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REPORT ON THE  
APPLIED POTENTIAL SURVEY  
ON THE  
WESTERN CLAIMS (STAR OF EMORY SHOWING)  
HOPE AREA,  
NEW WESTMINSTER MINING DIVISION, B.C.  
FOR  
GIANT MASCOT MINES LTD.

BY

PHILIP G. HALLOF, Ph.D.

AND

ASHTON W. MULLAN, B.Sc.

NAME AND LOCATION OF PROPERTY:

WESTERN CLAIMS (STAR OF EMORY SHOWING) HOPE AREA,  
NEW WESTMINSTER MINING DIVISION, B.C. 49°N, 121°W

DATE STARTED: NOVEMBER 14, 1974

DATE FINISHED: NOVEMBER 18, 1974

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	Map in Pocket	Dwg. AP 3654	

# McPHAR GEOPHYSICS

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ON THE  
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## 1. INTRODUCTION

At the request of Mr. F. Holland, General Manager, we have completed an applied potential survey in the vicinity of the Star of Emory showing on behalf of Giant Mascot Mines Ltd. The showing occurs on the Western Claim Group, about 13 miles NW of Hope, British Columbia. The area of interest is in the New Westminster Mining Division; it lies in the southeast quadrant of the one degree quadrilateral whose southeast corner is at  $49^{\circ}$ N latitude and  $121^{\circ}$ W longitude.

The showing is nickel-bearing sulphide mineralization similar to that which has been mined to the east at the Giant Nickel Mine. The nickel-copper mineralization in the area is associated with an ultrabasic mass that has the dimensions of 1.8 miles by 1.4 miles. The host rocks are usually a hornblende pyroxenite and/or a peridotite. The ore zones



already mined were "pipes" with considerable vertical extent (200 feet to 1200 feet). The lateral dimensions were from 50 feet to 300 feet by 200 feet.

The Star of Emory showing was uncovered in a road cut, in a satellite ultrabasic mass. The host rocks are the same as those for the main ore zones to the east. Two short drill holes have intersected the sulphide mineralization beneath the showing. The applied potential survey was planned in an attempt to gain further information regarding the size, attitude, depth extent, etc., of the known zone of massive sulphide mineralization.

## 2. PRESENTATION OF RESULTS

Potential measurements were made using two different current electrode positions. However, since both placements of the current electrode gave exactly the same potential values, only one plot has been prepared. The equipotential contours are shown on Dwg. AP 3654. A profile of the potential values along a line parallel to the indicated plunge of the zone is shown on Figure 1. The line of the profile has a bearing of N78°W and passes through the centre point of the anomaly (51+06W, 52+80S).

## 3. DISCUSSION OF RESULTS

The applied potential results are of considerable interest and do give further information concerning the small zone of massive sulphide mineralization. The interpretation of the data is complicated by the fact that the measurement surface is not a horizontal plane but is in fact the inclined

# GIANT MASCOT MINES LIMITED

WESTERN CLAIMS (STAR OF EMORY)

## APPLIED POTENTIAL PROFILE ALONG LINE N 78°W (Looking North)

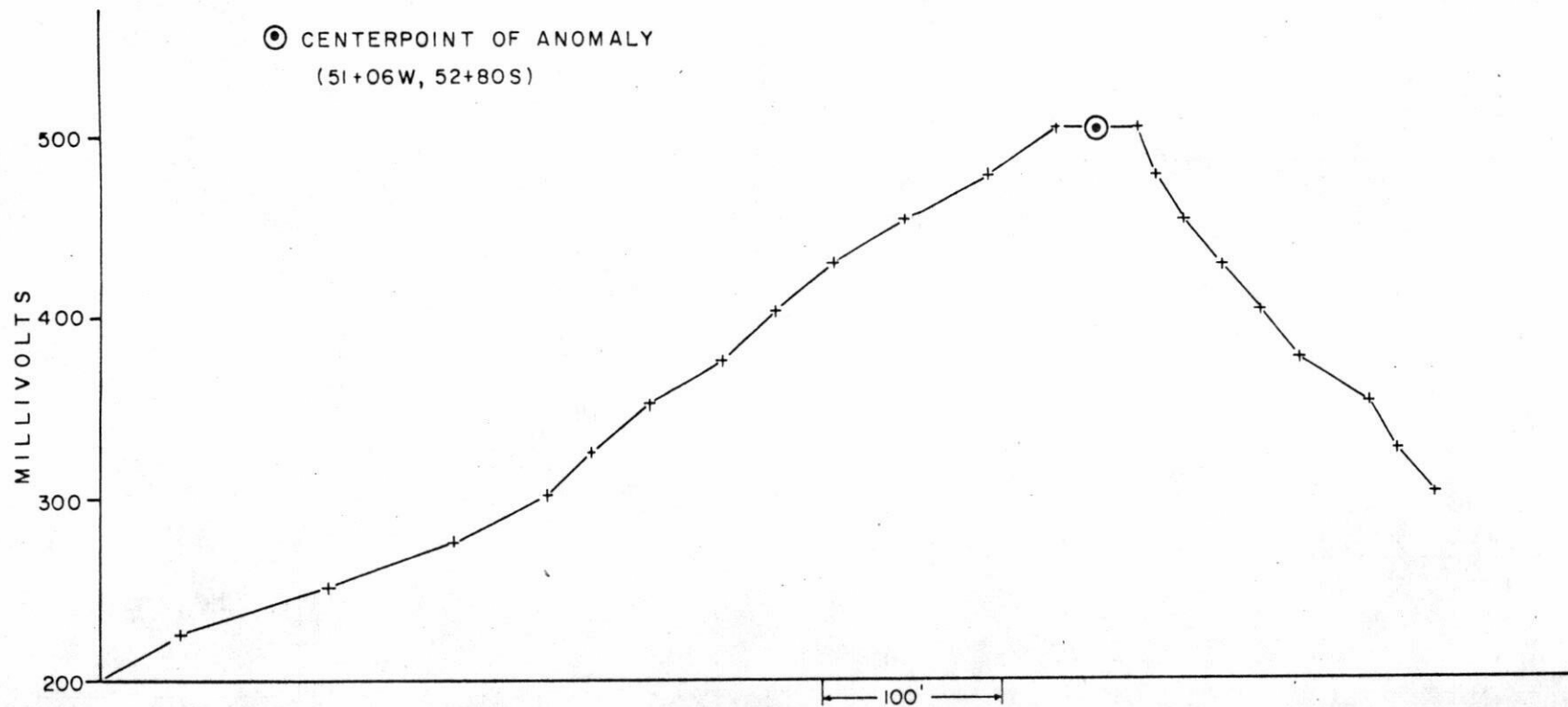
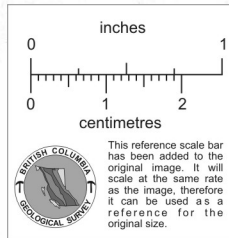


FIG. 1

DATA TAKEN FROM DWG.AP-3654

plane of the hillside.

The results of the survey permit several facts concerning the sub-surface zone of mineralization, that outcrops at the Star of Emory showing to be interpreted. In order of decreasing certainty of interpretation these are:

a) The two drill holes have intersected the same zone of mineralization. This is the only interpretation possible in view of the fact that both placements for the current electrode zone gave exactly the same voltage values.

b) The mineralization intersected must be the same as that in the showing, since the surface equipotential pattern is centred exactly on the showing.

c) The drill hole intersections lie West to West-Southwest of the showing; however, if the zone of mineralization could be described as a cylindrical pipe, it would have a plunge to the West-Northwest. This is clearly shown by the contour pattern on Dwg. AP 3654. The contour pattern can be compared with a typical pattern that is shown on Scale Modelling Case No. 12, which is enclosed.

The profile shown on Figure 1 was prepared along a line that passes along the centre of this pattern. It can be compared with the profiles for various plunge angles that are shown on Scale Modelling Case No. 8, which is also enclosed. The angle of the plunge can not be exactly determined, but it must be kept in mind that a plunge relative to the steeply inclined

measurement surface may mean that the zone of mineralization has a nearly vertical position.

d) The contour pattern and the profile suggest that the "pipe-like" zone of mineralization is not of extremely limited depth extent. The profiles shown in Scale Modelling Case No. 5 indicate that if the pipe has very limited depth extent, the applied potential curve is large in magnitude and has very steep gradients away from the top of the conductor.

The profile shown in Figure 1 is relatively similar (the scales are the same) to the profiles which show a depth extent of 300 feet to 800 feet. This cannot be considered to be a quantitative interpretation, but it is reasonable to assume that the mineralization exposed in the showing has a depth extent of at least a few hundred feet.

e) The configuration of the sulphide zone is probably not that of a cylindrical pipe with a uniform plunge to the WNW. The contour pattern seems to widen to the northwest. Since the zone is probably a "flattened plate", rather than a cylinder, this may mean that the horizontal section through the zone has greater lateral extent at depth. Alternately, as shown in Scale Modelling Case No. 12, the widening of the contour pattern may mean that the average plunge of the zone changes direction at depth.

#### 4. CONCLUSIONS AND RECOMMENDATIONS

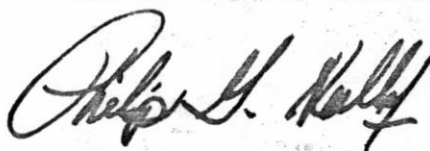
The applied potential survey at the Star of Emory showing has given results that are of definite interest. The "pipe-like" zone of sulphide mineralization has been interpreted as plunging (relative to the surface



plane) in a WNW direction. The results also suggest that the source may have enough of a depth extent to be of importance. The plan maps available to us show that a road exists about 300 feet to 350 feet WNW of the showing; the elevation would be about 250 feet below the showing.

The exact direction that the plunging mass of sulphide mineralization takes is not definite, but drilling from the level of the lower road could be used to locate the zone. If these holes are drilled, they should be slightly depressed so that when they are drilled they will remain filled with water. If this can be accomplished, these new holes can be used for future applied potential surveys. If the zone of mineralization is not intersected, potential measurements in the water-filled drill holes, with the current electrodes located at the showing, may give some information about the position of the zone at the lower level, and the approximate distance to it.

McPHAR GEOPHYSICS COMPANY



Phillip G. Hallof,  
Geophysicist



Ashton W. Mullan,  
Geologist



Dated: December 12, 1974

STATEMENT OF WORK

PROPERTY: Star of Hope  
SPONSOR: Giant Maser  
LOCATION: Hope Area  
TYPE OF SURVEY: Applied Potential  
OPERATING MAN DAYS: 4 DATE STARTED: November 14, 1974  
EQUIVALENT 8 HR. MAN DAYS: 6 WORK FINISHED: November 18, 1974  
CONSULTING MAN DAYS: 3 NUMBER OF STATIONS: 226  
DRAUGHTING MAN DAYS: 3 NUMBER OF READINGS: 226  
TOTAL MAN DAYS: 12 MILES OF LINE SURVEYED: 1.03

CONSULTANTS:

Phillip G. Haller, 15 Parkwood Court, Don Mills, Ontario.  
Ashton W. Mullan, 1430 Milligan Place, West Vancouver, B.C.


FIELD TECHNICIANS:

A. Wood, 7 Crescent Place, Apt. 2520, Don Mills, Ontario. M4C 5L7  
R. Bing, 1078 Lamont Drive, Scarborough, Ontario.  
Plus Extra Labourers:  
D. Morton, General Delivery, Hope, B.C.  
J. Stickton, General Delivery, Hope, B.C.

DRAUGHTSMEN:

R. Koenig, 3125 Lawton Ave. East, Apt. 102, Scarborough, Ontario.

MAR. A. GEOPHYSICS COMPANY

  
Phillip G. Haller,  
Geophysicist

Dated: December 11, 1974



+  
INTERIM STATEMENT OF COST

Giant Mascot Mines Ltd. - Applied Potential Survey  
New Westminster Mining Division, B.C.

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Period: November 14 - November 18, 1974

Crew:- A. Wood - R. Bing

2 days Operating	@ \$350.00/day	\$ 700.00
1 1/2 days Travel ) 2 1/2 days	@ \$150.00/day	375.00
1 day Preparation)		

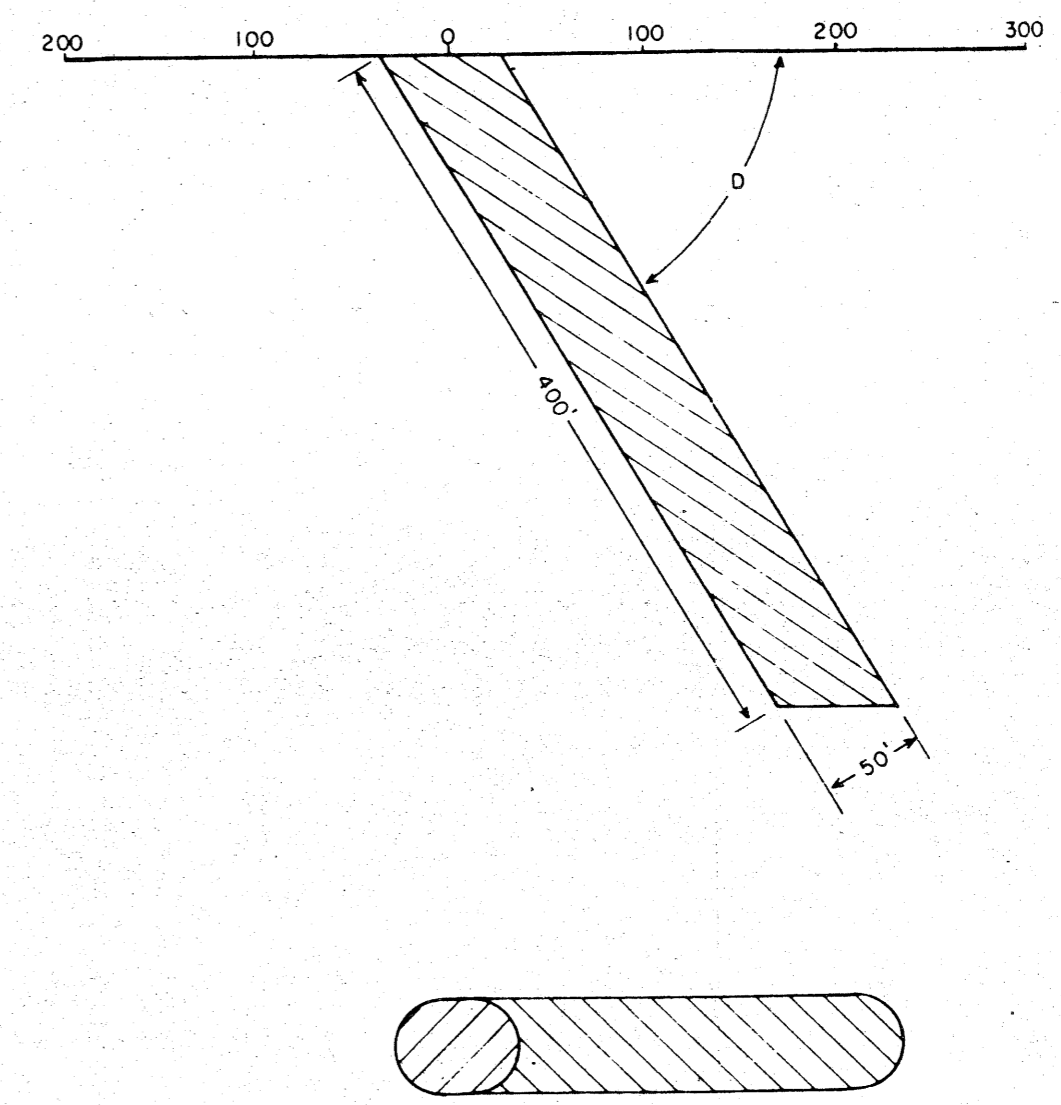
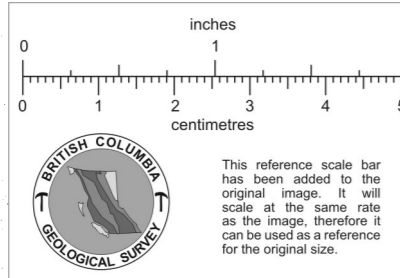
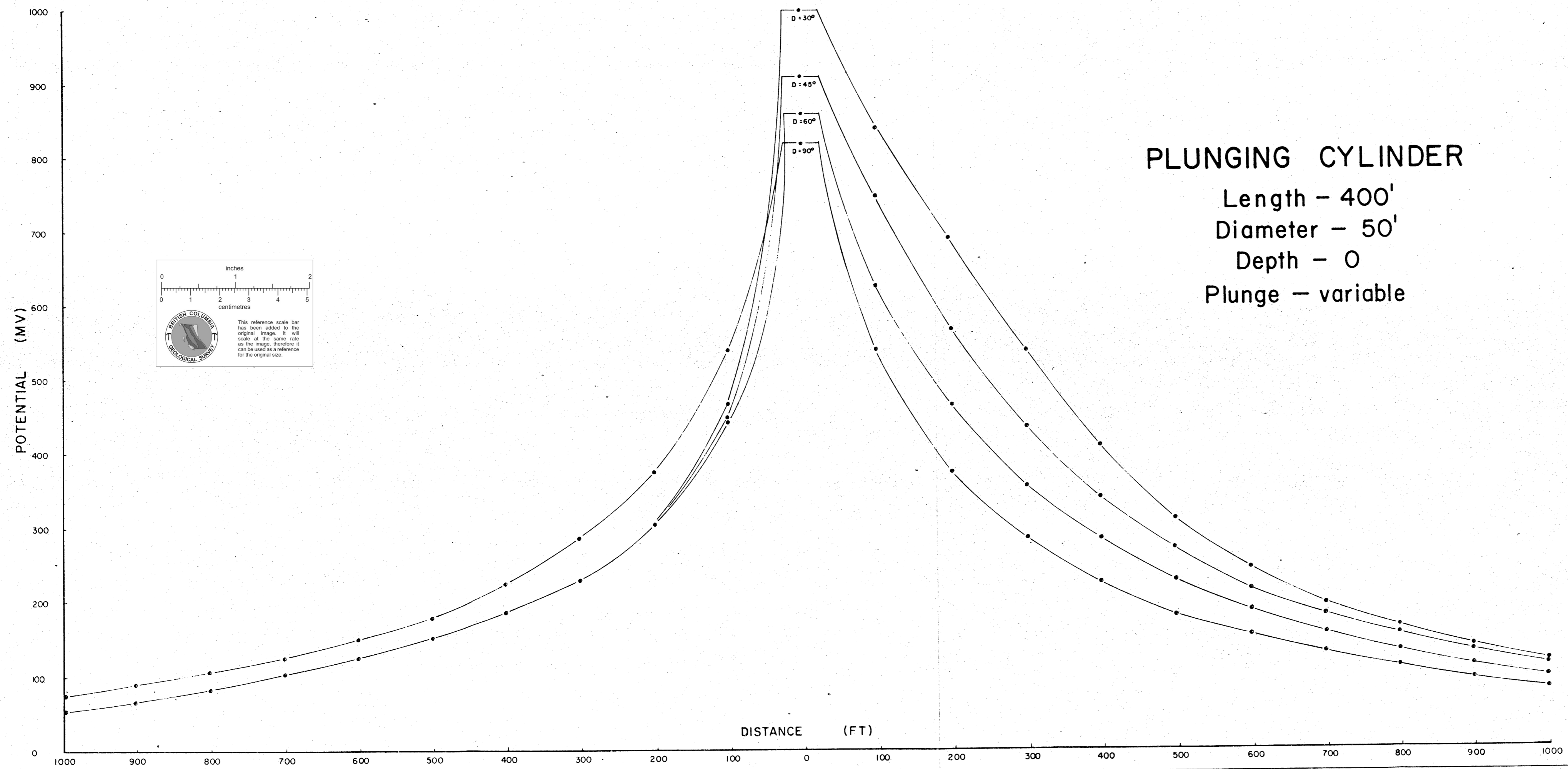
Crew expenses

Meals and Accommodation	\$150.90	
Gas	29.00	
Parking	<u>3.00</u>	
	\$182.90	
+ 10%	<u>18.29</u>	
		201.19
Extra Labour	105.00	
+ 20%	<u>21.00</u>	
		126.00
		<u>\$1,402.19</u>

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Phillip G. Hallor,  
Geophysicist

+ Note: This statement reflects at least 90% of the total cost; there may be a few minor charges not yet received by us and hence not included in the foregoing.



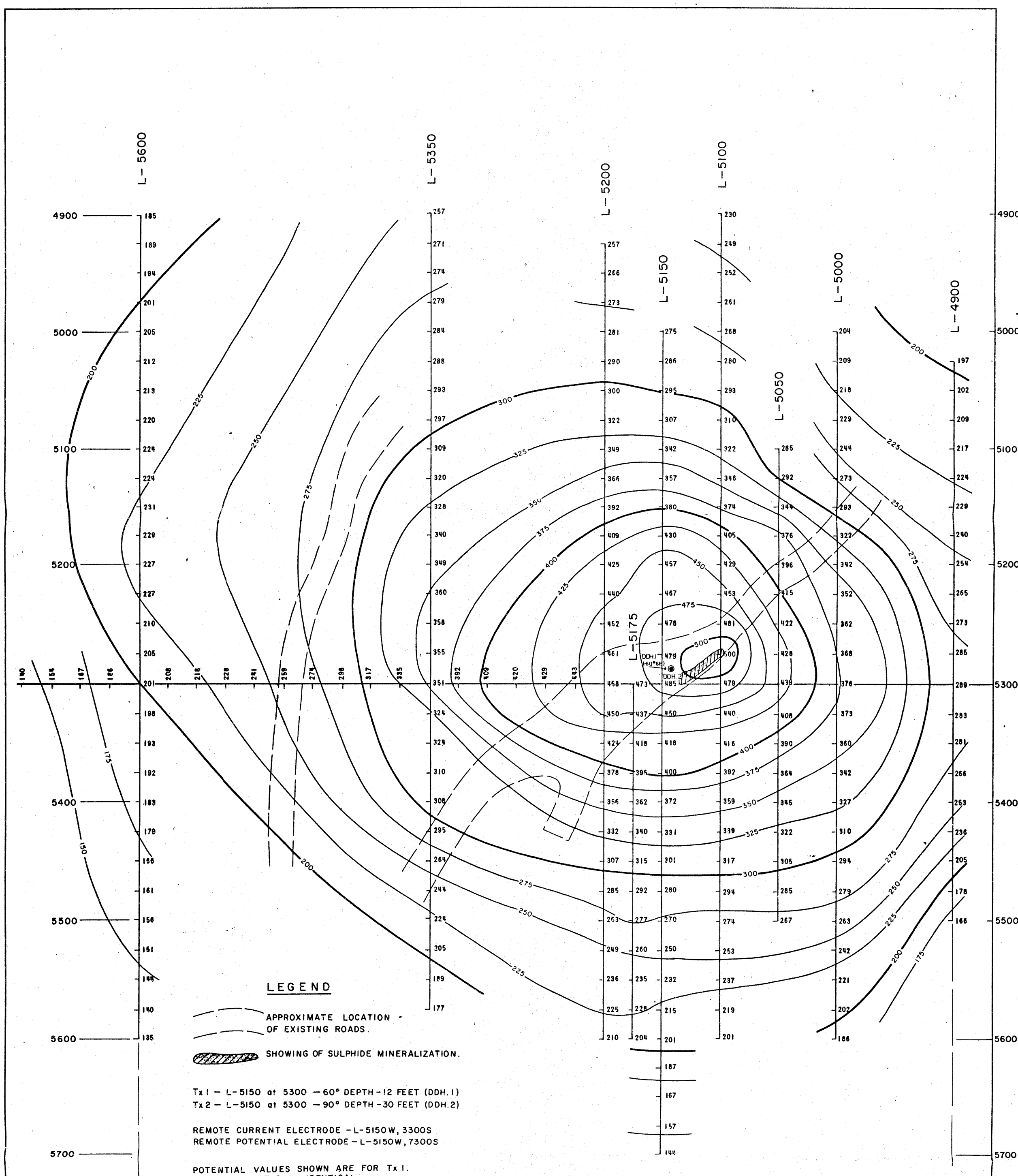
**McPHAR GEOPHYSICS LIMITED**  
 APPLIED POTENTIAL MODEL STUDIES

POTENTIAL IN MILLIVOLTS DUE TO CURRENT OF 1.0 AMP  
 WITHIN CONDUCTOR SURROUNDED BY MEDIUM OF RESISTIVITY  $\rho/2\pi = 100 \text{ OHM-FT.}$   
 NOTE: A BACKGROUND POTENTIAL OF 250 MV DUE TO THE IR DROP  
 ACROSS THE GROUND HAS BEEN REMOVED FROM THESE RESULTS

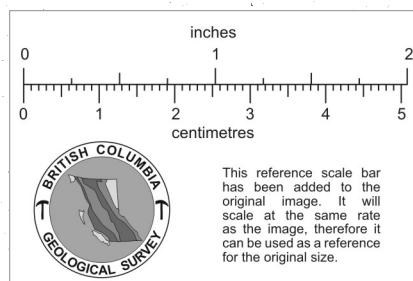
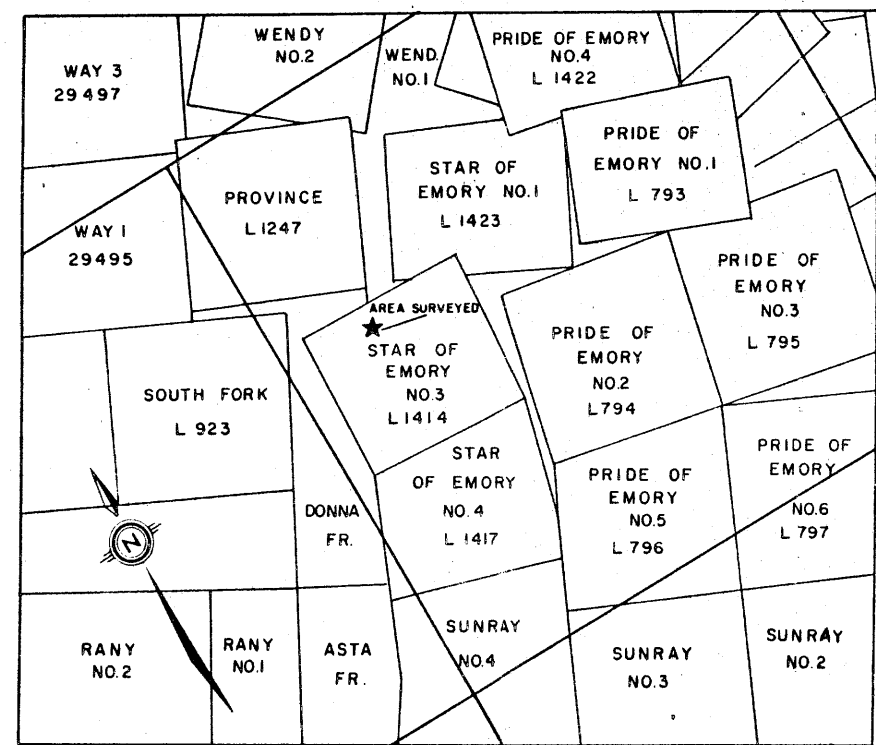
# McPHAR GEOPHYSICS

APPLIED POTENTIAL SURVEY

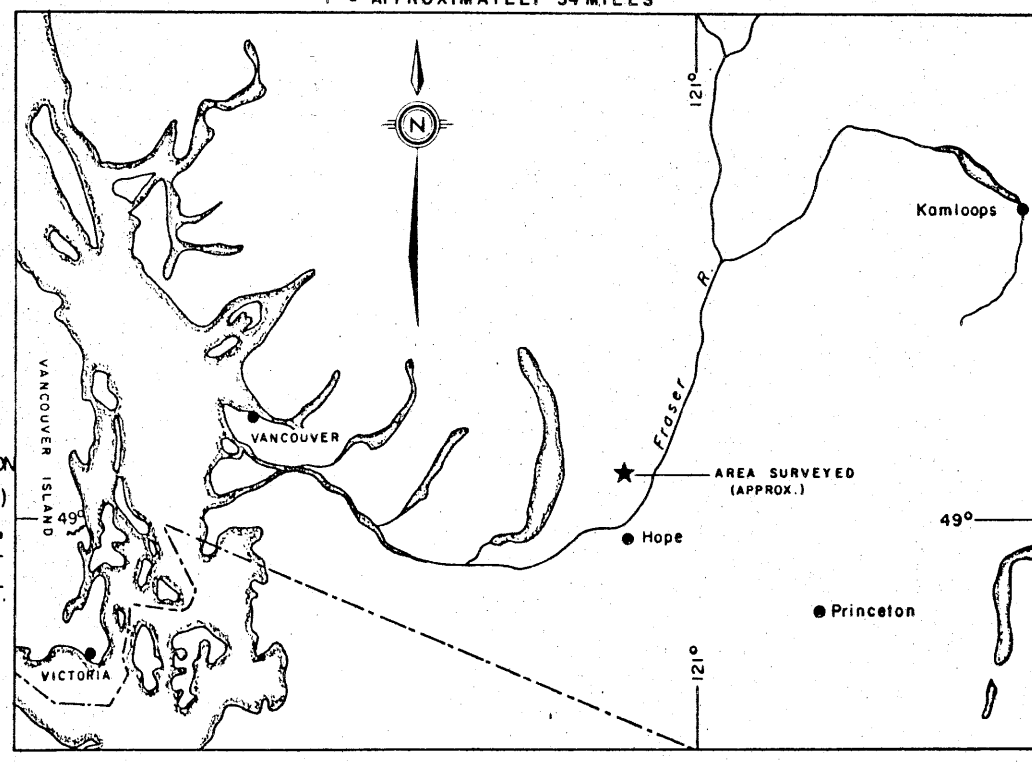
PLAN MAP



### CLAIM SKETCH



### LOCATION MAP



**NOTE**  
 TO ACCOMPANY GEOPHYSICAL REPORT  
 FOR GIANT MASCOT MINES LIMITED ON  
 THE WESTERN CLAIMS (STAR OF EMORY)  
 HOPE AREA, NEW WESTMINSTER M.D.,  
 B.C. BY A.W. MULLAN P. ENG. GEOLOGIST  
 AND P.G. HALLOF P. ENG. GEOPHYSICIST.  
 DATED: DEC. 12, 1974

## GIANT MASCOT MINES LIMITED

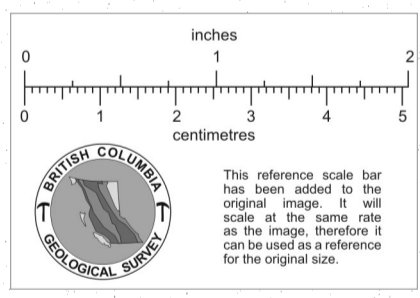
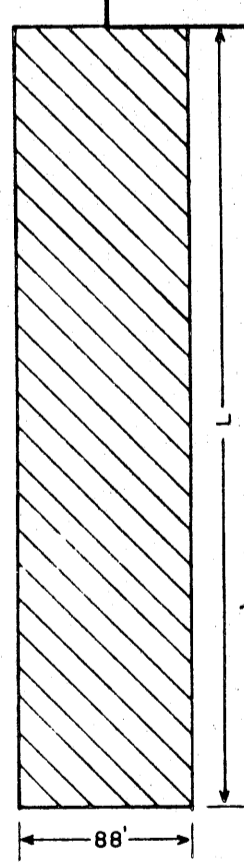
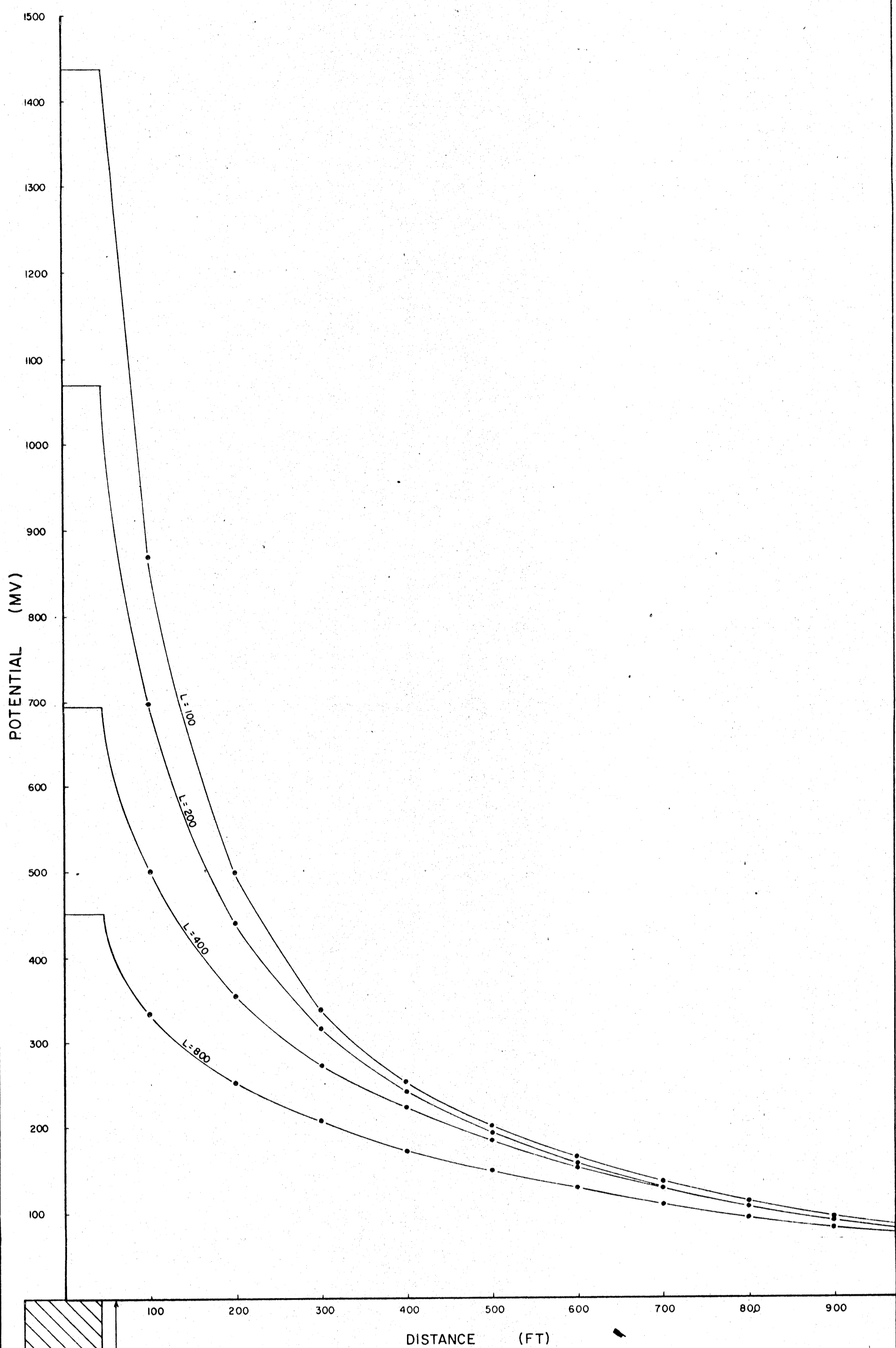
WESTERN CLAIMS (STAR OF EMORY)  
HOPE AREA, NEW WESTMINSTER M.D., B.C.

VALUES EXPRESSED IN MILLIVOLTS  
CONTOUR INTERVAL - 25 MILLIVOLTS

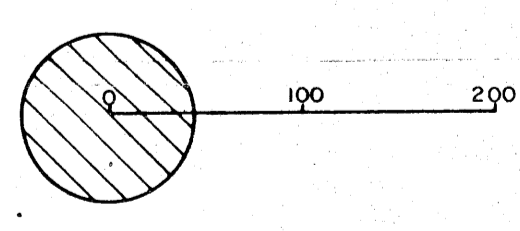
— 25 MV CONTOUR  
— 100 MV CONTOUR

SCALE  
1 inch = 50 feet





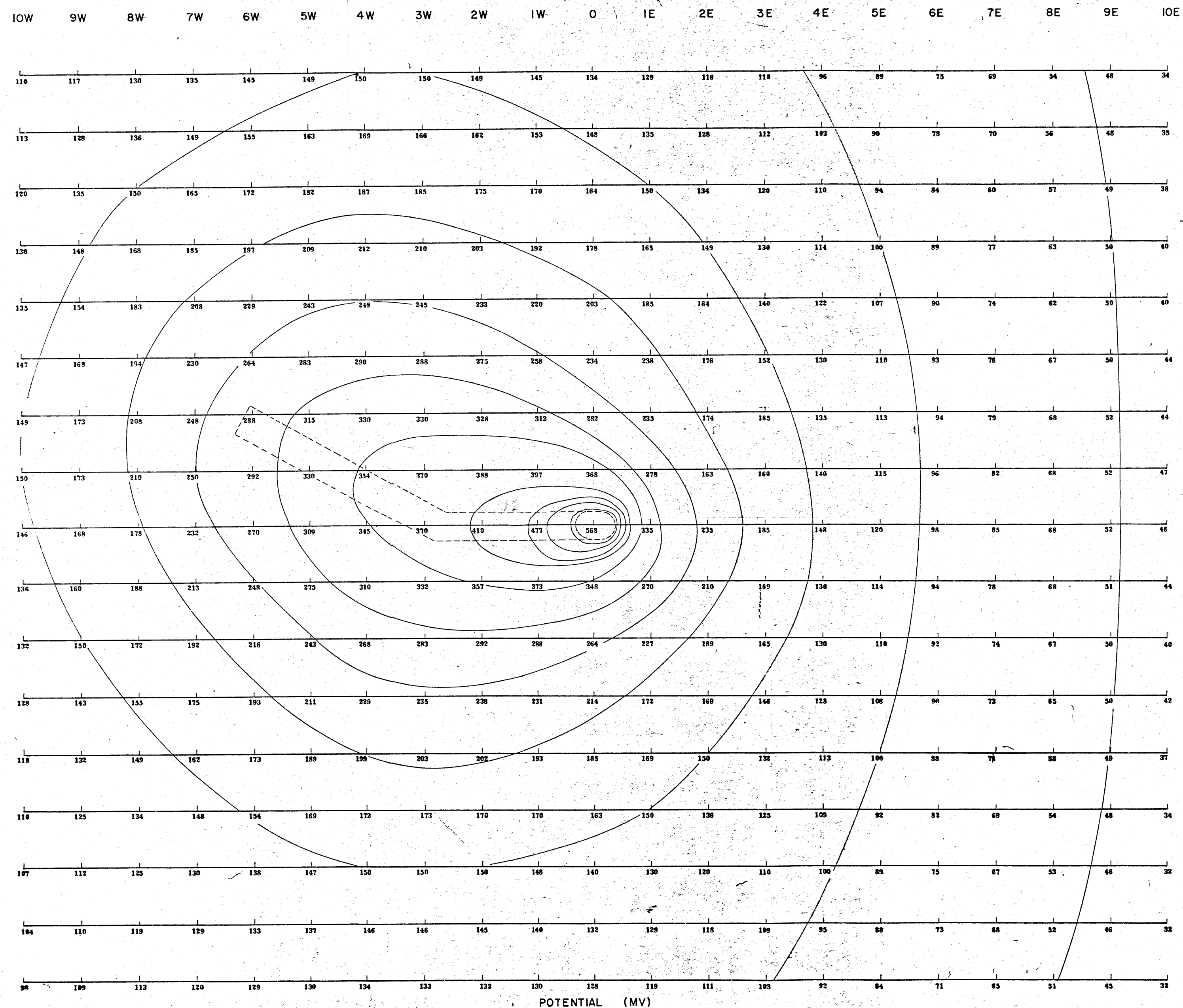
**VERTICAL CYLINDER**  
 Length - variable  
 Diameter - 88'  
 Depth - 0



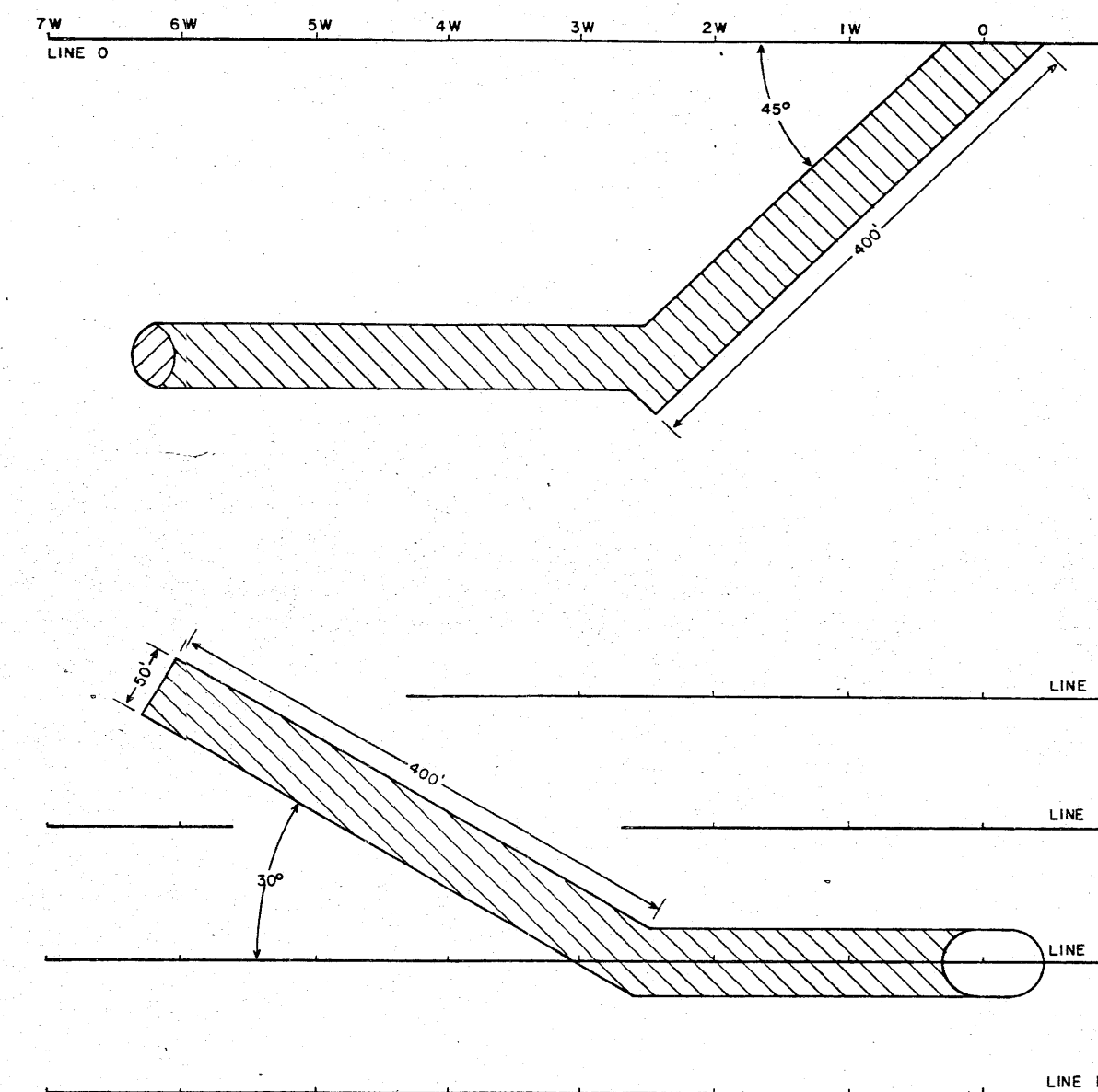
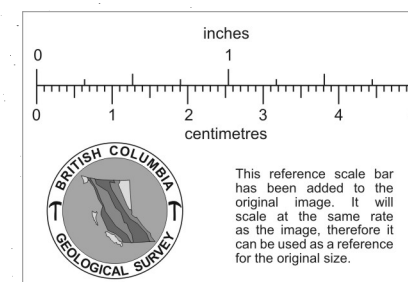
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 NOTE: A BACKGROUND POTENTIAL OF 250 MV DUE TO THE IR DROP  
 ACROSS THE GROUND HAS BEEN REMOVED FROM THESE RESULTS





CONTOUR INTERVAL - 50 MV



**COMPLEX SHAPE**  
 400' Plunging Cylinder  
 with horizontal offshoot  
 at depth of 215'

**McPHAR GEOPHYSICS LIMITED**  
 APPLIED POTENTIAL MODEL STUDIES

POTENTIAL IN MILLIVOLTS DUE TO CURRENT OF 10 AMP  
 WITHIN CONDUCTOR SURROUNDED BY MEDIUM OF RESISTIVITY  $P/2\pi = 100 \text{ OHM-FT.}$   
 NOTE: A BACKGROUND POTENTIAL OF 250 MV DUE TO THE IR DROP  
 ACROSS THE GROUND HAS BEEN REMOVED FROM THESE RESULTS