ SANDSTONE AND LIMESTONE IN THIN BEDS TO MORE MASSIVE, REEFOLD UNITS. ON A WEATHERED SURFACE THIS UNIT VARIES FROM A DARK GREY TO A RUSTY COLOR.

- DOLOSTONE:**
 A FINELY CRYSTALLINE, LIGHT TO DARK GREY, THIN-BEDDED UNIT THAT IS VUGGY IN THE DARKER GREY SEQUENCES, VUGS BEING FILLED WITH SECONDARY DOLOMITE, QUARTZ, PYROBITUMIN AND SULPHIDES (PYRITE, SPHALERITE AND GALENA). LIGHT GREY SEQUENCES ARE COMMONLY THICK-BEDDED AND BUFF COLORED ON WEATHERED SURFACES.

- DOLOSTONE BRECCIA:**
 A BRECCIA THAT IS MADE UP OF GENERALLY COBBLE SIZED, ANGULAR CLASTS OF DARK GREY THIN-BEDDED, FINELY CRYSTALLINE DOLOSTONE IN A MATRIX THAT VARIES FROM PURE PYRITE TO CREAMY COLORED, CRYSTALLINE DOLOMITE WITH SPHALERITE AND GALENA. THE PRESENCE OF PYRITE GIVES THIS UNIT A RUSTY APPEARANCE.

- STRIKE AND DIP OF BEDDING

- STRIKE AND DIP OF FRACTURES

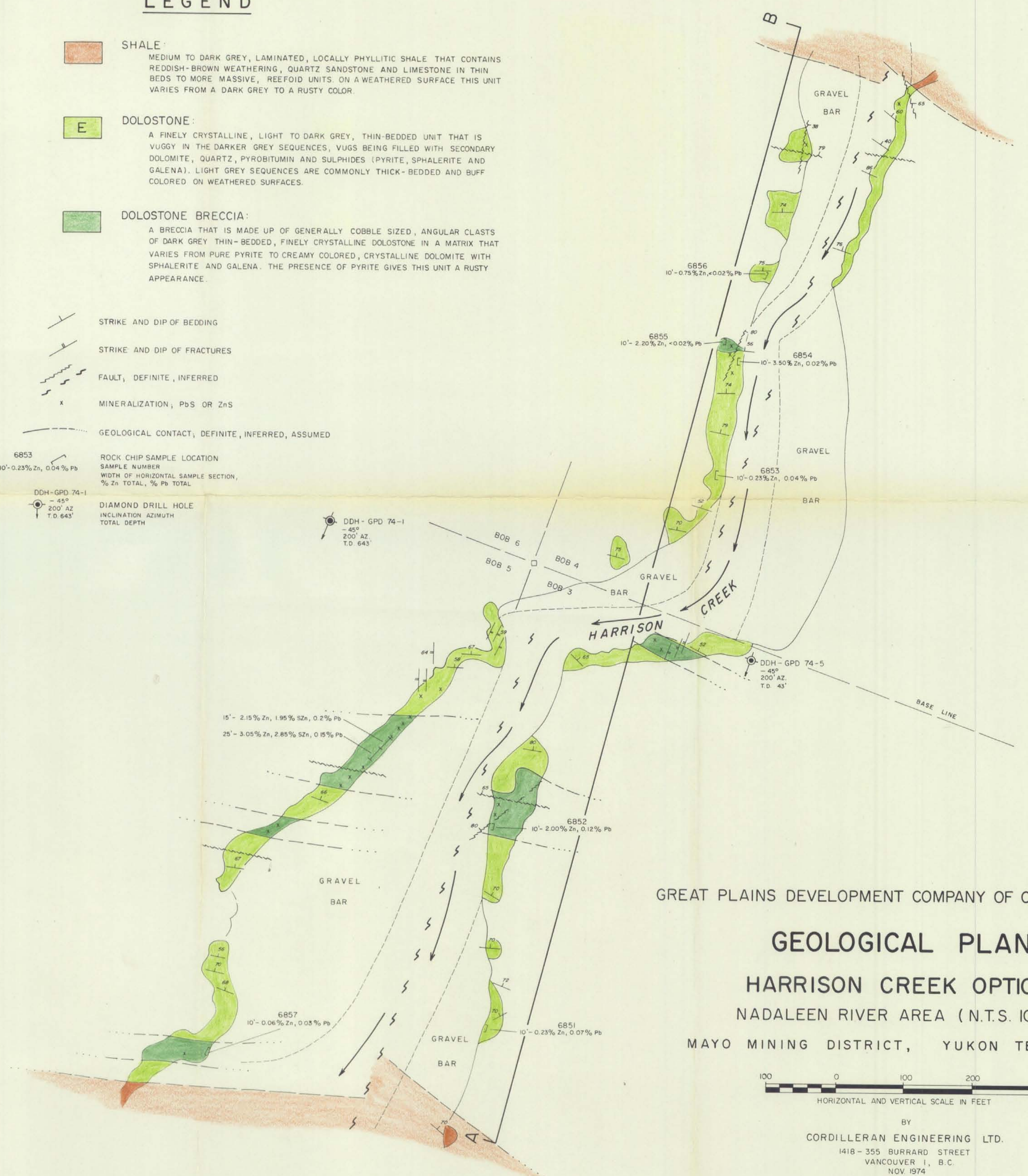
- FAULT, DEFINITE, INFERRED

- MINERALIZATION, Pbs OR Zns

- GEOLOGICAL CONTACT, DEFINITE, INFERRED, ASSUMED

- ROCK CHIP SAMPLE LOCATION
 SAMPLE NUMBER
 WIDTH OF HORIZONTAL SAMPLE SECTION,
 % Zn TOTAL, % Pb TOTAL

- DIAMOND DRILL HOLE
 INCLINATION AZIMUTH
 TOTAL DEPTH



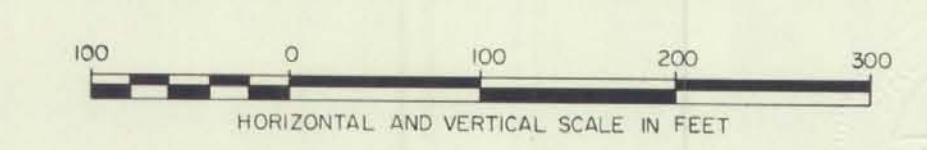
GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.

GEOLOGICAL PLAN

HARRISON CREEK OPTION

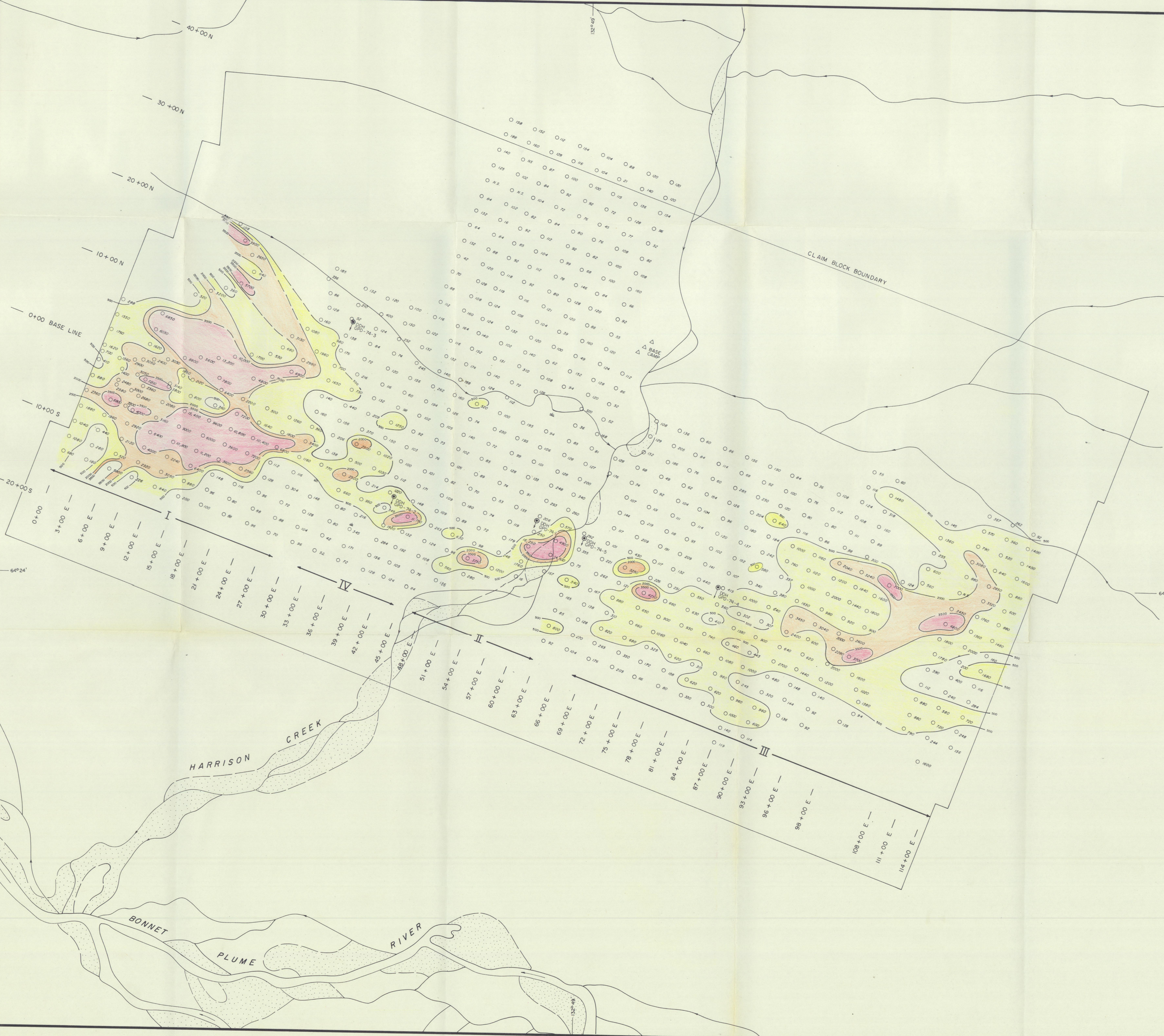
NADALEEN RIVER AREA (N.T.S. 106 C)

MAYO MINING DISTRICT, YUKON TERRITORY



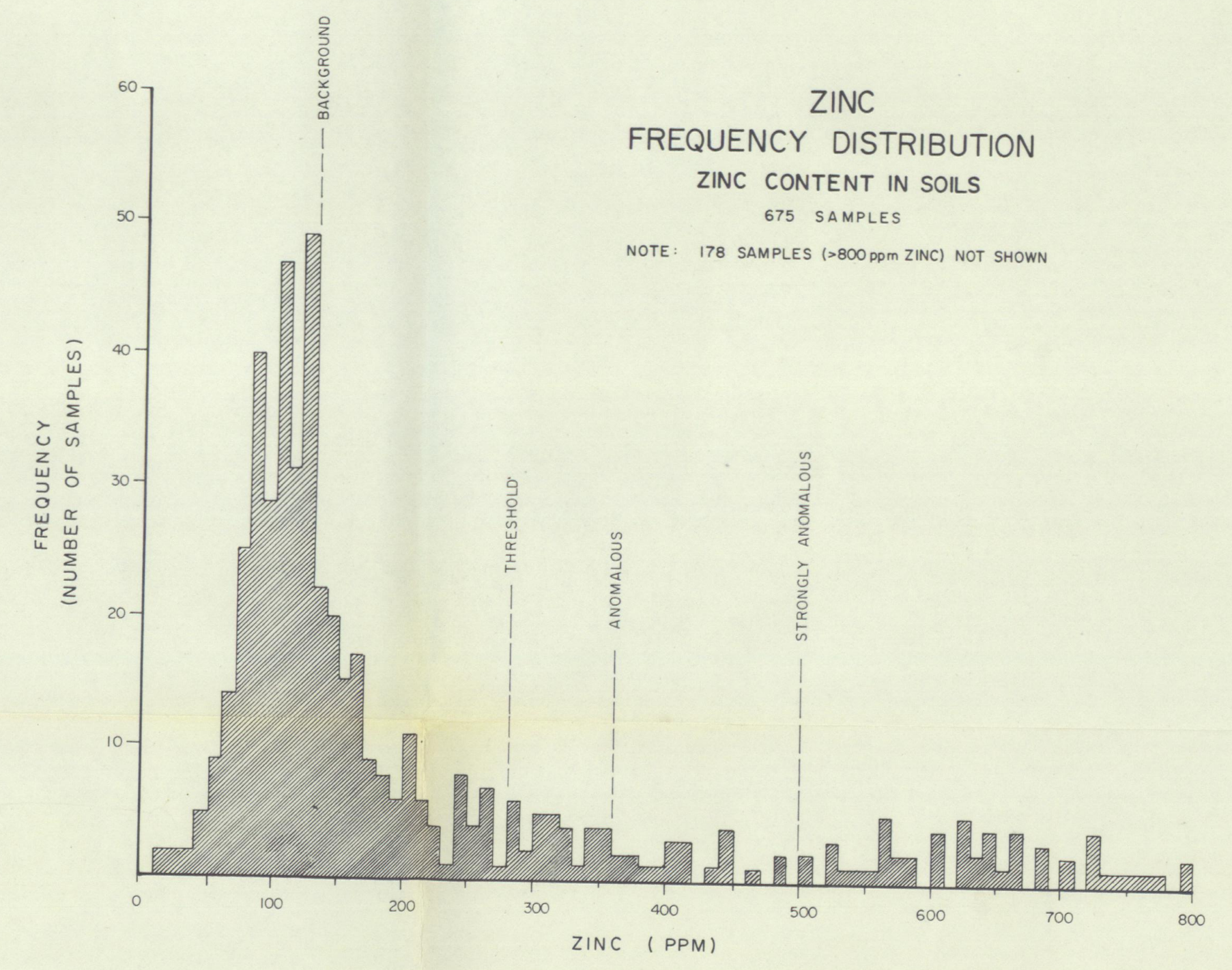
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Handwritten signature
 PLATE 4

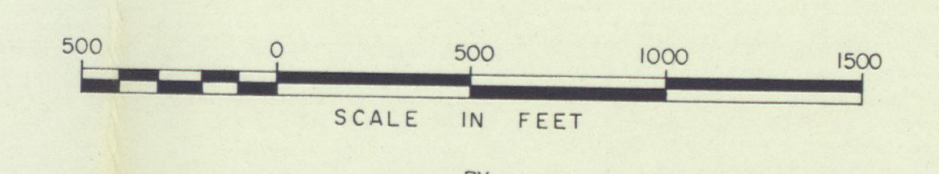


LEGEND

- DIAMOND DRILL HOLE LOCATION
 - SOIL SAMPLE LOCATION
 - BACKGROUND 0 - 129 ppm
 - ABOVE BACKGROUND 130 - 279 ppm
 - POSSIBLE ANOMALY 280 - 359 ppm
 - PROBABLE ANOMALY 360 - 499 ppm
 - STRONG ANOMALY 500 + ppm
- CONTOURS**
- 500 - 2000 ppm
 - 2000 - 3500 ppm
 - 3500 + ppm
- ← II → ANOMALOUS AREAS (SEE REPORT)



GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.
ZINC CONTENT OF SOILS
HARRISON CREEK OPTION
 NADALEEN RIVER AREA (N.T.S. 106 C)
 MAYO MINING DISTRICT, YUKON TERRITORY



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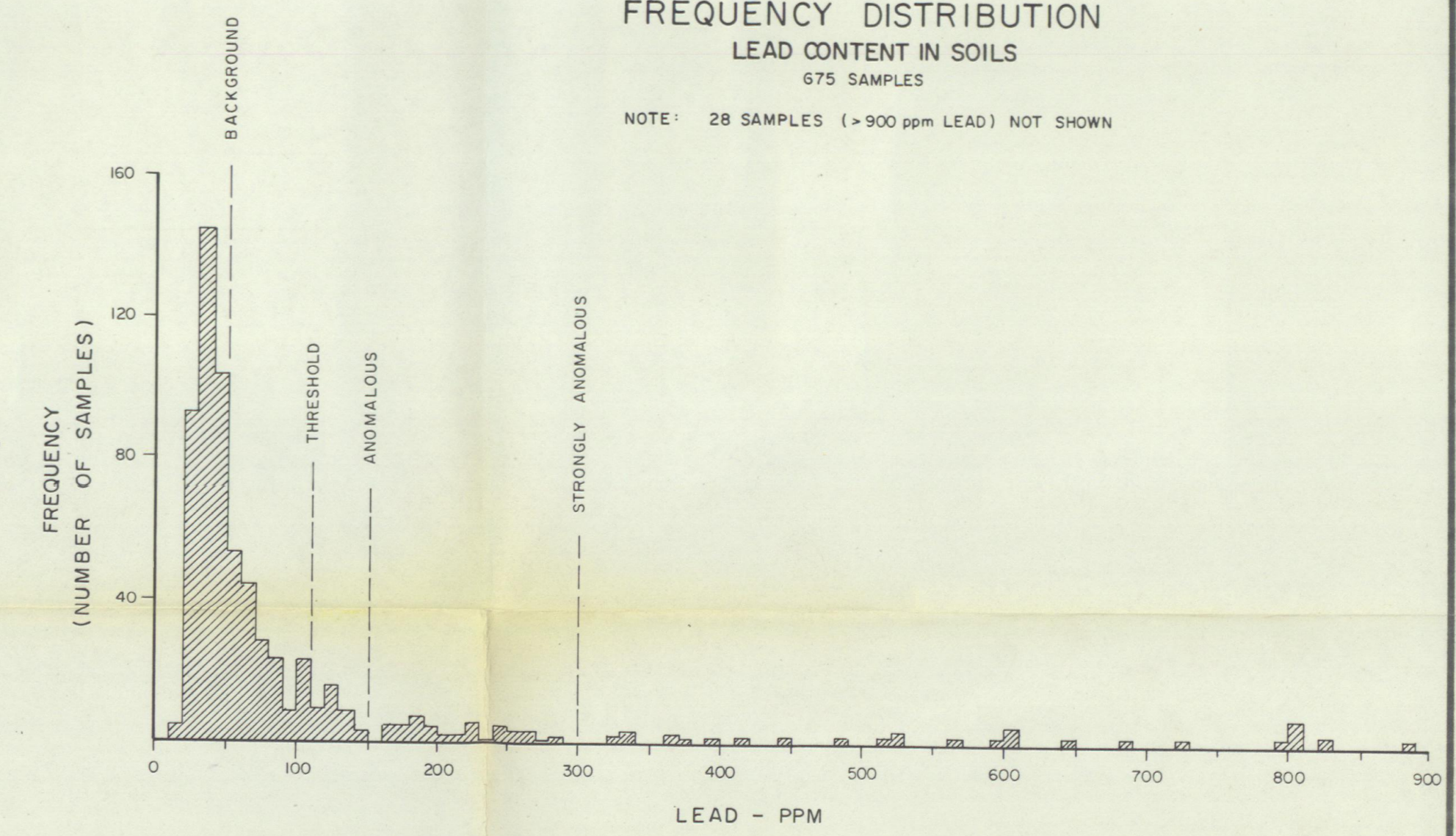


LEGEND

- DIAMOND DRILL HOLE LOCATION
 - SOIL SAMPLE LOCATION
 - BACKGROUND LEAD CONTENT 0 - 49 ppm
 - ABOVE BACKGROUND 50 - 109 ppm
 - POSSIBLE ANOMALY 110 - 149 ppm
 - PROBABLE ANOMALY 150 - 299 ppm
 - STRONG ANOMALY 300 + ppm
- CONTOURS**
- 300 - 1300 ppm
 - 1300 - 2300 ppm
 - 2300 + ppm
 - II ANOMALOUS AREAS (SEE REPORT)

**LEAD FREQUENCY DISTRIBUTION
LEAD CONTENT IN SOILS**
675 SAMPLES

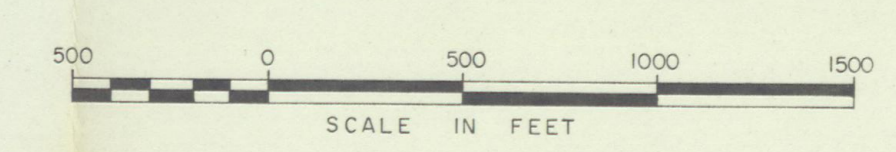
NOTE: 28 SAMPLES (>900 ppm LEAD) NOT SHOWN



GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.

LEAD CONTENT OF SOILS

HARRISON CREEK OPTION
NADALEEN RIVER AREA (N.T.S. 106 C)
MAYO MINING DISTRICT, YUKON TERRITORY



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10+00 S 8+00 S 6+00 S 4+00 S 2+00 S 0+50 S 0+00

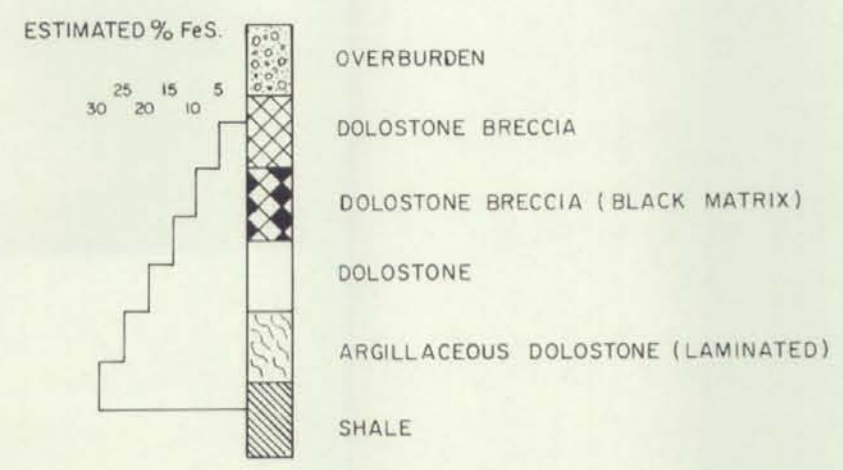
I.P.
PPM ZINC ○ 720
PPM LEAD ○ 140

? ○ 1760 ○ 16250 ○ 250 ○ 206
○ 177 ○ 1525 ○ 53 ○ 46

DDH - GPD - 74 - 1

GEOLOGY PROJECTED 300' WEST FROM HARRISON CREEK.

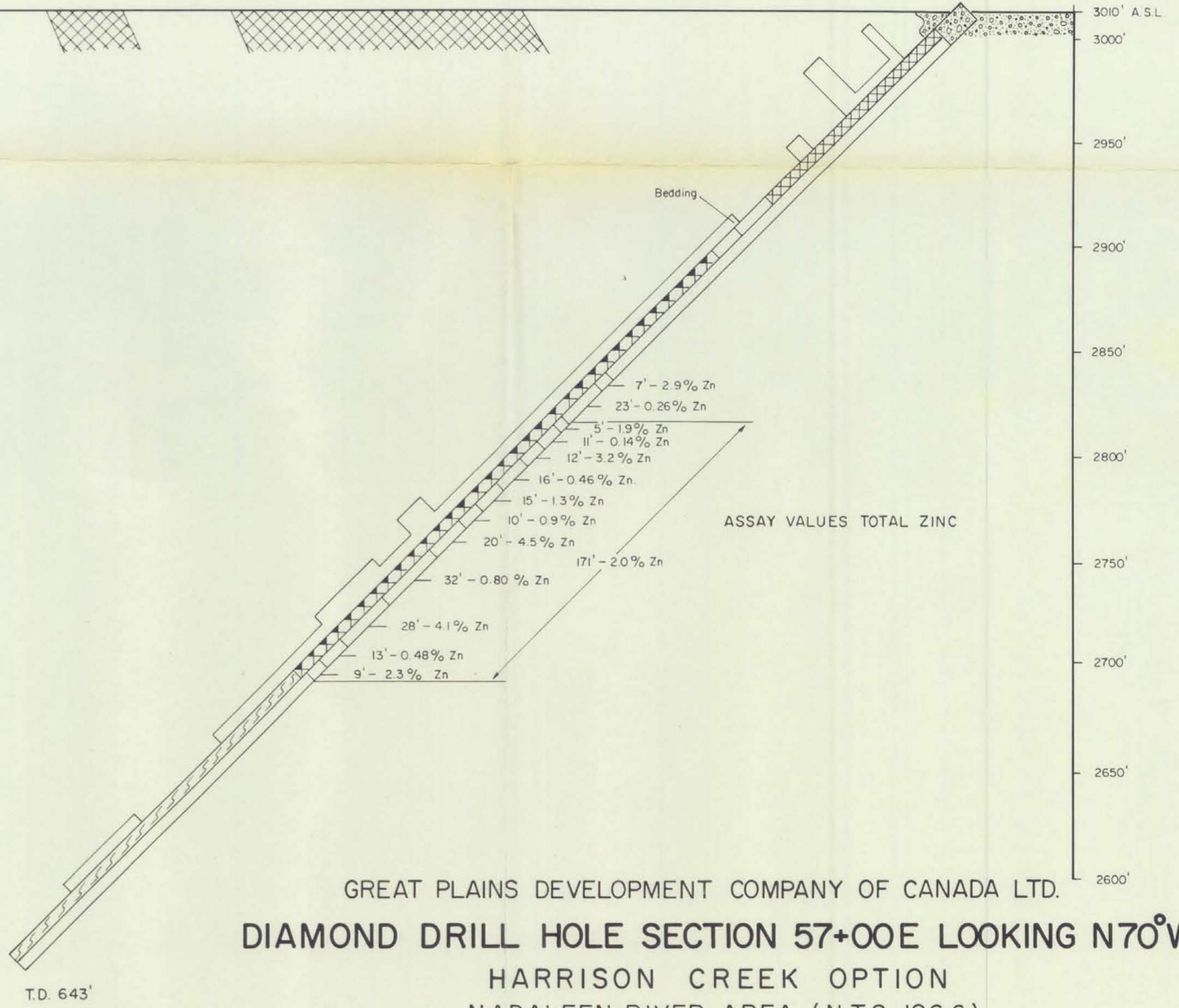
LEGEND



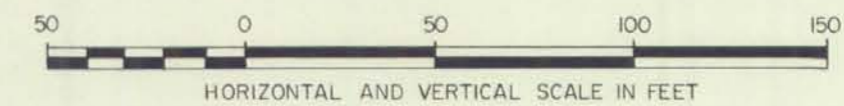
INDUCED POLARIZATION ANOMALIES BY McPHAR GEOPHYSICS, 1974

- DEFINITE
- PROBABLE
- POSSIBLE
- ? LIMIT OF SURVEY

GEOCHEM.		
	ZINC (ppm)	LEAD (ppm)
○ BACKGROUND	0-129	0-49
○ ABOVE BACKGROUND	130-279	50-109
○ POSSIBLE ANOMALY	280-359	110-149
○ PROBABLE ANOMALY	360-499	150-299
○ STRONG ANOMALY	500+	300+



GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.
DIAMOND DRILL HOLE SECTION 57+00E LOOKING N70°W
 HARRISON CREEK OPTION
 NADALEEN RIVER AREA (N.T.S. 106 C)
 MAYO MINING DISTRICT, YUKON TERRITORY



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Signature
 PLATE 7

8+00S

6+00S

4+50S

4+00S

I.P.

○ 1920 PPM ZINC
 ○ 168 PPM LEAD

○ 345
 ○ 66

○ 1220
 ○ 510

DDH - GPD - 74 - 2

SURFACE GEOLOGY

LEGEND



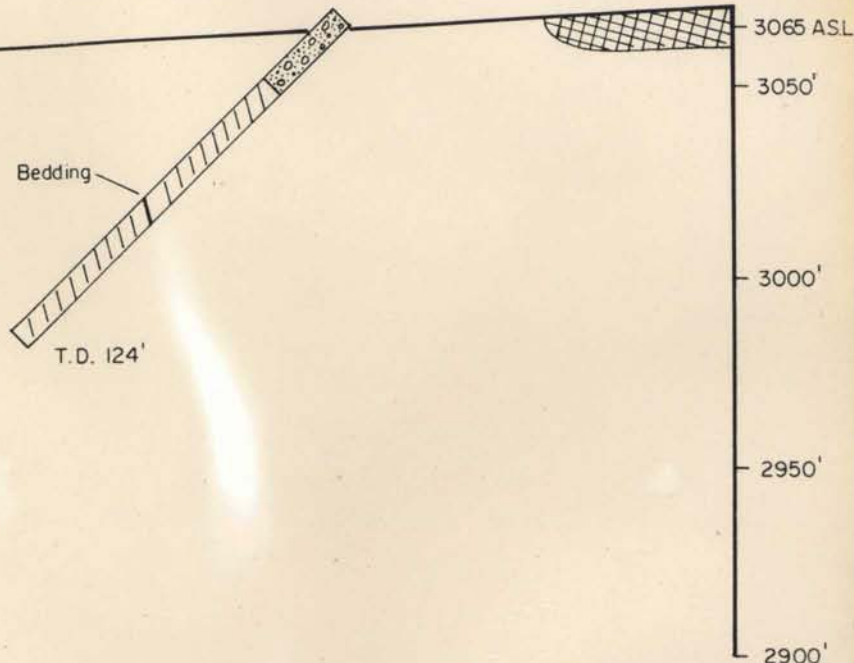
OVERBURDEN
 SILICEOUS DOLOSTONE
 CALCAREOUS SHALE

INDUCED POLARIZATION ANOMALIES
 McPHAR GEOPHYSICS, 1974

———— DEFINITE
 - - - - - PROBABLE
 ○ ○ ○ ○ ○ POSSIBLE
 ? LIMIT OF SURVEY

GEOCHEM.

	ZINC (ppm)	LEAD (ppm)
○ BACKGROUND	0 - 129	0 - 49
○ ABOVE BACKGROUND	130 - 279	50 - 109
○ POSSIBLE ANOMALY	280 - 359	110 - 149
○ PROBABLE ANOMALY	360 - 499	150 - 299
○ STRONG ANOMALY	500+	300+



GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.

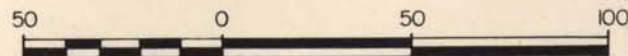
DIAMOND DRILL HOLE SECTION

40+00E LOOKING N 70°W

HARRISON CREEK OPTION

NADALEEN RIVER AREA, (N.T.S.106C)

MAYO MINING DISTRICT, YUKON TERRITORY



HORIZONTAL AND VERTICAL SCALE IN FEET

BY

CORDILLERAN ENGINEERING LTD.

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VANCOUVER 1, B.C.

NOV. 1974

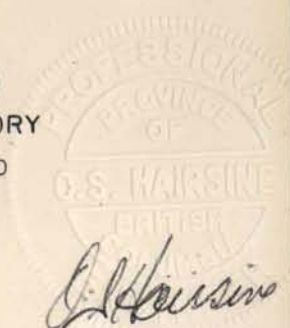


PLATE 8

I.P.

12+00N

14+00N

PPM ZINC ○ 138

PPM LEAD ○ 56

○ 52

○ 28

DDH-GPD-74-3

3400'
ASL

3350'

3300'

3250'

Hole discontinued
due to fault

Bedding

T.D. 93'

LEGEND



OVERBURDEN

SHALE

FAULT

INDUCED POLARIZATION ANOMALIES,
McPHAR GEOPHYSICS, 1974

———— DEFINITE

——— PROBABLE

..... POSSIBLE

? LIMIT OF SURVEY

GEOCHEM.

	ZINC (ppm)	LEAD (ppm)
○ BACKGROUND	0 - 129	0 - 49
○ ABOVE BACKGROUND	130 - 279	50 - 109
○ POSSIBLE ANOMALY	280 - 359	110 - 149
○ PROBABLE ANOMALY	360 - 499	150 - 299
○ STRONG ANOMALY	500 +	300 +

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.

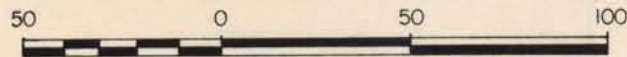
DIAMOND DRILL HOLE SECTION

27+00E LOOKING N 70°W

HARRISON CREEK OPTION

NADALEEN RIVER AREA, (NTS. 106C)

MAYO MINING DISTRICT, YUKON TERRITORY



HORIZONTAL AND VERTICAL SCALE IN FEET

BY

CORDILLERAN ENGINEERING LTD.

1418 - 355 BARRARD STREET

VANCOUVER 1, B.C.

NOV. 1974



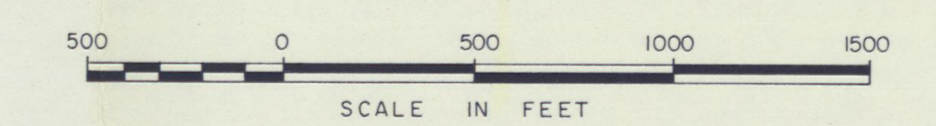
PLATE 9



LEGEND

- > 800 $\rho_a / 2\pi$ OHM FT.
- 400 - 800 $\rho_a / 2\pi$ OHM FT.
- 200 - 400 $\rho_a / 2\pi$ OHM FT.
- 100 - 200 $\rho_a / 2\pi$ OHM FT.
- 50 - 100 $\rho_a / 2\pi$ OHM FT.
- 25 - 50 $\rho_a / 2\pi$ OHM FT.
- < 25 $\rho_a / 2\pi$ OHM FT.
- NEAR SURFACE RESISTIVITY HIGH
- DDH-GPD-74-2 DIAMOND DRILL HOLE
- CREEK AND DIRECTION OF FLOW

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.
INTERPRETED RESISTIVITY PLAN
HARRISON CREEK OPTION
 NADALEEN RIVER AREA (N.T.S. 106 C)
 MAYO MINING DISTRICT, YUKON TERRITORY



BY
 CORDILLERAN ENGINEERING LTD.
 1418 - 355 BURNARD STREET
 VANCOUVER 1, B.C.
 NOV. 1974

NOTE: MAGNETIC DECLINATION 34° 30' (1973)
 TOPOGRAPHIC BASE FROM N.T.S. MAP 106 C/7.

Handwritten signature
 PLATE II



LEGEND

- > 800 $\rho_a / 2\pi$ OHM FT.
- 400 - 800 $\rho_a / 2\pi$ OHM FT.
- 200 - 400 $\rho_a / 2\pi$ OHM FT.
- 100 - 200 $\rho_a / 2\pi$ OHM FT.
- 50 - 100 $\rho_a / 2\pi$ OHM FT.
- 25 - 50 $\rho_a / 2\pi$ OHM FT.
- < 25 $\rho_a / 2\pi$ OHM FT.
- NEAR SURFACE RESISTIVITY HIGH
- DIAMOND DRILL HOLE, INCLINATION, AZIMUTH AND TOTAL DEPTH
- CREEK AND DIRECTION OF FLOW
- HIGHEST ZINC CONTOUR IN ANOMALOUS AREA
- HIGHEST LEAD CONTOUR IN ANOMALOUS AREA
- OUTLINE OF ANOMALOUS I.P. ZONE
- OUTLINE OF DOLOSTONE
- ZINC MINERALIZATION
- COINCIDENT LEAD - ZINC ANOMALIES
- PROPOSED DRILL HOLES AND ESTIMATED DEPTHS FOR PHASE I OF 1975 PROGRAMME

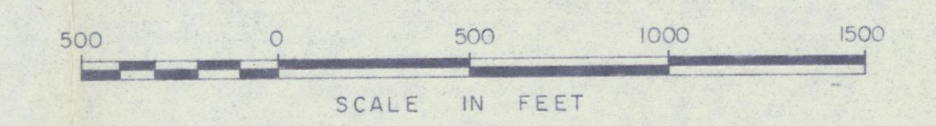
GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.

COMPILATION MAP

HARRISON CREEK OPTION

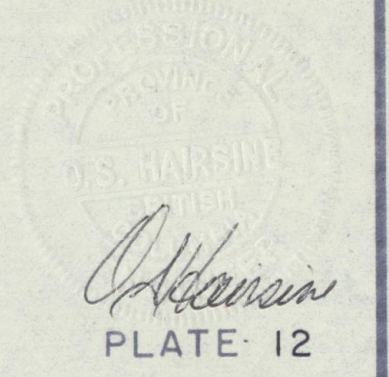
NADALEEN RIVER AREA (N.T.S. 106 C)

MAYO MINING DISTRICT, YUKON TERRITORY



BY
CORDILLERAN ENGINEERING LTD.
1418 - 355 BURREARD STREET
VANCOUVER 1, B.C.
NOV. 1974

NOTE: MAGNETIC DECLINATION 34°30' (1973)
TOPOGRAPHIC BASE FROM N.T.S. MAP 106 C/7.



VOLUME II

To: SUMMARY REPORT ON THE HARRISON CREEK OPTION
Goz Creek Area, Mayo Mining District, Y.T. NTS 106-C-7

For: Great Plains Development Company of Canada Ltd.

By: C.G. Verley, Geologist and R. Durfeld, Geologist
Cordilleran Engineering Limited

Date: November, 1974

061097

REPORT ON THE
INDUCED POLARIZATION
AND RESISTIVITY SURVEY
HARRISON CREEK PROPERTY
MAYO MINING DISTRICT
BONNET PLUME AREA
YUKON TERRITORY
FOR
GREAT PLAINS DEVELOPMENT COMPANY
OF CANADA, LIMITED

McPHAR GEOPHYSICS

NOTES ON THE THEORY, METHOD OF FIELD OPERATION AND PRESENTATION OF DATA FOR THE INDUCED POLARIZATION METHOD

Induced Polarization as a geophysical measurement refers to the blocking action or polarization of metallic or electronic conductors in a medium of ionic solution conduction.

This electro-chemical phenomenon occurs wherever electrical current is passed through an area which contains metallic minerals such as base metal sulphides. Normally, when current is passed through the ground, as in resistivity measurements, all of the conduction takes place through ions present in the water content of the rock, or soil, i. e. by ionic conduction. This is because almost all minerals have a much higher specific resistivity than ground water. The group of minerals commonly described as "metallic", however, have specific resistivities much lower than ground waters. The induced polarization effect takes place at those interfaces where the mode of conduction changes from ionic in the solutions filling the interstices of the rock to electronic in the metallic minerals present

in the rock.

The blocking action or induced polarization mentioned above, which depends upon the chemical energies necessary to allow the ions to give up or receive electrons from the metallic surface, increases with the time that a d. c. current is allowed to flow through the rock; i. e. as ions pile up against the metallic interface the resistance to current flow increases. Eventually, there is enough polarization in the form of excess ions at the interfaces, to appreciably reduce the amount of current flow through the metallic particle. This polarization takes place at each of the infinite number of solution-metal interfaces in a mineralized rock.

When the d. c. voltage used to create this d. c. current flow is cut off, the Coulomb forces between the charged ions forming the polarization cause them to return to their normal position. This movement of charge creates a small current flow which can be measured on the surface of the ground as a decaying potential difference.

From an alternate viewpoint it can be seen that if the direction of the current through the system is reversed repeatedly before the polarization occurs, the effective resistivity of the system as a whole will change as the frequency of the switching is changed. This is a consequence of the fact that the amount of current flowing through each metallic interface depends upon the length of time that current has been passing through it in one direction.

The values of the per cent frequency effect or F. E. are a measurement of the polarization in the rock mass. However, since the measurement of the degree of polarization is related to the apparent resistivity of the rock mass it is found that the metal factor values or M. F. are the most useful values in determining the amount of polarization present in the rock mass. The MF values are obtained by normalizing the F. E. values for varying resistivities.

The induced polarization measurement is perhaps the most powerful geophysical method for the direct detection of metallic sulphide mineralization, even when this mineralization is of very low concentration. The lower limit of volume per cent sulphide necessary to produce a recognizable IP anomaly will vary with the geometry and geologic environment of the source, and the method of executing the survey. However, sulphide mineralization of less than one per cent by volume has been detected by the IP method under proper geological conditions.

The greatest application of the IP method has been in the search for disseminated metallic sulphides of less than 20% by volume. However, it has also been used successfully in the search for massive sulphides in situations where, due to source geometry, depth of source, or low resistivity of surface layer, the EM method can not be successfully applied. The ability to differentiate ionic conductors, such as water filled shear zones, makes the IP method a useful tool in checking EM

anomalies which are suspected of being due to these causes.

In normal field applications the IP method does not differentiate between the economically important metallic minerals such as chalcopyrite, chalcocite, molybdenite, galena, etc., and the other metallic minerals such as pyrite. The induced polarization effect is due to the total of all electronic conducting minerals in the rock mass. Other electronic conducting materials which can produce an IP response are magnetite, pyrolusite, graphite, and some forms of hematite.

In the field procedure, measurements on the surface are made in a way that allows the effects of lateral changes in the properties of the ground to be separated from the effects of vertical changes in the properties. Current is applied to the ground at two points in distance (X) apart. The potentials are measured at two other points (X) feet apart, in line with the current electrodes is an integer number (n) times the basic distance (X).

The measurements are made along a surveyed line, with a constant distance (nX) between the nearest current and potential electrodes. In most surveys, several traverses are made with various values of (n); i. e. (n) = 1, 2, 3, 4, etc. The kind of survey required (detailed or reconnaissance) decides the number of values of (n) used.

In plotting the results, the values of the apparent resistivity, apparent per cent frequency effect, and the apparent metal factor

measured for each set of electrode positions are plotted at the intersection of grid lines, one from the center point of the current electrodes and the other from the center point of the potential electrodes. (See Figure A.) The resistivity values are plotted above the line as a mirror image of the metal factor values below. On a second line, below the metal factor values, are plotted the values of the per cent frequency effect. In some cases the values of per cent frequency effect are plotted as superscripts of the metal factor value. In this second case the frequency effect values are not contoured. The lateral displacement of a given value is determined by the location along the survey line of the center point between the current and potential electrodes. The distance of the value from the line is determined by the distance (nX) between the current and potential electrodes when the measurement was made.

The separation between sender and receiver electrodes is only one factor which determines the depth to which the ground is being sampled in any particular measurement. The plots then, when contoured, are not section maps of the electrical properties of the ground under the survey line. The interpretation of the results from any given survey must be carried out using the combined experience gained from field results, model study results and theoretical investigations. The position of the electrodes when anomalous values are measured is important in the interpretation.

In the field procedure, the interval over which the potential differences are measured is the same as the interval over which the electrodes are moved after a series of potential readings has been made. One of the advantages of the induced polarization method is that the same equipment can be used for both detailed and reconnaissance surveys merely by changing the distance (X) over which the electrodes are moved each time. In the past, intervals have been used ranging from 25 feet to 2000 feet for (X). In each case, the decision as to the distance (X) and the values of (n) to be used is largely determined by the expected size of the mineral deposit being sought, the size of the expected anomaly and the speed with which it is desired to progress.

The diagram in Figure A demonstrates the method used in plotting the results. Each value of the apparent resistivity, apparent metal factor, and apparent per cent frequency effect is plotted and identified by the position of the four electrodes when the measurement was made. It can be seen that the values measured for the larger values of (n) are plotted farther from the line indicating that the thickness of the layer of the earth that is being tested is greater than for the smaller values of (n); i. e. the depth of the measurement is increased. When the F. E. values are plotted as superscripts to the MF values the third section of data values is not presented and the F. E. values are not contoured.

The actual data plots included with the report are prepared utilizing an IBM 360/75 Computer and a Calcomp 770/763 Incremental Plotting System. The data values are calculated, plotted, and contoured according to a programme developed by McPhar Geophysics. Certain symbols have been incorporated into the programme to explain various situations in recording the data in the field.

The IP measurement is basically obtained by measuring the difference in potential or voltage (ΔV) obtained at two operating frequencies. The voltage is the product of the current through the ground and the apparent resistivity of the ground. Therefore in field situations where the current is very low due to poor electrode contact, or the apparent resistivity is very low, or a combination of the two effects; the value of (ΔV) the change in potential will be too small to be measurable. The symbol "TL" on the data plots indicates this situation.

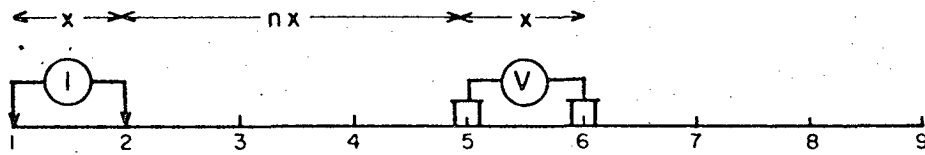
In some situations spurious noise, either man made or natural, will render it impossible to obtain a reading. The symbol "N" on the data plots indicates a station at which it is too noisy to record a reading. If a reading can be obtained, but for reasons of noise there is some doubt as to its accuracy, the reading is bracketed in the data plot ().

In certain situations negative values of Apparent Frequency Effect are recorded. This may be due to the geologic environment or spurious electrical effects. The actual negative frequency effect value recorded is indicated on the data plot, however the symbol "NEG" is

indicated for the corresponding value of Apparent Metal Factor. In contouring negative values the contour lines are indicated to the nearest positive value in the immediate vicinity of the negative value.

The symbol "NR" indicates that for some reason the operator did not attempt to record a reading although normal survey procedures would suggest that one was required. This may be due to inaccessible topography or other similar reasons. Any symbol other than those discussed above is unique to a particular situation and is described within the body of the report.

METHOD USED IN PLOTTING DIPOLE-DIPOLE INDUCED POLARIZATION AND RESISTIVITY RESULTS



Stations on line

x = Electrode spread length
 n = Electrode separation

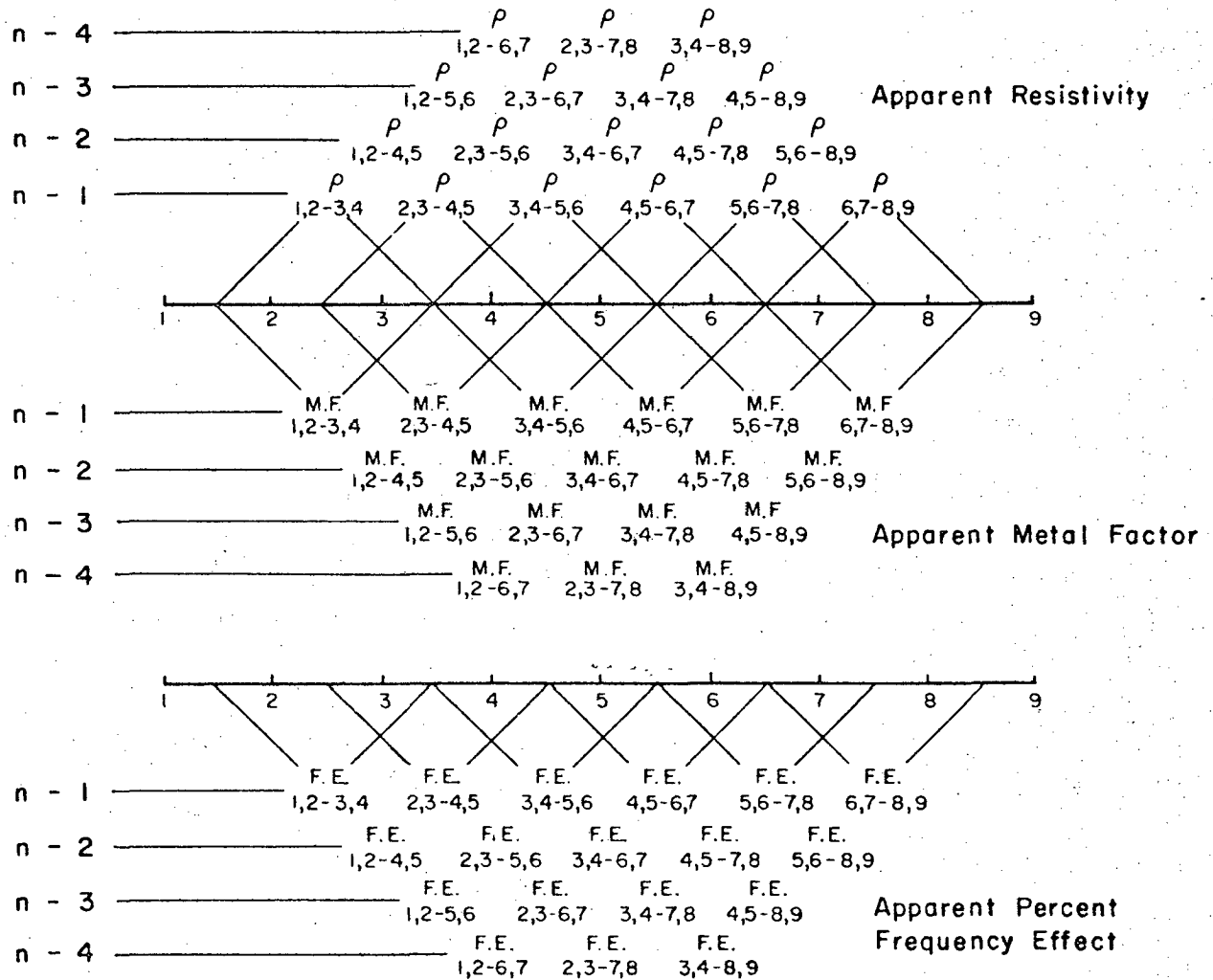


Fig. A

McPHAR GEOPHYSICS

**REPORT ON THE
INDUCED POLARIZATION
AND RESISTIVITY SURVEY
HARRISON CREEK PROPERTY
MAYO MINING DISTRICT
BONNET PLUME AREA
YUKON TERRITORY
FOR
GREAT PLAINS DEVELOPMENT COMPANY
OF CANADA, LIMITED**

1. INTRODUCTION

An Induced Polarisation and Resistivity Survey has been carried out on the Harrison Creek Property for Great Plains Development Company of Canada Ltd. The property is located 125 miles NE of Mayo Landing in the Yukon Territory. The co-ordinates for the survey area are $64^{\circ} 24'$ latitude and $132^{\circ} 50'$ longitude.

The matrix of a brecciated dolostone contains sphalerite and galena along with pyrite and quartz on the west bank of Harrison Creek. A geochemical survey for lead and zinc content of the soils shows some continuity to the southwest. Additional anomalous zones were located both

east and west of Harrison Creek.

Access to the Harrison Creek Property is either by helicopter from Mayo Landing or by fixed wing aircraft to BACKLA Lake and from there to the property by helicopter.

The objective of the IP survey was to explore the dolostone horizon for the possible occurrence of metallic mineralization.

The IP survey was carried out in July and August, 1974. A McPhar P660 frequency domain IP system was used for the survey. Operating frequencies were 0.3 and 1.0 Hz.

2. DESCRIPTION OF CLAIMS

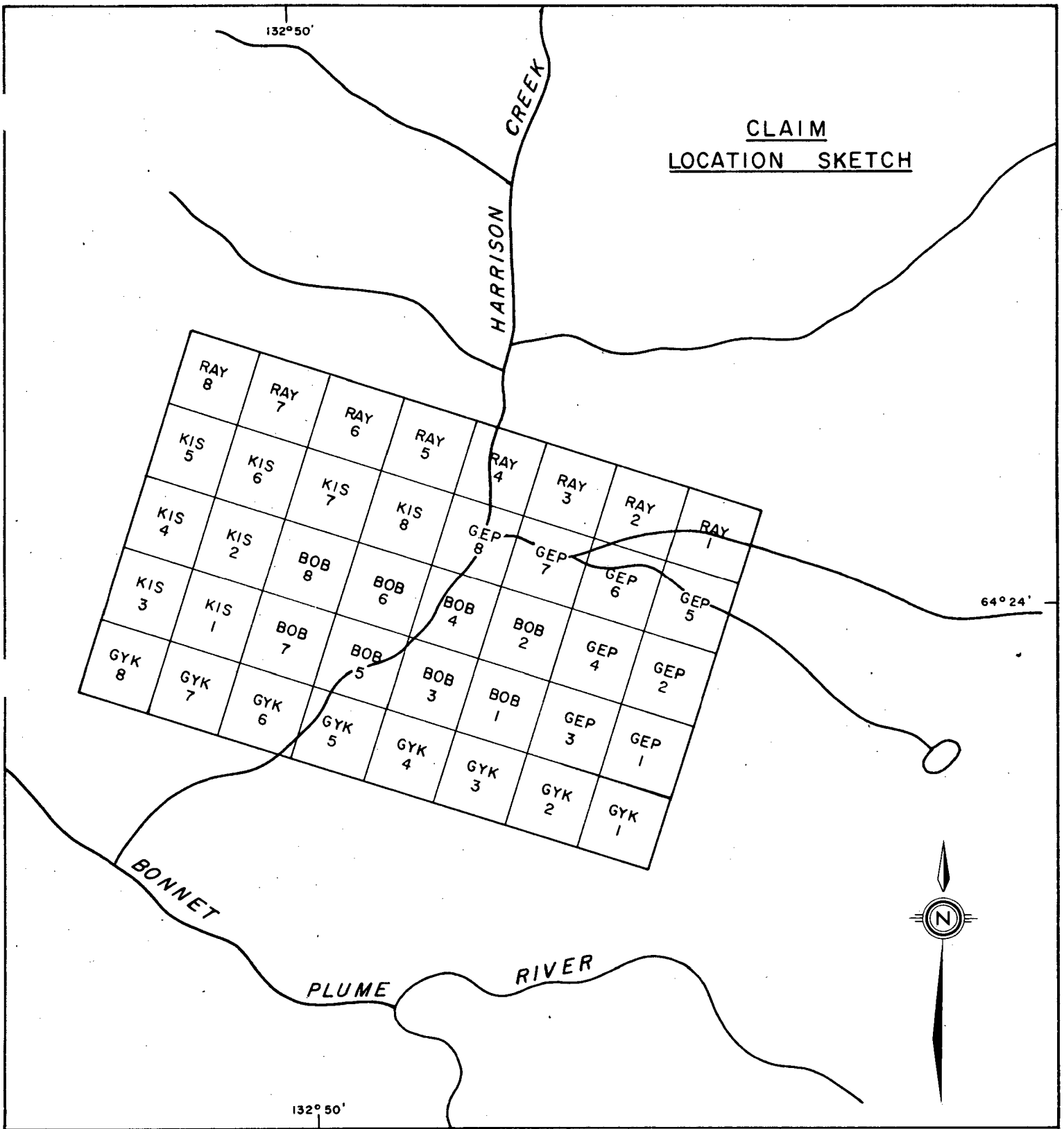
The property is held under an option agreement from Barrier Reef Resources Ltd. and consists of the following claims:

- BOB Claims 1 - 2 inclusive
- KIS Claims 1 - 5 inclusive
- GEP Claims 1 - 5 inclusive
- RAY Claims 1 - 5 inclusive
- GYK Claims 1 - 5 inclusive

(See Figure #1)

1. PRESENTATION OF RESULTS

The Induced Polarization and Resistivity results are shown on the following data plots in the manner described in the notes preceding this report.



GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD.

HARRISON CREEK PROPERTY
YUKON TERRITORY

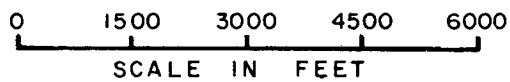


Fig. 1

<u>Line</u>	<u>Electrode Interval</u>	<u>Dwg. No.</u>
0	200 feet	IP 6215-1
900E	200 feet	IP 6215-2
1500E	200 feet	IP 6215-3
2100E	200 feet	IP 6215-4
2700E	200 feet	IP 6215-5
3300E	200 feet	IP 6215-6
3900E	200 feet	IP 6215-7
4500E	200 feet	IP 6215-8
5100E	200 feet	IP 6215-9
5700E	200 feet	IP 6215-10
6300E	200 feet	IP 6215-11
6600E	200 feet	IP 6215-12
6900E	200 feet	IP 6215-13
7500E	200 feet	IP 6215-14
8100E	200 feet	IP 6215-15
8700E	200 feet	IP 6215-16
9300E	200 feet	IP 6215-17
10800E	200 feet	IP 6215-18
11400E	200 feet	IP 6215-19

Also enclosed with this report is Dwg. IPP 3645 a plan map of the Harrison Creek Grid at a scale of 500 feet to 1 inch. The definite, probable and possible Induced Polarisation anomalies are indicated by bars, in the manner shown on

the legend, on this plan map as well as on the data plots. These bars represent the surface projection of the anomalous zones as interpreted from the location of the transmitter and receiver electrodes when the anomalous values were measured.

Since the Induced Polarization measurement is essentially an averaging process, as are all potential methods, it is frequently difficult to exactly pinpoint the source of an anomaly. Certainly, no anomaly can be located with more accuracy than the electrode interval length; i.e. when using 400' electrode intervals the position of a narrow sulphide body can only be determined to lie between two stations 400' apart. In order to definitely locate, and fully evaluate, a narrow, shallow source it is necessary to use shorter electrode intervals. In order to locate sources at some depth, larger electrode intervals must be used, with a corresponding increase in the uncertainty of location. Therefore, while the centre of the indicated anomaly probably corresponds fairly well with a source, the length of the indicated anomaly along the line should not be taken to represent the exact edges of the anomalous material.

The Grid information shown on Dwg. IPF 3645 has been taken from maps made available by the staff of Great Plains Development Company of Canada Limited.

4. DISCUSSION OF RESULTS

A linear WNW striking dolostone horizon has been investigated by an IP survey for evidence of metallic mineral concentrations. Most of

the 11400 foot strike length has been covered with a 600 foot line spacing. Because of difficult topography, line spacing was increased near the east and west property boundaries. A 300 foot intermediate line was run just east of Harrison Creek.

A relatively high frequency effect background was recorded over most of the survey grid. This would indicate that weakly disseminated metallic mineralization is prevalent in the dolostone horizon and adjacent shales.

Induced polarization anomalies of varying magnitudes and resistivities were located on all survey lines. Most of the IP anomalies along the south boundary and many along the north boundary are incomplete and extend off the IP grid.

Wide sections of pyritic-graphitic material in shales characteristically show moderate to strong frequency effects and very low resistivities. Massive to semi-massive metallic sulfides usually display similar characteristics. More disseminated metallic mineralization in carbonate rocks would show similar frequency effects but somewhat high resistivities.

Line to line correlation is difficult because of incomplete anomalies, however, it appears that a moderate to strong IP zone extends along the entire south grid boundary. A possible outline of the anomalous zone has been indicated on the plan map. The anomaly is located within the dolostone, just to the north of the shale contact. Since some depth to the source is indicated, it may reflect pyritic-graphitic material in the shales which are believed to dip north under the dolostone.

In order to evaluate the significance of the different types of IP anomalies it will be necessary to test anomalies showing varying characteristics. The initial tests should be confined to IP anomalies that correlate with lead-zinc geochemical anomalies.

Seven drill tests are recommended and the corresponding IP anomalies are discussed below:

Drill Hole #1 - Line 5790E, Dwg. IP 6215-10

Drill south at -45° from 0+50S to a depth of at least 350 feet.

A moderately strong IP anomaly extends south from 0 to beyond the present grid. The source is shallow relative to the 200-foot electrode interval (less than 50 feet), and is accompanied with strong frequency effects. Resistivities are moderate in the 50 - 80 range.

The #1 mineral showing is adjacent and to the east of the IP anomaly. A strong Pb-Zn soil geochemical anomaly correlates with the anomalous IP effects.

Drill Hole #2 - Line 3900E, Dwg. IP 6215-7

Drill south at -45° from 4+50S to a depth of 300 - 400 feet.

Strong IP effects showing some depth to the strongest portion of the source extend south from 4S to beyond the line end. The strong frequency effects correspond with low resistivities that decrease with depth. IP effects of this nature are usually caused either by large concentrations of metallic minerals, or by pyritic-graphitic material.

The IP anomaly shows good correlation with a soil Pb-Zn geochemical anomaly.

Drill Hole #3 - Line 2700E, Dwg. IP 6215-5

Drill south at -45° from 14N to a depth of 350 feet.

A weak IP anomaly centred at 12N shows moderate depth to the source. Moderate resistivities show some decrease with depth. This anomaly should occur within the rock unit mapped as siliceous reefold dolostone.

Drill Hole #4 - Line 8100E, Dwg. IP 6215-15

Drill south at -45° from 0 to a depth of 300 feet.

A shallow moderate magnitude IP anomaly centred at 15 occurs within a strong Pb-Zn geochemical anomaly. Resistivities are moderately low and frequency effects are moderately strong.

Drill Hole #5 - Line 10800E, Dwg. IP 6215-18

Drill south at 45° from 11N to a depth of 300 feet.

Drill Hole #5 is designed to test a very weak IP anomaly located between 8N and 11N. It may extend south with increasing depth to 11N. Resistivity levels are moderately high.

This anomaly is located near the east property boundary and it correlates with a Pb-Zn geochemical anomaly.

The hole is collared on a steep slope. In case of drill set-up difficulties, an alternate drill location is suggested as follows:

Drill north at -60° from 8N to a depth of 350 feet.

Drill Hole #6 - Line 1500E, Dwg. IP 6215-3

Drill a vertical hole with the collar between 3N and 4N (as close to 4N as possible) to depth of 350 feet.

A strong deep IP anomaly between 2N and 6N was located under a moderately resistive capping. The depth to the source is estimated at 200 - 300 feet. The anomaly which is associated with low resistivities is located within the area mapped as siliceous reefoid limestone and correlates with a strong Pb-Zn geochemical anomaly.

Drill Hole #7 - Line 7500E, Dwg. IP 6215-14

Drill south at $+45^{\circ}$ from 4S to a depth of 400 feet.

Drill #7 is designed to test a strong IP anomaly that increases in magnitude with depth. The anomaly is characterized by strong frequency effects, very low resistivities and good correspondence with a Pb-Zn soil geochemical anomaly.

5. SUMMARY AND CONCLUSIONS

The Harrison Creek property straddles a linear dolostone horizon which is bounded by shale both to the north and south. Strong Pb-Zn soil geochemical anomalies occur within the dolostone.


The dolostone generally has moderate magnitude resistivity levels. The southern shale member, where investigated, shows very low resistivity levels while the northern shale horizon displays low to moderate levels.

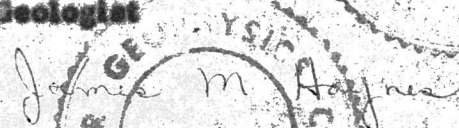
Background frequency effects were relatively high suggesting weakly disseminated metallic material throughout much of the dolostone.

The induced polarization survey located anomalous conditions on all the grid lines. The IP anomalies vary in magnitude from weak to strong and occur within different resistivity environments. Strike continuity is suggested however the relatively large line spacing makes line to line correlation difficult.

The mineral sphalerite contributes very little to the IP effect. Since sphalerite could be an important constituent for any potential economic mineral concentration, the magnitude of the IP response will be dependant on associated metallic sulfide minerals such as pyrite, pyrrhotite and chalcopyrite. Therefore, it is recommended that a number of IP anomalies of varying magnitudes be investigated by diamond drilling. A seven drill program has been outlined in the main body of this report. This program should evaluate the significance of the various types of IP response and allow formulation of a further program if warranted.

McPHAR GEOPHYSICS COMPANY


A. W. Mullan, P. Eng.
Geologist


James M. Haynes
Geophysicist

Date: October 11, 1974

ASSESSMENT DETAILS

PROPERTY: Harrison Creek Property

MINING DIVISION: Yukon Territory

SPONSOR: Great Plains Development Company
of Canada, Limited

LOCATION: Bonnet Plume Area

TYPE OF SURVEY: Induced Polarization

OPERATING MAN DAYS 40

DATE STARTED: July 16, 1974

EQUIVALENT 8 HR. MAN DAYS: 60

DATE FINISHED: August 4, 1974

CONSULTING MAN DAYS: 3

NUMBER OF STATIONS: 272

DRAUGHTING MAN DAYS: 9

NUMBER OF READINGS: 1,674

TOTAL MAN DAYS: 68

MILES OF LINE SURVEYED: 9.58

CONSULTANTS:

A. W. Mullan, 1440 Sandhurst Place, West Vancouver, B. C.

J. Haynes, 121 Elise Terrace, Willowdale, Ontario

FIELD TECHNICIANS:

R. Ding, 1078 Lamar Drive, Kamloops, B. C.

N. Thomson, 5196 Moscrop, Burnaby, B. C.

+ 2 helpers -

James McGee, 150 Queen's Street, Mt. Forest, Ontario

R. M. Mackay, P. O. Box 73, Kamloops, B. C.

DRAUGHTSMEN:

N. Lade, 199 Jasper Avenue, Goshawa, Ontario

F. R. Peck, 10 Carabob Court, Apt. #402, Agincourt, Ontario

McPHAR GEOPHYSICS COMPANY

J. Haynes
J. Haynes
Geophysicist

Dated: October 11, 1974

STATEMENT OF COST

Great Plains Development Company of Canada, Limited

Crew: R. Bing
N. Thomsen

Period: July 16 - August 4, 1974

10 days operating		@ \$300.00/day	\$3,000.00
4-1/2 days travel)			
2-3/4 days preparation)	9-1/2 days	@ \$125.00/day	\$1,187.50
1-1/4 days bad weather)			
1 day standby)			

Expenses:

Air fares	\$ 318.40
Excess baggage	\$ 12.00
Taxi	\$ 17.50
Vehicle expense	\$ 101.61
Meals & Accommodation	\$ 116.75
Freight & Brokerage	\$ 20.75
Telephone & Telegraph	\$ 30.85
	<u>\$ 617.46</u>
+ 10%	<u>\$ 61.74</u>

\$ 679.20

<u>Extra Labour</u>	\$1,120.00
+ 20%	<u>\$ 224.00</u>

\$1,344.00

\$6,210.70

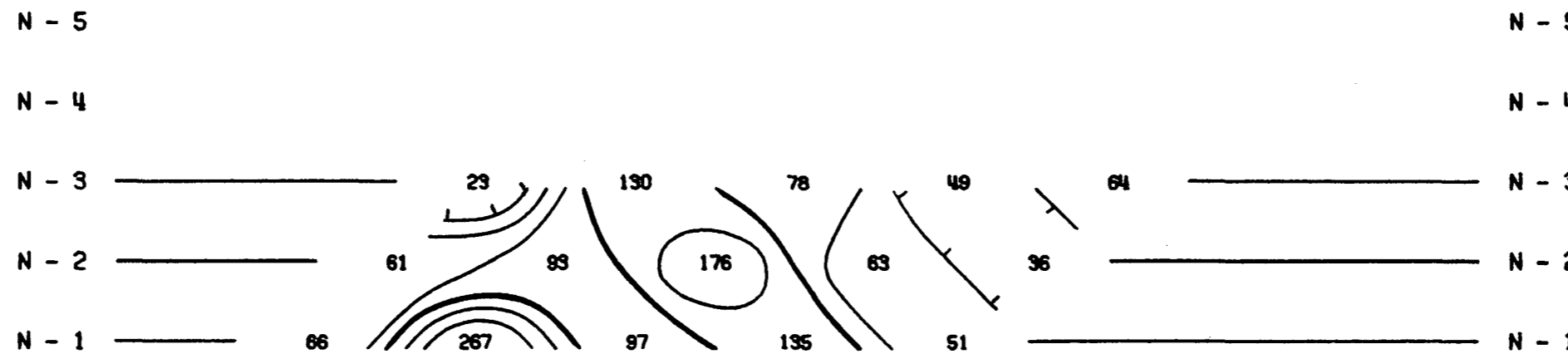
MEPHAR GEOPHYSICS COMPANY

J. Haynes
Geophysicist

Dated: October 11, 1974

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



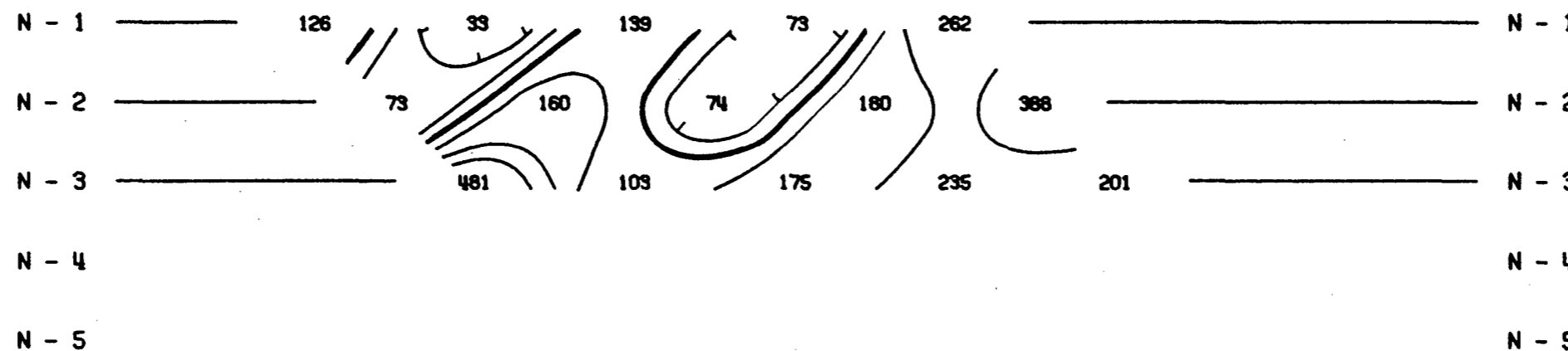
RESISTIVITY (APP.) IN OHM FEET / 2m

RESISTIVITY (APP.) IN OHM FEET / 2m



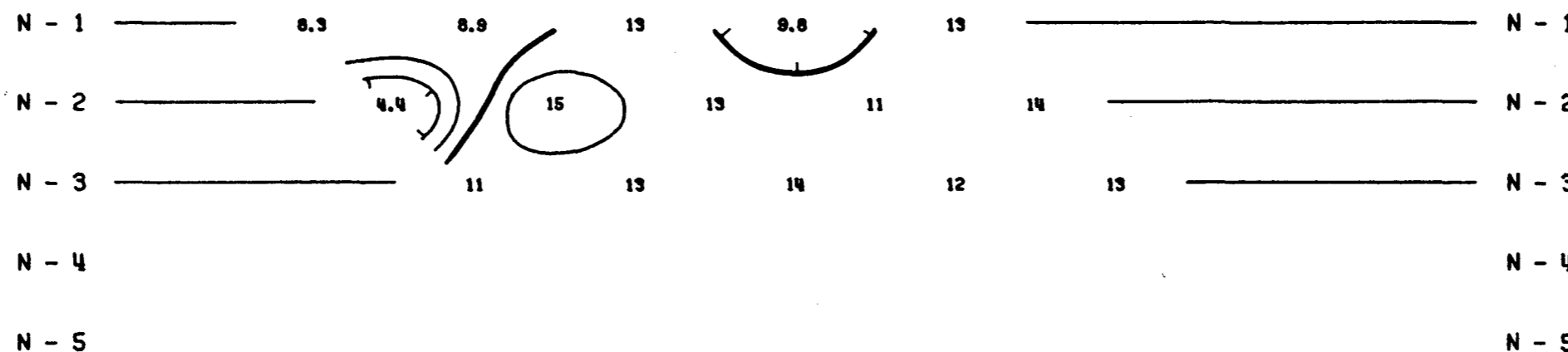
METAL FACTOR (APP.)

METAL FACTOR (APP.)



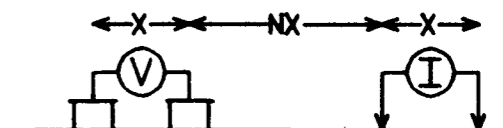
FREQUENCY EFFECT (APP.) IN %

FREQUENCY EFFECT (APP.) IN %



LINE NO. - 0

ELECTRODE CONFIGURATION



PLOTTING POINT X X = 200FT

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



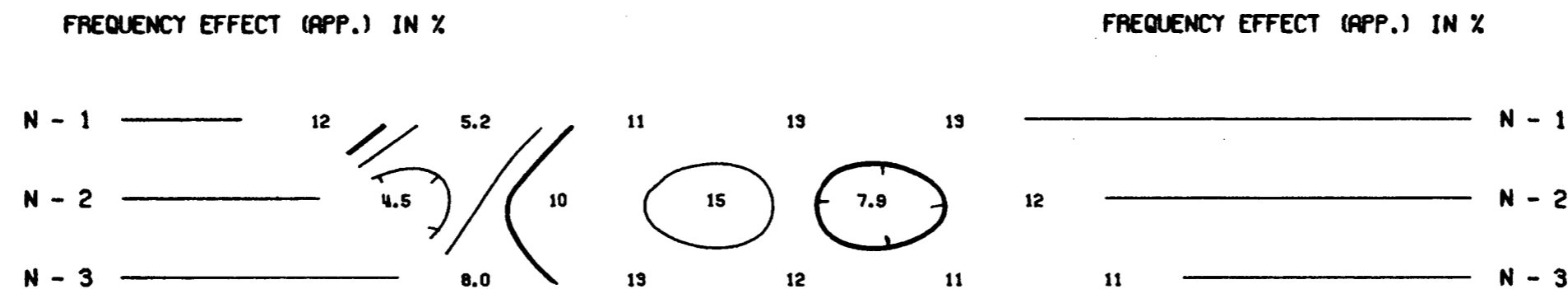
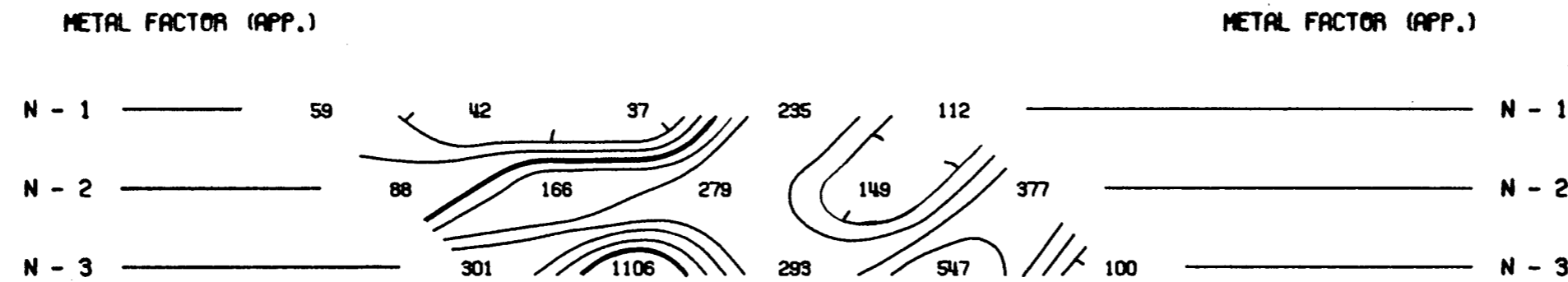
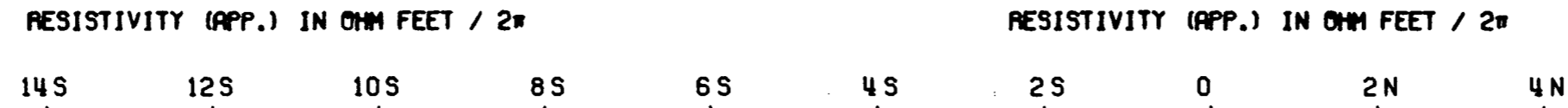
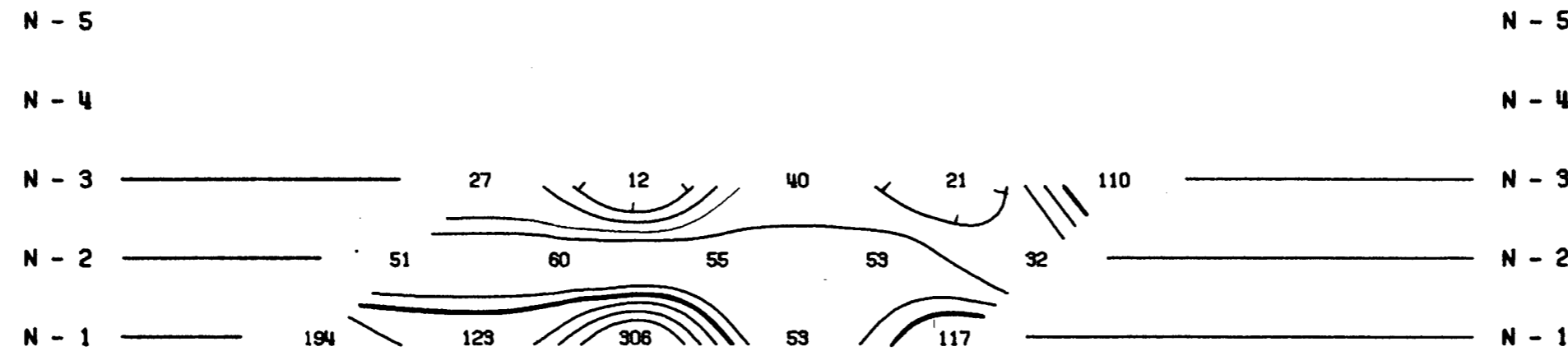
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

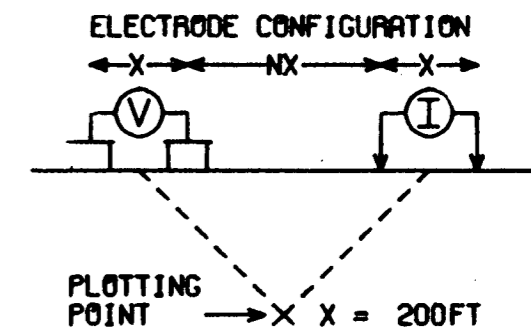
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO. - 900E



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

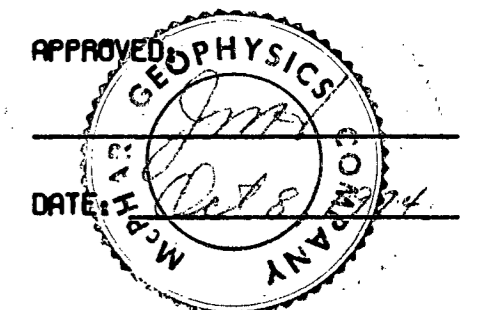
PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



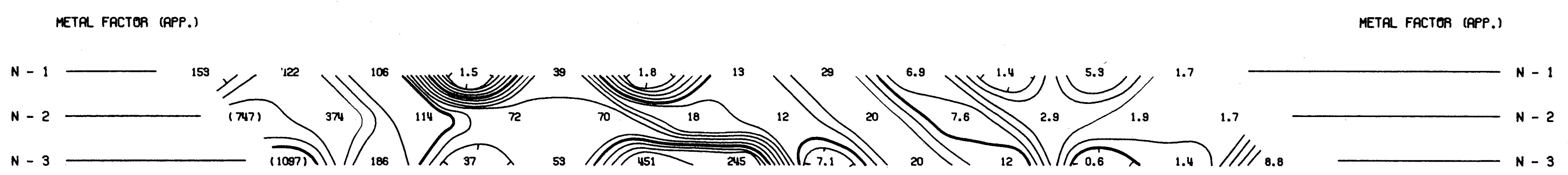
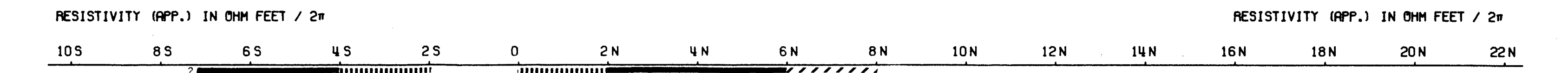
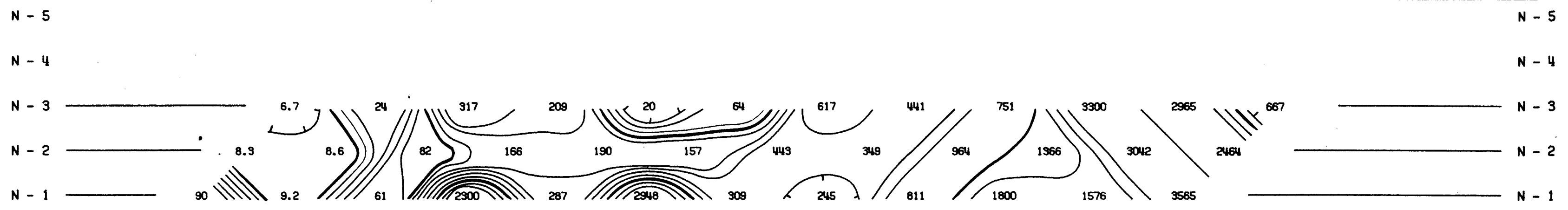
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

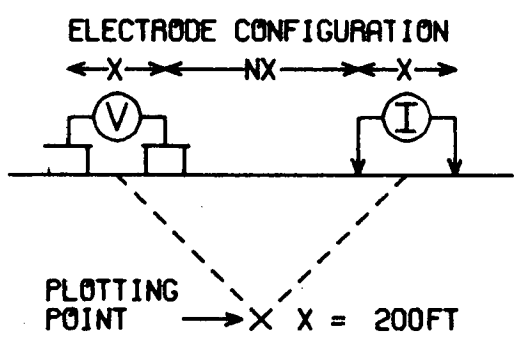
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT
COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO.- 1500E



SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE **————**

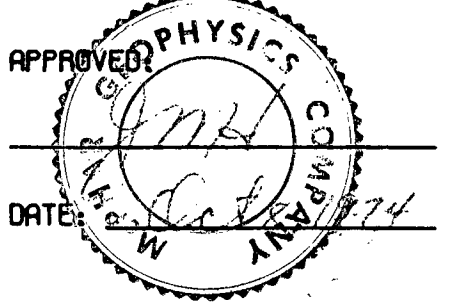
PROBABLE **|||||**

POSSIBLE **////**

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: AUG 1974

NOTE: CONTOURS AT
LOGARITHMIC INTERVALS
1.-1.5-2.-3.-5.-7.5-10



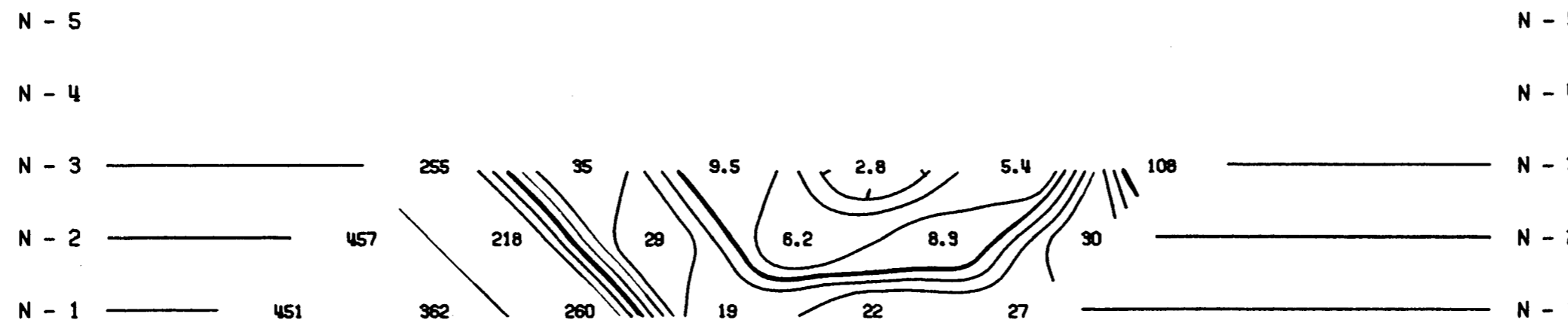
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

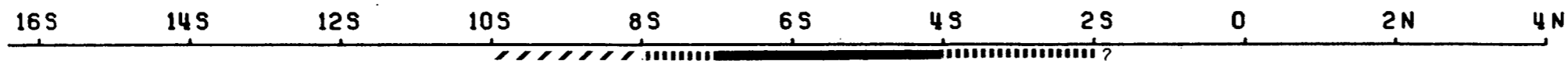
GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



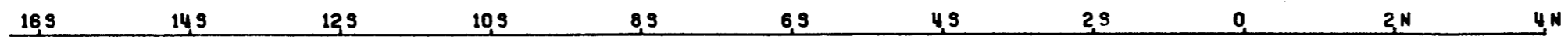
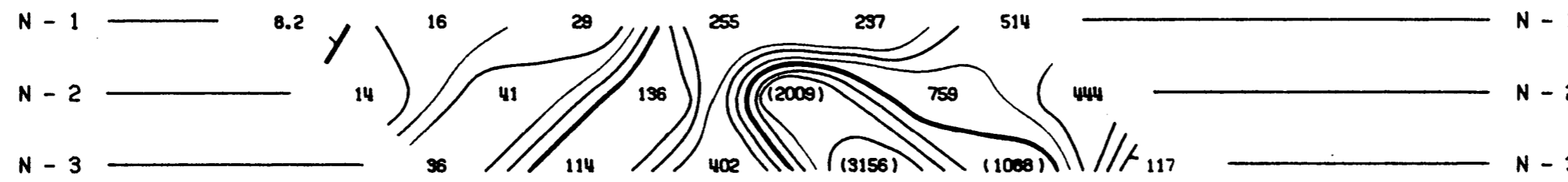
RESISTIVITY (APP.) IN OHM FEET / 2π

RESISTIVITY (APP.) IN OHM FEET / 2π



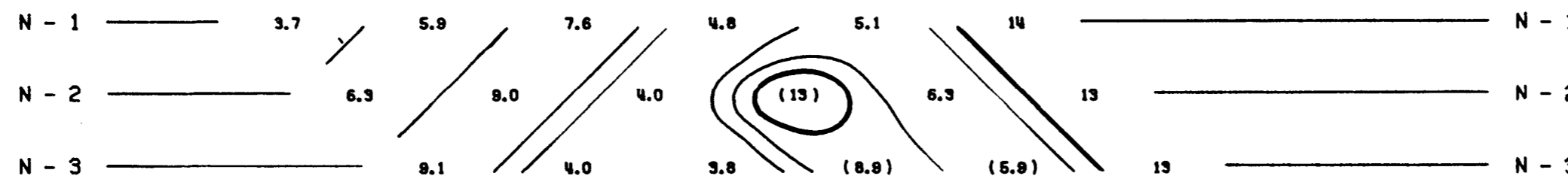
METAL FACTOR (APP.)

METAL FACTOR (APP.)



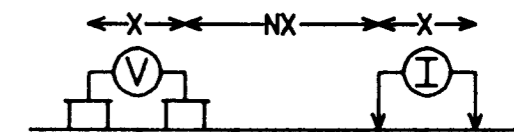
FREQUENCY EFFECT (APP.) IN %

FREQUENCY EFFECT (APP.) IN %



LINE NO. - 2100E

ELECTRODE CONFIGURATION



PLOTTING POINT → X X = 200FT

SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
PROBABLE
POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

APPROVED:
DATE:

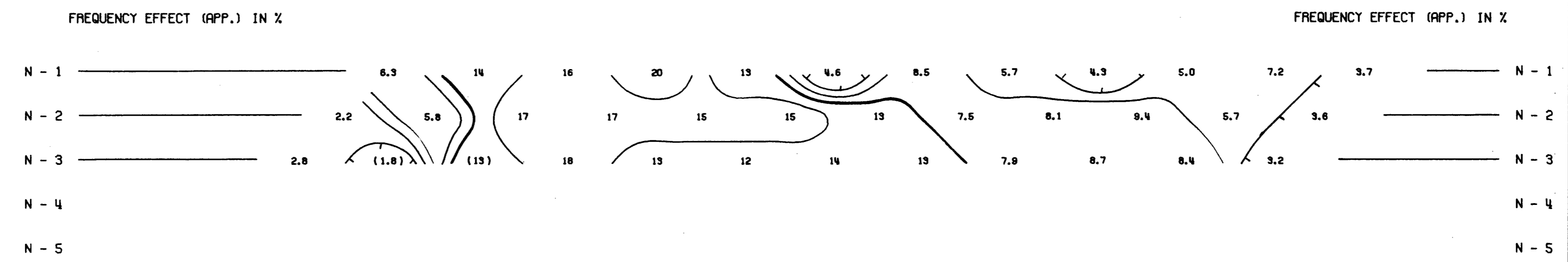
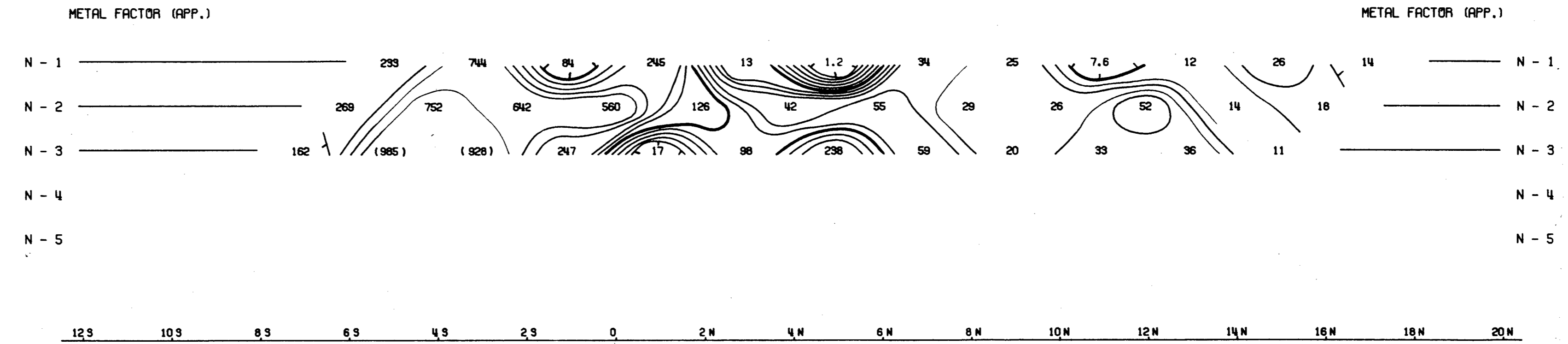
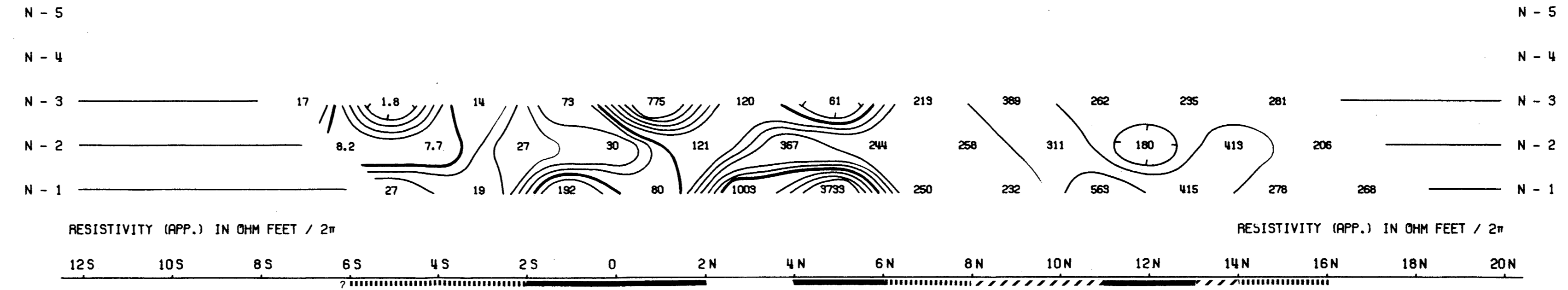
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

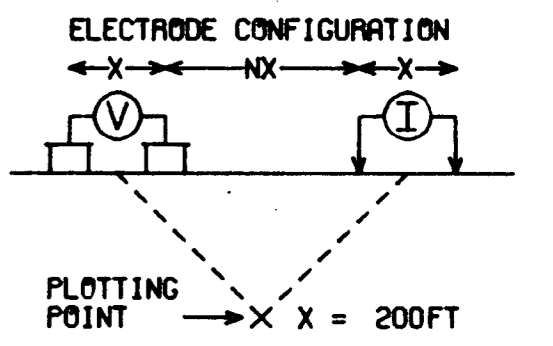
NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO.- 2700E

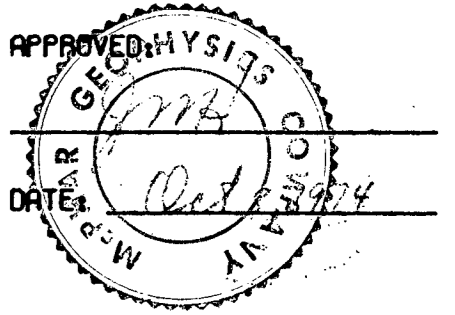


SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE **—————**
 PROBABLE **|||||**
 POSSIBLE **////**

FREQUENCIES: 0.31-5.0 HZ DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



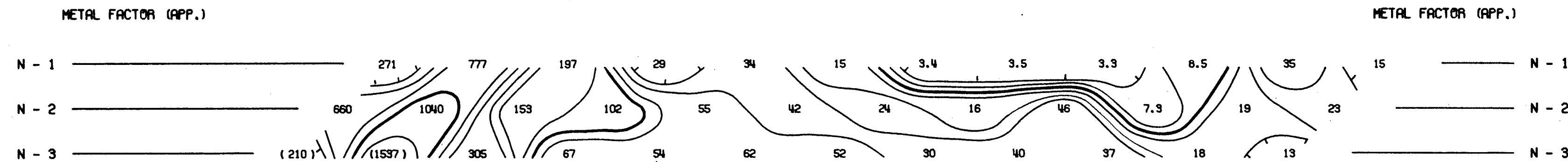
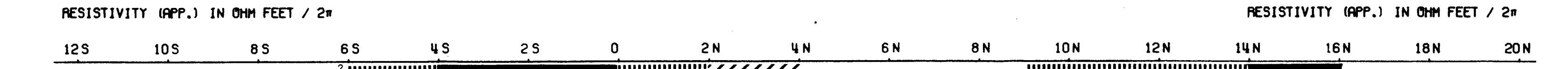
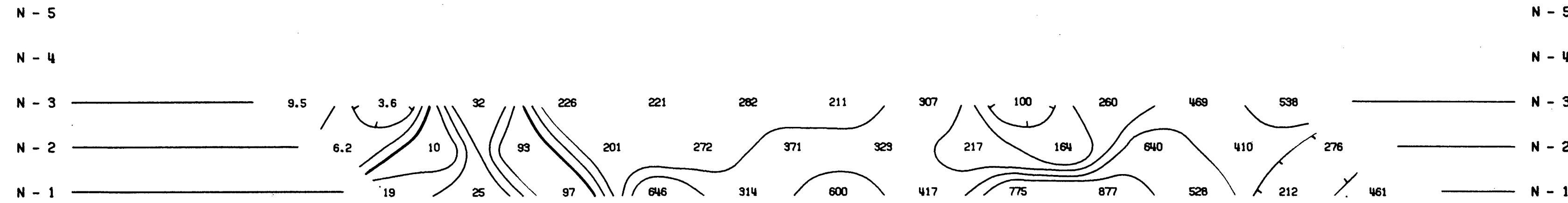
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

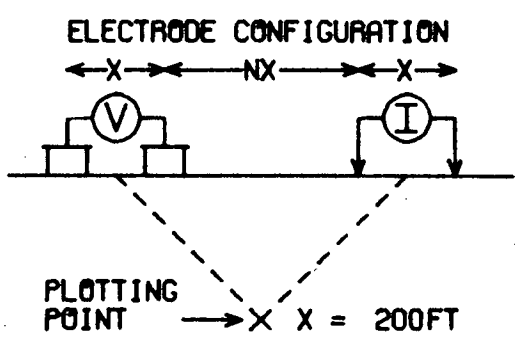
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO.- 3300E



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE —————

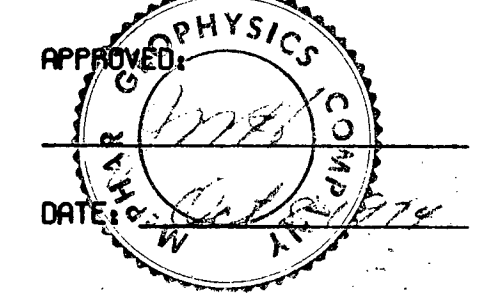
PROBABLE

POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



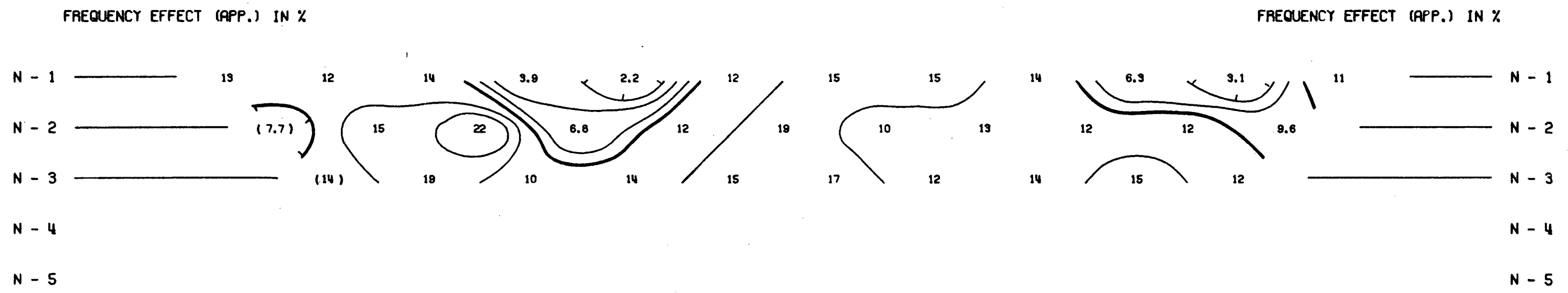
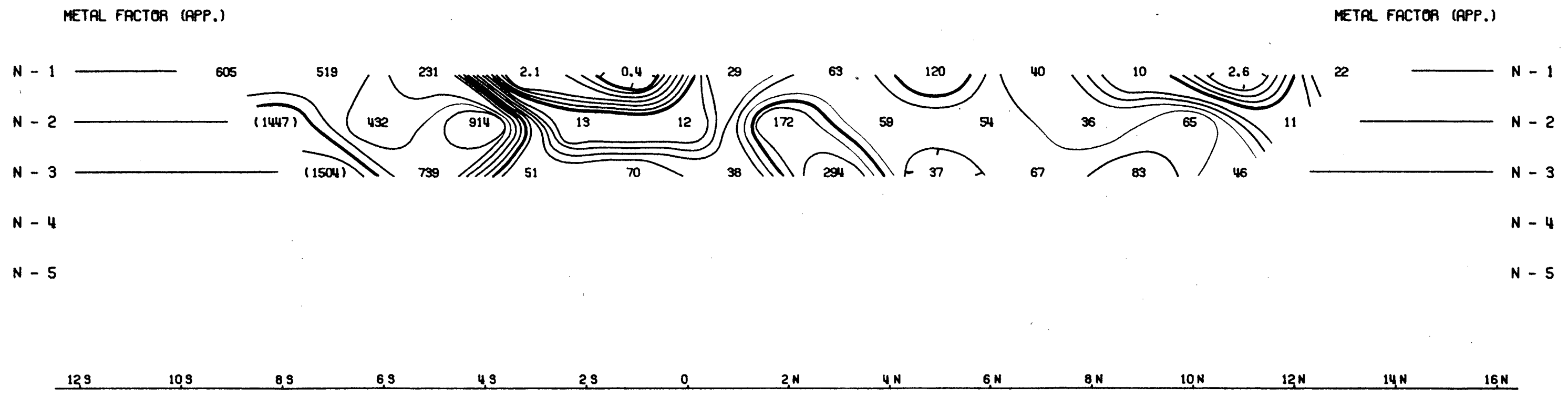
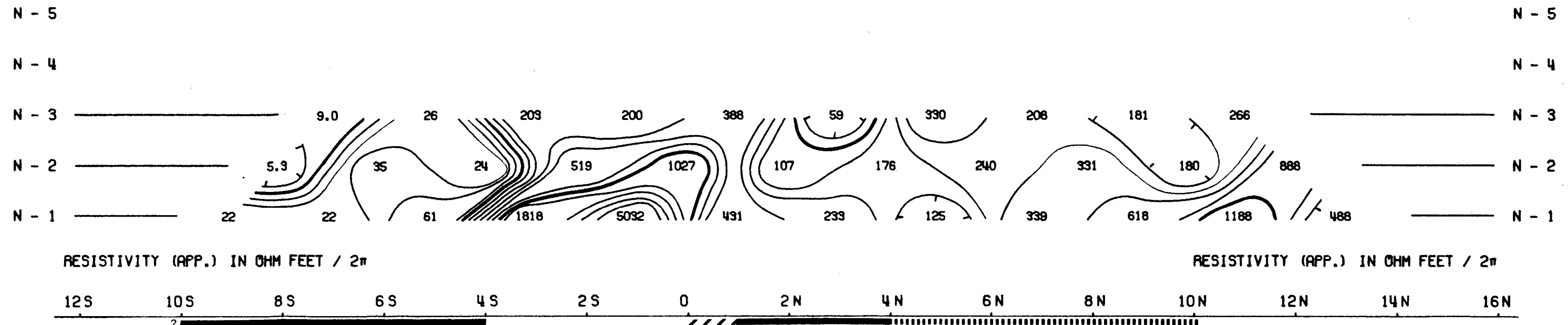
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

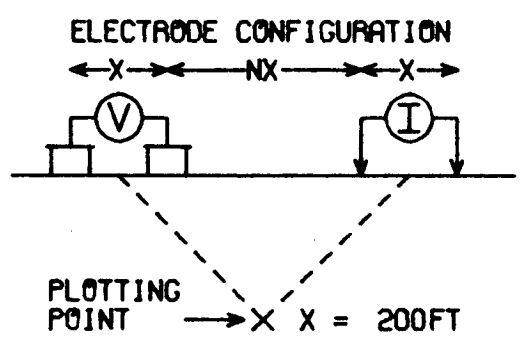
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT
COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



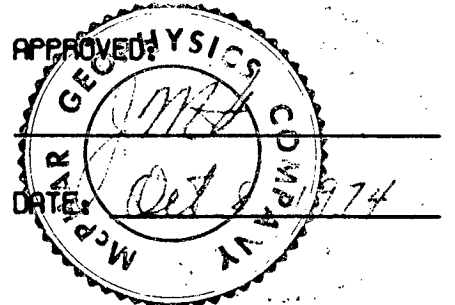
LINE NO.- 3900E



SURFACE PROJECTION
OF ANOMALOUS ZONES
DEFINITE **————**
PROBABLE **.....**
POSSIBLE **////**

FREQUENCIES: 0.31-5.0 HZ DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT
LOGARITHMIC INTERVALS
1.-1.5-2.-3.-5.-7.5-10



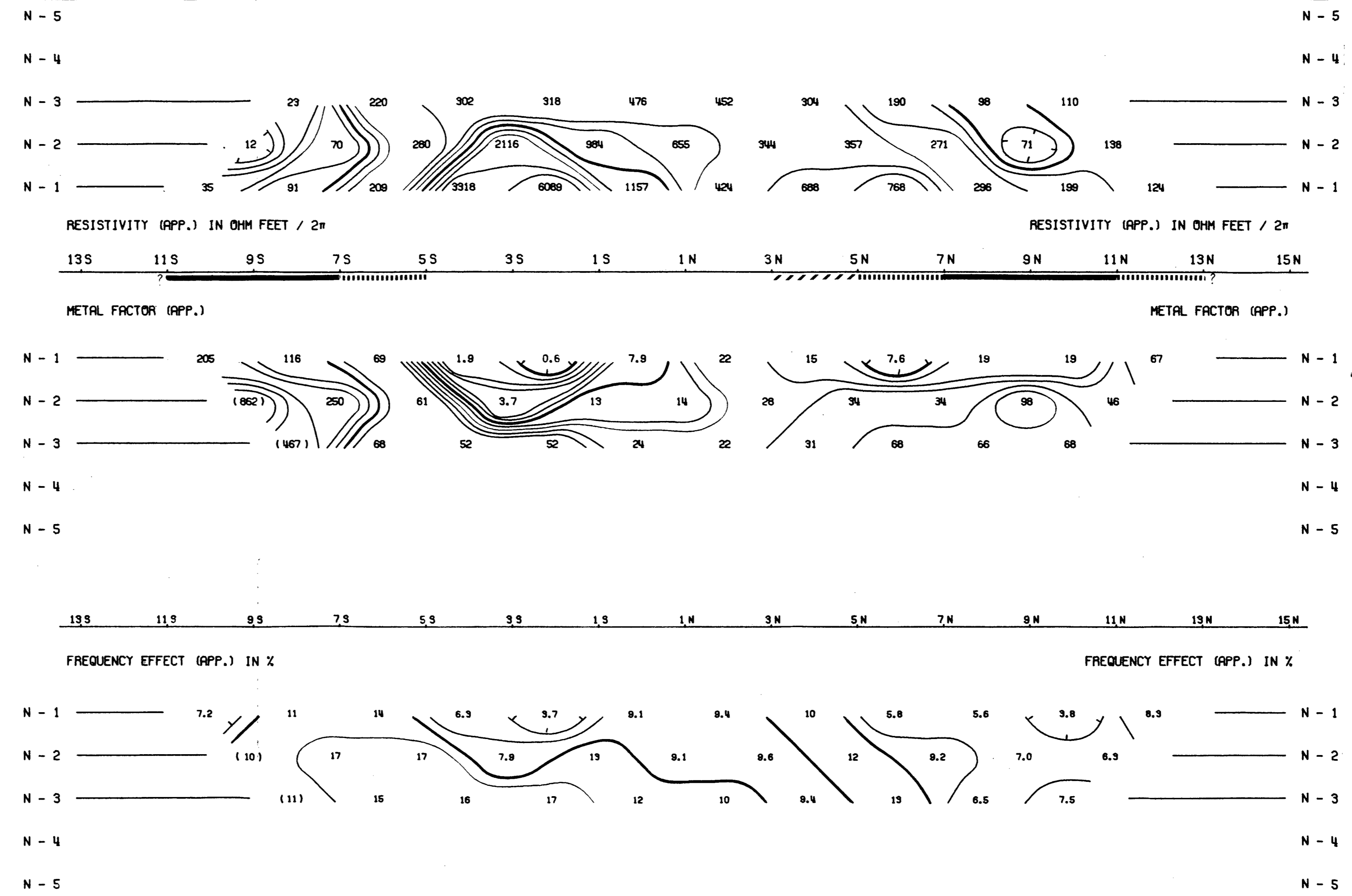
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

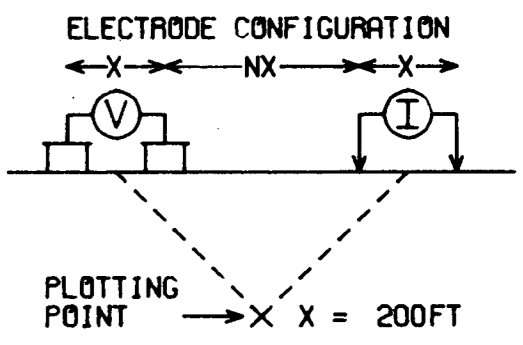
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



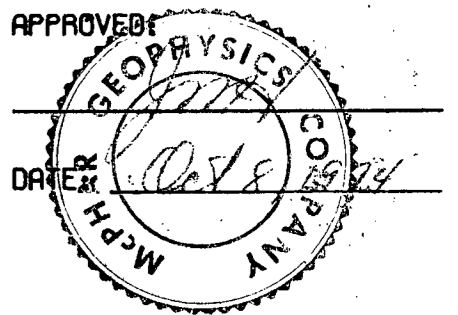
LINE NO. - 4500E



SURFACE PROJECTION OF ANOMALOUS ZONES
 DEFINITE —————
 PROBABLE
 POSSIBLE / / / /

FREQUENCIES: 0.31-5.0 HZ DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



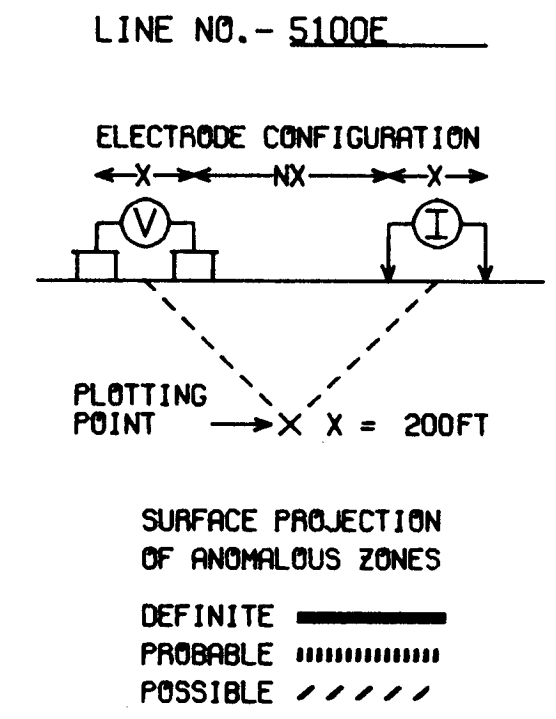
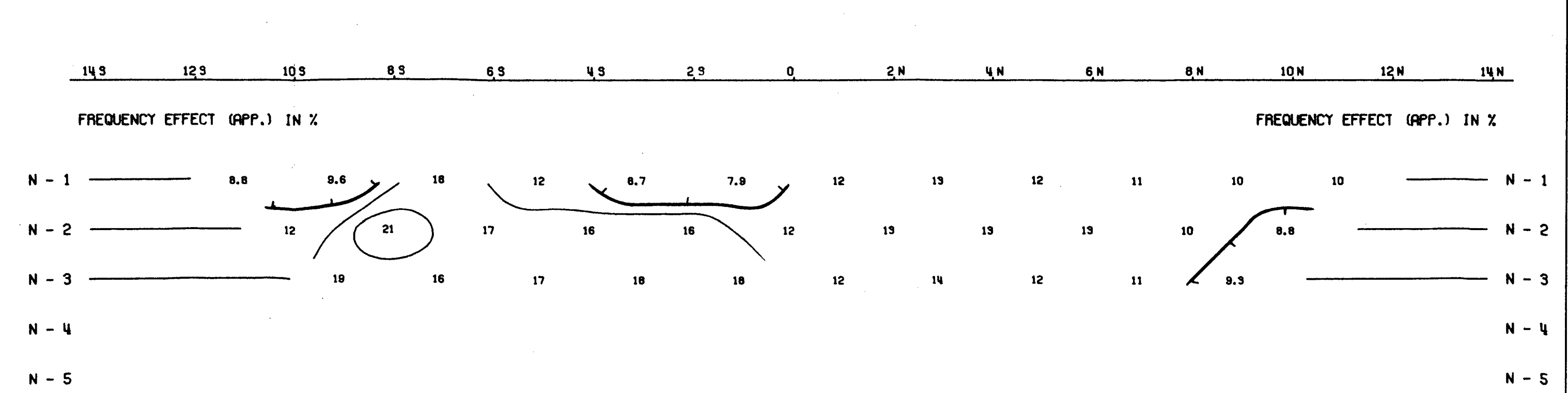
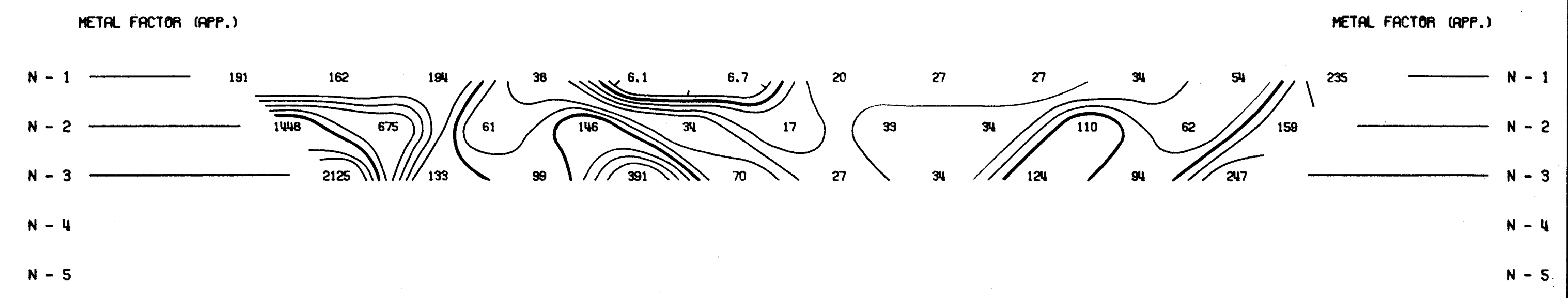
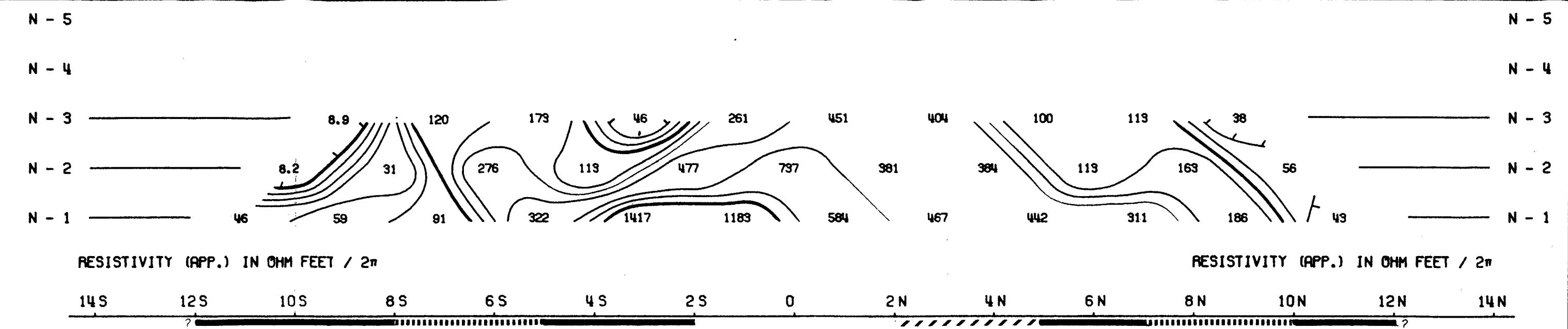
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

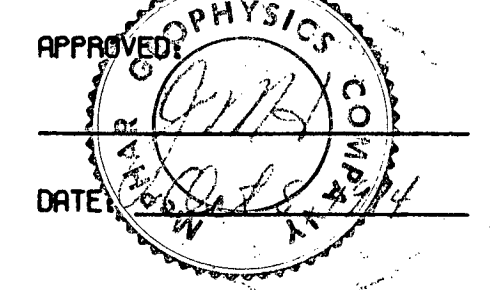
HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



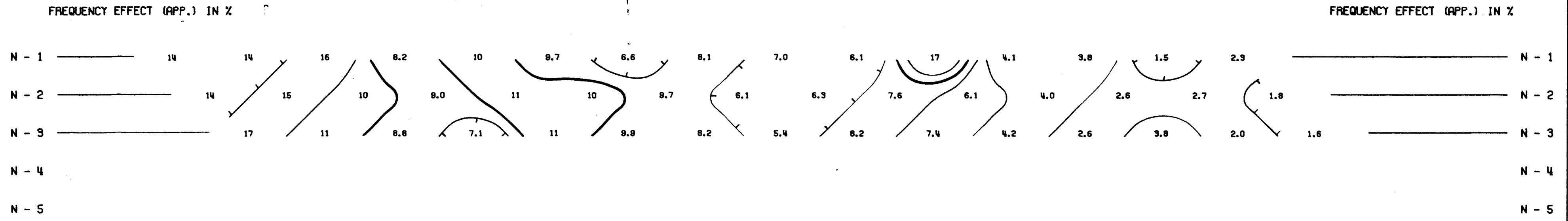
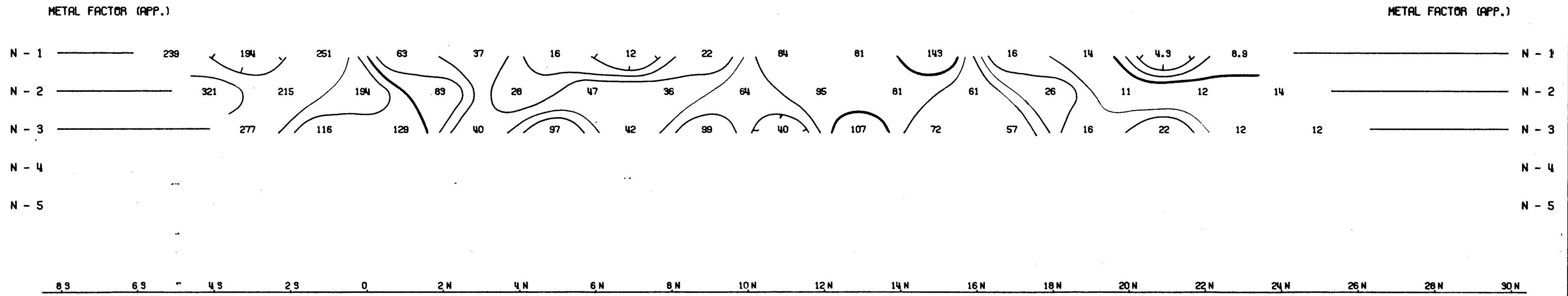
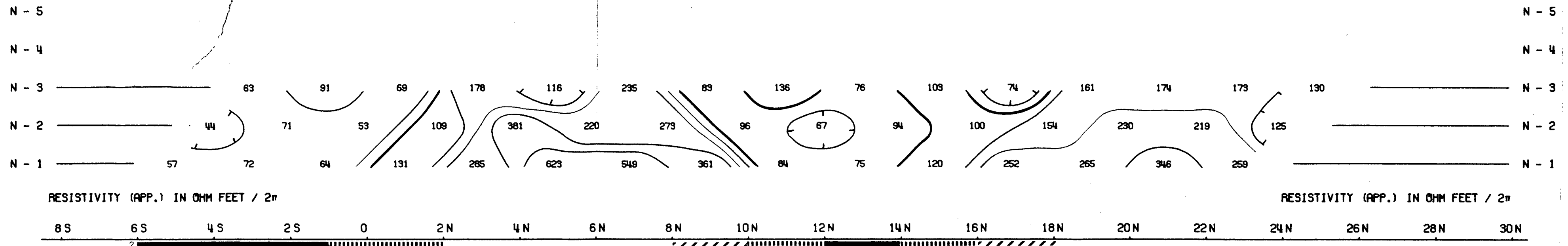
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

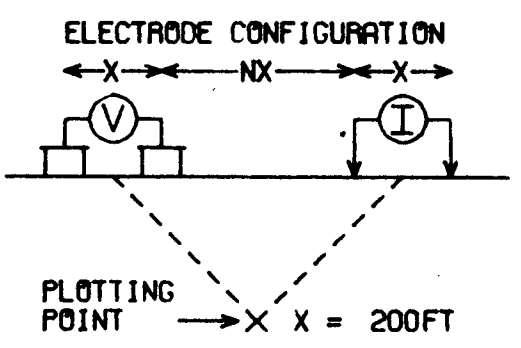
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO.- 5700E



SURFACE PROJECTION OF ANOMALOUS ZONES

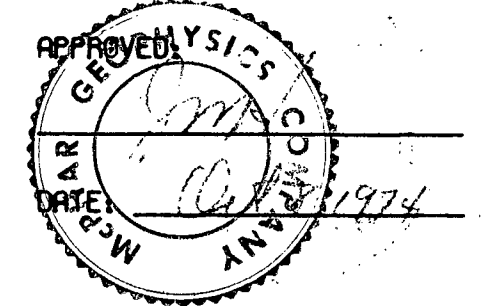
DEFINITE **—————**

PROBABLE **.....**

POSSIBLE **//////**

FREQUENCIES: 0.31-5.0 HZ DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



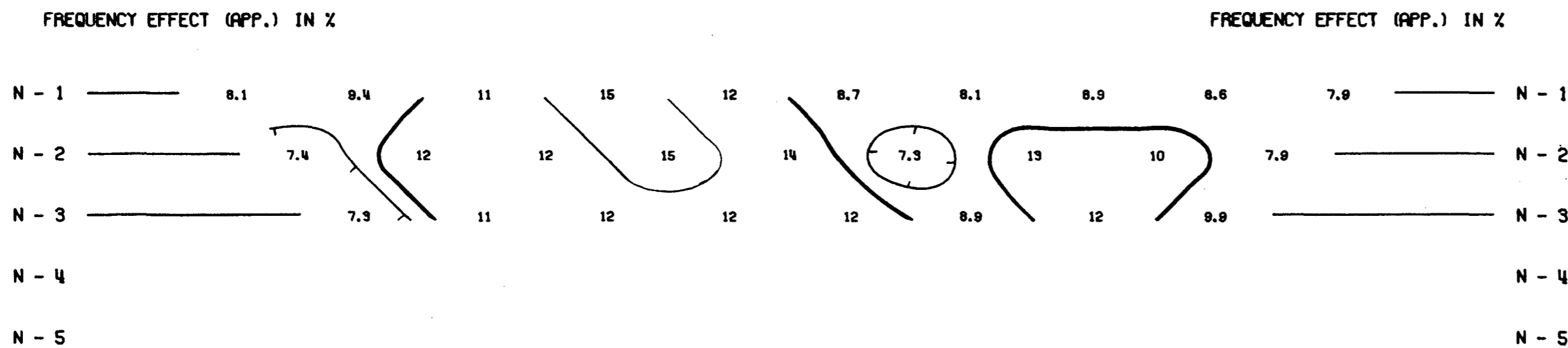
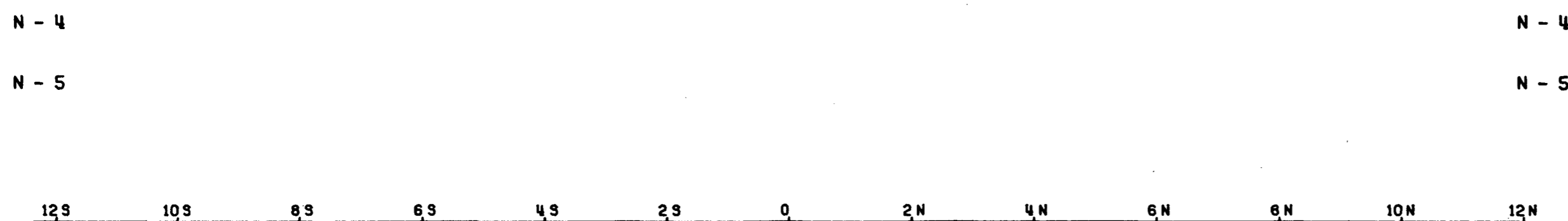
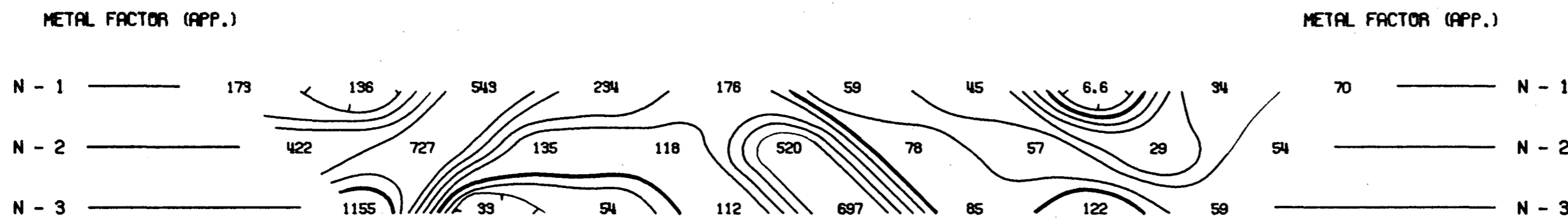
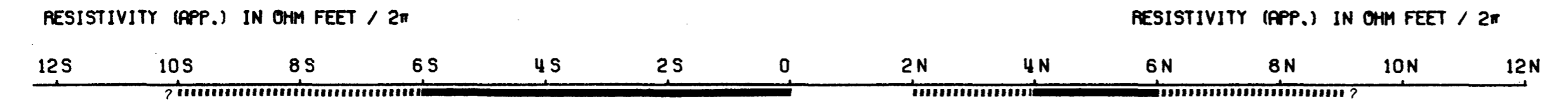
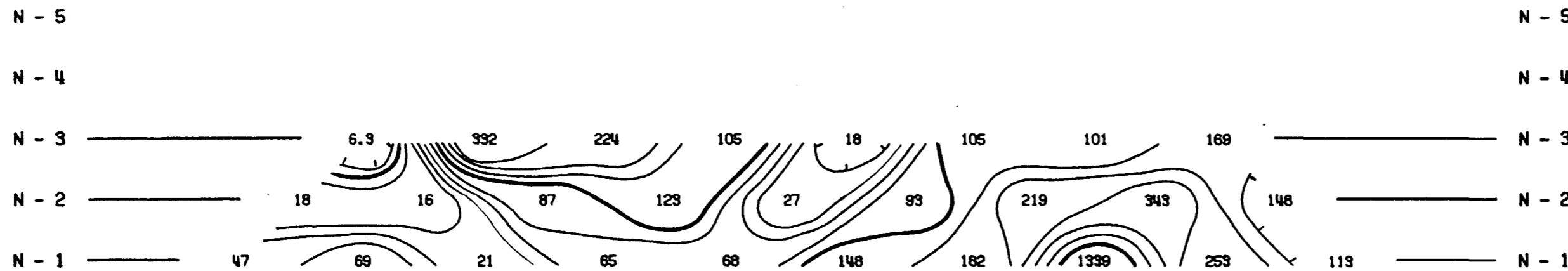
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

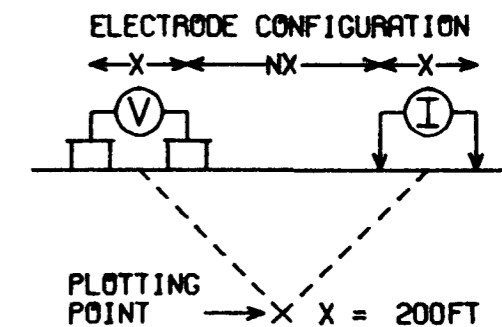
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO. - 6300E



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

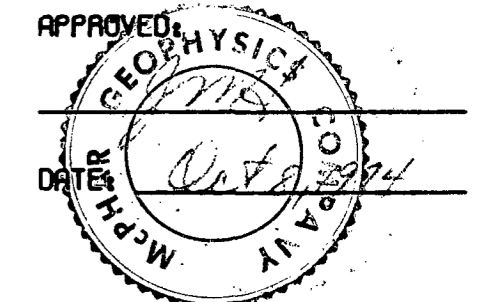
PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



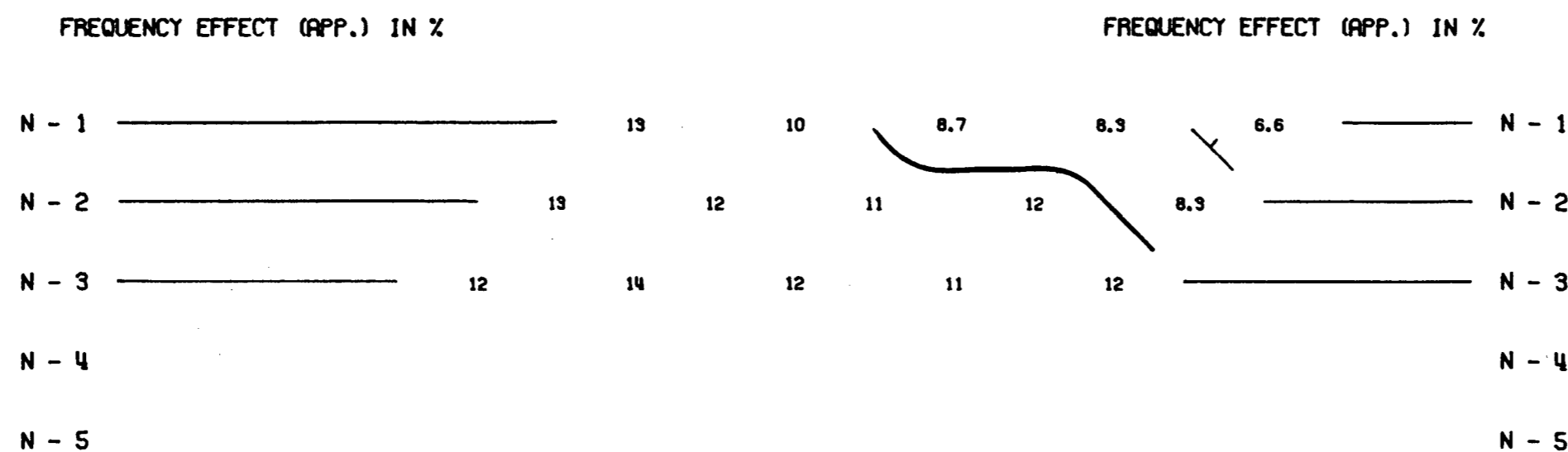
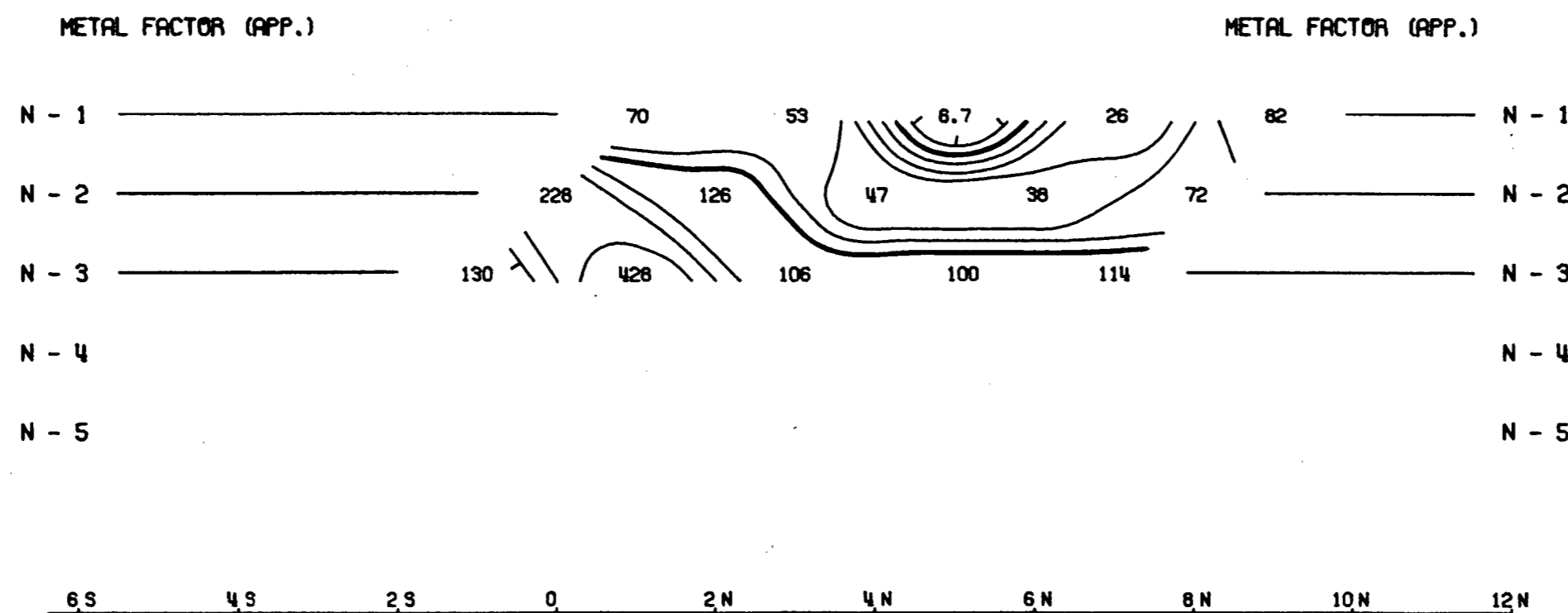
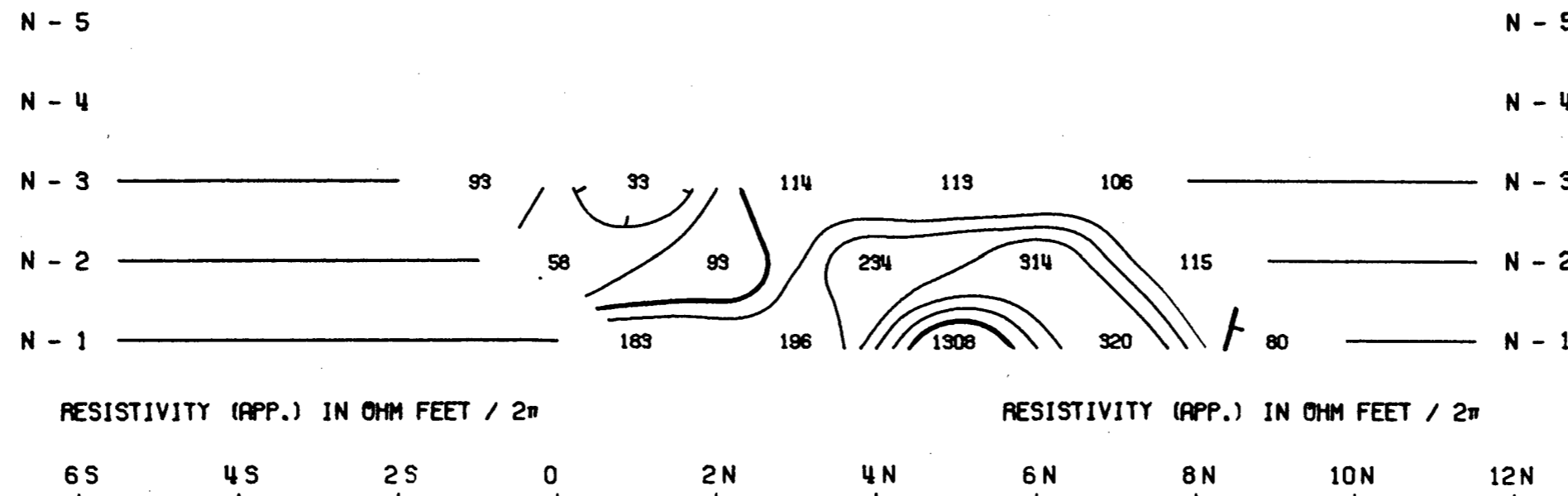
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

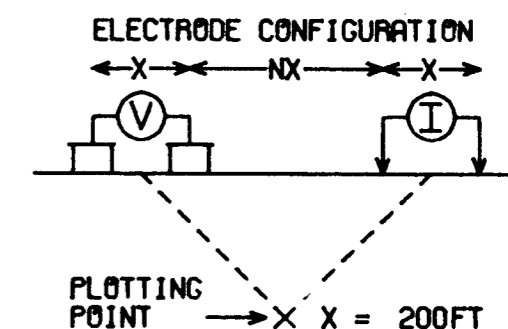
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO.- 6600E



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE
 PROBABLE
 POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

APPROVED:
 DATE:

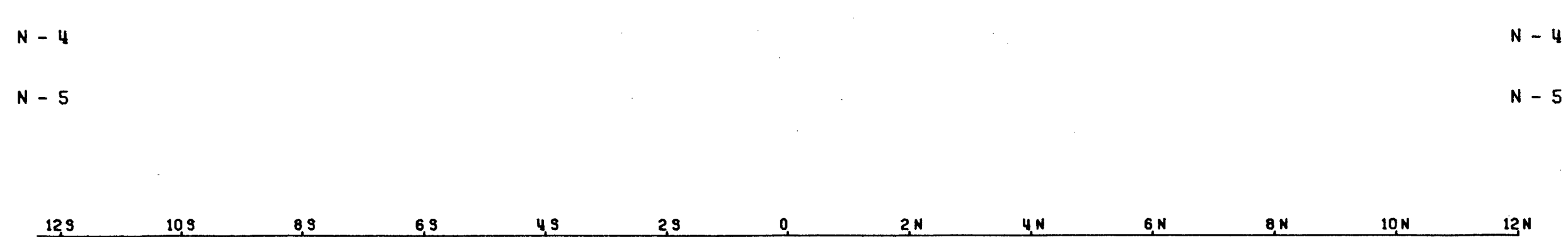
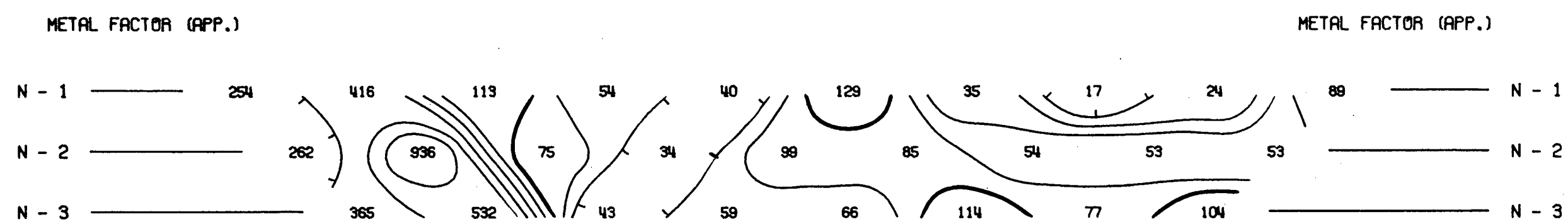
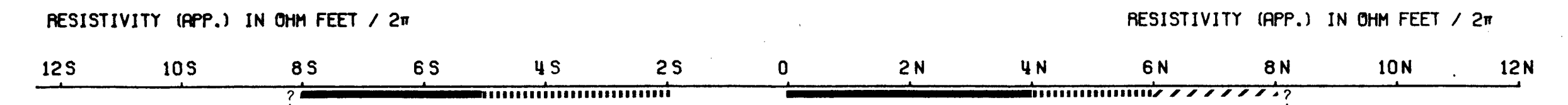
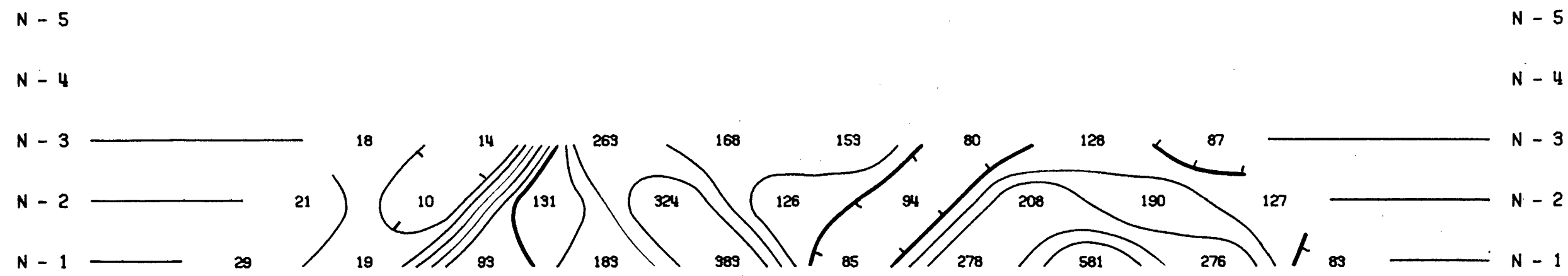
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

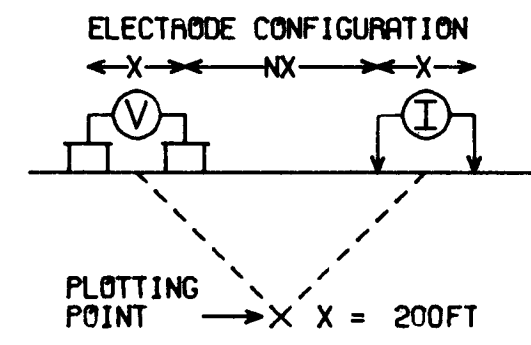
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO. - 6900E



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE

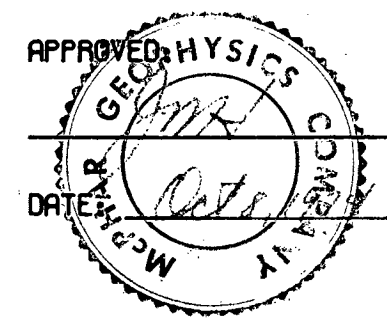
PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



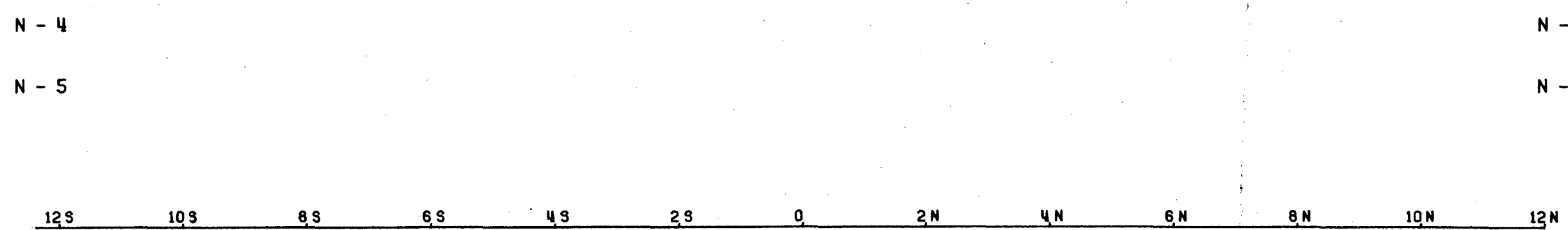
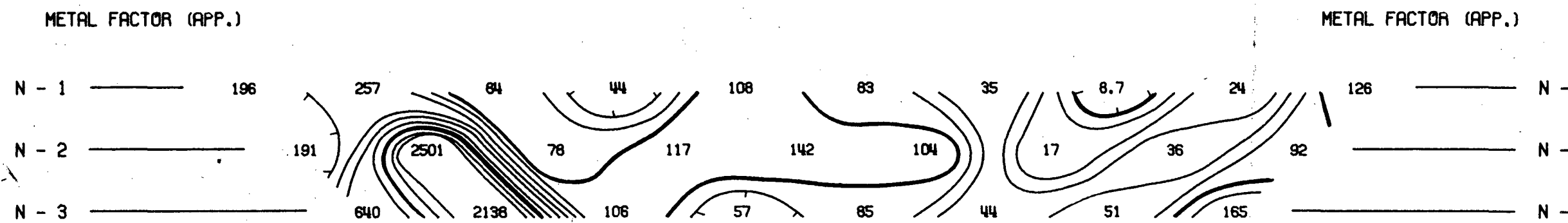
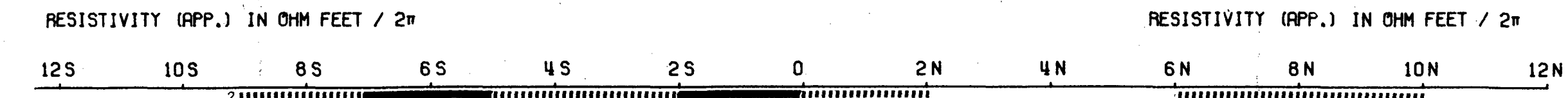
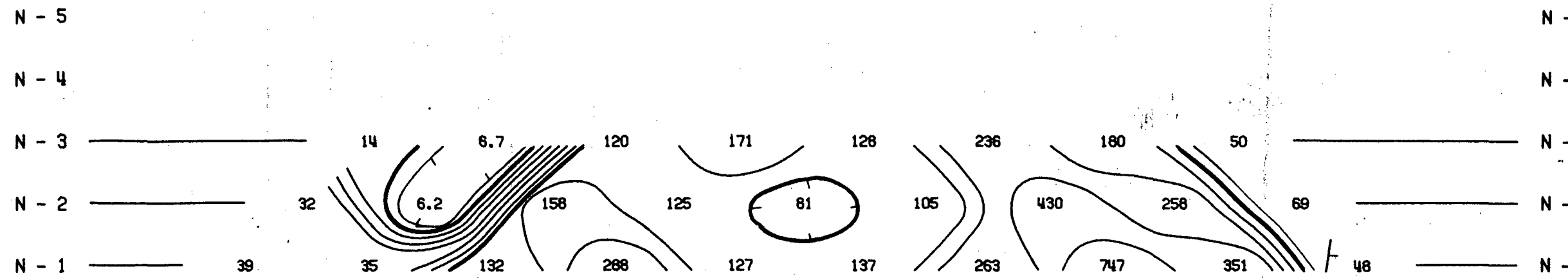
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

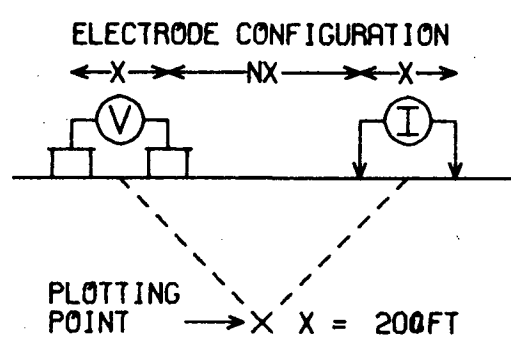
NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

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HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO.- 7500E



SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE **————**

PROBABLE **|||||**

POSSIBLE **////**

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10

APPROVED:

DATE: July 1974

McPHAR GEOPHYSICS

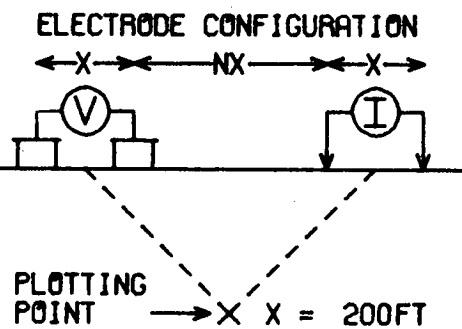
INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY

LINE NO.- 8100E



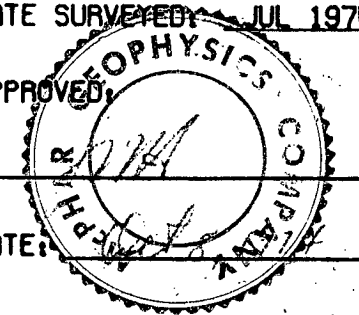
SURFACE PROJECTION OF ANOMALOUS ZONES
 DEFINITE —————
 PROBABLE ■■■■■■■■■
 POSSIBLE / / / / /

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

APPROVED:

DATE:

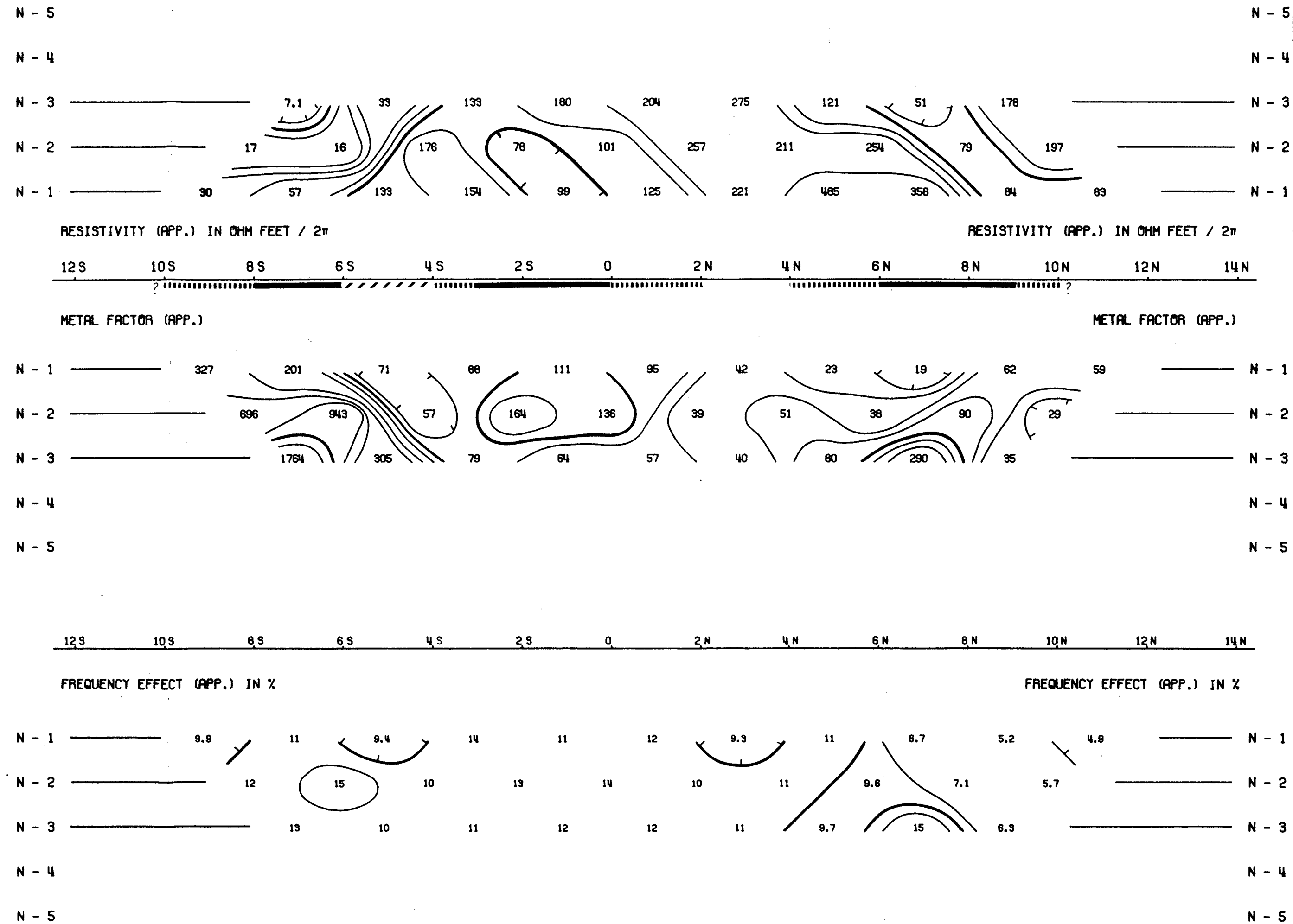


NOTE: CONTOURS AT LOGARITHMIC INTERVALS
1.-1.5-2.-3.-5.-7.5-10

McPHAR GEOPHYSICS

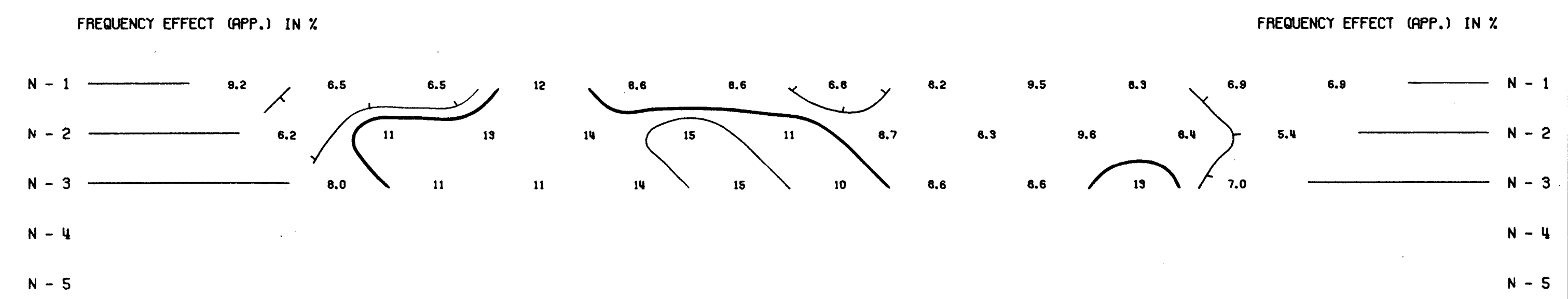
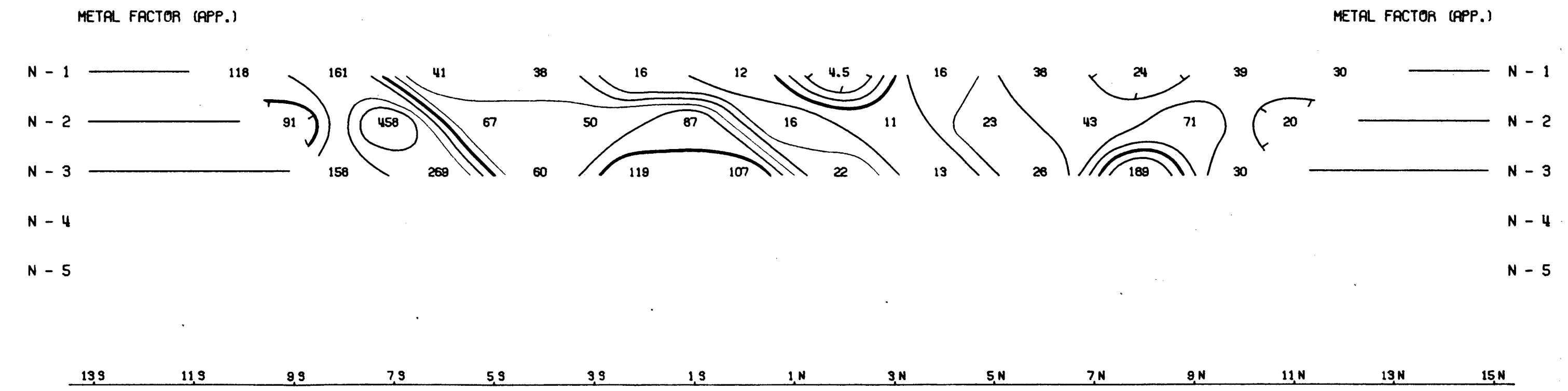
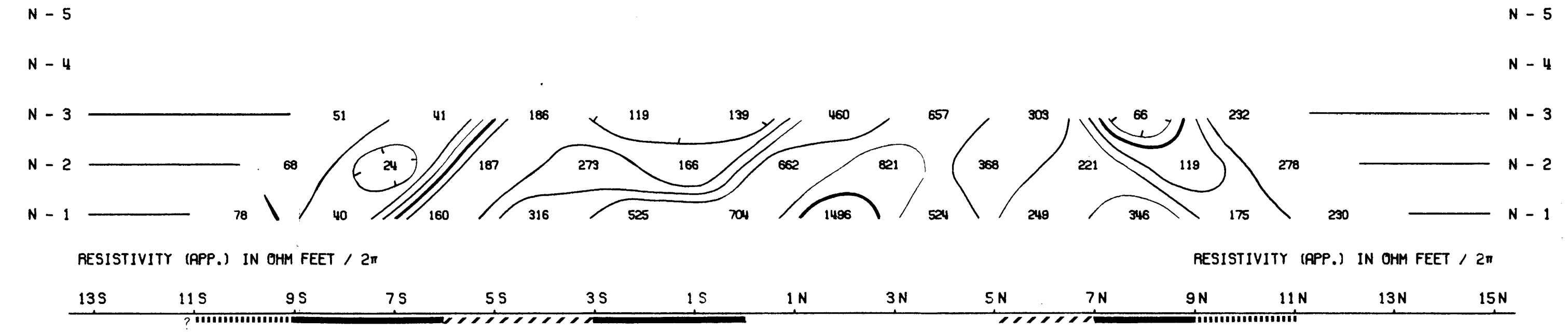
INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

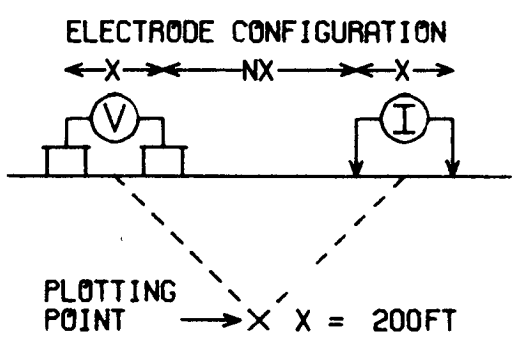


GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY



LINE NO. - 8700E



SURFACE PROJECTION OF ANOMALOUS ZONES

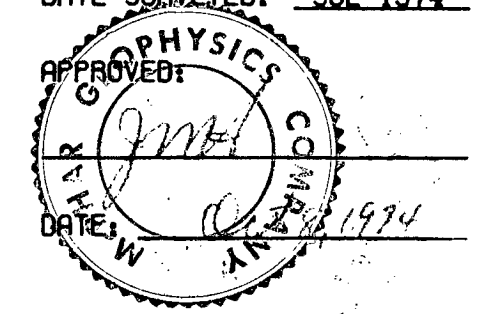
DEFINITE **—————**

PROBABLE **|||||**

POSSIBLE **////**

FREQUENCIES: 0.31-5.0 HZ DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



McPHAR GEOPHYSICS

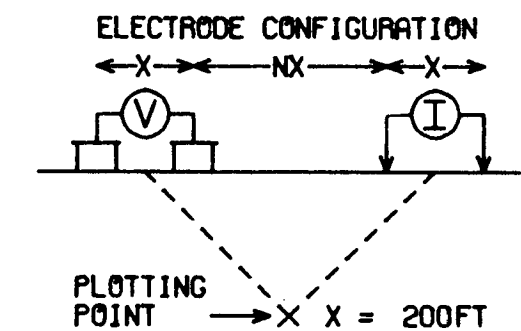
INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.D., YUKON TERRITORY

LINE NO.- 9300E



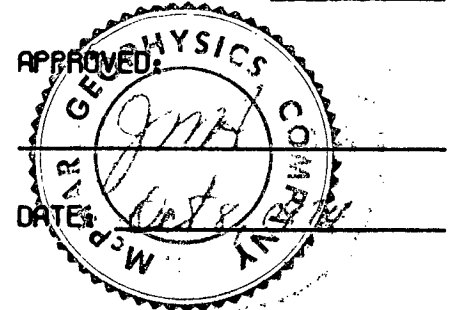
SURFACE PROJECTION OF ANOMALOUS ZONES

DEFINITE **—————**
 PROBABLE **|||||**
 POSSIBLE **////**

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

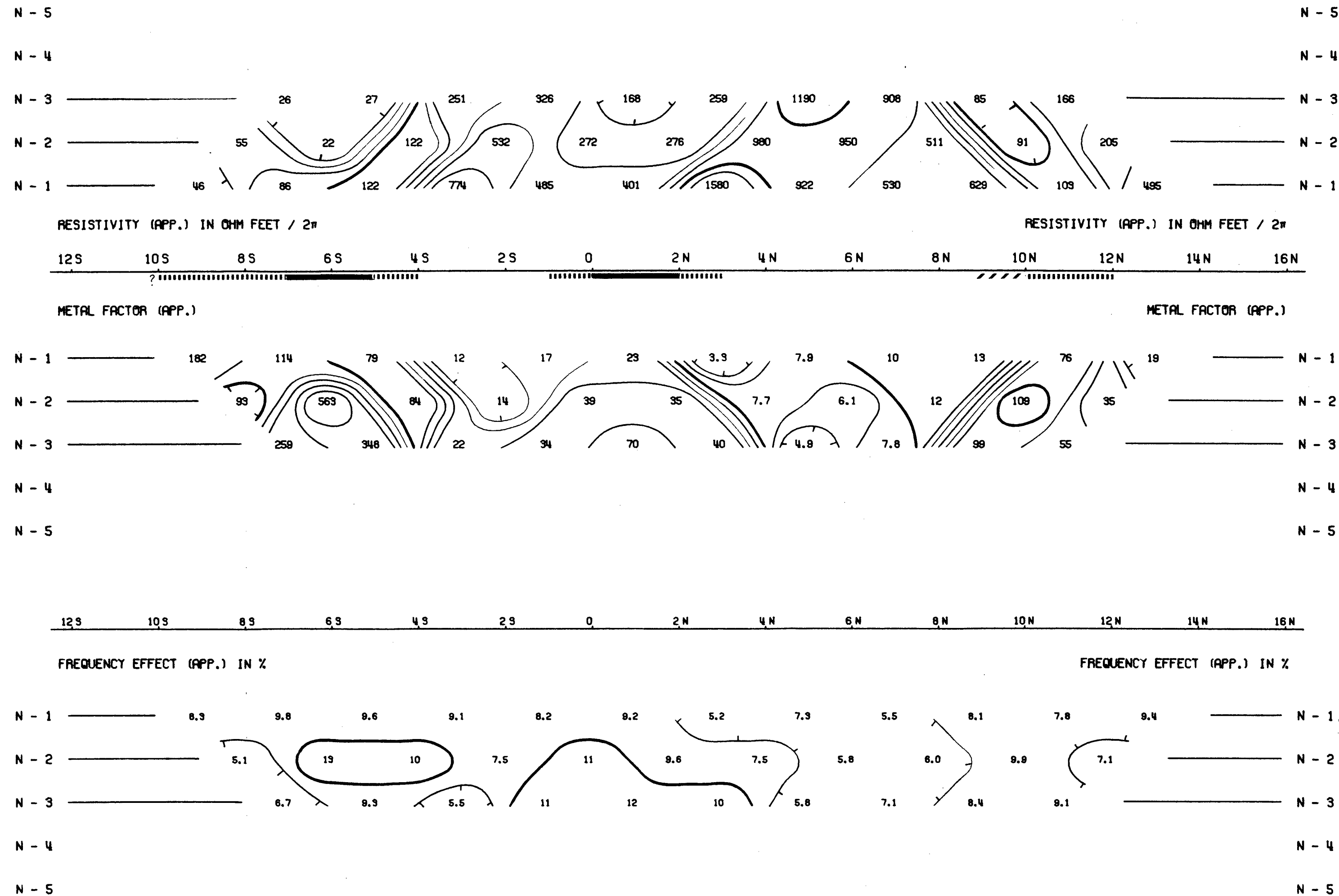
NOTE: CONTOURS AT LOGARITHMIC INTERVALS
1.-1.5-2.-3.-5.-7.5-10



McPHAR GEOPHYSICS

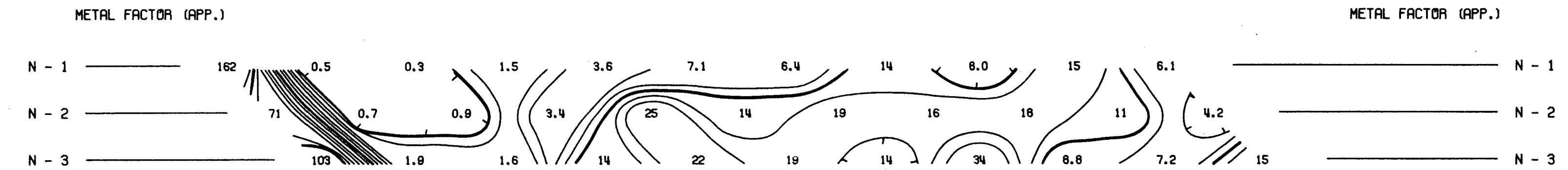
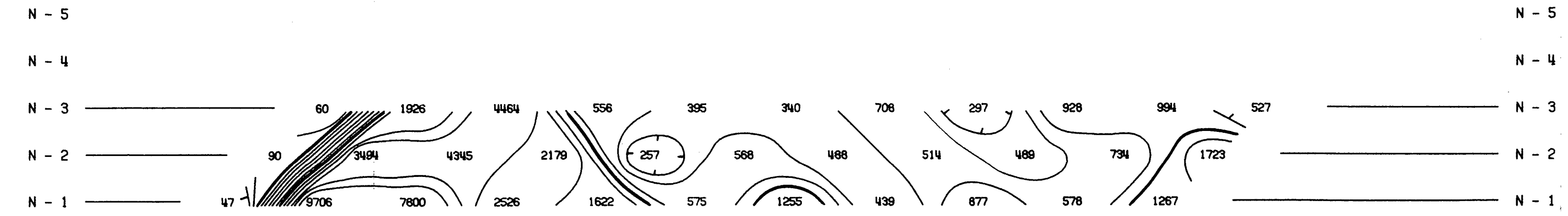
INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

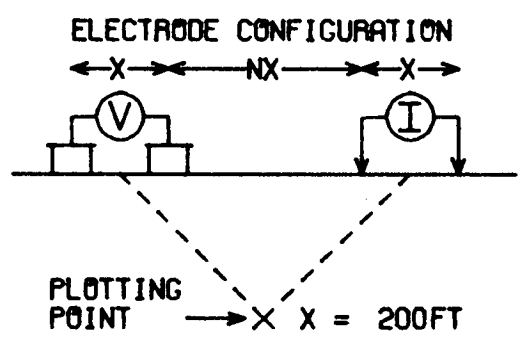


GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA, MAYO M.D., YUKON TERRITORY



LINE NO.- 10800E



SURFACE PROJECTION OF ANOMALOUS ZONES

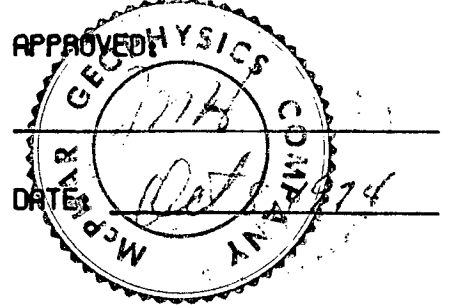
DEFINITE **—————**

PROBABLE **.....**

POSSIBLE **//////**

FREQUENCIES: 0.31-5.0 HZ DATE SURVEYED: JUL 1974

NOTE: CONTOURS AT LOGARITHMIC INTERVALS 1.-1.5-2.-3.-5.-7.5-10



McPHAR GEOPHYSICS

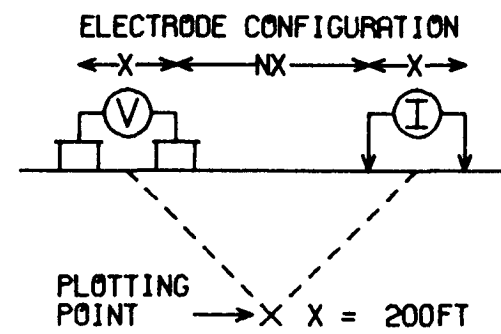
INDUCED POLARIZATION AND RESISTIVITY SURVEY

NOTE: THIS PLOT WAS PRODUCED BY McPHAR COMPUTER DIVISION

GREAT PLAINS DEVELOPMENT
COMPANY OF CANADA LIMITED.

HARRISON CREEK PROPERTY, BONNET PLUME AREA,
MAYO M.O., YUKON TERRITORY

LINE NO.- 11400E



SURFACE PROJECTION
OF ANOMALOUS ZONES

DEFINITE

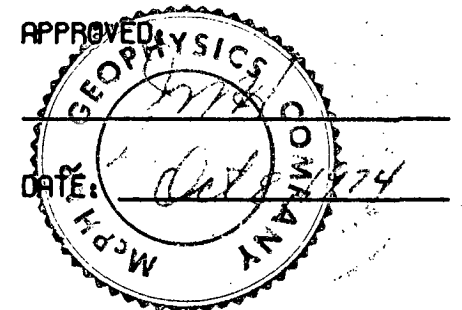
PROBABLE

POSSIBLE

FREQUENCIES: 0.31-5.0 HZ

DATE SURVEYED: JUL 1974

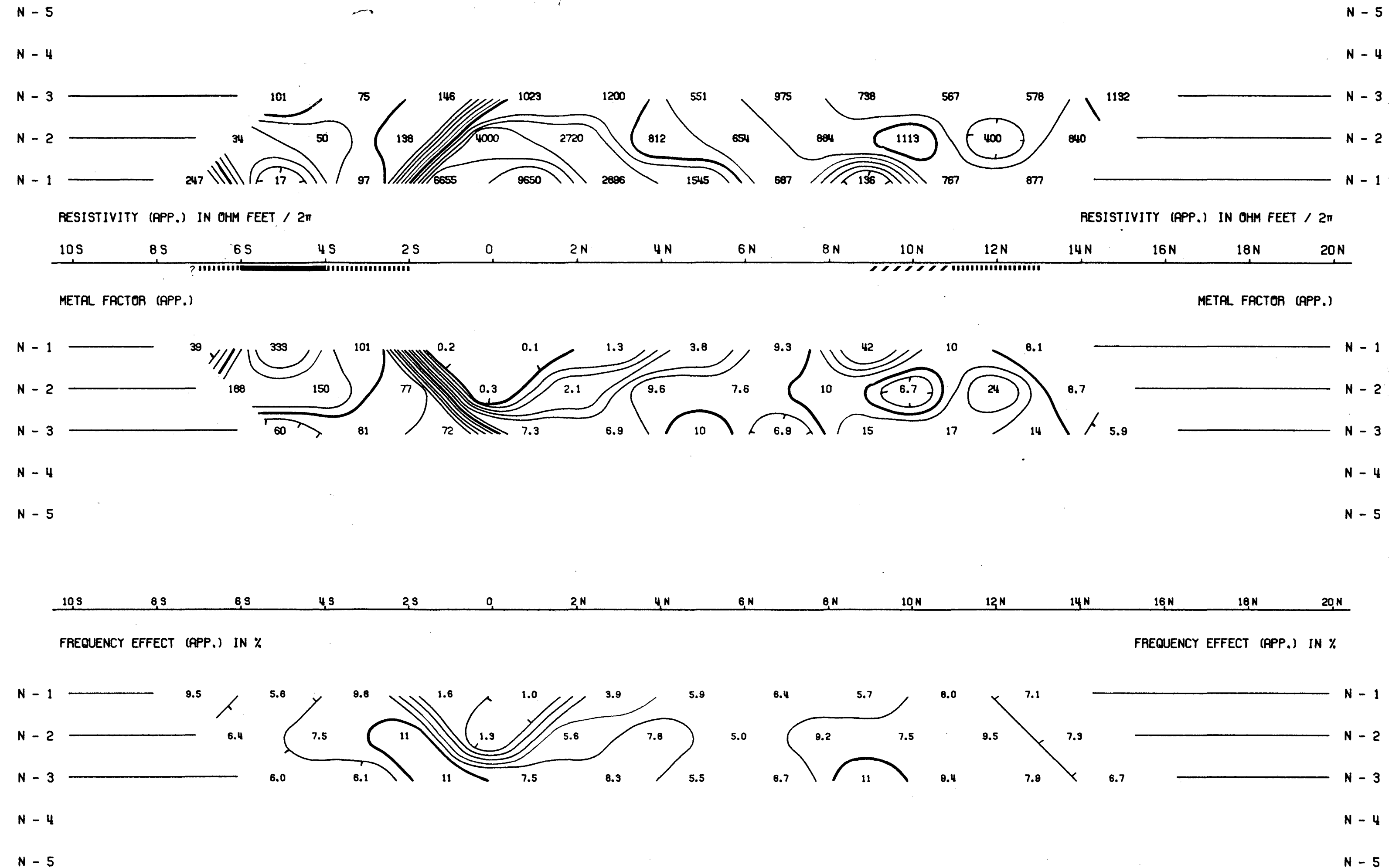
NOTE: CONTOURS AT
LOGARITHMIC INTERVALS
1.-1.5-2.-3.-5.-7.5-10



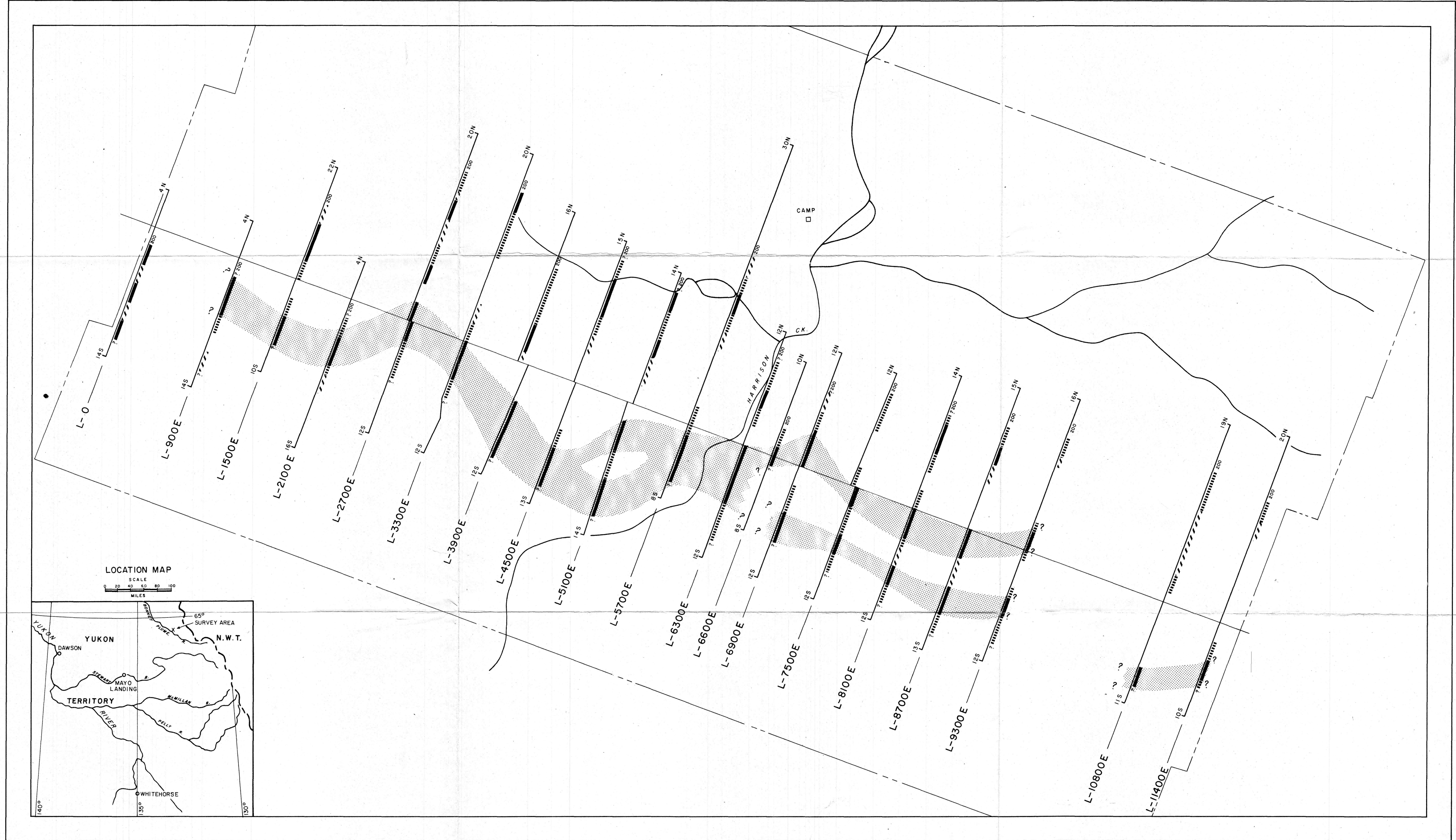
McPHAR GEOPHYSICS

INDUCED POLARIZATION AND RESISTIVITY SURVEY

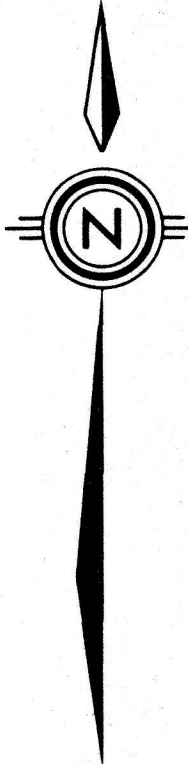
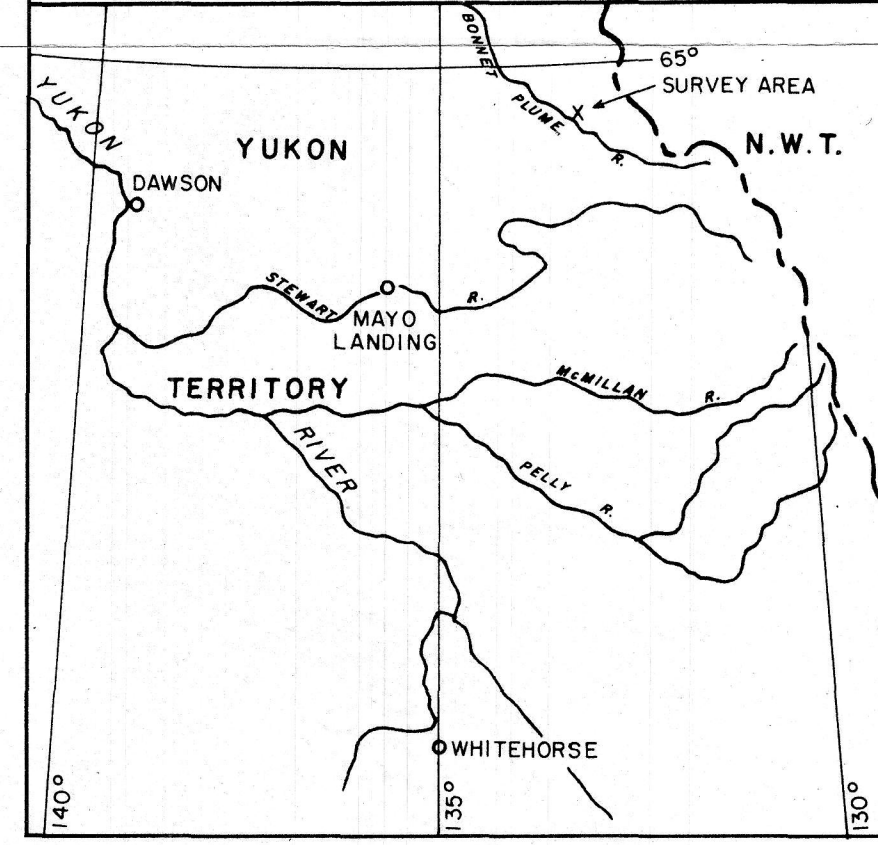
NOTE: THIS PLOT WAS PRODUCED BY MCPHAR COMPUTER DIVISION



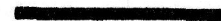


McPHAR GEOPHYSICS
INDUCED POLARIZATION AND RESISTIVITY SURVEY
PLAN MAP



LOCATION MAP
SCALE
0 20 40 60 80 100
MILES



SURFACE PROJECTION
OF ANOMALOUS ZONES


DEFINITE 
PROBABLE 
POSSIBLE 

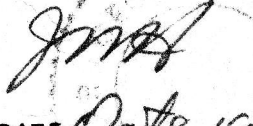
Number at the end of anomaly
indicates spread used.

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LIMITED

HARRISON CREEK PROPERTY, BONNET PLUME AREA, MAYO M.D., YUKON TERRITORY.

SCALE
One inch = 500 feet

 ANOMALOUS ZONE

DRAWN: F.R.P.
DATE: SEPT. 1974
APPROVED:

DATE: Oct 1974

VOLUME III

SUMMARY REPORT

ON THE

HARRISON CREEK OPTION

GOZ CREEK AREA
MAYO MINING DISTRICT, Y.T.
N.T.S. 106-C-7
Lat. 64°24'N; Long. 132°49'W

FOR

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA LTD.

736 - 8th Avenue S.W.
Calgary, Alberta

BY

C. G. Verley, Geologist and
R. Durfeld, Geologist

SUPERVISED BY: O. S. Hairsine, P.Eng.

CORDILLERAN ENGINEERING LIMITED
1418 - 355 Burrard Street
Vancouver, B.C. V6C 2G8

CLAIMS: Bob #1-8, Gep #1-8, Gyk #1-8, Kis #1-8, Ray #1-8
LOCATION: 113 air miles northeast of Mayo, Yukon Territory
DATE: May 29 - June 30; August 16 - September 17, 1974.

Date Compiled: November, 1974

261097

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DIAMOND DRILL LOG LEGEND	10
 <u>DIAMOND DRILL HOLE LOGS:</u>	
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DDH #GPD 74-2	1- 3
DDH #GPD 74-3	1- 2
DDH #GPD 74-4	1- 7

OPERATIONAL NOTES ON DIAMOND DRILLING

During the period August 16th to September 17th a total of 1,298 feet BQWL were drilled in a total of five holes using a Boyles BBS-1 gas-driven machine, operated by Caron Diamond Drilling Ltd. of Whitehorse, Y.T. The drilling was conducted on the basis of two twelve-hour shifts which produced an average footage of twenty feet per shift. Abnormal mechanical difficulties were largely responsible for the low footage per shift and the premature termination of the programme leaving hole #5 incomplete. It is recommended that future drilling be conducted using a BBS 12A diesel-powered machine.

Anticipated problems due to lack of water supply were not an important factor. Sufficient water was found in close proximity to all 1974 drill sites.

All drill moves were by Bell 47G 3Bl helicopter and were completed in about one and one-quarter shifts.

C O R E L O G G I N G

PROCEDURE

A detailed log combining written description and graphical representation on a scale of 1 inch equals 10 feet was used for core logging. This method emphasized description rather than interpretation and allowed associations between lithology, structure, texture and mineralization to be recognized more readily.

Particular attention was paid to the following features:

- a) Mode of occurrence, type and abundance of mineralization.
- b) Estimated per cent of sphalerite and pyrite.
- c) Occurrence of graphite, calcium carbonate, and pyrobitumen.
- d) Location and orientation of structural features.
- e) Lithology - particularly to breccia type, fragment size and matrix.

In the descriptive section recognizable units are identified and their general characteristics described. To the left of this, observations applying to one location, or short intervals, are noted. An explanation of graphic symbols and abbreviations appears immediately preceding the logs.

CORE LOGGING - Procedure (cont'd)

Core recovery was calculated by measuring the length of core between footage blocks and comparing it with the footage drilled. Where assays were taken the per cent recovery was recalculated for the sample interval. Assay sections were chosen with respect to visible mineralization. Estimated grade was given in terms of per cent sphalerite by volume in the mineral column and per cent zinc by weight in the estimated grade column.

A rough log of each hole was also prepared on a daily basis. This gave a generalized lithologic breakdown of the hole and estimated quantities of zinc-lead mineralization and pyrite. Sampled intersections were also indicated on this log.

CORE LOGGING (cont'd)DESCRIPTION OF LITHOLOGIESDOLOSTONE BRECCIA

Dolostone breccia is the most abundant lithologic type found in the drill core.

Breccia fragments are light to dark grey, fine- to medium-crystalline dolostone. They are generally quite angular with sharp boundaries and range in size from about 0.1 inch to 2 inches with a mode of about one-half inch. Frequently fragments are laminated and occasionally pisolitic. The assemblages of fragments in most breccia sections are generally homogeneous in hue and crystallinity.

The breccia matrix is most often composed of medium- to coarse-crystalline, white sparry dolomite. Frequently, however, it may consist of a black argillaceous mixture of shale and pyrobitumen. Locally a fine breccia having either a white dolomite or black argillaceous matrix may itself form the matrix. Primary breccia textures occasionally appear to have been locally erased by strong dolomitization and only ghost fragments remain. Pyrite, sphalerite, galena, pyrobitumen and quartz are found in the matrix of both breccia types.

Crackle breccia occurs locally throughout the dolostone sections and within larger breccia fragments. This type of breccia is one in which the individual fragments can visually be fitted back together.

CORE LOGGING - Description of Lithologies
Dolostone Breccia (cont'd)

Intraformational breccia occurs locally and is characterized by dark grey rounded dolostone fragments in an argillaceous matrix.

LAMINATED DOLOSTONE

This is a laminated to thin-bedded, dark grey, finely crystalline dolostone that commonly contains vugs lined with white sparry dolomite and containing pyrobitumen.

HOMOGENEOUS DOLOSTONE

This unit is a light grey, medium-to coarse-crystalline dolostone that has a uniform featureless texture.

ARGILLACEOUS DOLOSTONE

This is a gradational lithology that marks the change from dolostone to shale and consists of dark grey to black, finely crystalline, laminated dolostone. Argillaceous material imparts a fissility to this unit which is locally graphitic.

CORE LOGGING - Description of Lithologies (cont'd)

SHALE

The shale is dark grey to black and laminated. Rusty, pyritic laminations are frequently developed and the shale is locally graphitic.

CALCAREOUS SHALE

Shale grades into sections of similar structured dark grey to black calcareous shale which is commonly graphitic. Pyrite and white calcite occur as thin fracture fillings in this unit.

CORE LOGGING (cont'd)DESCRIPTION OF TEXTURES

Two major types of textures were noted:

1. ZEBRA TEXTURE

This texture consists of alternating layers of white sparry dolomite and grey dolostone. Layering is usually delicate and continuous, although coarse discontinuous banding does occur.

2. VUGGY TEXTURE

Circular to lenticular vugs are usually partially filled with drusy white sparry dolomite. Occasionally they contain pyrobitumen and euhedral crystals of sphalerite, pyrite and quartz. Vugs commonly occur throughout breccia and dolostone sections.

CORE LOGGING (cont'd)MINERALOGICAL OBSERVATIONS

The best concentration of sphalerite (2.0% Zn over 171', D.D. #74-1) occurred with pyrite as part of the matrix of the black matrix breccia. Generally an increase in pyrite is associated with stronger zinc mineralization. However, pyrite is also found without sphalerite.

Vugs filled with white sparry dolomite and pyrobitumen occur sporadically throughout the core. They show no direct relationship to the location of zinc and iron sulphides.

MINERALIZATION TEXTURES

The mineralization textures found in the core were:

1. "Snow-on'roof" texture - sphalerite or pyrite draped over the top edge of fragments.
2. Colloform - rounded, reniform layers of pyrite and sphalerite.
3. Banded or layered coarse crystalline sphalerite and pyrite.
4. Massive fine-to coarse-crystalline pyrite.
5. Massive coarse crystalline galena.
6. Euhedral pyrite and sphalerite.

DIAMOND DRILL SUMMARY RECORD

GREAT PLAINS DEVELOPMENT COMPANY LTD., HARRISON CREEK OPTION
N.T.S. 106-C Nadaleen River Area, Mayo Mining District, Y. T.

By Cordilleran Engineering Limited, Vancouver, B.C.

HOLE NO.	CO-ORDINATES		ELEVATION	SECTION	INCLINATION	AZIMUTH	OVERBURDEN	STICK-UP	CLAIM	DATE STARTED	DATE FINISHED	% CORE RECOVERY	DEPTH
	NORTHING	EASTING											
GPD 74-1	0+50S	57+00E	3010'	57+00E	-45°	200°	20'	2.2'	Bob 5	Aug. 16/74	Aug. 23/74	81%	643'
GPD 74-2	4+50S	40+00E	3080'	40+00E	-45°	200°	28'	3.1'	Bob 7	Aug. 24/74	Aug. 26/74	77%	124'
GPD 74-3	14+00N	27+00E	3410'	27+00E	-45°	200°	13'	2.8'	Kis 6	Aug. 27/74	Sept. 2/74	67%	93'
GPD 74-4	0+00N	80+60E	3220'	81+00E	-45°	200°	42'	4.75'	Bob 1	Sept. 4/74	Sept.15/74	90%	395'
GPD 74-5	0+20S	63+30S	3010'	-	-44°	200°	30'	-	Bob 3	Sept.17/74	incomplete	0%	43'

REMARKS:

- Hole 74-3 was abandoned at 93' in a fault.
- Hole 74-5 was stopped at 43' due to mechanical problems. Forty feet of casing and fifty feet of rods were left in the hole. No core was recovered.

CORDILLERAN ENGINEERING LIMITED - DIAM. JD DRILL RECORD

HOLE No. G.P.D 74-1

CLAIM: BOB #5

PROPERTY: HARRISON CREEK

PAGE No. 5

of 11

SECTION	GRAPHITE CaCO ₃	PYROBITUMIN	FRACTURING	MINERAL	GEOLOGY	COMMENTS: SAMPLE TAG NUMBERS: 6924 - 6934	ESTIMATED Fe SULFIDES %	DRILLING INTERVAL	% CORE RECOVERED	SAMPLE INT. # NUMBER	% RECOVERY/ SAMPLE INT.	ESTIMATED GRADE % Zn	ASSAYS								
													Zn Total								
																			%	%	%
230						Zebra textured fragment		231	91												
						170-452' DOLOSTONE BRECCIA		233	70	24	80.5	1.0	0.15								
								237	76	25	71.1	0.5	0.10								
								238.6	75	239											
240							Mainly homogeneous dolostone fragments		242.6	67	26	80.6	0.75	0.10							
							Gn with Sph		247	95	246										
							Gn matrix		251.6	89	27	94.0	8.0	2.88							
							Laminated fragment		257	85	28	88.1	Tr	0.06							
							Pisolitic dolostone fragment		260	103	259										
							Homogeneous dolostone fragments		265	90	26	75.2	4.0	0.62							
250									269	100	30	96.0	3.0	0.28							
								275	90	31	86.6	0.5	0.14								
								278	82	276											
260								281	92	31	99.0	5.0	1.88								
								287	66	33	71.2	Tr	0.12								
						Sparry dolomite and Sph		287	121	286											
270						Pisolitic dolostone fragment		290	50	34	78.0	0.75	0.15								

CORDILLERAN ENGINEERING LIMITED — DIAMOND DRILL RECORD

HOLE No. GFD 74-1

CLAIM: BOB #5

PROPERTY: HARRISON CREEK

PAGE No. 6 of 11

SECTION	GRAPHITE	CaC	PYROBITUM	FRACTURING	MINERAL	GEOLOGY	COMMENTS:	ESTIMATED % Fe SULFIDES	DRILLING INTERVAL	% CORE RECOVERED	SAMPLE INT. #	% RECOVERY/ SAMPLE INT.	ESTIMATED GRADE	ASSAYS								
														DESCRIPTIVE GEOLOGY	%	%	%	%				
															Zn Total	Zn Soluble	Sulphide Zn	Pb				
290							SAMPLE TAG NUMBERS: 6934-6944.		290	85	34	78.5	0.75	0.15								
292							170'-452' DOLOSTONE BRECCIA.		292	70	292											
294									294	82	35	95.0	4.0	4.96				0.13				
296									296	103	298											
299								Fractured homogeneous dolostone fragment	299	115	36	101.5	5.0	1.40								
301								Bedding	301	91	34											
306									306	87	37	88.6	2.0	0.67								
310									310	45	309											
312									312	20	38	30.6	Tr.	0.36								
320									320	83	39	93.8	4.0	1.20								
323									323	110	325											
325									325	105	40	86.2	2.0	1.68								
327									327	70	329											
329									329	81	330											
333								Fine Breccia.	333	68	41	75.8	2.0	1.06								
335									335	83	42	81.5	1.0	0.38								
341								341	43	43	58	0.75	1.40	0.05	1.35							
344								344	78	44	80.4	8.0	3.80	0.10	3.70							
349								349	90	350												



CORDILLERAN ENGINEERING LIMITED - DIAM. JD DRILL RECORD

HOLE No. GRD 74-1

CLAIM: BOB #5

PROPERTY: HARRISON CREEK

PAGE No. 7

of 11

SECTION	GRAPHITE CaCO ₃	PYROBITUMUM	FRACTURING	MINERAL ZnS	GEOLOGY	COMMENTS: SAMPLE TAG NUMBERS: 6945-6955	ESTIMATED % SULFIDES	DRILLING INTERVAL	% CORE RECOVERED	SAMPLE INT. # NUMBER	% RECOVERY/ SAMPLE INT.	ESTIMATED % Zn GRADE	ASSAYS						
													%	%	%	%			
													Zn Total	Zn Soluble	Sulphide Zn	Pb.			
350					70'-452' DOLOSTONE BRECCIA Zoned good colloform mineralization Sparsely dolomite Psalitic dolomite Sparsely dolomite Psalitic dolomite Sparsely dolomite Psalitic dolomite Sparsely dolomite														
							15	250	90	45	242	60	2.24	0.07	2.17	0.08			
								350	81	355									
									109	46	64	15.0	7.72	0.11	7.61	0.06			
360								360	70	47	70	10.0	4.40	0.07	4.33	0.18			
								365	83	48	19.6	8.5	0.23	0.02	0.21				
								368	100										
								369	50	50									
370								370	46										
								372	73										
								372.5	31	49	63.1	2.5	0.47	0.02	0.47				
								375	45										
								378	25		27.9								
380								381.5	73	50	73.3	0.5	0.92	0.03	0.87				
								382	51										
								385	75	387									
								387	100	51	100	7.0	1.96	0.04	1.92				
								390	80	51	87.6	4.0	0.60	0.02	0.58				
								392	99	337									
400							400	52	52	70.2	6.0	2.16	0.02	2.14					
							402	67	54	63.6	3.0	6.40	0.08	6.32					
							405	50	407										
							407	83	55	87.2	15.0	4.16	0.04	4.12					

CORDILLERAN ENGINEERING LIMITED - DIAMOND DRILL RECORD

HOLE No. GFD 74-1

CLAIM: BOB #5

PROPERTY: HARRISON CREEK

PAGE No. 8

of 11

SECTION	GRAPHITE CaCO ₃	PYROBITUMIN	FRACTURING	MINERAL	GEOLOGY	COMMENTS: SAMPLE TAG NUMBERS: 6955-6963	ESTIMATED % Fe SULFIDES	DRILLING INTERVAL	% CORE RECOVERED	SAMPLE INT. # NUMBER	% RECOVERY/ SAMPLE INT.	ESTIMATED GRADE % Zn	ASSAYS							
													%	%	%	%				
													Zn Total	Zn Soluble	Sulphide Zn					
410					<p style="text-align: center;">170'-452' DOLOSTONE BRECCIA</p> <p>Bedding Sparry dolomite in Vug</p> <p>12</p> <p>Sparry dolomite Quartz crystal in Vug</p> <p>Laminated fragment showing bedding</p> <p>2</p> <p>Sparry dolomite fragments in black matrix.</p> <p>0.7</p>		412	83	55	87.2	15.0	4.16	0.04	4.12						
						413	100	414												
								416	96	56	74.8	8.0	2.00	0.04	1.96					
						10.0	94	419												
420								421	87	57	93.0	10.0	5.48	0.05	5.43					
							423	87	425											
									96	58	91.5	1.0	0.50	0.02	0.48					
							428	85	431											
430									81	59	87.8	2.0	0.46							
							434	81	435											
								78	436	93.3	3.0	1.80								
						2.0	438.5	95					443							
440								72	61	86.5	2.0	3.00								
						445	72	446												
								92	62	74.0	0.75	0.78								
450						0.7	450	92					452							
								97	63	96.4	T _r	0.15								
							455	97					458							
460								97	462											
							1.0	463.5												
								100												
470								468.5												

DESCRIPTIVE GEOLOGY

170'-452' DOLOSTONE BRECCIA

452-643 ARGILLACEOUS DOLOSTONE

- generally grey and black laminated to thin, laminated
- becoming more argillaceous with depth
- locally some soft sediment structures (mud and swell, contorted bedding)
- locally crackle breccia with black matrix.

SECTION	GRAPHITE CaCO ₃	PYROBITUMEN	FRACTURING	MINERAL GEOLOGY	COMMENTS: SAMPLE TAG NUMBER: 6966	ESTIMATED Fe SULFIDES %	DRILLING INTERVAL	% CORE RECOVERED	SAMPLE INT. #	% RECOVERY/ SAMPLE INT.	ESTIMATED GRADE % Zn	ASSAYS							
												Zn Total							
																		%	%
530					Bedding.		530	88											
					452-643 ARGILLACEOUS DOLOSTONE		535	88											
540					CaCO ₃ on fractures Bedding		540	72											
					Graphite on fracture		545	90											
550					Local block matrix breccia Py, Sparry dolomite and minor Sph as part of matrix		549	86											
							554	60											
560					Gph on fractures parallel to bedding		559	90											
							564	25											
570							565.6	63											
							568.6	67											
580					Py and minor Sph disseminated on bedding Sparry dolomite crystals in Vug Sparry dolomite and Py in crackle breccia		572.6	84											
							577.6	112											
590					BEDDING		581.6	78											
							587.6	72											
							588.0	66											
										73.2		10.05							

CORDILLERAN ENGINEERING LIMITED — DIAMOND DRILL RECORD

HOLE No. G.P.D. 74-4
 ELEVATION: 3220'
 NORTHING: 0+00N
 EASTING: 80+60E

CLAIM: BOB #1
 SECTION: 81+00E
 INCLINATION: -45°
 AZIMUTH: 200°

PROPERTY: HARRISON CREEK OVERBURDEN: 0'-42'
 DATE STARTED: SEPT. 4, 1974 CONTRACTOR: CARON
 DATE FINISHED SEPT 15, 1974 CORE SIZE: BQ
 TOTAL DEPTH: 395' % CORE RECOVERY: 90

PAGE No. 1 of 7
 LOGGED BY: R. DURFELD
 SCALE: 1"=10'
 CORE STORED AT: CAMP

SECTION	GRAPHITE Co ₂	PYROPHYLUM	FRACTURING	MINERAL ZnS	GEOLOGY	ESTIMATED Fe SULFIDES %	DRILLING INTERVAL	% CORE RECOVERED	SAMPLE INTERVAL NUMBER	% RECOVERY/ SAMPLE INT.	ESTIMATED GRADE	ASSAYS							
												%	%	%	%	%	%	%	%
0					DESCRIPTIVE GEOLOGY														
10					0'-42' OVERBURDEN														
20																			
30																			
40																			
42					42-70' LAMINATED DOLOSTONE		42												
44							44	90											
46							46	86											
48							48												
49							49	40											
50																			

COMMENTS: STICK-UP 4.75'
 NO SAMPLES TAKEN
 42-70' LAMINATED DOLOSTONE
 70'-366' DOLOSTONE BRECCIA
 366-395' ARGILLACEOUS DOLOSTONE
 395' END OF HOLE

Bedding
 Zebra texture
 Vug filled with
 sparry dolomite
 Snow on roof of
 and sparry dolomite.

