

093694

**OLYMPIC PROPERTY  
1997 REPORT**

**GEOLOGY AND GEOPHYSICS**

**Located in the Ogilvie Mountains  
Dawson Mining District  
Yukon Territory  
64° 54' N Latitude  
139° 11' W Longitude  
NTS 116B/14**

**Work Completed: June to July 1997**

**Work done on the Olympic 1 to 197 Claims**

**Grant Numbers**

**YB40925 to YB41092  
and  
YB88759 to YB88787**

**for**

**Major General Resources Ltd.  
1550 - 409 Granville Street  
Vancouver, B.C. V6C 1T2**

**By**

**Sean P. Butler, P. Geo.  
Larry Lebel, P. Eng  
December, 1997**



This report has been examined by  
the Geological Evaluation Unit  
under Section 53 (4) Yukon Quartz  
Mining Act and is allowed as  
representation work in the amount  
of \$ 15,000.00

*M. Burke*  
for Regional Manager, Exploration and  
Geological Services for Commissioner,  
of Yukon Territory.

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## SUMMARY

In the summer of 1997 Major General Resources completed a major geological and geophysical exploration project on the Olympic claims, the details of which are outlined in this report.

The Olympic claims are located approximately 100 kilometres north of Dawson City, Yukon, in the Ogilvie Mountains. Property access is presently by helicopter but the potential for future road access is good. The Olympic property consists of the 197 Olympic claims and 39 Europa claims located in the north draining Pyramid Creek valley on N.T.S. Mapsheet 116B/14.

The property was previously staked in 1975 by Umex as the LALA claims. Since then various programs by Umex, Placer Dome and Cominco have been conducted on the property including geology, geophysics, geochemistry and limited diamond drilling.

The Olympic property covers a portion of the Coal Creek Inlier, an oval shaped erosional window of Middle to Late Proterozoic epicontinental sediments surrounded by Lower to Middle Paleozoic carbonates of the MacKenzie Platform. The Middle to Late Proterozoic Wernecke Supergroup sediments are cut by the Helikian aged Northern Breccia Belt of the Ogilvie Mountains Breccias. The second largest body of brecciation and the highest concentration of igneous activity in the area occurs at the Olympic claims. These breccias are multi-phased and typically exhibit chlorite, hematite or carbonate matrices. The Olympic breccia body is about seven kilometres long, up to two kilometres wide and trends east-northeast.

Copper mineralization is widespread and often has a positive spatial relationship to mafic intrusive bodies. Chalcopyrite mainly occurs as disseminations within the matrices of heterolithic, chlorite and hematite rich breccia bodies and as fracture fillings. Silicified dolomitic units were also seen to host chalcopyrite occurring as fracture fillings and contained within quartz (calcite) veinlets. Occurrences of chalcocite, malachite and minor covellite have also been reported within the breccia bodies.

Results of the magnetic survey suggest that a large buried intrusive body with narrow dykes underlies the central portion of the surveyed area. Mapping indicated that some of the weakly magnetic, mafic dykes on surface correspond well to linear magnetic highs.

The IP chargeability highs occurring in the extreme north and south ends of the survey area are considered to be caused by fine grained clastic sediments that outcrop in these areas. The chargeability highs occurring over the breccia bodies are likely due to concentrations of oxide and sulphide mineralization such as specularite, pyrite, chalcopyrite and/or chalcocite as observed in mineralized surface exposures.

Future exploration should focus on drill testing the geochemical, geophysical and geological targets outlined in this report.

## INTRODUCTION

In 1997 Major General Resources Ltd., completed a major geological and geophysical program on the Olympic Property in the Yukon. This report outlines the results of the geological mapping and geophysical surveys. Mr. Sean Butler was responsible for the geological mapping and geological interpretation. Mr. Larry Lebel of Orequest Consultants, was responsible for the interpretation of the geophysical data collected and presented by Scott Geophysics Ltd. Mr. Lebel has only partially reviewed the geological data of this project as it relates to the geophysics.

During the months of June and July 1997, 65.975 line kilometres of grid was rehabilitated and freshly cut. Subsequently 73.225 line kilometres of magnetic surveying was completed at a 25 metre spacing while 45.1 line kilometres of gradient I.P., 19.5 line kilometres of pole-dipole (at  $n=1-8/a=50m$ ) and 13.6 line kilometres of pole-dipole (at  $n=1-12/a=50m$ ) was also conducted. Geological mapping at 1:5000 scale also covered approximately 15 square kilometres.

## LOCATION AND ACCESS

The Olympic property lies on the northern fringe of the Ogilvie Mountains just south of the broad east-west trending Taiga Valley. It is located approximately 100 kilometres north of Dawson City and 43 kms west of Chapman Lake Airstrip on the Dempster Highway. The claims are situated on NTS Map 116B/14, centered at 64° 54'N latitude and 139° 11'W longitude. (Figure 1)

Fireweed Helicopters, based 100 kilometres south in Dawson City provided access to the property. The Chapman Lake airstrip, located 120 kilometres north of Dawson City, along the Dempster Highway, was utilized for mobilization and on-going air support and is approximately 45 kilometres to the east of the claim block. Due to the broad and gentle nature of the Taiga Valley, logistics for future road construction to the property are considered good.

## PHYSIOGRAPHY

The claims cover two northeasterly trending valleys with adjacent rugged, mountainous terrain. The elevations range from 1,110 to 1,860 m above sea level.

Vegetation consists of alpine meadows, stunted alder and bog vegetation.

The streams on the property drain northward and are part of the headwaters of the Ogilvie River which eventually drains into the Arctic Ocean. The major creek is Pyramid Creek, also known as Beehive Creek. The valley bottoms are largely overburden covered. Large talus covered slopes occur on the side hills of the mountains. There are also large areas with limited rock outcrops.

## CLAIMS AND OWNERSHIP

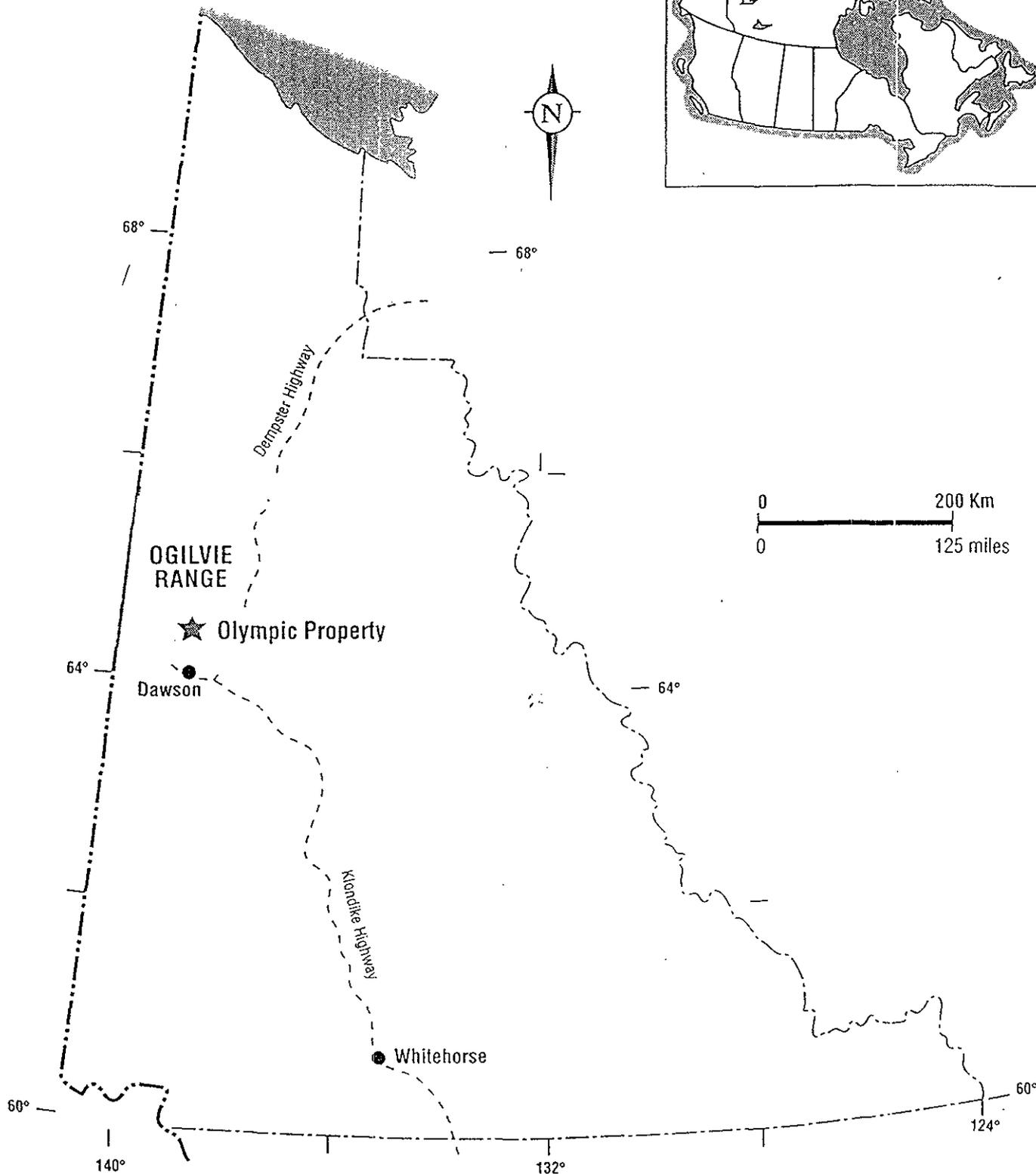
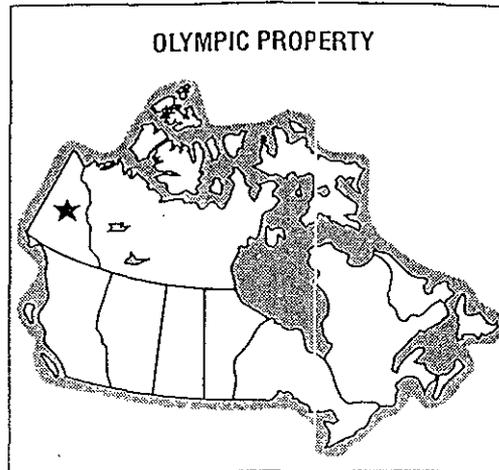
The following claims comprise the Olympic property (Figure 2):

| Claim Name | Grant No. | Recording Date | Expiry Date |
|------------|-----------|----------------|-------------|
| OLYMPIC 1  | YB40925   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 2  | YB40926   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 3  | YB40927   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 4  | YB40928   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 5  | YB40929   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 6  | YB40930   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 7  | YB40931   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 8  | YB40932   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 9  | YB40933   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 10 | YB40934   | 6-Jul-92       | 6-Jul-98    |



# OLYMPIC PROPERTY

OGILVIE RANGE, Yukon Territory



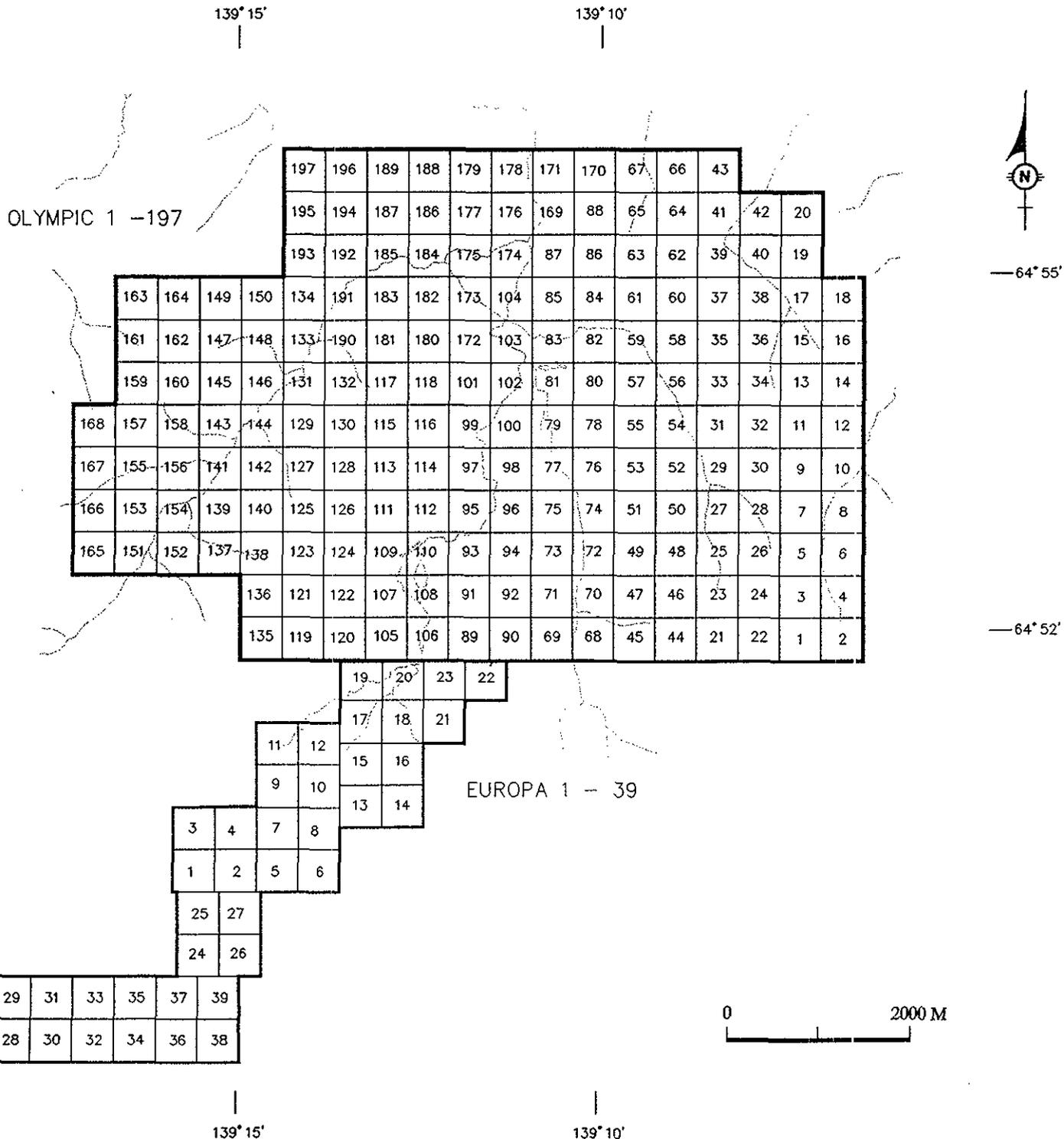
**FIGURE 1**

| Claim Name | Grant No. | Recording Date | Expiry Date |
|------------|-----------|----------------|-------------|
| OLYMPIC 11 | YB40935   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 12 | YB40936   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 13 | YB40937   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 14 | YB40938   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 15 | YB40939   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 16 | YB40940   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 17 | YB40941   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 18 | YB40942   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 19 | YB40943   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 20 | YB40944   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 21 | YB40945   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 22 | YB40946   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 23 | YB40947   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 24 | YB40948   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 25 | YB40949   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 26 | YB40950   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 27 | YB40951   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 28 | YB40952   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 29 | YB40953   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 30 | YB40954   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 31 | YB40955   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 32 | YB40956   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 33 | YB40957   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 34 | YB40958   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 35 | YB40959   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 36 | YB40960   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 37 | YB40961   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 38 | YB40962   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 39 | YB40963   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 40 | YB40964   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 41 | YB40965   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 42 | YB40966   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 43 | YB40967   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 44 | YB40968   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 45 | YB40969   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 46 | YB40970   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 47 | YB40971   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 48 | YB40972   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 49 | YB40973   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 50 | YB40974   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 51 | YB40975   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 52 | YB40976   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 53 | YB40977   | 6-Jul-92       | 6-Jul-99    |



## Olympic Claims Yukon Territory

### Claim Map



| Claim Name | Grant No. | Recording Date | Expiry Date |
|------------|-----------|----------------|-------------|
| OLYMPIC 54 | YB40978   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 55 | YB40979   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 56 | YB40980   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 57 | YB40981   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 58 | YB40982   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 59 | YB40983   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 60 | YB40984   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 61 | YB40985   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 62 | YB40986   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 63 | YB40987   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 64 | YB40988   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 65 | YB40989   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 66 | YB40990   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 67 | YB40991   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 68 | YB40992   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 69 | YB40993   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 70 | YB40994   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 71 | YB40995   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 72 | YB40996   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 73 | YB40997   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 74 | YB40998   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 75 | YB40999   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 76 | YB41000   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 77 | YB41001   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 78 | YB41002   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 79 | YB41003   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 80 | YB41004   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 81 | YB41005   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 82 | YB41006   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 83 | YB41007   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 84 | YB41008   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 85 | YB41009   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 86 | YB41010   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 87 | YB41011   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 88 | YB41012   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 89 | YB41013   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 90 | YB41014   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 91 | YB41015   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 92 | YB41016   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 93 | YB41017   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 94 | YB41018   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 95 | YB41019   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 96 | YB41020   | 6-Jul-92       | 6-Jul-99    |

| Claim Name  | Grant No. | Recording Date | Expiry Date |
|-------------|-----------|----------------|-------------|
| OLYMPIC 97  | YB41021   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 98  | YB41022   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 99  | YB41023   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 100 | YB41024   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 101 | YB41025   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 102 | YB41026   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 103 | YB41027   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 104 | YB41028   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 105 | YB41029   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 106 | YB41030   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 107 | YB41031   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 108 | YB41032   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 109 | YB41033   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 110 | YB41034   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 111 | YB41035   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 112 | YB41036   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 113 | YB41037   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 114 | YB41038   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 115 | YB41039   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 116 | YB41040   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 117 | YB41041   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 118 | YB41042   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 119 | YB41043   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 120 | YB41044   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 121 | YB41045   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 122 | YB41046   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 123 | YB41047   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 124 | YB41048   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 125 | YB41049   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 126 | YB41050   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 127 | YB41051   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 128 | YB41052   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 129 | YB41053   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 130 | YB41054   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 131 | YB41055   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 132 | YB41056   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 133 | YB41057   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 134 | YB41058   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 135 | YB41059   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 136 | YB41060   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 137 | YB41061   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 138 | YB41062   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 139 | YB41063   | 6-Jul-92       | 6-Jul-98    |

| Claim Name  | Grant No. | Recording Date | Expiry Date |
|-------------|-----------|----------------|-------------|
| OLYMPIC 140 | YB41064   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 141 | YB41065   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 142 | YB41066   | 6-Jul-92       | 6-Jul-99    |
| OLYMPIC 143 | YB41067   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 144 | YB41068   | 6-Jul-92       | 6-Jul-98    |
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| OLYMPIC 146 | YB41070   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 147 | YB41071   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 148 | YB41072   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 149 | YB41073   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 150 | YB41074   | 6-Jul-92       | 6-Jul-98    |
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| OLYMPIC 152 | YB41076   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 153 | YB41077   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 154 | YB41078   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 155 | YB41079   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 156 | YB41080   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 157 | YB41081   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 158 | YB41082   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 159 | YB41083   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 160 | YB41084   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 161 | YB41085   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 162 | YB41086   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 163 | YB41087   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 164 | YB41088   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 165 | YB41089   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 166 | YB41090   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 167 | YB41091   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 168 | YB41092   | 6-Jul-92       | 6-Jul-98    |
| OLYMPIC 169 | YB88759   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 170 | YB88760   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 171 | YB88761   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 172 | YB88762   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 173 | YB88763   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 174 | YB88764   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 175 | YB88765   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 176 | YB88766   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 177 | YB88767   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 178 | YB88768   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 179 | YB88769   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 180 | YB88770   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 181 | YB88771   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 182 | YB88772   | 9-Sep-96       | 9-Sep-97    |

| Claim Name  | Grant No. | Recording Date | Expiry Date |
|-------------|-----------|----------------|-------------|
| OLYMPIC 183 | YB88773   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 184 | YB88774   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 185 | YB88775   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 186 | YB88776   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 187 | YB88777   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 188 | YB88778   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 189 | YB88779   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 190 | YB88780   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 191 | YB88781   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 192 | YB88782   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 193 | YB88783   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 194 | YB88784   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 195 | YB88785   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 196 | YB88786   | 9-Sep-96       | 9-Sep-97    |
| OLYMPIC 197 | YB88787   | 9-Sep-96       | 9-Sep-97    |
| EUROPA 1    | YC04416   |                |             |
| EUROPA 2    | YC04417   |                |             |
| EUROPA 3    | YC04418   |                |             |
| EUROPA 4    | YC04419   |                |             |
| EUROPA 5    | YC04420   |                |             |
| EUROPA 6    | YC04421   |                |             |
| EUROPA 7    | YC04422   |                |             |
| EUROPA 8    | YC04423   |                |             |
| EUROPA 9    | YC04424   |                |             |
| EUROPA 10   | YC04425   |                |             |
| EUROPA 11   | YC04426   |                |             |
| EUROPA 12   | YC04427   |                |             |
| EUROPA 13   | YC04428   |                |             |
| EUROPA 14   | YC04429   |                |             |
| EUROPA 15   | YC04430   |                |             |
| EUROPA 16   | YC04431   |                |             |
| EUROPA 17   | YC04432   |                |             |
| EUROPA 18   | YC04433   |                |             |
| EUROPA 19   | YC04434   |                |             |
| EUROPA 20   | YC04435   |                |             |
| EUROPA 21   | YC04436   |                |             |
| EUROPA 22   | YC04437   |                |             |
| EUROPA 23   | YC04438   |                |             |
| EUROPA 24   | YC04439   |                |             |
| EUROPA 25   | YC04440   |                |             |
| EUROPA 26   | YC04441   |                |             |
| EUROPA 27   | YC04442   |                |             |

| Claim Name | Grant No. | Recording Date | Expiry Date |
|------------|-----------|----------------|-------------|
| EUROPA 28  | YC04443   |                |             |
| EUROPA 29  | YC04444   |                |             |
| EUROPA 30  | YC04445   |                |             |
| EUROPA 31  | YC04446   |                |             |
| EUROPA 32  | YC04447   |                |             |
| EUROPA 33  | YC04448   |                |             |
| EUROPA 34  | YC04449   |                |             |
| EUROPA 35  | YC04450   |                |             |
| EUROPA 36  | YC04451   |                |             |
| EUROPA 37  | YC04452   |                |             |
| EUROPA 38  | YC04453   |                |             |
| EUROPA 39  | YC04454   |                |             |

The Olympic 188, 189, 196 and 197 claims, located in the northwest corner of the property, are subject to a 25% earn in option by Blackstone Resources Inc. The rest of the claims are 100% owned by Major General Resources Ltd. Expiry dates noted are before application of the work credits for assessment outlined in this report.

## HISTORY

The Olympic and Europa claims encompass and extend beyond the area previously staked as the LALA claims by UMEX. The LALA 1-60 claims were staked in 1975 to cover widespread copper mineralization occurring in Proterozoic sediments delineated during regional geochemical surveys. In that year, a short program of reconnaissance geological mapping and prospecting was completed over selected areas on the claims.

In 1976, a grid was established which consisted of a 7 km baseline with 86 kms of crosslines. The exploration program included geological mapping (1:12,000), prospecting, soil geochemical sampling (1,329 samples) and a limited I.P. (14 kms) survey.

In 1977, the exploration program consisted of diamond drilling (two AQ holes totalling 187 m), a limited ground radiometric survey (22 kms) and assaying of selected samples for uranium. The average core recoveries for each hole was 56% and 75%. The drill core was analyzed for copper and uranium only. The property then lay dormant and eventually the claims were allowed to lapse.

In 1992, Placer Dome staked 168 claims on behalf of Major General Resources Ltd. over the previously lapsed LALA claims. Placer Dome Ltd. completed prospecting, grid establishment, geological mapping (1:2,500) and geochemical rock, silt and soil sampling. Whole rock oxide and rare earth element sampling and a petrographic study were also completed. Placer Dome Ltd. allowed the option to lapse after their operations in the Yukon ceased.

In 1996, Cominco optioned the property and established a new 300 m spaced grid, and conducted an induced polarization and ground magnetics survey. Regional geological mapping and contour soil geochemical sampling were also completed. Cominco did not exercise the option and the ground was returned to Major General.

In September 1996, 29 additional claims (OLYMPIC 169 to 197) were located by Major General. In June 1997, a further 39 (Europa) claims were located to the south and east of the Pyramid Creek valley to cover the eastern margins of a large NE trending graben structure that bisects the Olympic Project area.

## REGIONAL GEOLOGY

The Olympic Property lies within the Coal Creek Inlier, a roughly oval shaped easterly trending erosional window which exposes Middle to Late Proterozoic epicontinental rocks which underlie Lower and Middle Paleozoic carbonate rocks of the Mackenzie Platform.

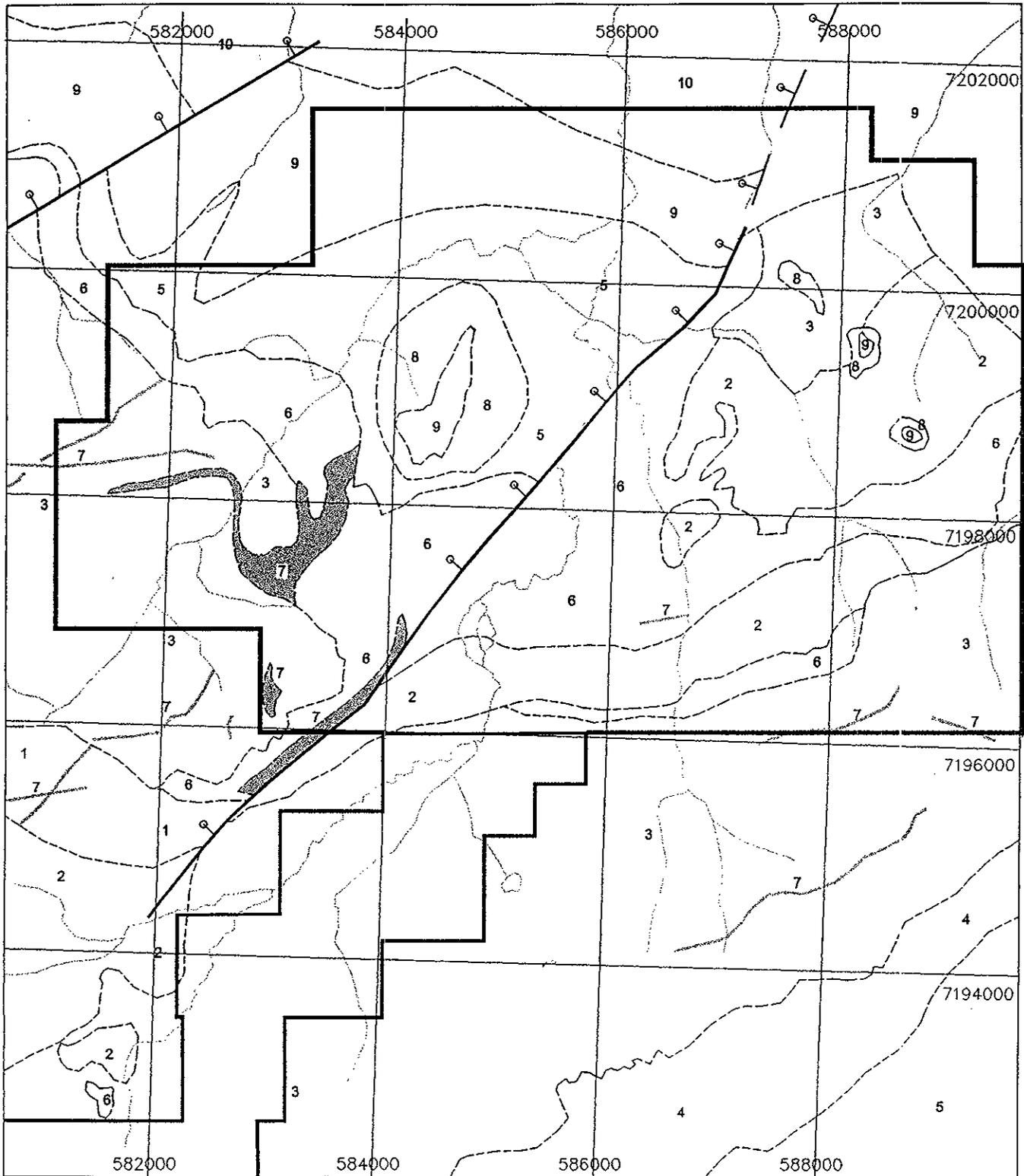
The Coal Creek Inlier contains three easterly trending Proterozoic successions which are, from oldest to youngest: Wernecke Supergroup, Fifteenmile assemblage (informal) and Harper Group (informal).

The Wernecke Supergroup has been subdivided into three groups (see **Figure 3**). The oldest is the Fairchild Lake Group which is disconformably overlain by the younger Quartet Group which, in turn is conformably overlain on a gradational contact by the Gillespie Lake Group. These groups are broadly described as follows:

- a) *Fairchild Lake Group*: 1.5 km thick, upward-shallowing sequence of dark grey to black meta-mudstone and quartzite with minor carbonate beds. Rare jaspillite beds. Includes grey, green-grey and purple dolomites and siltstones.
- b) *Quartet Group*: 3 km thick, upward-shallowing succession of dark grey to brown weathering sandstone, siltstone shale and mudstone with very minor silty dolostone.
- c) *Gillespie Lake Group*: 1 km thick sequence of stromatolitic dolostone, argillites, oolitic dolostone and parallel-laminated to wavy-bedded dolostone.

The base of the mid-Proterozoic succession is not exposed and the fold and thrust belt deformation suggests that the Wernecke Supergroup overlies an Early Proterozoic basement. Folding of the Wernecke Supergroup forms a northeast trending anticline as defined on the map by Lane and Godwin (1992) immediately south of the property.

The Fifteenmile assemblage unconformably overlies the Wernecke Supergroup and consists of two lithologically distinct successions: the lower Fifteenmile assemblage, composed primarily of clastic rocks with minor dolostone; and the upper Fifteenmile assemblage, consisting of shallow water platformal dolostone and siltstone.



- 10 Shale  $P_{MSH}$
- 9 Limestone  $C_{Db}$
- 8 Slat Creek Fm.  $C_{cs}$
- 7 Mafic sills & dykes  $P_d$
- 6 Wernecke Breccias  $P_{bx}$

- Wernecke Super Group**
- 5 Gillespie Lake Gp.  $P_{GL}$   
Lower Member
  - 4 Gillespie Lake Gp.  $P_{GL1}$   
Upper Member
  - 3 Quartet Gp.  $P_q$
  - 2 Fairchild Gp.  $P_{FL}$   
sandstone, siltstone
  - 1 Fairchild Gp.  $P_{FL1}$   
limestone, siltstone



FIGURE 3

|                                    |                                     |
|------------------------------------|-------------------------------------|
|                                    | <b>MAJOR GENERAL RESOURCES LTD.</b> |
| Olympic Property - Yukon Territory |                                     |
| <b>REGIONAL GEOLOGY</b>            |                                     |
| N.T.S. 118 B/14                    | Scale                               |
| Data G.S.C. Open File 2849         | Date 97-11-5                        |
| File 97-903-RqSB-3                 | Revised                             |

The Harper Group consists of clastic and volcanic rocks that disconformably overlay the upper Fifteenmile assemblage and rest unconformably on older units in the southern part of the inlier.

The lower Cambrian age Slat Creek formation consists of tan-orange weathering silty dolostone with interbedded sandstone and siltstone. A large covering of lower Cambrian to lower Ordovician (CDB) massive light grey to white dolomitic limestone occurs along the north side of the Coal Creek Inlier. These two units lie unconformably on the Gillespie Lake group.

Two breccia complexes the Northern Breccia Belt and Southern Breccia Belt, (known collectively as the Ogilvie Mountain Breccias Lane, 1990) occur within the Coal Creek Inlier and are distributed along two distinct northeast trending axes that are about 40 and 15 km long, respectively. The Northern Breccia Belt cuts the Wernecke Supergroup while the Southern Breccia Belt cuts the lower Fifteenmile assemblage. These breccias are mapped by Thompson et al (1992) as the Wernecke Breccias due to similarities with other breccias occurring in the Wernecke Mountains to the east. Significant mineralization has been found in these breccias including copper, uranium and molybdenum.

The morphology of these discordant breccia occurrences are complex, however, they are typically steep, pipe-like, sill-like or dike-like bodies that commonly occur along structures or contacts. The dyke or sill-like complexes range from a few metres to more than 1 km wide, while the pipe-like zones range from 100 m to over 3 km in diameter. The vast majority of breccia bodies appear to have formed along faults oriented east-northeast, along or parallel to the main regional structures. The two largest areas of breccia in the Coal Creek Inlier occur at the Olympic property and at the Donut, located 25 kilometres west of the Olympic property (Lane, 1990).

The majority of the breccia bodies are supported by varying intensities of chlorite to hematite to carbonate rich matrices while fragment compositions range from monolithic to heterolithic.

A minimum age date of 1.2 to 1.5 Ga years (Helikian) is given to the breccia bodies that cut the lower portion of the sequence. A U-Pb date of 1.27 Ga on monazite from a breccia occurring in Wernecke Supergroup rocks to the east in the Richardson Mountains has also been reported (Parrish and Bell, 1987).

Mafic intrusive bodies, largely diabase and diorite, are distributed within the breccias and rocks of the Wernecke Supergroup, but not the Fifteenmile assemblage (Lane and Godwin, 1992). In reviewing the map by Lane (1990) the area near the Olympic property appears to have the largest concentration of intrusive sills and dykes of both breccia belts.

Copper mineralization is wide-spread throughout a number of the regionally occurring breccia bodies. Chalcopyrite occurs chiefly as disseminations within the breccia matrices

and as fracture fillings and contained in quartz-carbonate veinlets which cut both clasts and matrix. Chalcopyrite also often occurs proximal to and within mafic dykes as veinlets and fracture fillings.

The wider, more extensive brecciation observed at Olympic is likely due to dilation zones created at the site of intersecting regional ENE faults and local NNE, graben forming faults paralleling the Pyramid Creek valley during an extensional event.

An in-house technical report completed for Major General Resources Ltd. by the firm of Etheridge Henley Williams suggests the following sequence for the development and controls on brecciation at the Olympic property.

- deposition of Proterozoic sediments in an extensional basin. Normal faults and strike-slip transfers develop in the deep basement.
- thrust fault and folding related to thrust development occurred following sediment deposition during a later compression event during the Mid-Late Proterozoic.
- the thrust faults, largely trending ENE near the Olympic property, provide the main sites on which the breccias occur. The breccias were probably formed during a weak N-S extensional event following the main thrusting.
- the mafic intrusives are steep and often parallel or subparallel the thrust faults but are seen to cross-cut these faults in several locations. This indicates the intrusive post date the thrusts but often took advantage of the structural weakness in and near the thrust faults. These dioritic bodies likely intruded during the same extensional event as the breccias.

Locally, fragments of the intrusive are seen occurring as clasts within the breccias indicating that intrusion is therefore synchronous with breccia formation. The copper mineralizing event is also thought to have occurred during the same breccia forming event based on the disseminated nature of chalcopyrite seen within the breccia matrix.

Suggestions have been made by various authors of the possibility that the Proterozoic rocks found in the Yukon and the Adelaide Province of Australia were once juxtaposed. The breccias in the Adelaide Province have a similar age, geometry and minor element signature to those that comprise the Wernecke Breccias. The Australian breccias host several mineral deposits including those that host the large Olympic Dam Cu-U-Au-Ag deposit. The proven and probable reserves at Olympic Dam are 569 mt at 2.0% Cu + 0.6 kg/tU and 0.3 mt at 4.9 g/t Au. The Olympic Dam deposit is considered a low temperature deposit on a spectrum of mid to Proterozoic iron-rich breccia deposits.

## PROPERTY GEOLOGY

The 1997 mapping program (June 23 – July 24, 1997) was conducted at a 1:5,000 scale and mainly focused on a central area containing coincident copper in soil anomalies, brecciation and increased faulting underlain by a large, regional airborne magnetic high. The mapping phase of the program was undertaken to delineate the extent of the breccias, styles of mineralization, structural controls and to explain any anomalous IP and magnetic responses. The survey area is limited to about 10-15% outcrop exposure with large covered areas of talus and creek sediments occurring on the lower sidehills and valley bottoms respectively.

The Olympic property is underlain in part by a thick sequence of Proterozoic sediments exposed in an inlier surrounded by Lower Paleozoic aged sediments. The Proterozoic sequence is cut by the 40 kilometre long, east-northeast trending Northern Breccia Belt which coincides with the steep to moderate, south dipping regional reverse Monster Fault (Lane and Godwin, 1992).

As the field mapping during the 1997 program was more focused on separating and describing the lithological units, less emphasis was placed on grouping the units into conventional age related order.

The following is a description of the major rock units as mapped in the field and referenced on **Figure 4**.

1. **Maroon Siltstone:** fine grained, maroon colour forms occasional bedding as well as massive units. Occasional trace magnetite. Often forms clasts in breccia. Possible hematitic alteration of dolomite or locally possible extrusive.
2. **White Limestone:** fine grained, white coloured, white-grey weathering limestone. Locally vuggy. Calcite crystals common on fractures. Located in north of survey area.
3. **Mafic Intrusives:** generally dark green, fine to medium grained, often irregularly shaped bodies. Chalcopyrite occurs on fractures in or near intrusives more frequently than distant outcrops. Chlorite is a common component although medium-fine grained diorites without chlorite occur. Generally weak to moderately magnetic.
4. **Pink Dolomite:** massive fine grained pink dolomite, weathering pink, sandy possibly K-spar altered dolomite although likely hematite alteration is responsible for the colour. Spacially located near breccias.
5. **Dark Grey Siltstone:** medium to dark grey siltstone, thinly bedded fine grained siltstone. Varies from grey to locally brown in colour. Located in the north end of the survey area.

6. **Grey Dolomite**: fine grained, light grey dolomite, generally massive but locally laminated (thin). At base of orange weathering grey dolomite. Weathers light grey.
7. **Tan Orange Weathering Grey Dolomite**: fine grained, light to medium grey dolomite with tan, orange to dark orange weathered surface with local red hematite stained sections. Occasional brecciation and fracturing.
  - 7(a) **Grey Weathering Dolomite**: similar to above.
8. **Dark Grey Siltstone (Slatey)**: medium to dark grey fine grained bedded siltstones with weak to moderately well developed foliation. Locally it has a slate like foliation although generally shale. Located on south end of property.
9. **Highly Foliated Grey Dolomite**: similar to thin bedded grey dolomite except well developed foliation cross cuts bedding. Occasional jasperoidal interbeds.
10. **Thin Bedded Grey Dolomite**: medium to light grey dolomite in thin composition bands parallel to foliation. Alternating silty and fine sandy layers form bands.
11. **Chlorite Breccia**: dark green to black matrix with some carbonaceous components of thin heterolithic clasts, 3mm to 2.5 m. Maroon and hematitic breccia, common with grey dolomite and thinly bedded siltstone clasts occurring. Chalcopyrite is most commonly found in this unit with specular hematite occurring occasionally. Clasts frequently angular and matrix supported. Pervasive chlorite alteration of clasts occurs but is often weak. Clasts of other breccias and mafic intrusives occur rarely.
12. **Hematitic Matrix Breccia**: often heterolithic, angular to sub-angular clasts, 3 mm to 3m clast size often in same outcrop and largely matrix supported. Highly variable clast types but often grey dolomite, thinly bedded siltstone and maroon siltstones. Large areas of monolithic maroon siltstone breccias occur. Occasional trace of magnetite and traces to abundant specular hematite in matrix. Matrix frequently contains dolomite or ankerite. Specular hematite also forms veinlets within matrix.
13. **Carbonate Breccia**: - commonly hematite matrix breccias clasts, generally 3 to 30m. Creamy white dolomitic matrix most common, minor pyrite and chalcopyrite occur in matrix. This is often a matrix supported breccia but is locally defined by a set of veins and veinlets cross cutting all the Proterozoic lithologies.

The correlation of the lithological units described above on the Olympic Property with the regional geology by Thompson et al (1992) is as follows from oldest to youngest units:

| <b>Thompson et al (1992)</b>              | <b>Olympic 1997</b>  |
|---|--|
| <b>Middle Proterozoic</b>                 |  |
| Fairchild Group                           | 1 Maroon Siltstone<br>8 Tan weathering grey siltstone<br>9 Highly foliated grey dolomite<br>10 Thin Bedded grey dolomite |
| Quartet group                             | 8 Dark grey siltstone (slatey)   |
| Gillespie Lake Group                      | 4 Pink dolomite<br>5 Dark grey siltstone<br>5a Brown shale<br>6 Grey dolomite  |
| <b>Middle to Upper Proterozoic</b>        |  |
| Wernecke Breccias                         | 6a Silicified Dolomite<br>11 Chloritic Breccia<br>12 Hematitic Breccia<br>14 Carbonate Breccia                           |
| Mafic Sills and Dykes                     | 3 Mafic Intrusives   |
| <b>Lower Cambrian</b>                     |  |
| Slats Creek Formation                     | 7 Tan-Orange weathering grey dolomite<br>7a Grey dolomite  |
| <b>Lower Cambrian to Lower Ordovician</b> |  |
| CDb Formation                             | 2 White Limestone  |

The breccia bodies described above (Units 11, 12 and 13) form an irregularly shaped, east-west trending complex which measures approximately seven kilometres long by up to two kilometres wide across the property. The breccias are largely composed of heterolithic, sedimentary clasts and are matrix supported. Chlorite, hematite and carbonate (dolomite) are the most common breccia matrices although the matrices also contain a large proportion of highly milled, fine grained fragments of wall rock. These breccias can locally exhibit graded bedding which may represent a sedimentary feature formed as a result of subsidence back into a caldera or similar structure at the time of formation. Folding of the bedding within breccia clasts was also observed which would result from brecciation occurring before complete consolidation of the host sediments had taken place. Locally no disruption of bedding within the sediments was observed where

mafic dykes intrude the sedimentary pile indicating that sedimentation and intrusive activity were in part synchronous (Windh, 1997). In some locations rare fragments of mafic intrusive rock were observed within the more chlorite and carbonate rich breccia while obvious cross-cutting features of these dykes across the breccia bodies occurs more often. This relationship also suggests that the breccias formed contemporaneously with the intrusive activity.

A particular sequence of breccia formation is suggested as a result of the following field observations:

1. An early tectonic event comprised of hematite rich, matrix supported breccias.
2. A later chlorite rich, matrix supported breccia event as evidenced by fragments of hematite rich matrix breccia contained within the chloritic breccias.
3. A high frequency of carbonate veins and veinlets crosscutting both the hematite and chlorite rich breccias as well as spatial relationships such as fragments of hematite and chlorite breccia material found within the carbonate rich matrix supported breccia suggests that the latter phase represents the last major stage of brecciation.

The breccias on the Olympic property form large, continuous units that locally contain very large fragments of up to 10 metres and occasionally larger in size. There is little evidence on the property of the dyke or pod-like zones reported previously and these shapes would be more consistent with the long, narrow breccia occurrences mapped elsewhere along the Northern Belt by Lane (1990). Interpretation of the geology indicates that portions of the Olympic property have undergone extensive, very high energy, episodic breccia formation as revealed by the areal extent of the breccia complex, the polymictic nature of and variable clast sizes of the fragments and the differing compositions of the matrices. The fact that most of the breccias observed are mainly matrix supported indicates that a very large volume of chlorite, hematite and carbonate was introduced during breccia formation. The high frequency of angular, largely unaltered fragments plus the composition of the matrices also points to a rapid and vigorous, rather low temperature event. This environment is analogous to parts of the unmineralized breccia complexes that exist at the Olympic Dam deposit in Australia and is considered a highly favourable host for copper, gold and uranium enriched mineralization.

Mineralization observed on the Olympic property during the 1997 mapping program was mainly comprised of specularite, pyrite, chalcopyrite and magnetite.

Copper mineralization, often in the form of chalcopyrite, was noted as being strongly associated with the intensity of brecciation and alteration (i.e. matrix composition). Within the breccias chalcopyrite occurs within veins and veinlets crosscutting both matrix and clasts, as disseminations in the matrix, fracture fillings and as coarse clots associated within carbonate infillings. An increase in chalcopyrite was observed within chloritic rich breccias especially when proximal to mafic dykes. Chalcopyrite also occurs

as fracture fillings, veins and clots within the mafic dykes themselves and along silica filled fractures in zones of intense silicification.

Pyrite was most commonly observed as very fine grained disseminations and fracture fillings within the more carbonaceous siltstones and foliated dolomites. Less often, disseminated, veined and fracture filled pyrite was noted within the breccia complex (most often associated with the carbonate breccia) and occasionally in the mafic intrusive bodies.

Fine grained, disseminated magnetite occurs locally within maroon siltstones, the mafic intrusives and hematite matrix breccias.

Specular hematite was found often as very fine grained disseminations in dolomite and as coarser disseminations, clots, masses and veins within the hematite rich breccia bodies.

Chalcocite, covellite, bornite and malachite have also been reported occurring as both replacements of pyrite and chalcopyrite and occurring within open space fillings.

Besides the various altered matrices of the breccia complex another large area of highly pervasive, silica alteration was encountered within the valley bottom north of the baseline. This zone is described as creamy white, "chert like" replacements of dolomite and lesser chlorite and hematite breccias. Locally the silica altered zone also contains later stage silica filled fractures containing minor chalcopyrite. The silicified zone(s) generally occur in the midst of the major breccia bodies located in this vicinity and are likely related to a higher level, late stage alteration event. A small chip sampling program within the silica altered zone was completed in order to delineate any possible gold enriched zones associated with the alteration. Results returned from the lab were insignificant and can be found in Appendix I.

Regional metamorphism observed on the gridded portion of the claim block is generally low (lower greenschist or less) leaving the original sedimentary textures well preserved. Mapping by Windh of Etheridge Henley Williams Consultants recognized a late stage, steeply dipping, east northeast trending regional foliation. This penetrative fabric is developed in the breccias and the intrusives as well as the surrounding older sediments. It appears to be limited to the Proterozoic aged rocks as it was not recognized in the Paleozoic rocks above the unconformity. There is also a well developed, post-brecciation faulting event that has offset parts of the breccia units. Mapping of the valley bottom, particularly in the area north of the baseline has uncovered a complicated and complexly faulted sequence of lithologies exhibiting strong north and northeast trends.

Although no large offsets or major fault traces were evidenced in the field the combination of the structurally complicated area coincident with the possibility of a high level silica cap occurring within a regime of interpreted NE trending basement faults (Etheridge Henley Williams, 1997) is consistent with the idea that the Pyramid Creek valley represents the surface manifestation of a large scale graben structure.

## LINECUTTING

From June 18 to June 25 a six man crew of linecutters from Coureur des Bois Ltd. of Whitehorse, YT, rehabilitated existing grid lines on the grid established by Cominco in 1996 and added new lines at a 150 metre line spacing. A total of 65.975 line kilometres of new grid was established and old lines rehabilitated. These lines were used for local control on the ground magnetics, induced polarization and geological surveys. Due to the generally low vegetation a very limited amount of brushing was required.

This grid is established with a baseline azimuth of  $085^{\circ}/265^{\circ}$  and perpendicular grid lines at  $355^{\circ}/175^{\circ}$  every 150 metres. Wooden lathes with metal tags, every 25 metres, mark the stations on the lines. The lines were turned perpendicularly off the baseline using a sighting square. The lines were maintained on the correct direction using pickets for sighting to the next location utilizing two man crews. The distance between stations was measured with a straight chain and corrected for slope where necessary.

## GEOPHYSICS

Scott Geophysics Ltd. of Vancouver, British Columbia were contracted to complete a total field magnetics and induced polarization survey over the Olympic grid. Scott Geophysics had completed an IP survey on intervening lines in 1996 for Cominco. This data has also been used during interpretation of the IP results included in this report.

The magnetometer survey was performed at a reading interval of 25 metres (Figures 5 to 7). All values were corrected for diurnal variations with reference to a fixed base station. Two Scintrex IGS-MP4 proton precession total field magnetometers were used for the magnetometer survey with one deployed as the field unit and the other as a fixed recording base station. A total of 73.225 line kilometres of magnetic surveying was completed between June 27 and July 6, 1997.

The southern portion of the grid was surveyed with IP using a gradient array with a receiving electrode separation of 50 metres and a line spacing of 150 metres. The current electrode separation was 5400 metres. These results are presented as chargeability and resistivity plans (Figures 8 and 9). A summary of the IP and magnetic geophysics interpretation of both the 1996 and 1997 data is presented on Figure 10 superimposed over the property geology. The gradient array was employed to test for any deep chargeable zones which may be related to the large magnetic body occurring in the valley bottom. Five lines in the southern end of the grid were then resurveyed over the gradient coverage area using pole dipole at  $a=50$  and  $n=1-12$  with the infinite electrode placed to the north of this array (Figure 11 and 12). The northern portion of the grid was surveyed last with IP using a pole dipole array with a potential electrode spacing of 50 metres ( $a=50$ ), current pole to receiving dipole separations of 1 to 8 ( $n=1-8$ ) and a line spacing of 300 metres (Figures 13 and 14). This latter array had the infinite current electrode located to the south of the grid. This work was follow up to the surveys initially done for Cominco in 1996 by Scott Geophysics. The 1996 survey used pole-dipole with  $a=100m$  and  $n=1-6$  on the intervening lines to the 1997 survey. This effectively gives 150 metre

line spacing coverage to the entire grid although resolution and depth varies from survey to survey. The 1997 survey data has a higher resolution than 1996 data.

The instruments used to collect the IP data include a Scintrex IPR12 receiver and TSQ4 (10.0 kw) transmitter. Readings were taken in the time domain using a 2 second on/off current pulse (0.125Hz). The chargeability plotted on the accompanying pseudosections and plan maps is for the interval 120 to 1020 milliseconds after shutoff.

IP survey coverage performed at the Olympic Property consisted of 45.1 line kms of gradient array IP, 19.5 kms of pole dipole IP at  $a=50/n=1-8$ , and 13.6 kms of pole dipole IP at  $a=50/n=1-12$ . These surveys were completed between the following dates:

Gradient: June 27 – July 6, 1997  
 Pole-Dipole ( $n=1-8$ ): July 7 – July 16, 1997  
 Pole-Dipole( $n=1-12$ ): July 16 – July 22, 1997

### **MAGNETIC SURVEY (Figures 5 to 7)**

The results of the magnetic survey are presented in the accompanying plan maps. The results outline a number of narrow, variable strength highs superimposed on a broad high. To the east of line 7100W, the number of the narrow highs increases substantially and the broad high on which they are superimposed elsewhere seems to disappear or is obliterated. Many of the narrow highs show consistent line to line correlation often across several lines. A typical example is indicated by the series of anomalies centered near 8000N on lines 8450W, 8600W and 8750W. Highs on lines 6950W and 6800W at about 81300N also form a contiguous feature which appears to extend to lines 6650W and 6500W by means of two subtle highs, both of which are wider due to an increase in depth to the source.

The narrow magnetic highs appear to be caused by mafic dykes, a number of which have been mapped on the property. To the east, the dykes increase in density and possibly coalesce into a mass or dyke swarm.

The broad magnetic high is open to the west of the survey area and disappears to the east as explained above. It appears to be single feature which has two distinct components. On lines 7100W to 7550W it is a 300 -600 nT anomaly with a halfwidth of 700 m., while on lines 7700W to 9200W it has an amplitude of 200 -300 nT and a halfwidth of over 1000 m.. The difference is attributed to an abrupt change in depth and width of the cause between lines 7550W and 7700W due to a fault which is also inferred on geological grounds (see **Figure 10**).

The cause of the broad high and its interpreted depth, on selected lines, are shown on the magnetic profile plan (**Figure 5**). Note that on this map the depths ( $z$ ) are not plotted to scale. The interpretations are based on a modified method of Gay (1963) and assume a wide, 'infinitely' long dyke with an 'infinite' depth extent. A wide dyke, as opposed to a narrow feature, is indicated by the flat peaks of the anomalies in profile and the

secondary bulges on the profiles for lines 7400W and 7550W at 79600N and 79525N, respectively. However, the distinction is subtle and a thin much deeper source is also possible. The dip of the body is essentially vertical and for line 8300W a susceptibility contrast of 0.002 cgs is indicated which equates to roughly 1% magnetite by volume.

### **INDUCED POLARIZATION SURVEY**

The results of the IP survey, the total chargeability in mv/v and apparent resistivity in ohm-m, are presented on the accompanying pseudosections and plan maps which also illustrate an interpretation of the chargeability data. For completeness, the interpretation of the 1996 survey is also shown. The agreement between the 1996 and 1997 results is reasonable once the superior resolution of the latter survey is recognized. A summary of the interpretation is presented overlain on the geology in Figure 10.

### **GRADIENT SURVEY (Figures 8 and 9)**

The main features of the results, as indicated by the plan maps of the gradient survey, include: a large area of chargeability greater than 20 mv/v generally associated with apparent resistivities greater than 1000 ohm-m in the south; a northeast trending corridor through the centre of the area with chargeabilities less than 10 mv/v and variable resistivity around 1000 ohm-m, and to the north, zones of variable chargeabilities up to 30 mv/v associated with variable resistivities from 500 ohm-m to 2000 ohm-m. The southwest end of the low chargeability zone has an 800 m by 500 m area of negative chargeability with values as low as -30 mv/v. Negative chargeabilities can arise from certain resistivity distributions, noise and inductive coupling. Noise is eliminated as the cause because the readings were repeatable. Inductive coupling (between the wires laid out for the survey) rarely afflicts a time domain IP survey and is usually only a problem with resistivities much lower than recorded in this area. The negatives, therefore, are probably due to geometric effects which occur at the edges of a polarizeable conductor. The area of negatives was not duplicated in the pole-dipole coverage repeated in the area. Regardless of the cause, the effect of the negatives is to negate the purpose of the gradient survey (to find deep seated anomalies) in this area and distort adjacent features. In this regard, the gradient survey did not outline any anomalies indicative of a distinct, deep polarizeable body.

### **SOUTH SURVEY (Figures 11 and 12)**

This survey (at n=1-12) shows a strong IP anomaly with chargeability up to 85 mv/v and associated low resistivities occurs at the south ends of the lines. The anomaly reflects a unit of siltstone containing fine grained, disseminated pyrite which may be locally graphitic (Unit 8). This feature is bordered on the immediate north by a band of moderate to low chargeability, the north edge of which trends east to northeast. Foliated to bedded dolomite is mapped in this region.

In the area spanning the 80000N base line where hematitic breccia is exposed, a number of narrow, moderate to strong chargeability anomalies within wider zones of weak

responses are present. The relevance of these features to the breccia and the various types of mineralization (specularite, magnetite, pyrite and chalcopyrite?) in the area is unknown but the anomalies reflect shallow sources which should be accessible to surface evaluation procedures. Two deep chargeability zones, at interpreted depths of 100m, are also present and are located on the northern flanks of the westernmost magnetic high. Within these zones the amount of polarizeable material must increase substantially. To the north the zones fade out or are obscured by a surface layer of low chargeability/high resistivity which appears to be caused by a unit of dolomite.

### **NORTH SURVEY (Figures 13 and 14)**

To the north of 80000N, where the IP survey utilized  $n = 1 - 8$ , widespread moderately anomalous chargeabilities in the 20 to 40 mv/v range were recorded on all the lines to the limits of the survey coverage, along with occasional zones of greater than 50 mv/v. These anomalies commonly overlie mapped siltstones mapped in the area. The apparent resistivities associated with anomalies average less than 1000 ohm-m but internal variations to over 2000 ohm-m and less than 500 ohm-m are also present.

The range of responses exhibited by the siltstones, therefore, appears to overlap the signature of the breccia mineralization. One locally intense anomaly in this area on line 6950W between 80650N and 80900N which spans both silicified breccia and a siltstone illustrates this point.

In many places, layers of low chargeability/high resistivity overlie the anomalies. These features appear to be caused by either pockets and layers of dolomite. Overburden is also a possible cause but the high resistivity response of these features is more consistent with dolomite. Based on 2-layer modelling (Elliot, 1967) one such layer, on line 7250W at 81850N has an estimated thickness of 60 m.

Of note is the apparent continuation of IP responses from the  $n=1-12$  survey to the  $n=1-8$  survey data along the northern flanks of the western-most magnetic high which trends toward the east northeast correlating well with the mapped breccia complex and possible graben feature.

### **CONCLUSIONS**

The 1997 exploration program conducted on the Olympic property has defined a very complicated and structurally complex area of brecciation that has obvious similarities to the breccias found at the Olympic Dam and/or Ernest Henry deposits in Australia. These include:

1. similar ages, i.e. Proterozoic
2. iron-rich;
3. breccia hosted and structurally controlled;
4. contain a Cu-Au-(U-Co) association;

5. surface exposures of breccia are dominated by hematite with only trace amounts of magnetite as found at Olympic Dam but not at the higher temperature Ernest Henry deposit;
6. a possible magmatic link between mineralization on the Olympic claims and a large interpreted intrusion at depth as evidenced at Ernest Henry.

Geological mapping has identified that three major phases of brecciation (hematite, chlorite, carbonate) has occurred. Breccia formation was very high energy and rapid as evidenced by the heterolithic and poorly sorted nature of the fragments and the fact that the breccias are nearly all matrix supported. The compositions of the matrices (hematite chlorite, carbonate) also suggest a low temperature formational event.

Copper mineralization was found in various locations throughout the breccia complex and seems to be more abundant in chlorite rich breccias. Increased chalcopyrite was also noted near mafic intrusives. Chalcopyrite occurs within veins, along fractures cutting both matrix and clast material and as disseminations within breccia matrices only.

Rare fragments of diorite or mafic intrusions were found within parts of the breccia complex. Dykes of similar composition were also seen to crosscut the breccia. As disseminated chalcopyrite was also noted within the breccia matrices and within some of the intrusive rock, it is postulated that intrusion, mineralization and breccia formation were synchronous over the Olympic claim block.

The magnetic survey completed during this program reveals two main bodies of higher magnetic susceptibility comprise the large government airborne anomaly. Modelling of this data suggests that the eastern most magnetic high is of a shallower source and may be comprised of relatively tight-spaced, coalescing dyke features. The western most magnetic high is modelled to be deeper, possibly consisting of wider spaced dykes that may be related to a larger, even deeper buried intrusive body. The fact that there appears to be a linear break between these two magnetic features and that the western high is modelled to be of deeper source suggests a graben feature may exist within the Pyramid Creek valley causing uplift of the magnetic feature eastward.

The large areal extent of the combined magnetic features (2 kilometres by 1 kilometre) is significant in that it could represent an intrusive source (or magnetite rich halo associated with such a source) of such magnitude as to provide enough volatiles and metal concentration to develop an "Olympic Dam" sized deposit.

The gradient and pole-dipole array, induced polarization surveys were utilized to test for chargeable material at depth and to provide better resolution for any structurally controlled mineralization respectively. A large negative chargeability response resulting from possible geometric effects occurring at the edge of a polarizeable conductor negated much of the data returned from the gradient array survey. However, the large north northeast trending "negative" correlates quite well with the interpreted graben feature. Results from the pole-dipole array are considered favourable in that a weak to moderate chargeability/variable resistivity anomaly was outlined along the north flank of the

western mag high coincident with known occurrences of brecciation and copper mineralization. This anomaly is parallel to the interpreted northwest side of the graben feature and implies that higher concentrations of copper (gold-uranium-cobalt) may occur along or proximal to such a structurally prepared zone.

Other moderate to strong chargeability responses associated with low resistivity were also delineated to the north and south of the graben structure and effectively mapped out large extensive areas underlain by black (carboniferous) shales, silstones and foliated and bedded silty dolostones containing varying amounts of very fine grained, disseminated pyrite.

A limited program of rock chip sampling was also carried out in an area of moderate to intense, yet erratic, silicification with no significant results. Although the results were disappointingly low it is significant in that these areas of pervasive silicification may represent a barren silica cap occurring at the top of a buried Proterozoic breccia-hosted, Cu-Co-Au-Ag deposit. The fact that this area of silicification occurs in the topographically lower valley bottom also lends support to the inferred graben structure.

The results obtained from the geological and geophysical phases of exploration on the Olympic claims during 1997 are considered significant as they indicate that the potential for large concentrations of metal may be present in the central portion of the survey area. This area contains a large buried magnetic source that may be due to a magnetite rich intrusive or magnetite halo surrounding such a granitoid. Large areas of anomalous chargeability responses are also coincident with the northern flank of the magnetic high and occur parallel to the interpreted graben structure which is manifested as the Pyramid Creek valley. East-west, north-east and east-northeast trending structures are all seen to intersect within this same region which, from previous surveys, is known to contain a wide distribution of copper in soils associated with large portions of the mapped breccia complex. This area of intersecting structures beneath the Pyramid Creek valley may provide the best opportunity for maximum dilation and fluid flow during brecciation and mineralization.

A helicopter supported diamond drilling program is warranted to test these structurally favourable zones associated with higher chargeability responses. Drill testing of the deeper western magnetic high is also recommended to test for more extensive, widespread copper mineralization associated with a possible, deep seated intrusive.

## REFERENCES

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**STATEMENT OF COSTS**  
**Geological Mapping and Geophysics Program**

**Wages (Salary & Consulting Staff)**

From: June 24 – July 23, 1997  
 Number of Mandays: 145  
 Rate per Manday: \$221  
 Total: 145 x \$221 \$32,045.00

**Food**

From: June 24 – July 23, 1997  
 Number of Mandays: 265 (includes contractors)  
 Rate per Manday: \$27.24  
 Total: 256 x \$27.24 \$ 7,218.68

**Accommodation**

(Includes camp rental, materials, heating fuel, propane, first aid rental and expediting)

From June 24 – July 23, 1997  
 Number of Mandays: 265  
 Rate per Manday \$20.25  
 Total: 265 x \$20.25 \$ 5,365.99

**Transportation**

(Includes truck rental, gas)

From June 24 – July 23, 1997  
 Number of Mandays: 265  
 Rate per Manday: \$7.66  
 Total 265 x \$7.66 \$ 2,030.99

**Supplies**

From June 24 – July 23, 1997  
 Number of Mandays: 265  
 Rate per Manday: \$30.16  
 Total 265 x \$30.16 \$ 7,991.74

**Contractors**

**Air:** Fireweed Helicopters Bell 206 \$19,042.70

**Linecutting - Coureur des Bois Ltd.**

65.975 kilometres x 429.18/km \$28,315.00

**Geophysics – Scott Geophysics**

Mag 73.225km x \$90/km

IP 78.2 km x \$675.493/km

\$ 59,413.82**Total****\$161,423.92**

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**Unit Costs****Geophysics** \$1,202.52/kilometre**Geological Mapping** \$ 322.92/manday**Linecutting** \$ 465.69/kilometre

## Statement of Qualifications

I, Sean P. Butler, of 3252 Ganymede Drive, Burnaby, B.C. hereby certify that:

- i. I am a member of the Association of Professional Engineers and Geoscientists of British Columbia registered as a Professional Geoscientist.
- ii. I graduated in 1982 from the University of British Columbia with a Bachelor of Science in Geology.
- iii. I have practised my profession as a geologist in mineral exploration and mining since graduating.
- iv. I have no material interest in the equity of the company or its mineral properties.
- v. The report "OLYMPIC PROPERTY 1997 REPORT GEOLOGY AND GEOPHYSICS" is based on my work and my supervision of work by others on the OLYMPIC claims in the Yukon in 1997 and a review of the geological literature on the property and the region.

Respectfully Submitted



Sean P. Butler, P. Geo

Dec 5/97

## STATEMENT OF QUALIFICATIONS

I, J.L. LeBel, of 2684 Violet Street, North Vancouver, British Columbia, hereby certify that:

1. I am a graduate of Queen's University (1971) and the University of Manitoba (1973) and I hold a B.Sc. degree in Geological Engineering and a M.Sc. degree in Geophysics.
2. I am a Professional Engineer registered with the Association of Professional Engineers and Geoscientists of British Columbia. I have been a member of the Society of Exploration Geophysicists for over 25 years.
4. I have been employed in mining exploration on a full-time basis since 1972 and I have been involved many exploration projects in Yukon.
5. I am an independent consultant working through OreQuest Consultants Ltd. on this project.



J/L. LeBel, P. Eng.

Dated at Vancouver, British Columbia, this 6th day of December, 1997.

**APPENDIX I**  
**GEOCHEMICAL SAMPLING**

**APPENDIX I  
GEOCHEMICAL SAMPLING**

**Chip Samples in Siliceous Altered Area**

| Sample | Location |      | <u>Description</u>  |
|--------|----------|------|---|
|        | N        | W    |   |
| 624151 | 80,500   | 7900 | Silicified dol, some ankerite, tr CP                              |
| 624152 | 80,200   | 7475 | Silicification on fractures in ankeritic dol                      |
| 624153 | 80,610   | 7420 | Creamy quartz, minor siltstone maroon silt, tr CP                 |
| 624154 | 80,690   | 7360 | Silicified dark grey dol, veinlets of quartz with secondary Fe ox |
| 624155 | 80,750   | 7280 | Creamy quartz veinlets in orange red weathering white dol         |
| 624156 | 80,800   | 7200 | Red hematite and creamy quartz veinlets in brecciated dol         |
| 624157 | 80,800   | 7140 | Creamy white and light grey silica                                |
| 624158 | 80,850   | 7080 | Creamy white and light grey silica                                |
| 624159 | 80,860   | 7050 | Creamy white and light grey silica                                |
| 624160 | 80,920   | 7010 | Creamy white and light grey silica                                |
| 624161 | 80,970   | 6980 | Creamy white and light grey silica                                |

All samples are approximately 1.1m long chips

## GEOCHEMICAL ANALYSIS CERTIFICATE



Major General Resources Ltd. PROJECT OLYMPIC File # 97-4510

1550 - 409 Granville St., Vancouver BC V6C 1T2 Submitted by: Sean P. Butler

| SAMPLE#     | Mo<br>ppm | Cu<br>ppm | Pb<br>ppm | Zn<br>ppm | Ag<br>ppm | Ni<br>ppm | Co<br>ppm | Mn<br>ppm | Fe<br>% | As<br>ppm | U<br>ppm | Au<br>ppm | Th<br>ppm | Sr<br>ppm | Cd<br>ppm | Sb<br>ppm | Bi<br>ppm | V<br>ppm | Ca<br>% | P<br>% | La<br>ppm | Cr<br>ppm | Mg<br>% | Ba<br>ppm | Ti<br>% | Al<br>% | Na<br>% | K<br>% | W<br>ppm | Zr<br>ppm | Sn<br>ppm | Y<br>ppm | Nb<br>ppm | Be<br>ppm | Sc<br>ppm | Au*<br>ppb |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------|-----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|----------|---------|--------|-----------|-----------|---------|-----------|---------|---------|---------|--------|----------|-----------|-----------|----------|-----------|-----------|-----------|------------|
| 624151 H    | <2        | 1271      | 12        | 12        | .6        | 3         | 2         | 3145      | 1.57    | <5        | <10      | <4        | <2        | 9         | <.4       | 6         | <5        | 4        | 5.98    | .007   | 5         | 25        | 2.91    | 43        | <.01    | .08     | .04     | .03    | 4        | 3         | <2        | 5        | <2        | <1        | <1        | 2          |
| 624152 H    | <2        | 19        | 12        | 10        | <.5       | 5         | 6         | 1928      | 1.11    | <5        | <10      | <4        | <2        | 7         | <.4       | <5        | <5        | 5        | 2.05    | .013   | 2         | 36        | .80     | 68        | <.01    | .15     | .05     | .06    | 8        | 2         | <2        | 2        | <2        | <1        | <1        | 2          |
| 624153 H    | <2        | 92        | 10        | 16        | <.5       | 5         | 2         | 1154      | .88     | <5        | <10      | <4        | <2        | 6         | <.4       | <5        | <5        | 5        | 1.26    | .006   | 43        | 28        | .62     | 42        | <.01    | .28     | .02     | .08    | 4        | 3         | <2        | 3        | <2        | <1        | <1        | <1         |
| 624154 H    | <2        | 14        | 9         | 34        | <.5       | 23        | 5         | 1738      | 5.75    | <5        | <10      | <4        | 4         | 8         | <.4       | 6         | <5        | 42       | 1.08    | .030   | 71        | 33        | 4.13    | 125       | .08     | 3.77    | .03     | .31    | 4        | 25        | <2        | 6        | 2         | 1         | 3         | 1          |
| 624155 H    | <2        | 8         | <5        | 2         | .5        | 3         | 3         | 8195      | 2.84    | <5        | <10      | <4        | <2        | 37        | <.4       | 6         | <5        | 9        | 13.69   | .027   | 12        | 5         | 6.69    | 64        | .01     | .53     | .03     | .54    | <4       | 6         | <2        | 12       | <2        | <1        | <1        | <1         |
| 624156 H    | 2         | 368       | <5        | 2         | <.5       | 13        | 7         | 1820      | 2.07    | <5        | <10      | <4        | 2         | 7         | <.4       | <5        | <5        | 21       | 1.41    | .012   | 6         | 32        | .70     | 64        | .02     | .79     | .02     | .26    | 8        | 6         | <2        | 3        | <2        | <1        | <1        | <1         |
| RE 624156 H | 3         | 358       | <5        | <2        | <.5       | 12        | 7         | 1763      | 2.03    | <5        | <10      | <4        | <2        | 7         | <.4       | <5        | <5        | 20       | 1.34    | .011   | 5         | 36        | .67     | 62        | .02     | .77     | .02     | .26    | 7        | 6         | <2        | 3        | <2        | <1        | <1        | 1          |
| 624157 H    | 2         | 119       | <5        | <2        | <.5       | 5         | 4         | 1220      | .89     | <5        | <10      | <4        | <2        | 5         | <.4       | <5        | <5        | 8        | 1.23    | .008   | 5         | 30        | .45     | 59        | .01     | .30     | .02     | .13    | <4       | 3         | <2        | 2        | 2         | <1        | 1         | 1          |
| 624158 H    | 2         | 13        | <5        | <2        | <.5       | 6         | 3         | 1112      | .87     | <5        | <10      | <4        | <2        | 4         | <.4       | <5        | <5        | 10       | .91     | .009   | 3         | 47        | .41     | 75        | .01     | .23     | .01     | .10    | 9        | 2         | <2        | <2       | 2         | <1        | <1        | 1          |
| 624159 H    | <2        | 7         | <5        | <2        | <.5       | 6         | 2         | 1340      | .87     | <5        | <10      | <4        | <2        | 5         | <.4       | <5        | <5        | 2        | 1.64    | .006   | 3         | 34        | .69     | 56        | <.01    | .06     | .01     | .01    | 5        | 2         | <2        | <2       | <2        | <1        | <1        | <1         |
| 624160 H    | <2        | 12        | <5        | <2        | <.5       | 5         | 2         | 2076      | 1.13    | <5        | <10      | <4        | <2        | 7         | <.4       | <5        | <5        | 3        | 3.35    | .007   | 5         | 48        | 1.58    | 25        | <.01    | .09     | .02     | .03    | 6        | <2        | <2        | <2       | <2        | <1        | <1        | 2          |
| 624161 H    | <2        | 91        | <5        | <2        | .7        | 5         | 3         | 1763      | .88     | <5        | <10      | <4        | <2        | 5         | <.4       | <5        | <5        | 3        | 1.73    | .006   | 3         | 34        | .82     | 29        | <.01    | .09     | .01     | .03    | 5        | 2         | <2        | 2        | <2        | <1        | <1        | 1          |
| STANDARD CT | 23        | 59        | 41        | 156       | 5.6       | 38        | 12        | 848       | 3.93    | 51        | 12       | <4        | 24        | 227       | 20.6      | 19        | 19        | 125      | 1.55    | .102   | 27        | 234       | .91     | 1007      | .36     | 7.10    | 1.70    | 1.75   | 27       | 48        | 17        | 15       | 19        | 6         | 9         | 461        |

Standard is STANDARD CT3/AU-R.

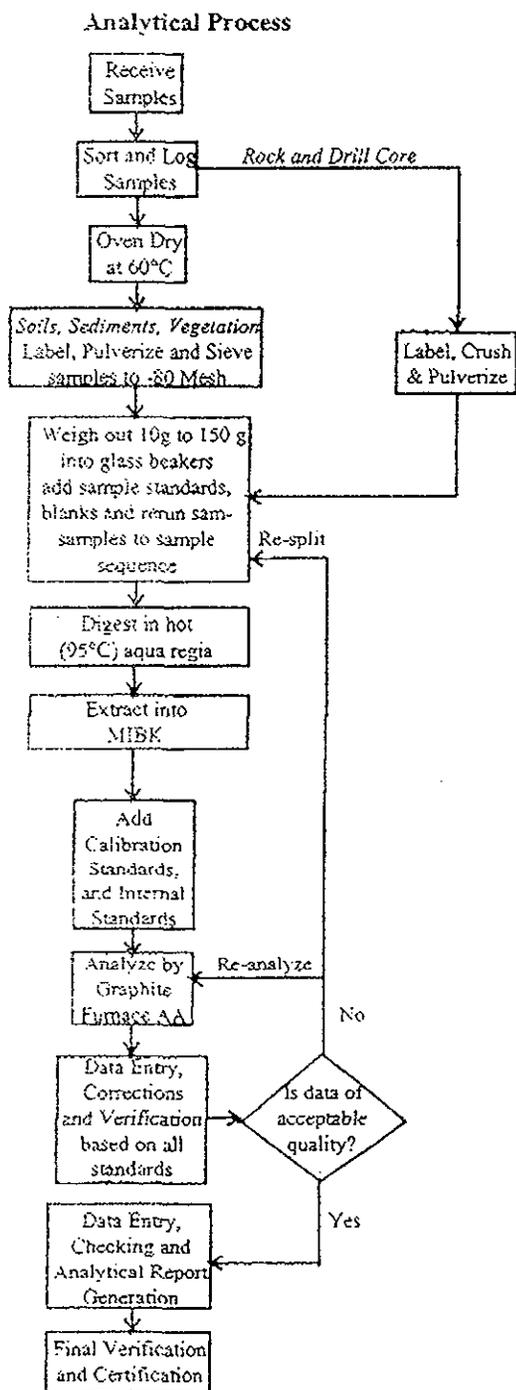
ICP - .250 GRAM SAMPLE IS DIGESTED WITH 10ML HClO4-HNO3-HCL-HF AT 200 DEG. C TO FUMING AND IS DILUTED TO 10 ML WITH DILUTED AQUA REGIA. THIS LEACH IS PARTIAL FOR MAGNETITE, CHROMITE, BARITE, OXIDES OF AL, ZR &amp; MN AND MASSIVE SULFIDE SAMPLES. AS, CR, SB, AU SUBJECT TO LOSS BY VOLATILIZATION DURING HClO4 FUMING.

- SAMPLE TYPE: ROCK AU\* - IGNITED, AQUA-REGIA/MIBK EXTRACT, GF/AA FINISHED.(10 GM)

Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 20 1997 DATE REPORT MAILED: Aug 28/97 SIGNED BY: C. Leong .D.TOYE, C.LEONG, J.WANG; CERTIFIED B.C. ASSAYERS

## METHODS AND SPECIFICATIONS FOR ANALYTICAL PACKAGE GROUP 3A - AU BY WET EXTRACTION



### Comments

#### Sample Preparation

Soils and sediments are dried (60°C) and sieved to -80 mesh (-177 microns), rocks and drill core are crushed and pulverized to -100 mesh (-150 microns). Plant samples are dried (60°C) and pulverized or ashed (550°C). Sediment in moss mats is recovered by disaggregation then sieved to -80 mesh. A precise quantity of the fine fraction (client may select from 10 g to 150 g sample weights) is weighed. In every analytical batch (34 samples) a duplicate split is added from a randomly selected sample to monitor precision. Reference materials (in-house control standards) are also added to each batch to monitor accuracy.

#### Sample Digestion and Extraction

Aqua Regia is a 3:1:2 mixture of ACS grade conc. HCl, conc. HNO<sub>3</sub> and demineralized H<sub>2</sub>O. Aqua Regia is added to each sample and to the empty reagent blank test tube in each batch of samples. Sample solutions are heated for 1 hr in a boiling hot water bath (95°C). After cooling, MIBK is added and the samples are shaken to extract Au into the MIBK phase.

#### Sample Analysis

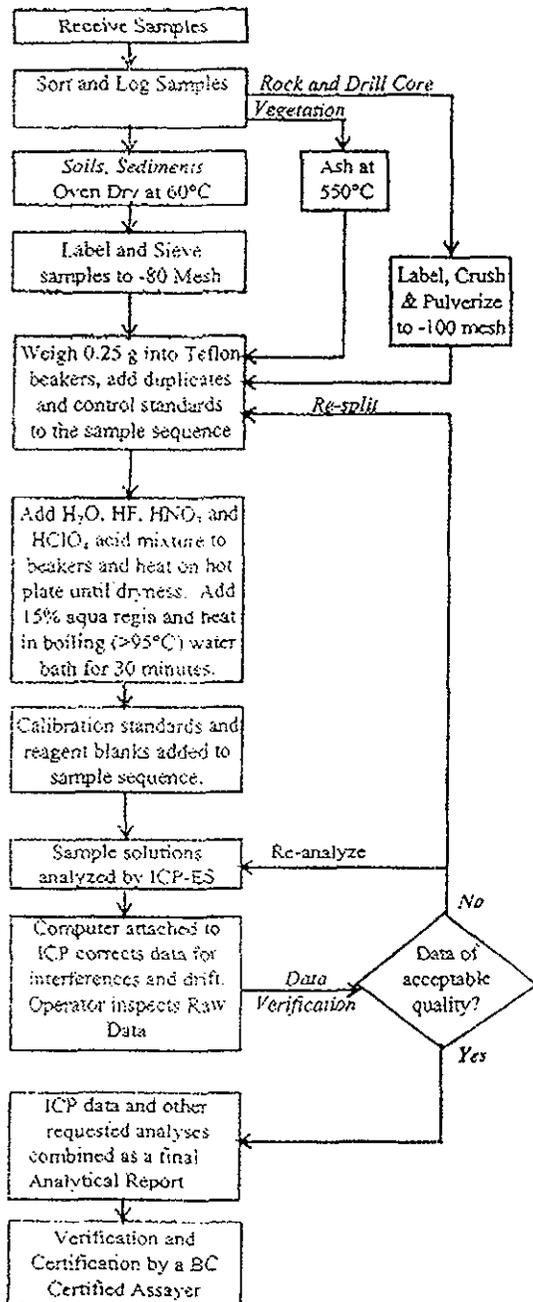
Sample extracts are aspirated into a graphite furnace AAS (Varian model SpectraAA 10Plus) for the determination of Au.

#### Data Evaluation

Raw and final data from the undergoes a final verification by a British Columbia Certified Assayer who then signs the Analytical Report before it is released to the client. Chief Assayer is Clarence Leong, other certified assayers are Dean Toye and Jacky Wang.

## METHODS AND SPECIFICATIONS FOR ANALYTICAL PACKAGE GROUP 1E - 35 ELEMENT ICP BY 4 ACIDS

### Analytical Process



### Comments

#### Sample Preparation

Soils and sediments are dried (60°C) and sieved to -80 mesh (-177 microns), rocks and drill core are crushed and pulverized to -100 mesh (-150 microns). Moss-mat samples are dried (60°C), pounded then sieved to recover -80 mesh sediment or samples can be ashed (550°C) on the client's request. Sample splits (0.25 g) are placed in Teflon beakers. Duplicate splits of crushed (rejects) and pulverized (pulp) fractions are included with every 34 rock samples to define sample homogeneity (reject split) and analytical precision (pulp split). Duplicate pulp splits are included in each batch of 34 soil or sediment samples. A blank and standard STD C are included in each batch of samples to monitor accuracy.

#### Sample Digestion

The 4-Acid solution (18:10:3:6 demineralized H<sub>2</sub>O, ACS grade HF, ACS grade HClO<sub>4</sub>, and ACS grade HNO<sub>3</sub>) is added to each sample then heated to fuming on a hot plate and taken to dryness. The residue is dissolved in diluted (15%) aqua regia (3:1:2 ACS grade HCl, HNO<sub>3</sub>, and demineralized H<sub>2</sub>O) heated in a boiling water (>95°C) bath for 30 minutes.

#### Sample Analysis

Sample solutions are aspirated into and ICP emission spectrograph (Jarrel Ash AtomComp model 800 or 975) for the determination of 35 elements comprising: Ag, Al, As, Au, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, K, La, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Sb, Sc, Sn, Sr, Th, Ti, U, V, W, Y, Zn and Zr.

#### Data Evaluation

Raw and final data from the ICP-ES undergoes a final verification by a British Columbia Certified Assayer who then signs the Analytical Report before it is released to the client. Chief Assayer is Clarence Leong, other certified assayers are Dean Toye and Jacky Wang.



9000W

8000W

7000W

SURVEY SPECIFICATIONS

|                     |              |
|---------------------|--------------|
| survey magnetometer | Scintrex MP4 |
| base magnetometer   | Scintrex MP4 |
| type                | proton       |
| profiled value      | total field  |
| units               | gammas (nT)  |
| diurnal corrections | base station |
| data interval       | 25 metres    |

NOTE: L6500W and north end of L6800W surveyed in 1996

|                      |               |
|----------------------|---------------|
| profile base         | 58000 gammas  |
| profile scale        | 500 gammas/cm |
| upper clipping limit | 58700 gammas  |
| lower clipping limit | 57700 gammas  |

M 3000N

M 2000N

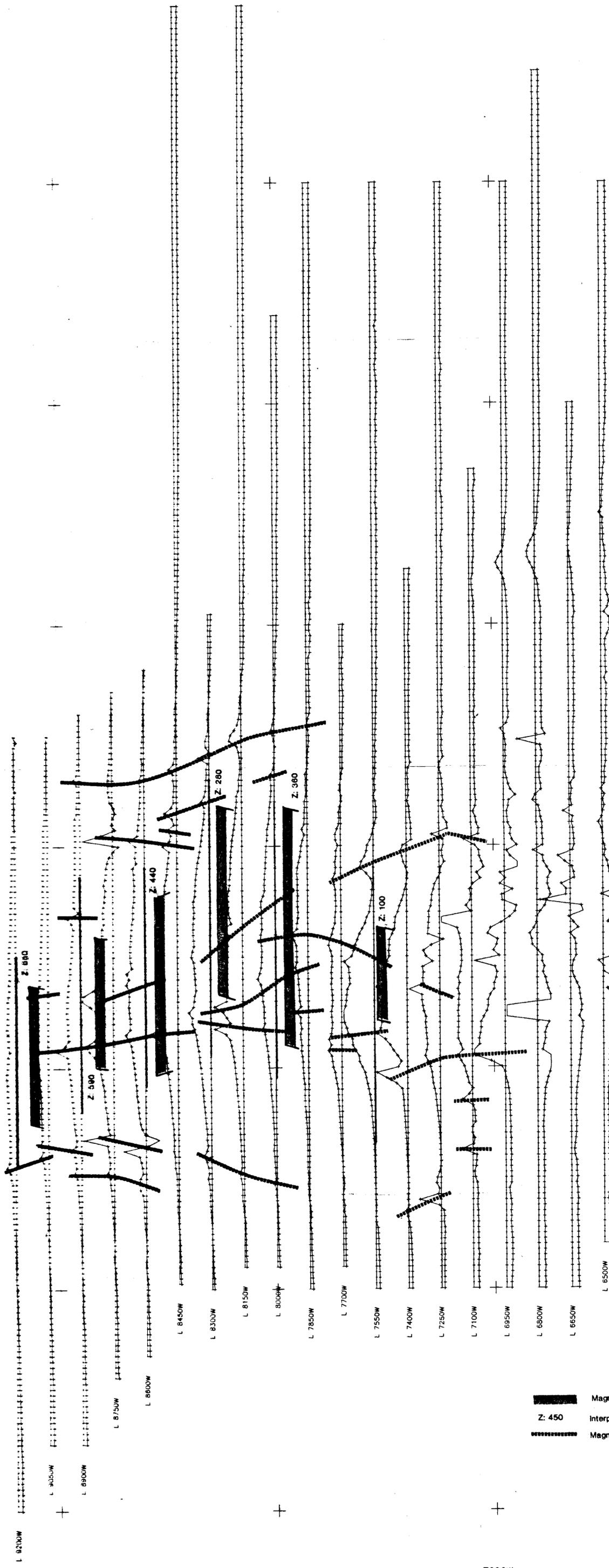
M 1000N

M 0000N

M -1000N

M -2000N

M -3000N



83000N  
82000N  
81000N  
80000N  
79000N  
78000N  
77000N

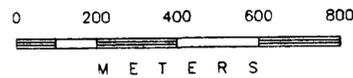
9000W

8000W

7000W

FIGURE 5

093694



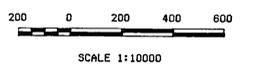
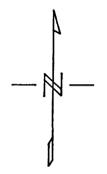
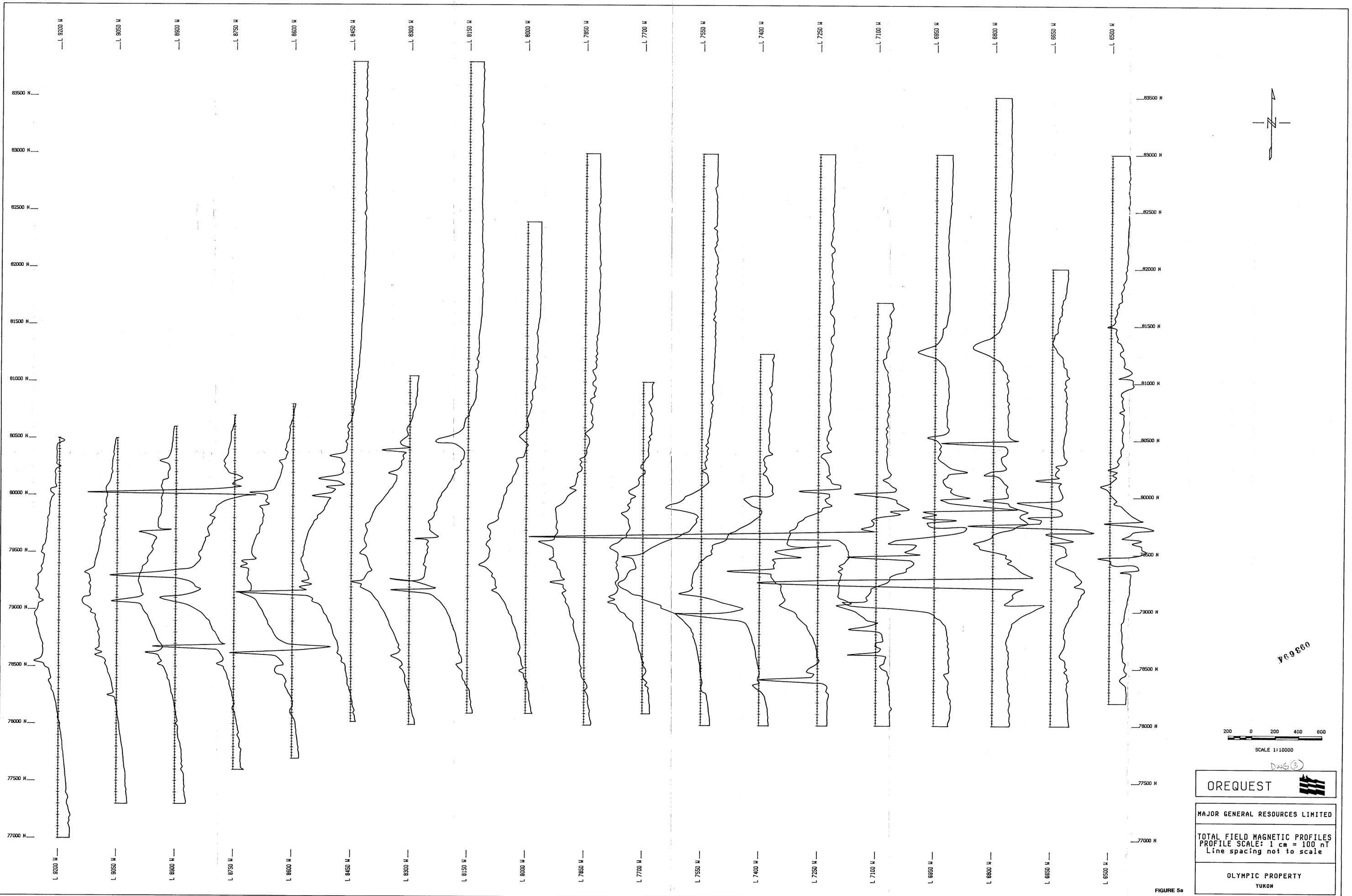
METERS  
DWG@

|  |                       |
|--|-----------------------|
|  | Magnetic Body         |
|  | Interpreted Depth (m) |
|  | Magnetic Dyke         |

MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON  
 Total Field Magnetometer Survey  
 Profile Base = 58000 gammas  
 Profile Scale = 500 gammas/cm

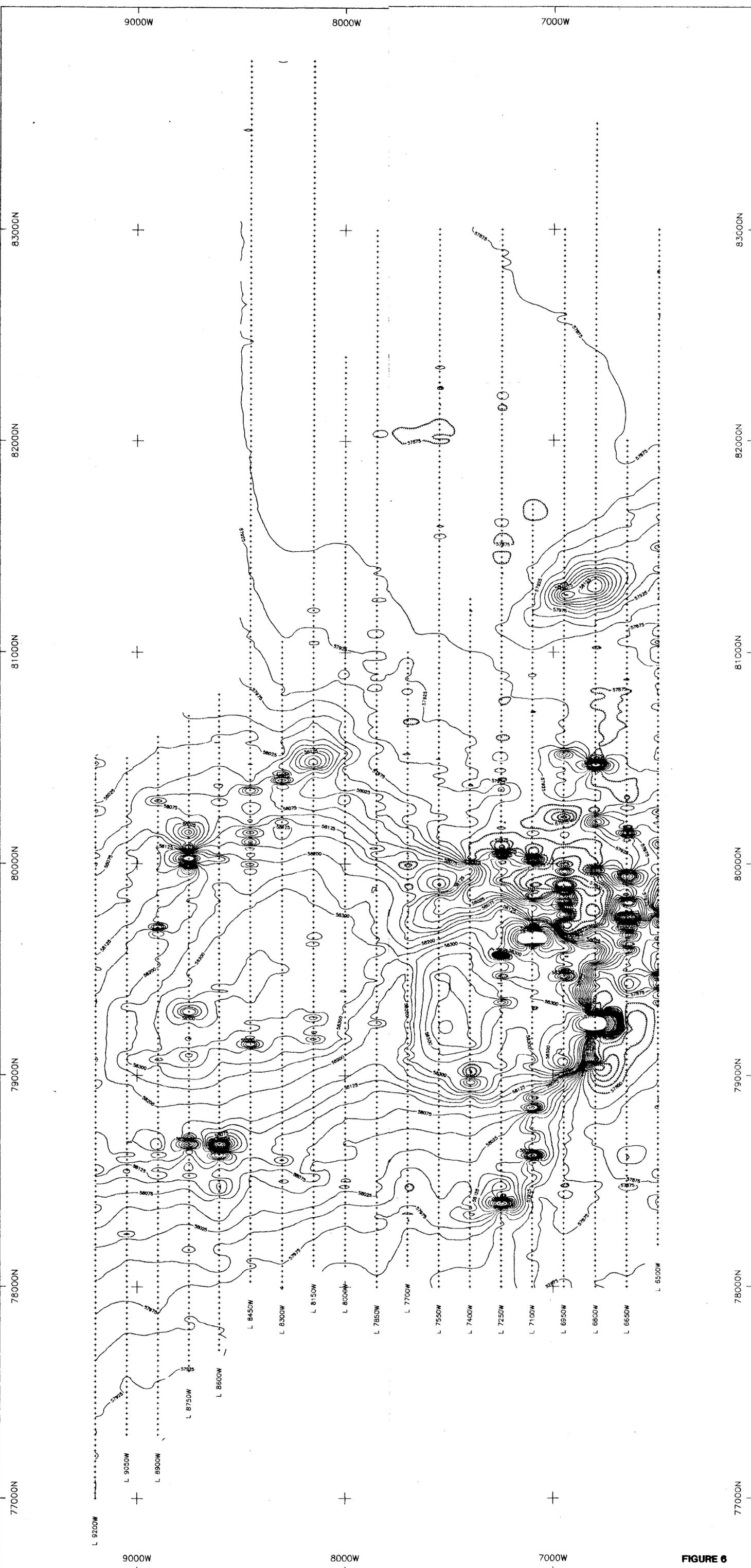
|                       |               |
|-----------------------|---------------|
| DRAWN BY: ars         | DATE: July/97 |
| SCOTT GEOPHYSICS LTD. |               |



469860

|   |  |
|---|--|
| <p>OREQUEST </p>                 |  |
| <p>MAJOR GENERAL RESOURCES LIMITED</p>  |  |
| <p>TOTAL FIELD MAGNETIC PROFILES<br/>         PROFILE SCALE: 1 cm = 100 nT<br/>         Line spacing not to scale</p> |  |
| <p>OLYMPIC PROPERTY<br/>         YUKON</p>  |  |

FIGURE 5a



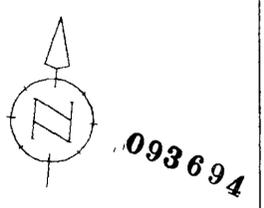
**SURVEY SPECIFICATIONS**

|                     |              |
|---------------------|--------------|
| survey magnetometer | Scintrex MP4 |
| base magnetometer   | Scintrex MP4 |
| type                | proton       |
| contoured value     | total field  |
| units               | gammas (nT)  |
| diurnal corrections | base station |

NOTE: L6500W and north end of L6800W surveyed in 1996

contour intervals:

|               |            |
|---------------|------------|
| 57600 - 57850 | 50 gammas  |
| 57850 - 58150 | 25 gammas  |
| 58150 - 58300 | 50 gammas  |
| 58300 - 58800 | 100 gammas |



MAJOR GENERAL RESOURCES LTD.  
 OLYMPIC PROPERTY, YUKON  
 Total Field Magnetometer Survey  
 Contour Plan (gammas)

DRAWN BY: ars      DATE: July/97  
 SCOTT GEOPHYSICS LTD.

**FIGURE 6**

9000W

8000W

7000W

SURVEY SPECIFICATIONS

survey magnetometer Scintrex MP4
base magnetometer Scintrex MP4
type proton

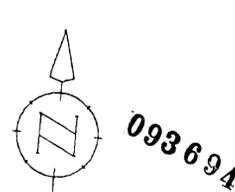
posted value total field
units gammas (nT)
diurnal corrections base station

NOTE: L6500W and north end of
L6800W surveyed in 1996

83000N
82000N
81000N
80000N
79000N
78000N
77000N

83000N
82000N
81000N
80000N
79000N
78000N
77000N

Grid of magnetic field data points with columns labeled 9000W, 8000W, 7000W and rows labeled 83000N to 77000N. Each cell contains a numerical value representing the magnetic field in gammas (nT).

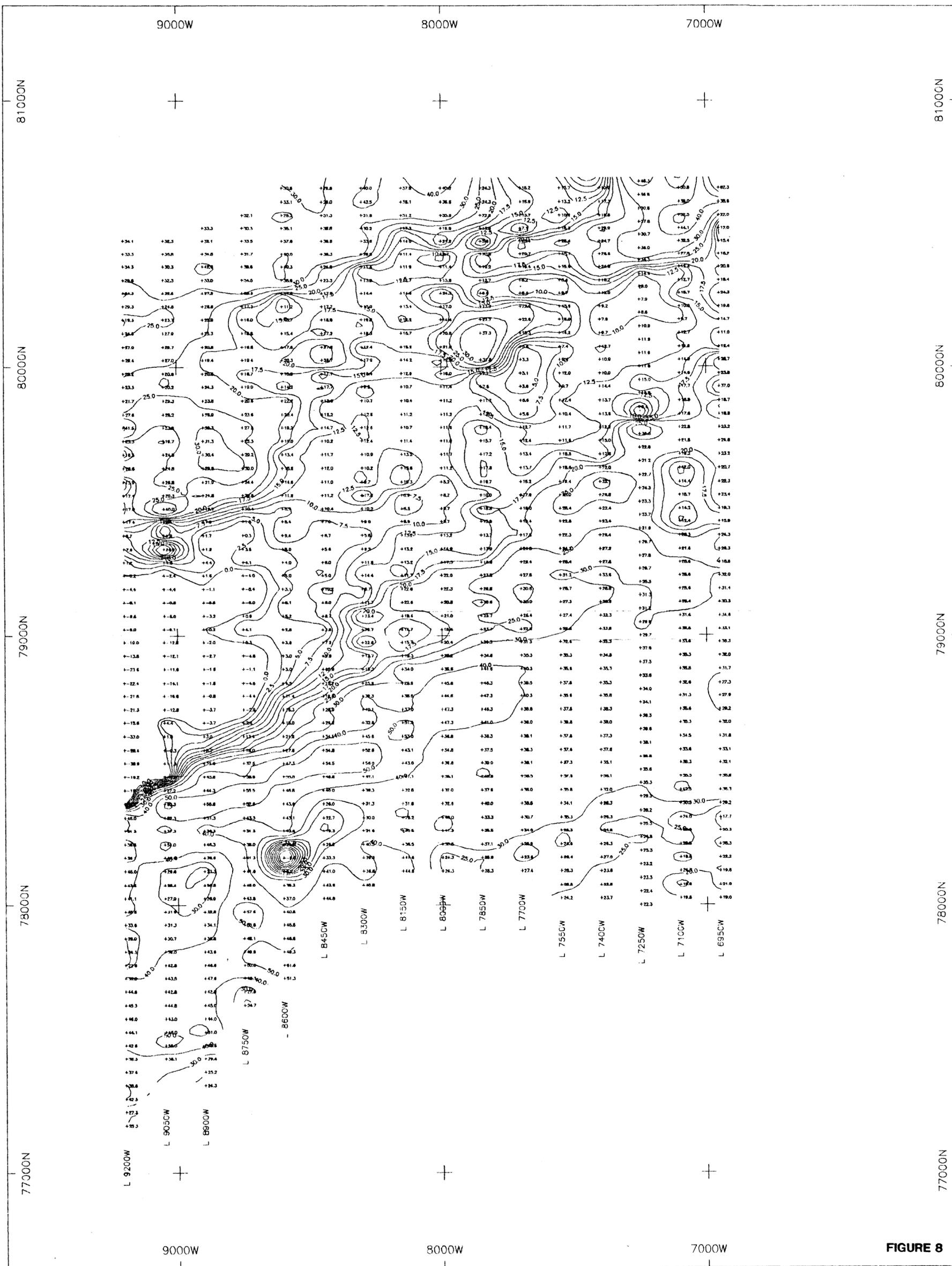


0 200 400 600 800
METERS

MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON
Total Field Magnetometer Survey
Data Posting (gammas)

FIGURE 7
DRAWN BY: ars DATE: July/97
SCOTT GEOPHYSICS LTD.



SURVEY SPECIFICATIONS

receiver Scintrex IPR12  
 transmitter Scintrex TS04  
 pulse time 2 seconds  
 Mx receive window 120-1020 msec  
 mid point 570 msec

array gradient  
 a spacing 50 metres

N current electrode 82300N/8450W  
 S current electrode 76900N/8450W

current separation 5400 metres

contoured value Chargeability

contour intervals:  
 0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5,  
 20, 25, 30, 40, 50, 60 (mV/Volt)

negative values not contoured



METERS

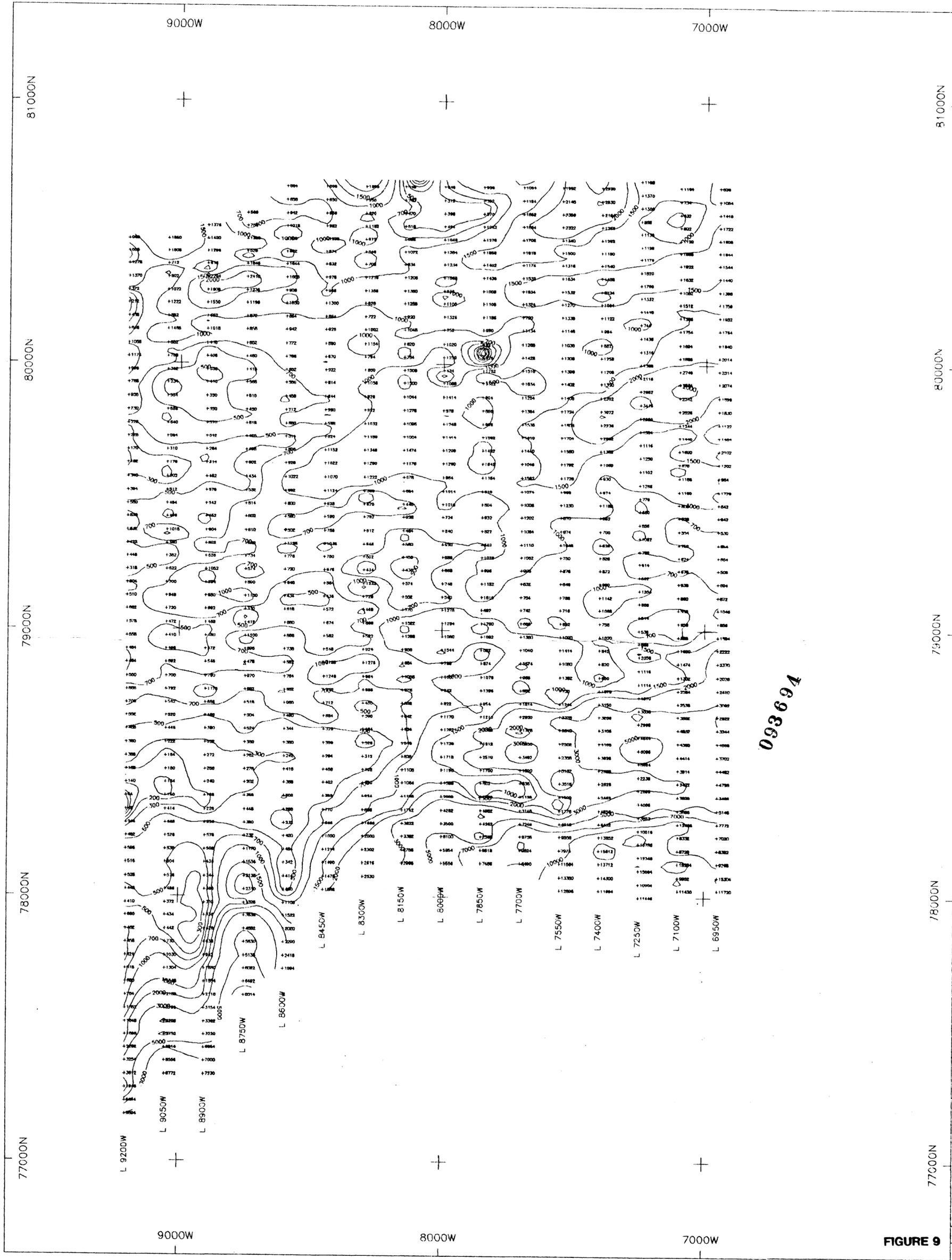
MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

Induced Polarization Survey  
 Gradient Array  
 Chargeability Contour Plan

FIGURE 8

DRAWN BY: ars DATE: July/97  
 SCOTT GEOPHYSICS LTD.



SURVEY SPECIFICATIONS

receiver Scintrex IPR12  
 transmitter Scintrex TS04  
 pulse time 2 seconds  
 Mx receive window 120-1020 msec  
 mid point 570 msec

array gradient  
 a spacing 50 metres

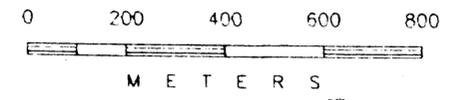
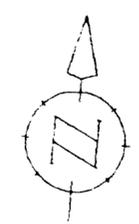
N current electrode 82300N/8450W  
 S current electrode 76900N/8450W

current separation 5400 metres

contoured value Resistivity

contour intervals:  
 50, 70, 100, 150, 200, 300, 500, 700,  
 1000, 1500, 2000, 3000, 5000, 7000,  
 10000, 15000 (ohm-metres)

093694



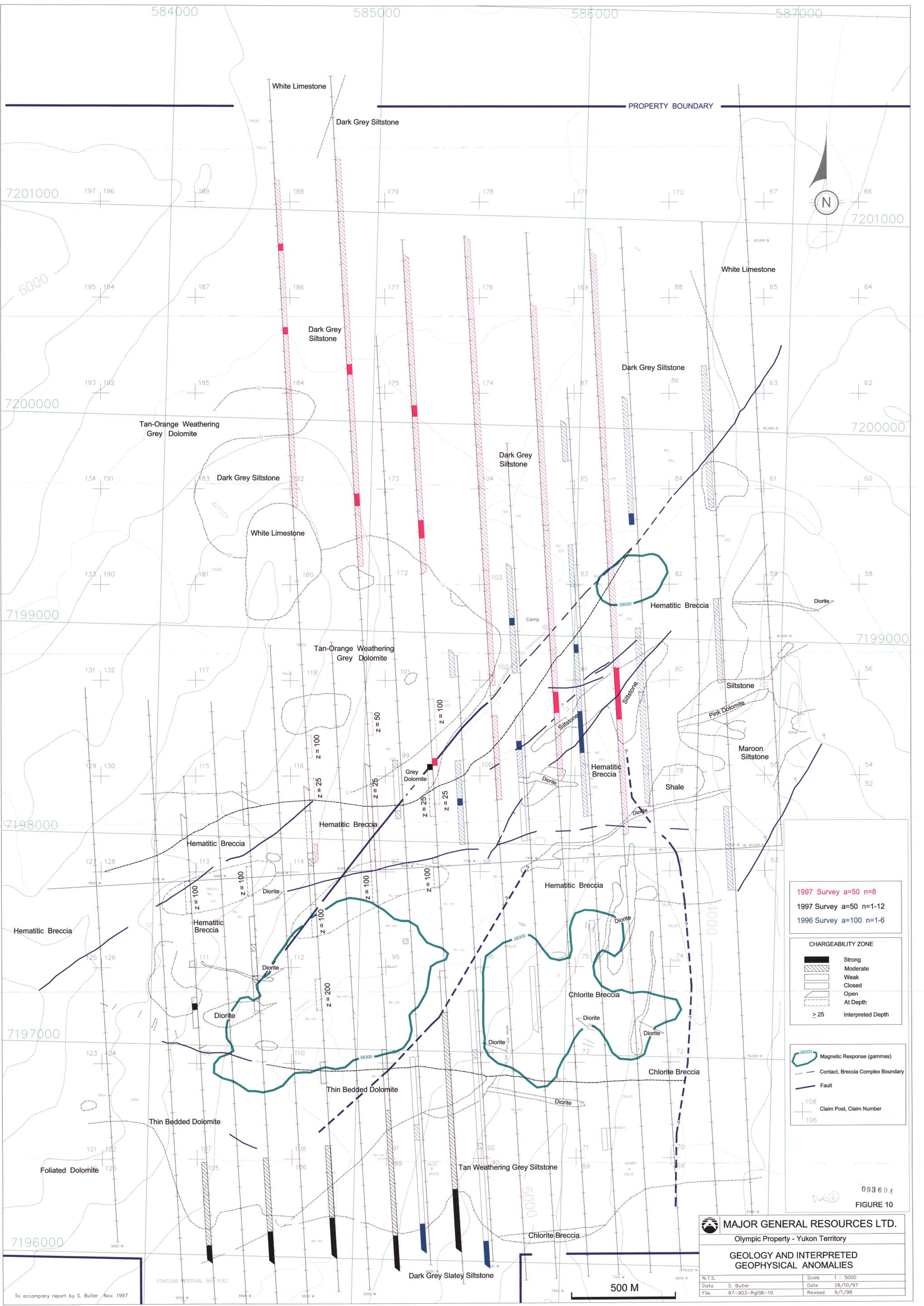
Dwg 7

MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON  
 Induced Polarization Survey  
 Gradient Array  
 Resistivity Contour Plan

FIGURE 9

DRAWN BY: ors DATE: July/97  
 SCOTT GEOPHYSICS LTD.



1997 Survey a=50 n=8  
 1997 Survey a=50 n=1-12  
 1996 Survey a=100 n=1-6

**CHARGEABILITY ZONE**

- Strong
- Moderate
- Weak
- Closed
- Open
- At Depth
- > 25 Interpreted Depth

58300 Magnetic Response (gammas)  
 Contact, Breccia Complex Boundary  
 Fault  
 108 Claim Post, Claim Number  
 106 Claim Post, Claim Number

093694  
 FIGURE 10

**MAJOR GENERAL RESOURCES LTD.**  
 Olympic Property - Yukon Territory

**GEOLOGY AND INTERPRETED GEOPHYSICAL ANOMALIES**

|                      |                |
|----------------------|----------------|
| N.T.S.               | Scale 1 : 5000 |
| Date S. Butler       | Date 28/10/97  |
| File 97-903-RglSB-10 | Revised 9/1/98 |

To accompany report by S. Butler / Nov. 1997

DWG 9  
0936-4

MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

LINE: 7850W

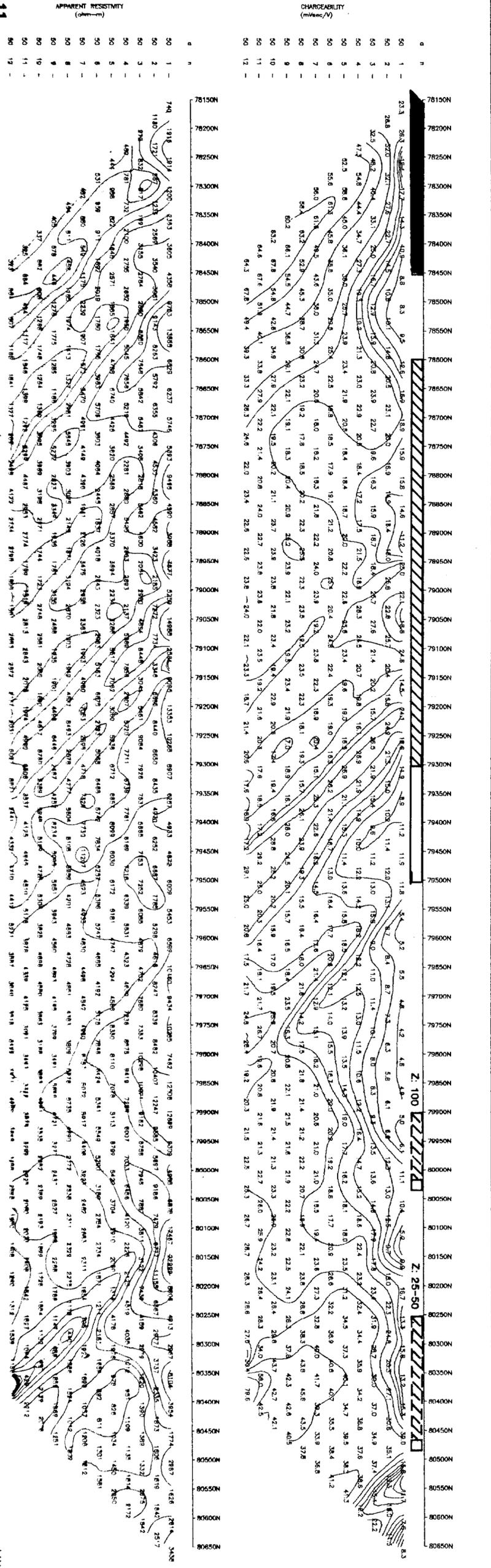
INDUCED POLARIZATION SURVEY  
SCOTT GEOPHYSICS LTD.  
July/97

Pole Dipole Array  
Scintrex IPR12  
Pulse Rate: 2 sec

Current Electrode North of Receiving Electrodes (Array Heading S)  
Mx Chargeability is for the interval 120 to 1020 msecs after shutoff  
Mx Contours: 0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 25, 30, 40, 50, 60 mV/V  
Res Contours: 70, 100, 150, 200, 300, 500, 700, 1000, ..... 50000 ohm-m



FIGURE 11



LINE: 7850W

MAJOR GENERAL RESOURCES LTD.

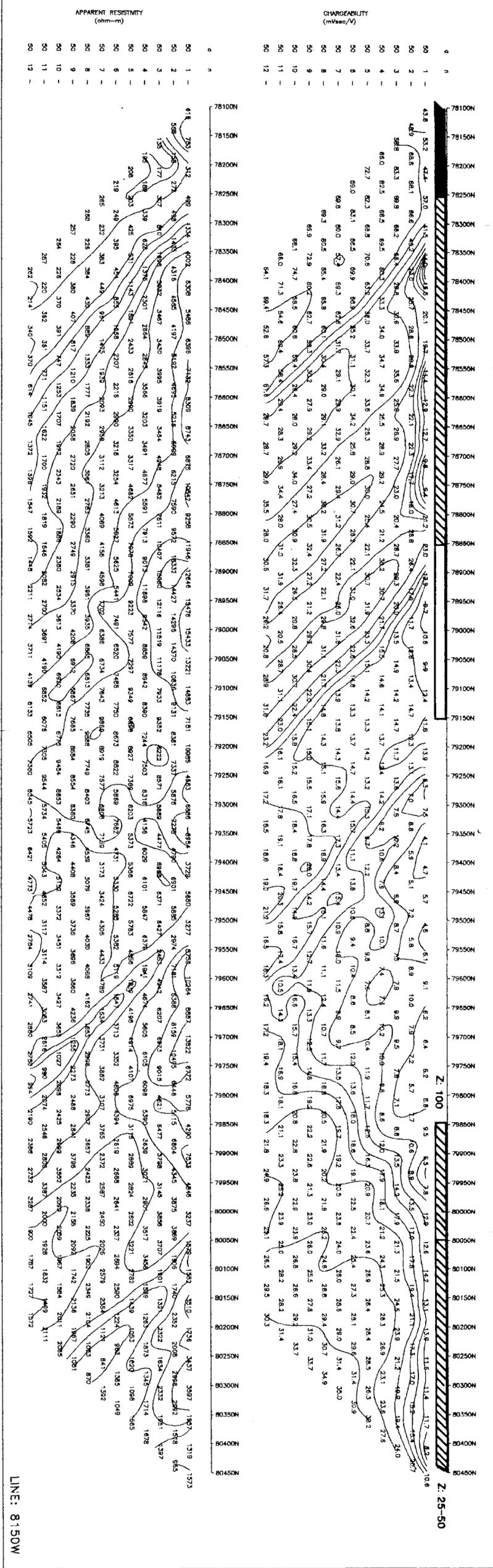
OLYMPIC PROPERTY, YUKON

LINE: 8150W

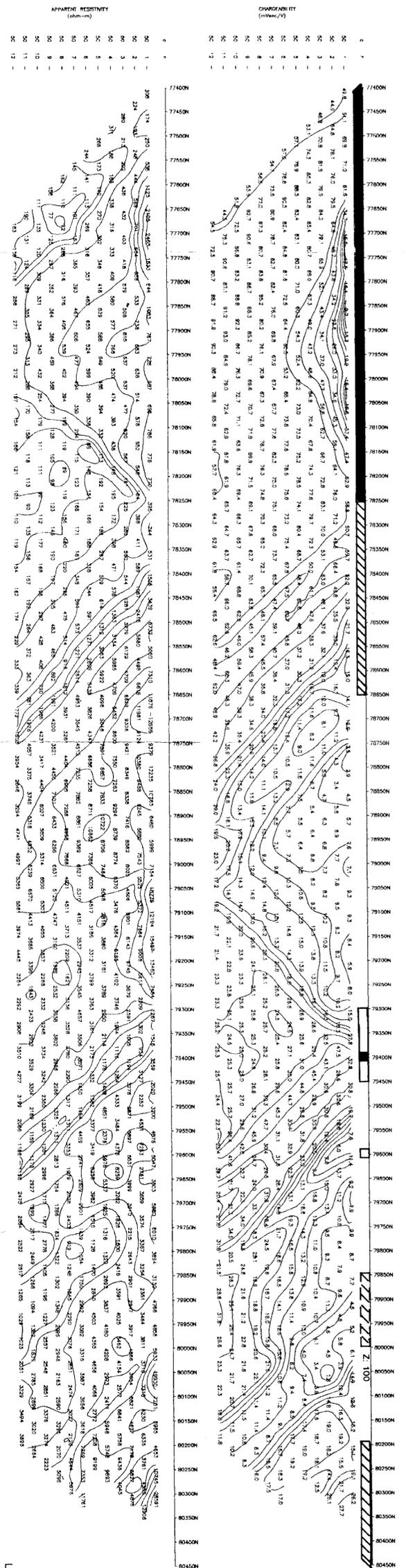
INDUCED POLARIZATION SURVEY  
SCOTT GEOPHYSICS LTD.  
July/97

Pole Dipole Array  
Scintrex IPR12  
Pulse Rate: 2 sec

Current Electrode North of Receiving Electrodes (Array Heading S)  
Mx Chargeability is for the interval 120 to 1020 msecs after shutoff  
Mx Contours: 0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 25, 30, 40, 50, 60 mV/V  
Res Contours: 70, 100, 150, 200, 300, 500, 700, 1000, ..... 50000 ohm-m



LINE: 8150W



LINE: 9050W

MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

LINE: 8750W

INDUCED POLARIZATION SURVEY

Pole Dipole Array

SCOTT GEOPHYSICS LTD.

Scintrex IP12

July/97

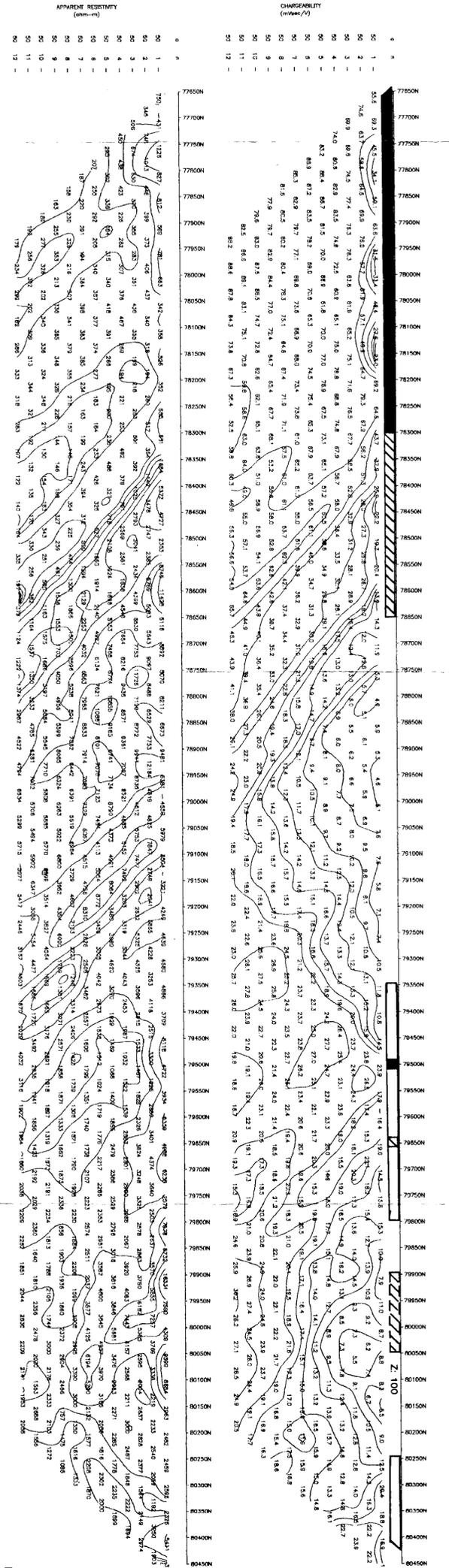
Pulse Rate: 2 sec

Current Electrode North of Receiving Electrodes (Array Heading S)

Mx Chargeability is for the interval 120 to 1020 msec after shutoff

Mx Contours: 0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 25, 30, 40, 50, 60 mV/V

Res Contours: 70, 100, 150, 200, 300, 500, 700, 1000, 50000 ohm-m



LINE: 8750W

MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

LINE: 8450W

INDUCED POLARIZATION SURVEY

Pole Dipole Array

SCOTT GEOPHYSICS LTD.

Scintrex IP12

July/97

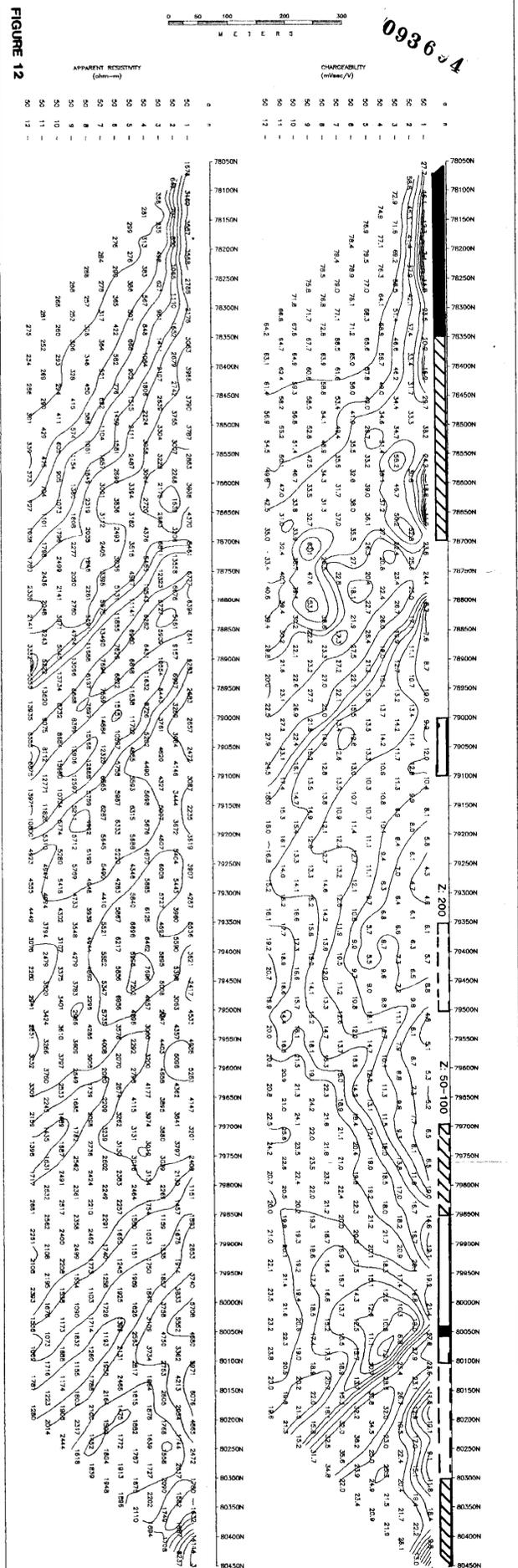
Pulse Rate: 2 sec

Current Electrode North of Receiving Electrodes (Array Heading S)

Mx Chargeability is for the interval 120 to 1020 msec after shutoff

Mx Contours: 0, 2.5, 5, 7.5, 10, 12.5, 15, 17.5, 20, 25, 30, 40, 50, 60 mV/V

Res Contours: 70, 100, 150, 200, 300, 500, 700, 1000, 50000 ohm-m



LINE: 8450W

FIGURE 12

Dwg 10

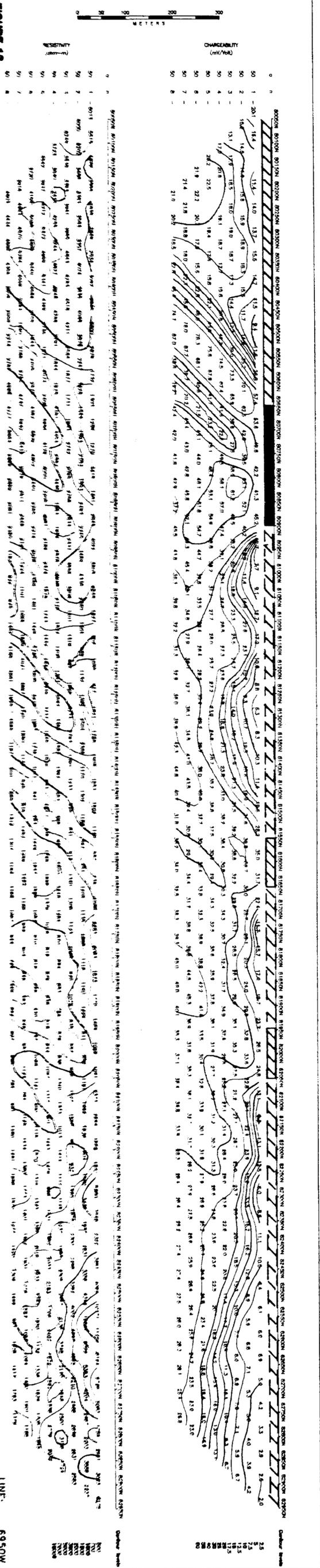
MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

LINE: 6950W

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)
SCOTT GEOPHYSICS LTD. Scintrex IPR12
July 97 Pulse Rate: 2 sec
Current Electrode is South of Receiving Electrode (Array Heading N)
Mx Chargeability is for the interval 120 to 1020 msecs after shutoff

FIGURE 13



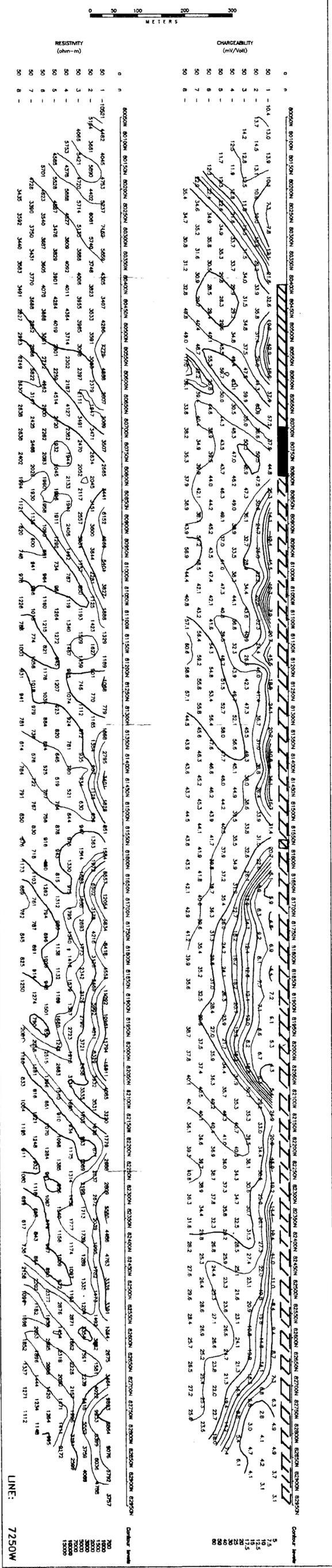
LINE: 6950W

MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

LINE: 7250W

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)
SCOTT GEOPHYSICS LTD. Scintrex IPR12
July 97 Pulse Rate: 2 sec
Current Electrode is South of Receiving Electrode (Array Heading N)
Mx Chargeability is for the interval 120 to 1020 msecs after shutoff



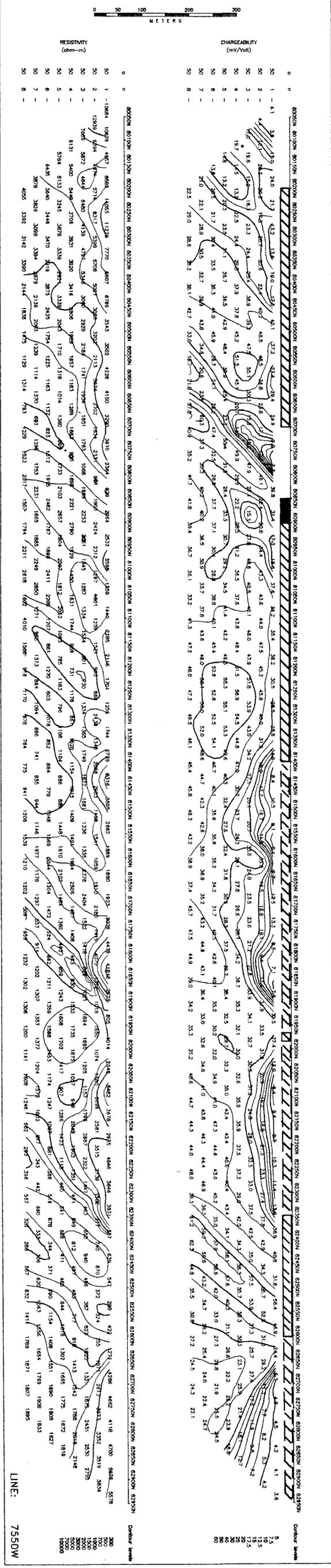
LINE: 7250W

MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

LINE: 7550W

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)
SCOTT GEOPHYSICS LTD. Scintrex IPR12
July 97 Pulse Rate: 2 sec
Current Electrode is South of Receiving Electrode (Array Heading N)
Mx Chargeability is for the interval 120 to 1020 msecs after shutoff



LINE: 7550W

093694 DUG

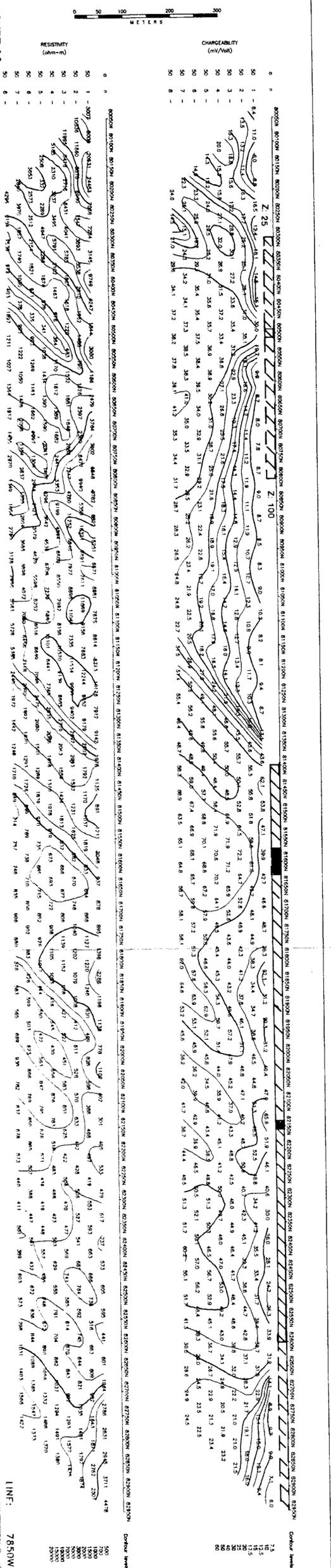
MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

LINE: 7850W

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)
SCOTT GEOPHYSICS LTD.
Current Electrode is South of Receiving Electrodes (Array Heading N)
Mx Chargeability is for the interval 120 to 1020 msecs after shutoff

FIGURE 14

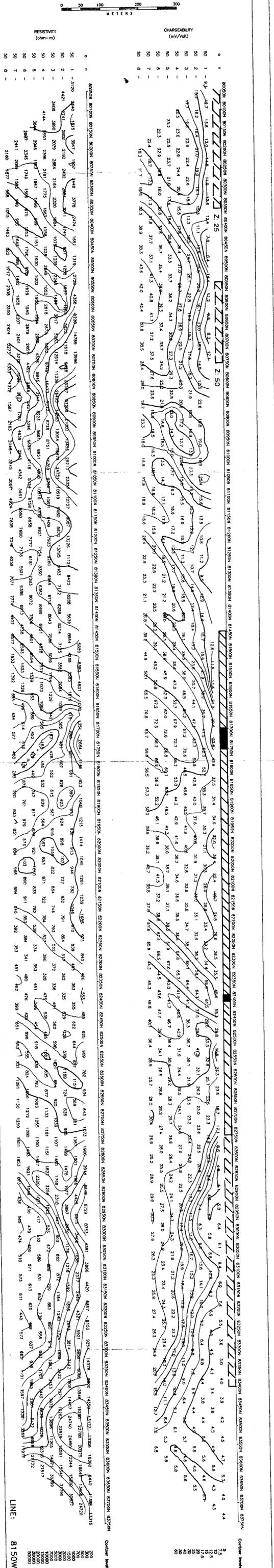


MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

LINE: 8150W

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)
SCOTT GEOPHYSICS LTD.
Current Electrode is South of Receiving Electrodes (Array Heading N)
Mx Chargeability is for the interval 120 to 1020 msecs after shutoff
N1 omitted 80800-81450W owing to overvoltage at receiver (Vp > 14 V)



MAJOR GENERAL RESOURCES LTD.

OLYMPIC PROPERTY, YUKON

LINE: 8450W

INDUCED POLARIZATION SURVEY (Pole-Dipole Array)
SCOTT GEOPHYSICS LTD.
Current Electrode is South of Receiving Electrodes (Array Heading N)
Mx Chargeability is for the interval 120 to 1020 msecs after shutoff
N1 omitted at 81000W owing to overvoltage at receiver (Vp > 14 volts)

