REPORT

ON

GEOPHYSICAL SURVEYS

ALLERSTON PROPERTY

WHITNEY TOWNSHIP

for

SYNGOLD EXPLORATION INC.

Toronto, Ontario
October, 1987

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MPH Consulting Limited

SUMMARY

During the period June 8 to July 12, 1987, MPH Consulting Limited carried out a program of vertical gradient and total field magnetometer and induced polarization surveying on behalf of Syngold Exploration Inc. on the latter's Allerston property near Porcupine, northeastern Ontario.

The purpose of the surveys was to locate and if possible, delineate the Destor-Porcupine Fault which is believed to traverse the property, derive lithologic and structural information and outline any polarizable horizons. Targets were to be prioritized for a subsequent diamond drilling programme.

The property lies immediately to the south of the Hallnor, Broulan and Pamour mines and straddles Highway 101 some 14 km east of Timmins. The property is believed to be underlain by predominantly early Precambrian rocks of the Tisdale and Deloro Groups. Some sediments of the Porcupine group may be present in the northwestern sector of the property. Previous drilling intersected altered komatiitic units, known to be generally located at the base of the Tisdale Group, in the central part of the property. This suggests that the Destor-Porcupine Fault may lie to the south of this point at the top of the Deloro Group.

The magnetic data indicated a general east to east-northeast lithologic trend across the property. The total field and vertical gradient magnetic datasets were interpreted in tandem. In the western half of the property, the total field magnetic data was downward continued to 100 and then 150 ft below surface in an effort to derive additional structural information and resolve individual magnetic responses from broad areas of elevated magnetic amplitudes.

The komatiites intersected by drill holes A-1 and A-2 in 1969 (Darke, 1969) are interpreted to extend from line 23+00E to approximately 34+00W where they cannot be traced with certainty past north-northwest trending fault F_7. The komatiites are truncated to the east by northwest trend-

ing fault F_3 which is believed to be the southward extension of the No. 1 Fault in the Broulan and Hallnor mines. Inspection of the various measured and filtered magnetic datasets indicates two subparallel magnetic horizons within each element of subdomain I_A, a distinctive signature which allowed the extent of the komatiites to be traced with confidence.

No distinction can be made between the magnetic signatures of the sediments and felsic volcanics in both the Tisdale Group, reflected by subdomains I_B and I_C, and in the Deloro Group, as defined by subdomain II_B.

Additional mafic to ultramafic volcanic rocks were identified in both the Tisdale Group by subdomains I_E and I_D in the northwest corner of the property and by subdomain II_C in the Deloro Group in the extreme southern portion of the property.

Iron formation, commonly observed at or near the top of the Deloro Group, is identified by subdomain II_A immediately to the south of the inferred location of the Destor-Porcupine Fault.

Fault F_1, which roughly coincides with Highway 101, is believed to reflect the Destor-Porcupine Fault, an interpretation supported by previous airborne results (Bambrick, 1984) and by the abrupt change in background in the vertical gradient magnetic dataset across the fault. In addition, in the Timmins area, the ultramafics or komatiites at the base of the Tisdale Group generally lie immediately to the north and iron formation, identified almost exclusively with the top of the Deloro Group, to the south of the Destor-Porcupine Fault.

There is no evidence of close folding on a local scale of the sediments and ultramafic volcanic rocks of the Tisdale Group as postulate by Roscoe (1986).

The resistivity survey successfully delineated several low-to-moderately resistive, discrete horizons in the eastern and southern sectors of the property. The most continuous of these are concident with the iron formation within subdomain II_A and polarizable horizons A and B. The majority of the remaining resistivity features lie to the north of the Destor-Porcupine Fault within the komatiitic units and sediments and/or felsic volcanics. They exhibit no continuous coincident polarizable responses and are inferred to predominantly reflect structural events.

The induced polarization survey identified 26 anomalous features, labelled A to Z, of varying strike extent from single line responses to horizons in excess of 1,700 ft. Of these, three are related solely to cultural features. Ten are further subdivided either due to relative displacement of components of anomalous horizons about interpreted faults or due to surveying being discontinuous along strike as open water or cultural features were encountered.

Six of the anomalous horizons exhibit coincident magnetic features while eight anomalous features display partial coincident or are immediately on the flank of moderate-to-highly susceptible magnetic features. The remaining polarizable horizons exhibit no magnetic coincidence at all.

Several of the interpreted anomalous features are directly coincident with polarizable horizons interpreted from a previous induced polarization survey reported on by Barringer (1974). Specifically, anomaly L_2 coincides with horizon IP-4, anomaly D_1 with horizon IP-3 and anomaly O_2 with horizon IP-1.

Anomaly L_2 may have been tested by drill hole B-1 which returned the best intersections on the property to date of 0.045 oz/ton of gold over 1.3 ft in sediments (McCannell, 1974). Although collar coordinates are not exactly known, drill holes B-2 and A-1 appear to have been collared directly above anomalies D_1 and O_2, respectively, which therefore remain untested.

It is of interest to note that hole B-2, oriented to the north of anomaly D_1, intersected .005 oz/ton of gold over 4.4 ft in an aplite dyke with minor pyrite (McCannell, 1974).

Elements of eight polarizable horizons are designated first priority targets. They are associated with the altered komatiites underlying subdomain I_A, the iron formation lying immediately to the south of the Destor-Porcupine Fault, the Destor-Porcupine Fault itself, the sediments and/or felsic volcanics within the Tisdale Group and finally the sediments and/or felsic volcanics immediately to the north of and at the contact with ultramafic units within the Deloro Group.

Anomaly M_2, a first priority target within the komatiites, was tested at depths of 500 and 300 ft by drill holes A-1 and A-2, respectively. No gold mineralization was reported (Darke, 1969).

Elements of eleven polarizable horizons are designated second priority targets. Many of these are associated with the target horizons identified with the first priority targets. In addition, several polarizable horizons reflect structural events interpreted from the magnetic datasets and are associated with or flank the mafic to ultramafic volcanics within the Tisdale Group. The majority of the second priority targets are currently considered not worthy of any further investigation until the geological understanding of the property is much greater and/or unless subsequent drilling indicates a specific polarizable horizon is of greater exploration interest than presently defined.

The remaining anomalous horizons are third priority targets which are either only tentatively interpreted, are single line responses or are believed to merely reflect clay layers in the overburden. Further exploration of these horizons is not recommended.

As a result of the conclusions drawn from the various geophysical datasets in conjunction with the known geological results, the following recommendations are put forward:

1. All geological information gathered in the future should be incorporated into the geophysical interpretation on a continuous basis so that target prioritization can be continuously reassessed.

2 Those first priority anomalous horizons in the eastern and southern sectors of the property, in areas known to have shallow overburden cover or have extensive outcrop, should be investigated, if possible by trenching.

3. All first priority targets should be considered for further investigation by drilling.

4. Certain second priority targets which correlate with interpreted structure, such as anomaly V may be considered of sufficient importance by the exploration geologist to warrant drilling.

TAL

LIST OF FIGURES

LIST OF TABLES

LIST OF PSEUDOSECTIONS
(APPENDIX III)

Pseudosection	Line	a Factor	n Factor	
P-1	52+00E	100 ft	1-4	
P-2	50+00E	100 ft	1-4	
P-3	48+00E	100 ft	1-4	
P-4	46+00E	100 ft	1-4	
P-5	44+00E	100 ft	1-4	
P-6	42+00E	100 ft	1-4	
P-7	40+00E	100 ft	1-4	
P-8	38+00E	100 ft	1-4	
P-9	36+00E	100 ft	1-4	Map Pocket
		200 ft	1-3	
P-10	34+00E	100 ft	1-4	Map Pocket
		200 ft	1-4	
P-11	32+00E	100 ft	1-4	Map Pocket
		200 ft	1-4	
P-12	30+00E	100 ft	1-4	Map Pocket
		200 ft	1-4	
P-13	28+00E	100 ft	1-4	Map Pocket
		200 ft	1-4	
P-14	26+00E	100 ft	1-4	Map Pocket
		200 ft	1-4	
P-15	24+00E	200 ft	1-4	
P-16	22+00E	200 ft	1-4	
P-17	20+00E	200 ft	1-4	
P-18	18+00E	200 ft	1-4	Map Pocket
		300 ft	1-4	
P-19	16+00E	200 ft	1-4	
P-20	14+00E	200 ft	1-4	
P-21	12+00E (North)	200 ft	1-4	
P-22	12+00E (South)	100 ft	1-4	
P-23	10+00E (North)	200 ft	1-4	
P-24	10+00E (South)	100 ft	1-4	
P-25	8+00E (North)	200 ft	1-4	
P-26	8+00E (South)	100 ft	1-4	
P-27	6+00E (North)	200 ft	1-4	
P-28	6+00E (South)	100 ft	1-4	
P-29	4+00E (North)	200 ft	1-4	
P-30	4+00E (South)	100 ft	1-4	
P-31	2+00E (North)	200 ft	1-4	
P-32	2+00E (South)	100 ft	1-4	
P-33	0+00	200 ft	1-4	
P-34	2+00W	100 ft	1-4	Map Pocket
		200 ft	1-4	
P-35	4+00W	200 ft	1-4	
P-36	6+00W	200 ft	1-4	
P-37	8+00W	200 ft	2-5	
P-38	10+00W	200 ft	2-5	
P-39	12+00W	200 ft	2-5	
P-40	14+00W	200 ft	2-5	
P-41	16+00W	200 ft	2-5	

LIST OF PSEUDOSECTIONS (cont'd)
(APPENDIX III)

Pseudosection	Line	a Factor	n Factor
P-42	18+00W	200 ft	2-5
P-43	20+00W	200 ft	2-5
P-44	22+00W	200 ft	2-5
P-45	24+00W	200 ft	2-5
P-46	26+00W	200 ft	2-5
P-47	28+00W	200 ft	2-5
P-48	30+00W	200 ft	2-5
P-49	32+00W	200 ft	2-5
P-50	34+00W	200 ft	2-5
P-51	36+00W	200 ft	2-5
P-52	38+00W	200 ft	2-5
P-53	40+00W	200 ft	2-5
P-54	42+00W	200 ft	2-5
P-55	44+00W	200 ft	2-5
P-56	46+00W	200 ft	1-4
P-57	48+00W	200 ft	1-4
P-58	Tie-line 4+00S (East)	100 ft	1-4
P-59	Tie-line 4+00S (West)	200 ft	1-4
P-60	Tie-line 8+00S (East)	100 ft	1-4
P-61	Tie-line 8+00S (West)	200 ft	1-4
P-62	Tie-line 12+00S (East)	100 ft	1-4
P-63	Tie-line 12+00S (West)	200 ft	1-5
P-64	Tie-line 16+00S	200 ft	1-4
P-65	Tie-line 20+00S	200 ft	1-4
P-66	Tie-line 24+00S (East)	100 ft	1-4
P-67	Tie-line 24+00S (West)	200 ft	1-4

LIST OF MAPS

1.0 INTRODUCTION

During the period June 8, 1987 to July 21, 1987, MPH Consulting Limited carried out a programme of total field and vertical gradient magnetometer and Induced Polarization surveying on behalf of Syngold Exploration Inc. on the latter's Allerston property in Whitney Township in the Porcupine area of northeastern Ontario.

The purpose of the surveys was to map magnetic and polarizable features and to determine lithological and structural aspects of the property. Target areas for further exploration were then to be identified and prioritized.

Syngold Exploration came to an agreement with Belmoral Mines Ltd. whereby all cross-lines were cut 600 ft north of the Allerston property onto Belmoral ground. This enabled full coverage of the Syngold property with induced polarization surveying.

The field program was carried out under the supervision of S. Bate, M.Sc. Liaison with Syngold Exploration Inc. was through Barry Simmons in Toronto whose assistance is gratefully acknowledged.

This report outlines the geophysical techniques employed and the instrumentation and field procedures used and discusses in detail the results and interpretation of the field work. Conclusions and recommendations for further exploration are presented pertinent to accessing the economic potential of the property.

2.0 LOCATION AND ACCESS

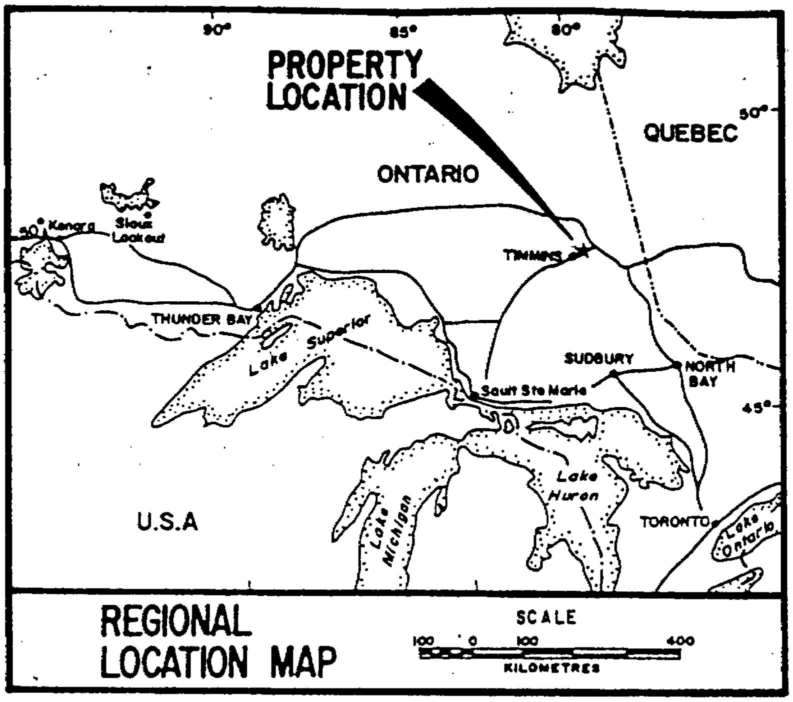
The property is located in Whitney Township which lies within the Porcupine Mining Division of the District of Cochrane in northeastern Ontario.

The area is 14 km east of the town of Timmins and lies due south of the Pamour, Hallnor and Broulan Mines (Figure 1). The Ontario Northland Railway and an HEPC powerline cross the property.

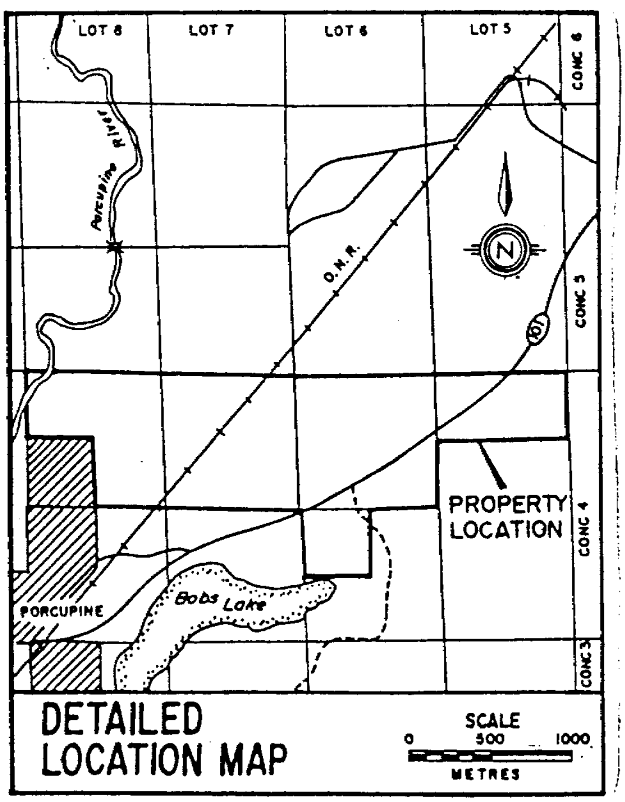
The property consists of 14 unpatented mining claims which were covered by the current geophysical program. The claims are in Lots 5, 6, 7 and 8 of Concession 4 of Whitney Township and numbers are as follows:

Claim	Lot
P-905637	6
P-905638	6
P-905639	5
P-905640	5
P-905905	7
P-905906	7
P-905907	6
P-905796	7
P-905797	7
P-905798	6
P-946296	8
P-946297	8
P-946298	8
P-948380	6

Access to the property is by truck either on Highway 101 which transects the southern part of the property or by the Hallnor Mine road which runs north through the central part of the property.



REGIONAL LOCATION MAP



DETAILED LOCATION MAP

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.

LOCATION MAP

Project No. C-998	By S. J. Bate
Scale 1:2400	Drawn MPH
Drawing No. Figure 1	Date July, 1987

MPH Consulting Limited

3.0 GEOLOGY

3.1 Regional Geology

3.1.1 General Geology

The property is located in the south-central portion of the Abitibi Orogenic Belt of the Superior Structural Province within the Porcupine base and precious metals mining camp about 14 km east of Timmins.

The Porcupine mining camp is associated with a major regional deformation zone, known as the Porcupine-Destor Break, which is generally thought to be up to several hundred metres wide. For the purposes of this report, the Porcupine-Destor Fault is considered to reflect a major discrete fault/shear zone within the Porcupine-Destor Break.

With the exception of a few diabase dykes and minor Middle Precambrian sedimentary rocks, all the bedrock in the Timmins area is of Early Precambrian (Archean) age (Figure 2). Early Precambrian metavolcanics in the area are divided into two groups, an older Deloro Group, south of the Porcupine-Destor Fault, and a younger Tisdale Group north of the fault (Pyke, 1982).

The Deloro Group is largely a calc-alkaline sequence, approximately 15,000 to 16,000 ft thick, and is composed mainly of flows of andesite and basalt in the lower part, and dacitic flows and dacitic and rhyolitic pyroclastic rocks toward the top. Most of the Deloro Group is confined to a large domal structure in the east-central part of the area known as the Shaw Dome. Iron formation is common at or near the top of this group.

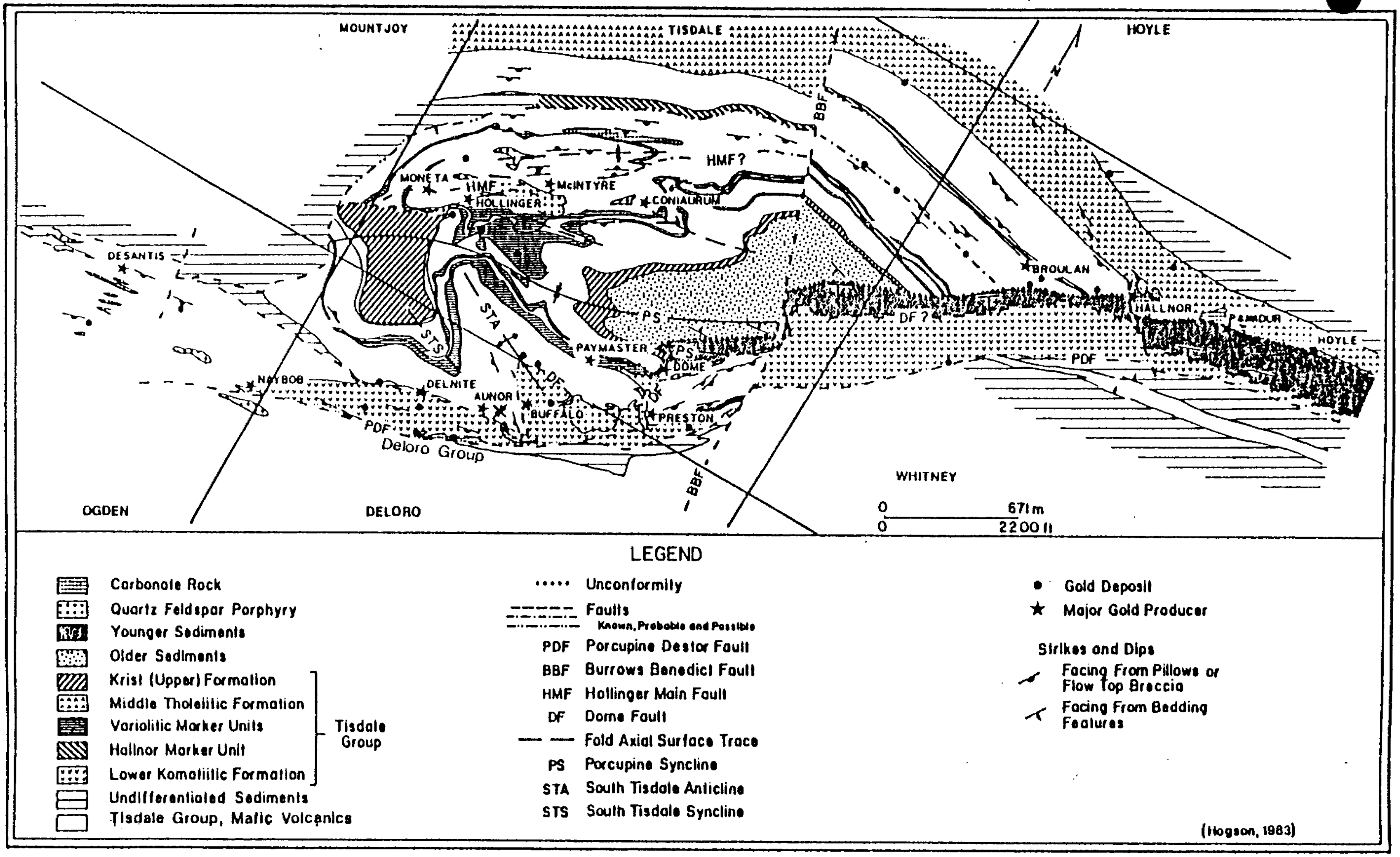


Figure 2: Porcupine Camp, generalized geology, gold deposits.

A major change in volcanism marks the beginning of the Tisdale Group. The basal formation consists largely of ultramafic volcanic rocks and basaltic komatiites. This in turn is overlain by a thick sequence of tholeiitic basalts. The uppermost formation is largely volcaniclastic and has a calc-alkaline dacite composition. The total thickness of the Tisdale Group is about 13,000 ft.

Metasediments, consisting dominantly of interlayered wacke, siltstone, and lesser conglomerate form part of what is mainly a turbidite sequence, the lower part of which is time equivalent to the upper part of the Deloro Group and the entirety of the Tisdale Group. This turbidite sequence, together with a thin sequence of overlying fluviatile sedimentary rocks is classified as the Porcupine Group. The total exposed thickness of the group is approximately 10,000 ft.

Large, generally sill-like bodies of medium-to coarse-grained dunite and lherzolite were emplaced almost entirely within the Deloro Group of metavolcanics. Conceivably, some of the sills may have acted as magma reservoirs, providing a source for some of the overlying ultramafic metavolcanics of the Tisdale Group. Differentiation has produced a narrow zone of pyroxenite and gabbro along the roofs of some of the sills.

Minor, small epizonal quartz-feldspar porphyry intrusions, probably of subvolcanic derivation, were intruded into the metavolcanics. Most of these intrusions occur within a restrictive stratigraphic interval, suggesting that they may in part represent extrusive rhyolitic domes.

Northeast-trending dykes of Middle and Late Precambrian age traverse the area. Many of the north-trending diabase dykes are probably of Early Precambrian age, although it is recognized that some are Middle to Late Precambrian in age.

3.1.2 Structure

A major regional structural fault/shear zone, the Porcupine-Destor Fault, trends east-northeast to northeast across the area, north of the Shaw Dome.

North of the Fault, two periods of folding can be discerned; an original north-trending series of folds which were subsequently refolded about an east-northeast axis. The main axis of the second period of deformation is delineated by the Porcupine Syncline in Tisdale Township which, in the northeastern part of the area, is coincident with the Porcupine-Destor Fault. It is suggested that the second period of folding was largely accomplished by shear folding, perhaps related to the development of the Porcupine-Destor Fault.

South of the Porcupine-Destor Fault, the Shaw Dome forms the main structural feature; the axis trends approximately east-west across the southern part of Shaw Township. It is not known if this domal structure is the result of the same superimposed folding which affected the rocks north of the Destor-Porcupine Fault although this would appear to be the case.

Both pre-and post-ore faulting has been identified in the region adjacent to the Allerston property. The three main sets of faulting are as follows:

(a) Pre-Ore

(i) N60°E to N70°E

These faults are commonly near-vertical with dips varying between 80°S and 80°N. Movement about these faults is generally minor with a horizontal component of, typically, only 50 ft (Price et al., 1948). They are probably relief thrust planes between the major zones of movement.

The Porcupine-Destor Fault has an identical trend.

(b) Post-Ore

These faults occur as a series of crosscutting faults in the Hallnor, Broulan and Pamour Mines (see Figure 2) to the north of the property, displacing the mineralized veins vertically and horizontally.

(i) Northwest

The horizontal displacement about the plane of these faults is always right-handed, varying from a few feet to in excess of 800 ft in the case of the Hallnor Fault (Price et al., 1948). The faults generally dip to the east

At the Pamour Mine these faults trend N40°W and dip from 40° to 70° to the northeast.

Diabase dykes at the Broulan Reef and Pamour mines have been emplaced in this set of faults.

(i) Northeast

Trends within this fault set range from northeast to almost north-south. Horizontal displacement is always in a left-lateral sense and varies from a few feet to 250 ft.

3.2 Property Geology

The property is underlain by Early Precambrian supracrustal rocks which have an average east-northeast to east strike.

The geology of the Allerston property is poorly understood as it is predominantly covered by overburden up to 200 ft in thickness. The geological interpretation prior to the current geophysical programme was derived from outcrop, limited drilling results and previous air-borne and ground geophysical surveys (Figure 3).

Units of metasedimentary and felsic volcanic rocks outcrop in the southern and eastern parts of the property. Talc-chlorite schist extends across the central part of the property and is interpreted to extend to the west and south. The schist appears to be a sheared, metamorphosed komatiitic volcanic rock, part of a regional unit which occurs along the Porcupine-Destor Break in the Timmins area.

Metasediments were interpreted in the northern part of the property. However, in his preliminary map of the northwest quarter of Whitney Township, Ferguson (1958) identifies granite in the same area in two drill holes immediately to the north of the property boundary. A search of assessment files and other records failed to reveal either the drill logs or any other subsequent reference to granite at this location (Simmons, 1987).

The Porcupine-Destor Fault zone traverses the property but its exact location is uncertain and is tentatively placed to the south of the talc-chlorite schist. The No. 1 Fault from the Broulan Mine is interpreted to extend southwards to the property (Roscoe, 1986).

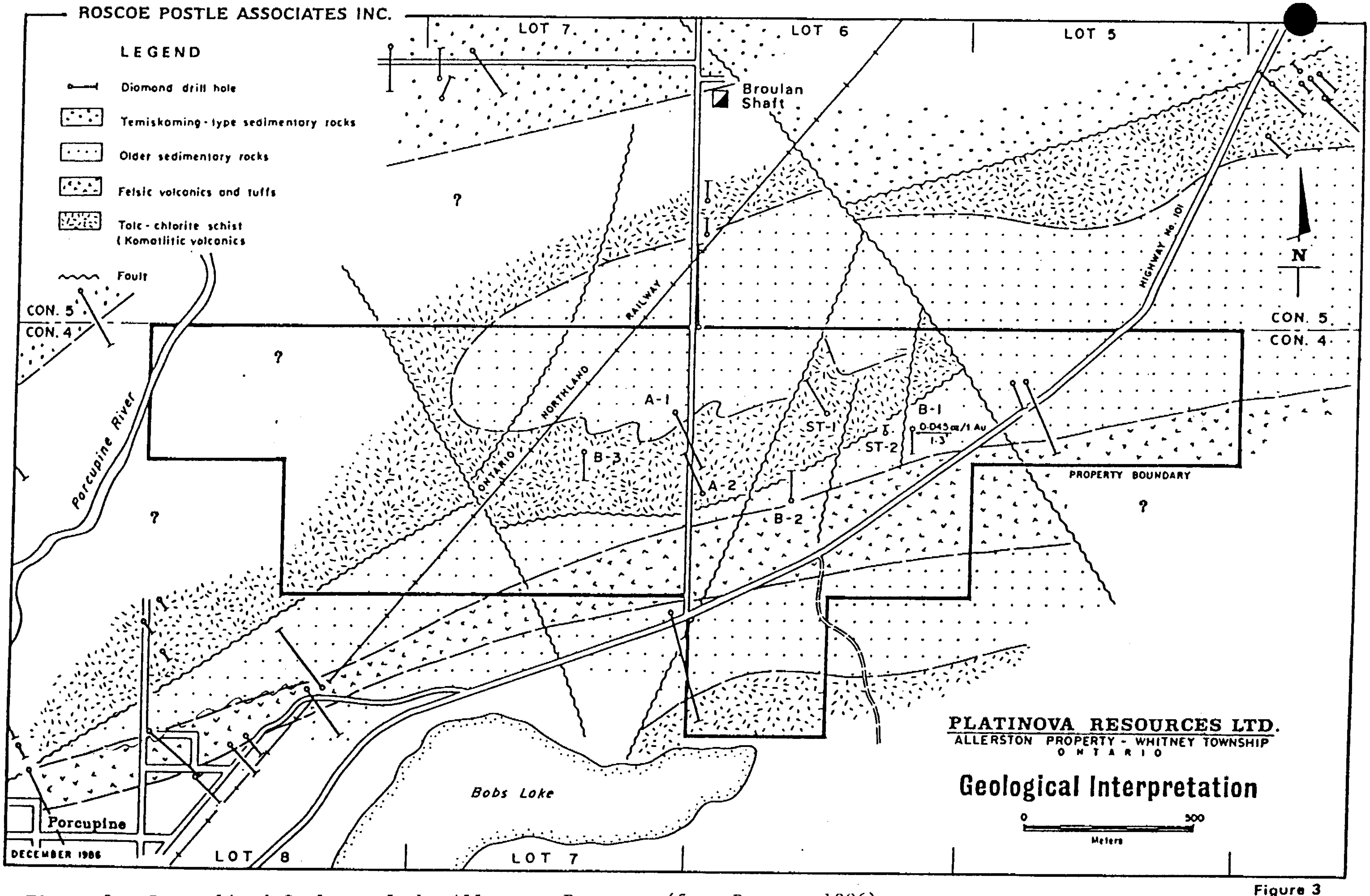


Figure 3: Generalized Geology of the Allerston Property (from Roscoe, 1986).

3.3 Economic Mineralization

3.3.1 Mineral Production

Mineral production from the Timmins area has almost exclusively centered around the gold mines. Virtually all of the production has been from quartz-carbonate veins in volcanics and sediments north of the Porcupine-Destor Fault (Figure 2). Most of the auriferous quartz veins tend to be along anticlinal axes and many are in close proximity to stocks of quartz-feldspar porphyry. To 1985, the camp has produced some 58 million ounces of gold, from some 37 mines, to rank Timmins as the largest gold mining camp in North America. The average grade of gold has been 0.254 oz per ton. Three mines, the Hollinger, McIntyre and Dome, have each produced in excess of 10 million ounces of gold.

Minor scheelite (445,502 lbs) was produced intermittently from a number of gold mines, particularly the Hollinger, between the period 1940-1953.

Copper production began at the McIntyre Mine in 1953, and to the end of 1973 approximately 7 million tons of ore had been milled to yield 75 million pounds of copper.

Nickel production began at the Langmuir Deposit in 1973. Mining operations ceased in 1977, and to the end of 1976, 1.1 million tons of ore had been milled averaging approximately 1.5% nickel.

3.3.2 Gold Veins, Mineralogy and Exploration Models

The gold deposits in the Timmins area nearly all occur in quartz ± carbonate veins which have a variety of shapes including continuous, tabular, well defined veins, to the more common configuration of a complex network of parallel or branching stringers which follow a number of structures. Many are highly sinuous and contorted and display pinch and swell structures.

In addition, very minor ore comes from irregular, pyritized and sericitized zones in the basalts. The pyrite is auriferous, forms 5 to 15% of the rock, and occurs as disseminated cubes from 1.0 to 6.0 mm in size.

Mineralogically, there are two main types of veins in the Timmins camp: quartz-ankerite and quartz-calcite veins Most production has come from the quartz-ankerite vein systems and it is mainly these veins which are associated with pyrite in the veins and in the adjoining wallrock. Quartz-calcite veins are most common outside the main gold-bearing zones. These contain relative little gold, and have little associated pyrite in the veins or wallrock. Other common accessories in the gold-bearing veins are sericite, tourmaline, albite, scheelite, galena, sphalerite, chalcopyrite, tellurides, and locally, fuchsite. Silver is alloyed with the gold, the average gold to silver ratio being approximately 5 to 1.

Most of the gold-bearing veins are within the lower part of the Tisdale Group in <u>komatiitic and tholeiitic volcanic rocks</u>[1] or are spatially related to them. These rocks exhibit intense carbonate and talc-carbonate alteration. Two other factors are of importance for the presence of economic gold mineralization:

(1) The term komatiite includes a distinct suite of ultramafic volcanics and magnesium basaltic rocks characterized by high CaO/Al_2O_3 ratios.

(i) Many of the gold deposits are in proximity to porphyry intrusions which may, in part, have provided a heat source for the mobilization of the gold from the ultramafics.

(ii) The intense deformation that the Tisdale Group rocks have undergone resulted in extensive fracturing thereby providing abundant dilatant zones to act as loci for the deposition of vein material (Hallnor and Pamour mines).

Prime exploration targets would therefore include areas containing ultramafic volcanic rocks which display one or more of the following features (Pyke, 1975).

(i) extensive carbonatization of the ultramafic rocks;
(ii) ultramafic volcanic rocks intruded by or in proximity to granitic stocks;
(iii) strong structural deformation.

Major stratigraphic or structurally controlled volcanic-sedimentary contact zones can be favourable (Pamour, Hallnor, Dome Mines).

Gold-bearing quartz stringers and veins occur in (synvolcanic?) quartz-feldspar porphyries with the porphyry being altered and pyritic in the gold zones (Preston East Dome Mine).

Elsewhere in the Abitibi, stratiform and stratabound gold deposits have been found in felsic volcanic sequences They are generally sulphide-rich units within tuffaceous to volcaniclastic volcanic sequences (Thompson-Bousquet, Doyon Agnico-Eagle Mines).

Gold occurs in east-west trending carbonatized mafic volcanics and graphitic tuffs in part stratabound and related to pyritic tuffs and pyritic carbonate zones (Bell Creek, Owl Creek and Hoyle Pond).

3.3.3 Economic Occurrences

The Asarco Aquarius and St. Andrew's Goldfield QSR deposits occur along altered (carbonatized) komatiitic volcanic stratigraphy parallel to the Porcupine-Destor Fault and subsidary fault zones.

The Hunter Mine, located to the south and west of the property on Porcupine Lake, appears to be located directly within the Porcupine-Destor Fault zone. The mine was operated between 1907 and 1940. Gold mineralization was intersected at depths of 700 ft.

The Pamour Mine, immediately to the north and east of the property, is related to the unconformable contact area between Tisdale Group volcanics to the north and sediments of the Porcupine sequence to the south. Gold mineralization occurs in:

(i) quartz-veins in strongly but variably carbonatized mafic volcanics of the Tisdale Group; and
(ii) conglomerates cut by quartz veins in the sedimentary sequence.

The numerous orebodies on the Pamour Mine property can be classified in two main types:

(i) Auriferous quartz veins in fractured and shattered zones predominate at the eastern extent of the Pamour property. The quartz veins and veinlets trend N20°E to N45°E, are 1 to 5 ft apart and 2 inches to 4 ft thick. Dips are 10° to 70° southeast. Individual orebodies are up to 600 ft long, 80 ft wide and 600 ft in vertical height.

(ii) Tabular veins trending N70°E predominate immediately to the north of the Allerston property. The veins have a high carbonate content. Dips are 80°S to 80°N. The orebodies are up to 1,500 ft long, 6 inches to 12 ft wide and 1,200 ft in vertical extent (Price et al., 1948).

At the Broulan Mine, north of the centre of the property, the ore is associated with quartz-carbonate veins with 2-3% sulphides. The dominant sulphide is pyrite with minor pyrrhotite, sphalerite, galena and chalcopyrite. Visible gold occurs. Individual ore shoots were 50 to 450 ft long and 3 to 120 ft wide. The sediments in and around the ore are bleached, carbonatized and pyritized (Backman, 1948).

3.4 Previous Work

The property was covered by a high resolution aeromagnetic survey as part of a Geological Survey of Canada project in the Timmins area in 1968/1969. An area of approximately 2,300 km^2 centered northwest of Timmins was flown with average flight line separations of 1,000 ft. East-west control lines were flown 8.5 km apart. The data is available from the GSC at a scale of 1:250,000 in Maps 20001G to 20018G. The data was further processed as part of a Ph.D. project and colour maps of the first vertical derivative and magnetic susceptibility were produced (Bambrick, 1984).

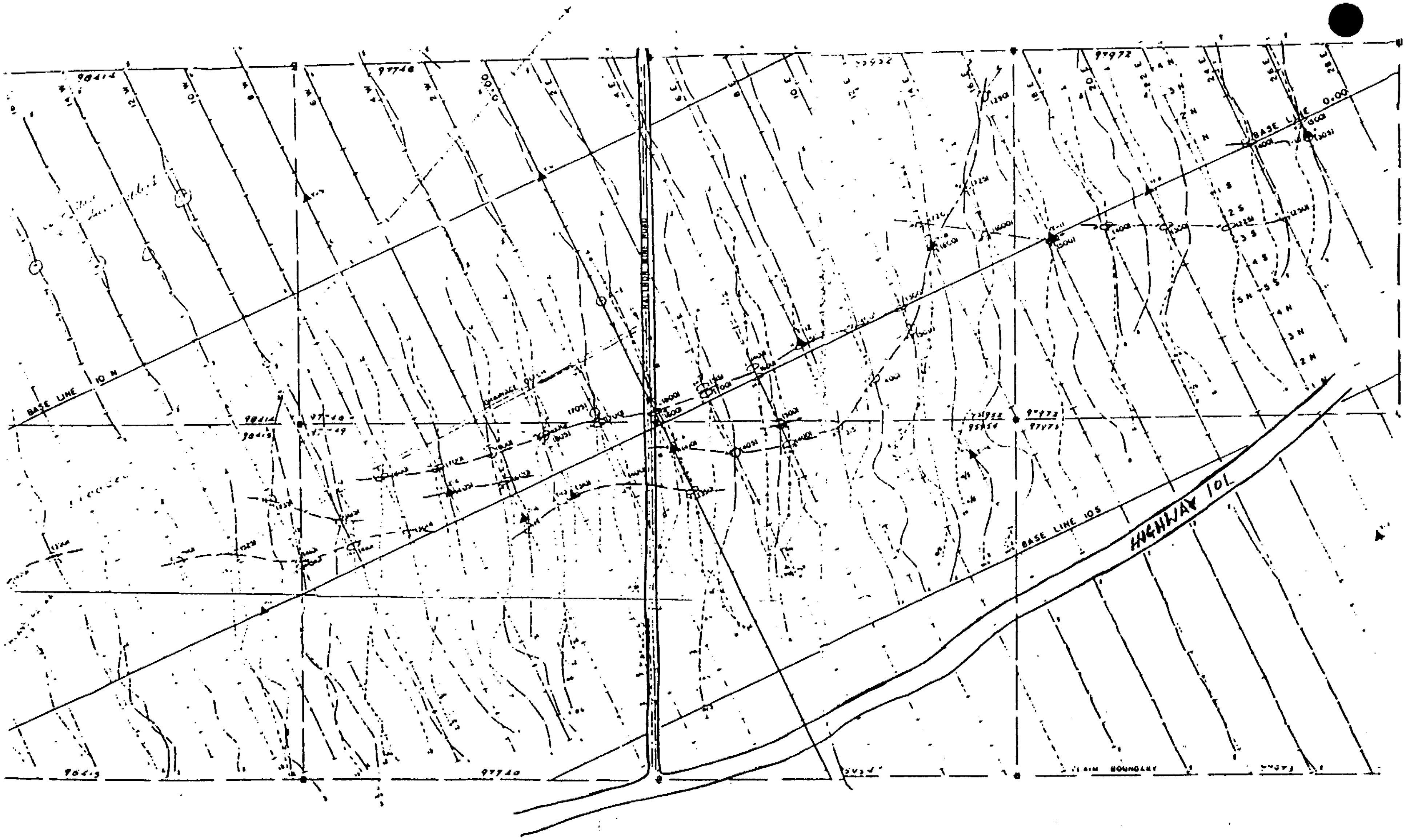


Figure 4: McPhar 5515 Vertical Loop Electromagnetic Results and Interpretation (Darke, 1969).

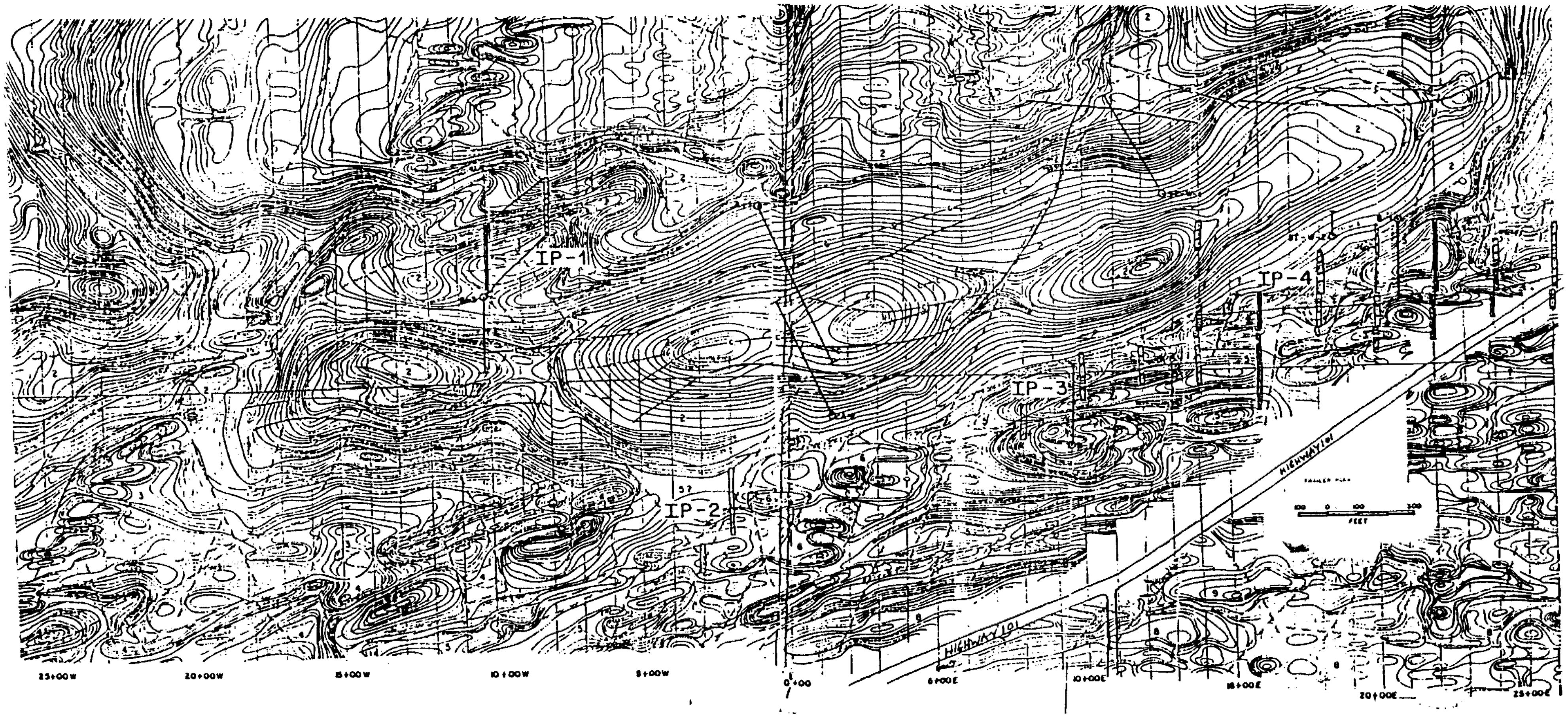


Figure 5: Total Field Magnetics and Induced Polarization Interpretation (from Barringer, 1974).

The southeastern sector of the property was flown during the course of subsequent detailed surveys by Dighem (Fraser, 1977) and Aerodat (Middleton, 1980).

Only the eight northern claims in Lots 6 and 7 have previously been covered by ground geophysical surveys. In 1969, Oro Mines Limited completed total field magnetometer and electromagnetic surveys on a grid with the baseline oriented at N65°E and crosslines at 200 ft intervals (Darke, 1969). A McPhar Model SS15 vertical loop unit was used for the electromagnetic survey with a transmitting frequency of 1000 Hz and transmitter-receiver separation of 600 ft (Figure 4).

In 1973, Summit Gold Mines Inc. completed detailed magnetometer and time domain induced polarization surveys on a grid with the baseline at N90°E and crosslines every 100 ft (Figure 5). A dipole-dipole array was employed with dipole spacings of 100 ft and 200 ft and dipole separations of n=1 and 2 (Barringer, 1974). Depths to the komatiitic units were estimated at 150-250 ft.

Three limited phases of drilling have been recorded. Approximate collar locations are indicated in Figure 3 and a summary of the results and inferred locations with respect to the current grid are presented in Table I. The best results were returned by hole B-1, drilled in 1973 to test IP anomaly IP-4, which intersected two 3 inch quartz veins assaying 0.045 oz/ton over 1.3 ft.

Two other drill holes are identified on the property by Ferguson (1958). Both holes are oriented to the southeast with hole L-1 collared at approximately 5+00S, 34+50E and hole L-2 at 5+00S, 33+00E. Hole L-2, with a horizontal projection of about 300 ft, reportedly intersected only sediments.

TABLE I

COMPILED DRILL RESULTS, ALLERSTON PROPERTY

Company	Hole	Year	Location	Target	Host Rock	Best Intersection
Oro Mines Limited	A-1	1969	8+00S, 1+00W	Vertical loop EM conductor + magnetics	Talc-chlorite altered + magnetite Serpentinized peridotite	
Oro Mines Limited	A-2	1969	16+00S, 1+80E	EM conductor + magnetics	Talc-chlorite altered + magnetite Serpentinized peridotite	
Summit Gold Mines Inc.	B-1	1973	10+40S, 22+00E	IP (IP-4)	Sediments + sericite-talc schist	Two 3" quartz veins 0.045 oz/ton Au over 1.3 ft at bedrock surface
Summit Gold Mines Inc.	B-2	1973	16+50S, 10+00E	IP (IP-3)	Sediments + sericite-talc schist	.005 oz/ton Au over 4.4 ft in aplite dyke + minor pyrite
Summit Gold Mines Inc.	B-3	1973	12+40S, 9+80W	Structure?	Talcose peridotite	
Shiningtree Gold Resources Inc.	ST-W-1	1982	8+00S, 13+40E	EM + structure?	Talc-chloritic peridotite	
Shiningtree Gold Resources Inc.	ST-W-2	1982	10+50S, 20+00E	Structure?	Metasediments	

Hole L-1 has a horizontal projection of 750 ft and is logged as having intersected first sediments then granite, a hundred foot section of carbonatization, more sediments and finally felsic volcanics. Ferguson (1958) indicates a granitic outcrop coincident with hole L-1 on the north side of Highway 101. Syngold geologists have mapped aplite (an igneous rock of granite affinities) at this approximate location (Simmons, 1987).

3.5 Current Work

The purpose of the present geophysical programme is to map the magnetic and polarizable units and produce a preliminary interpretive map of the property's structure and lithologies. The previous induced polarization results were to be checked and the surveying expanded to cover the whole property on both crosslines and tie-lines.

The results are to be used in targetting areas for further evaluation of the economic potential of the property.

4.0 SURVEY PARAMETERS

4.1 Linecutting

The linecutting of this property was managed by MPH Consulting Limited and was carried out by Burt Dallaire of Normetal, Quebec in May, 1987.

The survey grid is orientated with a baseline striking due east and located on the northern boundary of the property. Survey lines have been established north and south of the baseline with 100 ft intervals. Stations are picketed every 25 ft. In accordance with the agreement with Belmore Mines Limited the lines were extended 600 ft to the north onto the Broulan property and south to the southern property boundary.

Tie-lines were established at 400 ft intervals south of the baseline with stations picketed every 25 ft.

4.2 Magnetometer and Gradiometer Surveys

Approximately 82 km of total field and vertical gradient magnetic surveying was carried out on the property. Readings were taken every 25 ft along all north-south grid lines.

Some notes on total field and vertical gradient magnetic surveys are included in Appendix I.

An EDA OMNI IV gradiometer was used to measure total field and vertical gradient values. An EDA PPM 400 base station was employed to record and correct for diurnal variations. The specifications for this instrument are given in Appendix II.

4.3 Induced Polarization Surveys

Approximately 51 km of dipole-dipole IP surveying was carried out over the Allerston property.

The survey parameters used were a dipole spacing of 100 ft and dipole separations of 1 to 4 on all lines to the south of highway 101 and on lines 26+00E to the edge of the property at 52+00E. Elsewhere, a dipole separation of 200 ft was employed with dipole separations of 1 to 4 or 2 to 5 in areas of most extreme overburden cover: that is on all western lines. Ideally, a pole-dipole array should of been used for better penetration and convergence in a geologically and culturally noisy environment. However, as the area is highly developed this was not feasible and a dipole-dipole array had to be employed.

Readings were taken at 100 ft station intervals for both the 100 and 200 ft dipole arrays and the partial wave form was recorded on magnetic tape for each dipole separation. All even-numbered north-south cross-lines were surveyed as well as sections of tie-lines 4+00S to 24+00S.

Two Huntec Mk IV receivers and a 7.5 kw transmitter were used for the surveys. The settings used were:

Transmitter:	Current cycle	- 2 seconds on, 2 seconds off
Receiver:	Delay time	- 100 msecs
	Interval time	- 100 msecs
	Notch filter	- IN @ 60 Hz
	Low Pass filter	- IN

Before commencing the IP surveying in a production mode it was necessary to carry out tests for 1½ days for safety reasons as blasting with electrical caps was being carried out at the Pamour No. 1 and Broulan Mines.

Some notes on Induced Polarization are included in Appendix I.

The specifications for the Huntec system are given in Appendix II.

5.0 PERSONNEL

The following MPH personnel were involved with this project at various times:

D. Jones, P.Geoph	Senior Geophysical Consultant
S. Bate, M.Sc.	Senior Geophysicist
G. Rees-Evans, B.Sc.	Geophysicist
R MacFie, B.Sc.	Geophysicist
J. Foster	Senior Operator
W. Keeshig	Technician
R. Durant	Technician
J. Middleton	Technician

6.0 DATA PRESENTATION

6.1 Topographic Map (Map 1)

All significant topographic features as well as claim posts, location of drill holes and cultural features where noted are presented on a representation of the survey grid at a scale of 1:2,400.

6.2 Total Field Magnetics (Maps 2E, 2W, 3 and 4)

The corrected data is presented in contour form at a contouring interval of 25 nT. Those magnetic amplitudes recognized and confirmed as reflecting cultural sources such as the Ontario Northland Railway and powerlines were extracted from the dataset and the "filtered dataset was then contoured (Maps 2E and 2W). No attempt was made to bias the contouring.

Colour plots of the contoured magnetics have also been produced at scales of 1:2,400 (Map 3) and 1:4,800 (Map 4) These allow the interpretor to simultaneously relate relative magnetic amplitudes and trends.

Superimposed on the contoured data on Maps 2E and 2W is an interpretation of the significant magnetic features described in detail in Section 7.2. The magnetic contacts and subdomains are also identified on the induced polarization maps (Maps 8E and 8W).

6.3 Vertical Gradient Magnetics (Maps 5E and 5W)

The data is presented in contour form with solid lines for positive responses and dashed lines for negative (Maps 5E and 5W). No trending of the data has been undertaken. The contouring interval is semi-logarithmic to accomodate the large range in amplitudes recorded. As for the total field magnetics, data points reflecting known culture have been extracted from the contoured dataset. The postings, however, are the actual measured amplitudes.

The magnetic interpretation of this dataset is incorporated into interpretation superimposed on Maps 2E and 2W.

6.4 Additional Magnetic Processing (Maps 6 and 7)

Numerical processing of the dataset was carried out in an attempt to derive additional support for the structural interpretation.

First, the entire dataset was upward continued 300 ft so that the variations in overburden depths, which range from outcrop to in excess of 200 ft in the vicinity of 25+00W, had minimal effect on the amplitudes of the magnetic responses. This served to confirm the interpretation of the major structural features indicated on Maps 2E and 2W. The results of this processing have not been formally drafted but have been presented to Syngold Exploration Inc.

A section of the dataset from lines 6+00W to 44+00W where the overburden cover is thickest was then windowed-out. The dataset was downward continued in a line-by-line fashion. The downward continuation was not carried out for a gridded dataset due to the limited areal extent which would have given rise to synthetic "ringing" problems. "Ringing" is manifested by areas of sharply diminished effectively negative, magnetic amplitudes about a high magnetic susceptibility feature.

The desired effect of the downward continuation filtering is essentially to sharpen the magnetic responses to determine whether a measured magnetic response is due to one or more magnetic features and also to present a more distinct pattern for structural interpretation. Care must be taken not to downward continue too far as the process becomes unstable and the mathematics break down if an attempt is made to downward continue through the magnetic source.

The downward continuing process was therefore carried out in two stages. The dataset was first downward continued 100 ft and the interpreted results are as those presented in Map 6. The dataset was then continued a further 50 ft to 150 ft below surface and the interpreted results are shown on Map 7. As can be seen, the two interpretations are similar and downward continuing the magnetic dataset by 150 ft has not lead to any instabilities in the calculations which would be visible as "ringing"

Recognition of individual magnetic trends and the structural interpretation are very much easier in the dataset downward continued 150 ft.

The results of this additional data processing have been incorporated, in part, into the interpretation of the total field and vertical gradient magnetic datasets in Maps 2E and 2W.

6.5 Induced Polarization Surveys

(Pseudosections P-1 to P-67, Maps 8E and 8W)
The measured total chargeabilities and calculated apparent resistivities are presented in standard pseudosection form at scales of 1:2,400 and 1 1,200. The method of construction of these pseudosections is outlined in Appendix I. Where more than one dipole separation was used on the given line, the datasets were combined to form a composite pseudosection.

Due to the variation in depth and conductivity of the overburden encountered in the Allerston property, no plan map of the first separation total chargeability data was constructed. In the eastern third of the property anomalous features were typically seen at the first dipole separation. However, in the western half of the property anomalous responses were typically not recorded until the second or third dipole separation.

Equally, plan maps for data collected at larger dipole separations would not be adequate as:

(i) all the polarizable horizons are not first seen consistently at the same dipole separation; and

(ii) if one of the largest common dipole separations were chosen typical responses seen would be two highs with the polarizable body centered between the two peaks. This situation arises due to the classical pant-leg responses recorded by the survey technique (see Appendix I).

Given the low range in amplitudes recorded, it was felt that a Fraser Filter presentation of the datasets would not add to the interpretation process.

The interpreted resistivity and chargeability features have been portrayed on the pseudosections as well as on plan maps which have also been presented to Syngold in mylar form so that they can be overlayed on the magnetic and geological maps. The interpretation plan maps are at a scale of 1:2,400 (Maps 8E and 8W).

A single map of the resistivity, chargeability and magnetic interpretations has been photo-reduced to a scale of 1:4,800 to be used as a mylar overlay on the total field magnetic Applicon colour plot at the same scale. This map is identical to Maps 8E and 8W.

7.0 RESULTS AND INTERPRETATION

7.1 General Comments

This section has been subdivided to present a logical progression to the geophysical interpretation of the property.

The magnetic data is first discussed with brief reference to previous airborne results in the area to the south and east where the trend of magnetic units and structural interpretation is in question. The various IP anomalies are then described individually and rated as to quality. Throughout an attempt is made to draw overall conclusions from the results of both surveys.

Geological information derived from previous drilling and other exploration on the property and immediate area has been incorporated into the interpretation where possible. The locations of only two of the previous drill holes have been identified with any certainty so that it can only be indicated whether or not a polarizable or magnetic feature may have been intersected by given drill holes.

7.2 Magnetics: Total Field (Maps 2E, 2W, 3 and 4)

The corrected total field data present a complex structural picture which indicates the three main directions of faulting previously defined in the region: N60°E to N70°E, northeast and northwest.

The contouring interval has served to highlight the more subtle features without distorting the more readily identifiable responses. Conversely, the aeromagnetic data available from the southern and eastern portions of the property from both the Dighem and Aerodat surveys (Fraser, 1977 and Middleton, 1980) effectively integrated the results from small individual sources and suppressed weak, impersistent features and thus was useful in determining average regional strike directions and dominant lithologies. The magnetic susceptibility maps produced by James Bambrick (1984) from the high resolution airborne surveys of the CSG in 1968/69 were also useful for this purpose. The upward continuation of the total field magnetic dataset provided much closer ground control on this process and essentially gave the same results as a detailed airborne survey but for the property in entirety.

Although the detailed geological setting of the property is not well known, a general east-west to east-northeast lithologic trend is evident from the ground magnetic and other geophysical datasets.

The first step in the interpretation was to outline the causative bodies and classify them into three major categories:

(i) broad high susceptibility features;
(ii) broad medium to low susceptibility features; and
(iii) narrow, linear features.

Due to the high degree of cultural noise on the property (see Map 1) the interpretation of individual magnetic features is sometimes questionable.

In the southern and eastern sections of the property depths to the magnetic features are shallow to outcrop. In the central and western portions of the property, depths range up to in excess of 200 ft. Dips, where estimates can be made are generally near vertical.

Various faults and/or magnetic lineaments are discernible from truncation of and/or disruption to magnetic features or groups of features. These have had the effect of defining the property into a number of areas which subareas of similar magnetic character were determined.

The property has effectively been divided into two magnetic domains by a N60°E fault, labelled F_1, which extends from 24+00S, 13+00W to the baseline at line 53+00E. Fault F_1 is believed to reflect the Destor-Porcupine Fault for reasons which will be elaborated on in Section 7.4.

Magnetic Domain I lies to the north of fault F_1 and has been subdivided into six magnetic subdomains, labelled I_A to I_E.

Eleven faults/lineaments labelled F_3 to F_{13} are inferred from the magnetic dataset in domain I in conjunction with the resistivity and induced polarization data. Fault directions of east-northeast, northeast and northwest are interpreted. Local dislocation of individual magnetic subdomains occurs about several of these faults and will be discussed in Section 7 4.

Subdomain I_A located in the central portion of the property, some 600 ft north of fault F_1, is characterized by a linear, slightly podiform, magnetic expression with amplitudes of up to 1 300 nT above background. The general character of the subdomain is consistent with mafic to ultramafic volcanics such as the komatiite, altered to talc-chlorite intersected in drill holes A-1 and A-2 (see Table I).

Subdomain I_A is truncated to the east by northwest trending fault F_3 at approximately 22+00E. Fault F_3 is believed to be the southern extension of the No. 1 Fault from the Broulan and Hallnor mines and is confirmed in orientation and continuity by the results of Bambrick's (1984) magnetic susceptibility studies. The subdomain is bounded to the west by fault F_7 which trends slightly west of north in the vicinity of 34+00W. Elements of subdomain I_A may extend further west but exact continuity is difficult to determine from the ground magnetics and is open to several interpretations in the available airborne data.

The majority of subdomain I_A, from the total field and vertical gradient magnetic data appears to be reflecting a single lithologic magnetic horizon with outlying limited strike extent magnetic features. However, downward continuation of the dataset in the western half of the property reveals two subparallel linear magnetic horizons continuously associated with subdomain I_A. The northern horizon appears to be more highly magnetic than the unit to the south.

Subdomain I_A is crosscut by a number of faults with varying degrees of lateral displacement. Faults F_4 and F_8 at 9+00E and 8+00W, respectively, exhibit minimal lateral displacement about the plane of the fault. However, northwest trending faults F_5 and F_6 suggest right-handed displacements of elements of subdomain I_A in the order of 100 ft and several hundred feet at 8+00W and 19+00W respectively. Fault F_9 is a tentatively interpreted northeast trending fault at 18+00W which indicates right-lateral displacement of approximately 500 ft.

The bedrock structure appears to be more complex in the western half of the property and the downward continuation of the total field magnetics was extremely helpful in eliminating some possibilities and lending direct support to other interpretations. The most interesting faults interpreted are faults F_{10} and F_{13} which trend N70°E subparallel to the Destor-Porcupine Fault and, according to experience at the Broulan, Hallnor and Pamour mines immediately to the north are extremely favourable events for entrapment of ore mineralization. Fault F_{13} is interpreted to lie to the south of subdomain I_A to the west of 19+00W and to the north of the subdomain further east. It is possible that fault F_{13} does not extend further west than 19+00W and is actually displaced several hundred feet to the northwest about northwest trending fault F_5 where it continues interpreted as fault F_{10}.

Subdomain I_A adjoins elements of subdomains I_B and I_C to the north and south, respectively.

Subdomain I_B extends across the northern third of the property and exhibits a largely featureless background of 59,000 nT. The general character of subdomain I_B is consistent with sediments and/or felsic-to-intermediate volcanics either of which may underlie this sector of the property given the apparent confusion in the existence of a granitic stock or sediments at this point (see Section 3.2).

The southern extent of subdomain I_B is defined by fault F_{13} to the east of 19+00W where the subdomain I_B adjoins subdomains I_A and I_C to the south. West of line 19+00W subdomain I_B adjoins elements of subdomains I_A and I_E in a complex structural regime to the south. Subdomain I_D lies to the north of subdomain I_B in the western third of the property.

Subdomain I_B is traversed by several faults interpreted primarily from the higher amplitude magnetic responses and some induced polarization results. A number of these faults, F_9, F_{11} and F_{12}, are only tentatively interpreted to extend northwards within subdomain I_B.

Subdomain I_C extends across the central portion of the property and is located entirely between faults F_1 and F_{13} The width of subdomain I_C varies from approximately 200 ft at 6+00E to a maximum of 1,000 ft in the eastern third of the property.

Subdomain I_C exhibits a generally featureless background of 58,900 nT consistent with sediments and/or felsic-to-intermediate volcanics. Mapping of the extensive outcrop and results from the limited drilling indicate that sediments underlie majority of subdomain I_C.

Several moderate-to-high susceptibility features of limited strike extent are noted within subdomain I_C and are interpreted to reflect more intermediate or mafic volcanic units intruded or included within the sediments. One of these linear magnetic features is semi-coincident with IP anomaly L_2.

Subdomain I_C adjoins subdomains I_A and II_C to the north and south, respectively. Subdomain I_C is crosscut by a number of northwest and northeast trending faults interpreted primarily from the higher amplitude magnetics and induced polarization results.

Subdomain I_D is situated between lines 39+00W and 14+00W to the north of the baseline which marks the northern property boundary. The character of subdomain I_D is similar to that of subdomain I_A with amplitudes up to 1,200 nT above background noted. The total field and vertical gradient magnetics suggest a main magnetic lithologic unit with outlying limited strike extent magnetic features. The downward continued dataset, however, indicates two subparallel magnetic horizons of similar character and extent as those interpreted within subdomain I_A.

Subdomain I_D is therefore interpreted to reflect ultramafic volcanic rocks and/or possibly basaltic komatiites known to lie consistently near the base of the Tisdale Group.

Subdomain I_D is bounded to the west by faults F_5 and F_7 and to the east by northeast trending fault F_{11} which is only tentatively interpreted to extend to this point. Inspection of Bambrick's (1984) magnetic susceptibility map indicates that magnetic subdomain I_D is the northern expression of a linear highly magnetic feature extending to the southwest and including subdomain I_E.

Subdomain I_E contains some of the highest magnetic amplitudes wholly attributable to lithologic units recorded on the property. The general character of subdomain I_E is consistent with mafic to ultramafic intrusives with the multiple subparallel narrow magnetic horizons reflecting a similar pattern to that interpreted for the komatiitic units to the east. However, from the limited extent of the survey coverage it appears that there are four subparallel magnetic horizons as opposed to the two defined in subdomains I_A and I_D.

Subdomain I_E is bounded to the east by fault F_{12} but may extend further east where the magnetic responses may be reflecting elements of either subdomain I_A or I_E.

Subdomain I_E adjoins subdomain I_B to the north across a magnetic contact.

Subdomain I_F is tentatively interpreted between lines 17+00W and 4+00W in the vicinity of 10+00S. Two elements of the subdomain are interpreted lying immediately to the north of the komatiites underlying subdomain I_A. These moderate amplitude magnetic features of limited strike extent but definite continuity are interpreted within the sediments underlying subdomain I_B and may continue along strike to the northeast where isolated features are recorded. These magnetic features exhibit slight correlation with IP anomaly O_2 and are most clearly defined on the dataset which has been downward continued 150 ft.

Subdomain I_F may be reflecting intermediate to mafic volcanics within the sediments or inclusions of komatiites. Another possible interpretation is that the individual magnetic responses reflect variations in bedrock topography.

Magnetic domain II is located to the south of fault F_1 and has been subdivided into three magnetic subdomains labelled II_A to II_C. Faults F_3, F_4, F_5, F_6 and F_8 are interpreted to extend from magnetic domain I into domain II. Fault F_2 is located wholly within magnetic domain II.

Subdomain II_A is characterized by limited strike extent moderate-to-high susceptibility magnetic features of linear continuity along strike in a pattern typical of magnetic iron formation.

The widths of elements of subdomain II_A range from 200 ft to 500 ft. Subdomain II_A lies to the south of fault F_1 along its length across the entire property. Iron formation is known to be extensive along the top of the Deloro Group which typically, in the Timmins area, lies immediately to the south of the Destor-Porcupine Fault.

Elements of subdomain II_A exhibit slight dislocation about cross-cutting faults but no major dislocation, as observed in magnetic subdomain I_A, is noted.

Subdomain II_A adjoins magnetic subdomain I_C to the north across fault F_1 and subdomain II_B to the south across a magnetic contact.

Subdomain II_B exhibits the same general magnetic character noted in subdomains I_B and I_C to the north. The background amplitudes are approximately 58,600 nT. Subdomain II_B is therefore interpreted to reflect sediments and felsic volcanics, a scenario confirmed by examination of the extensive outcrop in the area and the limited drilling results. It is not possible to differentiate magnetically between the sediments and felsic volcanics.

Numerous limited strike extent moderate-to-high magnetic susceptibility features are noted within subdomain II_B and may reflect either elements of iron formation or intermediate-to-mafic volcanic intrusions.

Subdomain II_B adjoins subdomain II_C to the south across a magnetic contact.

Subdomain II_C lies within the southern half of the most southerly claim of the property and consists of several narrow highly magnetic features trending southwest. Total field magnetic amplitudes range up to 2,200 nT above background and the general character of the response is typical of mafic or ultramafic volcanics. Inspection of the various airborne magnetic datasets indicates that subdomain II_C reflects a small portion of a magnetic horizon extending east and west of the property in a west to west-southwest direction.

7.3 Magnetics: Vertical Gradient (Maps 5E, 5W)

The vertical gradient magnetics was extremely helpful in more accur ately determining structural features and trend continuity and in resolving possible multiple responses within given subdomains The dataset, however, was of limited use in the western third of the property where overburden depths are typically in the order of 200 ft. It was necessary to downward continue the total field magnetic data in this area in an attempt to derive as detailed information as from the measured datasets elsewhere on the property.

Fault F_1 is clearly indicated by the average background amplitudes being negative to the south of the fault and positive to the north. The two magnetic domains exhibit different vertical gradient magnetic backgrounds which suggests a distinct lithologic change (Bate, 1984).

A similar difference is noted to the east and west of faults F_5 and F_6 within domain I. Eastwards the values are typically negative where the sediments and/or felsic volcanics underlying subdomain I_B predominate and are generally positive to the west where elements of subdomain I_A are interpreted.

All features derived from the vertical gradient magnetics are incorporated into the interpretation superimposed on the total field magnetic maps (Maps 2E, 2W).

7.4 Structural Interpretation

A total of 13 faults, labelled F_1 to F_{13}, have been interpreted on the property as well as several other faults of questionable continuity which are supported by the magnetic datasets alone.

The faults can be subdivided into the three main fault directions of Section 3.1.2 as follows:

(i) N60°E to N70°E; faults F_1, F_{10} and F_{13}.
(ii) Northwest; faults F_2 to F_7 inclusive.
(iii) Northeast to North; faults F_8, F_9, F_{11} and F_{12}.

Fault F_1, which is located close to the southern property boundary and is semi-coincident with Highway 101, is believed to reflect the Destor-Porcupine Fault for the following reasons:

(i) The komatiites, interpreted to underlie subdomain I_A to the north of fault F_1, typically lie at the base of the Tisdale Group in the Timmins area.
(ii) Iron formation, such as that reflected by subdomain II_A to the south of fault F_1, is typically located at or near the top of the Deloro Group.

(iii) Tisdale Group lithologies are always situated to the north of the Porcupine-Destor Fault and Deloro Group lithologies to the south.

(iv) Inspection of the airborne magnetic data as processed by Bambrick (1984) supports this interpretation of the Destor-Porcupine Fault location.

(v) The vertical gradient magnetic results indicate a distinct lithologic change about fault F_1.

Faults F_{10} and F_{13} are subparallel and to the north of fault F_1 and may reflect either relief thrust plane faulting to the Destor-Porcupine Fault or indeed elements of the Fault itself which is known to be dislocated about crosscutting faults along its length.

All the northwest trending faults exhibit right-handed lateral dislocation of either several tens of feet or up to 500 ft. This consistent pattern of displacement is repeated to the north at the Hallnor, Broulan and Pamour mines with fault F_3 inferred to be the southward extension of the No. 1 Fault in the Broulan mine.

Fault F_4 is interpreted in this dataset as being northwest whereas in Barringer's report (1974) the fault is interpreted as having a northeasterly trend. The current interpretation is supported by the induced polarization results where right-handed lateral displacement of 300 ft is noted between IP anomalies O_1 and O_2 about the plane of fault F_4.

Fault F_7 trends slightly west of north separating elements of subdomain I_A from those of subdomains I_A or I_E to the west in the vicinity of 33+00W. This fault is also supported by the presence of a semi-coincident creek and the known occurence of similar trending faulting to the west of the property.

The interpretation and inferred extent of the northeast trending faulting is less conclusive than that for the northwest trending faults with only F_{11} exhibiting left-lateral displacement in the manner typically recorded in the Broulan and Pamour mines. No northeast trending faulting has been interpreted within magnetic domain II, possibly due to the limited extent of the domain within the southern sector of the property.

The underlying structure is undoubtedly more complex than currently inferred by the various datasets and further data processing. No attempt has been made to further interpret the faulting in the area but this might be considered when some ground truth is available from any subsequent drill programmes.

There is very little evidence of major folding on the property with the apparent close fold interpreted in the region of 10+00W and 8+00W by Roscoe (1986) now interpreted as being due to dislocation of similar lithologic units about the complex pattern of the cross-faulting.

7.5 Resistivity Survey

Apparent resistivity amplitudes vary from 1 to 1,800 ohm-m with the majority of the calculated amplitudes ranging from 30 to 500 ohm-m. Penetration to bedrock is generally achieved by the second dipole separation in the eastern and southern portions of the property but to the north and west the pseudosections generally exhibit a layered effect typical of a conductive overburden response. In these areas the conductivity encountered, coupled with the depth of the overburden, has effectively masked and to some extent distorted the bedrock responses measured. Where possible, general estimates of the intrinsic resistivities have been made within ranges specified on the pseudosections and these may be used as a qualitive comparison between anomalous responses.

Low resistivity features which are of interest when coincident with, or related to, polarizable horizons cannot be positively interpreted on the majority of the apparent resistivity sections on the western half of the property for the following reasons:

(i) the dipole spacing of 200 ft is in all probability large with respect to the width of bedrock features anticipated to give rise to discrete low resistivity responses;

(ii) it is quite possible that the bedrock features of interest in an exploration context have too close an intrinsic resistivity with the respect to that of the host rock, especially within the sediments in the northern half of the property, for any contrast to be recorded, given point (i) and the conductivity and depth of overburden occurring on these sectors of the property;

(iii) the low range in apparent resistivity amplitudes recorded on a number of the sections result in very broad indefinite responses for which no positive interpretation can be made when points (i) and (ii) are taken into account.

It has, however, been possible to identify twelve (12) discrete low-to-moderate resistivity responses of strike extent varying from single line responses to horizons in excess of 1,700 ft. The 12 zones are labelled a through l and are described individually below

Zone a, located wholly within magnetic subdomain II_A immediately to the south of fault F_1, extends from 2+50S on line 52+00E to 8+00S on line 38+00E. The zone is open to both the east and west but is tentatively interpreted to be bounded to the west by a north west trending fault interpreted solely from the magnetics. The zone is narrow, generally at or near-surface, with estimated intrinsic resistivities ranging from less than 50 ohm-m up to 100 ohm-m.

Zone a is semi-coincident with IP anomaly A and the lower estimated intrinsic resistivity features generally correlate with the responses with higher chargeability amplitudes. Zone a is also coincident with the linear trend of isolated magnetic features composing subdomain II_A. Zone a is therefore interpreted to reflect sulphide mineralization associated with iron formation.

The zone correlates with airborne electromagnetic anomaly 17 as interpreted by Fraser (1977) which extends 2 km to the east of the Syngold property where it is believed to have been explored by other companies.

Zone a is also interpreted on tie-lines 4+00S and 8+00S coincident with and correlating to the zone as interpreted on the cross lines. On 4+00S the zone is discrete, near-surface and of intrinsic resistivity less than 50 ohm-m. On line 8+00S, two moderately low resistivity responses are recorded at 40+00E and 38+00E. These correlate with two polarizable features interpreted as reflecting anomaly A and also correlate with anomalous features on cross lines 38+00E and 40+00E where a change in trend of anomaly A is noted.

Zone b is a discrete, narrow, near-surface feature located within elements of subdomain II_A some 300 to 600 ft south of and subparallel to, zone a. Zone b is generally coincident with charge ability anomaly B, except on line 42+00E where zone b is interpreted to be displaced 100 ft north of anomaly B. At this location, zone b is interpreted to be crosscut by northwest trending fault F_2 a fact which may explain the apparent dislocation.

Apparent resistivity amplitudes are generally much lower for zone b than for zone a, typically ranging from 1 to 50 ohm-m but the response is similarly discrete and narrow. Zone b, therefore, reflects a highly conductive bedrock feature, possibly graphite, though given its semi-coincidence with chargeability anomaly B and individual magnetic features within subdomain II_A magnetic sulphide mineral ization is also interpreted.

Surveying of the tie-lines confirmed the interpretation of zone b at 8+00S and indicates a possible extension of zone b to 33+00E at 12+00S.

Zone c is located at approximately 14+00S on lines 14+00E and 16+00E within the magnetic subdomain I_C. The response is only partially surveyed on both lines but indicates a discrete, narrow, near-surface source of moderate conductivity. There are no distinct polarizable or magnetic features associated with this low resistivity zone which is located wholly within the sediments inferred to underlie subdomain I_C. Zone c may be reflecting a zone of weakness or shearing within the sediments related to the Destor-Porcupine Fault.

Zone d is tentatively interpreted at 17+00S on line 8+00E and at 19+00S on line 4+00E. The response on line 8+00E is not distinct but a near-surface moderately low resistivity feature is indicated semi-coincident with a polarizable feature labelled anomaly D_1. The response on line 4+00E is very much more distinct with a moderate intrinsic resistivity interpreted on the southern flank of chargeability anomaly D_1. Horizon d is open to the west where it was not surveyed due to the proximity of Highway 101 and industrial development.

Zone d, although identified on only two lines, is semi-coincident with fault F_1 and lies within both subdomains I_C and II_A. The zone is semi-coincident with polarizable features which extend east and west in an area considered extremely favourable for sulphide and/or gold mineralization. Zone d is interpreted to reflect fault F_1, the Destor-Porcupine Fault.

Zone e is interpreted at 30+00S on line 12+00E only but may extend eastwards where subsequent lines have not been surveyed due to the proximity of the property boundary. The zone is interpreted to be at a depth of 50 ft below surface with an intrinsic resistivity in the range of 50 to 100 ohm-m. The zone lies on the southern flank of chargeability anomaly H which has the strongest polarizable response on this line.

Zone e is semi-coincident with a narrow highly magnetic linear feature within subdomain II_C at the contact of subdomain II_C with the felsic volcanics underlying subdomain II_B to the north. The resistivity response does not continue to the west where a similar magnetic and chargeability scenario occurs so that zone e is therefore interpreted to reflect locally higher metallic mineral content.

Zone f is a one line response interpreted at 9+00W on tie-line 24+00S. The response is narrow, discrete and of moderate intrinsic resistivity being coincident with a moderately polarizable feature labelled anomaly F_2. The zone lies at the southern contact of subdomain II_A with subdomain II_B to the south.

Zone f is interpreted to reflect a slight increase in magnetic sulphide mineralization and/or a weak shear zone as it is semi-coincident with tentatively interpreted fault F [illegible] and/or gold mineralization. Zone d is interpreted to reflect fault F_1, the Destor-Porcupine Fault.

Zone e is interpreted at 30+00S on line 12+00E only but may extend eastwards where subsequent lines have not been surveyed due to the proximity of the property boundary. The zone is interpreted to be at a depth of 50 ft below surface with an intrinsic resistivity in the range of 50 to 100 ohm-m. The zone lies on the southern flank of chargeability anomaly H which has the strongest polarizable response on this line.

Zone e is semi-coincident with a narrow highly magnetic linear feature within subdomain II_C at the contact of subdomain II_C with the felsic volcanics underlying subdomain II_B to the north. The resistivity response does not continue to the west where a similar magnetic and chargeability scenario occurs so that zone e is therefore interpreted to reflect locally higher metallic mineral content.

Zone f is a one line response interpreted at 9+00W on tie-line 24+00S. The response is narrow, discrete and of moderate intrinsic resistivity being coincident with a moderately polarizable feature labelled anomaly F_2. The zone lies at the southern contact of subdomain II_A with subdomain II_B to the south.

Zone f is interpreted to reflect a slight increase in magnetic sulphide mineralization and/or a weak shear zone as it is semi-coincident with tentatively interpreted fault F_8.

Zone g is a very distinct low resistivity response extending from 29+00S on line 2+00E to 35+50S on line 10+00E. This highly conductive resistivity feature is wholly coincident with a powerline indicated on topographic map (Map 1) and is a typical powerline response and of no further interest in an exploration context.

Zone h is interpreted at approximately 16+00S on lines 0+00 to 4+00E. Zone h is best defined on line 2+00E where a distinct, near-surface, narrow, low resistivity feature is interpreted. The response on line 4+00E is less definitive but indicates a similar causal source. The response on line 0+00E is only partially surveyed and the axial location of zone h is questionable.

On tie-line 16+00S, zone h is interpreted at 1+50W as a narrow, moderately resistive feature at a depth of 50 ft below surface. The response at this point is contaminated by the response of a power-line on the Hallnor Mine road.

Zone h, if indeed a valid bedrock feature, lies wholly within magnetic subdomain I_A being semi-coincident with individual magnetic features near the southern boundary of the subdomain. This zone does not appear to have been tested by drill holes A-1 and A-2.

Zone i trends west-northwest from 17+50S on line 2+00W to line 10+00W. The zone is semi-coincident with fault F_6 which is interpreted from both the magnetics and induced polarization results. The response is best defined on lines 2+00W to 6+00W where a narrow, near-surface, moderately low resistivity response is interpreted. The responses on lines further west are less well defined due to increasing overburden cover but a moderately resistive zone of 100 ft width or less is interpreted.

A possible chargeability association is tentatively interpreted on tie-line 16+00S as anomaly N. No coincident resistivity feature could be interpreted at this point. Zone i is not confined to one magnetic subdomain, being interpreted in subdomains I_A, I_B and I_C. The unifying factor is fault F_6 which zone i is believed to be reflecting. Drill hole B-3 may have extended far enough south to have intersected the causal source of zone i. However, the drill log is very short in length with no mention of any sulphide mineralization or structural events in the core (McCannell, 1974).

Zone j is interpreted at 17+00S on line 12+00W only. The response character is not well defined but a near-surface, narrow, moderately resistive feature is identified with no correlating polarizable response. Zone j is located wholly within subdomain I_A and is semi-coincident with crosscutting fault F_5. Zone j has not been tested by drilling and is believed to reflect a zone of weakness possibly shearing.

Zone k is tentatively interpreted at 16+00S on line 16+00W. The magnetic and structural setting of zone k are similar to that of zone j and the interpretation is identical.

Zone l is identified on tie-line 12+00S at 43+00W where a moderately low resistivity response is recorded. Located within subdomain I_E, inferred to reflect mafic or ultramafic volcanics, zone l exhibits no correlating magnetic or polarizable features but may be reflecting crosscutting structural features; namely fault F_{12}.

7.6 Induced Polarization Survey

A total of 26 polarizable zones, labelled A through Z have been identified. Individual zones are observed to vary in quality, overall width and continuity along strike. Ten of the anomalies have been further subdivided either to aid the interpretation or for ease of reference where the anomaly is of considerable strike extent. The anomalies in question are C, D, F, L, M, O, P, Q, U and W.

A number of near-surface anomalies interpreted to reflect polarizable material in the overburden rather than bedrock features have not been labelled but merely indicated on the pseudosections and plan maps to provide a full interpretation of the dataset.

Estimates of the intrinsic chargeability have been made within the ranges of 5 to 10 10 to 15, 15 to 25 and over 25 msecs as identified on the pseudosections. These estimates are the product of a subjective interpretation of the dataset and present a qualitative comparison between anomalous responses. The majority of responses have total chargeability amplitudes only twice background which is generally less than 2 msecs. Amplitudes do, however, range up to 60 msecs in the southeastern sector of the property.

It should be noted that when interpreting the axial location of the anomalous source it is only possible to locate it with an accuracy of one-half a dipole separation. All anomalous locations should therefore be taken as being the central point of the indicated zone ± one-half a dipole separation, in this case either 50 or 100 ft.

Due to the low amplitudes generally recorded and the problems ocasionally encountered in obtaining representative decays the total chargeability has been chosen for the pseudosection plots rather than a late time chargeability window which would be free of any EM coupling and therefore wholly representative of a polarizable source (see Appendix I).

Anomaly A extends from 2+00S on line 52+00E, the eastern property boundary, to 8+00S on line 36+00E. The anomalous horizon appears to be open to both the east and west. Anomaly amplitudes are high, being in the range of 18 to 60 msecs, and the responses are narrow, well defined and of good character. The continuation of the anomaly amplitudes to the larger dipole separations indicates that polarizable material is continuous to depth.

Anomaly A is generally interpreted as a highly polarizable feature near or at surface except on lines 50+00E and 52+00E where the main portion of the polarizable source is at a depth of 50 ft or less below surface.

Anomaly A lies immediately to the south of fault F_1 which is believed to reflect the Destor-Porcupine Fault. The polarizable horizon is also coincident with lower resistivity zone a and the magnetic features within subdomain II_A which are known to reflect iron formation (Simmons, 1987).

Anomaly A is therefore interpreted to reflect magnetic and/or non-magnetic sulphide mineralization associated with iron formation in the sediments and/or felsic volcanics underlying subdomain II_A. The polarizable horizon is crosscut by northwest trending fault F_2 near 11+00E where a slight right-lateral dislocation is noted in both anomaly A and anomaly B immediately to the south.

No drilling of the anomaly is recorded although drill hole L-1, if located accurately on the topography map, would have intersected any westward extension of anomaly A in the vicinity of 35+00E. No records for drill hole L-1 are apparently available (Simmons, 1987) but Ferguson (1958) indicates a carbonatized zone was intersected along strike from anomaly A. Carbonatization and structural deformation in the vicinity of ultramafic intrusive are two prerequisites for the presence of gold mineralization in the Timmins area (Section 3.3.2).

Anomaly B is located some 300 to 600 ft south of and subparallel to anomaly A. Anomaly B extends from the eastern property boundary at 52+00E to 38+00E where it is open to the west. The horizon may extend to 33+00E and 35+00E on tie-line 12+00S.

Anomaly amplitudes and the general response character are similar to those recorded for anomaly A. Anomaly B is a highly polarizable source at or near surface except on lines 50+00E and 52+00E where the main body of the source is interpreted to be approximately 25 ft below surface.

Anomaly B lies wholly within elements of subdomain II_A which are inferred to reflect iron formation within sediments and/or felsic volcanics. Anomaly B is semi-coincident with resistivity zone b. The general relationship between the polarizable, low resistivity and magnetic horizons indicates a greater degree of structural complexity than immediately apparent to the north in anomaly A. The northwest trending fault F_2 is interpreted primarily from the magnetics and the setting of anomaly B and zone b.

The presence of anomaly B was confirmed by surveying on tie-lines 8+00S and on 12+00S where anomaly B is interpreted to occur at 34+50E and 32+50E. The polarizable source at 32+50E may also be a western extension of anomaly A.

Anomaly B is interpreted to reflect magnetic and/or non-magnetic sulphide mineralization associated with iron formation. No drilling of this zone is recorded.

Anomaly C, recorded only on tie-line 12+00S, lies within the sediments and/or felsic volcanics inferred to underlie magnetic subdomain II_B. Anomaly C reflects an area of elevated chargeability amplitudes in the order of 5 msecs within which two discrete higher polarizable features are noted, namely anomaly C_1 at 40+50E and anomaly C_2 at 47+50E. The latter feature is open to the east.

The chargeability amplitudes of these features are generally in the order of 10 msecs and the responses indicate thin near-surface bedrock features which extend to depth. There are no correlating resistivity responses. At this point, anomalies C_1 and C_2 are interpreted to reflect non-magnetic sulphide mineralization. No drilling of these zones is recorded.

Anomaly D has been subdivided into five components all of which are semi-coincident with fault F_1 which is inferred to reflect the Destor-Porcupine Fault. Anomaly D has been identified on lines 20+00E to 20+00W and is open to both the east and west.

Anomaly D_1 is interpreted on lines 20+00E to 2+00E being only partially surveyed on the easternmost lines due to the proximity of Highway 101. Line 12+00E was not surveyed due to the location of the Norex Drilling Company. The highest total chargeability amplitudes are recorded on line 18+00E where they are in the order of 17 msecs. Although only partially surveyed on line 20+00E, the general response character and the recording of a chargeability amplitude of 12 msecs suggest a polarizable feature equally strong as that on line 18+00E. Further to the west, the response of anomaly D_1 is observed to vary with total chargeability amplitudes ranging from less than 1 msec to in excess 8 msecs.

The anomalous responses indicate a narrow, near-surface, polarizable source. The responses display the classic low to negative chargeability amplitudes on either flank, where measured, indicating a bonafide bedrock source.

Low to moderate resistivity zone d is semi-coincident with anomaly D_1 on lines 8+00E and 4+00E.

Anomaly D_1, being semi-coincident with fault F_1, is situated in both subdomains I_C and II_A which are inferred to reflect sediments and/or felsic volcanics and iron formation respectively. Anomaly B_1 is interpreted to reflect sulphide mineralization associated with fault F_1.

Anomaly D_1 is also identified from the results on tie-line 16+00S where a broadly elevated background is interpreted from 8+00E to at least 18+00E because of the low intersection angle between the survey line and the anomalous horizon. Two distinct polarizable features are identified. One is located at 11+50E with total chargeability amplitudes up to 6 msecs and the other at 17+00E with amplitudes in excess of 20 msecs first recorded at the second dipole and larger separations. The results on line 16+00S confirmed those interpreted from the corresponding cross lines.

Anomaly D_1 is semi-coincident with IP anomaly IP-3 as identified by Barringer (1974). However, the location of anomaly D_1 suggests that drill hole B-2 would not have intersected this polarizable feature. Drill hole B-2, the exact location of which is unknown, intersected a 5 ft wide fine grained aplite dyke with minor pyrite which assayed .005 oz/ton of gold over 4.4 ft (McCannell, 1974).

Further investigation is recommended particularly on those lines where the polarizable material content appears strongest; that is, on lines 20+00E, 18+00E and 10+00E to 6+00E.

Anomaly D_2 is interpreted on lines 4+00W to 8+00W and is bounded to the east and west by northwest trending faults F_6 and F_5, respectively. The responses are only partially defined on all lines due to the proximity of Highway 101 with the polarizable source being interpreted in the vicinity of 20+00S. The responses on all trace lines have low to negative amplitudes on the north shoulder of the response which, as far as can be determined, suggests the classic response for a thin, near vertical body. Total chargeability amplitudes are about 4 msecs. The polarizable source is at a depth of 50 ft on lines 8+00W and 6+00W.

Surveying along tie-line 20+00S indicates a broad polarizable region from 9+00W to 5+00W of similar amplitude and response character. The anomalous response is broad due to the low intersection angle between tie-line 20+00S and the polarizable horizon.

The anomaly is located within magnetic subdomains I_C and II_A about fault F_1 and exhibits no continuous magnetic correlation. Anomaly D_2 is interpreted to reflect magnetic and/or non-magnetic sulphide mineralization associated with a fault/shear zone between sediments to the north and iron formation to the south. No drilling of this zone is recorded although outcrop is noted in the area.

Anomaly D_3 is identified on lines 10+00W and 12+00W and extends to 14+00W on tie-line 24+00S where it is open to the southwest. Classic responses are recorded on all lines with chargeability amplitudes up to 3 msecs indicating a weakly polarizable source.

The magnetic setting and interpretation of anomaly D_3 is identical to that for anomaly D_2.

Anomaly D_4 is identified only at the western extent of tie-line 24+00S at approximately 20+00W. The response is only partially defined but total chargeability amplitudes of up to 14 msecs are recorded, indicating a moderate-to-strong bedrock polarizable source.

Although the magnetic survey is limited at this point due to the proximity of the southern property boundary, it appears that anomaly D_4 is located at a possible continuation of fault F_1 whereby the interpretation of anomaly D_4 is identical to that of anomaly D_2. No drilling of this anomaly is recorded.

Anomaly E is a one-line response recorded at 30+00E on tie-line 12+00S. Situated in magnetic subdomain II_A, inferred to reflect iron formation to the south of the Destor-Porcupine Fault, anomaly E is only partially surveyed due to the proximity of Highway 101. However, the response character is good and chargeability amplitudes up to 9 msecs indicate a moderately polarizable bedrock source.

Anomaly E is located east of the northwest trending fault F_3 which is interpreted to truncate the komatiites underlying subdomain I_A immediately to the northwest. Anomaly E may be related either to anomalies A and B or anomaly D as north-south cross lines could not be surveyed at this point due to the location of Highway 101. No drilling of this zone is recorded and no further information is available.

Anomaly F_1 is a partially defined response identified at approximately 20+00S on lines 6+00E and 4+00E. Complete southward coverage of the anomalous responses was restricted by the presence of Highway 101. The responses recorded are partially reflecting a powerline on the north side of Highway 101, especially on line 4+00E.

Anomaly F_1 is located within magnetic subdomain II_B near its northern boundary in contact with subdomain II_A. If indeed reflecting a bona fide bedrock polarizable source, anomaly F_1 is interpreted to reflect sulphide mineralization within sediments or felsic volcanics which may be associated with iron formation. No drilling of this anomaly is recorded.

Anomaly F_2 is interpreted at 9+00W on tie-line 24+00S as a moderately polarizable bedrock feature at a depth of 100 ft below surface.

Exhibiting a similar magnetic setting to anomaly F_1, the interpretation of anomaly F_2 is identical.

Anomaly G is interpreted on line 24+00E at approximately 19+50S. Only three dipole stations have been recorded due to the proximity of Highway 101 to the north and the southern property boundary. The area displays an elevated chargeability response and higher apparent resistivity amplitudes due to shallow overburden and partial outcrop. The response of anomaly G is only partially defined and may be wholly reflecting changes in the apparent resistivity. However, on line 22+00E the chargeability amplitudes do not wholly correlate with the variations in resistivity amplitudes and the partially defined response designated anomaly G may indeed reflect a bonafide bedrock polarizable feature. Trenching recorded in the area lends support to the interpretation.

Anomaly G is located within magnetic subdomain II_B on the southern flank of a broad highly susceptible magnetic feature which may be reflecting iron formation and/or mafic volcanics. Anomaly G is interpreted to reflect magnetic and/or non-magnetic sulphide mineralization within sediments and/or felsic volcanics. No drilling of this zone is recorded.

Anomaly H is located within and near or at the southern extent of magnetic subdomain II_B where it is in contact with the ultramafics inferred to underlie subdomain II_C.

Anomaly H is interpreted as extending from 29+00S on line 12+00E to 31+50S on line 2+00E and is open both to the east and west. No response is interpretable on line 4+00E where any anomalous feature is totally masked by the response of a powerline as defined by anomaly J.

The response character of anomaly H on all lines is extremely good, reflecting a classic response for a thin, near-vertical bedrock source extending to depth. The polarizable feature is interpreted to be near-surface on line 6+00E but between 25 to 40 ft below surface on all other lines. Low to moderate polarizable features are interpreted on all lines with the largest total chargeability amplitudes of 11 msecs being recorded on line 12+00E.

Anomaly H exhibits no continuous coincident magnetic association other than following the trend of the ultramafics to the south. Anomaly H is interpreted to reflect sulphide mineralization within sediments and/or felsic volcanics. The causal source of anomaly H may have been intersected near line 2+00E by a drill hole collared outside the property (see Figure 3) the records for which, if available, should be searched for in the assessment file.

Anomaly I is interpreted on line 2+00E only at 36+00S. The response is only partially observed due to the proximity of the southern property. The character of the total chargeability sections on lines 4+00E and 6+00E suggest that anomaly I may extend to these lines but no definite interpretation can be made.

Anomaly I is interpreted as a weakly polarizable bedrock source at a depth of 25 ft below surface. It is located within magnetic subdomain II_C on the north flank of a highly susceptible southwest trending narrow magnetic feature.

If subdomain II_C contains sediments and/or felsic volcanics as well as narrow ultramafic features, than anomaly I may be reflecting a similar geological scenario to anomaly H some 500 ft to the north. Anomaly I if indeed a bonafide bedrock source, is interpreted to reflect sulphide mineralization. No drilling of this zone is recorded.

Anomaly J extends from 37+50S on line 12+00E to 29+50S on line 2+00E and exhibits the classic response of a grounded fence. Indeed anomaly J correlates with a powerline traversing this sector of the property and this response is not considered of any further interest in an exploration context.

Anomaly K is interpreted at 42+50E on tie-line 4+00S only. Identified first at the second dipole separation the response character is fair with total chargeability amplitudes up to 3 msecs being recorded indicating a narrow, weakly polarizable bedrock source at a depth of 50 ft below surface. No resistivity correlation is noted.

Anomaly K is located within the sediments and/or felsic volcanics inferred to underlie subdomain I_C, immediately to the north of fault F_1.

Anomaly K is interpreted to reflect non-magnetic sulphide mineralization. No drilling of this zone is recorded.

Anomaly L_1 is interpreted as extending from 4+50S on line 34+00E to 8+50S on line 28+00E where it is directly coincident with a powerline on the north side of Highway 101. The response of anomaly L_1 is generally only partially surveyed due to the proximity of Highway 101. On all lines except 34+00E the response character is somewhat suspect. Anomaly L_1 is interpreted as being near-surface and weakly polarizable possibly indicating clays within the overburden as the causal source. On all lines, the anomalous response reflects, in part, increased apparent resistivity amplitudes which could wholly explain the responses.

Anomaly L_1 is located within the sediments and/or felsic volcanics inferred to underlie magnetic subdomain I_C and displays no continuous magnetic correlation.

No drilling of this zone is recorded and none is recommended at this time.

Anomaly L_2 is interpreted on tie-line 12+00S at 16+00E and 22+00E and on lines 24+00E to 20+00E where it is only partially surveyed due to the proximity of Highway 101. Total chargeability amplitudes are in the order of 2 to 4 msecs except for the response at 22+00E on tie-line 12+00S where amplitudes of up to 10 msecs are recorded. The response character is fair on all lines and the polarizable features are sufficiently far removed from any cultural sources that the interpretation of a bedrock source can be considered valid. Weakly polarizable features are interpreted at all locations except for 22+00E on tie-line 12+00S where a moderately polarizable feature near-surface is indicated.

Anomaly L_2 is located within the sediments and/or felsic volcanics inferred to underlie magnetic subdomain I_C sandwiched between the komatiites of subdomain I_A to the north and the iron formation underlying subdomain II_A immediately to the south. Anomaly L_2 is directly coincident with a narrow, linear, moderately magnetic feature on lines 20+00E and 22+00E which may indicate a local increase in volume percentage of magnetic sulphide mineralization.

Anomaly L_2 is coincident with chargeability feature IP-4 as interpreted by Barringer (1974) and is interpreted to reflect sulphide mineralization. Drill hole B-1, the exact location of which is unknown, may have intersected the anomaly at 22+00E on tie-line 12+00S. Hole B-1 intersected 0.045 oz/ton of gold over 1.3 ft in highly schistose sediments with two 3 inch quartz veins. Minor pyrite and, in places, considerable graphite occur down the hole. Other less significant gold values occur within the sediments in the first 85 ft of the hole (McCannell, 1974).

Anomaly M is located within magnetic subdomain I_A near the contact with sediments underlying subdomain I_B to the north. Subdomain I_A is inferred to reflect komatiites altered to a talc schist (drill holes A-1 and A-2). As anomaly M has not been identified on all lines within subdomain I_A, it has been subdivided into two zones.

Anomaly M_1 trends west-southwest from 7+00S on line 20+00E to 12+00E. The anomalous responses are poorly defined, either reflecting in part elevated apparent resistivity amplitudes or exhibiting decreasing chargeability amplitudes with increasing dipole separation. Total chargeability amplitudes are typically 2 msecs or less and on these lines anomaly M_1 is interpreted to reflect possible clay layers within the overburden rather than a bonafide bedrock feature.

Anomaly M_2 trends west-southwest from 11+00S on line 4+00E to 2+00W and is possibly open to both the east and west. Anomaly M_2 is interpreted as reflecting polarizable features within the overburden on lines 4+00E and 2+00W. However, on the two lines in between, the response character of anomaly M_2 suggests a bedrock feature at a depth of 100 ft below surface with weakly polarizable material extending to depth. There is no direct resistivity correlation.

On lines 0+00 and 2+00E, anomaly M_2 is interpreted to reflect magnetic and/or non-magnetic sulphide mineralization associated with komatiites. This zone has most probably been tested by drill holes A-1 and A-2 at depths of 530 to 300 ft, respectively, below surface. These holes intersected talc-chlorite altered peridotite with minor pyrite and local concentrations of magnetite. No significant gold mineralization was reported (Darke, 1969).

Anomaly N is a one-line response interpreted at 7+00W on tie-line 16+00S. Although partially reflecting variations in the overburden, a weakly polarizable source is interpreted at a depth of 100 ft below surface.

Anomaly N is located within the komatiites underlying subdomain I_A at a point where elements of subdomain I_A display relative right-handed lateral displacement about northwest trending fault F_6. Low resistivity zone i is interpreted at this location on all cross lines although no sympathetic response is noted in the resistivity data on tie-line 16+00S.

Anomaly N, if indeed reflecting a bonafide bedrock polarizable source, is interpreted to reflect magnetic and/or non-magnetic sulphides associated with komatiites and/or a fault/shear zone. No drilling of this anomaly is recorded.

Anomaly 0 is interpreted on lines 16+00E to 8+00W and is located wholly within the sediments and/or felsic volcanics inferred to underlie subdomain I_B. Anomaly 0 has been subdivided into two subzones labelled anomalies 0_1 and 0_2 which exhibit a relative right-lateral displacement of 300 ft about the plane of northwest trending fault F_4 at 5+00E. The presence of this fault is also supported by the magnetic data where a smaller right-handed displacement of elements of subdomain I_A occurs to the south.

Anomaly 0_1 trends west-southwest from 2+50S on line 16+00E to 6+00E where it is truncated by fault F_4. The anomaly is open to the east. Anomaly amplitudes are generally low, being in the order of 3 msecs or less, and the response character fair.

A dipole separation of 200 ft was used on these lines and the anomalous response is first recorded at a dipole separation of n=3 on lines 16+00E, 8+00E and 6+00E which leads to an interpreted depth to the causal source of 150 ft below surface. On the lines in between, depths are generally less, being in the order of 50 to 75 ft below surface. The response on line 12+00E is only partially observed due to the presence of open water restricting the measured anomalous amplitudes to the second to fourth dipole separations. The polarizable source is in all probability at a depth of 75 ft or more although the limited survey coverage does not allow this to be definitively interpreted.

Anomaly O_1 is interpreted as being weak to moderately polarizable and its interpretation is confirmed by the responses recorded on tie-lines 4+00S at 9+50E and 8+00S at 8+00E. The depths to polarizable sources of approximately 100 ft on these lines correlates reasonably well with the estimated depths from the north-south crosslines.

Anomaly O_1 correlates with a weakly magnetic feature on lines 10+00E to 14+00E which may in part be reflecting a bedrock ridge as the overburden thins in this area. However, similar features are noted along strike; in particular, the westernmost features of anomaly O_2 are identified with subdomain I_F.

Anomaly O_1 is interpreted as reflecting non-magnetic and/or locally magnetic sulphide mineralization within sediments and/or felsic volcanics. Drill hole ST-W-1 does not appear to have extended far enough north to have adequately tested anomaly O_1. Indeed the very short drill log indicates talcose-chloritic peridotite with disseminated magnetite and minor pyrite was the only lithologic unit encountered (Shiningtree, 1982).

Anomaly O_2 trends west-southwest from 6+00S on line 4+00E to 8+00W. The anomaly is truncated to the east by fault F_4. The anomaly amplitudes and response character are similar to those recorded for anomaly O_1.

Anomaly O_2 is interpreted to be a narrow, polarizable bedrock feature at depths of 75 to 150 ft below surface. Depths to the polarizable sources increase from east to west. The response on line 4+00W is only tentatively interpreted and may in fact, rather than reflecting two bedrock sources, be reflecting a single source in the vicinity of 9+00S.

Anomaly O_2 is located within low swampy ground and no directly associated low resistivity features can be interpreted. Anomaly O_2 is coincident with moderately magnetic features of limited strike extent on lines 2+00E and 6+00W to 8+00W. On the westernmost lines, these magnetic features have sufficient east-west continuity that subdomains identified as I_F have been interpreted. The response at 2+00E may be reflecting a decrease in the overburden thickness as reflected in the lower estimated depths to the polarizable features. From line 6+00W westwards the magnetic features may be reflecting in part mafic volcanics and/or komatiitic inclusions within the sediments and/or felsic volcanics underlying magnetic subdomain I_B.

Anomaly O_2 coincides on line 8+00W with IP anomaly IP-1 interpreted from a previous induced polarization program by Barringer (1974).

Anomaly O_2 is interpeted to reflect non-magnetic and/or magnetic sulphide mineralization which has not been tested by drilling. Drill hole A-1 appears to have been collared directly above the anomaly and drill hole B-3 immediately to the south.

<u>Anomaly P_1</u> is interpreted on lines 36+00E and 34+00E where both dipole separations of 100 ft and 200 ft were employed and composite pseudosections constructed. Total chargeability amplitudes of 2 to 3 msecs are recorded and the response characters are generally good indicating a near-surface polarizable source which extends to depth. No correlating low resistivity features are noted. Extensive outcrop is noted immediately to the south of anomaly P_1 in the vici-

nity of Highway 101 indicating that these polarizable responses may indeed be reflecting bonafide bedrock features.

Anomaly P_1 is located wholly within magnetic subdomain I_C, interpreted to reflect sediments and/or felsic volcanics within the Tisdale Group. The anomaly exhibits no distinct magnetic correlation although if northwest trending fault F_2 were extended north of fault F_1 into the Tisdale Group than anomaly P_1 would be semi-coincident with this feature.

Anomaly P_1 is interpreted to reflect non-magnetic sulphide mineralization possibly associated with a fault/shear zone. No drilling of this zone is recorded.

Anomaly P_2 is a one-line response tentatively interpreted at 1+00N on line 30+00E. Dipole separations of both 100 ft and 200 ft were utilized on this line and a composite pseudosection constructed. Due to its proximity to the HEPC powerline it is possible that the response associated with anomaly P_2 is actually wholly reflecting the powerline source which acts a grounded fence.

The magnetic setting and interpretation of anomaly P_2, if indeed a bonafide bedrock polarizable source, is identical to that for anomaly P_1.

Anomaly Q is interpreted along the extent of the powerline crossing the northern sector of the property in the vicinity of the baseline. Anomaly Q has been subdivided into four zones due to both discontinuities in the survey coverage and due to the possibility that it may reflect a bonafide bedrock polarizable source towards the western edge of the property.

Anomalies Q_1 and Q_2 are interpreted to wholly reflect the HEPC powerline and are of no further interest in an exploration context.

Anomalies Q_3 and Q_4 are interpreted as being at depths of 100 to 150 ft below surface. It should be stressed that these interpretations are an effort to identify the location of the more polarizable part of the response and, while being wholly coincident with the powerline, may reflect a bonafide bedrock source. However, given the generally poorly defined responses, depth of overburden and lack of correlating evidence for a true bedrock source no drilling of these anomalies is recommended at this time.

Anomaly R is interpreted as trending southwest from 2+00N on 4+00W to line 16+00W. On virtually all lines this chargeability response is wholly coincident with a railway, powerline and two fences as identified on the topography map (Map 1) and is of no further interest in an exploration context. Similarly, the responses recorded and identified on tie-lines 8+00S, 12+00S and 16+00S are interpreted to wholly reflect the railway.

The one exception is on line 14+00W where the response extends south of the railway and is directly on strike from anomaly O_2 some 600 ft to the east. This response is tentatively interpreted as anomaly O_3.

Anomaly S is interpreted at the baseline on line 10+00W as a narrow, polarizable source at a depth of 200 ft below surface. However, the response is only partially surveyed due to the proximity of the northern extent of the line and it is equally possible that the response is wholly reflecting the powerline at 3+60N. Given that this is a wholly isolated response located within the sediments or felsic volcanics inferred to underlie magnetic subdomain I_B, no further investigation of this feature is recommended at this time.

Anomaly T is interpreted on lines 18+00W to 22+00W at approximately 12+00S. The anomalous responses on these lines are only partially surveyed due to the presence of open water immediately to the south of the railway. On lines 20+00W and 22+00W, anomaly T is also identified as anomalies V and U_1, respectively. Inspection of the total field magnetic data downward continued 150 ft lent support towards the responses on these lines reflecting one single polarizable horizon as anomaly T. However, due to the limited survey coverage in this area and the undoubted complex structural complexity as identified by the magnetics the interpretation must remain questionable at this time.

The response character of anomaly T is fair on all lines with chargeability amplitudes being consistently 2 to 2.5 msecs. A weakly polarizable bedrock source is therefore interpreted at depths somewhere between near-surface to 100 ft below surface.

No consistent low resistivity feature is interpreted but anomaly T is semi-coincident with the northern narrow, more highly magnetic feature within the komatiites underlying subdomain I_A.

Anomaly T is interpreted to refect non-magnetic and/or magnetic sulphide mineralization associated with altered komatiitic rocks. No drilling of this zone is recorded.

Anomaly U is a polarizable horizon identified in the vicinity of 14+00S on several lines between 22+00W and 34+00W. Survey coverage along strike was limited due to open water on lines 30+00W and 32+00W.

Anomaly U_1 is interpreted on lines 28+00W to 24+00W and may extend as far east as line 22+00W where anomaly T is also tentatively interpreted. Anomaly amplitudes of 2.5 to 3 msecs are recorded and the response character is generally fair indicating a polarizable source at depths of 100 to 150 ft below surface. The causal source is rated moderately polarizable on line 26+00W and weakly polarizable elsewhere.

Anomaly U_1 is wholly coincident with the northern magnetic feature within an element of subdomain I_A. On lines 28+00W and 24+00W, anomaly U_1 also lies on the southern flank of fault F_{10} which may reflect a relief thrust plane fault associated with the Destor-Porcupine Fault.

Given the low apparent resistivity amplitudes calculated at this location it is entirely possible that anomaly U_1 is reflecting clays within the overburden. However, if indeed reflecting a bona fide bedrock feature, anomaly U_1 is interpreted as anomaly T. No drilling of this zone is recorded.

Anomaly U_2 is the probable extension of anomaly U_1 to line 34+00W. Line 30+00W was not surveyed at all along this horizon and line 32+00W only partially surveyed due to the presence of open water in the vicinity of a north-south trending creek which coincides with fault F_7. Anomaly U_2 is therefore only indicated by a question mark on line 32+00W.

Anomaly U_2 was first identified at the third dipole separation and is wholly defined by the fourth dipole separation. A dipole spacing of 200 ft was used and dipole separations n=2 to 5 were recorded. Anomaly amplitudes are up to 5 msecs and the response character is fair. However, given the extremely low apparent resistivity amplitudes recorded, which only reach 150 ohm-m by the fifth dipole separation, it is entirely possible that anomaly U_2 reflects a clay layer within the overburden.

The one factor in favour of anomaly U_2 being a bonafide bedrock source at a depth of 200 ft below surface is its semi-coincidence with a northern magnetic feature within an element of subdomain I_A which is known to reflect altered komatiites. The interpretation of anomaly U_2 is identical to that for anomaly T. No drilling of this zone is recorded.

Anomaly V is a four line response trending southeast from 7+50S on line 26+00W to 20+00W where the response is also interpreted to reflect anomaly T. The response on line 26+00W may also possibly reflect the eastward extension of anomaly W_1. Anomaly V is also interpreted at 26+00W on tie-line 8+00S confirming the presence of a polarizable feature.

The anomaly amplitudes and response character of anomaly V are similar to those identified with anomaly U and the causal source is interpreted to be at a depth of 100 ft below surface. Anomaly V is directly coincident with northwest trending fault F_5 which separates komatiitic units underlying subdomain I_A to the west and sediments and/or felsic volcanics within subdomain I_B to the east. Anomaly V is therefore interpreted to reflect sulphide mineralization or mineralized fluids associated with a fault/shear zone. No drilling of this feature is recorded.

Anomaly W_1 is identified at 8+00S on lines 26+00W and 28+00W. The anomaly is also identified on tie-line 8+00S at 26+00W. The interpretation of the datasets indicates a weakly polarizable source at a depth of 100 ft on line 26+00W and a weak-to-moderately polarizable feature at a depth of 200 ft below surface on line 28+00W.

Anomaly W_1 is bounded to the east and west by faults F_5 and F_{11}, respectively. Anomaly W_1 is also identified as being possibly the northward extension of anomaly V on line 26+00W.

Anomaly W_1 is also interpreted at 26+00W on tie-line 8+00S as a weakly polarizable feature at a depth of 150 ft below surface.

The anomaly is located within magnetic subdomain I_A, inferred to reflect altered komatiite, and is coincident on line 28+00W with a moderately magnetic feature. No low resistivity features are noted coincident with the anomaly. Anomaly W_1, if indeed reflecting a bonafide bedrock polarizable feature is interpreted to reflect non-magnetic and/or magnetic sulphide mineralization. No drilling of this zone is recorded.

Anomaly W_2 is interpreted at 9+00S on line 34+00W only, as adjacent lines could not be surveyed either due to the proximity of the southern property boundary or the presence of open water.

As for anomaly W_1, anomaly W_2 is a discrete more highly polarizable feature within a broad background of elevated total chargeability amplitudes. Anomaly W_2 is interpreted to reflect a moderately polarizable bedrock feature at a depth of 200 ft below surface. Anomaly W_2 is located coincident with fault F_7 which separates subdomain I_A/I_E? to the west and subdomain I_B to the east. Anomaly W_2 is a possible westward extension of anomaly W_1 and is interpreted to reflect non-magnetic sulphide mineralization if indeed a valid bedrock feature. No drilling of this zone is recorded.

Anomaly X is interpreted at 3+50S on line 28+00W only and is identified as a moderately polarizable feature at a depth of 100 ft below surface. The interpretation of anomaly X is only tentative due to the presence of a powerline at approximately 1+90S. The response associated with anomaly X is most probably due entirely to the cultural source and no further investigation of anomaly X is recommended until geological information of the immediate area is available.

Anomaly X is semi-coincident with a moderately magnetic limited strike length feature within subdomain I_B and may reflect magnetic and/or non-magnetic sulphide mineralization within sediments and/or felsic volcanics. No drilling of this zone is recorded.

The response of anomaly Y is only partially recorded due to the limited extent of line 44+00W. Anomaly Y is characterized by chargeability amplitudes up to 5 msecs and is interpreted at 9+00S. The response character is fair indicating a narrow polarizable source at a depth of 150 ft below surface. Anomaly Y is situated wholly within subdomain I_E but exhibits no direct magnetic coincidence. Anomaly Y is therefore interpreted to reflect non-magnetic sulphide mineralization in a mafic to ultramafic volcanic environment. No drilling of this zone is recorded.

Anomaly Z, also identified on line 44+00W, is interpreted to be located at approximately 2+75S. The response is only partially surveyed due to the limited northern extent of the line which ends at the Porcupine River. Similar chargeability amplitudes are recorded as for anomaly Y some 700 ft to the south. Anomaly Z is interpreted to reflect a weakly polarizable source at a depth of 100 ft below surface. The anomaly is located within subdomain I_B at its southern extent near the contact with subdomain I_E to the south.

Anomaly Z, if reflecting a valid bedrock feature, is interpreted to reflect non-magnetic sulphide mineralization within sediments and/or felsic volcanics immediately to the north of a mafic to ultramafic volcanic environment. No drilling of this zone is recorded.

8.0 CONCLUSIONS

The current geophysical programme has provided a wealth of information from which the following conclusions pertinent to the further exploration of the property can be drawn.

The magnetic surveys successfully delineated the major components of the Tisdale and Deloro groups underlying the property. A general lithologic trend of east to east-northeast was defined in general agreement with previous airborne surveys by individual contractors in the area and by the GSC (Bambrick, 1984). Of primary importance in the exploration programme was the pinpointing of the probable location of the Destor-Porcupine Fault which is believed to traverse the property. Typically in the Timmins area, the Destor-Porcupine Fault is located at the transition from the Deloro Group to the south to the Tisdale Group of lithologic units to the north. Accordingly, the Destor-Porcupine Fault is believed to be reflected by fault F_1 in the southeast sector of the property near Highway 101 for the following reasons:

1. There is a marked change in background in the vertical gradient magnetic data to the north and south of this fault.
2. Altered komatiitic units are known to exist to the north as intersected by drill holes A-1, A-2 and the magnetic survey has identified these units as underlying subdomain I_A within the central portion of the property. Komatiites typically occur at the base of the Tisdale Group.
3. Immediately to the south of fault F_1, is a narrow band of short strike length magnetic features, labelled subdomain II_A, which has been identified through outcrop and trenching at the eastern extent of the property as iron formation. Iron formation is common at or near the top of the Deloro Group and is uncommon within the Tisdale Group.
4. In the Timmins area, the Destor-Porcupine Fault separates the Tisdale Group to the north from the Deloro Group to the south.

This interpretation of the location of the Destor-Porcupine fault is supported by the results of Bambrick's numerical filtering of the high resolution aeromagnetic survey data to produce magnetic susceptibility maps (Bambrick, 1984).

Additional units in both the Tisdale and Deloro groups were identified as follows. Within the Tisdale group, subdomains I_B and I_C reflect sediments and/or felsic volcanics which cannot be differentiated by their magnetic signatures alone. Mafic to ultramafic volcanic units with a general east-northeasterly trend are identified by subdomains I_D and I_E. Inspection of the available airborne results indicate that these two subdomains are small fractions of regionally extensive lithologic units.

In the Deloro group, the sediments and felsic volcanics are reflected by subdomain II_B. Again, no differentiation can be made magnetically between the two lithologic types. At the southern extent of the property, mafic to ultramafic units of narrow width but continuous strike extent to the southwest, are identified within subdomain II_C. The airborne data indicates that the ultramafics extend east and west along the southern boundary of the Allerston property and beyond.

The interpretation of the total field magnetics was greatly enhanced when carried out in tandem with the vertical gradient magnetic results, especially in the eastern and southern thirds of the property where outcrop and shallow overburden are extensive. However, in the western and northern halves of the property, overburden cover increases dramatically to in excess of 200 ft. At these depths of overburden the vertical gradient magnetic results are of less usefulness in delineating individual magnetic responses than further to the east. In order to obtain similar detailed information for the structural interpretation as the two surveys provided in the eastern half of the property, a section of the total field magnetic dataset was windowed out from 6+00W to 44+00W and the data was downward continued in a line-by-line fashion first to a depth of 100 ft and then to 150 ft below surface. This process also had the effect of resolving two or more magnetic lithologic units where the total field and vertical gradient data had suggested one single lithologic source As a result, it was possible to identify the altered komatiitic units intersected by drill holes A-1 and A-2 as extending to at least as far west as 35+00W.

The complex pattern of structural faulting and/or shearing is only generally interpreted on the total field and induced polarization plan maps.

Components of all three main fault systems, as described in Section 3.1.2, have been interpreted on the property. The first of these, the N60°E and N70°E system of which the Destor-Porcupine Fault is the main component, is represented by fault F_1. Two relief thrust plane faults are interpreted. Fault F_{13}, which lies to the north of the komatiitic units to the east of 19+00W and to the south of the komatiitic units to the west of this point, is interpreted as extending across the entire property. A further similar trending fault F_{10} is interpreted some 500 ft further north and is also interpreted within komatiitic units.

Northwest trending faults are interpreted, the foremost feature being fault F_3 in the vicinity of 24+00E which is believed to be the southward extension of the No. 1 Fault from the Broulan and Hallnor mines, an interpretation supported by inspection of the magnetic susceptibility maps as derived from airborne magnetic data by Bambrick (1984). This fault effectively truncates the komatiitic unit underlying subdomain I_A. Other northwest trending faults are interpreted further west through the property with varying degrees of right-handed lateral displacement which is reportedly the common mode of displacement to the north at past and present producing mines.

Extensive dislocation of elements of subdomain I_A, which reflects the altered komatiitic units, is noted about these faults with the largest being approximately 500 ft about fault F_5 in the vicinity of 19+00W.

Northeast trending faults are generally only tentatively interpreted and they tend to not exhibit the left-handed lateral displacement reportedly common about this family of faults immediately north of the property. These faults are generally interpreted in the western half of the property where the structure is acknowledged to be more complex than that further east.

There is no evidence of close folding on a local scale of the sediments and ultramafic volcanic rocks of the Tisdale Group as postulated by Roscoe (1986).

The resistivity survey was generally not of any use in the northern and western halves of the property due to the extensive cover of conductive overburden. However, several discrete low to moderate resistivity units have been interpreted from the eastern and southern portions of the property. Two of these units, zones a and b, are coincident with iron formation immediately to the south of the Destor-Porcupine Fault. Several resistivity features of limited strike extent are noted within or adjacent to elements of subdomain I_A, known to reflect the altered komatiites at the base of the Tisdale Group. These generally have no coincident polarizable response and are inferred to reflect structure.

The induced polarization survey outlined a total of 26 polarizable horizons labelled A through Z. Of these, anomalies J, Q and R reflect cultural sources such as powerlines and railways and are of no further interest in an exploration context. The remaining 23 anomalous zones are of variable strike extent ranging from single line responses to horizons in excess of 1,700 ft. Ten of these polarizable anomalies have been further subdivided, either to aid the interpretation or because the continuity along strike is questionable due to interrupted surveying due to cultural features or open water.

Elements of six anomalies are coincident with magnetic features, namely anomalies A, B, M, N, T and U.

Eight of the polarizable horizons, anomalies C, E, H, I, L, O, V and W, are partially coincident with or flanking magnetic features.

Seven polarizable horizons, anomalies G, K, P, S, X, Y and Z, have no magnetic association at all.

Anomaly D is the exception to this classification being wholly coincident with the Destor-Porcupine Fault as defined by fault F_1.

Anomalies A, B, D, F and H exhibit partial or whole coincidence with low to moderate resistivity features.

The structural interpretation from the magnetic datasets is supported in part by the induced polarization results. Specifically, a right-lateral displacement of 300 ft is noted between anomalies O_1 and O_2 about the plane of northwest trending fault F_4 in the vicinity of 5+00E. Also, anomaly V is coincident along its length with northwest trending fault F_5 on lines 26+00W to 20+00W. Anomaly P_1 would be semi-coincident with northwest trending fault F_2 if it extends north of the Destor-Porcupine Fault to 34+00E. Elsewhere, the strike extent of individual anomalous horizons is generally contained within the main fault/shear zones interpreted.

The polarizable horizons can be prioritized in part in terms of the possible exploration models described in Section 3.3.2. These are not strictly adhered to in the following prioritization but the relationships will be immediately evident:

(a) Tisdale Group

(i) Komatiitic and Theoliitic Volcanic Rocks

First Priority Anomaly M_2

Second Priority: Anomalies N, T, U_1 and U_2

(ii) Sediments and Felsic Volcanics

First Priority Anomalies L_2, P_1, O_1 and O_2

Second Priority: Anomaly K

(iii) Ultramafic Volcanics

First Priority: None

Second Priority: Anomalies Y? and Z?

(b) Deloro Group

(i) Iron Formation

First Priority: Anomalies A and B

Second Priority: Anomaly E

(ii) Sediments and Felsic Volcanics

First Priority: None

Second Priority: Anomaly F_2?

(iii) Deloro Group Ultramafic Volcanics

First Priority: Anomaly H

Second Priority: Anomaly I

(c) Features Coincident with the Destor-Porcupine Fault

First Priority: Anomalies D_1, D_2 and D_3

Second Priority: Anomaly D_4?

(d) Polarizable Features Reflecting Structure?

First Priority: None

Second Priority: Anomaly V

Anomaly M_2, a first priority target, has been tested by drill holes A-1 and A-2 at vertical depths of 500 and 300 ft, respectively, near line 0+00. No gold mineralization was reported (Darke, 1969).

It is important to note that the second priority targets as identified above are not considered by the author to be worthy of drilling exploration at the current time unless future geological understanding of the property indicates further investigation of these targets is warranted.

The remaining polarizable horizons are considered third priority and are presently believed to be of no interest in an exploration context.

Several of the anomalous horizons interpreted from the current induced polarization survey are coincident with anomalous features interpreted from a previous survey by Barringer (1974). Specifically, anomaly L_2 is coincident with horizon IP-4, anomaly D_1 with horizon IP-3 and anomaly O_2 with horizon IP-1. Only anomaly L_2 may have been tested by previous drilling with hole B-1 in 1973. Hole B-1 returned the best gold intersection to date of 0.045 oz/ton Au over 1.3 ft in sediments (McCannell, 1974).

Anomalies D_1 (IP-3) and O_2 (IP-1) do not appear to have been drill tested as holes B-2 and A-1, whose locations are not exactly known, may have been collared directly over these anomalous horizons, respectively. Hole B-2 returned .005 oz/ton of gold over 4.4 ft in a aplite dyke with minor pyrite (McCannell, 1974).

9.0 RECOMMENDATIONS

The interpretation of the geophysical datasets and the conclusions as derived and discussed in the previous two sections have given rise to the following recommendations:

1. All available geological information should be incorporated into the geophysical interpretation on a continuous basis in the future so that the interpretation can be updated and targets re-prioritized.

2. Those first priority targets which are in areas of shallow overburden or outcrop should be investigated first by trenching if possible. This specifically relates to anomalies A and B which are of interest given the carbonatization reported in drill hole L-1 (Ferguson, 1958). It may also be possible to investigate anomalies P_1 and H by this method.

3. Anomaly M_2 appears to have been previously investigated by holes A-1 and A-2. However, all other first priority targets are recommended to be tested by drilling. Although anomaly H lies to the south of what is believed to be the location of the Destor-Porcupine Fault, investigation of this feature should not be discounted merely because the majority of the gold mines in the Timmins area are located to the north of the Destor-Porcupine Fault. Substantial mineralization has been encountered to the south of the Fault; for example, Moneta Porcupine's showing in Michaud Township.

4. While the second priority anomalies are not considered viable drill targets at this time, given the current understanding of the geology of the property, it may be felt that those associated with faults/ shear zones interpreted with some confidence may be worth investigating; specifically anomaly V.

Respectfully submitted,

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October, 1987

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APPENDIX I

Notes on Geophysical Surveys

APPENDIX I

NOTES ON MAGNETIC AND VLF-EM TECHNIQUES

MAGNETICS

An EDA OMNI IV magnetometer was used on the project. This type of magnetometer utilizes the precession of spinning protons of a hydrogen atom within a hydrocarbon fluid as a measurement technique. These spinning magnetic dipoles are polarized by applying a magnetic field provided by a current within a coil of wire. When the current is discontinued the protons precess about like a spinning top with the earth field supplying the precessing force. The proton precesses at an angular frequency W (known as the Lamar precession frequency) which is proportional to the magnetic field strength F so that:

$$W = \gamma_p F$$

This constant, γ_p, is the gyromagnetic ratio of the proton which is known to an accuracy of 0.25×10^{-4}. Since precise frequency measurements are relatively easy, it is clear that the magnetic field can be determined to the same accuracy. The proton being a moving charge induces a voltage in the coil which varies with the precession frequency. Thus, the magnetic field can be determined from the equation:

$$F = W/\gamma_p = 2\pi f / \gamma_p$$

The OMNI IV reading unit is the gamma and the reading is the absolute value of the earth's total field for that station. Repeatability is usually within one gamma for a particular station.

A useful feature of the OMNI IV is its ability to record the field data, i.e. line/station co-ordinates, time measured from an internal clock and the total field magnetic data automatically. This data is stored in a solid state memory device for later recall. The output can be in the form of a hard copy, on chart paper or via an RS 232 output port into a field computer.

Magnetic data were recorded in order to monitor diurnal variations using an EDA OMNI IV base station recorder. This unit monitors daily variations in the total magnetic field over time at one location central to the grid area. The data can then be outputted onto chart paper or as input to a field computer.

The OMNI IV contains its own microprocessor with internal software which enables it to input both the field and base station magnetic readings and to subsequently correct the field data for the diurnal variations observed in the base station readings. The final output is in the form of a strip chart containing line/station number, time and corrected field magnetic readings.

This allows for total correction of the field data on a routine daily basis.

Total Field Magnetics

The total field magnetic data, after correction for diurnal drift, are plotted on a plan map and contoured using contour intervals suitable to highlight magnetic features of interest.

Structural interpretation of faults, contact zones, etc. is based primarily on distortions and truncations of magnetic trends. Correlations with other surveys are made to aid in magnetic interpretation.

Individual anomalies may be profiled and, using curve matching techniques with a variety of models, estimates of dip, depth and magnetic susceptibility contrast can be determined (e.g. Cook 1930, Haigh & Smith, 1975, Parker Gay, 1963). Model curve fitting using two and three dimensional models can also be applied.

Vertical Gradient Magnetics

EDA Model OMNI IV system is in fact configured with two independent sensors separated by a distance of 1 meter. To take the vertical gradient reading, both sensors measure the total magnetic field independently and internal software automatically calculates the numerical difference between the two sensors. The data are presented as nanoteslas/meter.

The unit is equipped with a solid state memory and a micro-processor which enables automatic storage of field data along with line number, station number and a statistical estimate of the quality of the data for both the signal strength and the decay of the magnetic field.

An internal clock within the instrument also allows storage of the reading times. This allows for subsequent linkage of the OMNI IV with a OMNI IV base station recorder enabling diurnal correction of magnetic data from one of the independent sensors which allows for production of corrected total field magnetic data.

The technical specifications for the PPM are found in Appendix II.

The main advantage of the gradiometer is that it essentially records only the magnetic field produced by rock formations in the upper part of the earth's crust. This is generally the desired signal. Noise which consists of a time varying component that is the effect of diurnal variations is automatically removed, as is the main field produced by the earth's core and most of the long-wavelength anomalies due to deep-seated bodies in the crust.

The gradiometer greatly improves anomaly resolutions with anomalies typically being narrower than the associated total field anomaly. Also, resolution of closely spaced zones is enhanced as the gradiometer is able to distinguish two thin dykes at 0.85 of their depth of burial compared to the 1.15 limit of the total field measurement (Hood et al., 1977).

Ability to more accurately delineate geological contacts is the major advantage of vertical gradient data. Inspection of total field data and the corresponding vertical gradient data produced from a wide, steeply dipping dyke indicates that there are two crossovers from positive to negative values for the vertical gradient profile with the zero gradient values occurring close to either of the contacts. The total field profile, however, shows a diffuse pattern with no distinctive feature coincident with the edge of the dyke. Moreover, it can be shown mathematically that the line joining the vertical maximum and minimum gradient values crosses the vertical gradient profile itself at the point where the contact is located (Figure 1). This observation is correct for near vertical contacts in areas of high magnetic inclination such as the Canadian Shield.

Thus, the zero contour line for vertical gradient data will determine the contacts of major rock formations having some measurable magnetization contrast with adjacent formations in a reasonably accurate manner.

Depth can be interpreted from gradients and total field data as in the following case for a dipole source:

$$T = \frac{M}{Z^3}$$

where T = Total field anomaly over background
M = Magnetic moment
Z = Depth

Differentiating with respect to Z to find vertical gradient:

$$\frac{dT}{dz} = \frac{-3M}{Z^4} = \frac{-3}{Z}\frac{M}{Z^3}$$

$$= \frac{-3T}{Z}$$

thus

$$Z = \frac{-3T}{\frac{dT}{dZ}}$$

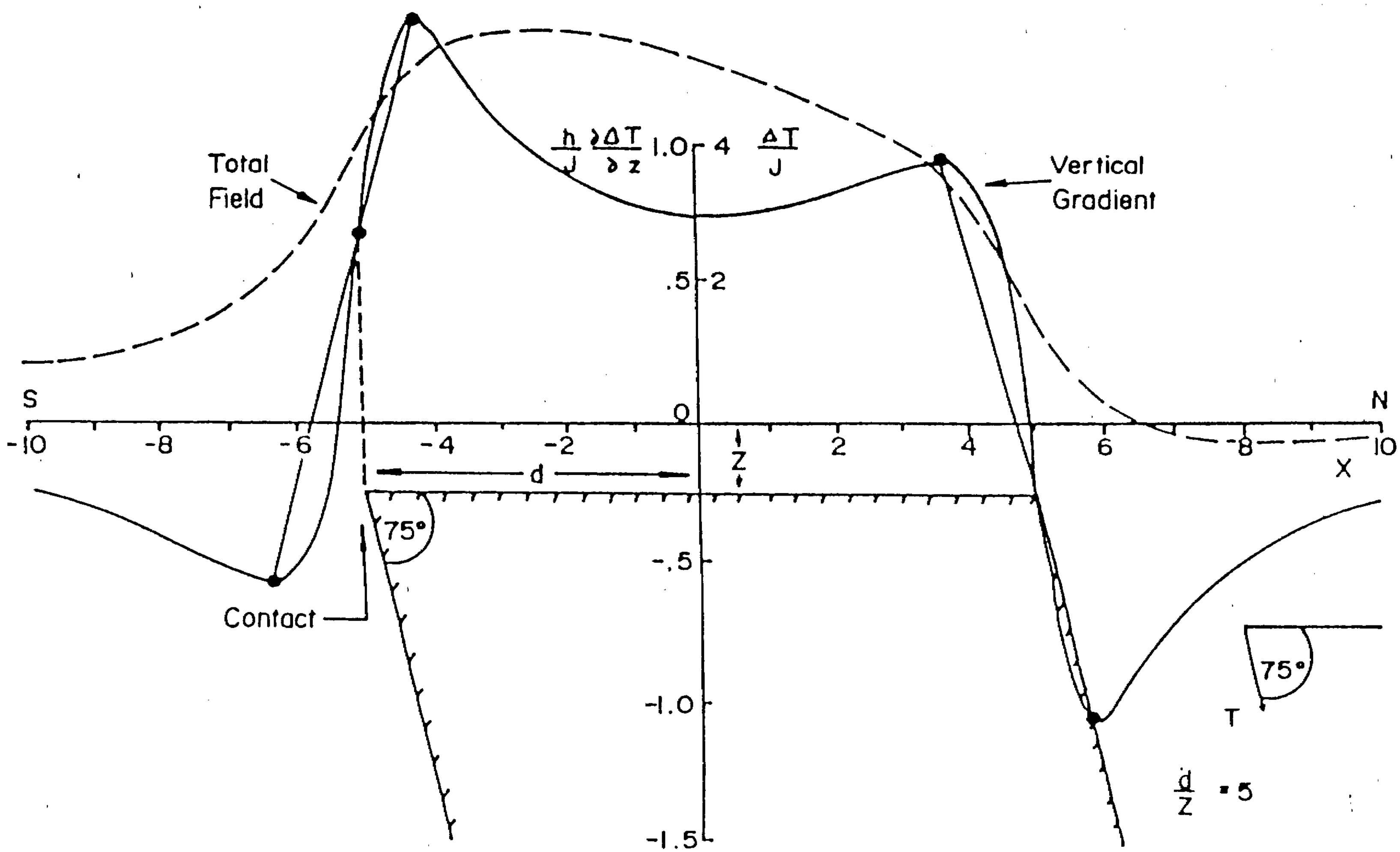

Figure 1: Vertical gradient and total field profiles over a wide dipping dyke; inclination of the earth's magnetic field = 75°

Thus, it is possible to determine depth not knowing the magnetic moment of the body.

Similar expressions can be developed for other bodies since the major differences are generally in the magnetic fall-off rate (i.e. Z, Z^2 or Z^3, etc.) (Breiner, 1973).

APPENDIX II

Instrumentation Specifications

OMNI PLUS
VLF/Magnetometer System

Major Benefits of the OMNI PLUS

- Combined VLF/Magnetometer/Gradiometer System
- No Orientation Required
- Three VLF Magnetic Parameters Recorded
- Automatic Calculation of Fraser Filter
- Calculation of Ellipticity
- Automatic Correction of Primary Field Variations
- Measurement of VLF Electric Field

OMNI PLUS
VLF / Magnetometer System

Description

The "OMNI PLUS" geophysical system combines the OMNI IV "Tie-Line" magnetometer and gradiometer together with a VLF measurement capability.

The OMNI PLUS VLF / Magnetometer System has been developed in co-operation with Geophysical Surveys Inc. of Quebec, Canada.

This brochure concentrates on the VLF magnetic and electric field parameters measured and recorded by the OMNI PLUS. More information on the OMNI PLUS magnetometer system and tie-line capability is available in the OMNI IV brochure.

Features

Each OMNI PLUS incorporates the following features:

- Measurement and recording in memory of the following VLF data for each field reading:
  - total field strength,
  - total dip,
  - vertical quadrature or, alternately, horizontal amplitude,
  - apparent resistivity,
  - phase angle,
  - time,
  - grid co-ordinates,
  - direction of travel along grid lines, and
  - natural and cultural features.
- Complete data protection for a number of years by an internal lithium backup battery.
- "Tie-Line" or "Looping" algorithm, unique only to EDA's OMNI IV and OMNI PLUS Series, for the self-correction of atmospheric variations and variations in the primary field from the VLF transmitter.
- Measurement of up to three VLF transmitting stations to provide complete coverage of an anomaly regardless of the orientation of the survey grid or of the anomaly itself.
- Display descriptors to monitor the quality of the VLF signal being measured.
- Choice of three data storage modes:
  - spot record, for readings without grid co-ordinates
  - multi record, for multiple readings at one station
  - auto record, for automatic update of station number
- Output of grid co-ordinates with the designated compass bearing, using N, S, E, W descriptors.

Major Benefits

- **Combined VLF / Magnetometer / Gradiometer System**

The OMNI PLUS incorporates the capabilities of the OMNI IV "Tie-Line" Magnetometer and Gradiometer System with the ability to measure the VLF magnetic and electric fields.

Only one OMNI PLUS is needed to record all of the following geophysical parameters:

1. The total magnetic field
2. The simultaneous gradient of the total magnetic field
3. The VLF magnetic field, including:
   - the total dip
   - the total field strength of the VLF magnetic field
   - the vertical quadrature, or alternately, the horizontal amplitude
4. The VLF electric field, including:
   - the phase angle
   - apparent resistivity

As an example, at each location the OMNI PLUS can calculate and record in a matter of seconds, three VLF magnetic field and two VLF electric field parameters from two different transmitters, a magnetic total field reading and a simultaneous magnetic gradient reading.

- **No Orientation Required**

The OMNI PLUS requires no orientation, by the operator, of the sensor head toward the transmitter station. This simplifies field procedures as well as saving considerable survey time. When two VLF transmitters are measured, the benefits of this time-saving feature are automatically doubled. There is no requirement for the operator to orient himself and the sensor head toward the first selected transmitting station and then re-orient towards the second transmitting station.

Consistent high quality data is achieved in the OMNI PLUS due to the utilization of three orthogonal sensor coils rather than two sensor coils used in conventional systems. The quality of data is not then dependent on the operator's ability to correctly orient the sensor head for optimum coupling with the transmitting station.

The OMNI PLUS compensates automatically for the direction of travel along the grid lines as well as for the angle of the sensors from the vertical plane through the use of tiltmeters.

- **Three VLF Magnetic Parameters Recorded**

The OMNI PLUS calculates and records in memory the:
- total dip
- total field strength
- vertical quadrature

The operator has the option to substitute the horizontal amplitude for the vertical quadrature. The OMNI PLUS calculates each of these parameters from the in-phase and quadrature measurements of all three components.

- **Automatic Calculation of Fraser Filter**

The OMNI PLUS automatically calculates the Fraser Filter, from the dip angle data, regardless of the interval between the stations along the grid lines. The operator no longer has to manually perform this mathematical calculation thereby reducing the possibility of human error. The Fraser Filter algorithm follows established conventions.

The operator can choose to output either the total dip or the Fraser filtered data, or both.

- **Calculation of Ellipticity**

The OMNI PLUS calculates the true ellipticity of the VLF magnetic field from the measurement of the in-phase and quadrature of all three components. The ellipticity provides more interpretative information about the anomaly than the dip angle and is less influenced by overburden shielding.

- **Automatic Correction of Primary Field Variations**

The OMNI PLUS can be used as a base station to monitor primary field changes from up to three VLF transmitters as well as alternately measuring the variations in the magnitude of the earth's magnetic field. Only **one** OMNI PLUS is needed to perform both functions.

The OMNI PLUS base station can then automatically correct, by linear interpolation, the field units for these drift variations in the primary VLF and total magnetic fields.

- **Measurement of VLF Electric Field**

The OMNI PLUS calculates and records the apparent resistivity and phase angle from the measurement of the VLF electric field. This VLF electric field measurement can be accomplished by using capacitively or resistively coupled electrodes at spacings of 5, 10 or 20 meters.

Other Benefits

- **Automatic Tuning**

The OMNI PLUS automatically tunes up to three VLF transmitters within a frequency range of 15 to 30 kHz, once the operator has programmed in the specific frequencies.

- **Base Station Synchronization**

The OMNI PLUS has a unique "count-down" feature which can be activated in the field unit upon synchronization with the base station. The field unit then displays and decrements the remaining time, in seconds, until the base station is scheduled to take a measurement. The operator can obtain a field reading at exactly the same time as the base station. The simultaneous field and base station measurements significantly improve the automatic correction accuracy.

- **Automatic "Tie-Line" Correction**

The OMNI PLUS can automatically correct by itself the VLF field data for atmospheric variations and changes in the primary field originating from the VLF transmitter. By tieing-back into one or several tiepoints on the grid, the OMNI PLUS will automatically calculate and apply the drift measured to the field data previously recorded in memory. More information on this unique "tie-line" method can be obtained from page 3 of the OMNI IV brochure.

- **Notation of Natural and Cultural Features**

The OMNI PLUS can record natural and cultural features unique to each grid location. This capability eliminates the need for a field notebook and provides additional information that can assist in interpreting recorded data.

- **Analogue Output**

Since VLF as well as magnetic data is often easier to interpret as a profile plot, data collected by the OMNI PLUS can be represented in analogue format at a vertical scale best suited for data presentation. The operator can selectively output in analogue and/or digital format, up to 10 of the following parameters:

- total dip
- Fraser filtered data
- ellipticity
- VLF total field strength
- vertical quadrature
- horizontal amplitude
- apparent resistivity
- phase angle
- magnetic total field strength
- magnetic vertical gradient

- **Computer Interface**

The OMNI PLUS can transfer uncorrected, corrected or filtered data to most computers with a RS232C port. In some cases, a DCA-100 Data Communications Adaptor may be required. Computers with collection packages including either "X-ON, X-OFF" or "ENQ/ACK" communications protocol formats are also compatible.

Specifications*

Frequency Tuning Range	15 to 30 kHz, with bandwidth of 150 Hz; tuning range accommodates new Puerto Rico station at 28.5 kHz
Transmitting Stations Measured	Up to 3 stations can be automatically measured at any given grid location within frequency tuning range
Recorded VLF Magnetic Parameters	Total field strength, total dip, vertical quadrature (or alternately, horizontal amplitude)
Standard Memory Capacity	800 combined VLF magnetic and VLF electric measurements as well as gradiometer and magnetometer readings
Display	Custom designed, ruggedized liquid crystal display with built-in heater and an operating temperature range from −40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal strength status monitor and function descriptors.
RS232C Serial I/O Interface	2400 baud rate, 8 data bits, 2 stop bits, no parity
Test Mode	A. Diagnostic Testing (data and programmable memory) B. Self Test (hardware)
Sensor Head	Contains 3 orthogonally mounted coils with automatic tilt compensation
Operating Environmental Range	−40°C to +55°C; 0 – 100% relative humidity; Weatherproof
Power Supply	Non-magnetic rechargeable sealed lead-acid 18V DC battery cartridge or belt; 18V DC disposable battery belt; 12V DC external power source for base station operation only.
Weights and Dimensions	
Instrument Console	2.8 kg, 128 x 150 x 250 mm
Sensor Head	2.1 kg, 130 dia. x 130 mm
VLF Electronics Module	1.1 kg, 40 x 150 x 250 mm
Lead Acid Battery Cartridge	1.8 kg, 235 x 105 x 90 mm
Lead Acid Battery Belt	1.8 kg, 540 x 100 x 40 mm
Disposable Battery Belt	1.2 kg, 540 x 100 x 40 mm

*Preliminary

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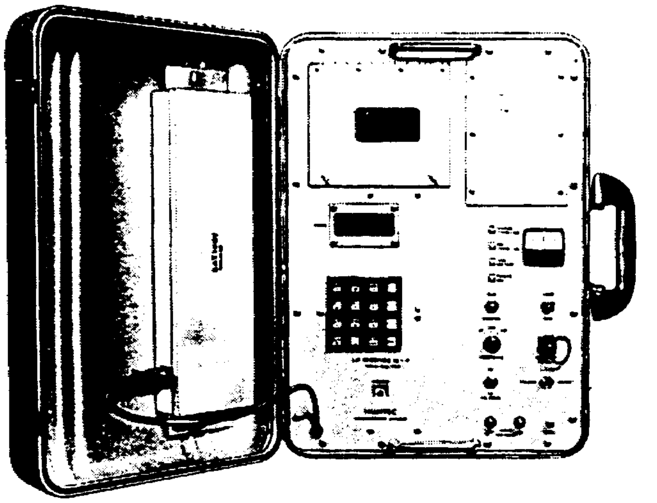
M-4 Induced Polarization Receiver



DESCRIPTION

The Huntec M-4 is a microprocessor based receiver for time and frequency domain IP and complex resistivity measurement. It is

Easy to operate. One switch starts a measurement, of up to 29 quantities simultaneously. The optional Cassette DataLogger records them all in seconds. Calibration, gain setting and SP buckout are all automatic.

Reliable. Using advanced digital signal processing techniques, the M-4 delivers consistently accurate data even in noisy, highly conductive areas. For mechanical reliability it is packaged in a rugged aluminum case for backpack or hand carrying.

Versatile. The operator may adjust delay and integration times, operating frequency and other measurement parameters, to adapt to a wide range of survey conditions and requirements. An independent reference channel facilitates drillhole and underground work, and guarantees transmitter-receiver synchronization in high-noise conditions.

Highly accurate. With a frequency bandwidth of 100 Hz and noise-cancelling digital signal stacking, the M-4 delivers very precise results. The details are summarized in a table overleaf.

Sensitive. The same features that make the M-4 accurate allow detection of very weak signals. The Huntec receiver requires lower transmitter power than any other, for a given set of operating conditions. Automatic correction for drifts in self-potential and gain allow long stacking times for significant signal-to-noise improvements.

Intelligent. Under the control of a powerful 16-bit microprocessor, the M-4 calibrates and tests itself between measurements. Coded error messages, flashed onto the display, inform the operator of any malfunction.

The M-4 Receiver is complemented by Huntec's new M-4 transmitters, which offer precisely timed constant-current output and both time and frequency domain waveforms, compatible with the receiver's accuracy and multi-mode measurement capabilities. The RL-2 Reference Isolator connects any IP transmitter to the receiver's reference channel. The GeoDataBase field computer reads, stores and processes data from M-4 cassettes.

Contact Huntec for more information on the benefits offered by the M-4 product line.

FEATURES

- Time and Frequency domain IP and Complex Resistivity operation
- Simultaneous Time domain and Complex Resistivity measurement
- Automatic calibration
  - gain setting
  - SP cancellation
  - fault diagnosis
  - filter tuning
- Independent reference channel for drillhole and underground work
- 33 quantities, displayable on large 3½ digit low-temperature liquid-crystal readout
- Analogue meter for source resistance measurement
- 10^9 ohms differential input resistance
- 8 hours continuous operation with replaceable, rechargeable nickel-cadmium battery pack (2 supplied)
- Optional Cassette DataLogger fits inside case, has read-after-write error checking. Up to 350 stations per tape.
- Conveniently packaged for backpacking or hand carrying
- 100 Hz bandwidth, fine time-resolution
- Advanced digital signal stacking
- Delivers reliable, accurate data in noisy, highly conductive areas.

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SPECIFICATIONS

Inputs

Signal Channel

Range: 5 x 10^{-5} to 10 volts. Automatic ranging. Overload indication
Resistance: Greater than 10^{9} ohms differential
Bandwidth: 100 Hz
SP Cancellation: −5 to +5 volts (automatic)
Protection: Low-leakage diode clamps, gas discharge surge arrestors, replaceable fuses.

Reference Channel

Level: 500 mV minimum, 10 volts peak maximum, overload indication
Resistance: 2 x 10^{5} ohms differential

Controls and Functions

Operating Controls

Keypad: 16 keys, calculator format, function associated with each key.
Reference Registers: Keypad may be used to store up to ten 3½ digit numeric values with floating decimal point, to represent station number, line number, operator, time, date, weather, transmitter current, etc. for recording on cassette.

Programming Controls

Sub-panel: All programming controls are on a covered sub-panel, not accessible during normal operation.
Thumbwheel Switches: Select delay time t_D in milliseconds, chargeability window t_p in milliseconds; operating frequency; PFE frequency ratio.

Displayable Quantities

Time domain: Primary voltage; self-potential; chargeability (total or each of 10 windows of equal width); phases of odd harmonics 3 to 15; amplitudes of odd harmonics 1 to 15; cycle count; repeating display of polarization potential and total chargeability.
Freq.domain: Primary amplitude; Percent Frequency Effect; self-potential; cycle count.
Complex Resistivity: Phases of odd harmonics 3 to 15; amplitudes of odd harmonics 1 to 15; fundamental phase (with ref. input); cycle count.
Any mode: Battery voltage, Frequency error.

Outputs

Displays

Digital Display: 3½ digit, low-temperature liquid crystal display. Indicates measurement results and diagnostic error messages.
Analogue Meter: Ohms scale for source resistance; also gives qualitative indication of signal-to-noise ratio.

Cassette DataLogger (Optional)

Description: Accommodated within M-4 chassis. If not acquired with receiver, may be retrofitted by user at any time. Two recording modes:
Partial: All sub-panel settings, measurement results, and contents of reference registers are recorded (2 seconds recording time).
Full: As in partial mode, but also recorded is one cycle of averaged signal waveform (28 seconds recording time). If external reference is used, one cycle of reference waveform is also recorded (60 seconds recording time). Extra memory and software available to average and store the reference waveform for advanced offline resistivity computation.
Format: ANSI/ECMA/ISO standard for saturation recording: 80 bytes/record, all data recorded in ASCII code.
Verification: Read-after-write data verification (automatic)

Mechanical

M-4 Receiver with battery pack: 45 cm x 33 cm x 14 cm, 10.0 kg
M-4 Receiver with battery pack and Cassette DataLogger: Dimensions as above, 11.0 kg
Replaceable Battery pack: 33 cm x 11 cm x 4.5 cm, 3 kg

Environmental

Temperature: Operation: −20°C to +55°C
Storage: −40°C to +70°C
Humidity: Moisture-proof, operable in light drizzle.
Altitude: −1,525 m to +4,775 m
Shock,Vibration: Suitable for transport in bush vehicles.

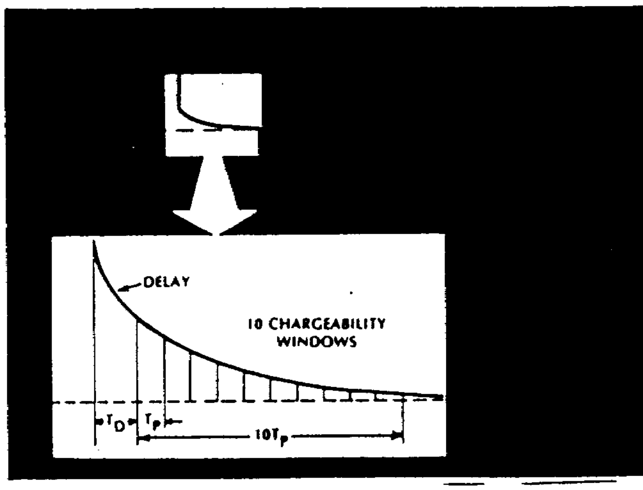
OUTPUT ACCURACY AND SENSITIVITY

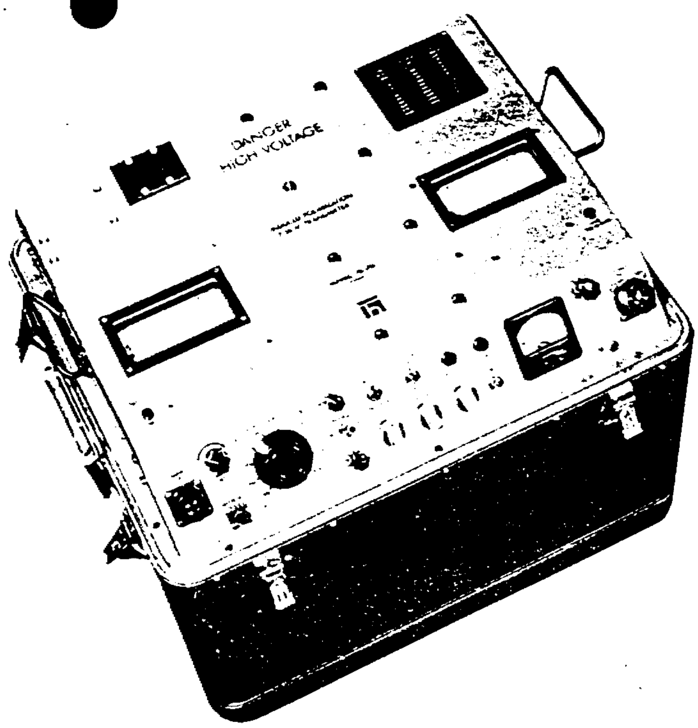
	milliradians	volts	volts	volts	seconds	%
	2 milliradians(1)	1% 40Hz 2% to 80Hz	±1%	±1%	0.1%(2)	0.1%(3) full scale
	0.01 milliradians	10^{-6} volts	10^{-6} volts	10^{-3} volts	10^{-3} seconds	0.001% full scale

1) Frequency domain mode: at harmonic frequencies up to 15 Hz, increases to not more than 5 milliradians at 80 Hz.
Time domain mode: at harmonic frequencies up to 7.5 Hz, increases to not more than 5 milliradians at 30 Hz.
2) of total OFF time
3) Full scale defined as 100% PFE.

Cassette Data: recorded in ASCII, 9 digits with decimal point fixed for four decimal digits.
Display Data: 3½ digits, floating decimal point
Resolution of averaged waveform limited by A/D converter to one part or 4096 x (square root of cycle count).
Resolution of reference waveform (not averaged) limited by available memory to one part in 256. Additional memory and averaging software available as option.

CHARGEABILITY WINDOWS





M-4 SERIES

Induced Polarization/ Resistivity 7.5 kW Transmitter

DESCRIPTION

The HUNTEC M-4 7.5 kW Induced Polarization transmitter is designed for time domain, frequency domain (PFE) and complex resistivity applications. The unit converts primary 400 Hz ac power from an engine-alternator set to a regulated dc output current, set by the operator. Current regulation eliminates output waveform distortion due to electrode polarization effects. It is achieved in the transmitter by varying the alternator field currents. The transmitter is equipped with dummy loads to smooth out generator load variations.

FEATURES

- Solid-state switching for long life and precise timing.
- Open circuit during the "off" time ensures no counter current flow.
- Resistance measurement for load matching.
- Precision crystal controlled timing.
- Failsafe operation protects against short-circuit and overvoltage.
- Automatic regulation of output current eliminates errors due to changing polarization potential and load resistance.

SPECIFICATIONS

M-4 7.5 kW Transmitter

A) Power input:	**96 — 144 V line to neutral 3 phase, 400 Hz (from Huntec generator set)**
B) Output:	**Voltage: 100 — 3200 V dc in 10 steps Current: 0.4 — 16 A regulated****
C) Current regulation:	**Less than ±0.1% change for ±10% load change**
D) Output frequency:	**0.0625 Hz to 1 Hz (time domain, complex resistivity) 0.0625 Hz to 4 Hz (frequency domain) selectable on front panel**
E) Frequency accuracy:	**±50 ppm − 30°C to + 60°C**
F) Output duty cycle: $T_{on}/(T_{on}+T_{off})$	**0.5 to 0.9375 in increments of 0.0625 (time domain) 0.9375 (complex resistivity) 0.75 (frequency domain)**
G) Output current meter:	**Two ranges: 0-10 A and 0-20 A**
H) Ground resistance meter:	**Two ranges: 0-10 kΩ, 0-100 kΩ**
I) Input voltage meter:	**0-150 V**
J) Dummy load:	**Two levels: 2 kW and 6 kW**
K) Temperature range:	**−34°C to + 50°C**
L) Size:	**53 cm x 43 cm x 43 cm**
M) Weight:	**50 kg**

****smaller currents are obtainable, but outside the current regulation range the transmitter voltage is regulated, not the current.**

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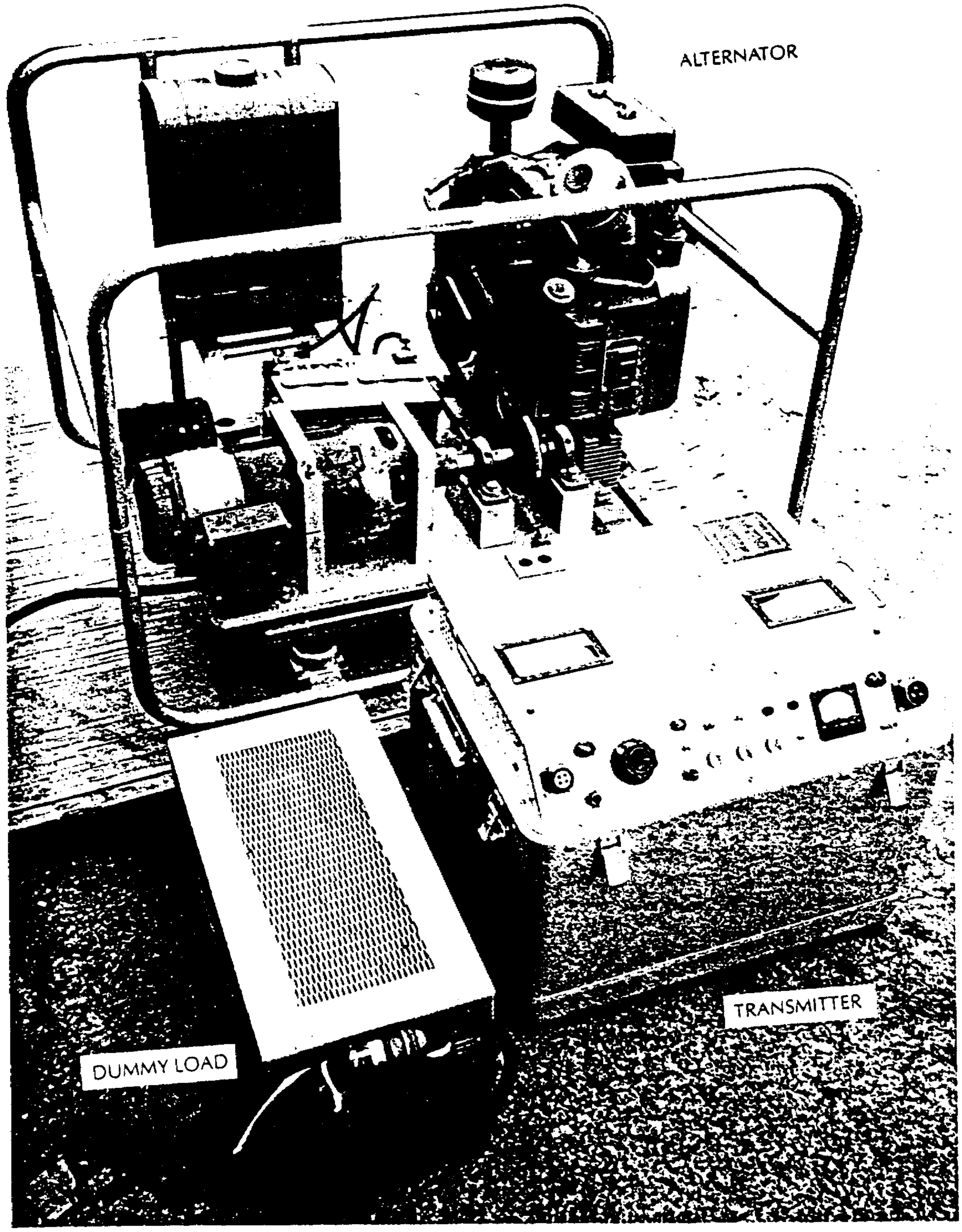


SPECIFICATIONS

M-4 7.5 kW Engine Driven Alternator

Output:	120 V ac 400 Hz 3 phase 18 kVA Maximum
Engine:	15 kW air cooled twin cylinder four cycle piston engine with electric start
Fuel:	Regular grade gasoline, tank capacity 14 L to give 2 h duration
Alternator:	Star connected aircraft type, belt driven, forced air cooled
Construction:	Tubular protective carrying frame with resiliently mounted engine and alternator
Size:	79 cm x 79 cm x 102 cm
Weight:	205 kg

NOTES ON IP/RESISTIVITY SURVEYS

General

Induced Polarization (IP)/resistivity surveys are commonly conducted in the time domain and frequency domain, and less frequently, as spectral or complex resistivity measurements. There are a variety of geometrical arrays that can be employed.

The present survey employed time-domain measurements using the dipole-dipole array. Measurements were made with the Huntec Mk IV receiver and 2.5 kw transmitter.

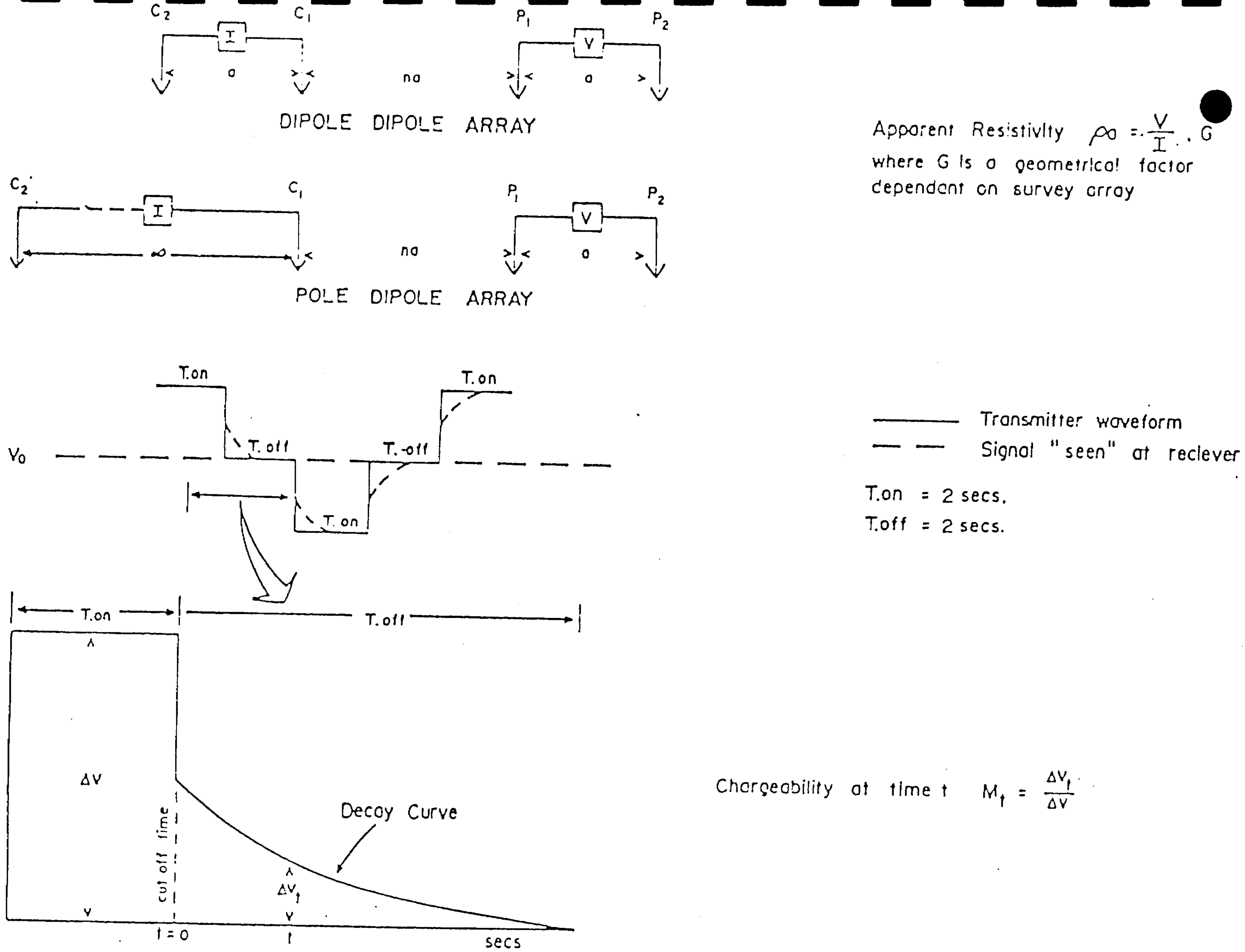
The following discussion sets out in some detail the principles and procedures of the IP method as related to the present survey.

Time Domain Method

As shown in Figure 1, in the time domain a modified, square-wave current consisting of "on/off/on/off" cycles of equal duration is transmitted into the ground through a pair of electrodes (current dipole). The primary (V_p) and secondary (V_s) voltages generated in the ground are measured at another pair of electrodes (potential dipole). The primary voltage, measured during the "on" current cycles, is a function of the electrical resistivity of the ground. The secondary voltage, measured during "off" current cycles, is the IP effect which reflects the amount of polarizable minerals, such as metallic sulphides, graphite, etc., in the ground.

The apparent resistivity of the ground is not directly measured, but is obtained by a mathematical formula utilizing the primary voltage value, the current output from the transmitter at the same instant and a geometrical constant dependent on the array type being used:

$$\rho a = \frac{Vp}{I} \times aF$$



PRINCIPLE OF TIME DOMAIN I.P.

Figure 1

where: ρa = apparent resistivity in ohm-meters

Vp = primary voltage (volts)

I = transmitted current (amps)

a = electrode spacing in meters

F = geometrical factor depending on the electrode array used.

The Huntec Mk IV system measures the secondary voltage or IP effect at 10 time intervals of equal width. The width of the time window (Tp) and the length of the delay (Td) between the start of an "off" cycle and the beginning of the IP measurement are adjustable to suit the conditions of the survey. In the present survey, these were set at 100 msec and 100 msec, respectively, and the IP effect was recorded for each of five individual time windows (M_1, M_3, M_5, M_7 and M_9) and for the total decay voltage (M_T). The secondary voltage divided by the primary voltage yields the parameter chargeability in milliseconds.

The decay curve constructed from the ten chargeability observations is generally in the form of an exponential decay curve. It frequently can be split into two portions - an early fast decay portion and a later slow decay portion. The fast decay portion is generally due to inductive effects, while the later slow decay predominantly reflects true polarization effects. In theory chargeability is the value of the slow decay extrapolated backwards to the instant of transmitter shut-off.

Survey Arrays

A number of different arrays are available for carrying out IP measurements. The ones generally used in mineral exploration are the dipole-dipole, pole-dipole and the gradient array, shown graphically in Figure 2, and described further below.

(1) Dipole-Dipole Array

This array is one of the most commonly used arrays in IP and is the only one used with time-domain, frequency-domain and spectral surveys.

The system employs four moving electrodes with a layout as shown in Figure 2. The two current electrodes C_1 and C_2 and the two potential or measuring electrodes P_1 and P_2 have the same separation, called the 'a' spacing. The interval between the current and potential pair is generally some fixed multiple 'n' of this 'a' spacing. Measurements with the dipole-dipole array are plotted at the mid-point of the array.

As the 'n' value is increased, (i.e., as the current and potential dipoles are moved farther and farther apart), this has the effect of increasing the depth of exploration. While this is typically quoted as being one half of the total array length, actual depth of exploration is strongly dependent on the distribution of resistivity in the ground and is often much less than half the array length, particularly if conductive overburden is present.

Advantages

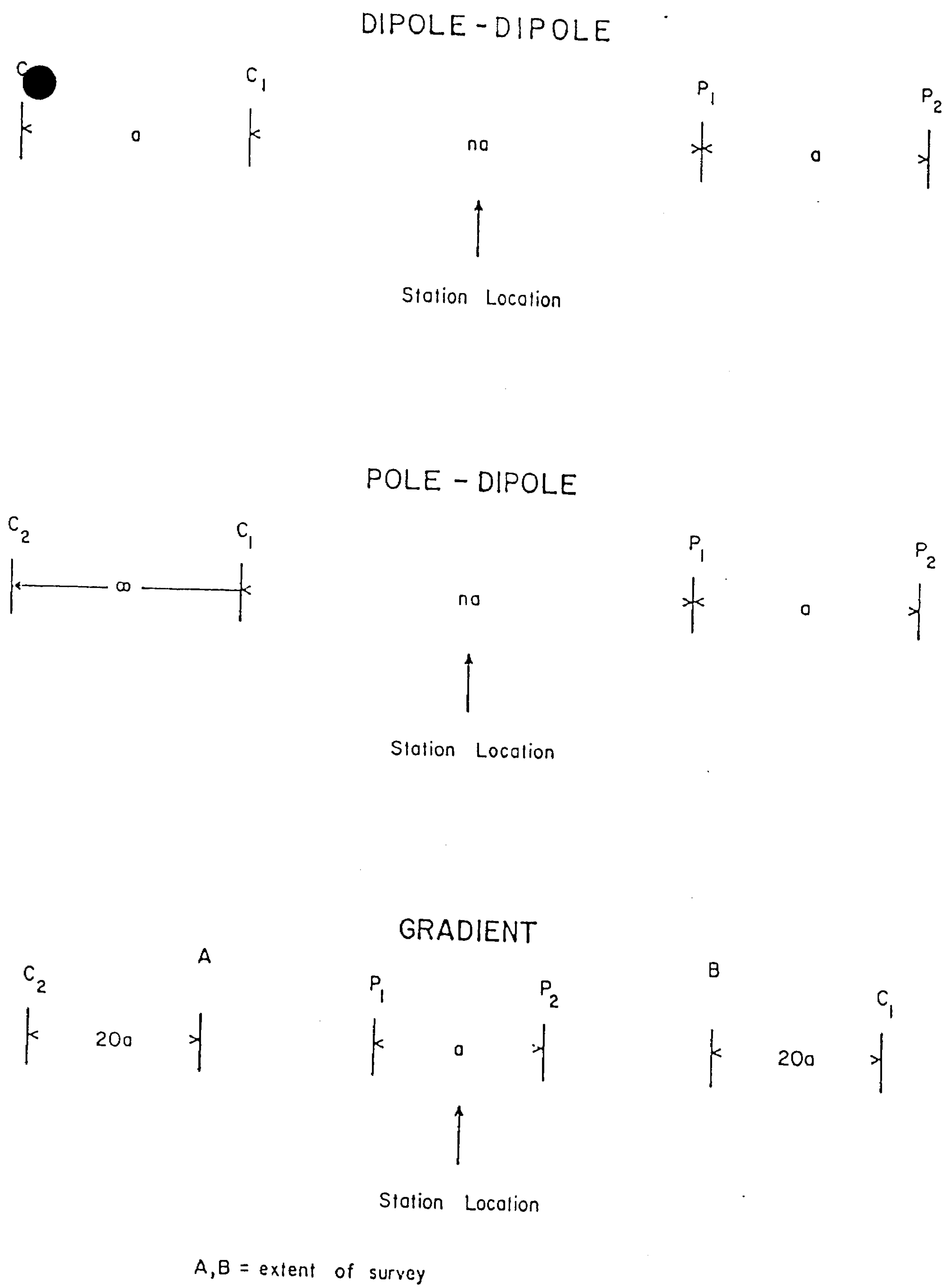
1. The system has low inductive coupling because the current wires and reading wires can be kept separated.

2. Anomalies are symmetrical.

3. Sensitivity and resolution are good where 'a' and 'n' are chosen appropriately relative to the target dimensions and depth.

Disadvantages

1. Operations can be slow since all four electrodes are moved along the survey line.



I.P ARRAYS

Figure 2

2. Electrical contact can be especially difficult in areas with highly resistive surficial materials, such as dry sand, permafrost or exposed bedrock.

3. Primary (V_p) and secondary (V_s) voltages are lower than with other arrays which can cause measurement difficulties and lack of penetration in areas of high surface conductivity.

(2) Pole-Dipole Array

The pole-dipole (or three electrode) array is frequently used, most often in the time-domain.

Electrodes C_1 and P_1-P_2 move along the survey line. While C_2, the remote current electrode, can be anywhere in the area provided it is at a large distance from the station being measured (In highly conductive ground the actual location of C_2 may be critical as current paths may be adversely distorted). The separation between C_1 and P_1P_2 can be increased, usually at integral intervals, to achieve varying depths of exploration. Readings are plotted in several conventions between the potential dipole and the active (moving) current electrode.

Advantages

1. Faster than the double-dipole array since only three electrodes are moved.

2. In areas of bad contact i.e. dry frozen or outcrop areas

2. Electrical contact can be especially difficult in areas with highly resistive surficial materials, such as dry sand, permafrost or exposed bedrock.

3. Primary (V_p) and secondary (V_s) voltages are lower than with other arrays which can cause measurement difficulties and lack of penetration in areas of high surface conductivity.

(2) Pole-Dipole Array

The pole-dipole (or three electrode) array is frequently used, most often in the time-domain.

Electrodes C_1 and P_1-P_2 move along the survey line. While C_2, the remote current electrode, can be anywhere in the area provided it is at a large distance from the station being measured (In highly conductive ground the actual location of C_2 may be critical as current paths may be adversely distorted). The separation between C_1 and P_1P_2 can be increased, usually at integral intervals, to achieve varying depths of exploration. Readings are plotted in several conventions between the potential dipole and the active (moving) current electrode.

Advantages

1. Faster than the double-dipole array since only three electrodes are moved.

2. In areas of bad contact, i.e. dry, frozen or outcrop areas, it is easier to use than dipole-dipole since only one current electrode has to be moved.

3. Better depth of exploration than the double-dipole array.

4. Fairly sensitive and fairly good resolution.

Disadvantages

1. Yields asymmetrical anomalies with the anomaly peak seldom directly over the polarizable source. The anomaly shape is dependent on the direction of C_2.

2. More wire is needed because of the array length; this leads to logistical problems (moose, rabbits, etc.).

3. EM coupling is higher than with the dipole-dipole array.

Gradient Array

In the gradient array, normally only run in the time domain, two current electrodes are placed a large, fixed distance 'D' apart. The potential electrode pair are held at a constant separation 'a' and move along survey lines parallel to the line joining C_1 and C_2. The separation between P_1 and P_2 is not rigidly specified but should not be greater than D/10. Greater resolution is attained with a shorter 'a' spacing, but at the cost of lower primary and secondary voltages.

Generally, survey coverage is restricted to an area comprising the middle 1/3 of C_1C_2. The measurement is plotted at the midpoint of the potential dipole.

Advantages

1. Depth of exploration is good whilst retaining high resolution for small bodies; least susceptible to the masking effect of conductive overburden.

2. Production is fast since only two electrodes are moved; two or more receivers can be used simultaneously.

3. Less hazardous since current electrodes are not handled in moving stations.

4. Least affected by topographic variations.

5. Useful in areas of high resistivity or in frozen terrain, since fixed current electrodes can be located where electrical contact is good, or carefully built to achieve good contact.

6. Can indicate dip of simple targets.

<u>Disadvantages</u>

1. Not practical where long profiles are desired or where survey lines are a long way apart.

2. Low V_p and V_s make the method difficult to impossible in areas of high conductivity.

3. High inductive effect is created by large current dipole.

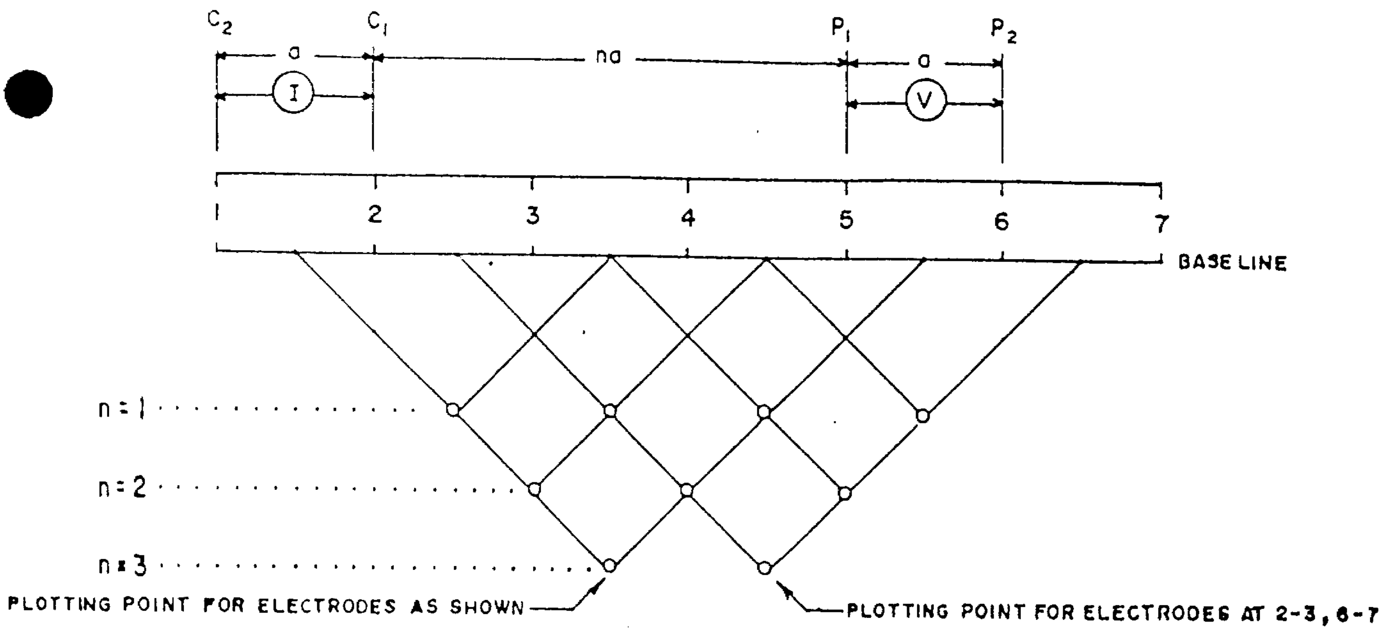
4. Narrow conductive bodies in conducting environment can sometimes produce false resistivity highs.

5. Not readily amenable to detailed interpretation as to depth of source.

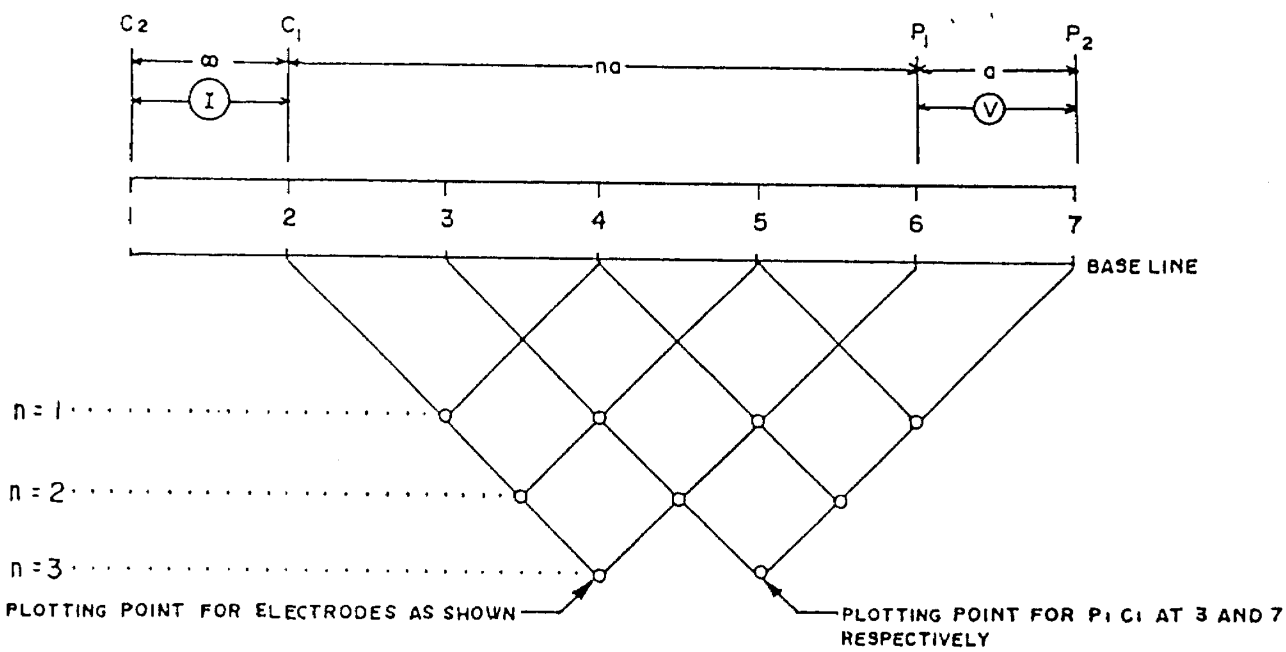
The relative performance of the different arrays in terms of various survey and target parameters is summarized in Table 1.

<u>Presentation</u>

Induced Polarization/resistivity data taken with a multi-spaced dipole-dipole array are generally plotted as pseudosections with each measurement plotted at the intersection of a 45° diagonal drawn from the center of the transmitting and receiving dipoles for each value of the separation, as seen in Figure 3. Plotting in this manner builds up a vertical section of data points. The term pseudo-



DIPOLE DIPOLE ARRAY



POLE DIPOLE ARRAY

Figure 3

PLOTTING POINTS FOR VARIOUS ARRAYS

TABLE 1

Summary of Array Performance

Characteristic	Dipole-dipole	Pole-dipole	Gradient
Magnitude of response	B	A	C
Dip of source	C	C	A
Overburden penetration	B	A	A
Recognition of overburden irregularities	A	B	B
Freedom from interference of overburden irregularities	B	A	C
Horizontal resolution and location	B	C	A
Depth of Detection	B	A	D
Depth: Interpretability	A	B	C
Freedom from inductive coupling, layered earth	A	B	C
Freedom from inductive coupling, finite inhomogeneties	A	B	D

section is used because the plotted depth does not represent the actual depth of exploration for that measurement. This actual depth depends on the electrical properties of the ground.

The data presented in the pseudosections is typically contoured at semi-logarithmic intervals ... 1.0, 1.5, 2.0, 3.0, 5.0, 7.5, 10.0 ... rather than at linear intervals because of the large range in the recorded data.

Data taken with a multi-spaced pole-dipole array are also typically plotted in pseudosection form, with the active (moving) current electrode and the midpoint of the potential dipole utilized to form the 45° diagonals.

Note that data taken with several different dipole lengths may be combined and plotted as a composite pseudosection, thereby displaying both shallow and deep anomalies simultaneously. Where overlapping data points are less than fully consistent, contouring (and interpretation) favours the values taken with the shorter dipole.

For the gradient array, resistivity and chargeability values are plotted as profiles at the mid-point of the potential dipole, as shown in Figure 2.

Interpretation

Multi-spaced dipole-dipole (or pole-dipole) data enable delineation of the location, depth and properties of a resistivity or chargeability anomaly. Just as the pseudosection plot is not a true depth section, it is also important to bear in mind that the values recorded and plotted are apparent resistivity and chargeability, which are the actual resistivity and chargeability of the ground only if the earth is homogeneous. In the all-important cases of narrow and/or deep targets, the recorded (apparent) values may bear only a slight indication of the intrinsic values of the target. It is a critical part of the interpretive process to estimate the intrinsic resistivity and chargeability of the causative sources from the apparent values, in addition to determining the geometry and location of the source.

With the gradient array, interpretability as to depth and intrinsic properties is reduced, although repeat surveys with several different dipole lengths can give some qualitative indication of depth.

Additional Remarks

The detectability of a conductive and/or polarizable body with IP is a function of its size and intrinsic electrical properties vis-a-vis the size and type of electrode array. Hence, targets that are very small or deep (relative to the scale of the electrode array) may be undetectable. Consequently, multiple coverage with several different arrays may be required to define shallow, narrow sources and to detect larger targets at depth.

Since IP and resistivity are techniques that reflect the averaged response of a volume of rock, resolution is a function of the array type and size. Typically, with the dipole-dipole array, two conductors or two polarizable sources separated by less than a dipole length cannot be resolved as individual responses.

Geologic sources that yield low resistivities are fairly numerous and include: connected zones of sulphides and graphite; clays and other water-saturated unconsolidated materials; intense hydrothermal alteration; and fault gouge.

Sources of IP anomalies are more restricted. They include: most metallic sulphides, graphite, some oxides and to a lesser extent, clays and zeolites. Under favourable conditions, targets or formations containing a few tenths of a per cent sulphides are detectable.

Finally, polarizable targets that are very highly resistive or very conductive may yield nil or negligible IP responses. In the former case, no current can flow through the rock mass. In the latter case, the conductor acts as a dead short, so that virtually no secondary decay voltage is observed.

Despite the complexity of survey procedures and interpretation, IP has demonstrated excellent effectiveness in exploration for various types of sulphide-bearing ore deposits in the 30 years since its original implementation. More recently, following the discovery of the Hemlo gold deposits, increasing use has been made of IP in exploration for gold.

APPENDIX III

Maps

Ontario

Ministry

GEOPHYSICAL – GI
TECHNICAL

42A06NE0114 2.10575 WHITNEY

900

TO BE ATTACHED AS AN APPENDIX TO TECHNICAL REPORT
FACTS SHOWN HERE NEED NOT BE REPEATED IN REPORT
TECHNICAL REPORT MUST CONTAIN INTERPRETATION, CONCLUSIONS ETC.

Type of Survey(s) Ground Geophysical Surveys

Township or Area Whitney Twp.

Claim Holder(s) Syngold Exploration Inc.

Survey Company MPH Consulting Limited

Author of Report S.J. Bate, M.Sc.

Address of Author 120 Adelaide St. W., Toronto, M5H 1T1

Covering Dates of Survey June 8 - July 12, 1987 (linecutting to office)

Total Miles of Line Cut 82 Km.

SPECIAL PROVISIONS CREDITS REQUESTED

ENTER 40 days (includes line cutting) for first survey.

ENTER 20 days for each additional survey using same grid.

	DAYS per claim
Geophysical	
–Electromagnetic	
–Magnetometer	40
–Radiometric	
–Other IP	20
Geological	
Geochemical	

AIRBORNE CREDITS (Special provision credits do not apply to airborne surveys)

Magnetometer ______ Electromagnetic ______ Radiometric ______
(enter days per claim)

DATE: Nov. 18, 1987 SIGNATURE: ______
Author of Report or Agent

MINING CLAIMS TRAVERSED
List numerically

(prefix)	(number)
P -	905637
P -	905638
P -	905639
P -	905640
P -	905905
P -	905906
P -	905907
P -	905796
P -	905797
P -	905798
P -	946296
P -	946297
P -	946298
P -	948380

If space insufficient, attach list

TOTAL CLAIMS 14

OFFICE USE ONLY

Res. Geol. ______ Qualifications 2.64/51

Previous Surveys

File No.	Type	Date	Claim Holder

837 (5/79)

GEOPHYSICAL TECHNICAL DATA

GROUND SURVEYS – If more than one survey, specify data for each type of survey

Number of Stations 10760 Number of Readings 1673 (IP) 10760 (Mag)

Station interval 25 ft. Line spacing 100 ft.(Mag) 200 ft. (IP)

Profile scale 1:2400 & 1:4800 (map scales)

Contour interval 25 nT. (Mag) Not Applicable for IP

MAGNETIC

Instrument EDA OMNI IV

Accuracy – Scale constant 0.1 nT.

Diurnal correction method EDA PPM 400 Base Station

Base Station check-in interval (hours) Every 20 secs.

Base Station location and value L3+00W, 1+00S

58,500 nT.

ELECTROMAGNETIC

Instrument

Coil configuration

Coil separation

Accuracy

Method: ☐ Fixed transmitter ☐ Shoot back ☐ In line ☐ Parallel line

Frequency
(specify V.L.F. station)

Parameters measured

GRAVITY

Instrument

Scale constant

Corrections made

Base station value and location

Elevation accuracy

INDUCED POLARIZATION RESISTIVITY

Instrument Huntec Mk IV Receivers

Method ☒ Time Domain ☐ Frequency Domain

Parameters – On time 2 sec. Frequency

– Off time 2 sec. Range

– Delay time 100 m secs.

– Integration time 100 m secs.

Power Huntec M4 7.5 Kwatt Transmitter

Electrode array Double dipole array N = 1 to 4

Electrode spacing 100 ft and 200 ft

Type of electrode

SELF POTENTIAL

Instrument __________ Range __________

Survey Method __________

Corrections made __________

RADIOMETRIC

Instrument __________

Values measured __________

Energy windows (levels) __________

Height of instrument __________ Background Count __________

Size of detector __________

Overburden __________
(type, depth – include outcrop map)

OTHERS (SEISMIC, DRILL WELL LOGGING ETC.)

Type of survey __________

Instrument __________

Accuracy __________

Parameters measured __________

Additional information (for understanding results) __________

AIRBORNE SURVEYS

Type of survey(s) __________

Instrument(s) __________
(specify for each type of survey)

Accuracy __________
(specify for each type of survey)

Aircraft used __________

Sensor altitude __________

Navigation and flight path recovery method __________

Aircraft altitude __________ Line Spacing __________

Miles flown over total area __________ Over claims only __________

GEOCHEMICAL SURVEY – PROCEDURE RECORD

Numbers of claims from which samples taken ______

______

______

Total Number of Samples ______

Type of Sample ______ (Nature of Material)

Average Sample Weight ______

Method of Collection ______

______

Soil Horizon Sampled ______

Horizon Development ______

Sample Depth ______

Terrain ______

______

Drainage Development ______

Estimated Range of Overburden Thickness ______

______

______

SAMPLE PREPARATION

(Includes drying, screening, crushing, ashing)

Mesh size of fraction used for analysis ______

______

______

______

General ______

______

______

______

______

______

______

______

______

______

ANALYTICAL METHODS

Values expressed in: per cent ☐ p. p. m. ☐ p. p. b. ☐

Cu, Pb, Zn, Ni, Co, Ag, Mo, As,-(circle)

Others ______

Field Analysis (______ tests)

Extraction Method ______

Analytical Method ______

Reagents Used ______

Field Laboratory Analysis

No. (______ tests)

Extraction Method ______

Analytical Method ______

Reagents Used ______

Commercial Laboratory (______ tests)

Name of Laboratory ______

Extraction Method ______

Analytical Method ______

Reagents Used ______

General ______

______

______

______

______

______

______

______

______

______

Ministry of Northern Development and Mines

Ontario

Report of Work

(Geophysical, Geological, Geochemical and Expenditures)

≠284/87

2.10575 Mining Act 2.10575

Instructions: – Please type or print.
– If number of mining claims traversed exceeds space on this form, attach a list.
Note: – Only days credits calculated in the "Expenditures" section may be entered in the "Expend. Days Cr." columns.
– Do not use shaded areas below.

Type of Survey(s): Geophysical Surveys	Township or Area: Whitney Township
Claim Holder(s): Syngold Exploration Inc.	Prospector's Licence No.: T4732
Address: 130 Adelaide Street West, Toronto, Ontario M5H 3P5	
Survey Company: MPH Consulting Limited	Date of Survey (from & to): 8 Day 6 Mo. 87 Yr. – 12 Day 7 Mo. 87 Yr. ; Total Miles of line Cut: 82 Km.
Name and Address of Author (of Geo-Technical report): S.J. Bate, 120 Adelaide Street West, Toronto, Ontario M5H 1T1	

Credits Requested per Each Claim in Columns at right

Special Provisions	Geophysical	Days per Claim
For first survey: Enter 40 days. (This includes line cutting)	- Electromagnetic	
	- Magnetometer	40
For each additional survey: using the same grid: Enter 20 days (for each)	- Radiometric	
	- Other IP	20
	Geological	
	Geochemical	

Man Days	Geophysical	Days per Claim
Complete reverse side and enter total(s) here	- Electromagnetic	
	- Magnetometer	
	- Radiometric	
	- Other	
	Geological	
	Geochemical	

Airborne Credits		Days per Claim
Note: Special provisions credits do not apply to Airborne Surveys.	Electromagnetic	
	Magnetometer	
	Radiometric	

Expenditures (excludes power stripping)

Type of Work Performed: CANCELLED

Performed on Claim(s):

NOV 23 1987

Calculation of Expenditure Days Credits

Total Expenditures: $ ÷ 15 = Total Days Credits:

MINING ACT 85 (1)

Instructions: Total Days Credits may be apportioned at the claim holder's choice. Enter number of days credits per claim selected in columns at right.

Date: Nov. 18, 1987 — Recorded Holder or Agent (Signature)

Mining Claims Traversed (List in numerical sequence)

Prefix	Number	Expend. Days Cr.
P	905637	60
	905638	60
	905639	60
	905640	60
	905905	60
	905906	60
	905907	60
	905796	60
	905797	60
	905798	60
	946296	60
	946297	60
	946298	60
	948380	60

RECEIVED NOV 30 1987 MINING LANDS SECTION

PORCUPINE MINING DIVISION RECEIVED NOV 23 1987

RECORDED NOV 23 1987

Total number of mining claims covered by this report of work: 14

For Office Use Only		
Total Days Cr. Recorded: 840	Date Recorded: Nov. 23/87	Mining Recorder
	Date Approved as Recorded: 1 Dec. 87	Branch Director

Certification Verifying Report of Work

I hereby certify that I have a personal and intimate knowledge of the facts set forth in the Report of Work annexed hereto, having performed the work or witnessed same during and/or after its completion and the annexed report is true.

Name and Postal Address of Person Certifying:
Barry D. Simmons, 3202-130 Adelaide Street West
Toronto, Ontario M5H 3P5

11-23-87 1CL0265 CHECK 7.49

Date Certified: Nov. 18, 1987 — Certified by (Signature)

APPARENT RESISTIVITY
OHM-M

=1

=2

=3

=4

line

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 100'

n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*

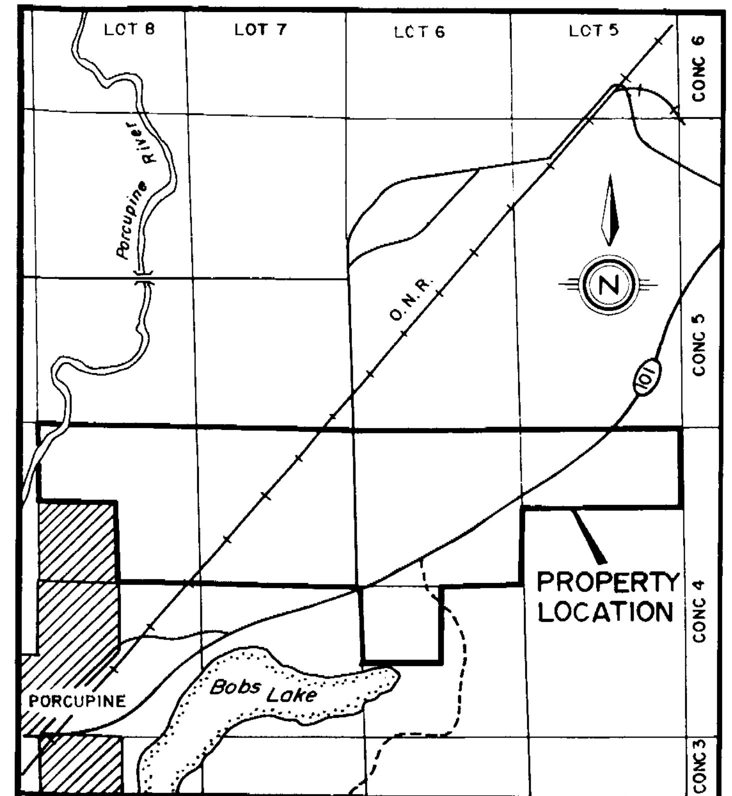
TOTAL CHARGEABILITY
MT (MSEC)

=1

=2

=3

=4



DETAILED LOCATION MAP

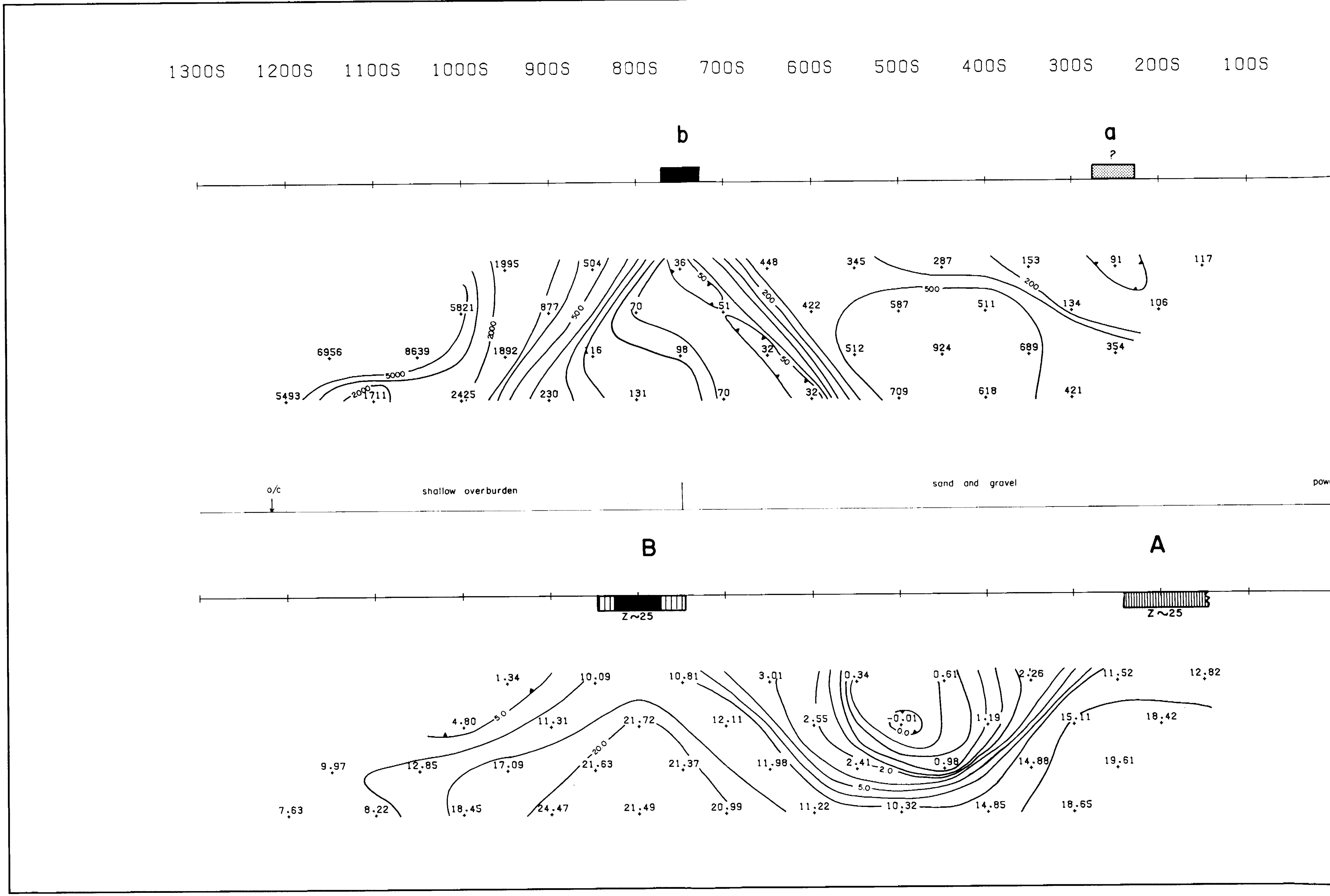
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 52+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No. Figure P-1	Date: July, 1987

MPH Consulting Limited



1300S
1200S
1100S
1000S
900S
800S
700S
600S
500S
400S
300S
200S
100S
b
a
?
o/c
shallow overburden
sand and gravel
power
B
A
Z~25
Z~25

N

APPARENT RESISTIVITY
OHM-M

1
2
3
4

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 100' n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

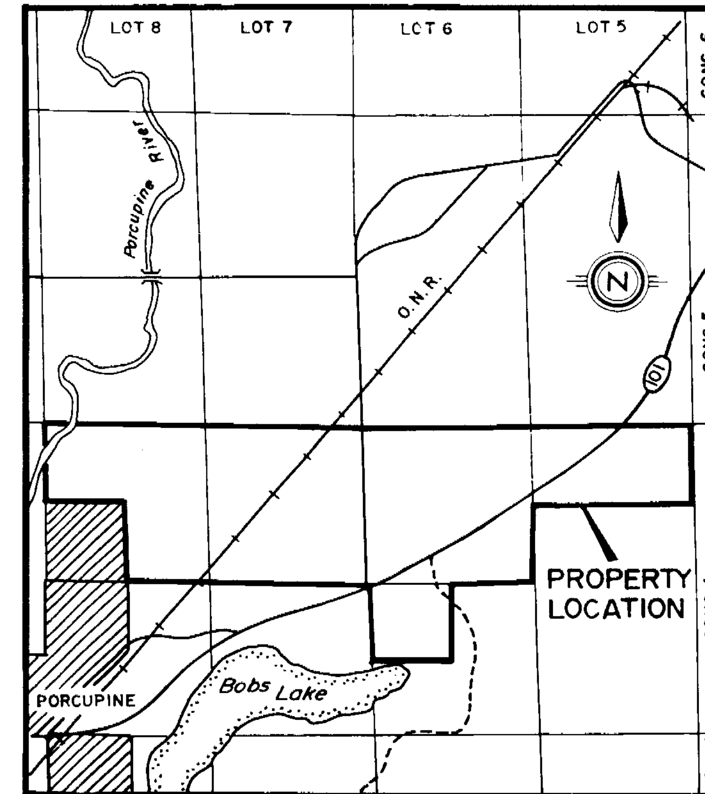
IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*

TOTAL CHARGEABILITY
MT (MSEC)

1
2
3
4



DETAILED LOCATION MAP

SCALE
0 500 1000
METRES

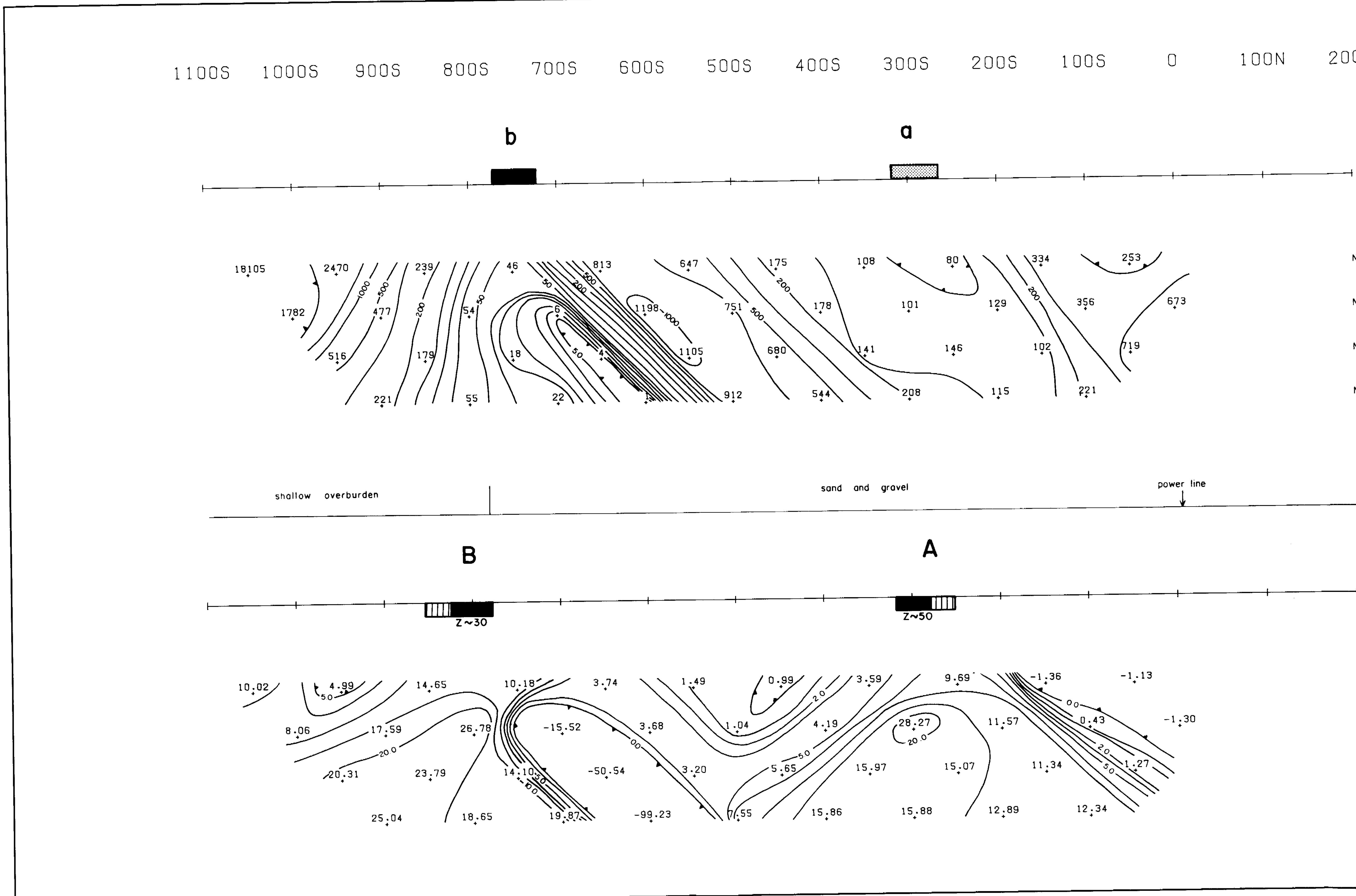
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 50+00 EAST

Project No: C-998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No: Figure P-2	Date: July, 1987

MPH Consulting Limited


1100S 1000S 900S 800S 700S 600S 500S 400S 300S 200S 100S 0 100N 200
b
a
shallow overburden
sand and gravel
power line
B
A
Z~30
Z~50

RESISTIVITY

RGEABILITY

LEGEND

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

Station Location

a = 100' n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

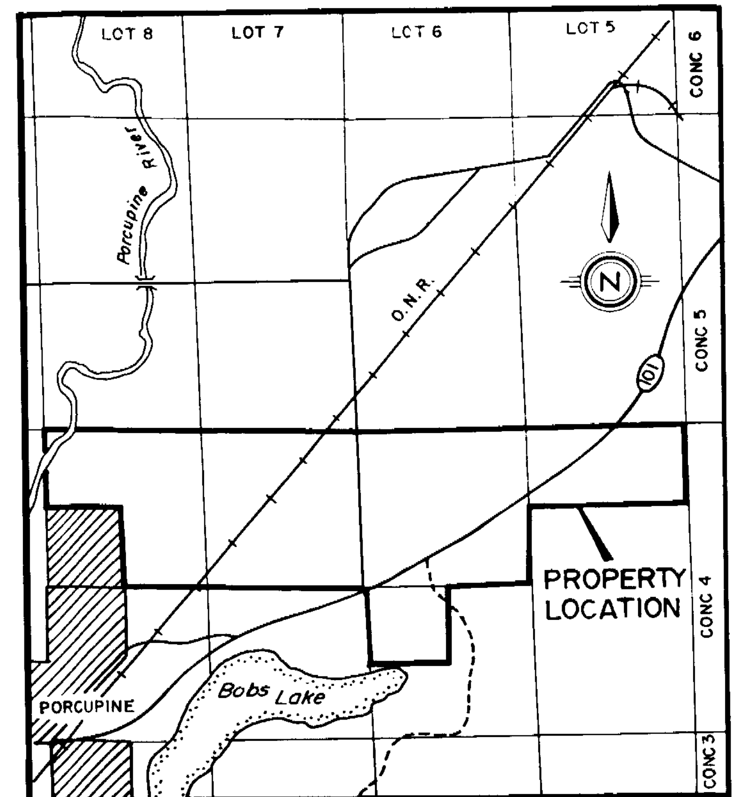
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z ~ 10 *Estimated Depth (ft)*

Z ~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE
0 500 1000
METRES

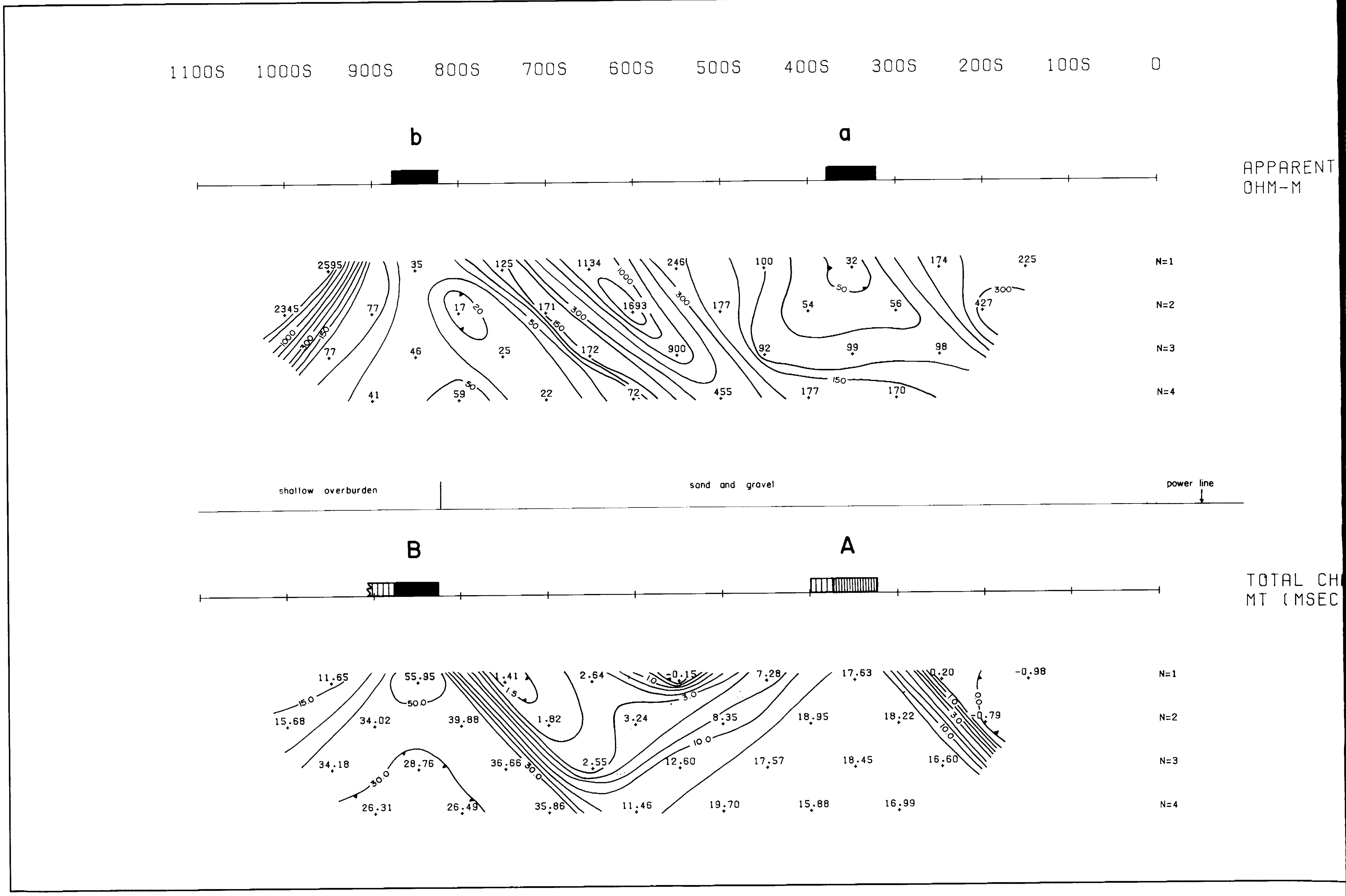
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 48+00 EAST

Project No. C – 998	By: S. J. Bate
Scale: 1 1200	Drawn: MPH
Drawing No: Figure P – 3	Date: July, 1987

MPH Consulting Limited



1100S 1000S 900S 800S 700S 600S 500S 400S 300S 200S 100S 0
b
a
APPARENT
OHM-M
N=1
N=2
N=3
N=4
shallow overburden
sand and gravel
power line
B
A
TOTAL CH
MT (MSEC
N=1
N=2
N=3
N=4

100N

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

power line

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 100' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

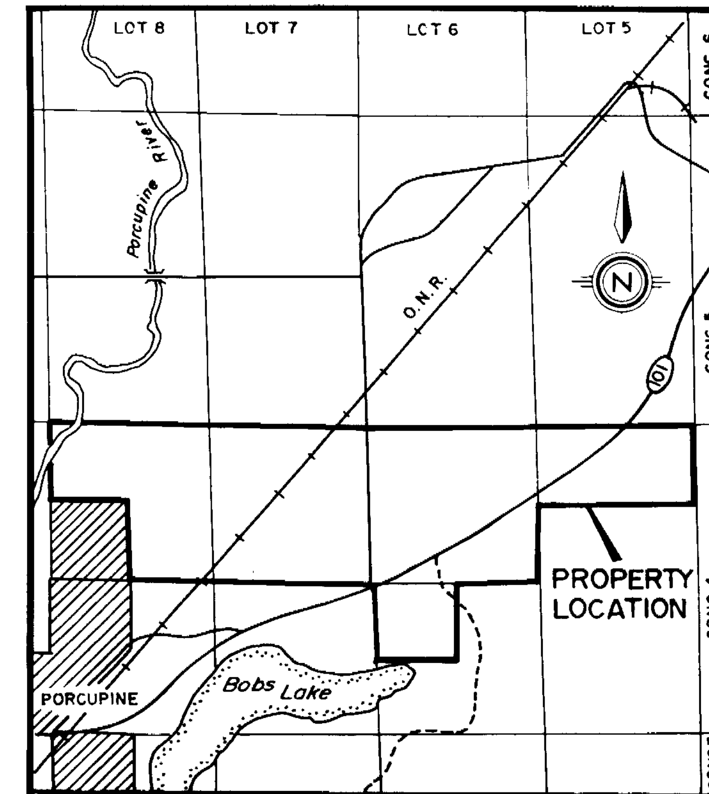
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)* Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

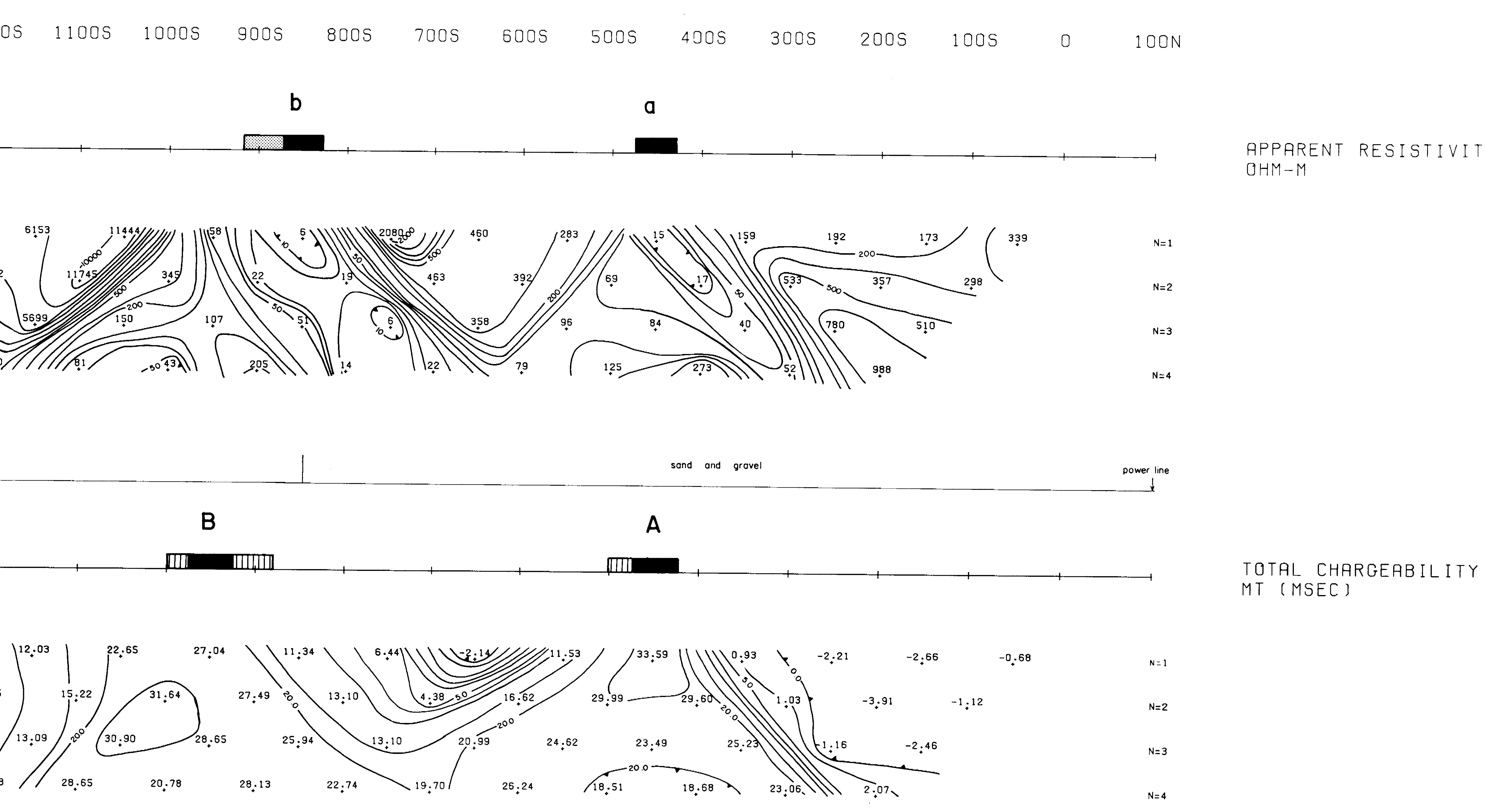
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

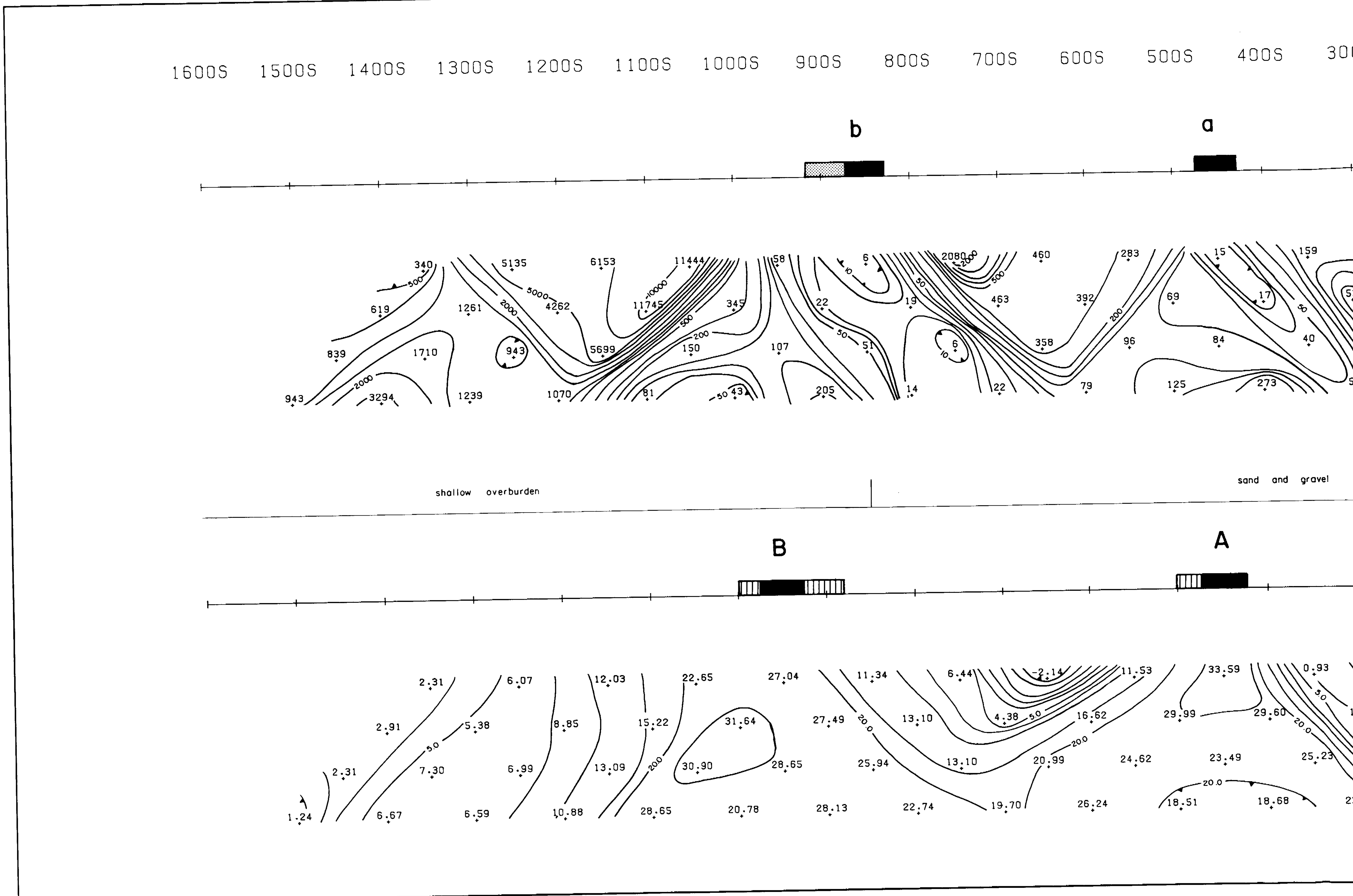
ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 46+00 EAST

Project No: C-998	By: S. J. Bate
Scale: 1 1200	Drawn: MPH
Drawing No: Figure P-4	Date: July, 1987

MPH Consulting Limited



0S 1100S 1000S 900S 800S 700S 600S 500S 400S 300S 200S 100S 0 100N
b
a
APPARENT RESISTIVITY
OHM-M
N=1
N=2
N=3
N=4
sand and gravel
power line
B
A
TOTAL CHARGEABILITY
MT (MSEC)
N=1
N=2
N=3
N=4



1600S
1500S
1400S
1300S
1200S
1100S
1000S
900S
800S
700S
600S
500S
400S
b
a
shallow overburden
sand and gravel
B
A

LEGEND

TRANSMITTER — Huntec 7.5

RECEIVER — Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

Station Location

a = 100'

n = 1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

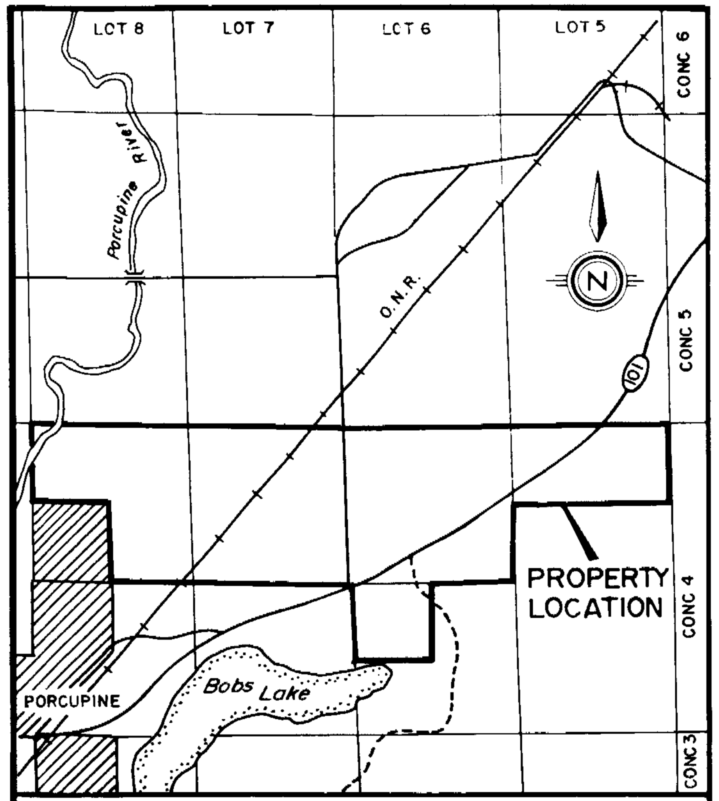
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z ~ 10 Estimated Depth (ft)

Z ~ 10 Estimated Depth (ft)



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

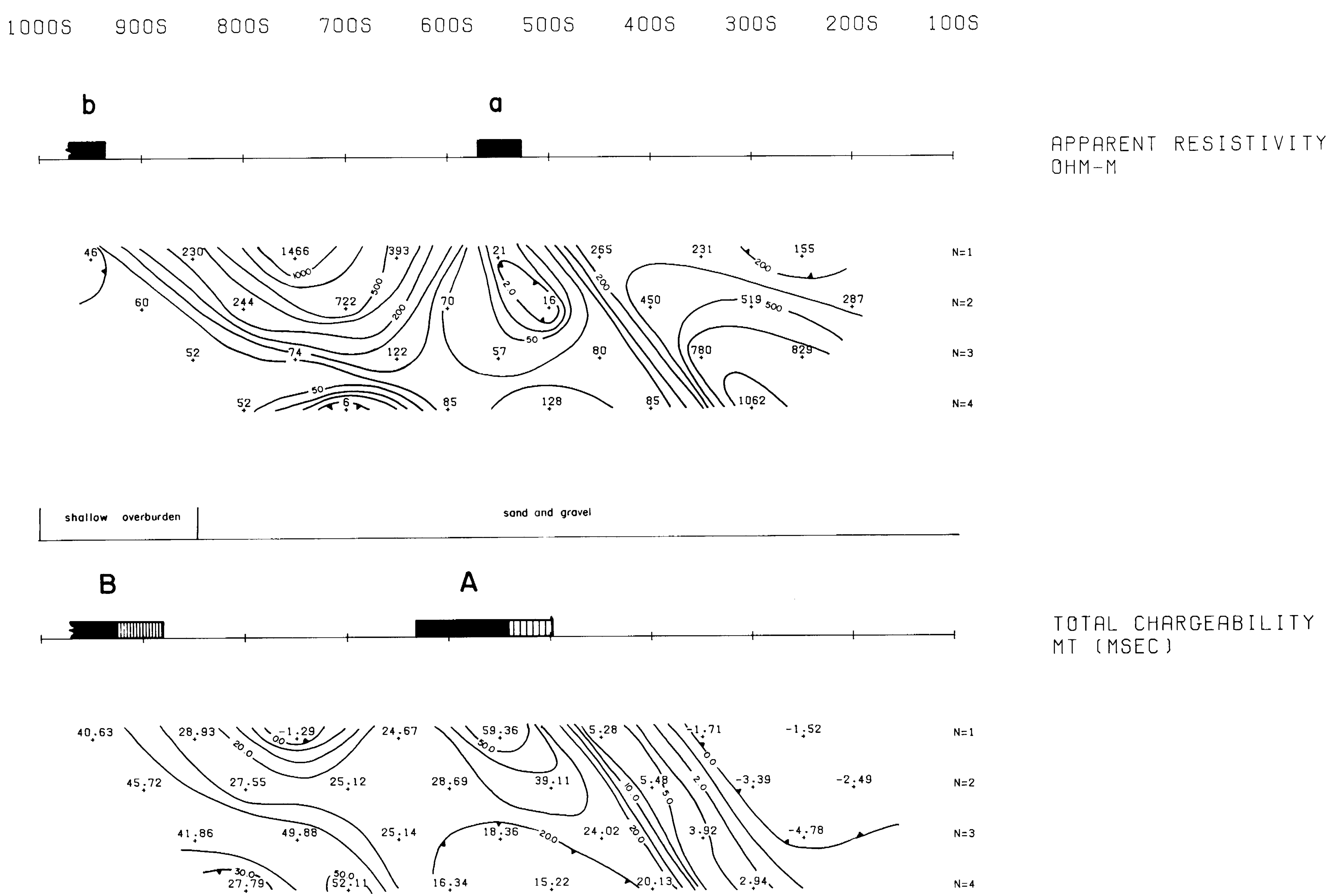
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 44+00 EAST

Project No. C – 998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No: Figure P – 5	Date: July, 1987

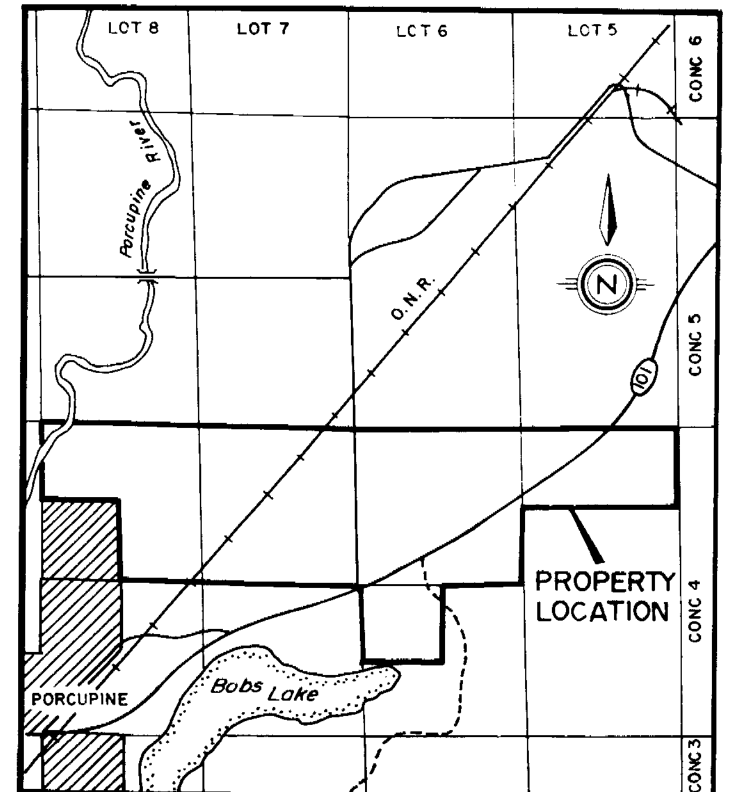
MPH Consulting Limited



1000S
900S
800S
700S
600S
500S
400S
300S
200S
100S
b
a
APPARENT RESISTIVITY
OHM-M
N=1
N=2
N=3
N=4
shallow overburden
sand and gravel
B
A
TOTAL CHARGEABILITY
MT (MSEC)
N=1
N=2
N=3
N=4

RESISTIVITY

ARGEABILITY
)



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 —a— C_2 na P_1 —a— P_2

Station Location

a = 100' n = 1,2,3,4

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*

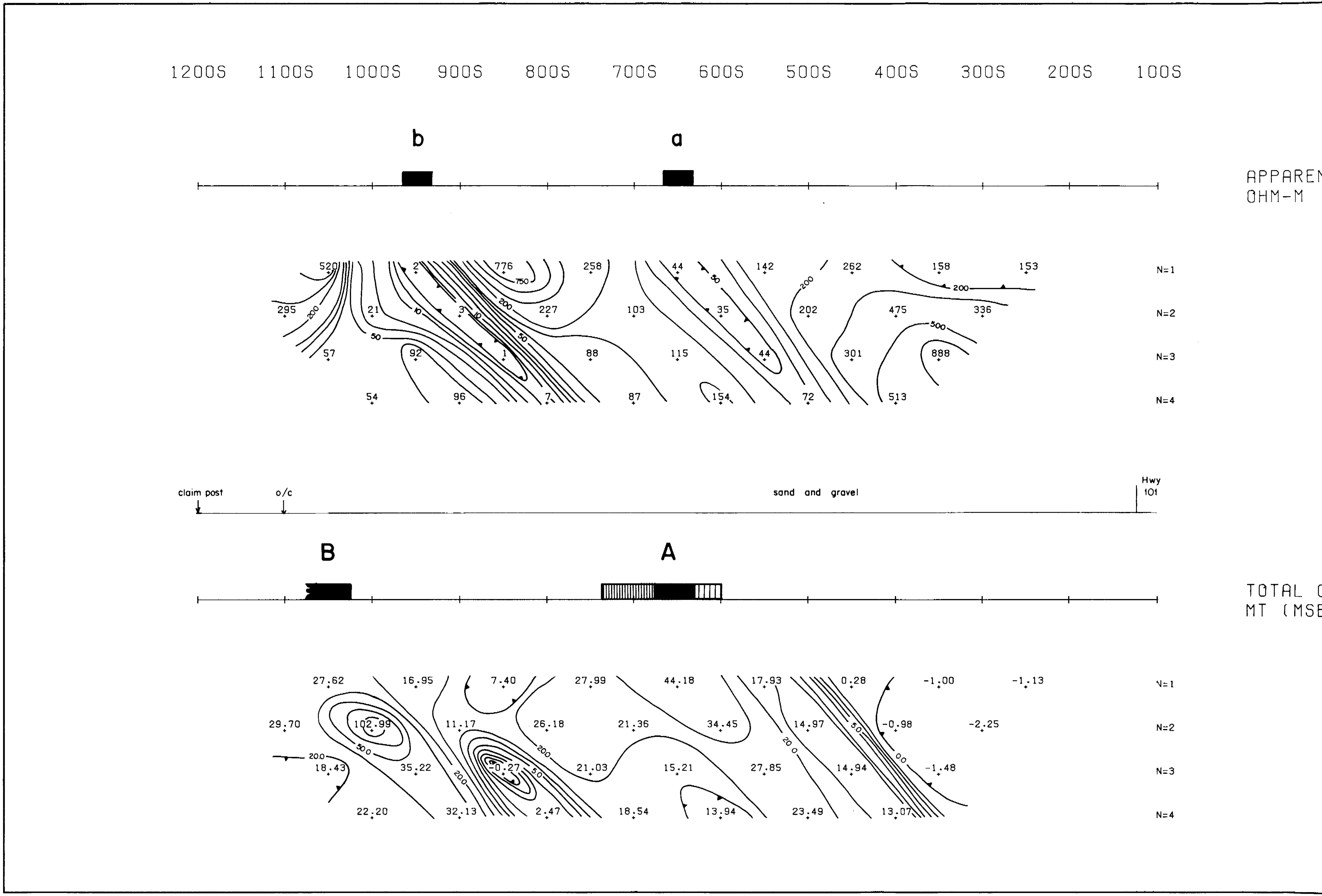
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 42+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No. Figure P-6	Date: July, 1987

MPH Consulting Limited


1200S 1100S 1000S 900S 800S 700S 600S 500S 400S 300S 200S 100S
b
a
APPAREN
OHM-M
520 2 776 258 44 142 262 158 153
N=1
295 21 3 227 103 35 202 475 336
N=2
57 92 1 88 115 44 301 888
N=3
54 96 7 87 154 72 513
N=4
claim post
o/c
sand and gravel
Hwy
101
B
A
TOTAL C
MT (MSE
27.62 16.95 7.40 27.99 44.18 17.93 0.28 -1.00 -1.13
N=1
29.70 102.99 11.17 26.18 21.36 34.45 14.97 -0.98 -2.25
N=2
18.43 35.22 -0.27 21.03 15.21 27.85 14.94 -1.48
N=3
22.20 32.13 2.47 18.54 13.94 23.49 13.07
N=4

600N

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

Station Location

a = 100'   n=1,2,3,4

RESISTIVITY LOW (ohm m) 50 100 200 300

CHARGEABILITY HIGH (m secs) 25 15 10 5

Resistivity Low at Surface

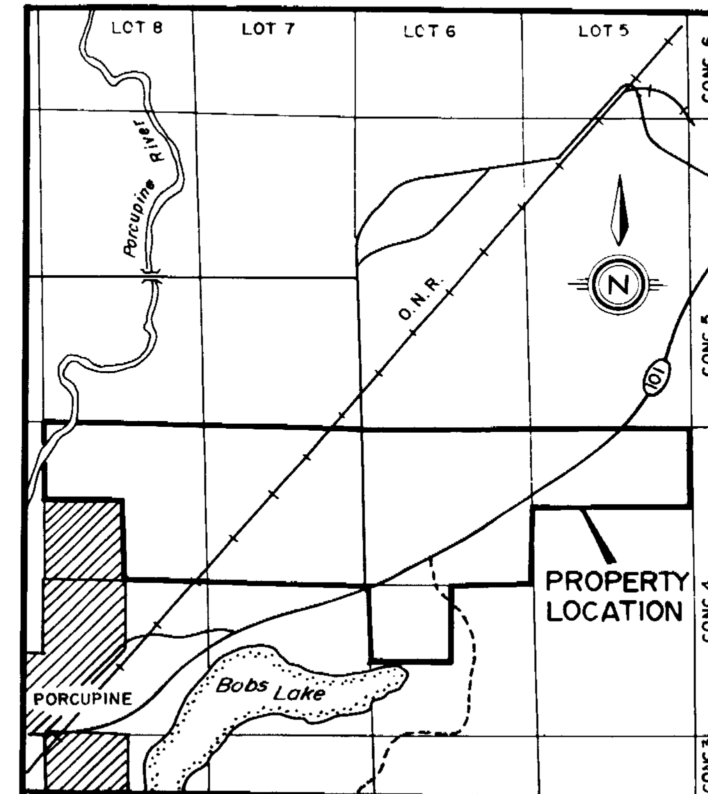
Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

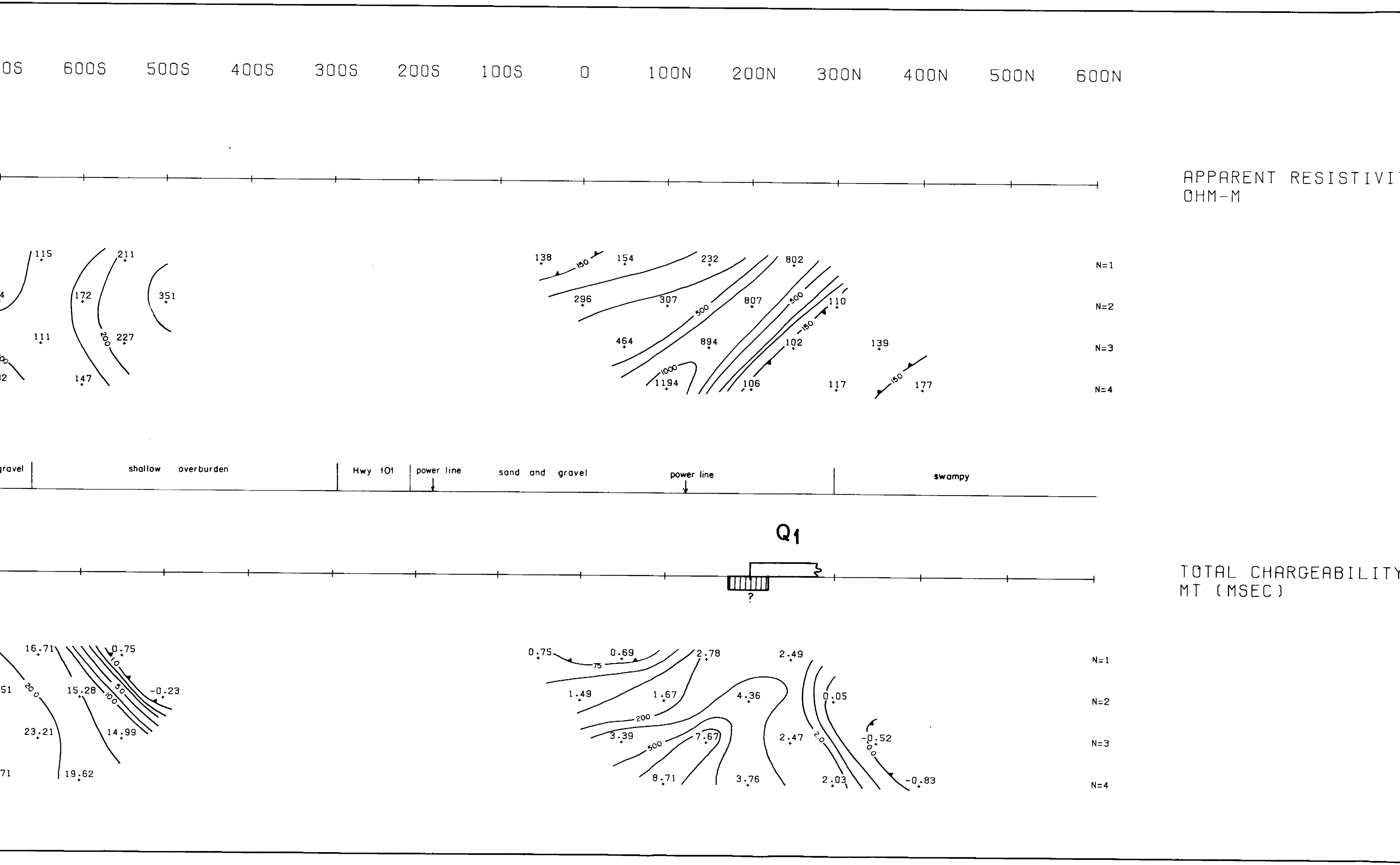
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

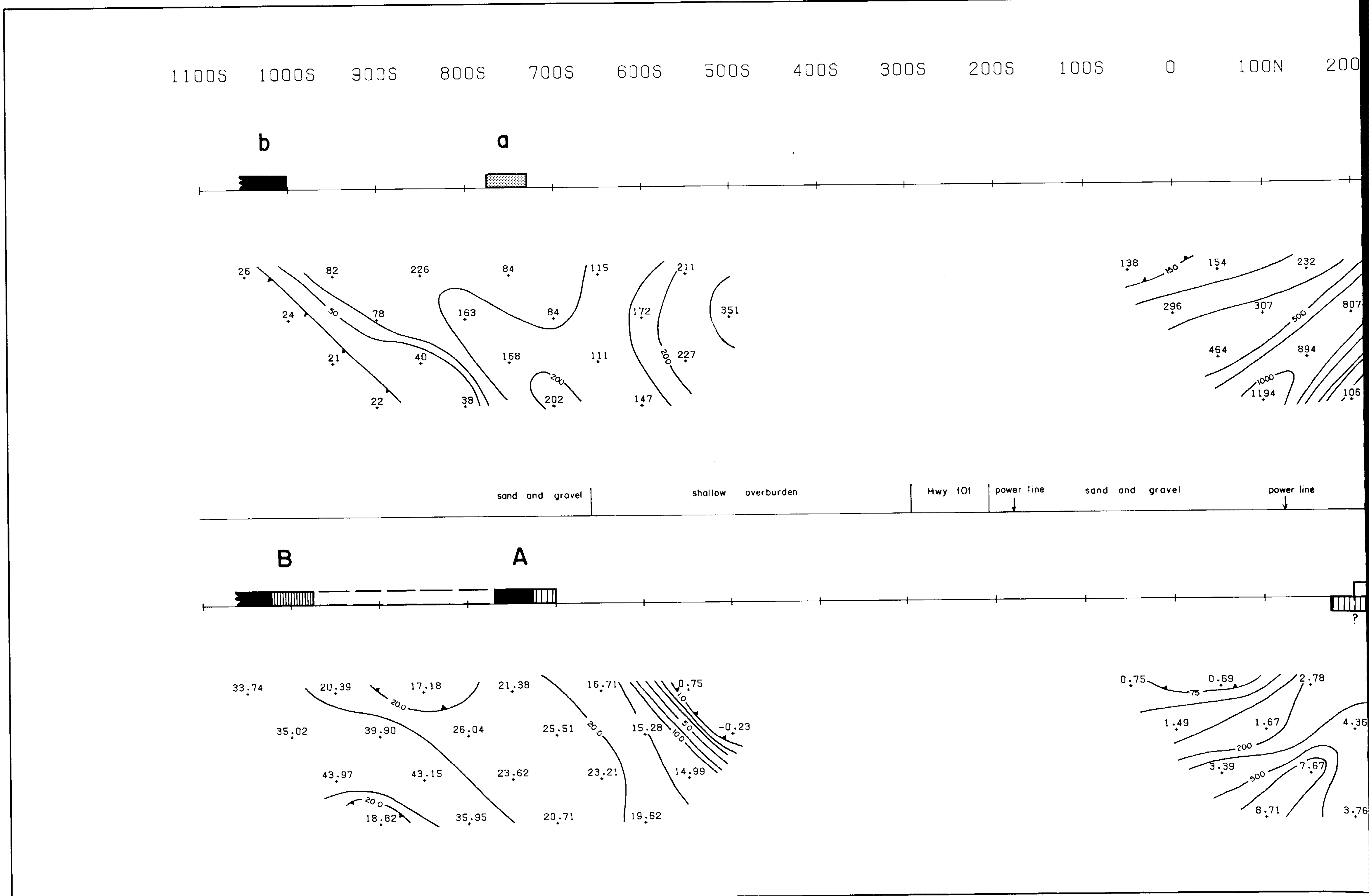
ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 40+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1 :200	Drawn: MPH
Drawing No: Figure P-7	Date: July, 1987

MPH Consulting Limited



0S 600S 500S 400S 300S 200S 100S 0 100N 200N 300N 400N 500N 600N
APPARENT RESISTIVIT
OHM-M
N=1
N=2
N=3
N=4
gravel
shallow overburden
Hwy 101
power line
sand and gravel
power line
swampy
Q1
?
TOTAL CHARGEABILITY
MT (MSEC)
N=1
N=2
N=3
N=4


1100S 1000S 900S 800S 700S 600S 500S 400S 300S 200S 100S 0 100N 200
b
a
sand and gravel
shallow overburden
Hwy 101
power line
sand and gravel
power line
B
A
?

600N

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

Station Location

a = 100' n = 1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

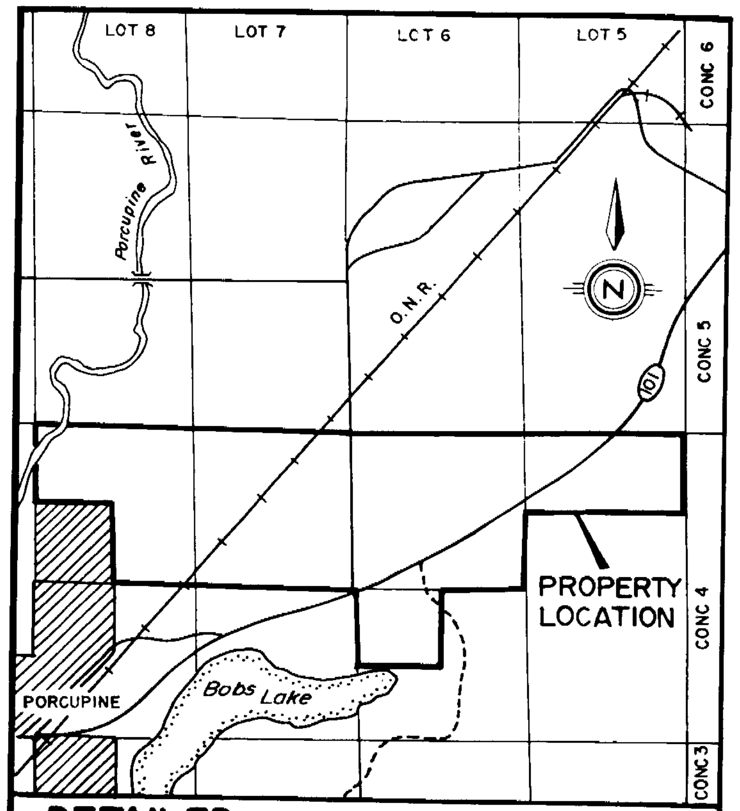
CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface — 17 — *Estimated Intrinsic Resistivity (ohm m)*

IP Anomaly at Surface — 75 — *Estimated Intrinsic Chargeability (msecs)*

Resistivity Low at Depth — 17 — *Estimated Intrinsic Resistivity (ohm m)*; Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Depth — 75 — *Estimated Intrinsic Chargeability (msecs)*; Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

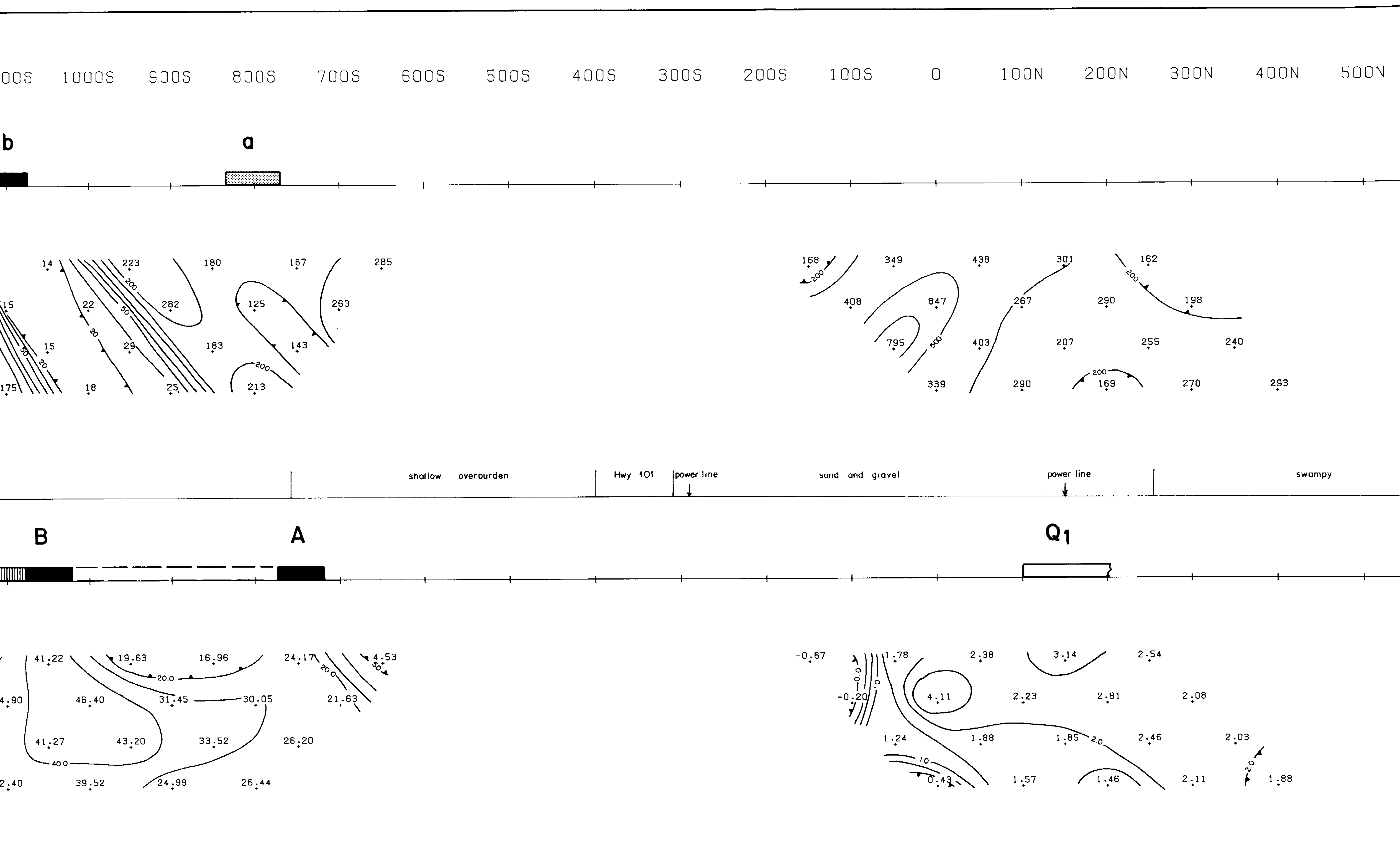
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

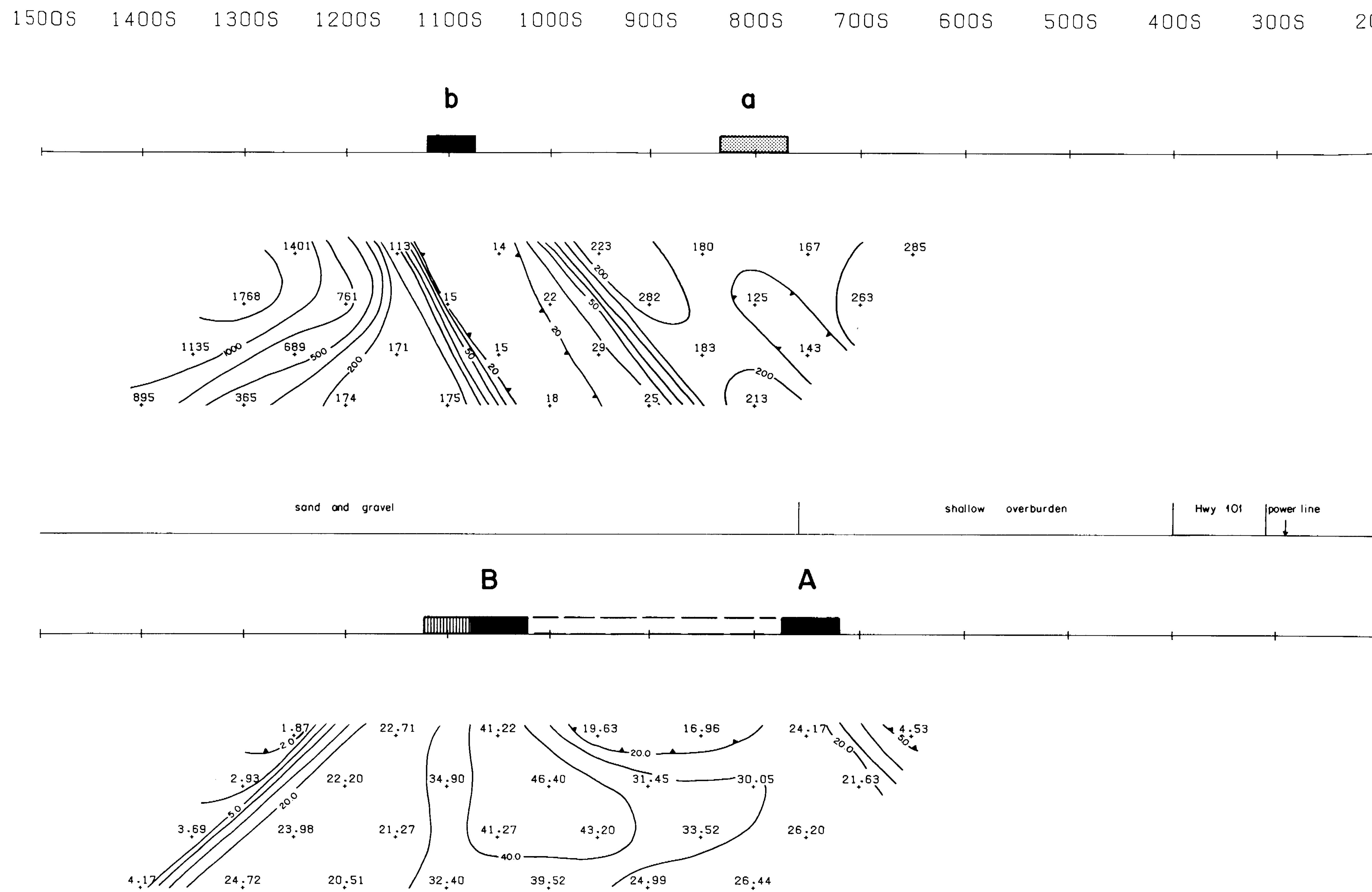
ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 38+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No: Figure P-8	Date: July, 1987

MPH Consulting Limited



00S 1000S 900S 800S 700S 600S 500S 400S 300S 200S 100S 0 100N 200N 300N 400N 500N
b
a
14 223 180 167 285
15 22 282 125 263
15 29 183 143
175 18 25 213
200 50 20 50 20 200
168 349 438 301 162
408 847 267 290 198
795 403 207 255 240
339 290 169 270 293
200 500 200 200
shallow overburden
Hwy 101
power line
sand and gravel
power line
swampy
B
A
Q1
41.22 19.63 16.96 24.17 4.53
4.90 46.40 31.45 30.05 21.63
41.27 43.20 33.52 26.20
2.40 39.52 24.99 26.44
20.0 40.0 20.0 50
-0.67 1.78 2.38 3.14 2.54
-0.20 4.11 2.23 2.81 2.08
1.24 1.88 1.85 2.46 2.03
0.43 1.57 1.46 2.11 1.88
0.0 1.0 1.0 2.0 2.0



1500S 1400S 1300S 1200S 1100S 1000S 900S 800S 700S 600S 500S 400S 300S 200S
b
a
1401 113 14 223 180 167 285
1768 761 15 22 282 125 263
1135 1000 689 500 171 15 29 183 143
895 365 174 175 18 25 213
200 50 20
sand and gravel
shallow overburden
Hwy 101
power line
B
A
1.87 22.71 41.22 19.63 16.96 24.17 4.53
2.93 22.20 34.90 46.40 31.45 30.05 21.63
3.69 23.98 21.27 41.27 43.20 33.52 26.20
4.17 24.72 20.51 32.40 39.52 24.99 26.44
2.0 5.0 20.0 40.0 50

N 400N

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

ower line

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

L E G E N D

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

Station Location

a = 200'   n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

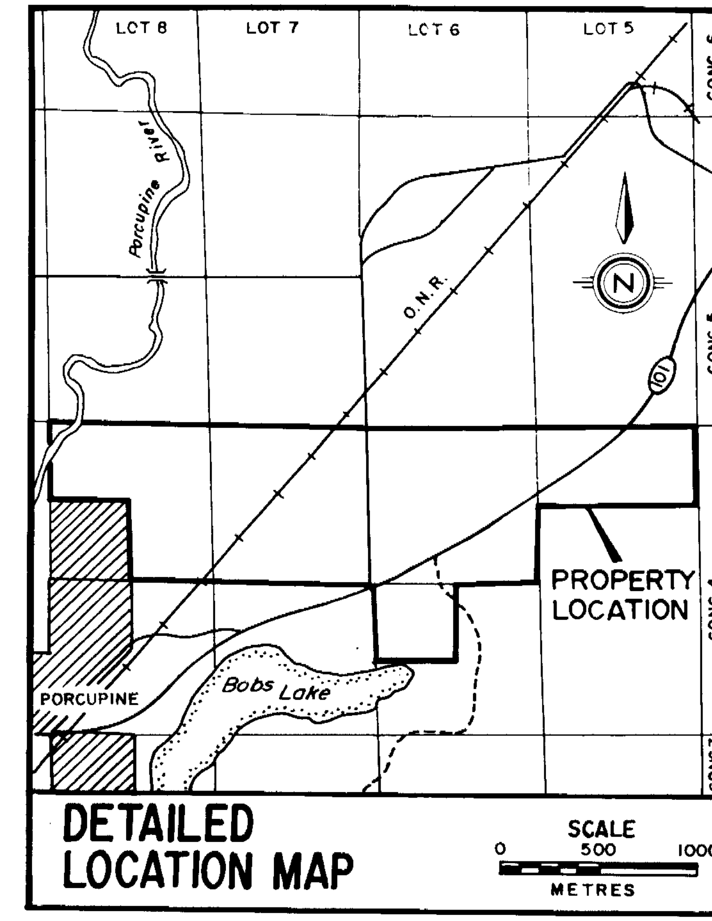
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*   Z~ 10 *Estimated Depth (ft)*



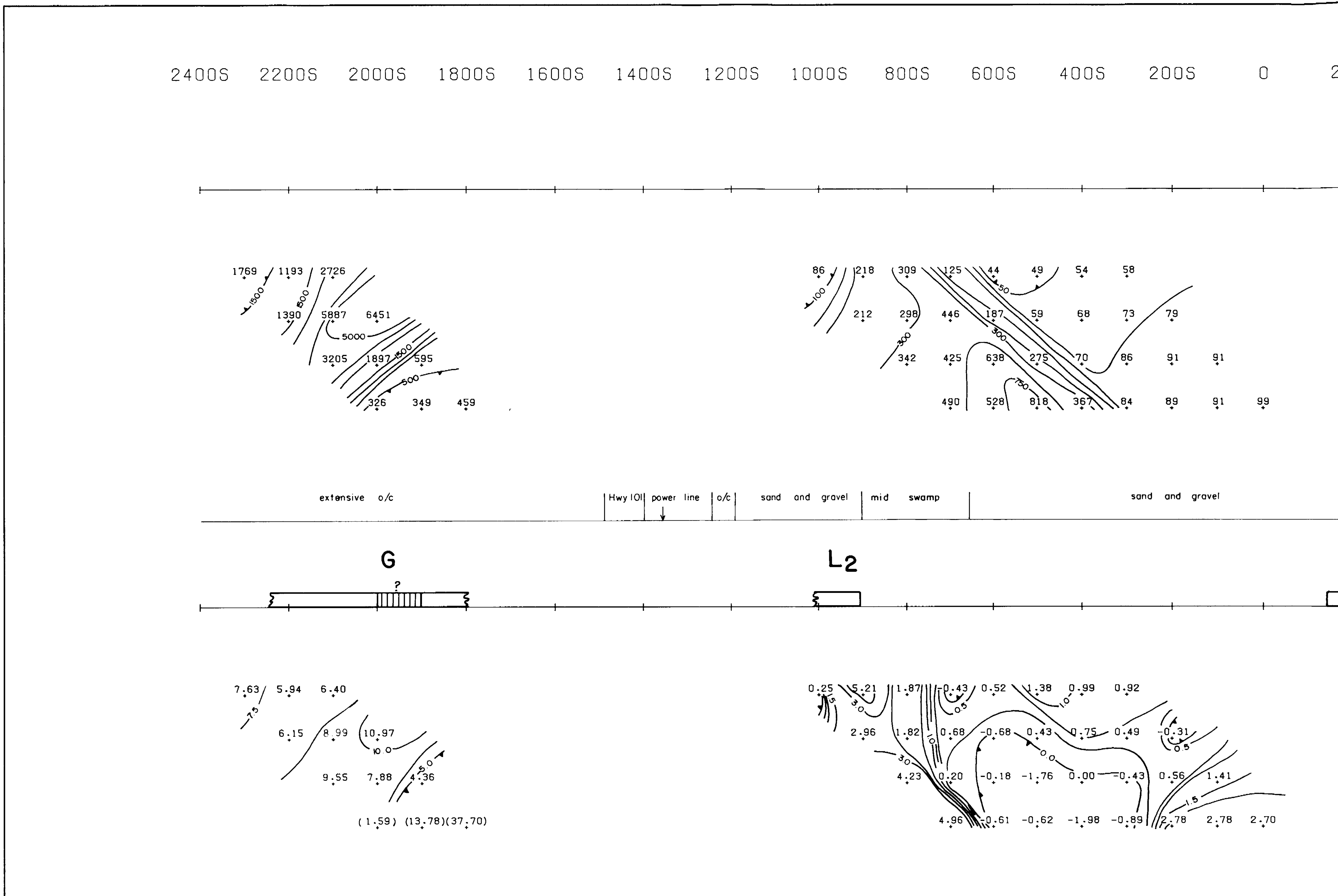
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 24+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No. Figure P-15	Date: July, 1987

MPH Consulting Limited



2400S 2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0
extensive o/c
Hwy 101
power line
o/c
sand and gravel
mid swamp
sand and gravel
G
?
L2

600N

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

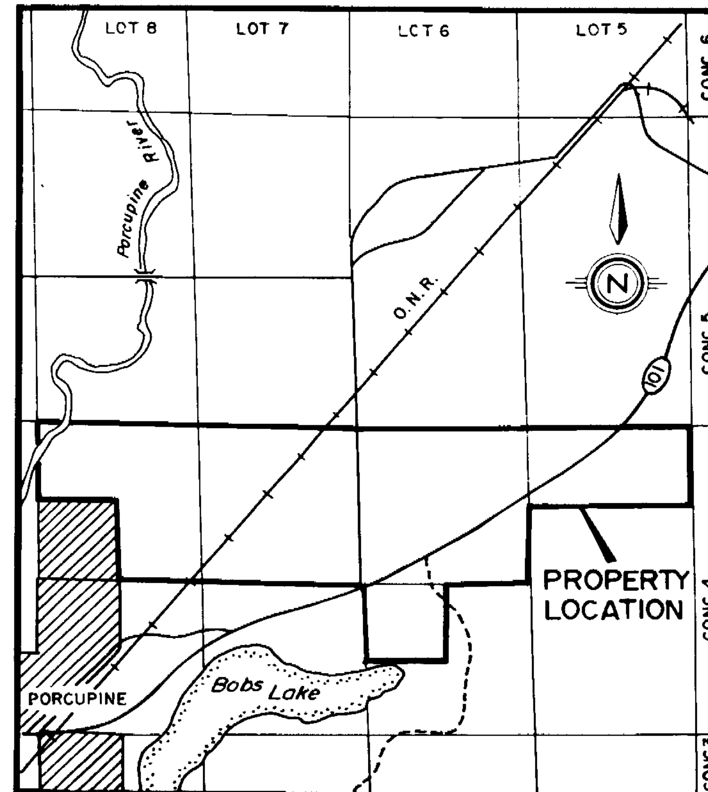
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)* Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

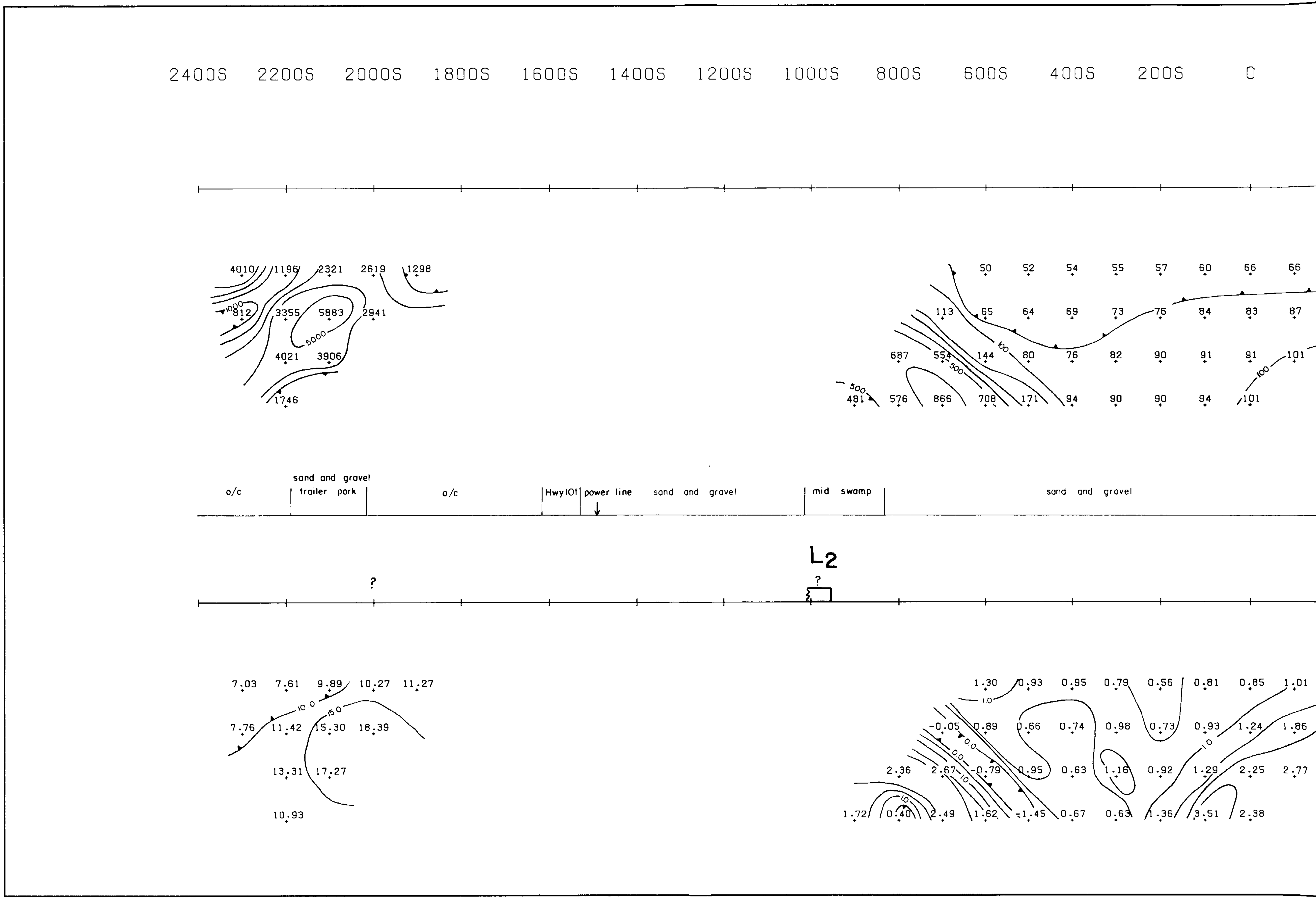
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 22+00 EAST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P – 16	Date: July, 1987

MPH Consulting Limited



2400S 2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0
4010 1196 2321 2619 1298
812 3355 5883 2941
4021 3906
1746
1000
5000
50 52 54 55 57 60 66 66
113 65 64 69 73 76 84 83 87
687 554 144 80 76 82 90 91 91 101
481 576 866 708 171 94 90 90 94 101
500
100
o/c
sand and gravel
trailer park
o/c
Hwy101
power line
sand and gravel
mid swamp
sand and gravel
L2
?
?
7.03 7.61 9.89 10.27 11.27
7.76 11.42 15.30 18.39
13.31 17.27
10.93
10.0
15.0
1.30 0.93 0.95 0.79 0.56 0.81 0.85 1.01
-0.05 0.89 0.66 0.74 0.98 0.73 0.93 1.24 1.86
2.36 2.67 -0.79 0.95 0.63 1.16 0.92 1.29 2.25 2.77
1.72 0.40 2.49 1.62 -1.45 0.67 0.63 1.36 3.51 2.38
1.0
0.0

RESISTIVITY

ARGEABILITY

LEGEND

TRANSMITTER — Huntec 7.5

RECEIVER — Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200'   n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

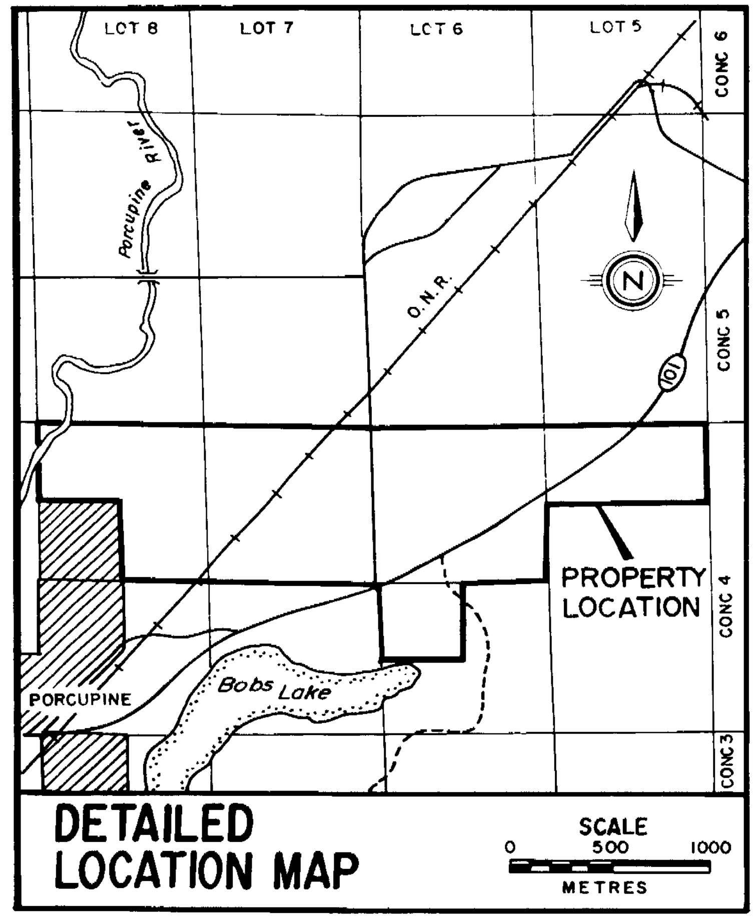
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 Estimated Depth (ft)

Z~ 10 Estimated Depth (ft)



SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

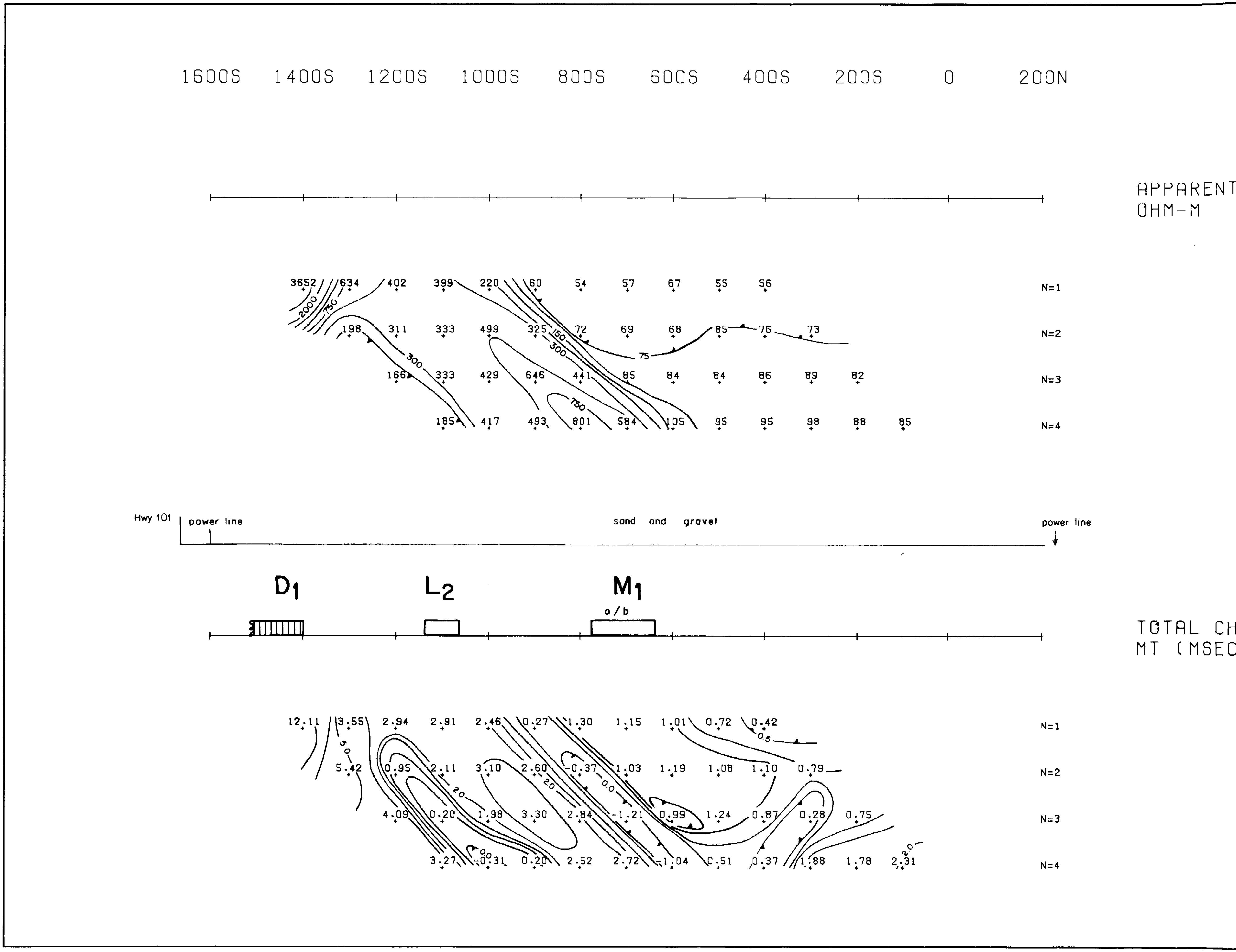
ALLERSTON PROPERTY – WHITNEY TWP.

INDUCED POLARIZATION SURVEY PSEUDOSECTION

LINE 20+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No.: Figure P-17	Date: July, 1987

MPH Consulting Limited


1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N
APPARENT
OHM-M
N=1
N=2
N=3
N=4
Hwy 101
power line
sand and gravel
power line
D1
L2
M1
o/b
TOTAL CH
MT (MSEC

RESISTIVITY

RGEABILITY

LEGEND

TRANSMITTER — Huntec 7.5

RECEIVER — Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 —— a —— C_2 na P_1 —— a —— P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

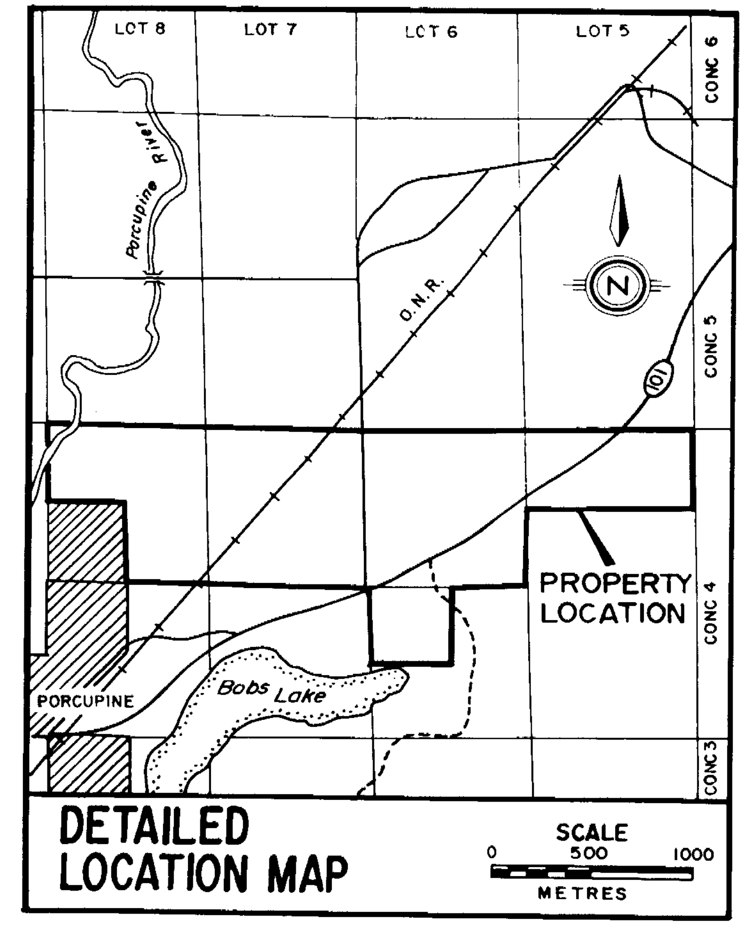
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 Estimated Depth (ft)

Z~ 10 Estimated Depth (ft)



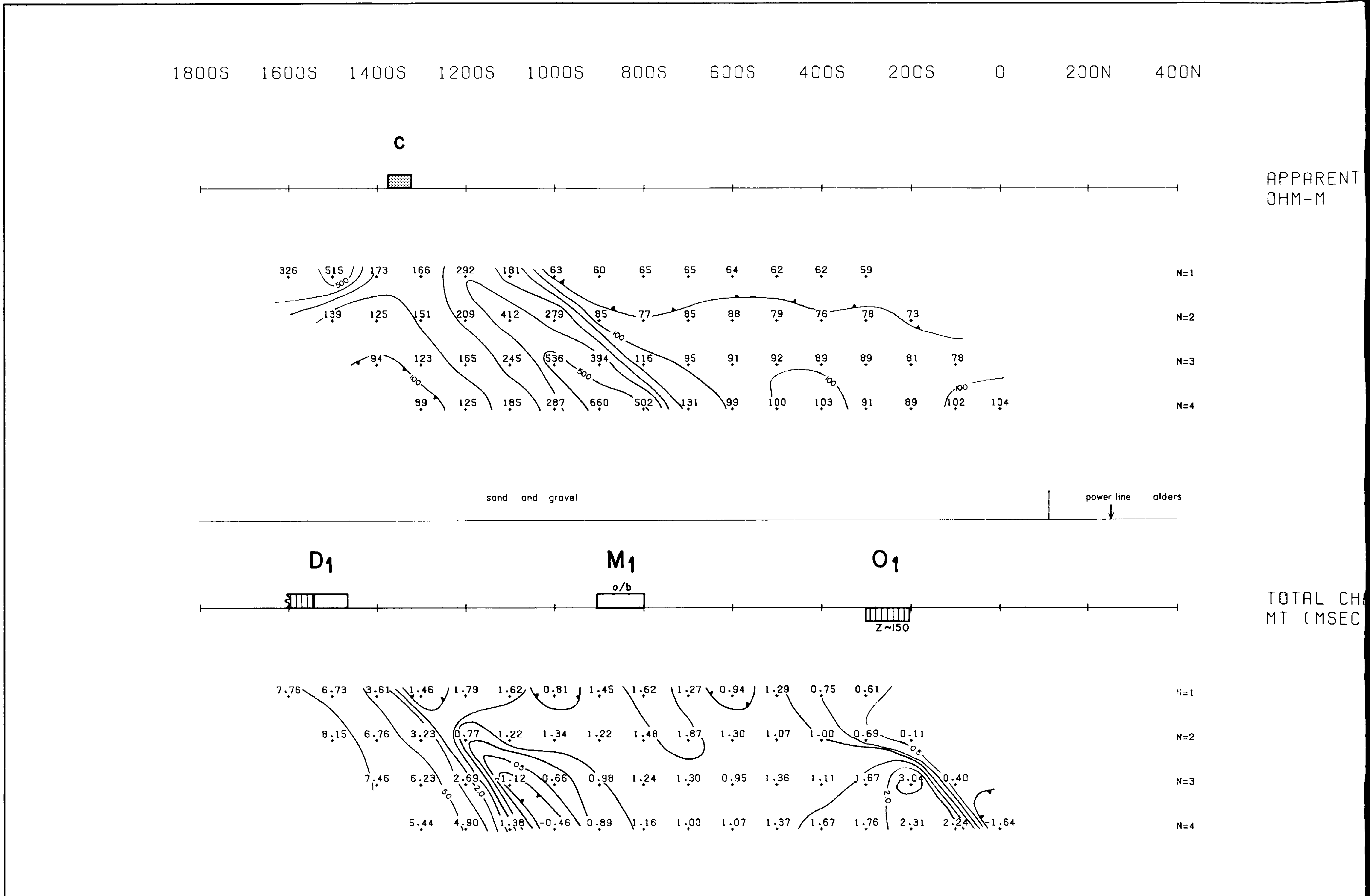
SCALE
100 0 100 200 300 400
FEET

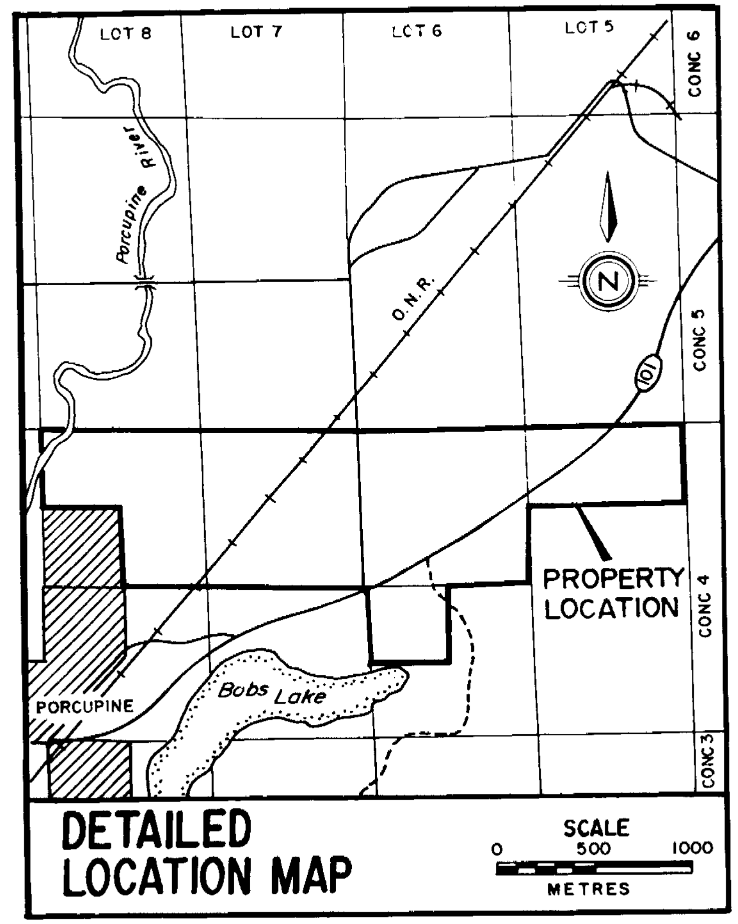
SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 16+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No. Figure P-19	Date: July, 1987

MPH Consulting Limited


1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N 400N
C
APPARENT
OHM-M
N=1
N=2
N=3
N=4
sand and gravel
power line
alders
D1
M1
o/b
O1
Z~150
TOTAL CH
MT (MSEC



L E G E N D

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*

SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

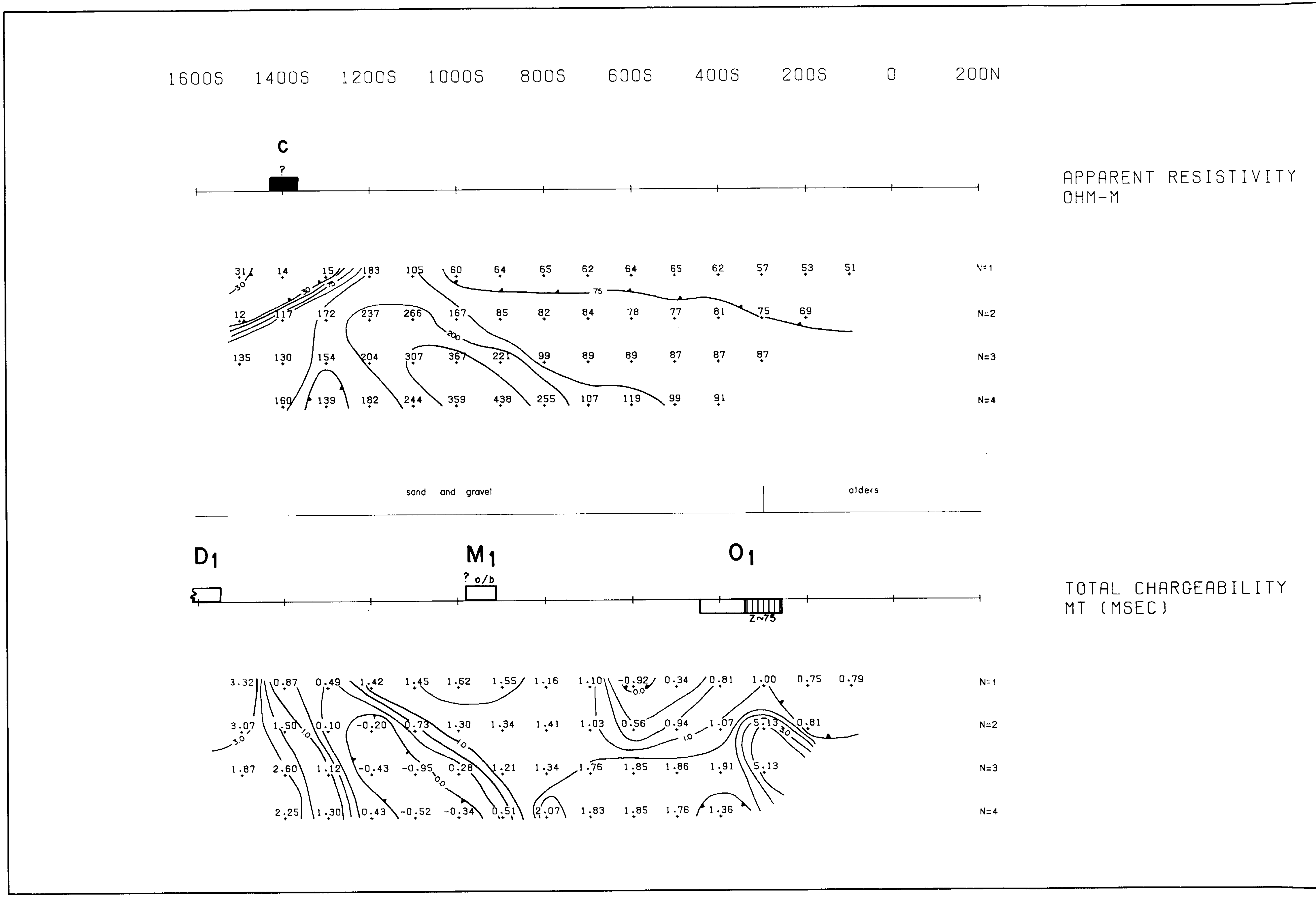
ALLERSTON PROPERTY – WHITNEY TWP.

INDUCED POLARIZATION SURVEY PSEUDOSECTION

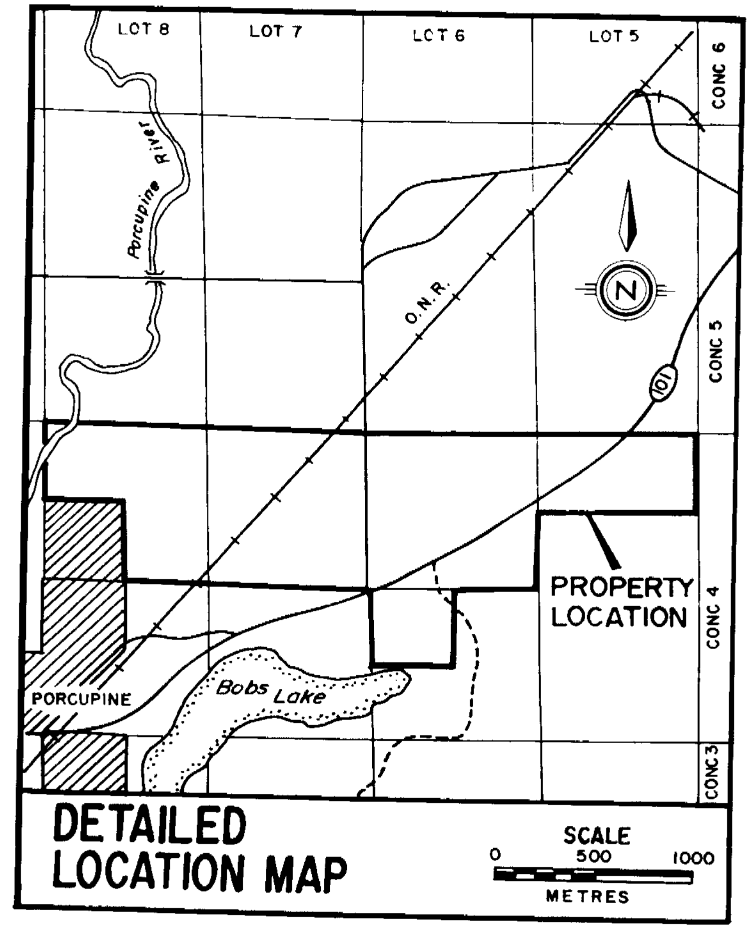
LINE 14+00 EAST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P-20	Date: July, 1987

MPH **MPH Consulting Limited**


1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N
C
?
APPARENT RESISTIVITY
OHM-M
31 14 15 183 105 60 64 65 62 64 65 62 57 53 51 N=1
12 117 172 237 266 167 85 82 84 78 77 81 75 69 N=2
135 130 154 204 307 367 221 99 89 89 87 87 87 N=3
160 139 182 244 359 438 255 107 119 99 91 N=4
30
75
200
sand and gravel
alders
D1
M1
? o/b
O1
Z~75
TOTAL CHARGEABILITY
MT (MSEC)
3.32 0.87 0.49 1.42 1.45 1.62 1.55 1.16 1.10 -0.92 0.34 0.81 1.00 0.75 0.79 N=1
3.07 1.50 0.10 -0.20 0.73 1.30 1.34 1.41 1.03 0.56 0.94 1.07 5.13 0.81 N=2
1.87 2.60 1.12 -0.43 -0.95 0.28 1.21 1.34 1.76 1.85 1.86 1.91 5.13 N=3
2.25 1.30 0.43 -0.52 -0.34 0.51 2.07 1.83 1.85 1.76 1.36 N=4
3.0
1.0
0.0

ARENT RESISTIVITY
-M



L E G E N D

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 —— a —— C_2 na P_1 —— a —— P_2

Station Location

a = 200' n = 1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*

AL CHARGEABILITY
(MSEC)

SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

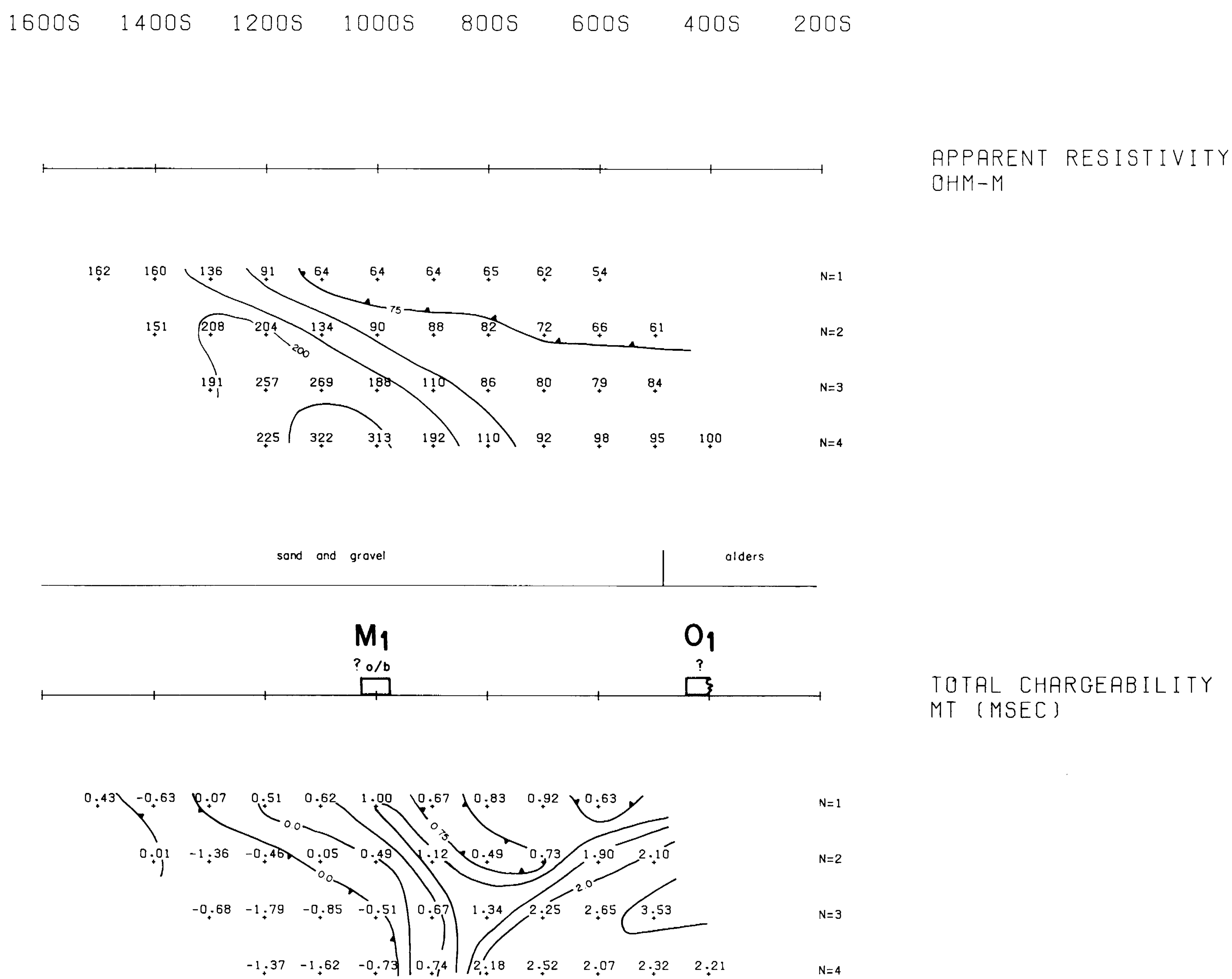
INDUCED POLARIZATION SURVEY

PSEUDOSECTION

LINE 12+00 EAST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P – 21	Date: July, 1987

MPH **MPH Consulting Limited**



1600S 1400S 1200S 1000S 800S 600S 400S 200S
APPARENT RESISTIVITY
OHM-M
162 160 136 91 64 64 64 65 62 54 N=1
151 208 204 134 90 88 82 72 66 61 N=2
191 257 269 188 110 86 80 79 84 N=3
225 322 313 192 110 92 98 95 100 N=4
75
200
sand and gravel
alders
M1
? o/b
O1
?
TOTAL CHARGEABILITY
MT (MSEC)
0.43 -0.63 0.07 0.51 0.62 1.00 0.67 0.83 0.92 0.63 N=1
0.01 -1.36 -0.46 0.05 0.49 1.12 0.49 0.73 1.90 2.10 N=2
-0.68 -1.79 -0.85 -0.51 0.67 1.34 2.25 2.65 3.53 N=3
-1.37 -1.62 -0.73 0.74 2.18 2.52 2.07 2.32 2.21 N=4
0.0
0.75
2.0

2300S

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER Huntec 7.5

RECEIVER Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a=100'

n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 Estimated Depth (ft)

Z~ 10 Estimated Depth (ft)

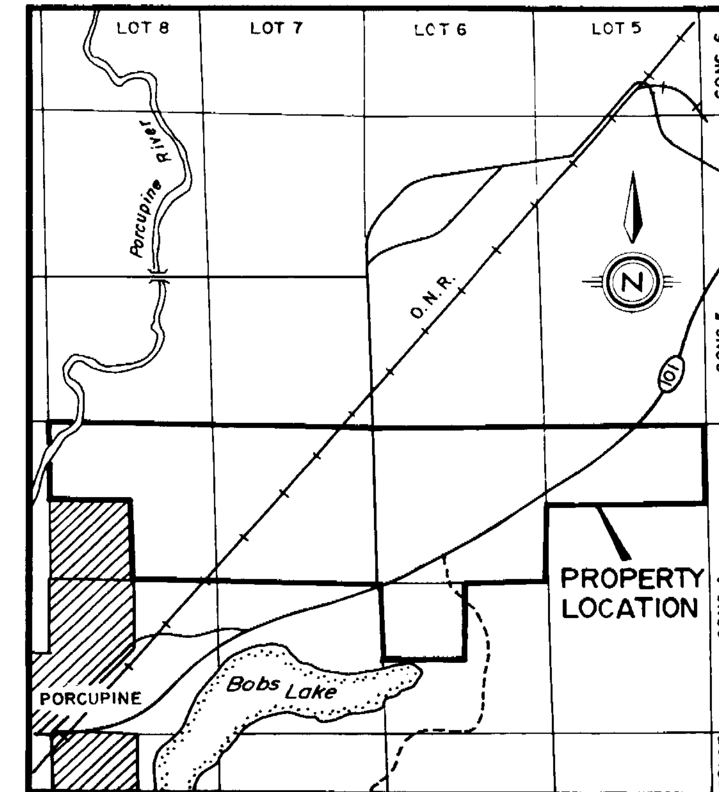
TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4



DETAILED LOCATION MAP

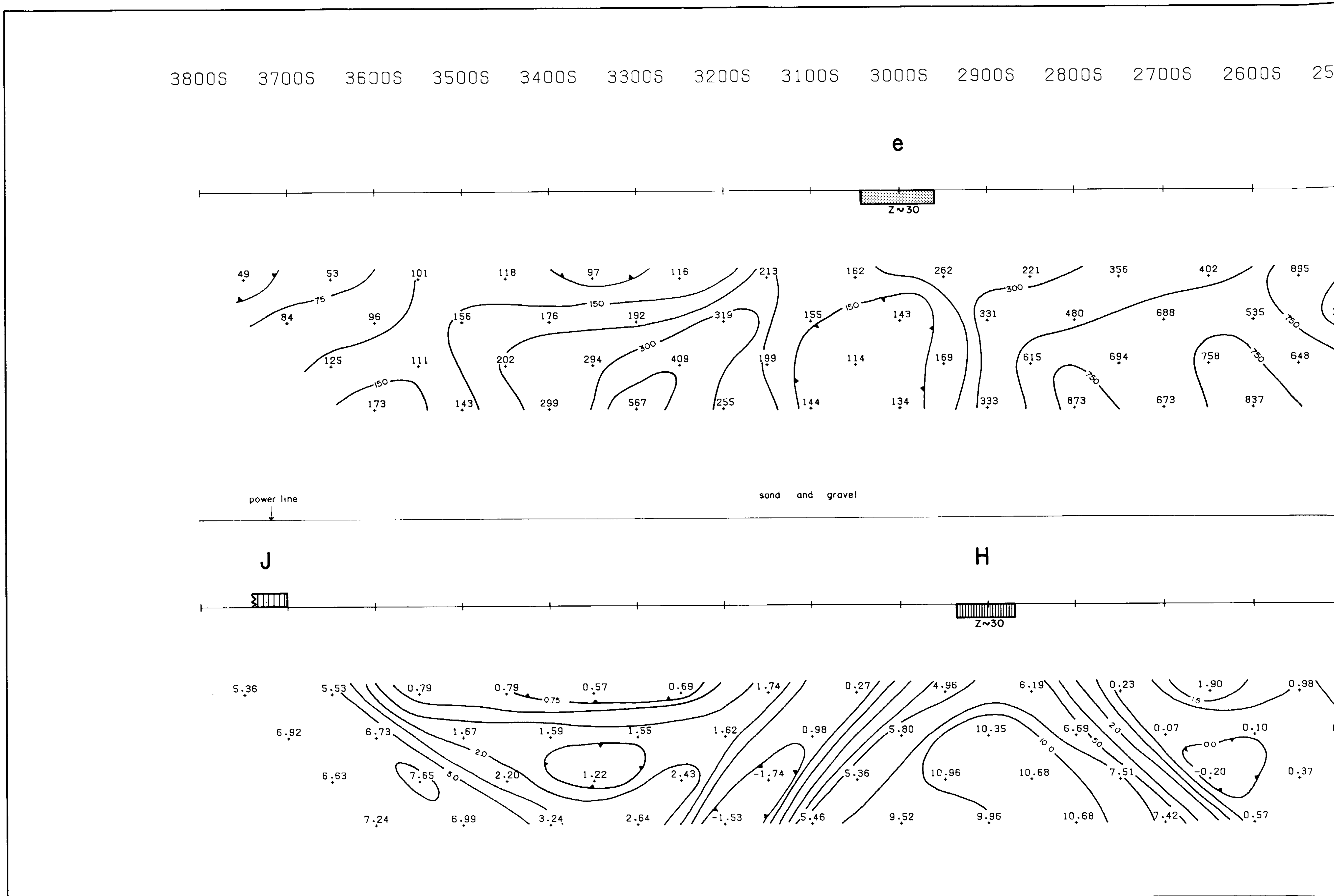
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 12+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1 1200	Drawn: MPH
Drawing No: Figure P-22	Date: July, 1987

MPH Consulting Limited



3800S 3700S 3600S 3500S 3400S 3300S 3200S 3100S 3000S 2900S 2800S 2700S 2600S
e
Z~30
power line
sand and gravel
J
H
Z~30

T RESISTIVITY

HARGEABILITY
C)

L E G E N D

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⊢ a ⊣ C_2 na P_1 ⊢ a ⊣ P_2

↑ Station Location

a = 200' n=1,2,3,4

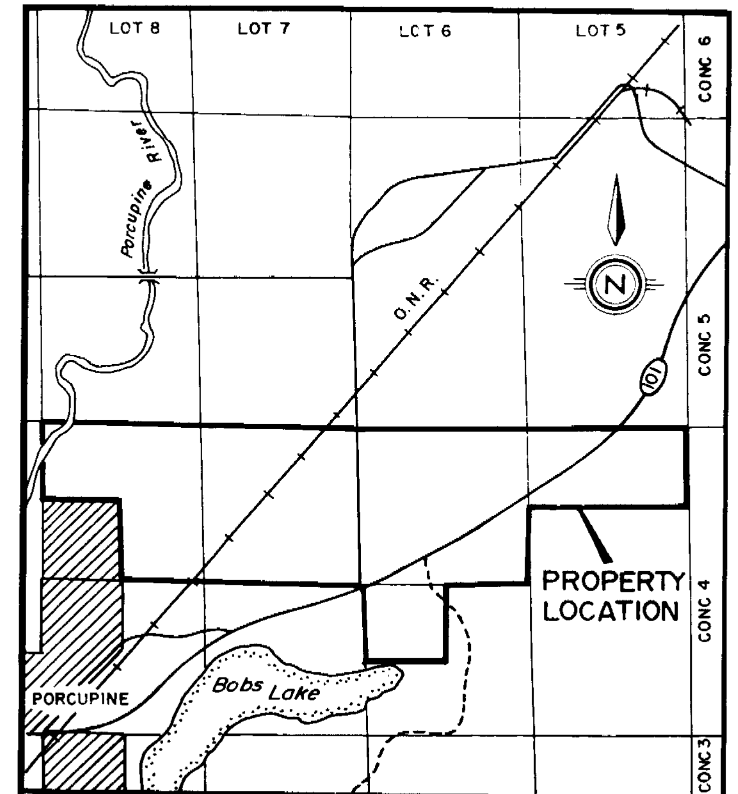
RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface — *IP Anomaly at Surface*

Resistivity Low at Depth — *IP Anomaly at Depth*

Z~ 10 *Estimated Depth (ft)* Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

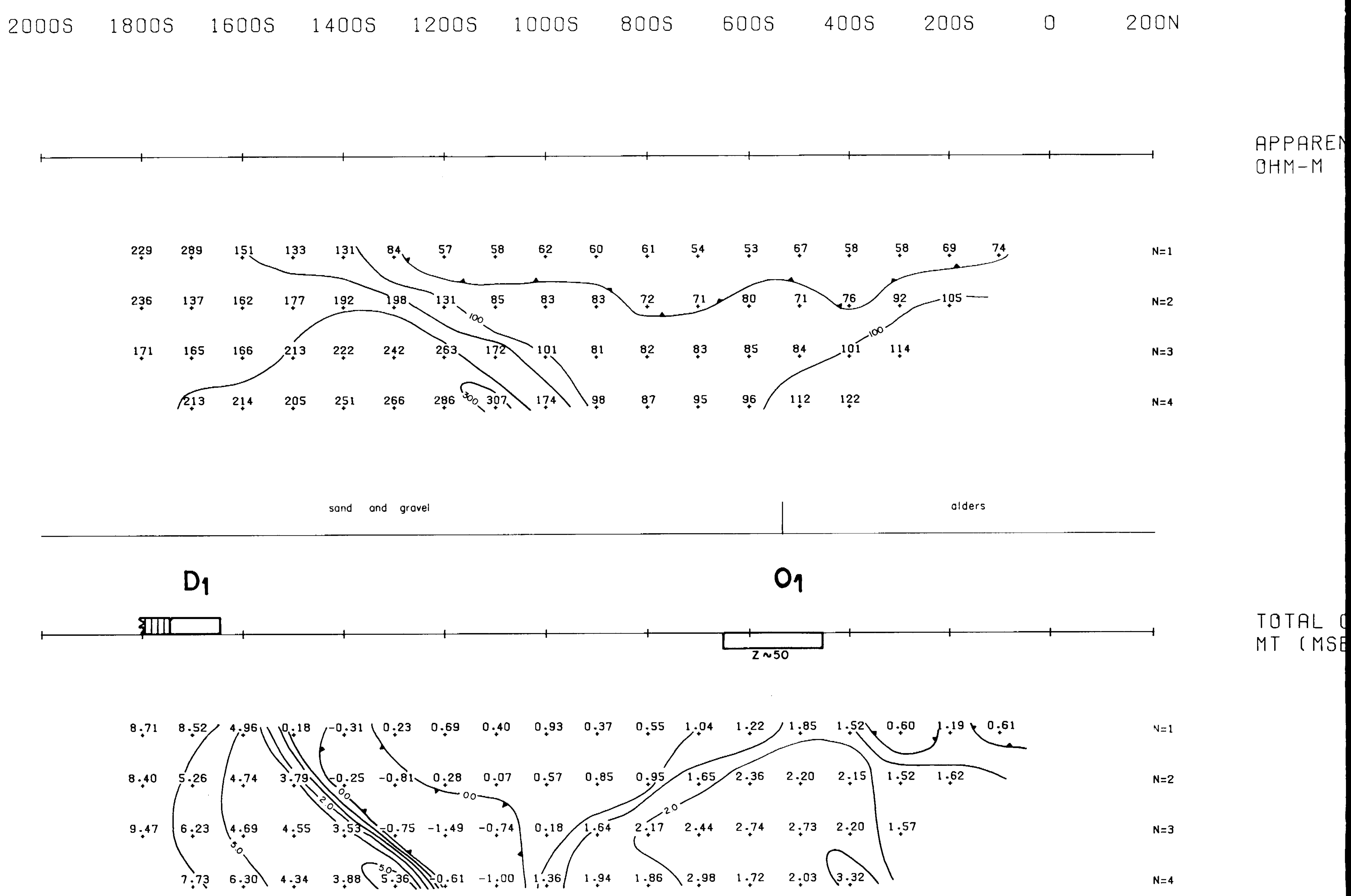
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 10+00 EAST

Project No. C – 998	By: S. J. Bate
Scale: 1 : 2400	Drawn: MPH
Drawing No: Figure P - 23	Date: July, 1987

MPH Consulting Limited



2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N
APPAREN
OHM-M
N=1
N=2
N=3
N=4
sand and gravel
alders
D1
O1
Z~50
TOTAL
MT (MSE

0S 2400S

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

Hwy 101

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

L E G E N D

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a =100' n=1,2,3,4

RESISTIVITY LOW (ohm m) 50 100 200 300

CHARGEABILITY HIGH (m secs) 25 15 10 5

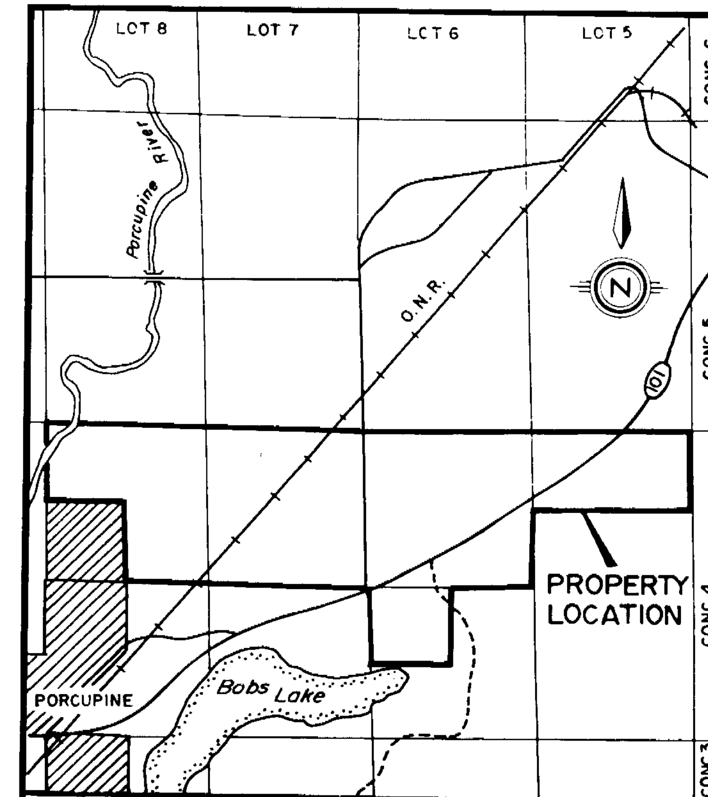
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)* Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

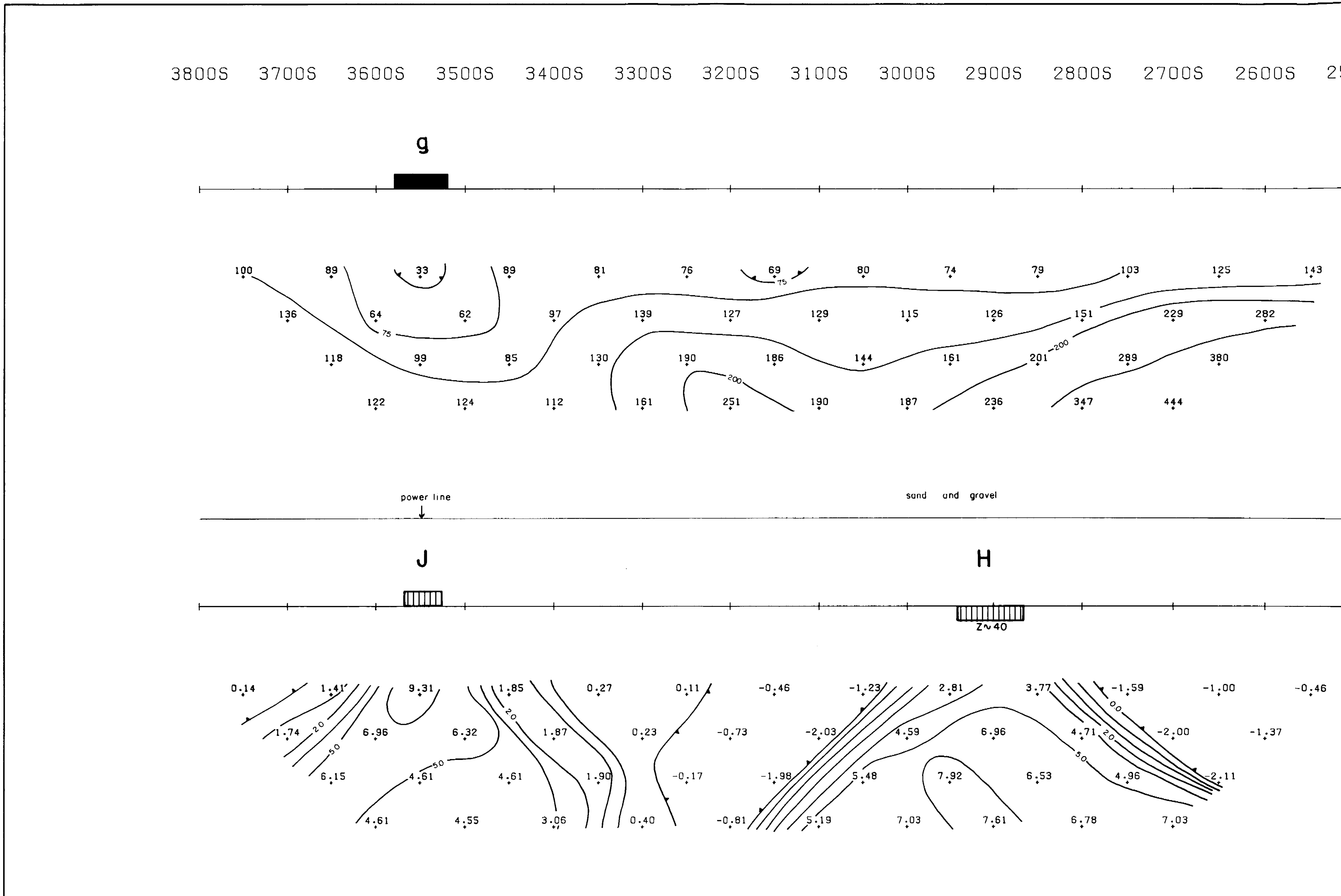
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 10+00 EAST

Project No. C - 998	By: S. J. Bate
Scale: 1 1200	Drawn: MPH
Drawing No. Figure P-24	Date: July, 1987

MPH Consulting Limited


3800S 3700S 3600S 3500S 3400S 3300S 3200S 3100S 3000S 2900S 2800S 2700S 2600S 25
g
100 89 33 89 81 76 69 80 74 79 103 125 143
136 64 62 97 139 127 129 115 126 151 229 282
118 99 85 130 190 186 144 161 201 289 380
122 124 112 161 251 190 187 236 347 444
75
200
power line
sand and gravel
J
H
Z~40
0.14 1.41 9.31 1.85 0.27 0.11 -0.46 -1.23 2.81 3.77 -1.59 -1.00 -0.46
1.74 6.96 6.32 1.87 0.23 -0.73 -2.03 4.59 6.96 4.71 -2.00 -1.37
6.15 4.61 4.61 1.90 -0.17 -1.98 5.48 7.92 6.53 4.96 -2.11
4.61 4.55 3.06 0.40 -0.81 5.19 7.03 7.61 6.78 7.03
2.0
5.0
0.0

RESISTIVITY

HARGEABILITY
)

LEGEND

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 —— a —— C_2 na P_1 —— a —— P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

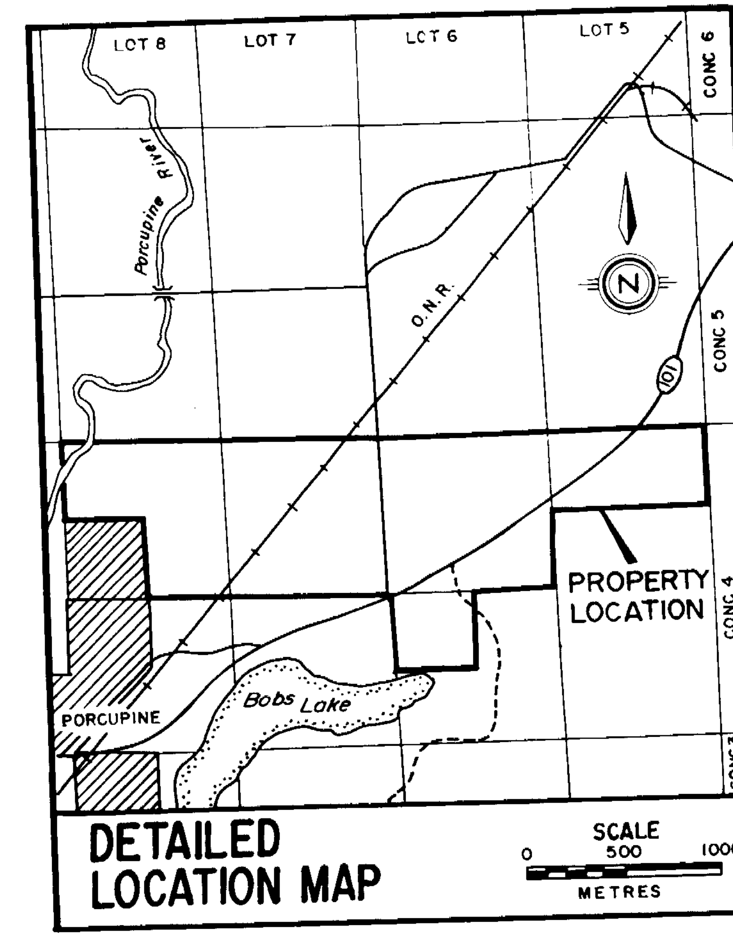
Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



SCALE

100 0 100 200 300 400

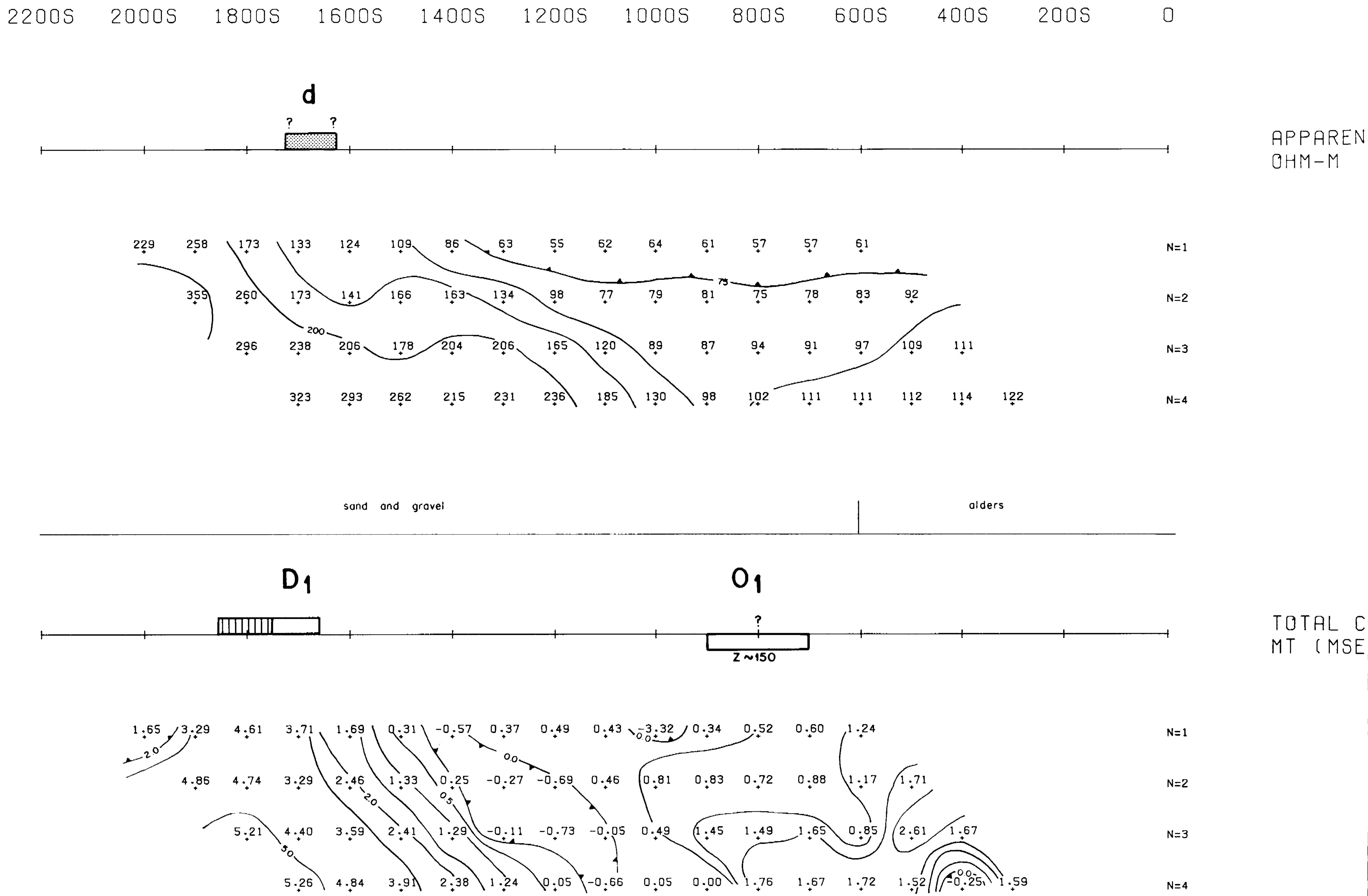
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 8+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P-25	Date: July, 1987

MPH Consulting Limited


2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0
d
? ?
APPAREN
OHM-M
229 258 173 133 124 109 86 63 55 62 64 61 57 57 61 N=1
355 260 173 141 166 163 134 98 77 79 81 75 78 83 92 N=2
75
200
296 238 206 178 204 206 165 120 89 87 94 91 97 109 111 N=3
323 293 262 215 231 236 185 130 98 102 111 111 112 114 122 N=4
sand and gravel
alders
D1
O1
?
Z ~150
TOTAL C
MT (MSE
1.65 3.29 4.61 3.71 1.69 0.31 -0.57 0.37 0.49 0.43 -3.32 0.34 0.52 0.60 1.24 N=1
2.0
0.0
4.86 4.74 3.29 2.46 1.33 0.25 -0.27 -0.69 0.46 0.81 0.83 0.72 0.88 1.17 1.71 N=2
2.0
0.5
5.21 4.40 3.59 2.41 1.29 -0.11 -0.73 -0.05 0.49 1.45 1.49 1.65 0.85 2.61 1.67 N=3
5.0
5.26 4.84 3.91 2.38 1.24 0.05 -0.66 0.05 0.00 1.76 1.67 1.72 1.52 -0.25 1.59 N=4
0.0

APPARENT RESISTIVITY
OHM-M

TOTAL CHARGEABILITY
MT (MSEC)

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 100' n = 1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

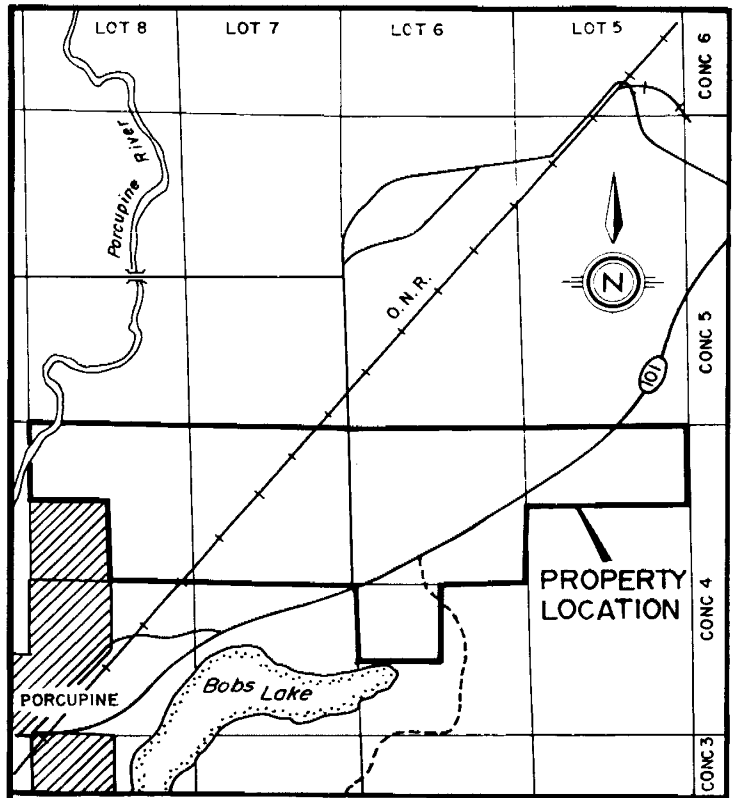
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE
0 500 1000
METRES

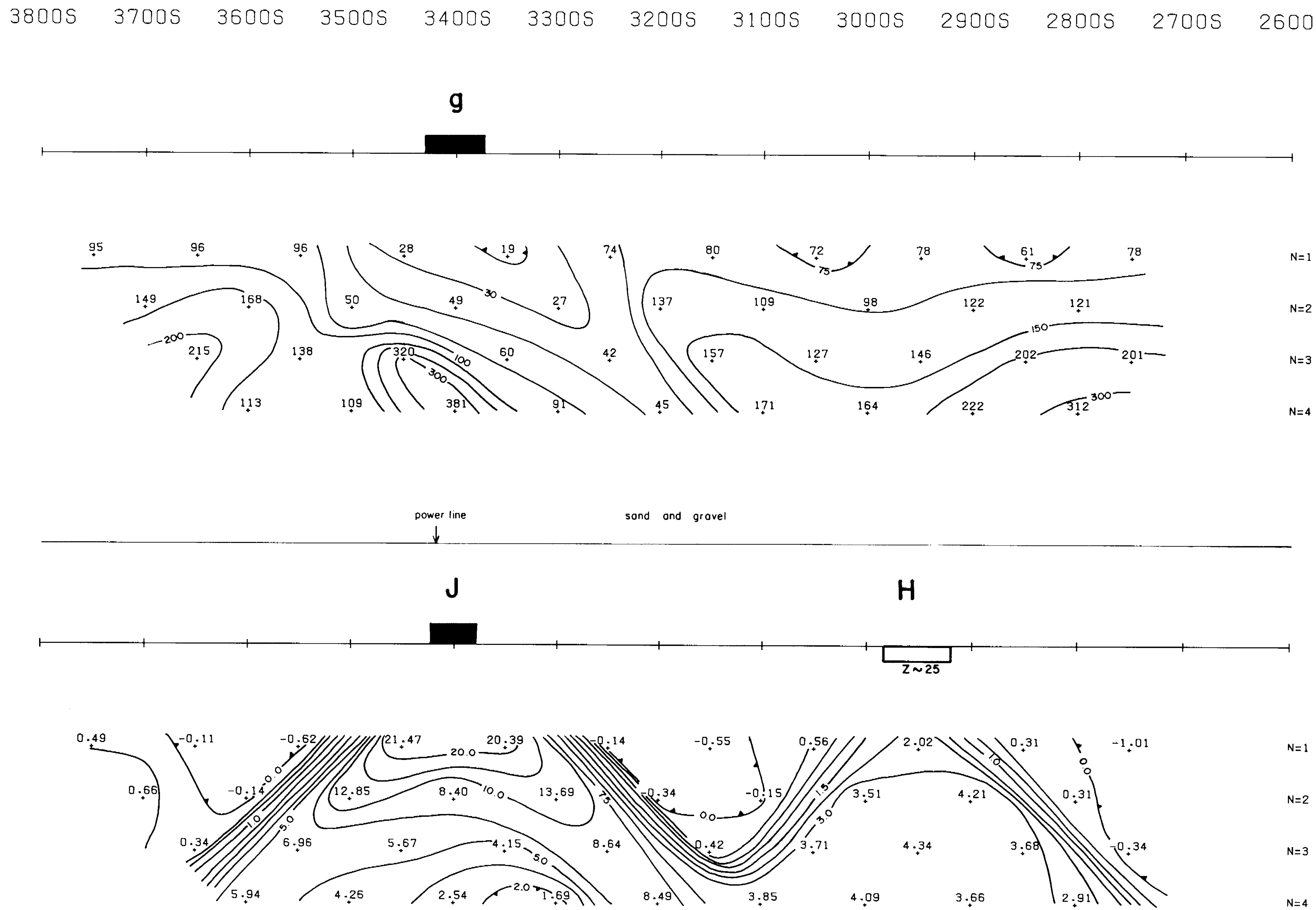
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 8+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No: Figure P-26	Date: July, 1987

MPH Consulting Limited


3800S 3700S 3600S 3500S 3400S 3300S 3200S 3100S 3000S 2900S 2800S 2700S 2600S
g
N=1
N=2
N=3
N=4
power line
sand and gravel
J
H
Z ~ 25
N=1
N=2
N=3
N=4

DON

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na ↑ Station Location P_1 ⟵ a ⟶ P_2

a = 200'   n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

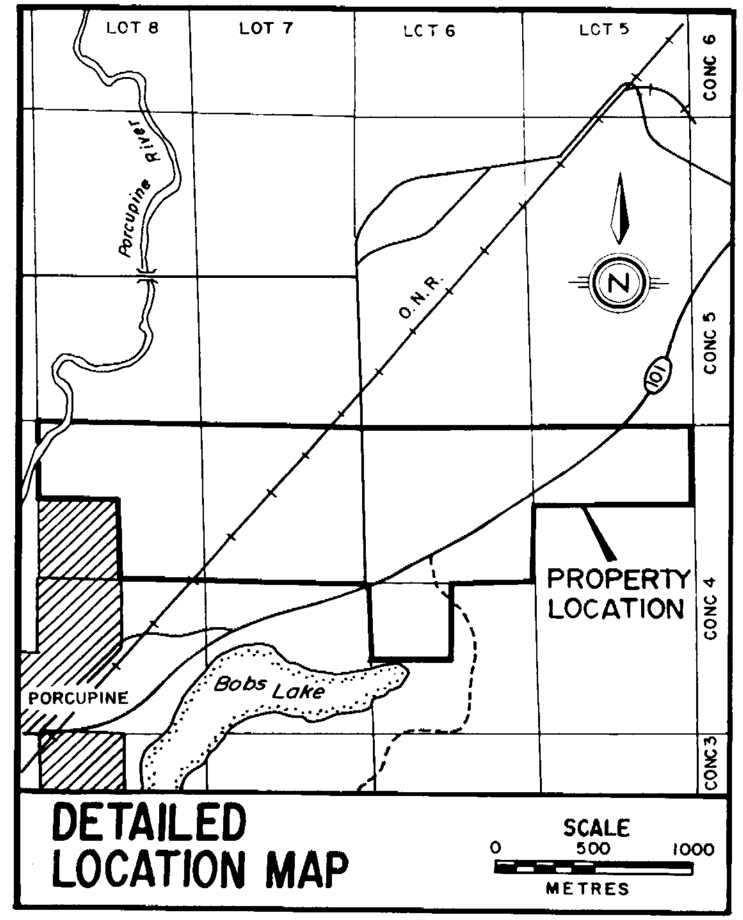
Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



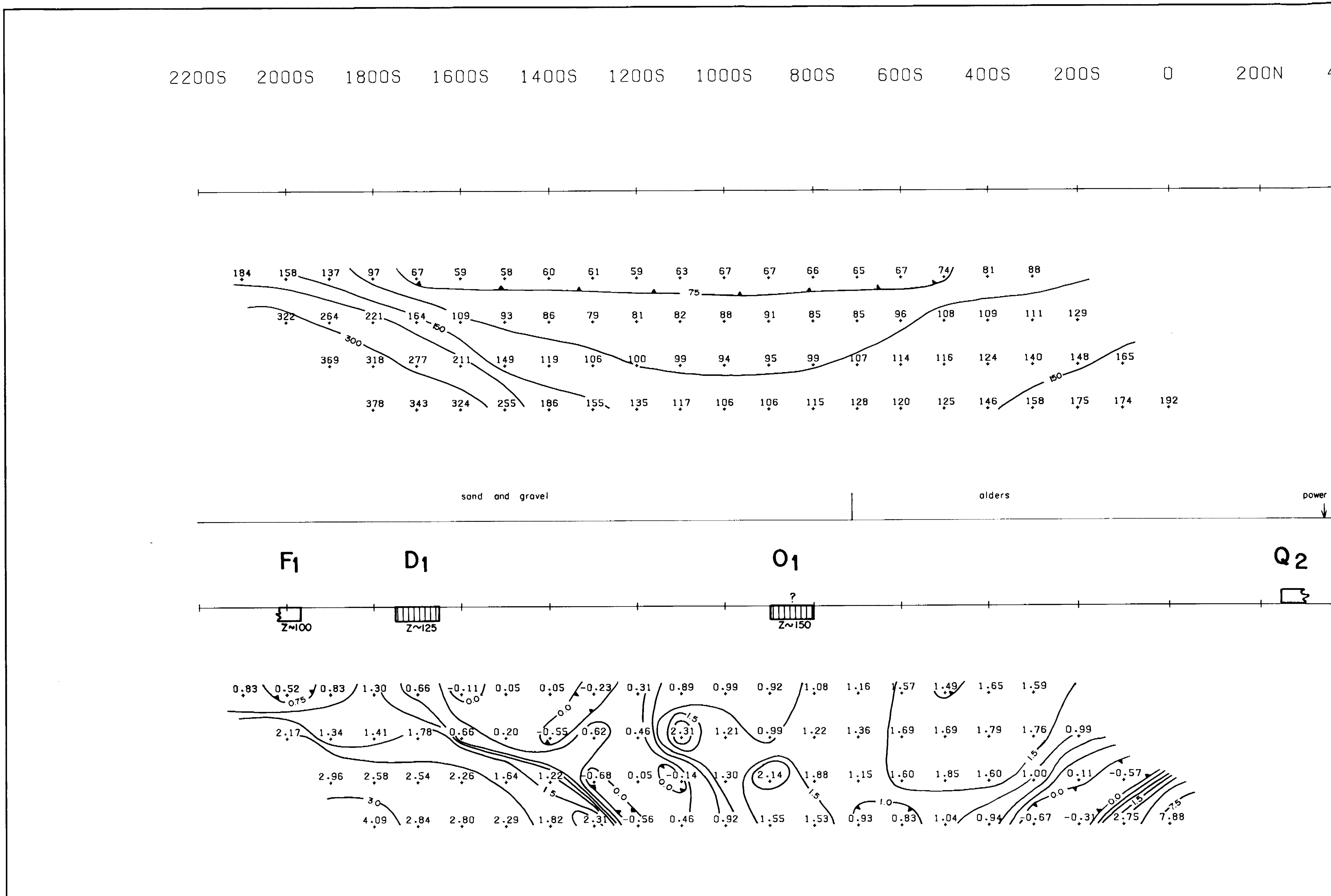
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 6+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P-27	Date: July, 1987

MPH Consulting Limited



2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N
184 158 137 97 67 59 58 60 61 59 63 67 67 66 65 67 74 81 88
75
322 264 221 164 109 93 86 79 81 82 88 91 85 85 96 108 109 111 129
150
300
369 318 277 211 149 119 106 100 99 94 95 99 107 114 116 124 140 148 165
150
378 343 324 255 186 155 135 117 106 106 115 128 120 125 146 158 175 174 192
sand and gravel
alders
power lin
F1
D1
O1
Q2
?
Z~100
Z~125
Z~150
0.83 0.52 0.83 1.30 0.66 -0.11 0.05 0.05 -0.23 0.31 0.89 0.99 0.92 1.08 1.16 1.57 1.49 1.65 1.59
0.75
0.0
2.17 1.34 1.41 1.78 0.66 0.20 -0.55 0.62 0.46 2.31 1.21 0.99 1.22 1.36 1.69 1.69 1.79 1.76 0.99
1.5
2.96 2.58 2.54 2.26 1.64 1.22 -0.68 0.05 -0.14 1.30 2.14 1.88 1.15 1.60 1.85 1.60 1.00 0.11 -0.57
3.0
1.0
4.09 2.84 2.80 2.29 1.82 2.31 -0.56 0.46 0.92 1.55 1.53 0.93 0.83 1.04 0.94 -0.67 -0.31 2.75 7.88
7.5

APPARENT RESISTIVITY
OHM-M

TOTAL CHARGEABILITY
MT (MSEC)

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⊢— a —⊣ C_2 na P_1 ⊢— a —⊣ P_2

↑ Station Location

a = 100' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

Resistivity Low at Surface

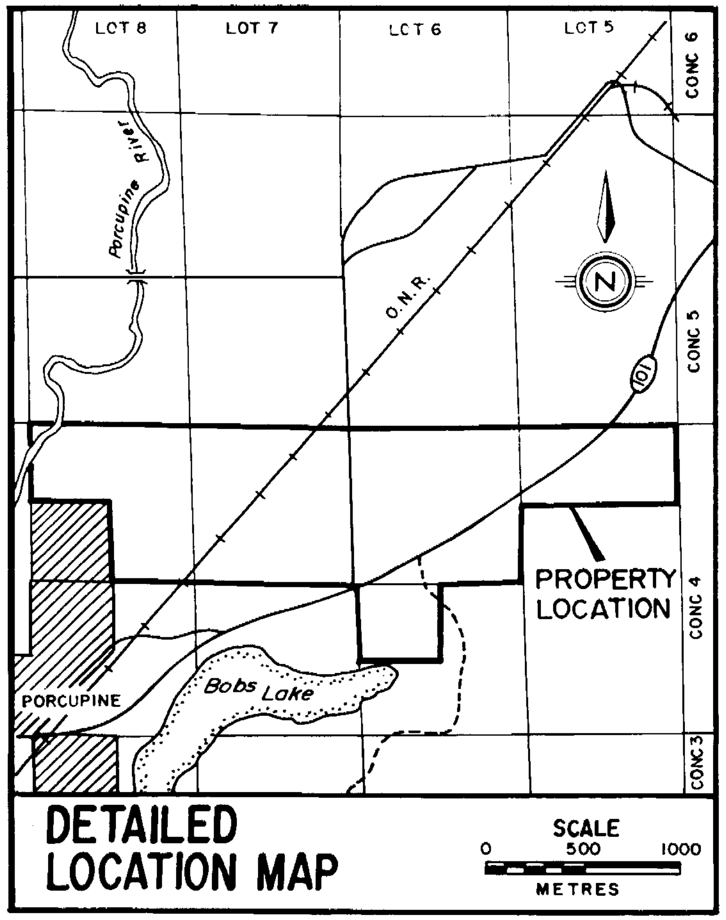
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



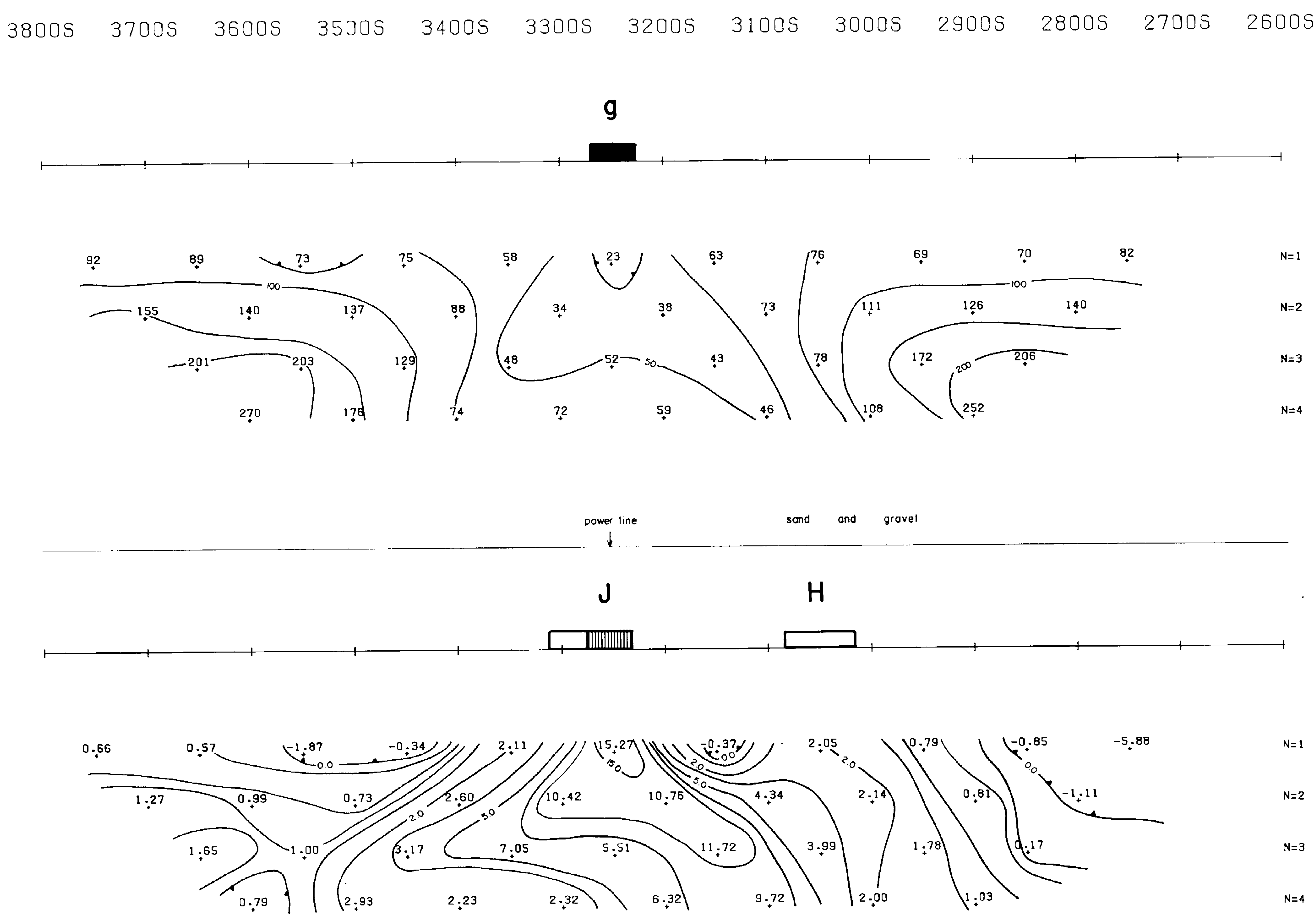
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 6+00 EAST

Project No. C-998	By: S. J. Bate
Scale: 1 200	Drawn: MPH
Drawing No. Figure P-28	Date: July, 1987

MPH Consulting Limited


3800S 3700S 3600S 3500S 3400S 3300S 3200S 3100S 3000S 2900S 2800S 2700S 2600S
g
N=1
N=2
N=3
N=4
power line
sand and gravel
J
H

600N

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

Resistivity Low at Surface

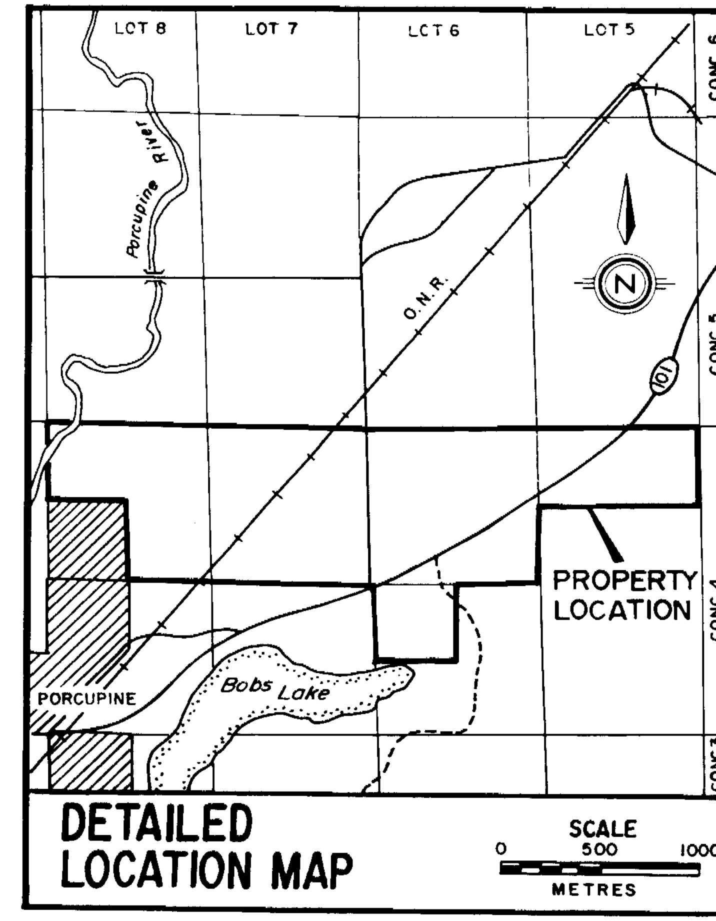
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



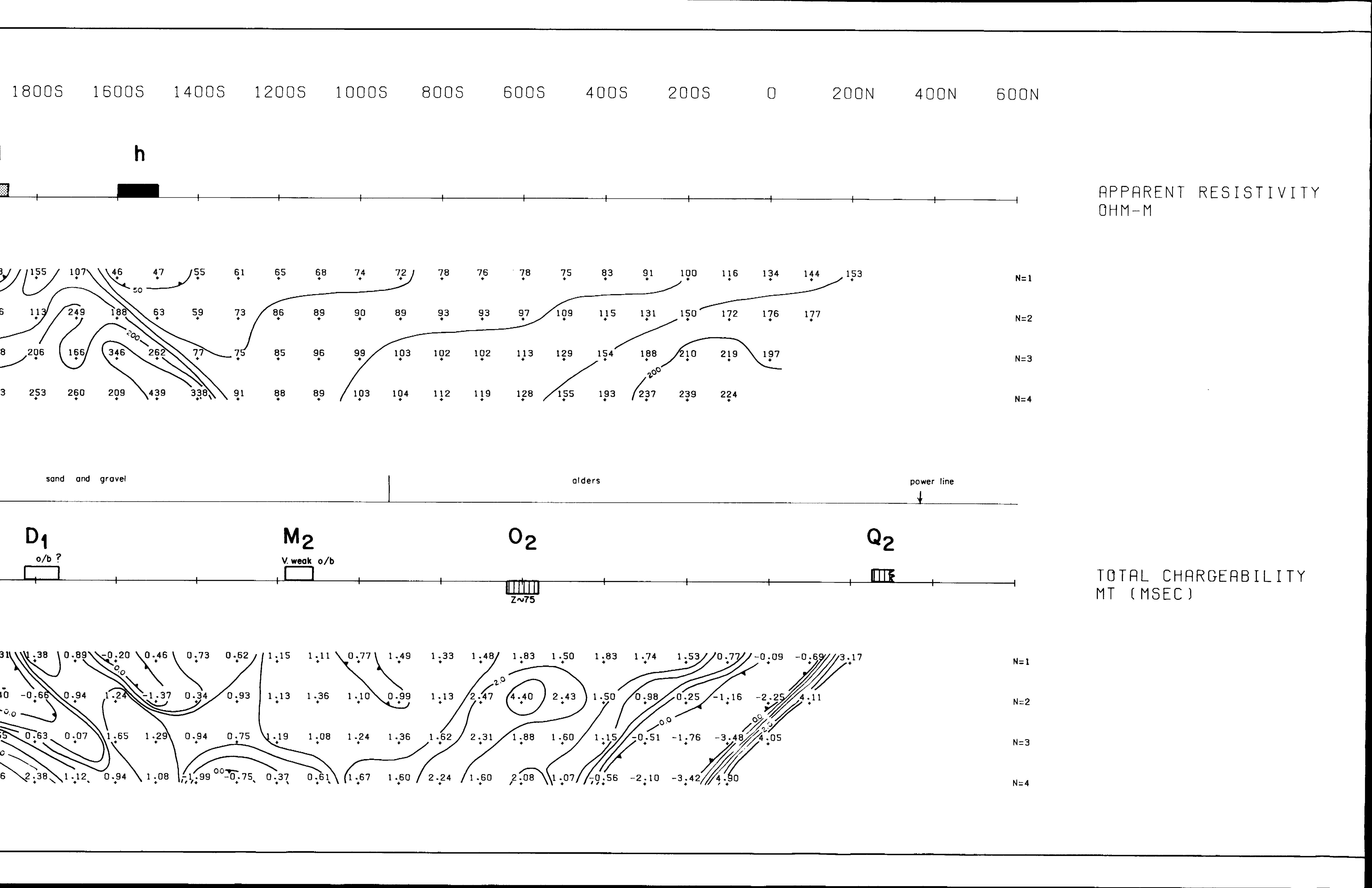
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

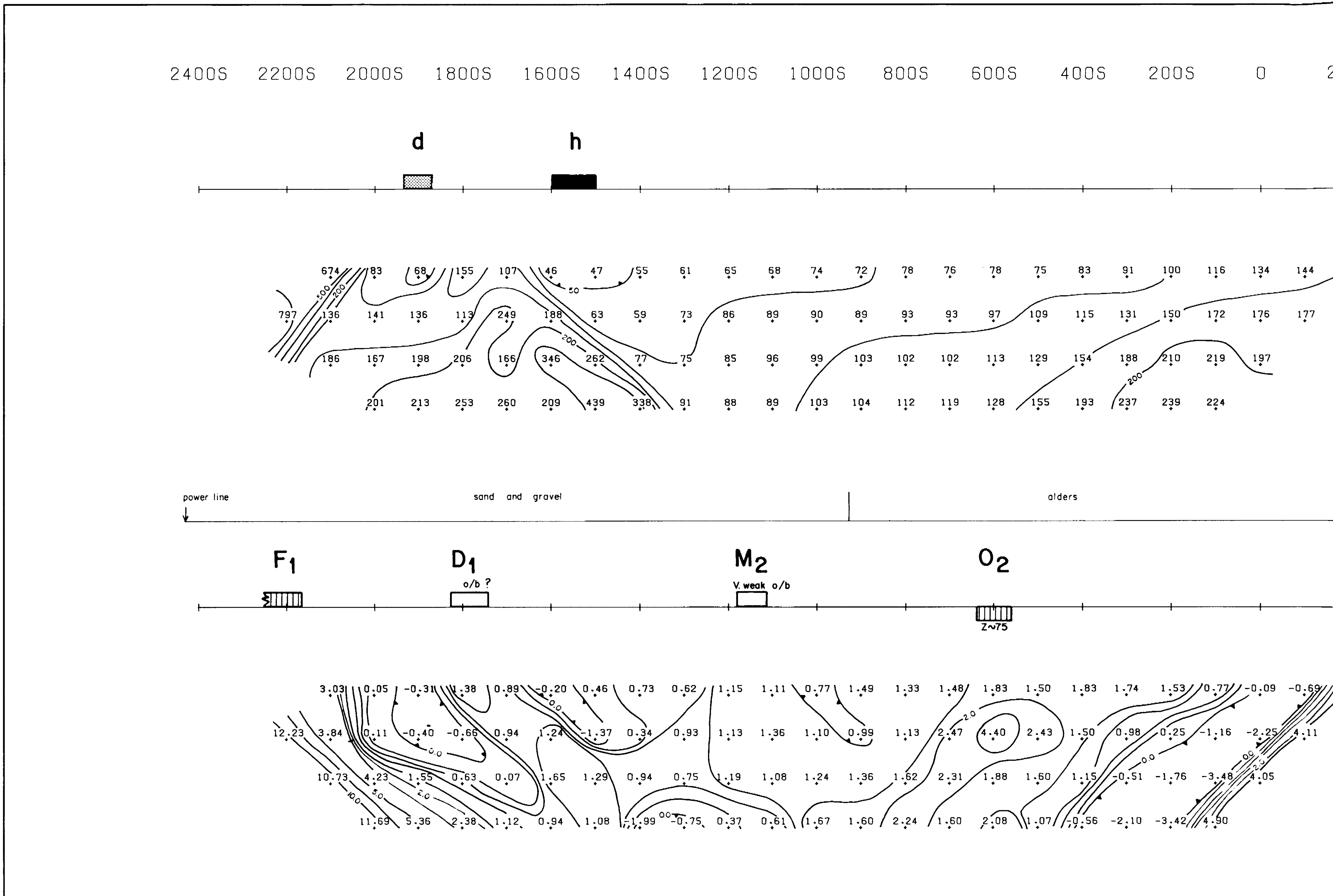
ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 4+00 EAST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P – 29	Date: July, 1987

MPH Consulting Limited



1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N 400N 600N
h
APPARENT RESISTIVITY
OHM-M
155 107 46 47 55 61 65 68 74 72 78 76 78 75 83 91 100 116 134 144 153
N=1
113 249 188 63 59 73 86 89 90 89 93 93 97 109 115 131 150 172 176 177
N=2
206 166 346 262 77 75 85 96 99 103 102 102 113 129 154 188 210 219 197
N=3
253 260 209 439 338 91 88 89 103 104 112 119 128 155 193 237 239 224
N=4
sand and gravel
alders
power line
D1
o/b ?
M2
V. weak o/b
O2
Z~75
Q2
TOTAL CHARGEABILITY
MT (MSEC)
1.38 0.89 -0.20 0.46 0.73 0.62 1.15 1.11 0.77 1.49 1.33 1.48 1.83 1.50 1.83 1.74 1.53 0.77 -0.09 -0.69 3.17
N=1
-0.66 0.94 1.24 -1.37 0.34 0.93 1.13 1.36 1.10 0.99 1.13 2.47 4.40 2.43 1.50 0.98 0.25 -1.16 -2.25 4.11
N=2
0.63 0.07 1.65 1.29 0.94 0.75 1.19 1.08 1.24 1.36 1.62 2.31 1.88 1.60 1.15 -0.51 -1.76 -3.48 4.05
N=3
2.38 1.12 0.94 1.08 -1.99 -0.75 0.37 0.61 1.67 1.60 2.24 1.60 2.08 1.07 -0.56 -2.10 -3.42 4.90
N=4



2400S 2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0
d
h
power line
sand and gravel
alders
F1
D1
o/b ?
M2
V. weak o/b
O2
Z~75

IVITY

LITY

LEGEND

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⊢— a —⊣ C_2 na P_1 ⊢— a —⊣ P_2

↑ Station Location

a = 100'   n=1,2,3,4

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

Resistivity Low at Surface

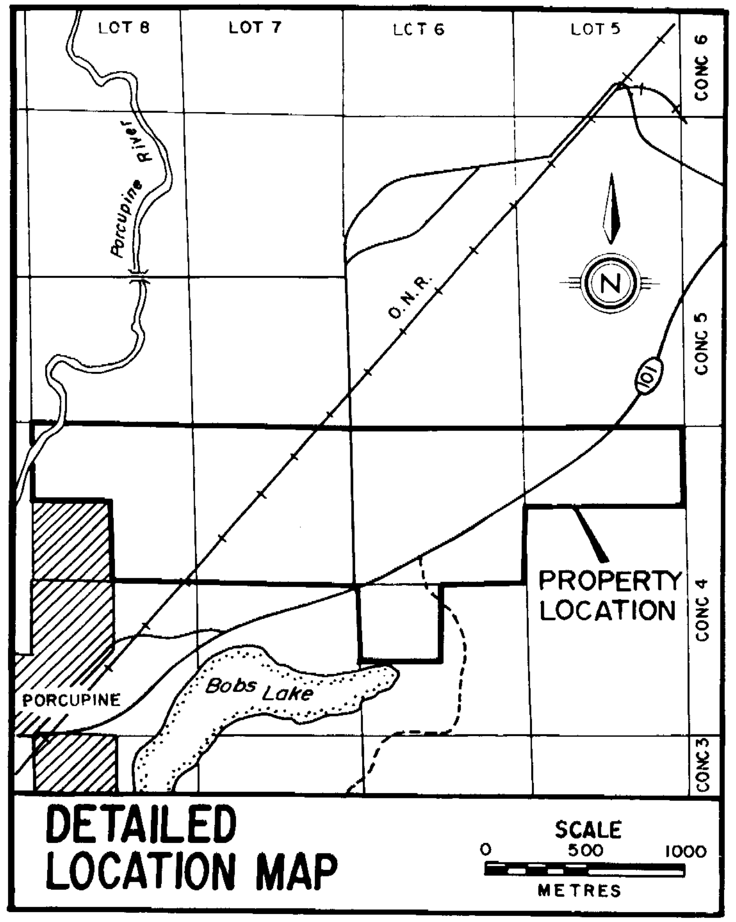
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.

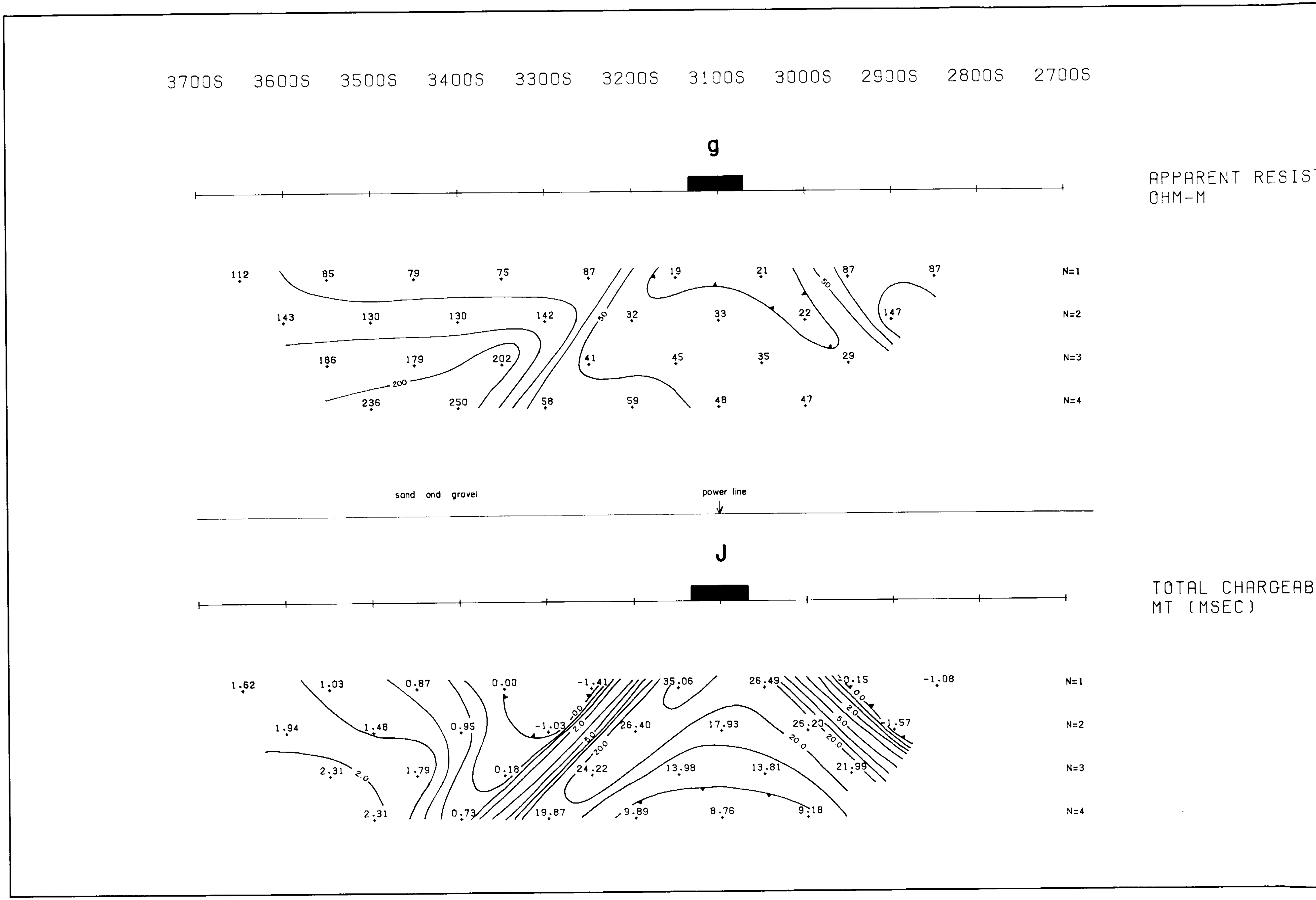
INDUCED POLARIZATION SURVEY

PSEUDOSECTION

LINE 4+00 EAST

Project No. C - 998	By: S. J. Bate
Scale: 1 1200	Drawn: MPH
Drawing No. Figure P - 30	Date: July, 1987

MPH Consulting Limited


3700S 3600S 3500S 3400S 3300S 3200S 3100S 3000S 2900S 2800S 2700S
g
APPARENT RESIST
OHM-M
112 85 79 75 87 19 21 87 87 N=1
143 130 130 142 32 33 22 147 N=2
186 179 202 41 45 35 29 N=3
236 250 58 59 48 47 N=4
200
50
sand and gravel
power line
J
TOTAL CHARGEABI
MT (MSEC)
1.62 1.03 0.87 0.00 -1.41 35.06 26.49 -1.08 N=1
1.94 1.48 0.95 -1.03 26.40 17.93 26.20 1.57 N=2
2.31 1.79 0.18 24.22 13.98 13.81 21.99 N=3
2.31 0.73 19.87 9.89 8.76 9.18 N=4
2.0
20.0
50
200

T RESISTIVITY

HARGEABILITY
C)

L E G E N D

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na ↑ Station Location P_1 ⟵ a ⟶ P_2

a = 200'   n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

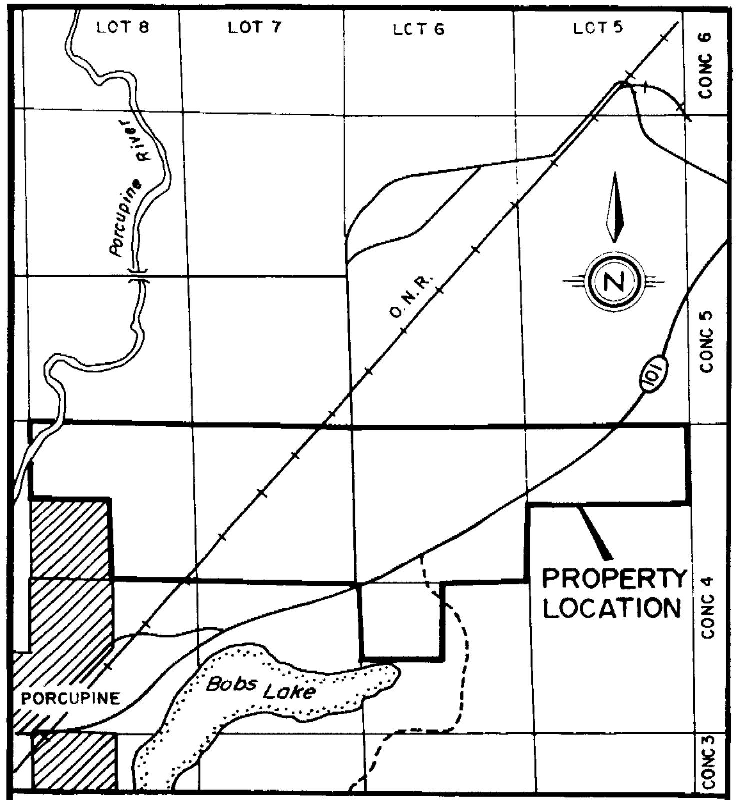
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*   Z~ 10 *Estimated Depth (ft)*

(1.33)   poor decay



DETAILED LOCATION MAP

SCALE

100 0 100 200 300 400

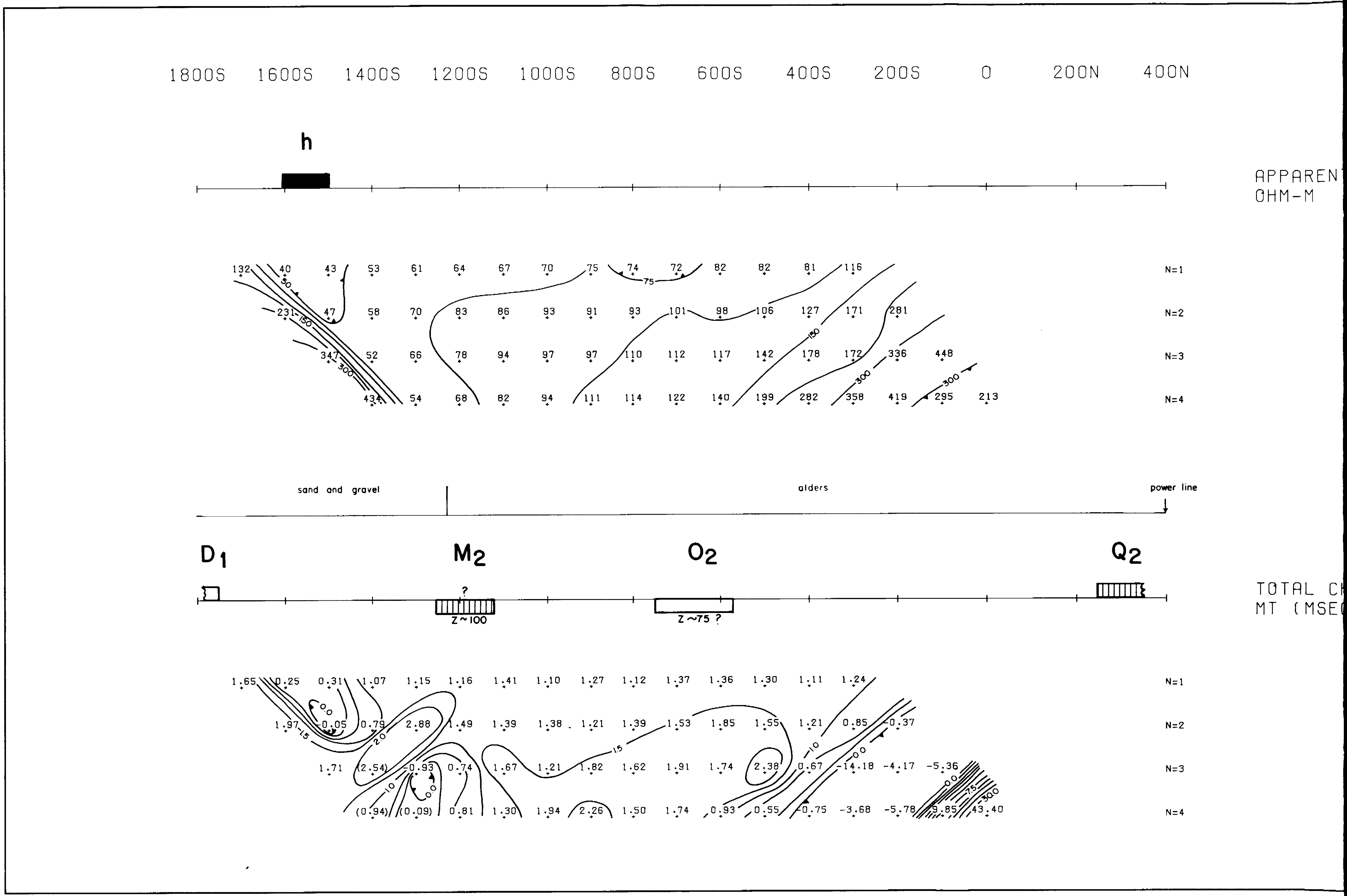
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 2+00 EAST

Project No. C – 998	**By:** S. J. Bate
Scale: 1: 2400	**Drawn:** MPH
Drawing No: Figure P – 31	**Date:** July, 1987

MPH **MPH Consulting Limited**



1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N 400N
h
APPAREN
OHM-M
N=1
N=2
N=3
N=4
sand and gravel
alders
power line
D1
M2
O2
Q2
Z~100
Z~75 ?
TOTAL CH
MT (MSEC

TIVITY

ILITY

LEGEND

TRANSMITTER Huntec 7.5

RECEIVER Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 100' n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

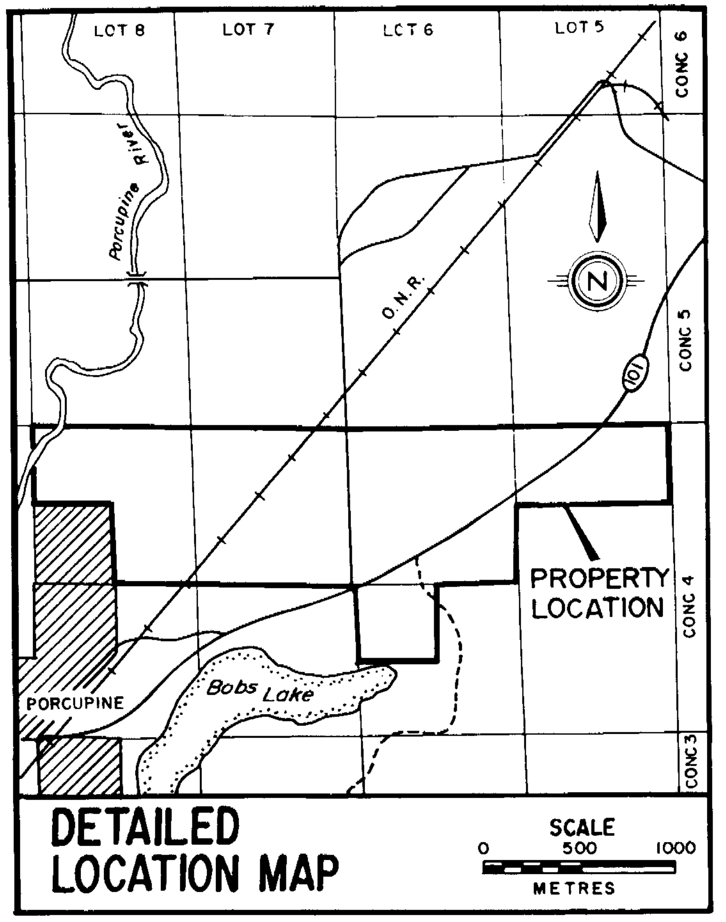
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 Estimated Depth (ft)

Z~ 10 Estimated Depth (ft)



SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

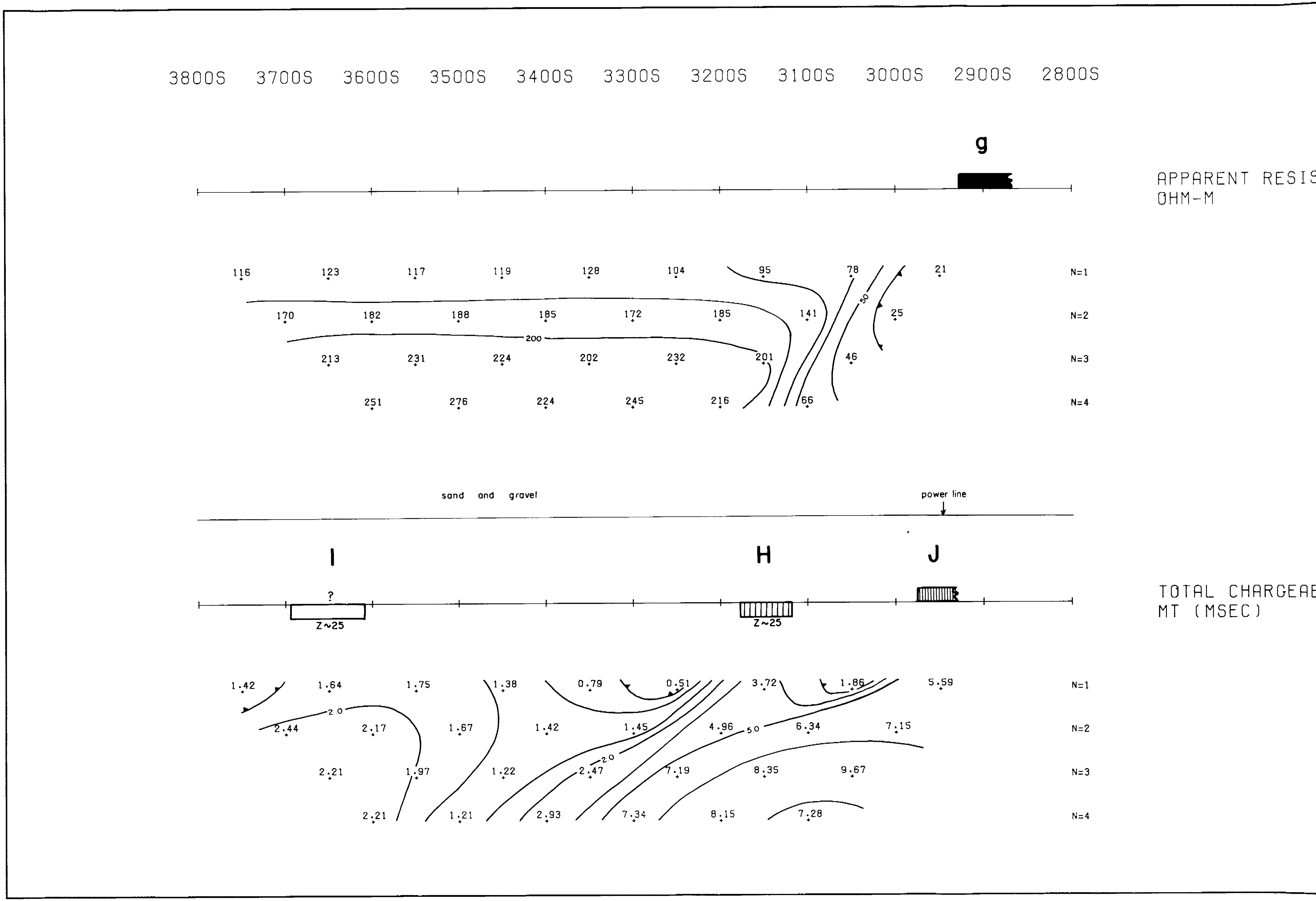
INDUCED POLARIZATION SURVEY

PSEUDOSECTION

LINE 2+00 EAST

Project No. C – 998	By: S. J. Bate
Scale: 1 1200	Drawn: MPH
Drawing No. Figure P - 32	Date: July, 1987

MPH Consulting Limited


3800S 3700S 3600S 3500S 3400S 3300S 3200S 3100S 3000S 2900S 2800S
g
APPARENT RESIS
OHM-M
N=1 116 123 117 119 128 104 95 78 21
N=2 170 182 188 185 172 185 141 25
N=3 213 231 224 202 232 201 46
N=4 251 276 224 245 216 66
200
50
sand and gravel
power line
I
H
J
?
Z~25
Z~25
TOTAL CHARGEAB
MT (MSEC)
N=1 1.42 1.64 1.75 1.38 0.79 0.51 3.72 1.86 5.59
N=2 2.44 2.17 1.67 1.42 1.45 4.96 6.34 7.15
N=3 2.21 1.97 1.22 2.47 7.19 8.35 9.67
N=4 2.21 1.21 2.93 7.34 8.15 7.28
2.0
5.0

APPARENT RESISTIVITY
OHM-M

TOTAL CHARGEABILITY
MT (MSEC)

LEGEND

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⊢— a —⊣ C_2 na P_1 ⊢— a —⊣ P_2

↑ Station Location

a = 200'   n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

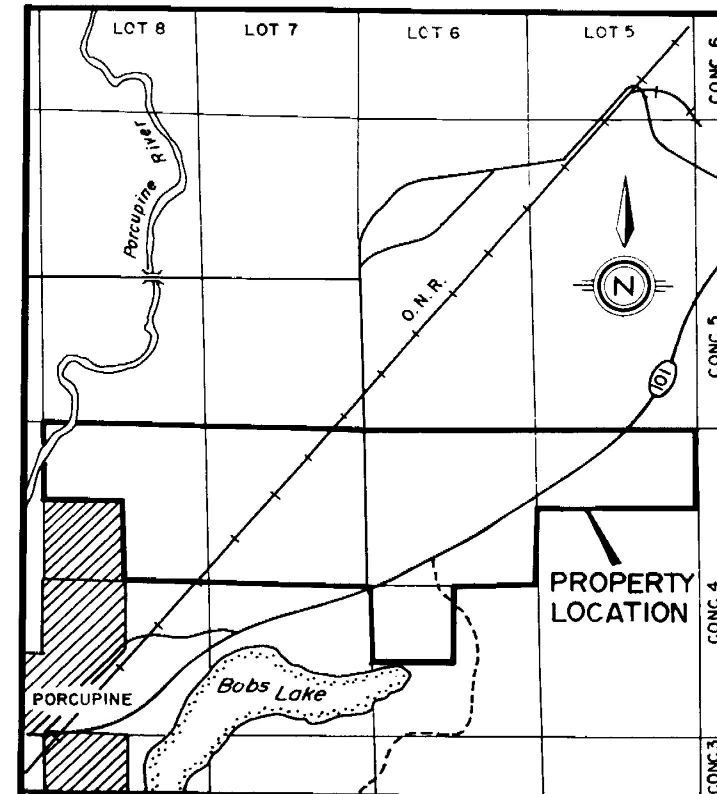
Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE
0 500 1000
METRES

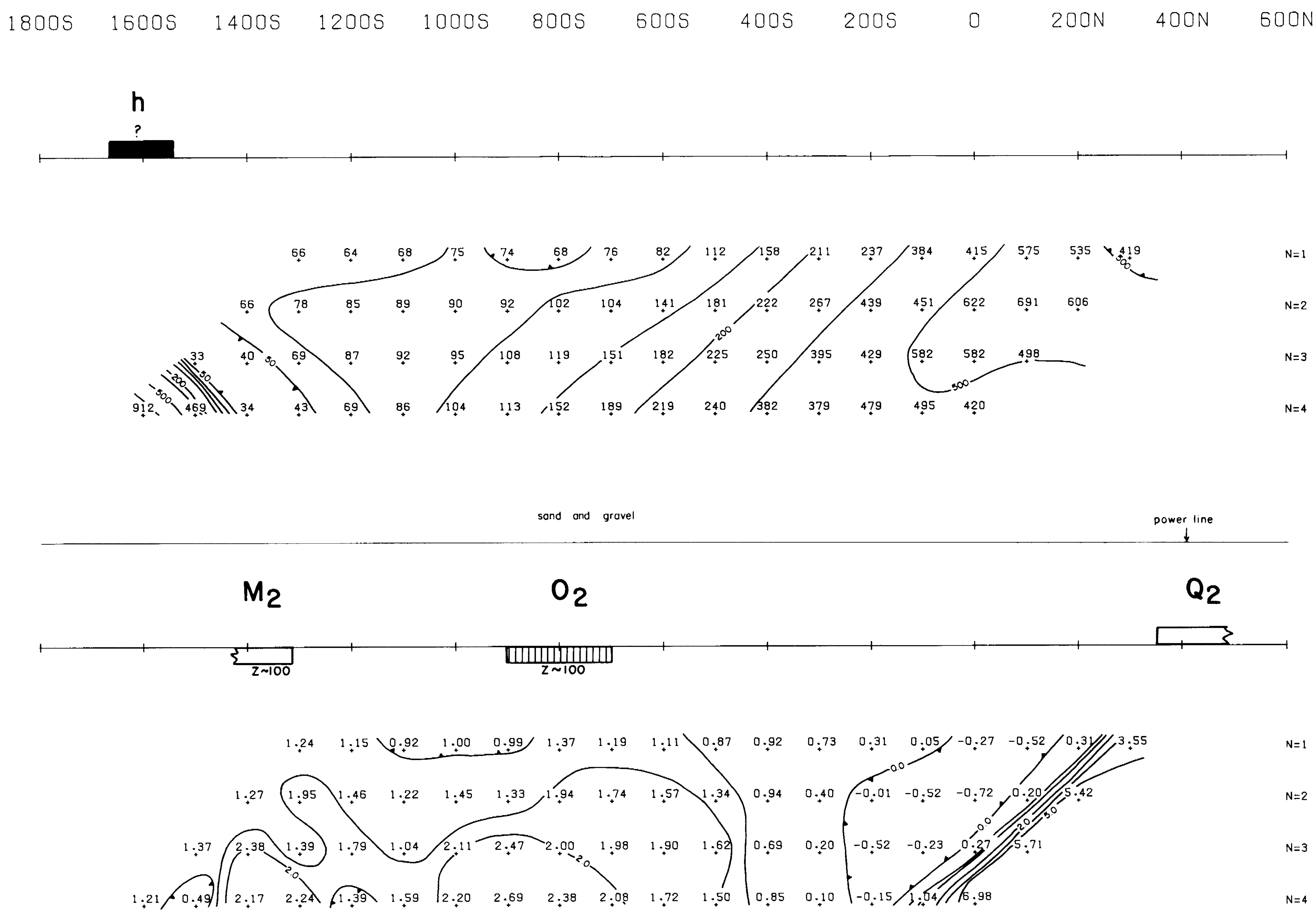
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 0+00 EAST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P–33	Date: July, 1987

MPH Consulting Limited



1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N 400N 600N
h
?
N=1
N=2
N=3
N=4
sand and gravel
power line
M2
O2
Q2
Z~100
Z~100

ON

APPARENT RESISTIVITY
OHM-M

N=1
N=2
N=3
N=4

TOTAL CHARGEABILITY
MT (MSEC)

N=1
N=2
N=3
N=4

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

Station Location

a = 200′ n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

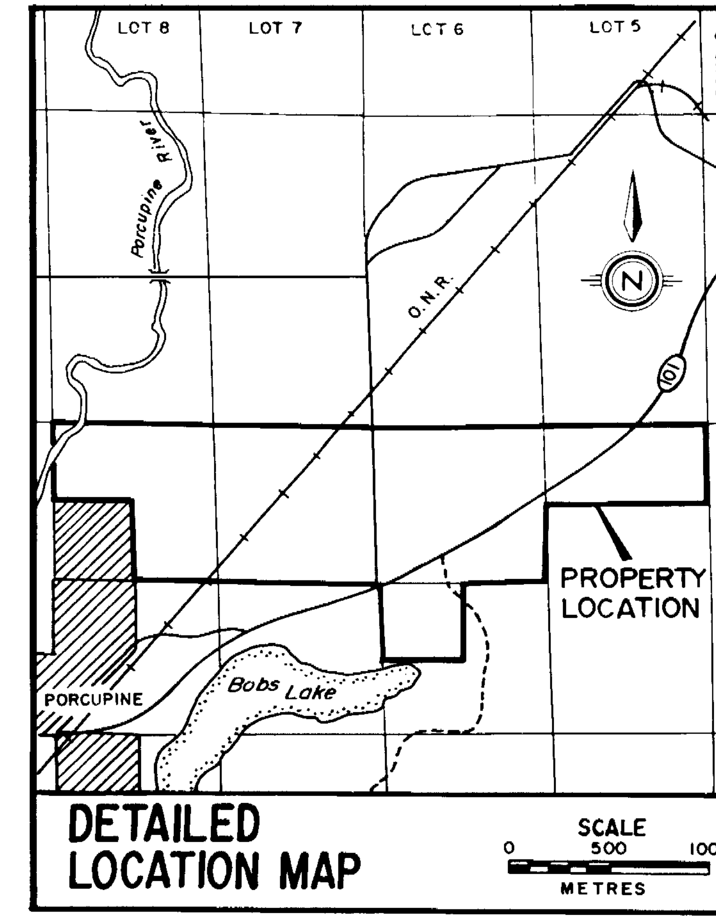
Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



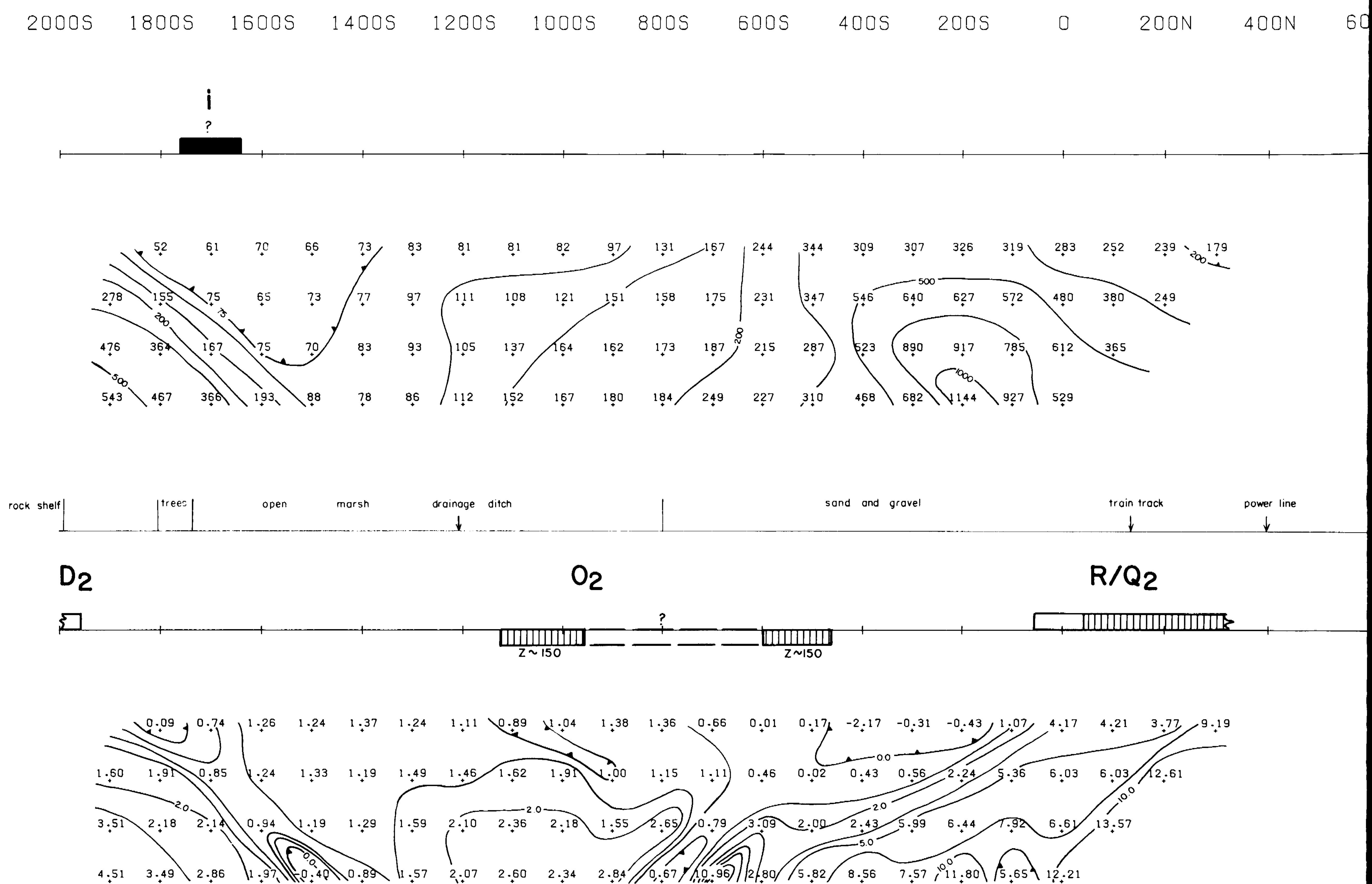
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 4+00 WEST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P – 35	Date: July, 1987

MPH Consulting Limited



2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N 400N 60
i
?
52 61 70 66 73 83 81 81 82 97 131 167 244 344 309 307 326 319 283 252 239 179
278 155 75 65 73 77 97 111 108 121 151 158 175 231 347 546 640 627 572 480 380 249
476 364 167 75 70 83 93 105 137 164 162 173 187 215 287 523 890 917 785 612 365
543 467 366 193 88 78 86 112 152 167 180 184 249 227 310 468 682 1144 927 529
75
200
500
1000
rock shelf
trees
open marsh
drainage ditch
sand and gravel
train track
power line
D2
O2
R/Q2
?
Z~150
Z~150
0.09 0.74 1.26 1.24 1.37 1.24 1.11 0.89 1.04 1.38 1.36 0.66 0.01 0.17 -2.17 -0.31 -0.43 1.07 4.17 4.21 3.77 9.19
1.60 1.91 0.85 1.24 1.33 1.19 1.49 1.46 1.62 1.91 1.00 1.15 1.11 0.46 0.02 0.43 0.56 2.24 5.36 6.03 6.03 12.61
3.51 2.18 2.14 0.94 1.19 1.29 1.59 2.10 2.36 2.18 1.55 2.65 0.79 3.09 2.00 2.43 5.99 6.44 7.92 6.61 13.57
4.51 3.49 2.86 1.97 0.40 0.89 1.57 2.07 2.60 2.34 2.84 0.67 10.96 2.80 5.82 8.56 7.57 11.80 5.65 12.21
0.0
2.0
5.0
10.0

400N

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

power line

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 — na — P_1 — a — P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

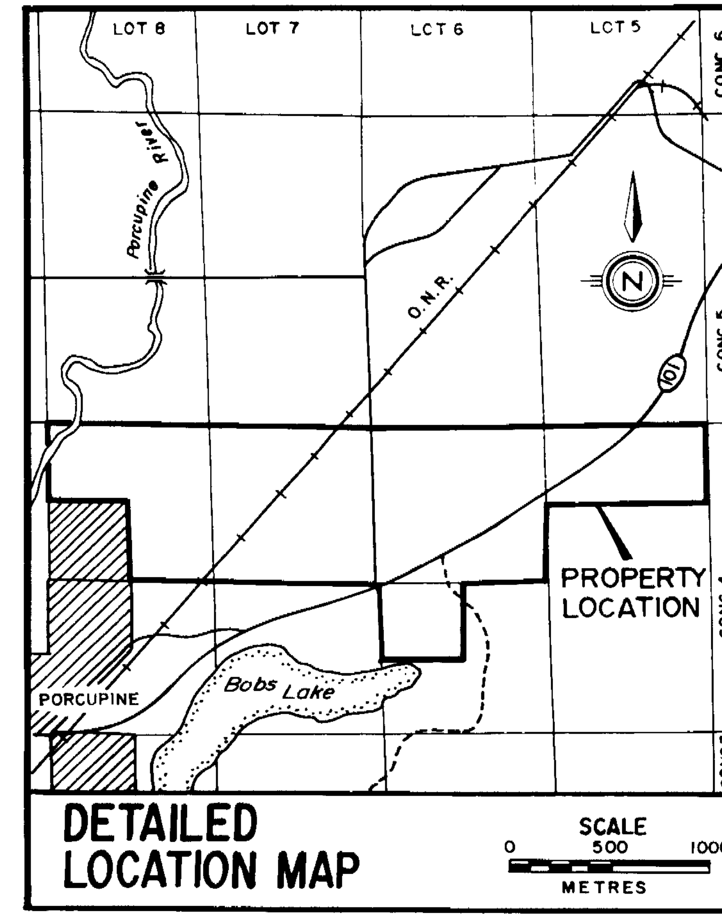
Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



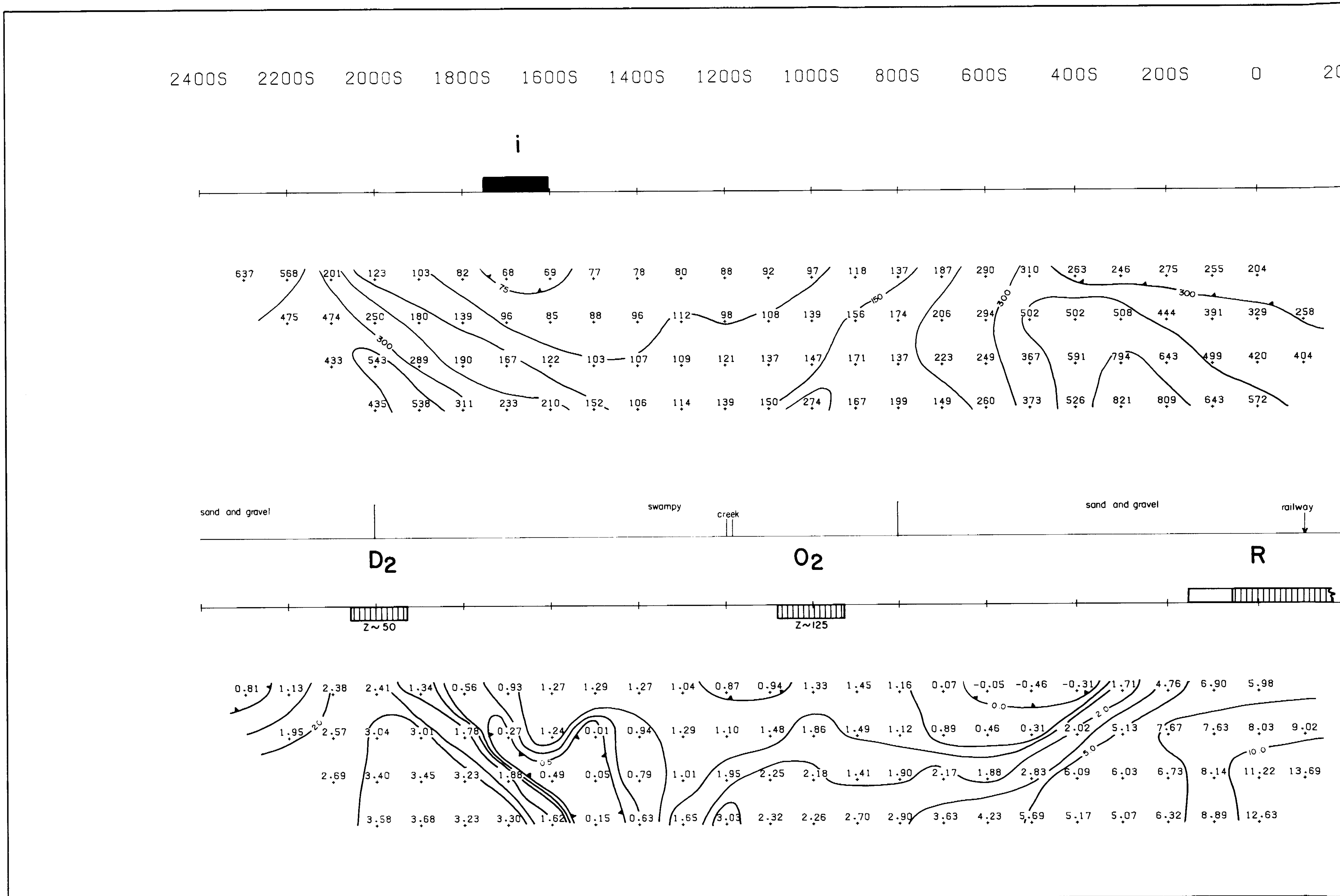
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 6+00 WEST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P – 36	Date: July, 1987

MPH Consulting Limited



2400S 2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 20
i
637 568 201 123 103 82 68 69 77 78 80 88 92 97 118 137 187 290 310 263 246 275 255 204
475 474 250 180 139 96 85 88 96 112 98 108 139 156 174 206 294 502 502 508 444 391 329 258
433 543 289 190 167 122 103 107 109 121 137 147 171 137 223 249 367 591 794 643 499 420 404
435 538 311 233 210 152 106 114 139 150 274 167 199 149 260 373 526 821 809 643 572
75
150
300
sand and gravel
swampy
creek
sand and gravel
railway
D2
O2
R
Z~50
Z~125
0.81 1.13 2.38 2.41 1.34 0.56 0.93 1.27 1.29 1.27 1.04 0.87 0.94 1.33 1.45 1.16 0.07 -0.05 -0.46 -0.31 1.71 4.76 6.90 5.98
1.95 2.57 3.04 3.01 1.78 0.27 1.24 0.01 0.94 1.29 1.10 1.48 1.86 1.49 1.12 0.89 0.46 0.31 2.02 5.13 7.67 7.63 8.03 9.02
2.69 3.40 3.45 3.23 1.88 0.49 0.05 0.79 1.01 1.95 2.25 2.18 1.41 1.90 2.17 1.88 2.83 6.09 6.03 6.73 8.14 11.22 13.69
3.58 3.68 3.23 3.30 1.62 0.15 0.63 1.65 3.03 2.32 2.26 2.70 2.90 3.63 4.23 5.69 5.17 5.07 6.32 8.89 12.63
0.0
0.5
2.0
5.0
10.0

600N

APPARENT RESISTIVITY
OHM-M

N=2

N=3

N=4

N=5

TOTAL CHARGEABILITY
MT (MSEC)

N=2

N=3

N=4

N=5

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200' n= 2,3,4,5

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

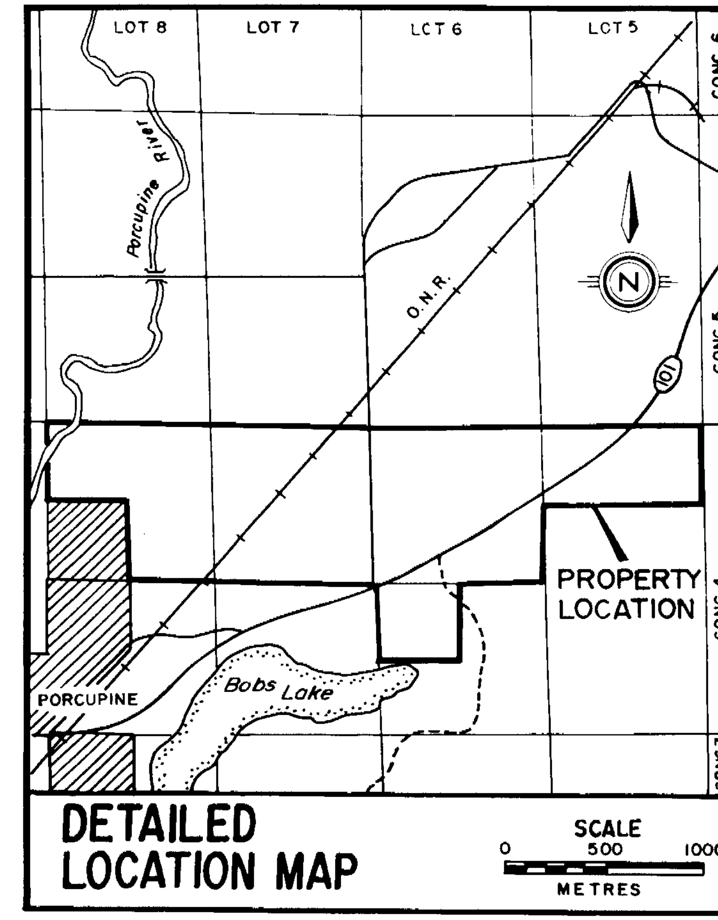
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



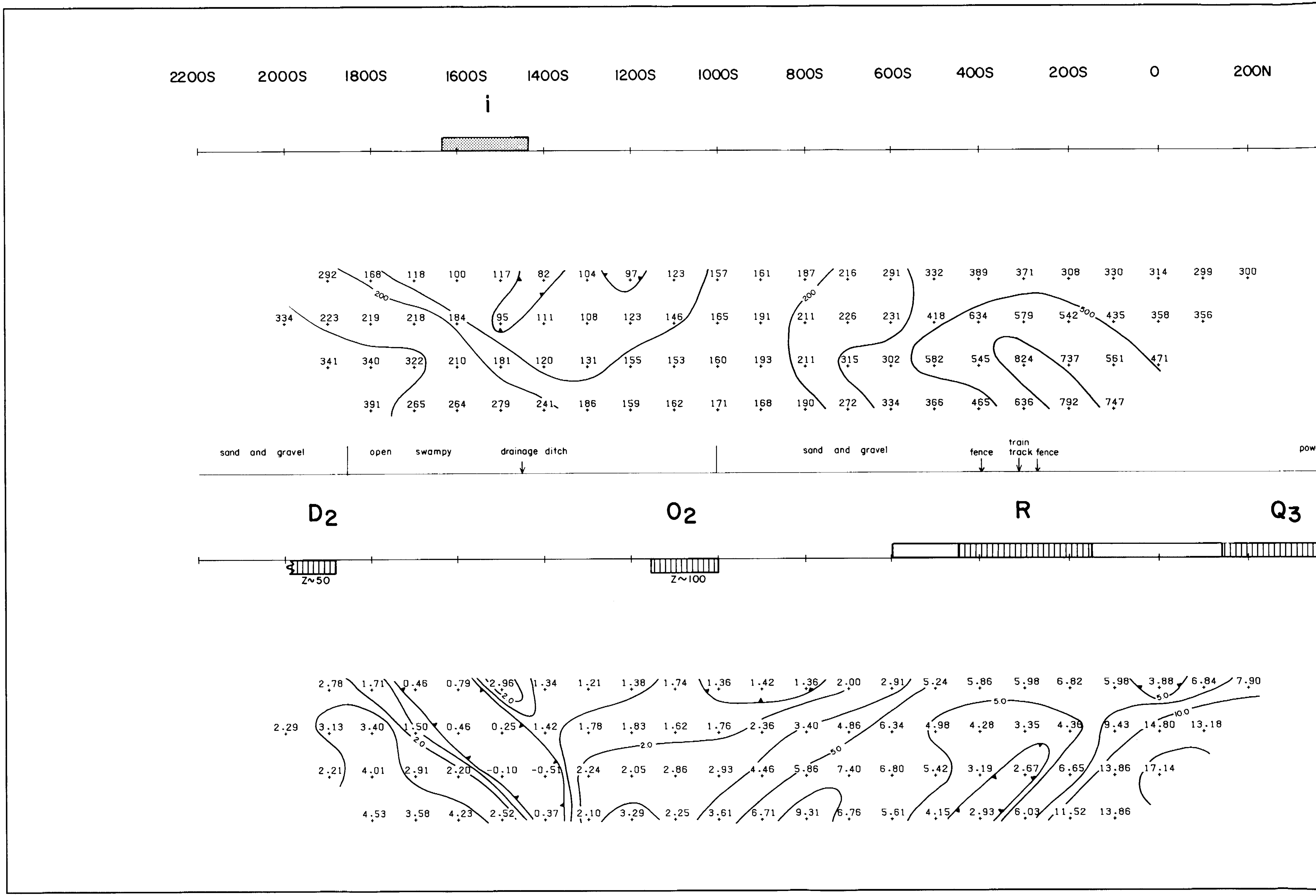
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 8+00 WEST

Project No. C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P-37	Date: July, 1987

MPH **MPH Consulting Limited**



2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N
i
sand and gravel
open swampy
drainage ditch
sand and gravel
fence
train track
fence
power
D2
O2
R
Q3
Z~50
Z~100

600N

APPARENT RESISTIVITY
OHM-M

N=2

N=3

N=4

N=5

TOTAL CHARGEABILITY
MT (MSEC)

N=2

N=3

N=4

N=5

L E G E N D

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⊢— a —⊣ C_2 na P_1 ⊢— a —⊣ P_2

↑ Station Location

a = 200' n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

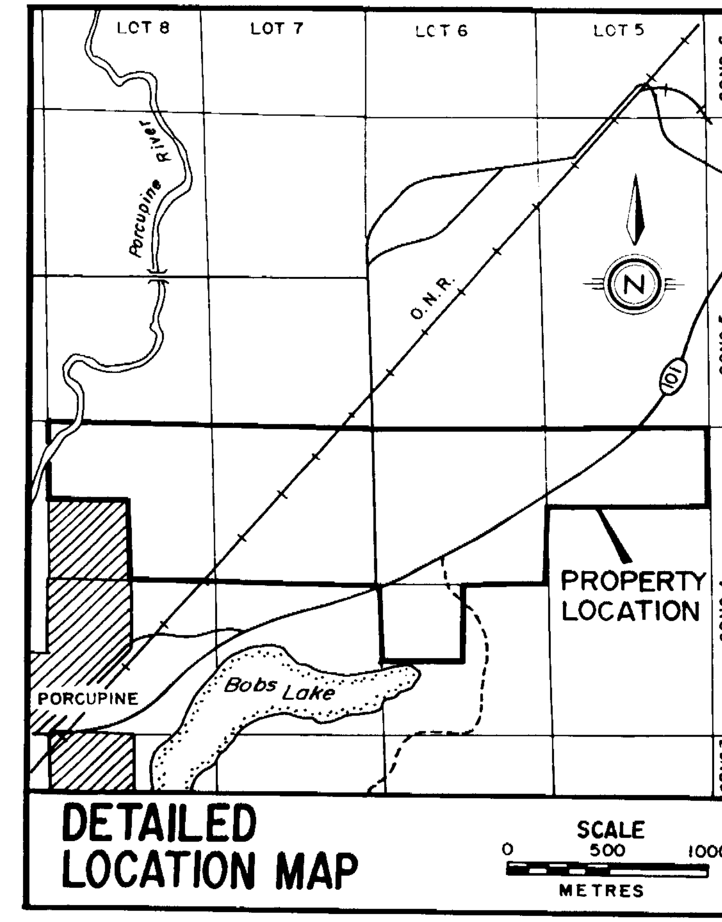
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)* Z~ 10 *Estimated Depth (ft)*

(1.33) poor decay



DETAILED LOCATION MAP

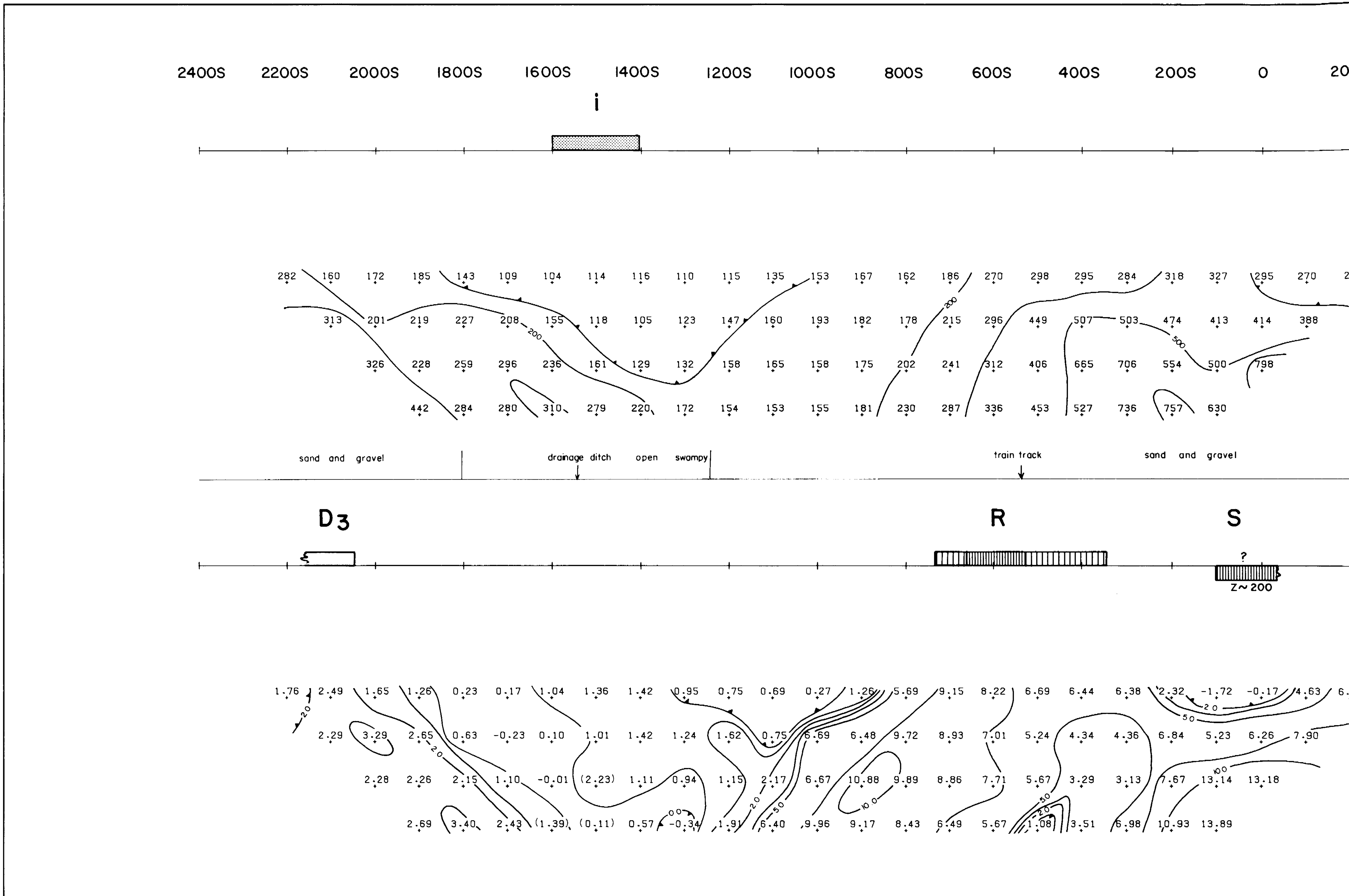
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 10+00 WEST

Project No. C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P-38	Date: July, 1987

MPH **MPH Consulting Limited**


2400S 2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200
i
282 160 172 185 143 109 104 114 116 110 115 135 153 167 162 186 270 298 295 284 318 327 295 270 24
313 201 219 227 208 155 118 105 123 147 160 193 182 178 215 296 449 507 503 474 413 414 388
326 228 259 296 236 161 129 132 158 165 158 175 202 241 312 406 665 706 554 500 798
442 284 280 310 279 220 172 154 153 155 181 230 287 336 453 527 736 757 630
200
500
sand and gravel
drainage ditch
open swampy
train track
sand and gravel
D3
R
S
?
Z~200
1.76 2.49 1.65 1.26 0.23 0.17 1.04 1.36 1.42 0.95 0.75 0.69 0.27 1.26 5.69 9.15 8.22 6.69 6.44 6.38 2.32 -1.72 -0.17 4.63 6.9
2.29 3.29 2.65 0.63 -0.23 0.10 1.01 1.42 1.24 1.62 0.75 6.69 6.48 9.72 8.93 7.01 5.24 4.34 4.36 6.84 5.23 6.26 7.90
2.28 2.26 2.15 1.10 -0.01 (2.23) 1.11 0.94 1.15 2.17 6.67 10.88 9.89 8.86 7.71 5.67 3.29 3.13 7.67 13.14 13.18
2.69 3.40 2.43 (1.39) (0.11) 0.57 -0.34 1.91 6.40 9.96 9.17 8.43 6.49 5.67 1.08 3.51 6.98 10.93 13.89
20
50
100

OON

APPARENT RESISTIVITY
OHM-M

N=2

N=3

N=4

N=5

power line

TOTAL CHARGEABILITY
MT (MSEC)

N=2

N=3

N=4

N=5

LEGEND

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ←— a —→ C_2 na ↑ Station Location P_1 ←— a —→ P_2

a = 200' n = 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

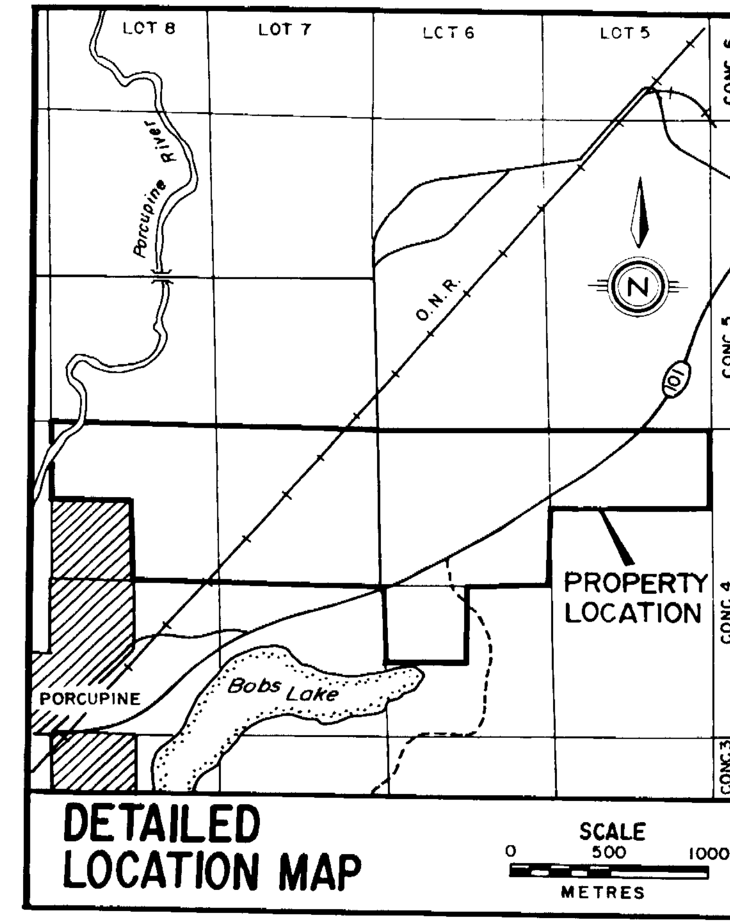
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



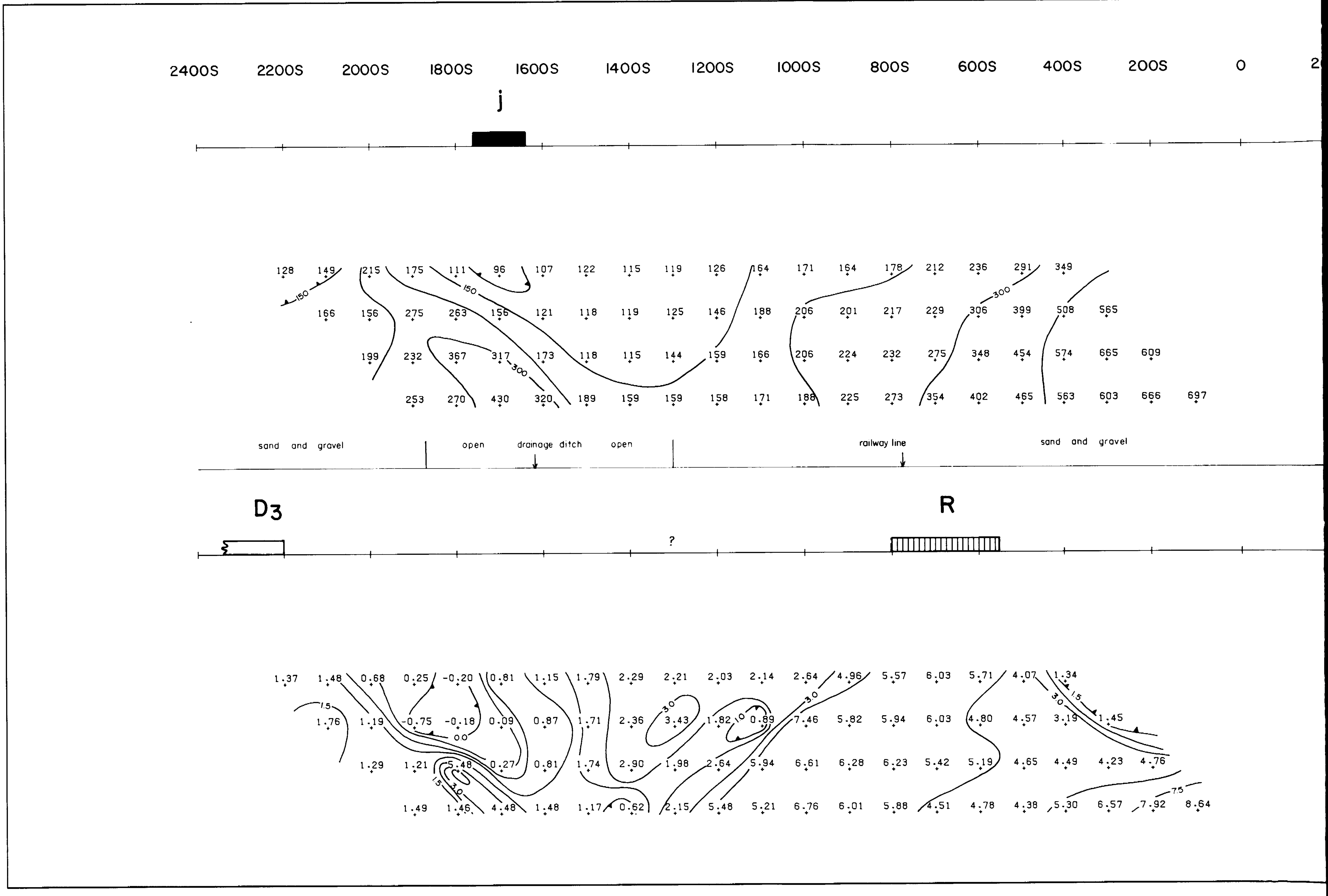
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 12+00 WEST

Project No: C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P-39	Date: July, 1987

MPH Consulting Limited



2400S
2200S
2000S
1800S
1600S
1400S
1200S
1000S
800S
600S
400S
200S
0
j
sand and gravel
open
drainage ditch
open
railway line
sand and gravel
D3
R
?

ON

APPARENT RESISTIVITY
OHM-M

N=2

N=3

N=4

N=5

TOTAL CHARGEABILITY
MT (MSEC)

N=2

N=3

N=4

N=5

LEGEND

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 — na ↑ Station Location — P_1 ⟵ a ⟶ P_2

a = 200' n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

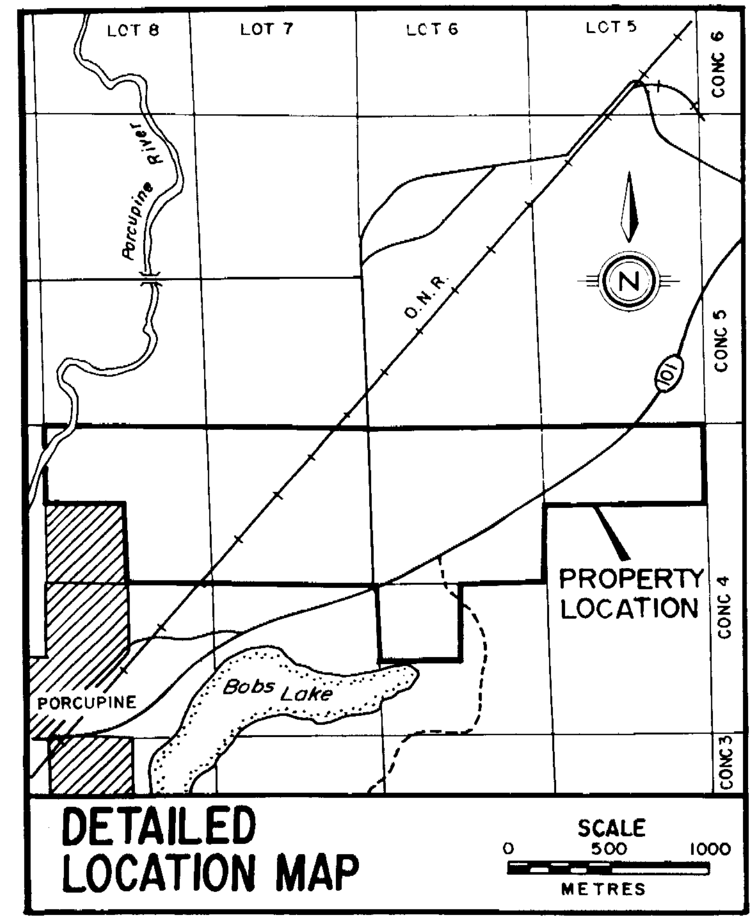
Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



SCALE
100 0 100 200 300 400
FEET

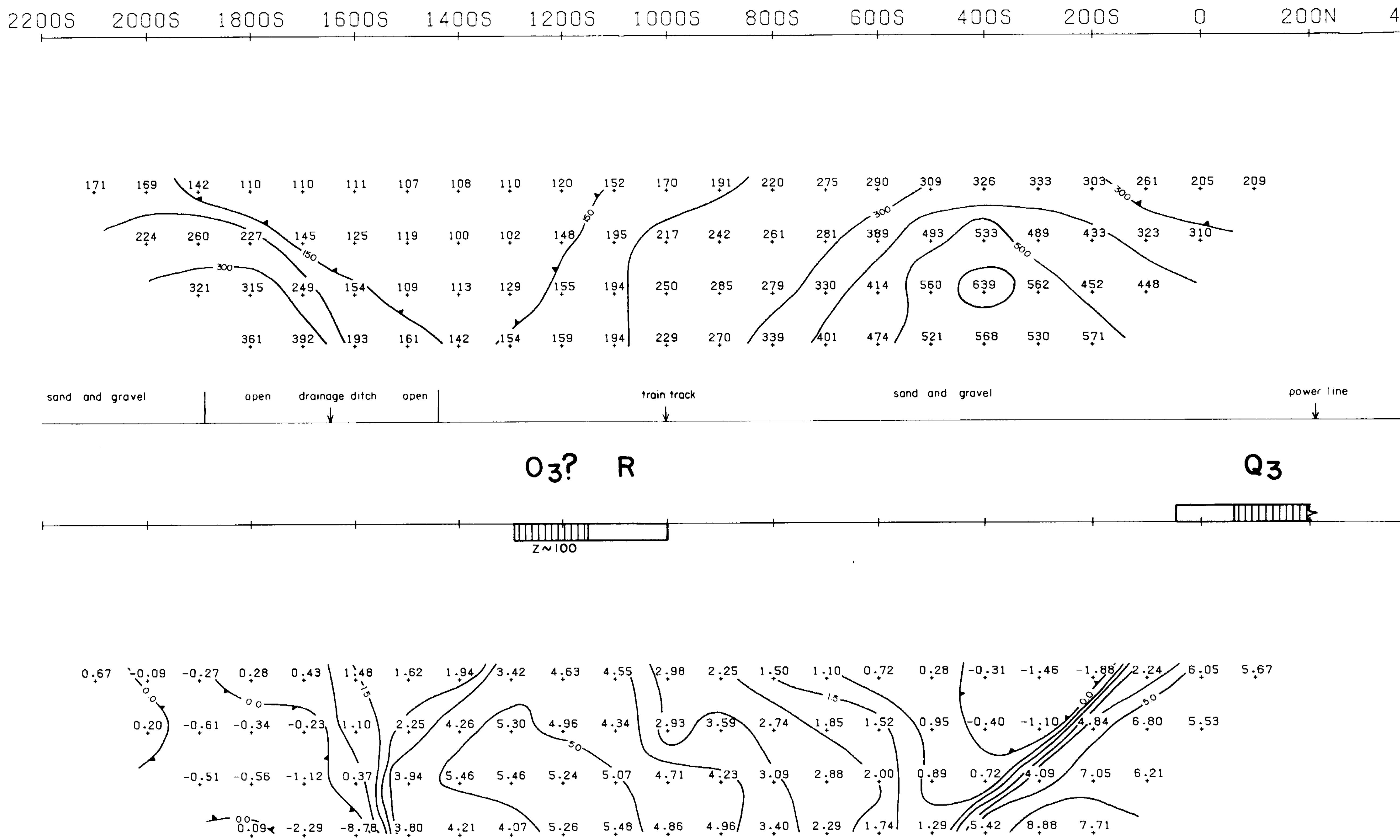
5765

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 14+00 WEST

Project No: C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P – 40	Date: July, 1987

MPH Consulting Limited



2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N
171 169 142 110 110 111 107 108 110 120 152 170 191 220 275 290 309 326 333 303 261 205 209
224 260 227 145 125 119 100 102 148 195 217 242 261 281 389 493 533 489 433 323 310
321 315 249 154 109 113 129 155 194 250 285 279 330 414 560 639 562 452 448
361 392 193 161 142 154 159 194 229 270 339 401 474 521 568 530 571
150
300
500
sand and gravel
open
drainage ditch
open
train track
sand and gravel
power line
O3? R
Q3
Z~100
0.67 -0.09 -0.27 0.28 0.43 1.48 1.62 1.94 3.42 4.63 4.55 2.98 2.25 1.50 1.10 0.72 0.28 -0.31 -1.46 -1.88 2.24 6.05 5.67
0.20 -0.61 -0.34 -0.23 1.10 2.25 4.26 5.30 4.96 4.34 2.93 3.59 2.74 1.85 1.52 0.95 -0.40 -1.10 4.84 6.80 5.53
-0.51 -0.56 -1.12 0.37 3.94 5.46 5.46 5.24 5.07 4.71 4.23 3.09 2.88 2.00 0.89 0.72 4.09 7.05 6.21
0.09 -2.29 -8.78 3.80 4.21 4.07 5.26 5.48 4.86 4.96 3.40 2.29 1.74 1.29 5.42 8.88 7.71
0.0
1.5
5.0

RESISTIVITY

ARGEABILITY
C)

L E G E N D

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 —— a —— C_2 na P_1 —— a —— P_2

Station Location

a = 200' n= 2,3,4,5

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

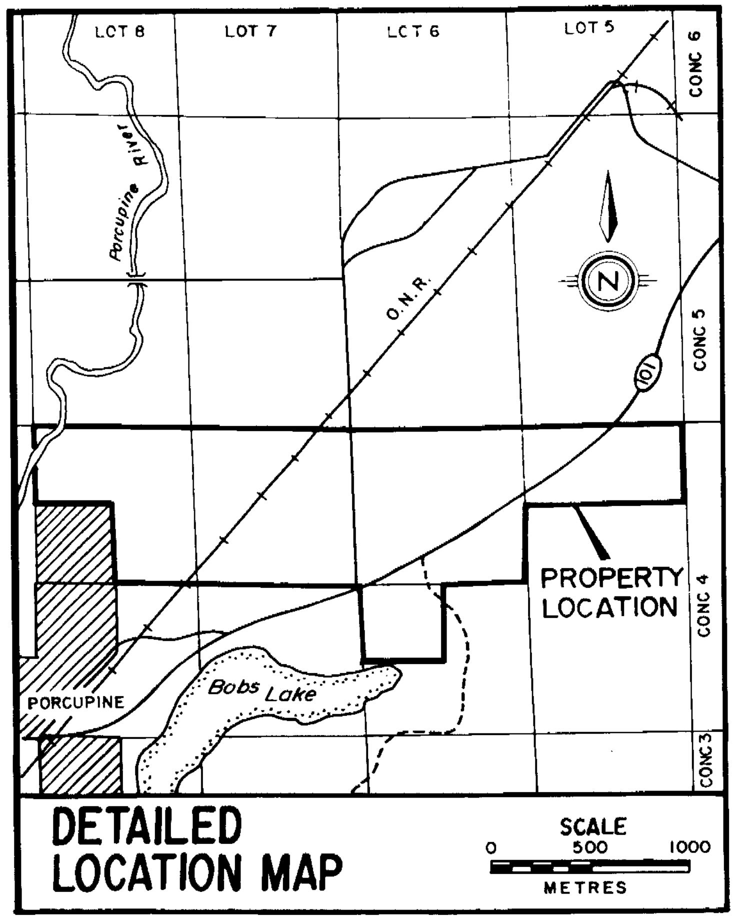
25 15 10 5

Resistivity Low at Surface 17 *Estimated Intrinsic Resistivity (ohm m)*

Resistivity Low at Depth 17 *Estimated Intrinsic Resistivity (ohm m)* Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface 75 *Estimated Intrinsic Chargeability (msecs)*

IP Anomaly at Depth 75 *Estimated Intrinsic Chargeability (msecs)* Z~ 10 *Estimated Depth (ft)*

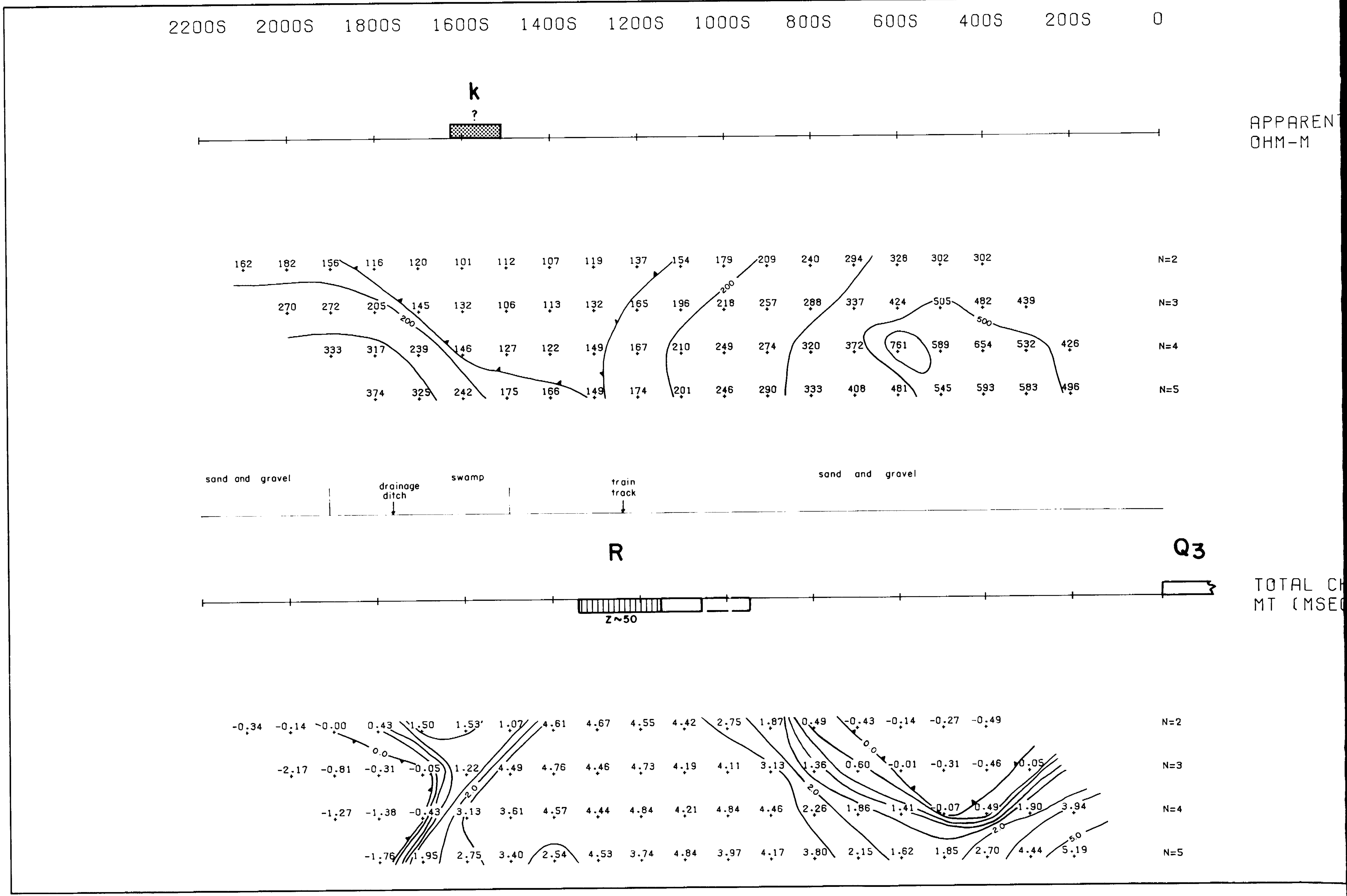


SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.	
ALLERSTON PROPERTY – WHITNEY TWP. **INDUCED POLARIZATION SURVEY PSEUDOSECTION LINE 16+00 WEST**	
Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P – 41	Date: July, 1987
MPH Consulting Limited	



2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0
k
?
APPARENT
OHM-M
N=2
N=3
N=4
N=5
sand and gravel
drainage ditch
swamp
train track
sand and gravel
R
Q3
Z~50
TOTAL CH
MT (MSEC

IVITY

LITY

L E G E N D

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200'

n= 2,3,4,5

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

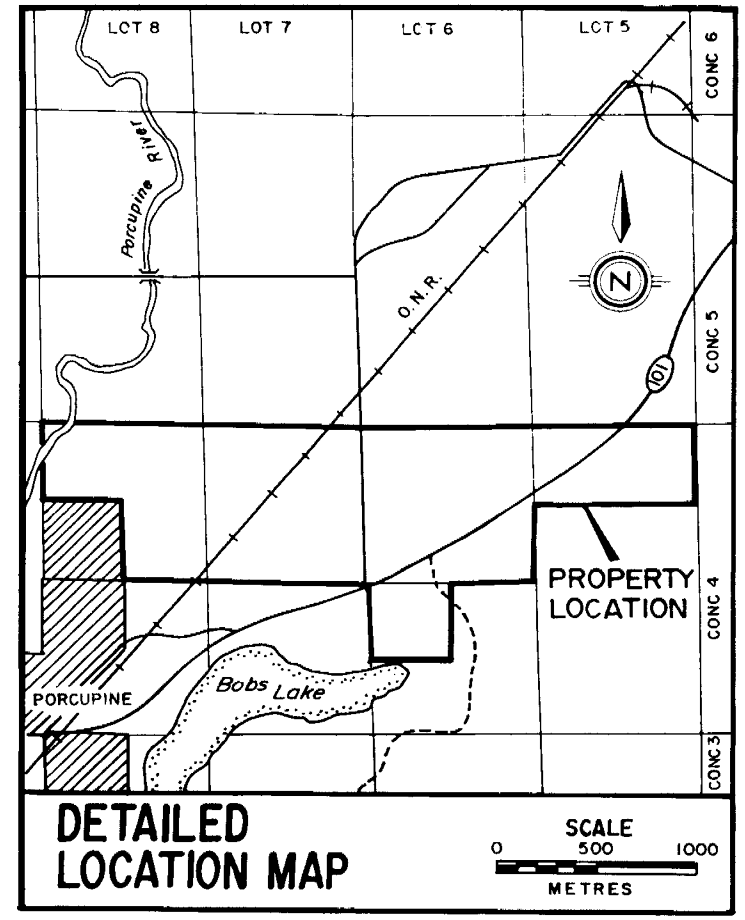
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

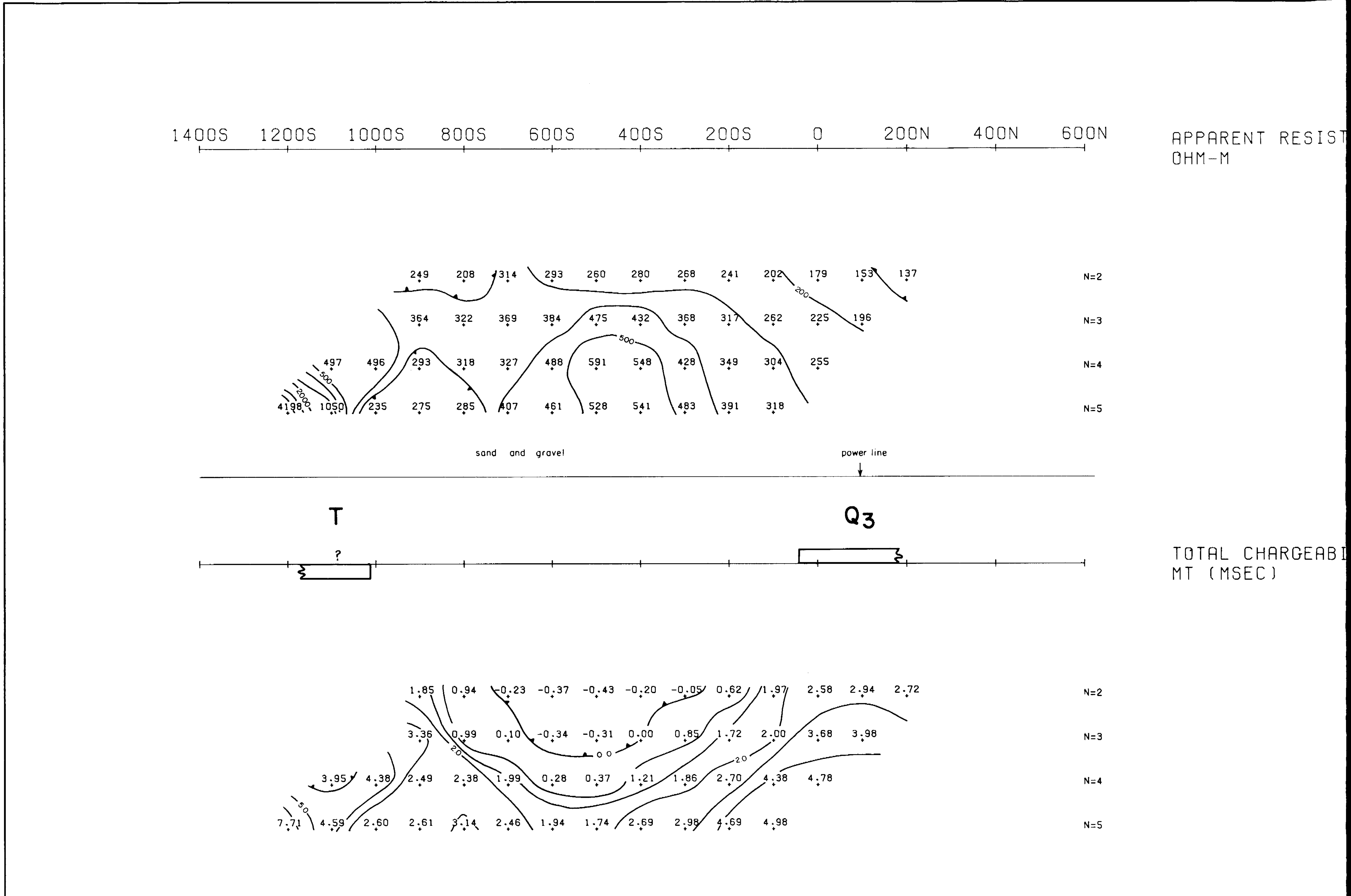
ALLERSTON PROPERTY – WHITNEY TWP.

INDUCED POLARIZATION SURVEY PSEUDOSECTION

LINE 18+00 WEST

Project No: C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P – 42	Date: July, 1987

MPH Consulting Limited



1400S 1200S 1000S 800S 600S 400S 200S 0 200N 400N 600N
APPARENT RESIST
OHM-M
249 208 314 293 260 280 268 241 202 179 153 137 N=2
364 322 369 384 475 432 368 317 262 225 196 N=3
497 496 293 318 327 488 591 548 428 349 304 255 N=4
4198 1050 235 275 285 407 461 528 541 483 391 318 N=5
200
500
2000
sand and gravel
power line
T
?
Q3
TOTAL CHARGEABI
MT (MSEC)
1.85 0.94 -0.23 -0.37 -0.43 -0.20 -0.05 0.62 1.97 2.58 2.94 2.72 N=2
3.36 0.99 0.10 -0.34 -0.31 0.00 0.85 1.72 2.00 3.68 3.98 N=3
3.95 4.38 2.49 2.38 1.99 0.28 0.37 1.21 1.86 2.70 4.38 4.78 N=4
7.71 4.59 2.60 2.61 3.14 2.46 1.94 1.74 2.69 2.98 4.69 4.98 N=5
20
00
50

RENT RESISTIVITY
M

L CHARGEABILITY
MSEC)

LEGEND

TRANSMITTER — Huntec 7.5

RECEIVER — Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 ⊢ a ⊣ C_2 na ↑ Station Location P_1 ⊢ a ⊣ P_2

a = 200' n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

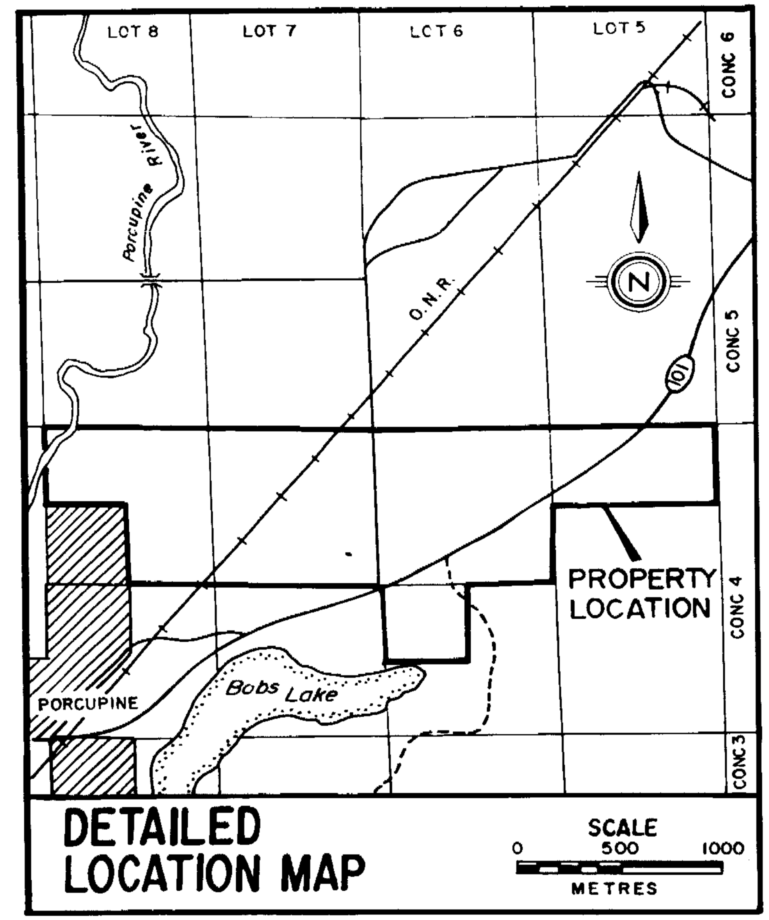
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 Estimated Depth (ft) Z~ 10 Estimated Depth (ft)



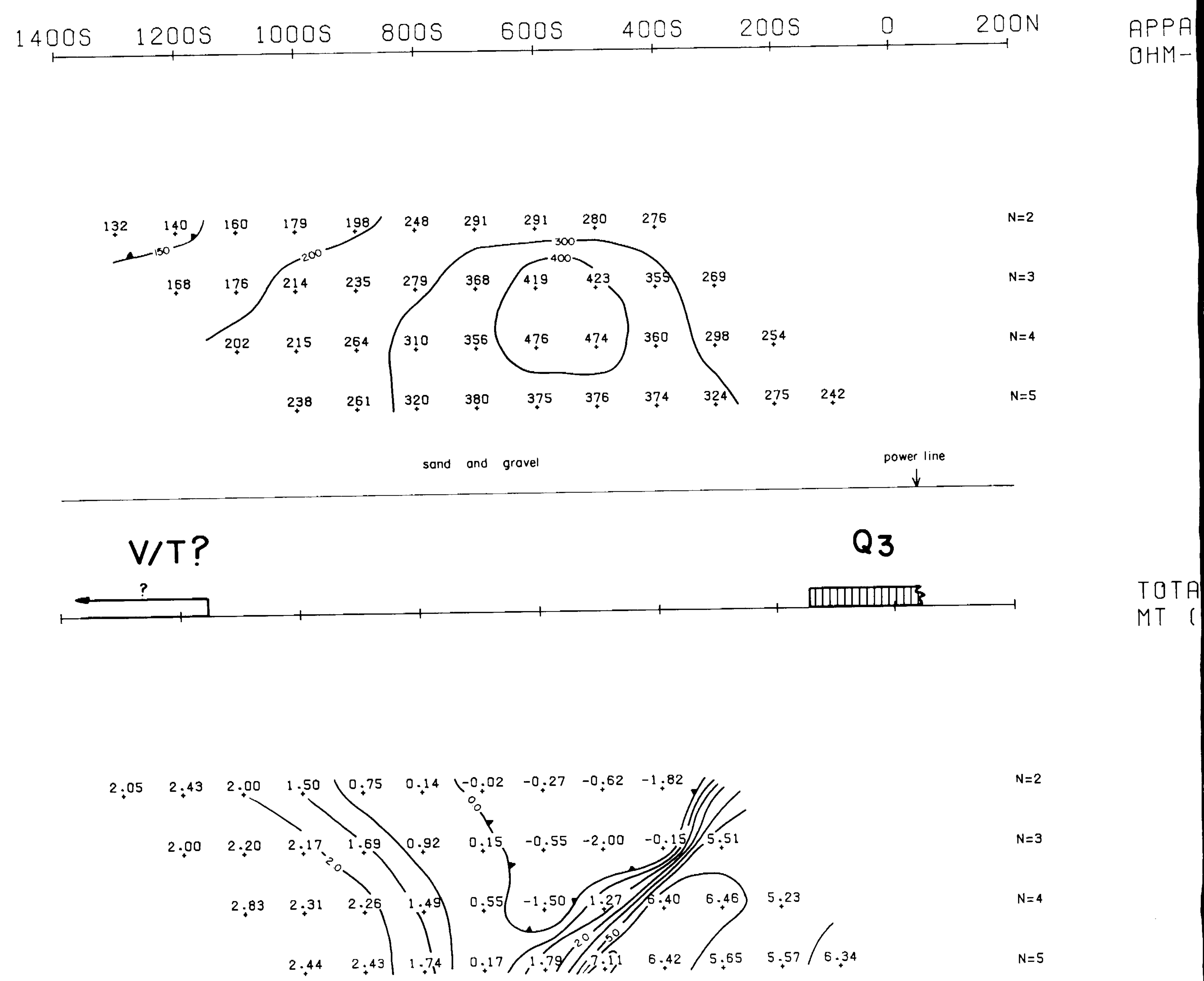
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 20+00 WEST

Project No: C - 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P - 43	Date: July, 1987

MPH Consulting Limited



1400S 1200S 1000S 800S 600S 400S 200S 0 200N
APPA
OHM-
N=2
N=3
N=4
N=5
sand and gravel
power line
V/T?
?
Q3
TOTA
MT (

T RESISTIVITY

HARGEABILITY
C)

L E G E N D

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⊢— a —⊣ C_2 na ↑ Station Location P_1 ⊢— a —⊣ P_2

a = 200' n= 2,3,4,5

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

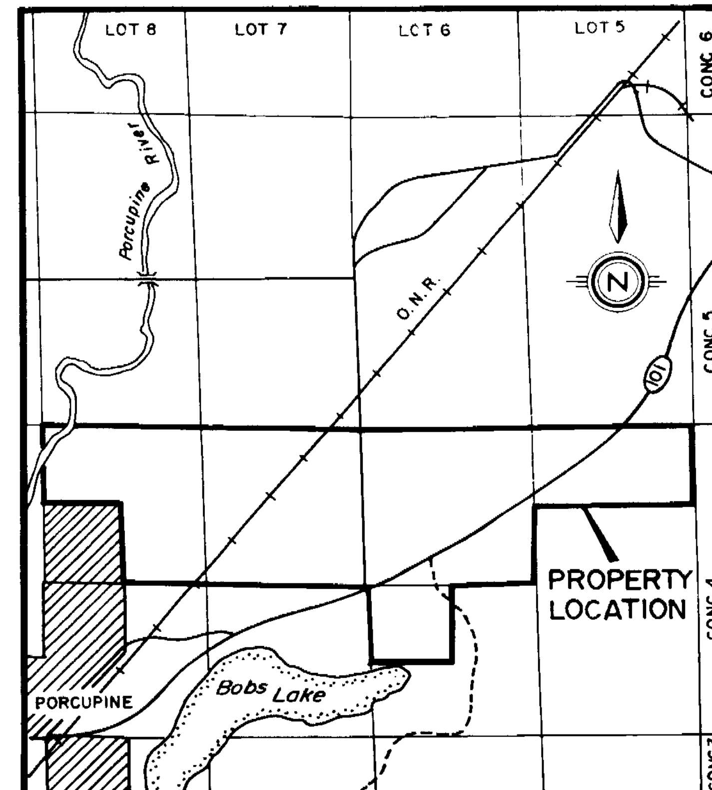
IP Anomaly at Surface

Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE
0 500 1000
METRES

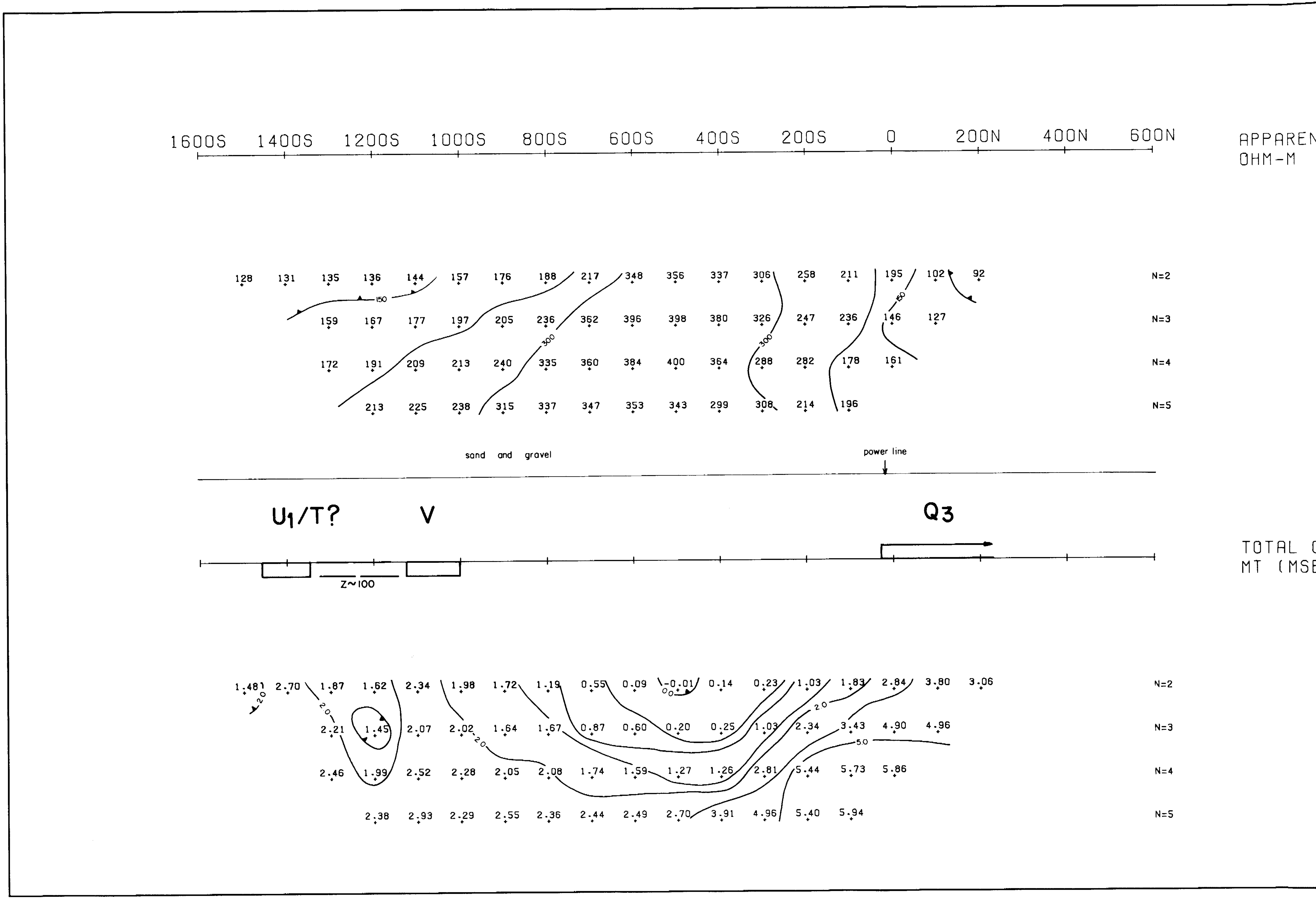
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 22+00 WEST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P – 44	Date: July, 1987

MPH Consulting Limited



1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N 400N 600N
APPAREN
OHM-M
128 131 135 136 144 157 176 188 217 348 356 337 306 258 211 195 102 92 N=2
150
159 167 177 197 205 236 362 396 398 380 326 247 236 146 127 N=3
300
172 191 209 213 240 335 360 384 400 364 288 282 178 161 N=4
213 225 238 315 337 347 353 343 299 308 214 196 N=5
sand and gravel
power line
U1/T?
V
Q3
Z~100
TOTAL C
MT (MSE
1.48 2.70 1.87 1.62 2.34 1.98 1.72 1.19 0.55 0.09 -0.01 0.14 0.23 1.03 1.83 2.84 3.80 3.06 N=2
2.21 1.45 2.07 2.02 1.64 1.67 0.87 0.60 0.20 0.25 1.03 2.34 3.43 4.90 4.96 N=3
2.46 1.99 2.52 2.28 2.05 2.08 1.74 1.59 1.27 1.26 2.81 5.44 5.73 5.86 N=4
2.38 2.93 2.29 2.55 2.36 2.44 2.49 2.70 3.91 4.96 5.40 5.94 N=5
20
50

LEGEND

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 |— a —| C_2 na P_1 |— a —| P_2

↑ Station Location

a = 200' n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

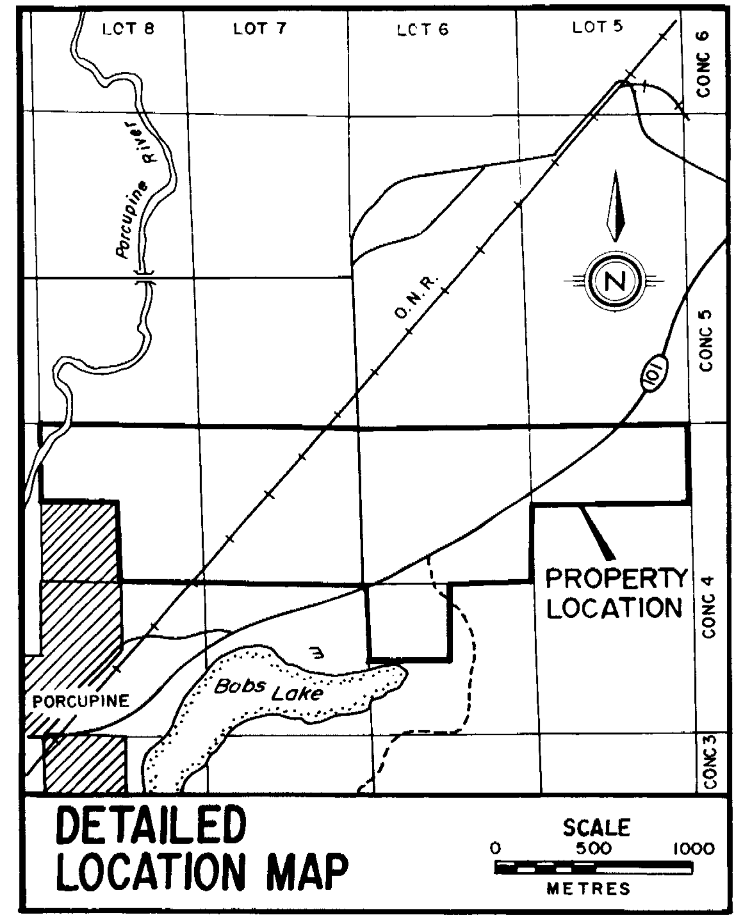
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)* Z~ 10 *Estimated Depth (ft)*

(1.33) poor decay



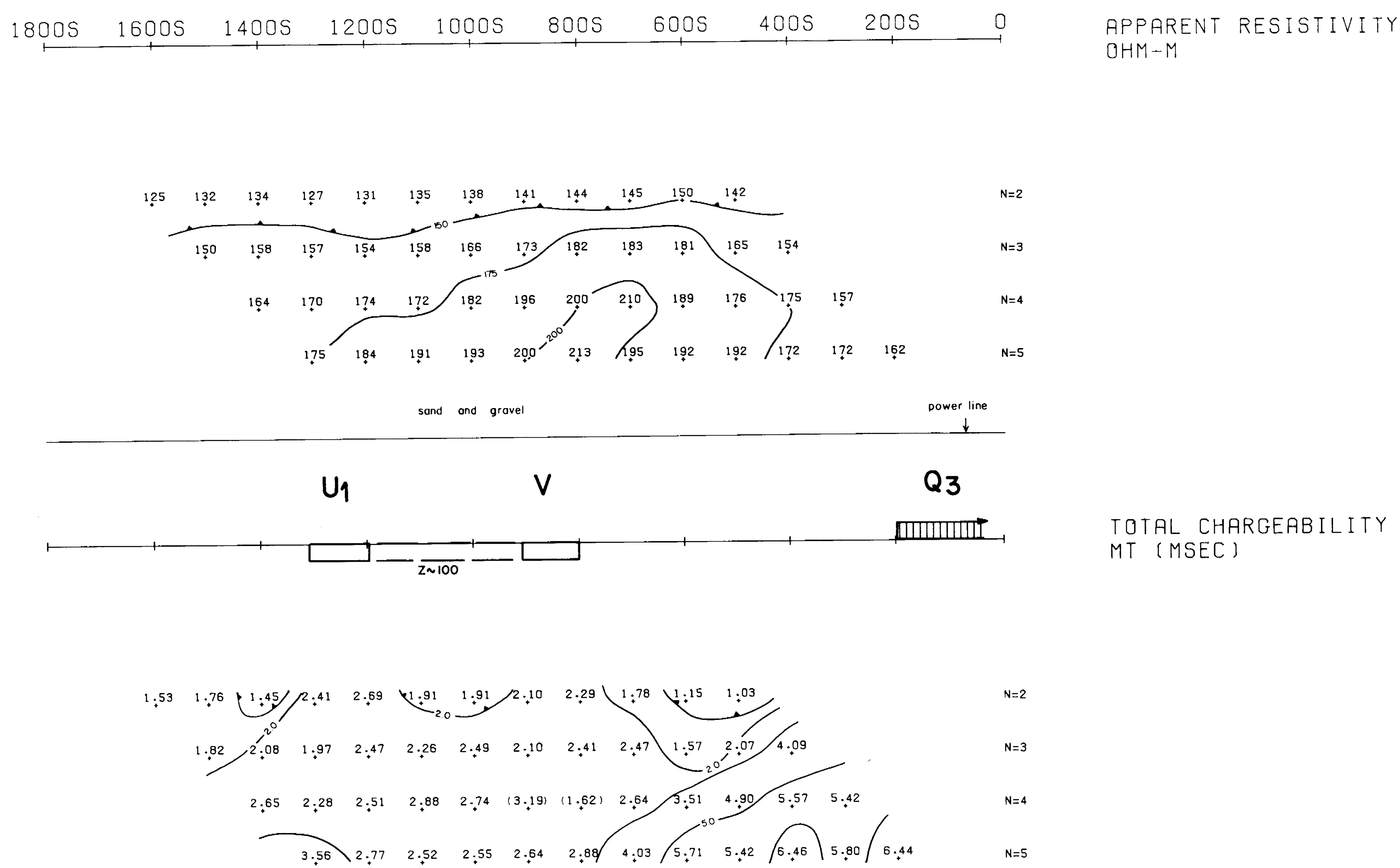
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 24+00 WEST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P - 45	Date: July, 1987

MPH Consulting Limited



1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0
APPARENT RESISTIVITY
OHM-M
N=2
N=3
N=4
N=5
sand and gravel
power line
U1
V
Q3
Z~100
TOTAL CHARGEABILITY
MT (MSEC)

ION

APPARENT RESISTIVITY
OHM-M

N=2

N=3

N=4

N=5

TOTAL CHARGEABILITY
MT (MSEC)

N=2

N=3

N=4

N=5

L E G E N D

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na ↑ Station Location P_1 — a — P_2

a = 200'   n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

Resistivity Low at Surface

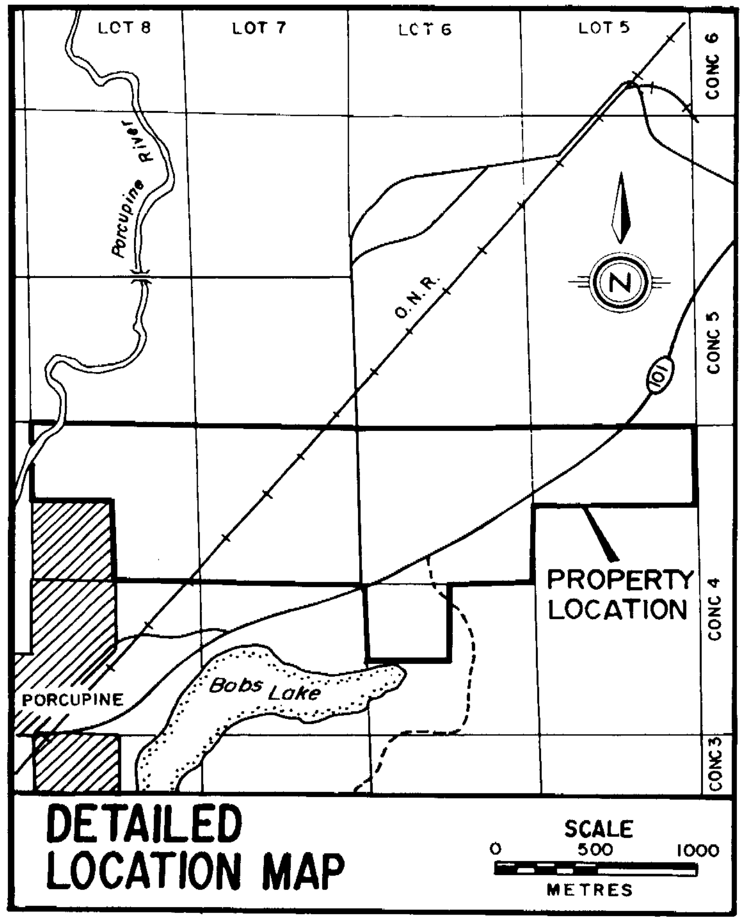
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*   Z~ 10 *Estimated Depth (ft)*

(1.33)   poor decay



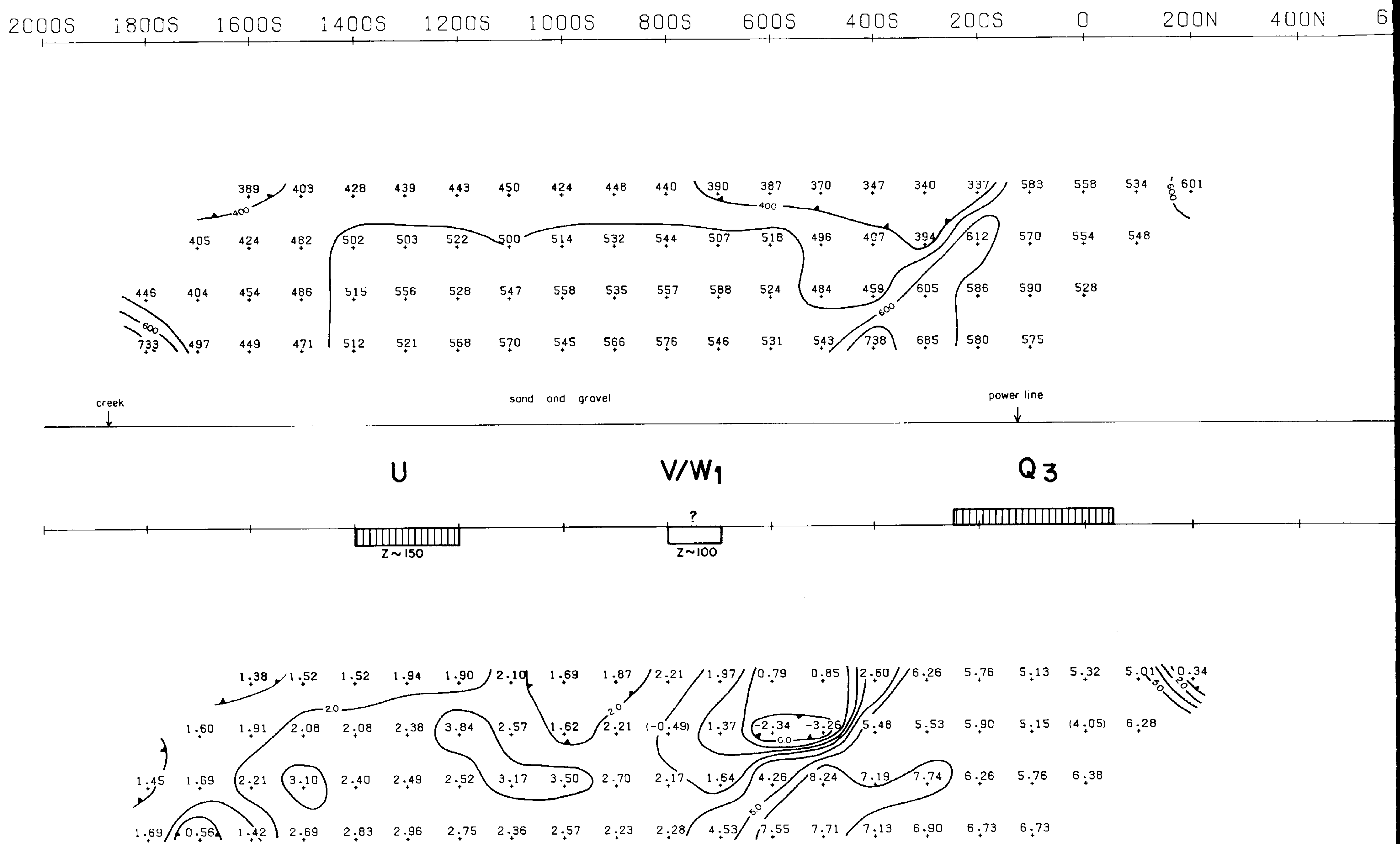
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 26+00 WEST

Project No. C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P-46	Date: July, 1987

MPH Consulting Limited



2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N 400N
389 403 428 439 443 450 424 448 440 390 387 370 347 340 337 583 558 534 601
405 424 482 502 503 522 500 514 532 544 507 518 496 407 394 612 570 554 548
446 404 454 486 515 556 528 547 558 535 557 588 524 484 459 605 586 590 528
733 497 449 471 512 521 568 570 545 566 576 546 531 543 738 685 580 575
creek
sand and gravel
power line
U
V/W1
Q3
?
Z~150
Z~100
1.38 1.52 1.52 1.94 1.90 2.10 1.69 1.87 2.21 1.97 0.79 0.85 2.60 6.26 5.76 5.13 5.32 5.01 0.34
1.60 1.91 2.08 2.08 2.38 3.84 2.57 1.62 2.21 (-0.49) 1.37 -2.34 -3.26 5.48 5.53 5.90 5.15 (4.05) 6.28
1.45 1.69 2.21 3.10 2.40 2.49 2.52 3.17 3.50 2.70 2.17 1.64 4.26 8.24 7.19 7.74 6.26 5.76 6.38
1.69 0.56 1.42 2.69 2.83 2.96 2.75 2.36 2.57 2.23 2.28 4.53 7.55 7.71 7.13 6.90 6.73 6.73

400N

APPARENT RESISTIVITY
OHM-M

N=2

N=3

N=4

N=5

TOTAL CHARGEABILITY
MT (MSEC)

N=2

N=3

N=4

N=5

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200'   n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

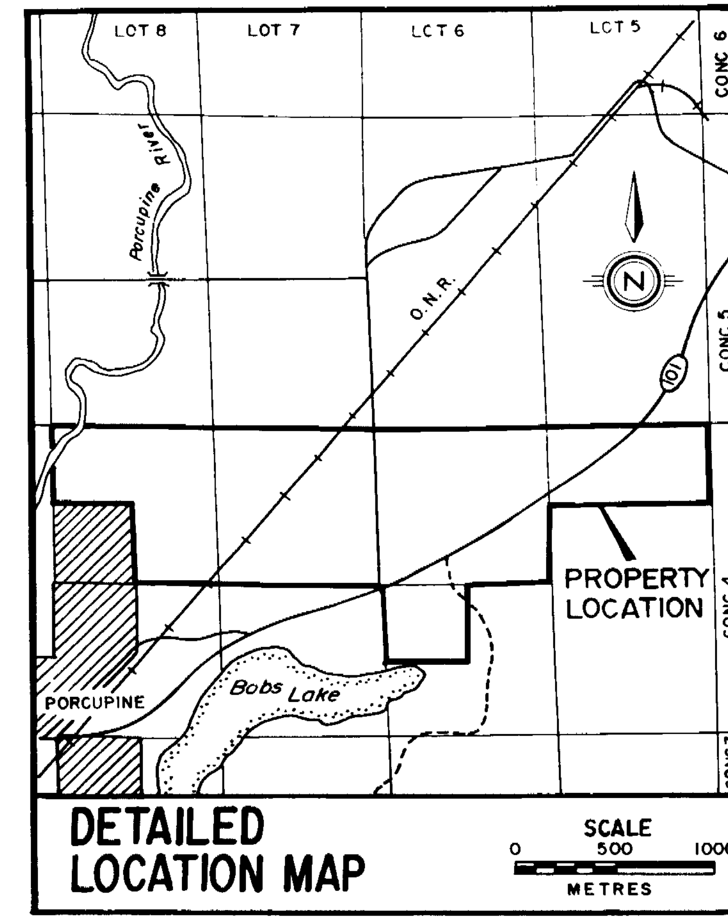
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*   Z~ 10 *Estimated Depth (ft)*



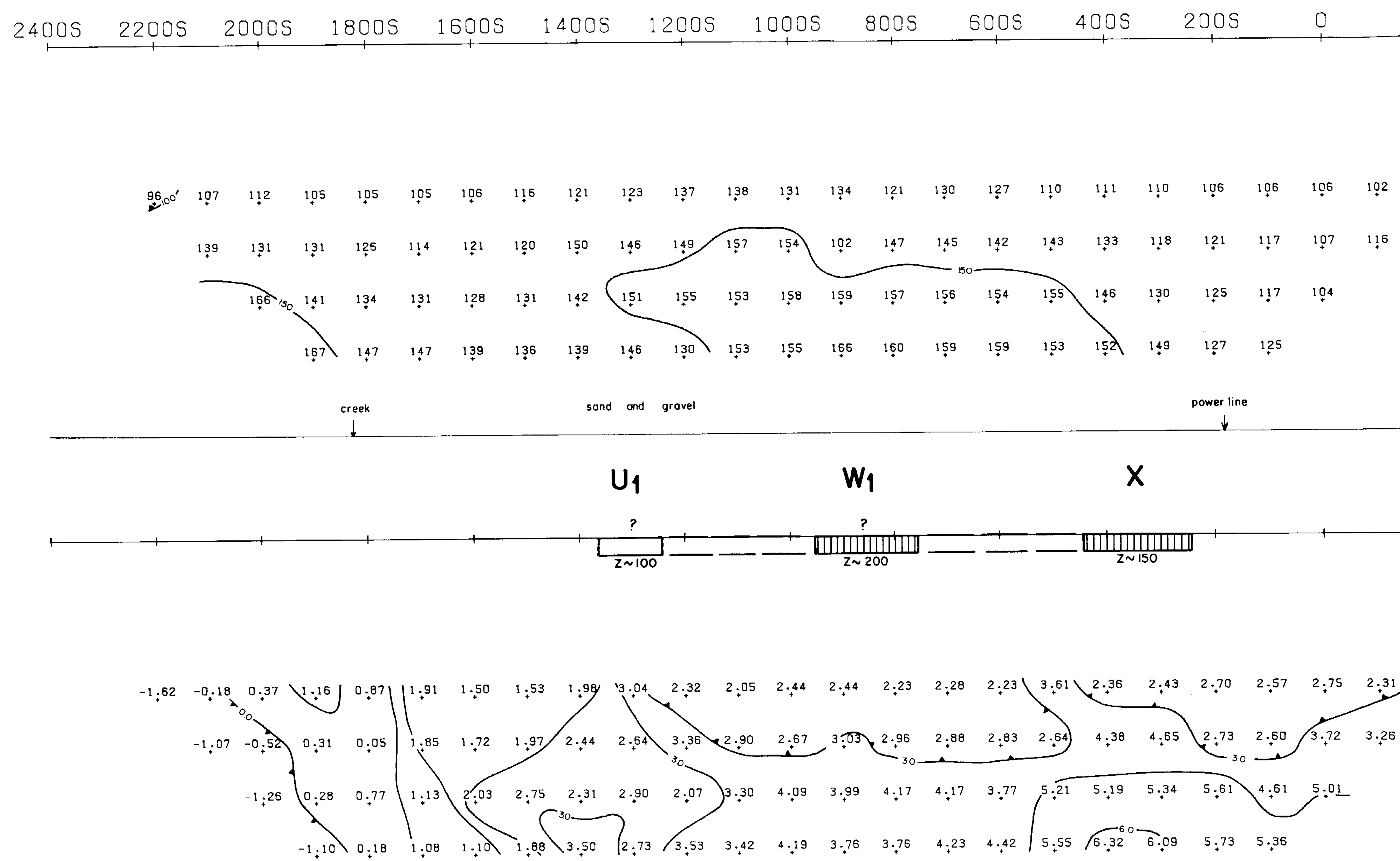
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 28+00 WEST

Project No: C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P – 47	Date: July, 1987

MPH Consulting Limited



2400S 2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0
96 100 107 112 105 105 105 106 116 121 123 137 138 131 134 121 130 127 110 111 110 106 106 106 102
139 131 131 126 114 121 120 150 146 149 157 154 102 147 145 142 143 133 118 121 117 107 116
166 150 141 134 131 128 131 142 151 155 153 158 159 157 156 154 155 146 130 125 117 104
167 147 147 139 136 139 146 130 153 155 166 160 159 159 153 152 149 127 125
150
creek
sand and gravel
power line
U1
W1
X
?
?
Z~100
Z~200
Z~150
-1.62 -0.18 0.37 1.16 0.87 1.91 1.50 1.53 1.98 3.04 2.32 2.05 2.44 2.44 2.23 2.28 2.23 3.61 2.36 2.43 2.70 2.57 2.75 2.31
-1.07 -0.52 0.31 0.05 1.85 1.72 1.97 2.44 2.64 3.36 2.90 2.67 3.03 2.96 2.88 2.83 2.64 4.38 4.65 2.73 2.60 3.72 3.26
-1.26 0.28 0.77 1.13 2.03 2.75 2.31 2.90 2.07 3.30 4.09 3.99 4.17 4.17 3.77 5.21 5.19 5.34 5.61 4.61 5.01
-1.10 0.18 1.08 1.10 1.88 3.50 2.73 3.53 3.42 4.19 3.76 3.76 4.23 4.42 5.55 6.32 6.09 5.73 5.36
00
30
30
30
30
60

600N

APPARENT RESISTIVITY
OHM-M

N=2

N=3

N=4

N=5

TOTAL CHARGEABILITY
MT (MSEC)

N=2

N=3

N=4

N=5

L E G E N D

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200'   n = 2,3,4,5

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

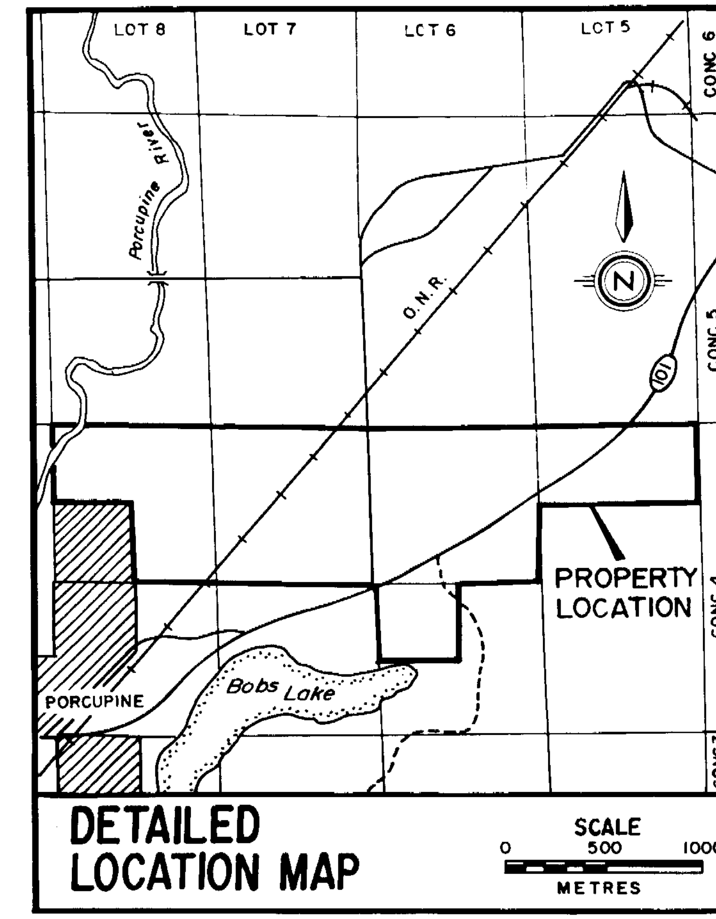
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*   Z~ 10 *Estimated Depth (ft)*



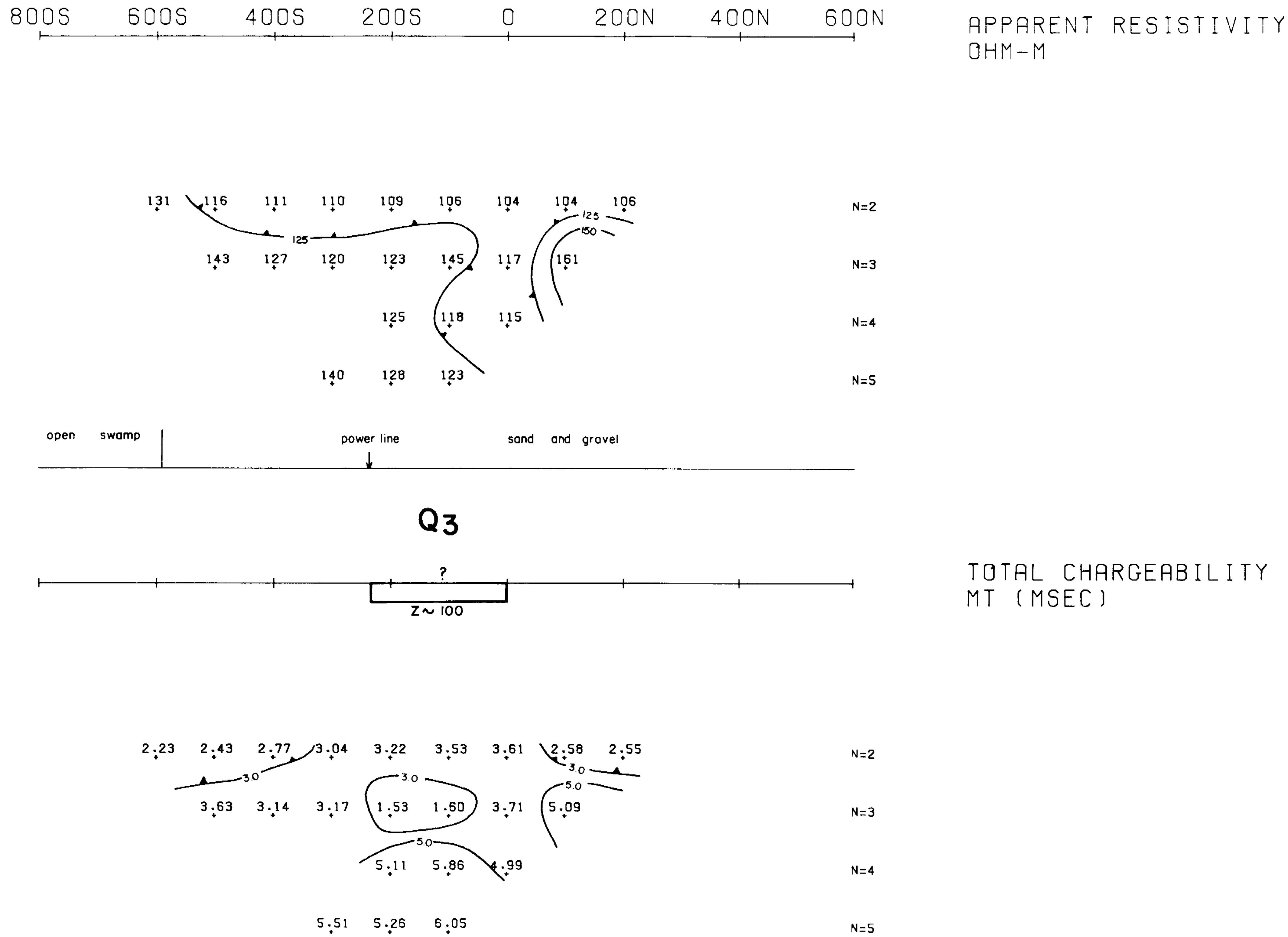
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 30+00 WEST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P – 48	Date: July, 1987

MPH Consulting Limited



800S 600S 400S 200S 0 200N 400N 600N
APPARENT RESISTIVITY
OHM-M
131 116 111 110 109 106 104 104 106
N=2
125
150
143 127 120 123 145 117 161
N=3
125 118 115
N=4
140 128 123
N=5
open swamp
power line
sand and gravel
Q3
?
Z~100
TOTAL CHARGEABILITY
MT (MSEC)
2.23 2.43 2.77 3.04 3.22 3.53 3.61 2.58 2.55
N=2
3.0
5.0
3.63 3.14 3.17 1.53 1.60 3.71 5.09
N=3
5.11 5.86 4.99
N=4
5.51 5.26 6.05
N=5

LEGEND

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⊢— a —⊣ C_2 — na ↑ Station Location — P_1 ⊢— a —⊣ P_2

a = 200'

n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

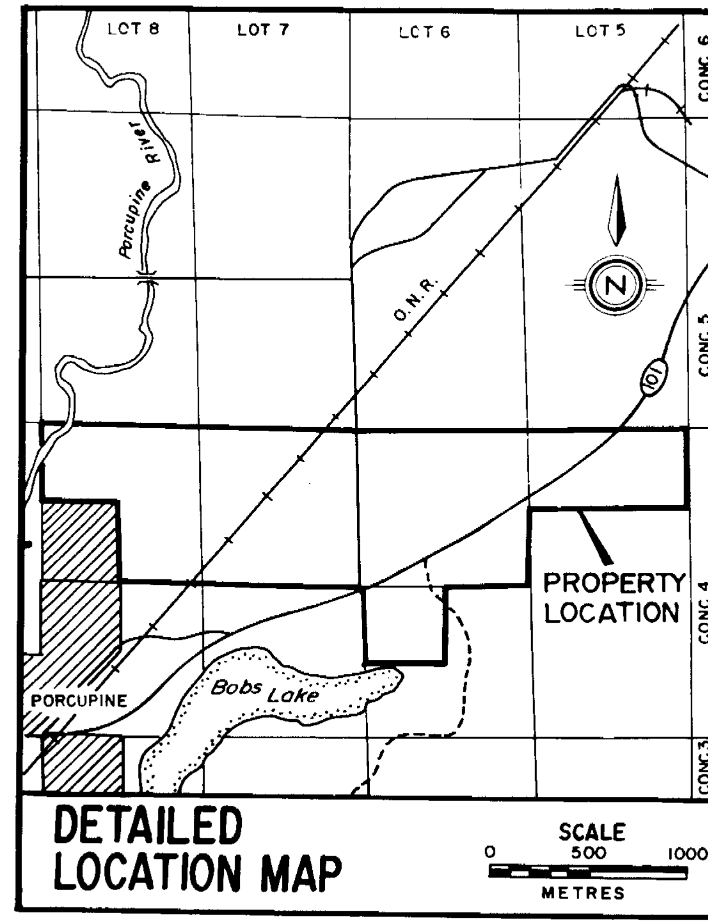
CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface — 17 *Estimated Intrinsic Resistivity (ohm m)*

IP Anomaly at Surface — 75 *Estimated Intrinsic Chargeability (msecs)*

Resistivity Low at Depth — 17 *Estimated Intrinsic Resistivity (ohm m)*; Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Depth — 75 *Estimated Intrinsic Chargeability (msecs)*; Z~ 10 *Estimated Depth (ft)*



SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

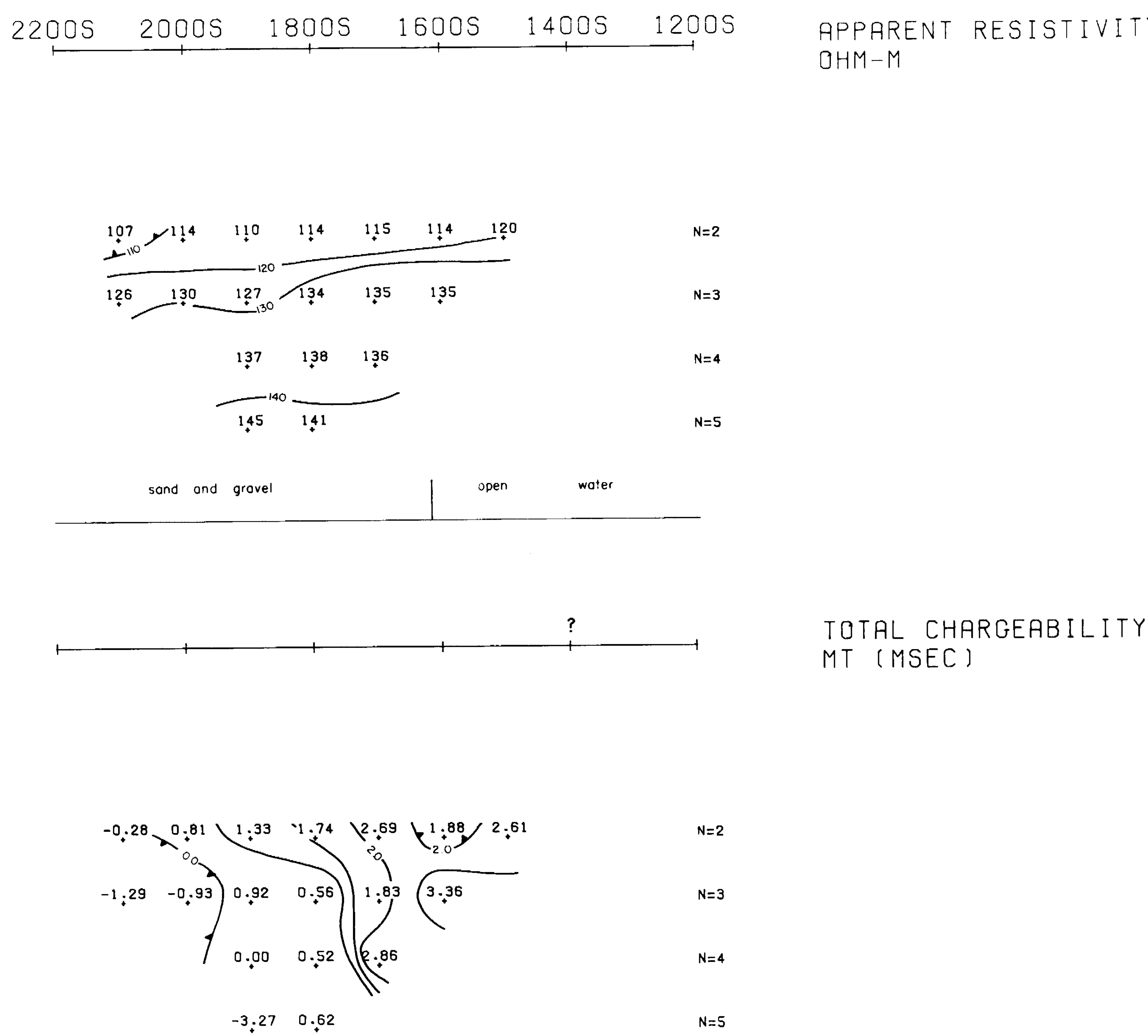
INDUCED POLARIZATION SURVEY

PSEUDOSECTION

LINE 32+00 WEST

Project No: C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P-49	Date: July, 1987

MPH Consulting Limited


2200S
2000S
1800S
1600S
1400S
1200S
APPARENT RESISTIVITY
OHM-M
107 114 110 114 115 114 120
N=2
110
120
126 130 127 134 135 135
N=3
130
137 138 136
N=4
140
145 141
N=5
sand and gravel
open water
?
TOTAL CHARGEABILITY
MT (MSEC)
-0.28 0.81 1.33 1.74 2.69 1.88 2.61
N=2
0.0
2.0
-1.29 -0.93 0.92 0.56 1.83 3.36
N=3
0.00 0.52 2.86
N=4
-3.27 0.62
N=5

400N

APPARENT RESISTIVITY
OHM-M

N=2

N=3

N=4

N=5

?

TOTAL CHARGEABILITY
MT (MSEC)

N=2

N=3

N=4

N=5

LEGEND

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 —a— C_2 na P_1 —a— P_2

Station Location

a = 200'   n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

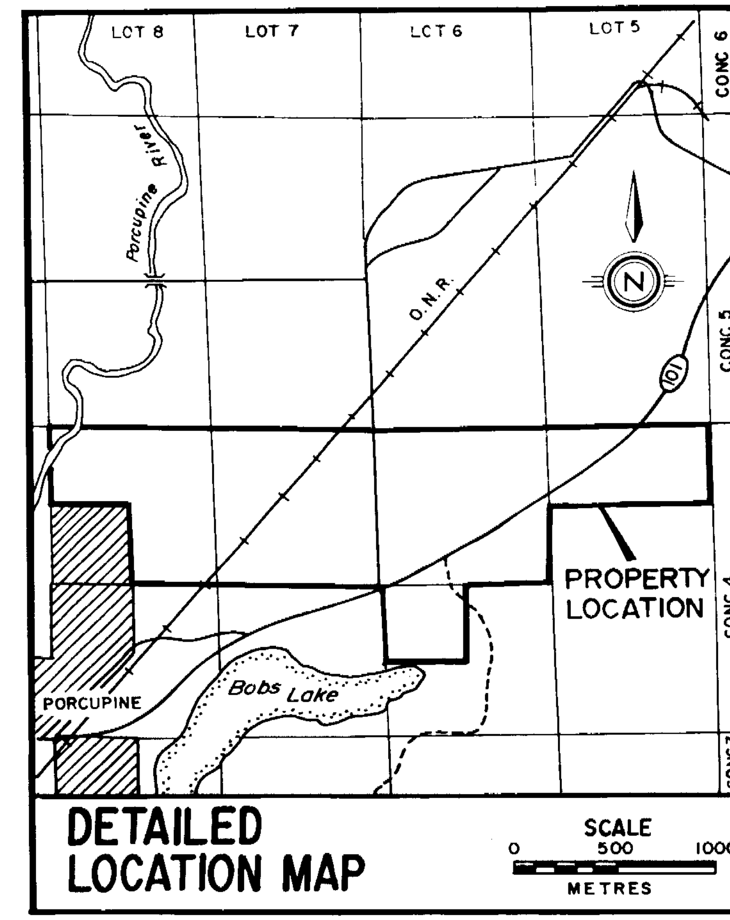
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



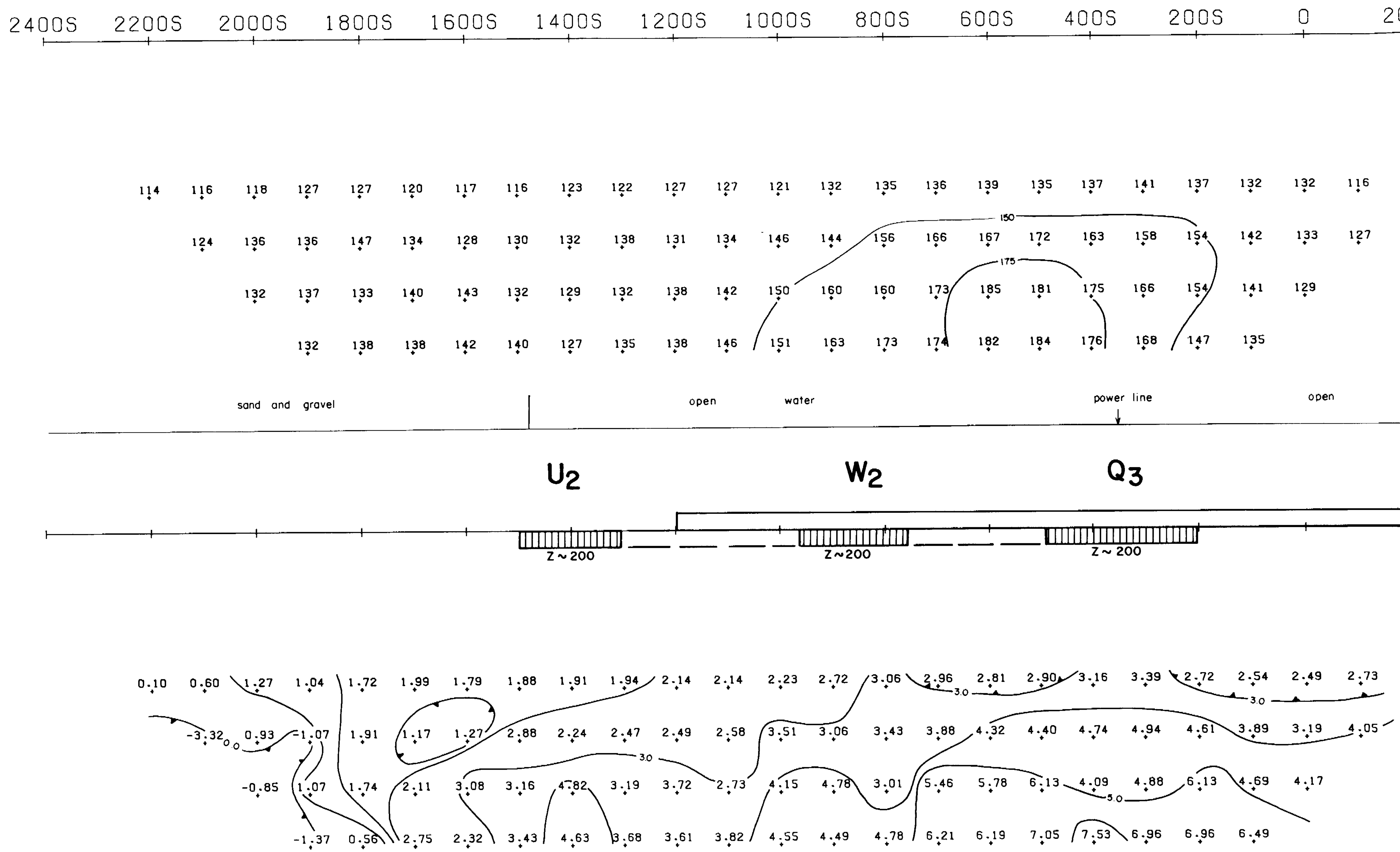
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 34+00 WEST

Project No. C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P-50	Date: July, 1987

MPH Consulting Limited



2400S 2200S 2000S 1800S 1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 20
114 116 118 127 127 120 117 116 123 122 127 127 121 132 135 136 139 135 137 141 137 132 132 116
124 136 136 147 134 128 130 132 138 131 134 146 144 156 166 167 172 163 158 154 142 133 127
132 137 133 140 143 132 129 132 138 142 150 160 160 173 185 181 175 166 154 141 129
132 138 138 142 140 127 135 138 146 151 163 173 174 182 184 176 168 147 135
150
175
sand and gravel
open
water
power line
open
U2
W2
Q3
Z ~ 200
Z ~ 200
Z ~ 200
0.10 0.60 1.27 1.04 1.72 1.99 1.79 1.88 1.91 1.94 2.14 2.14 2.23 2.72 3.06 2.96 2.81 2.90 3.16 3.39 2.72 2.54 2.49 2.73
-3.32 0.93 -1.07 1.91 1.17 1.27 2.88 2.24 2.47 2.49 2.58 3.51 3.06 3.43 3.88 4.32 4.40 4.74 4.94 4.61 3.89 3.19 4.05
-0.85 1.07 1.74 2.11 3.08 3.16 4.82 3.19 3.72 2.73 4.15 4.78 3.01 5.46 5.78 6.13 4.09 4.88 6.13 4.69 4.17
-1.37 0.56 2.75 2.32 3.43 4.63 3.68 3.61 3.82 4.55 4.49 4.78 6.21 6.19 7.05 7.53 6.96 6.96 6.49
0.0
3.0
3.0
3.0
5.0

NT RESISTIVITY

CHARGEABILITY
C)

LEGEND

TRANSMITTER — Huntec 7.5

RECEIVER — Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 ← a → C_2 — na — P_1 ← a → P_2

↑ Station Location

a = 200' — n = 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

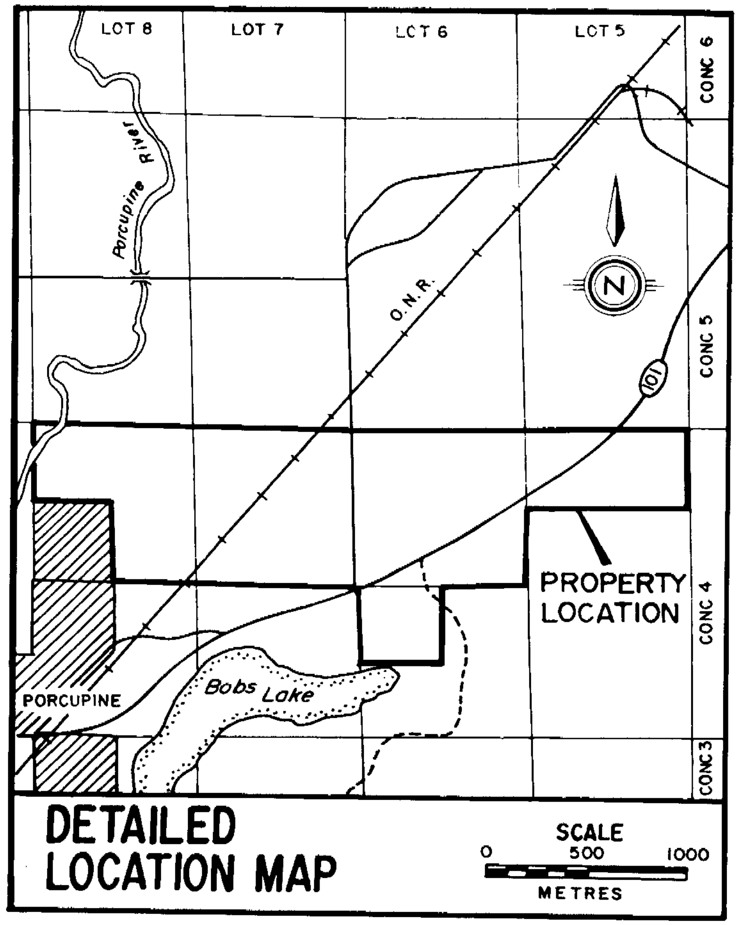
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 Estimated Depth (ft)

Z~ 10 Estimated Depth (ft)



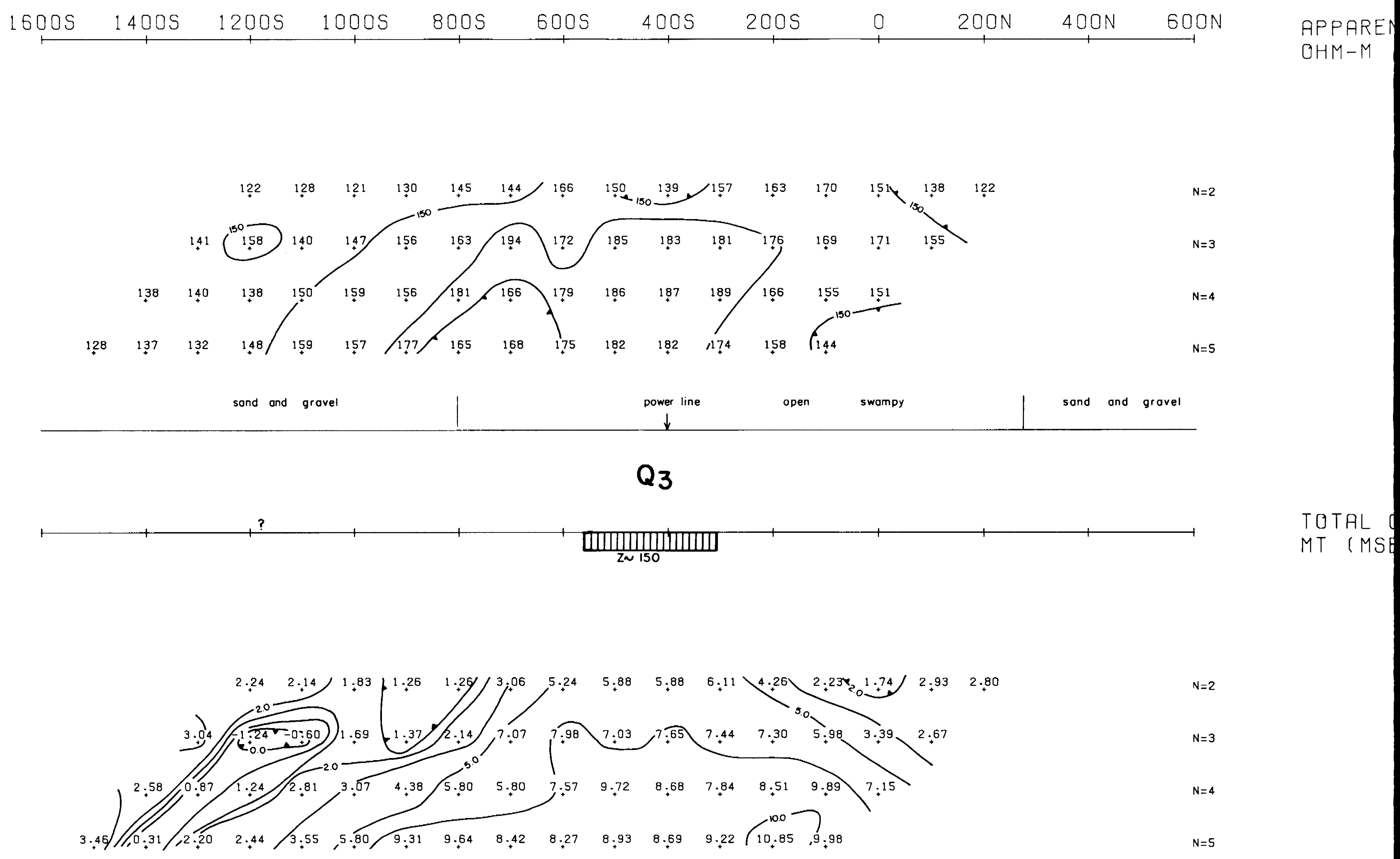
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 36+00 WEST

Project No. C – 998	By: S. J. Bate
Scale: 1 : 2400	Drawn: MPH
Drawing No. Figure P - 51	Date: July, 1987

MPH Consulting Limited


1600S 1400S 1200S 1000S 800S 600S 400S 200S 0 200N 400N 600N
APPAREN
OHM-M
N=2 122 128 121 130 145 144 166 150 139 157 163 170 151 138 122
N=3 141 158 140 147 156 163 194 172 185 183 181 176 169 171 155
N=4 138 140 138 150 159 156 181 166 179 186 187 189 166 155 151
N=5 128 137 132 148 159 157 177 165 168 175 182 182 174 158 144
150
sand and gravel
power line
open
swampy
sand and gravel
Q3
?
Z~ 150
TOTAL C
MT (MSE
N=2 2.24 2.14 1.83 1.26 1.26 3.06 5.24 5.88 5.88 6.11 4.26 2.23 1.74 2.93 2.80
N=3 3.04 1.24 -0.60 1.69 1.37 2.14 7.07 7.98 7.03 7.65 7.44 7.30 5.98 3.39 2.67
N=4 2.58 0.87 1.24 2.81 3.07 4.38 5.80 5.80 7.57 9.72 8.68 7.84 8.51 9.89 7.15
N=5 3.46 0.31 2.20 2.44 3.55 5.80 9.31 9.64 8.42 8.27 8.93 8.69 9.22 10.85 9.98
2.0
0.0
5.0
10.0

LEGEND

TRANSMITTER — Huntec 7.5

RECEIVER — Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

↑ Station Location

a = 200′   n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

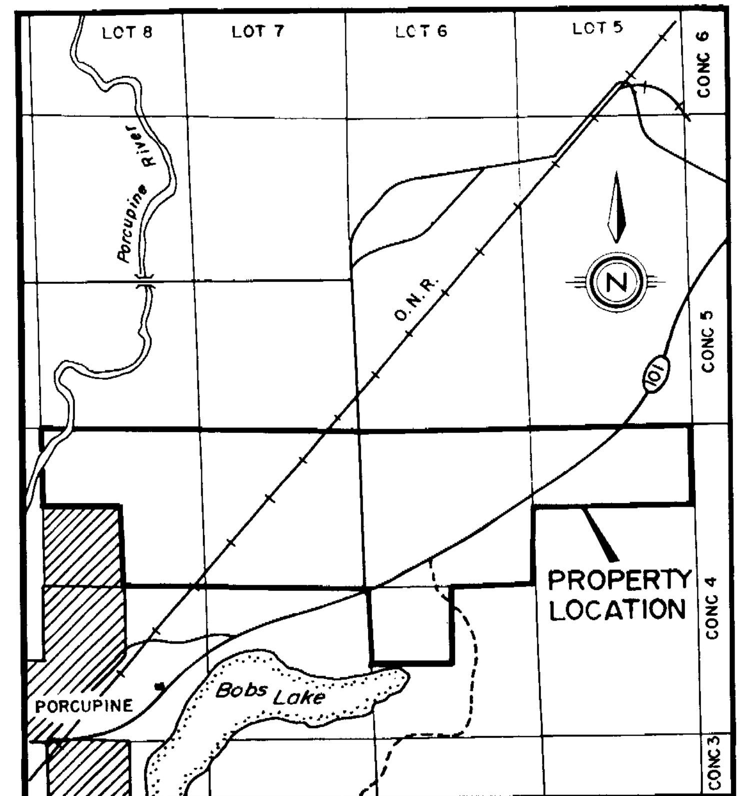
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 Estimated Depth (ft)   Z~ 10 Estimated Depth (ft)



DETAILED LOCATION MAP

SCALE
100 0 100 200 300 400
FEET

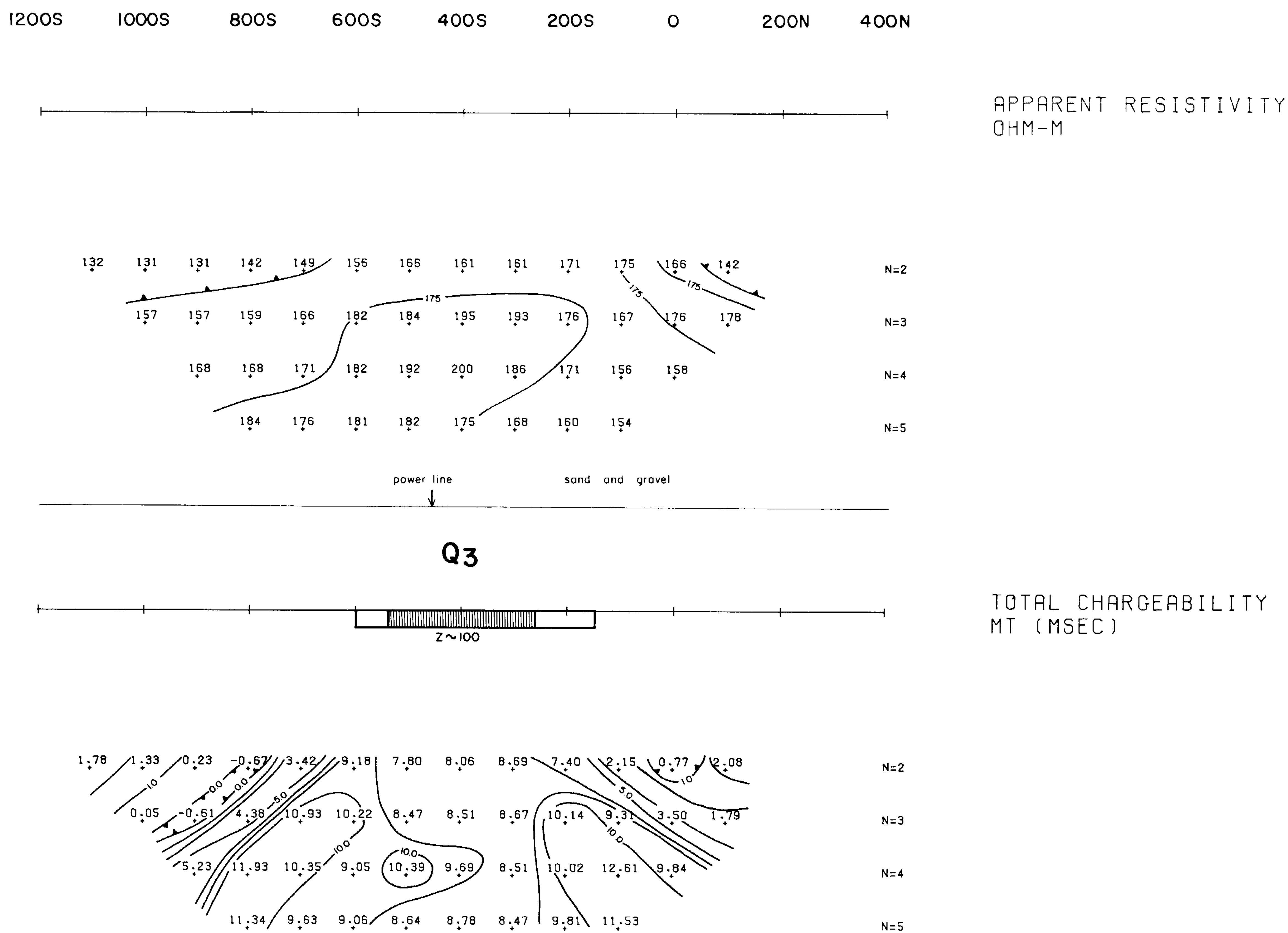
SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 38+00 WEST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P – 52	Date: July, 1987

MPH Consulting Limited


1200S 1000S 800S 600S 400S 200S 0 200N 400N
APPARENT RESISTIVITY
OHM-M
N=2
N=3
N=4
N=5
power line
sand and gravel
Q3
Z~100
TOTAL CHARGEABILITY
MT (MSEC)

L E G E N D

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 —— a —— C_2 na P_1 —— a —— P_2

↑ Station Location

a = 200'   n= 2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

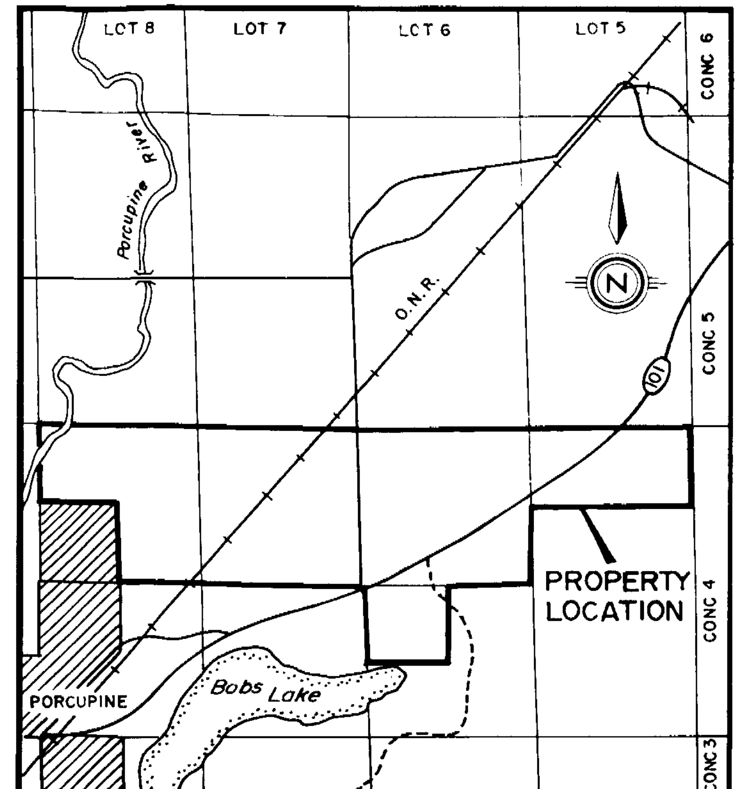
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*   Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

SCALE 100 0 100 200 300 400 FEET

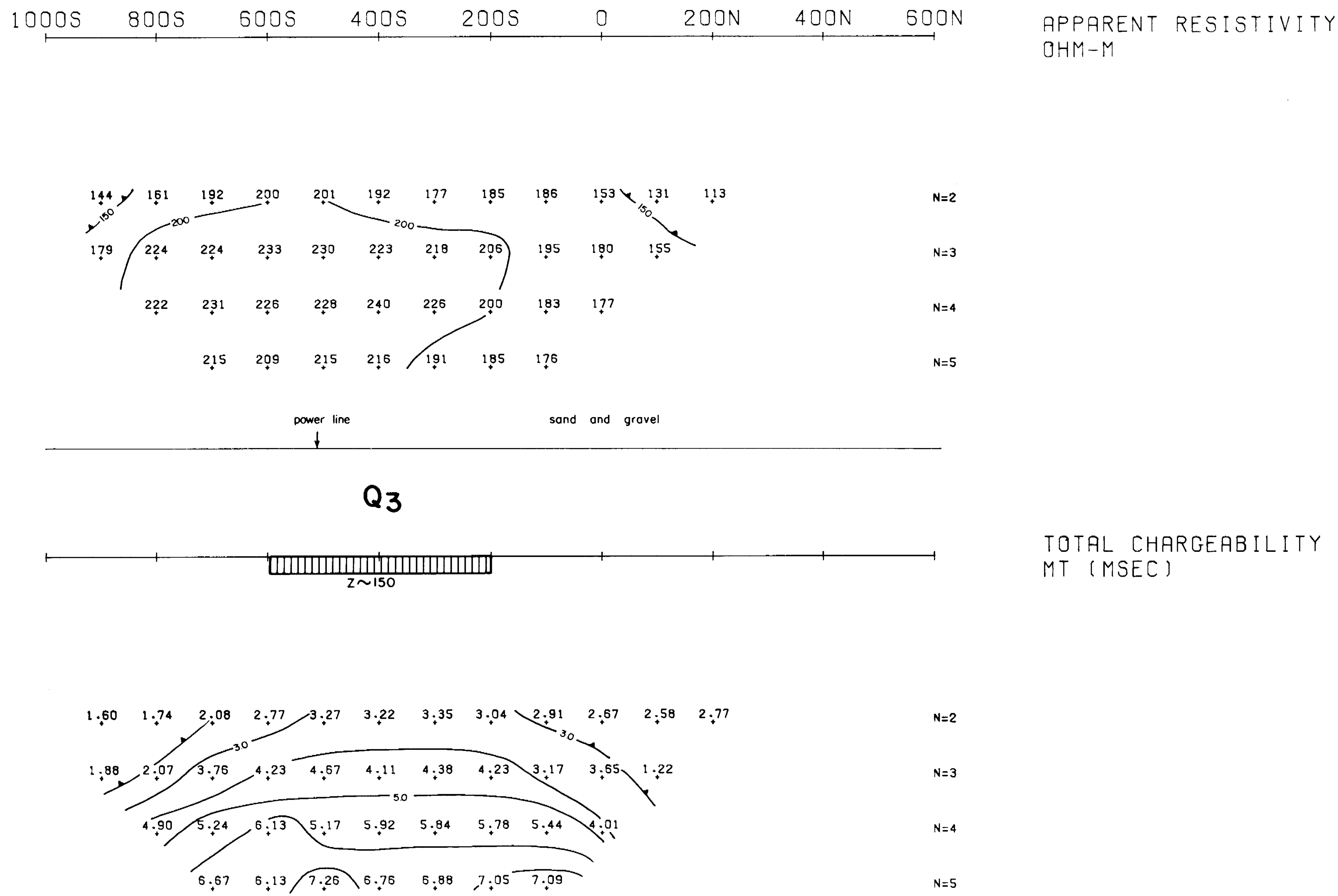
SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

INDUCED POLARIZATION SURVEY PSEUDOSECTION LINE 40+00 WEST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P-53	Date: July, 1987

MPH Consulting Limited



1000S 800S 600S 400S 200S 0 200N 400N 600N
APPARENT RESISTIVITY
OHM-M
N=2
N=3
N=4
N=5
power line
sand and gravel
Q3
Z~150
TOTAL CHARGEABILITY
MT (MSEC)

L E G E N D

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 —— a —— C_2 na P_1 —— a —— P_2

↑ Station Location

a = 200' n= 2,3,4,5

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

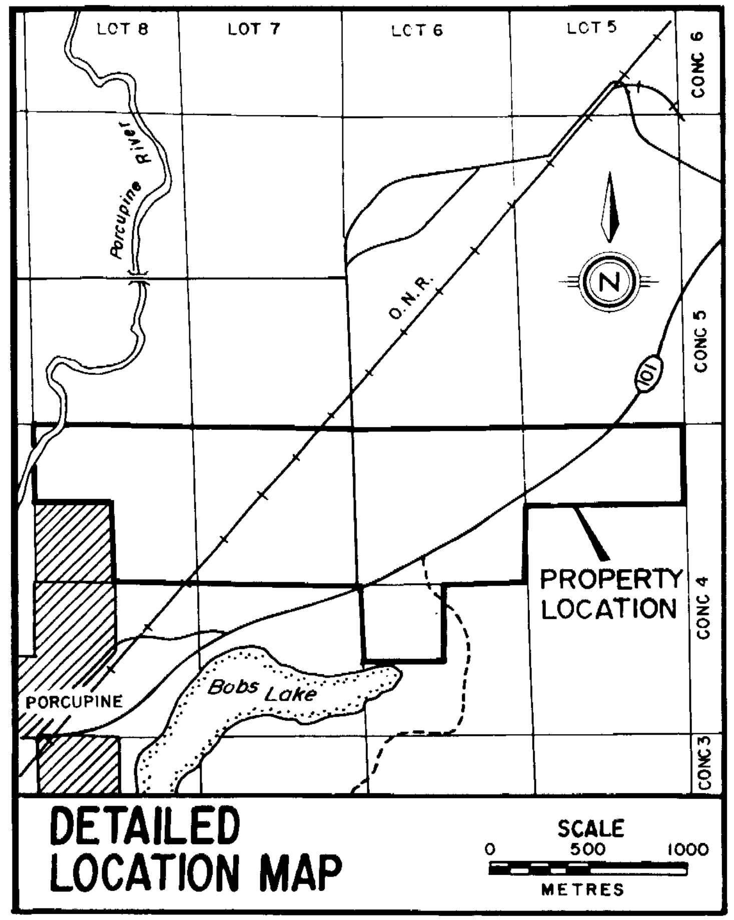
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.

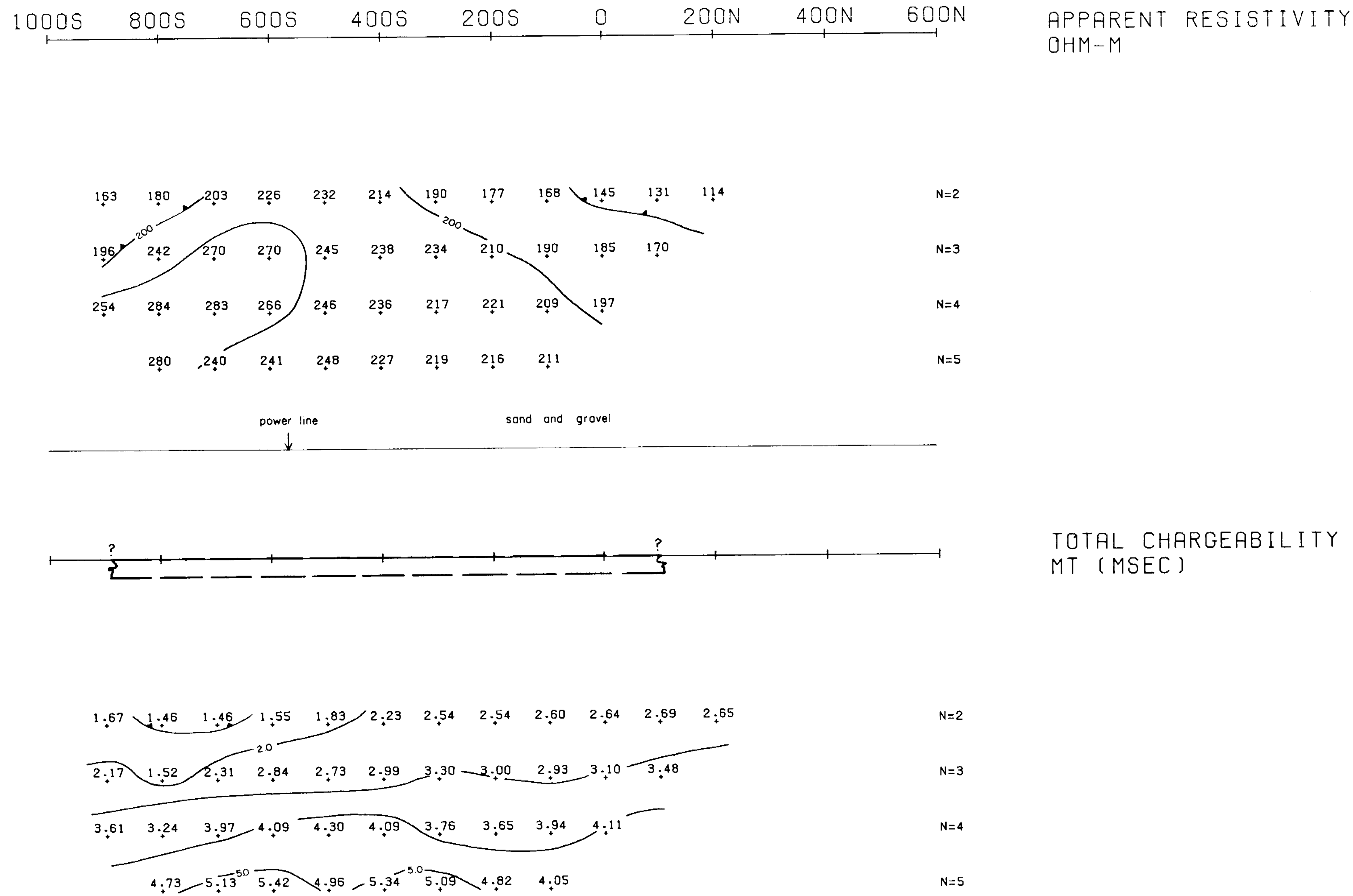
INDUCED POLARIZATION SURVEY

PSEUDOSECTION

LINE 42+00 WEST

Project No. C - 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P - 54	Date: July, 1987

MPH Consulting Limited



1000S 800S 600S 400S 200S 0 200N 400N 600N
APPARENT RESISTIVITY
OHM-M
163 180 203 226 232 214 190 177 168 145 131 114 N=2
196 242 270 270 245 238 234 210 190 185 170 N=3
254 284 283 266 246 236 217 221 209 197 N=4
280 240 241 248 227 219 216 211 N=5
200
power line
sand and gravel
TOTAL CHARGEABILITY
MT (MSEC)
?
1.67 1.46 1.46 1.55 1.83 2.23 2.54 2.54 2.60 2.64 2.69 2.65 N=2
2.17 1.52 2.31 2.84 2.73 2.99 3.30 3.00 2.93 3.10 3.48 N=3
3.61 3.24 3.97 4.09 4.30 4.09 3.76 3.65 3.94 4.11 N=4
4.73 5.13 5.42 4.96 5.34 5.09 4.82 4.05 N=5
20
50

TIVITY

LITY

LEGEND

TRANSMITTER Huntec 7.5

RECEIVER Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 ⊢— a —⊣ C_2 na ↑ Station Location P_1 ⊢— a —⊣ P_2

a = 200'

n = 2,3,4,5

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

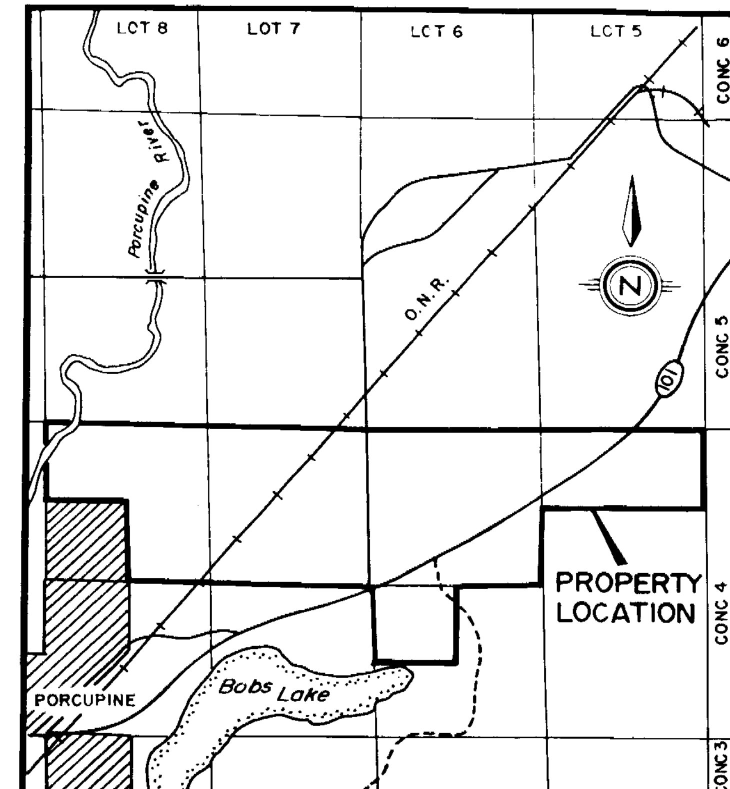
Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

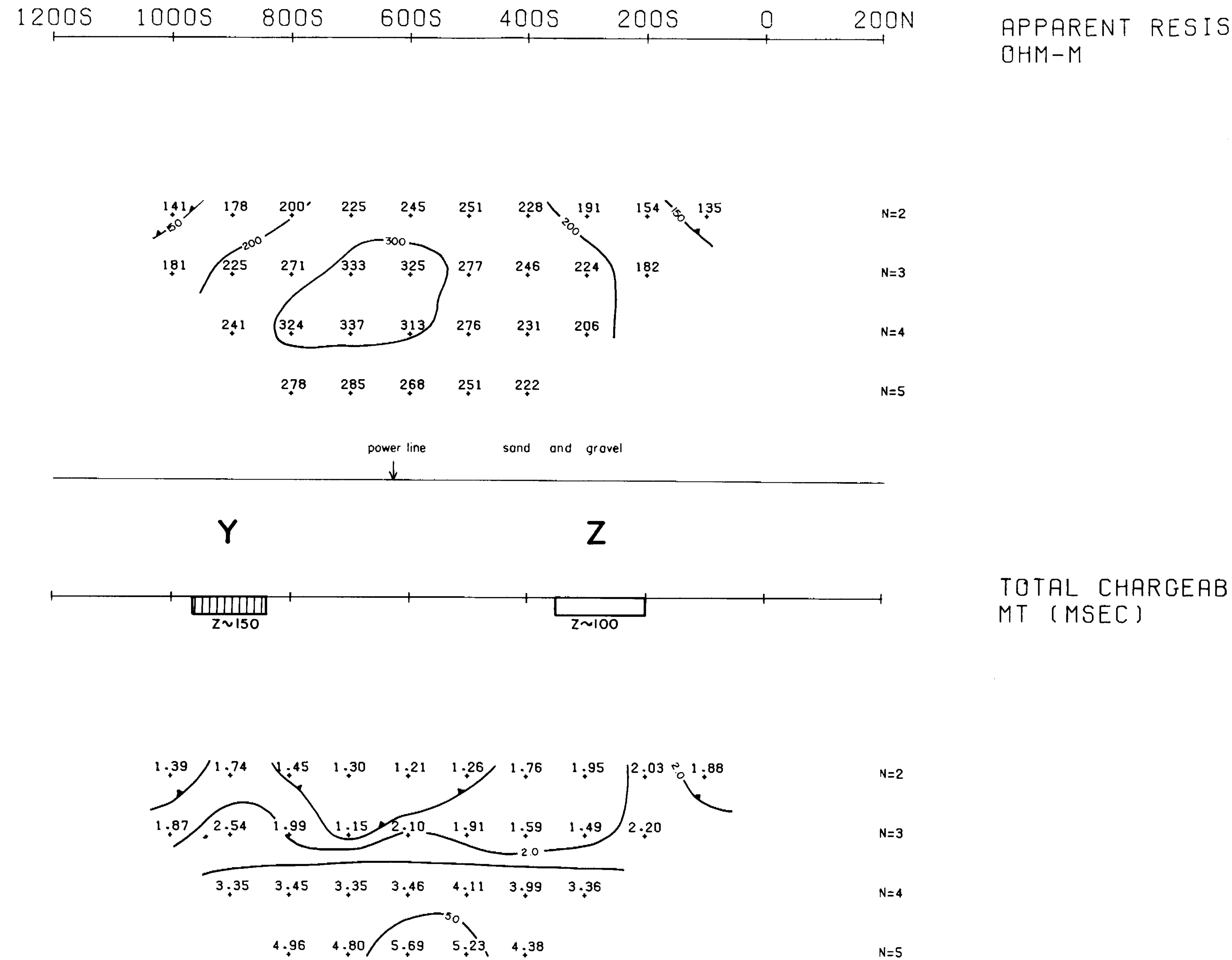
INDUCED POLARIZATION SURVEY

PSEUDOSECTION

LINE 44+00 WEST

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P-55	Date: July, 1987

MPH Consulting Limited



1200S 1000S 800S 600S 400S 200S 0 200N
APPARENT RESIS
OHM-M
141 178 200 225 245 251 228 191 154 135
181 225 271 333 325 277 246 224 182
241 324 337 313 276 231 206
278 285 268 251 222
N=2
N=3
N=4
N=5
150
200
300
power line
sand and gravel
Y
Z
Z~150
Z~100
TOTAL CHARGEABI
MT (MSEC)
1.39 1.74 1.45 1.30 1.21 1.26 1.76 1.95 2.03 1.88
1.87 2.54 1.99 1.15 2.10 1.91 1.59 1.49 2.20
3.35 3.45 3.35 3.46 4.11 3.99 3.36
4.96 4.80 5.69 5.23 4.38
2.0
50

S 200S

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

gravel

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

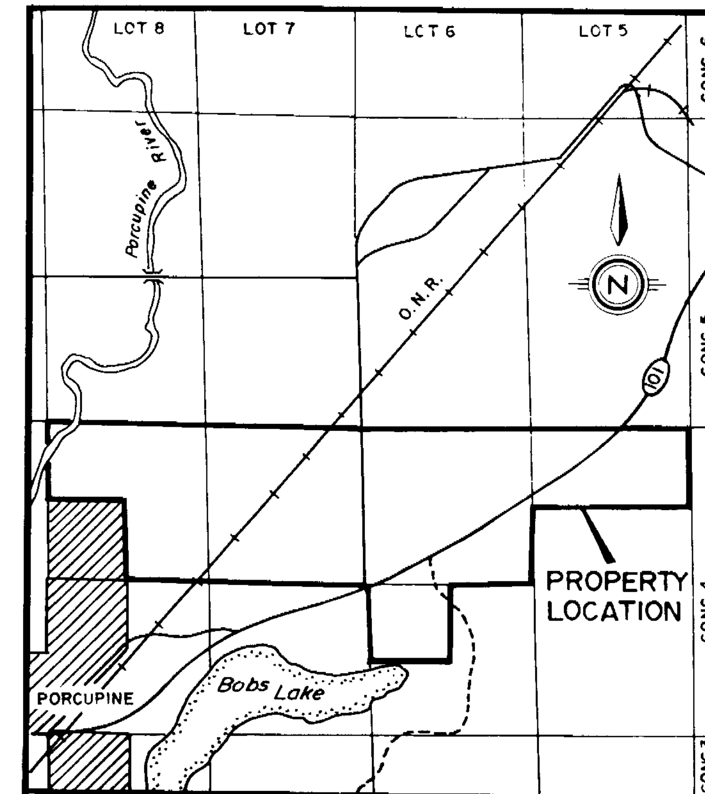
Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

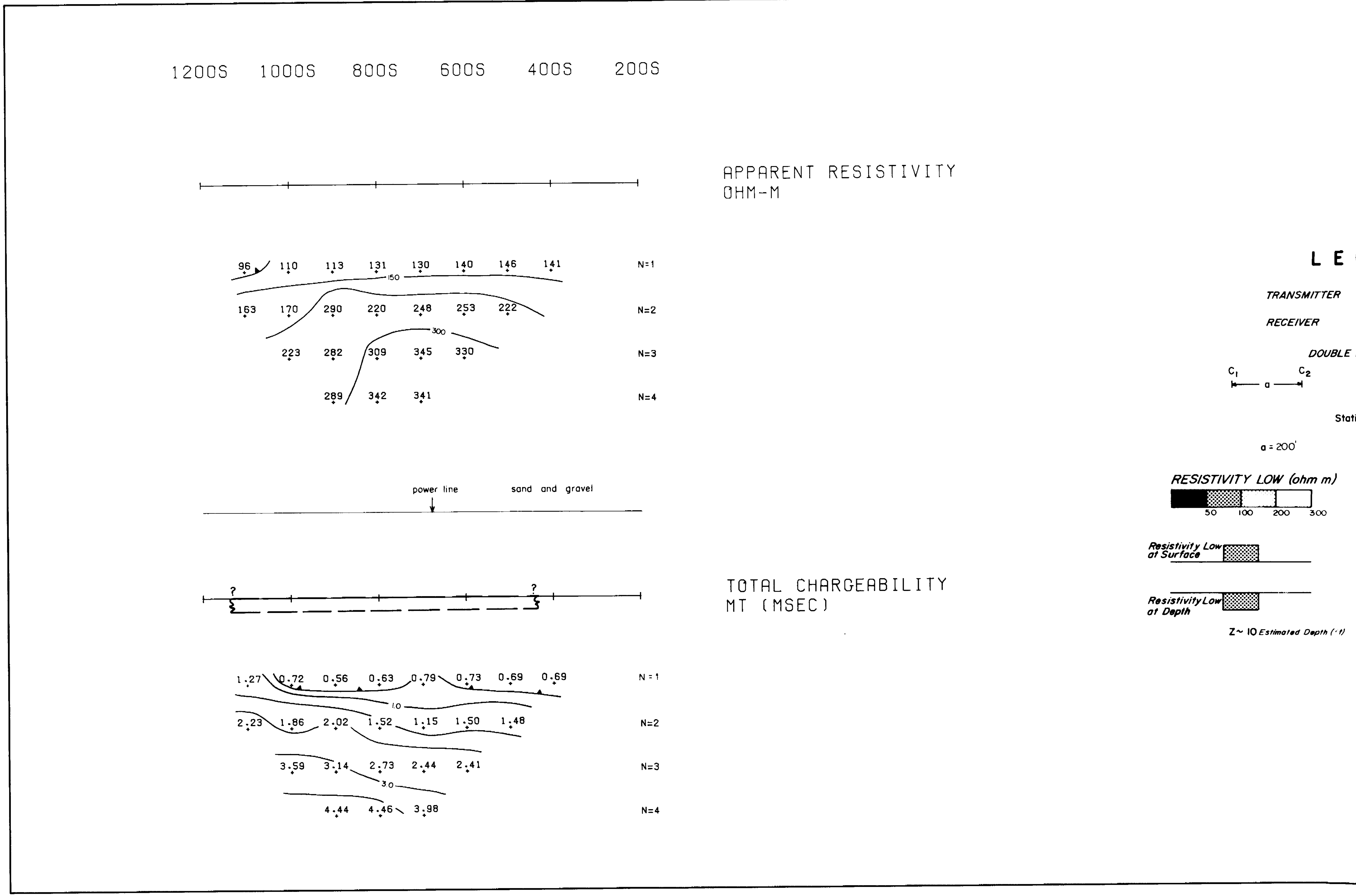
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 46+00 WEST

Project No. C-998	By: S. J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No. Figure P-56	Date: July, 1987

MPH Consulting Limited



1200S 1000S 800S 600S 400S 200S
APPARENT RESISTIVITY
OHM-M
96 110 113 131 130 140 146 141 N=1
150
163 170 290 220 248 253 222 N=2
300
223 282 309 345 330 N=3
289 342 341 N=4
power line
sand and gravel
?
?
TOTAL CHARGEABILITY
MT (MSEC)
1.27 0.72 0.56 0.63 0.79 0.73 0.69 0.69 N=1
1.0
2.23 1.86 2.02 1.52 1.15 1.50 1.48 N=2
3.59 3.14 2.73 2.44 2.41 N=3
3.0
4.44 4.46 3.98 N=4
L E
TRANSMITTER
RECEIVER
DOUBLE
C1
C2
a
a = 200'
RESISTIVITY LOW (ohm m)
50 100 200 300
Resistivity Low at Surface
Resistivity Low at Depth
Z~ 10 Estimated Depth

200S

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

L E G E N D

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m) 50 100 200 300

CHARGEABILITY HIGH (m secs) 25 15 10 5

Resistivity Low at Surface

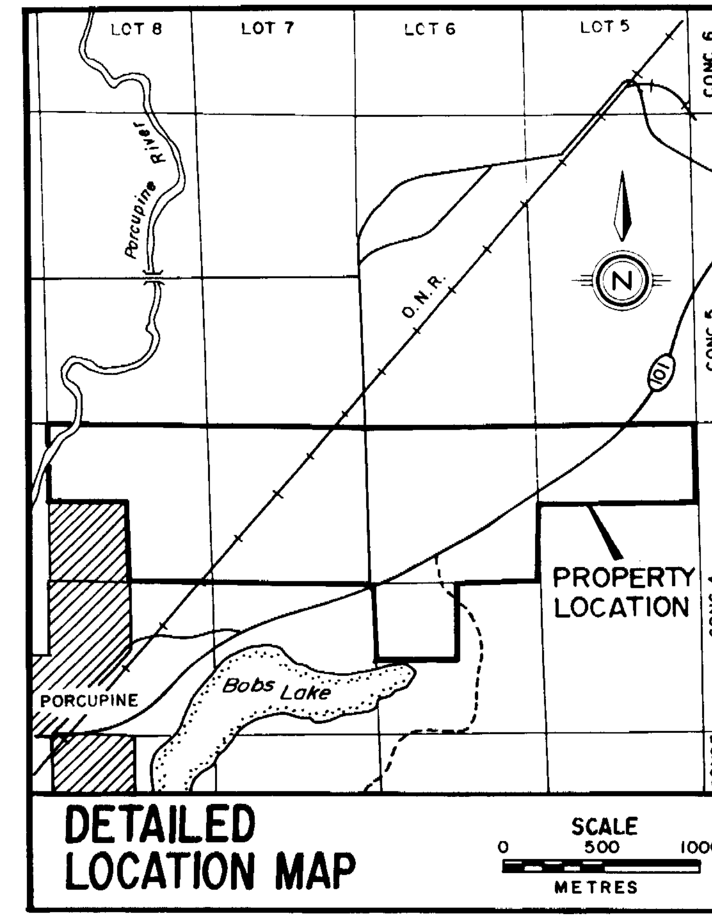
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

Z~ 10 *Estimated Depth (ft)*



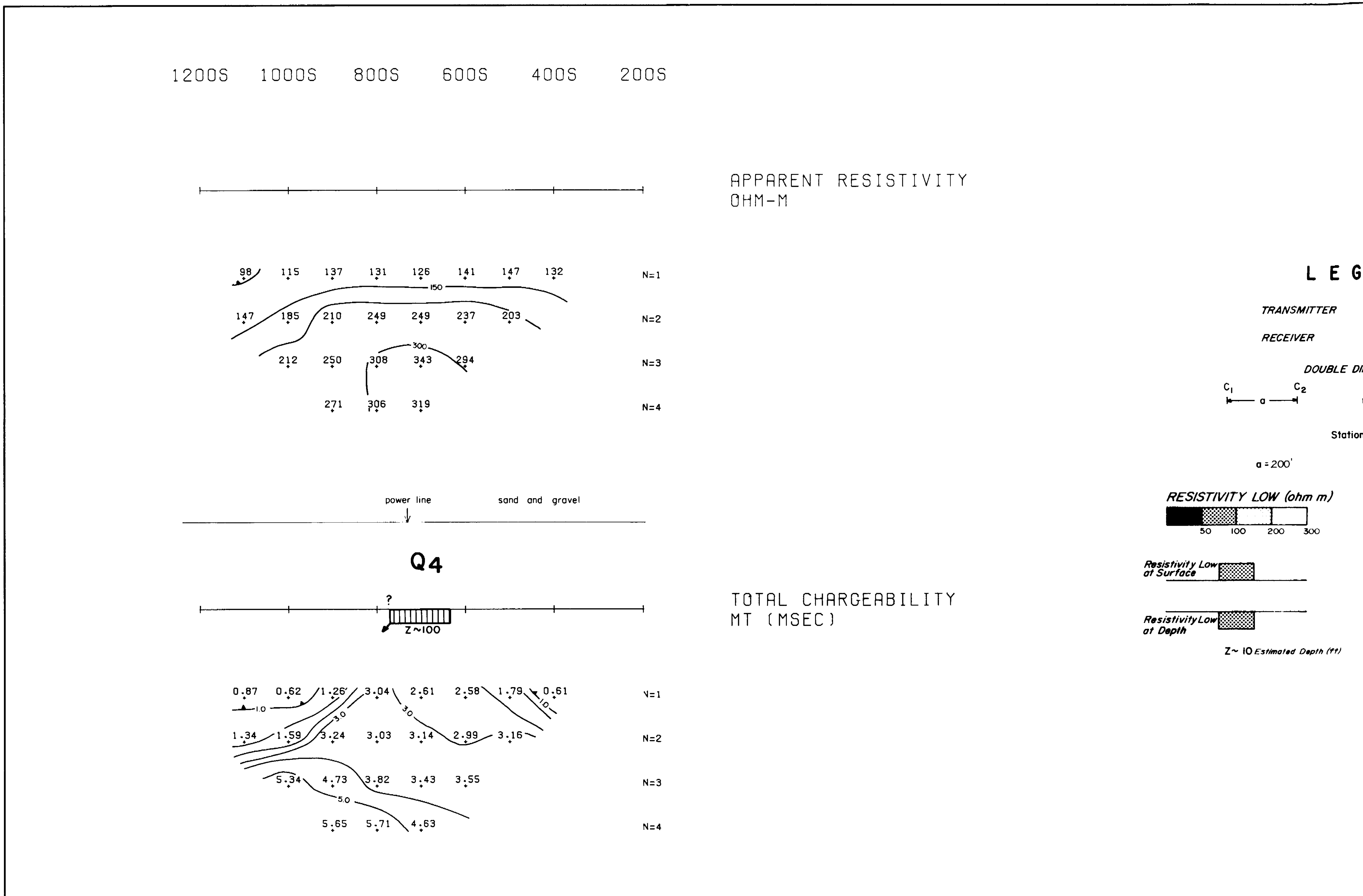
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 48+00 WEST

Project No. C - 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P - 57	Date: July, 1987

MPH Consulting Limited



1200S 1000S 800S 600S 400S 200S
APPARENT RESISTIVITY
OHM-M
98 115 137 131 126 141 147 132 N=1
150
147 185 210 249 249 237 203 N=2
300
212 250 308 343 294 N=3
271 306 319 N=4
power line
sand and gravel
Q4
?
Z~100
TOTAL CHARGEABILITY
MT (MSEC)
0.87 0.62 1.26 3.04 2.61 2.58 1.79 0.61 N=1
1.0
3.0
1.34 1.59 3.24 3.03 3.14 2.99 3.16 N=2
5.34 4.73 3.82 3.43 3.55 N=3
5.0
5.65 5.71 4.63 N=4
LEG
TRANSMITTER
RECEIVER
DOUBLE DIPO
C1 C2
a
na
Station L
a = 200'
RESISTIVITY LOW (ohm m)
50 100 200 300
Resistivity Low at Surface
Resistivity Low at Depth
Z~ 10 Estimated Depth (ft)

5300E

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ← a → C_2 na ↑ Station Location P_1 ← a → P_2

a = 100' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

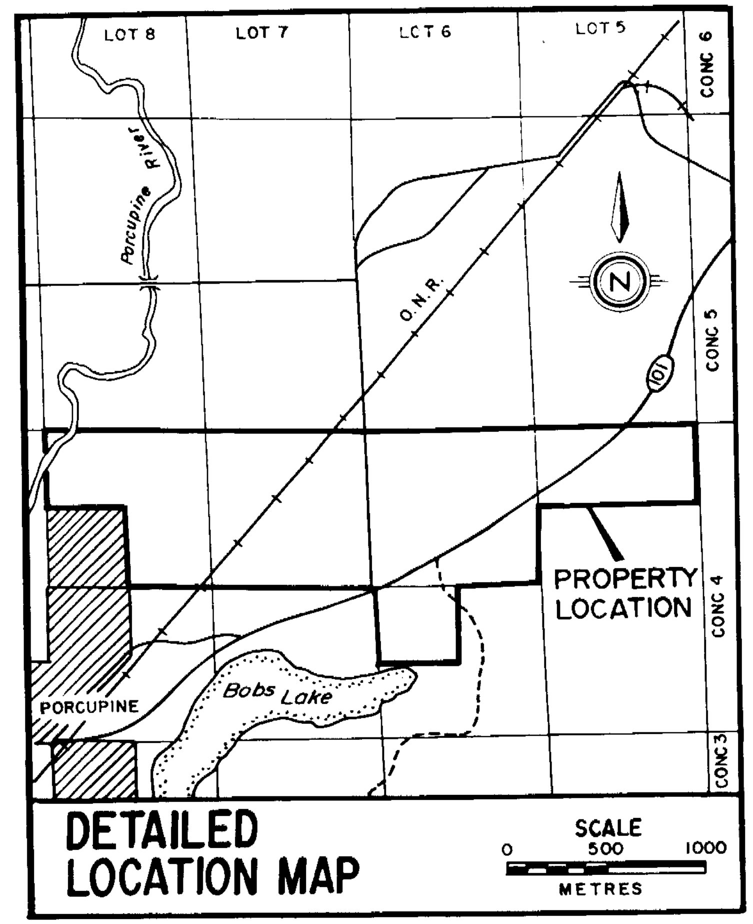
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth*

Z~ 10 *Estimated Depth*



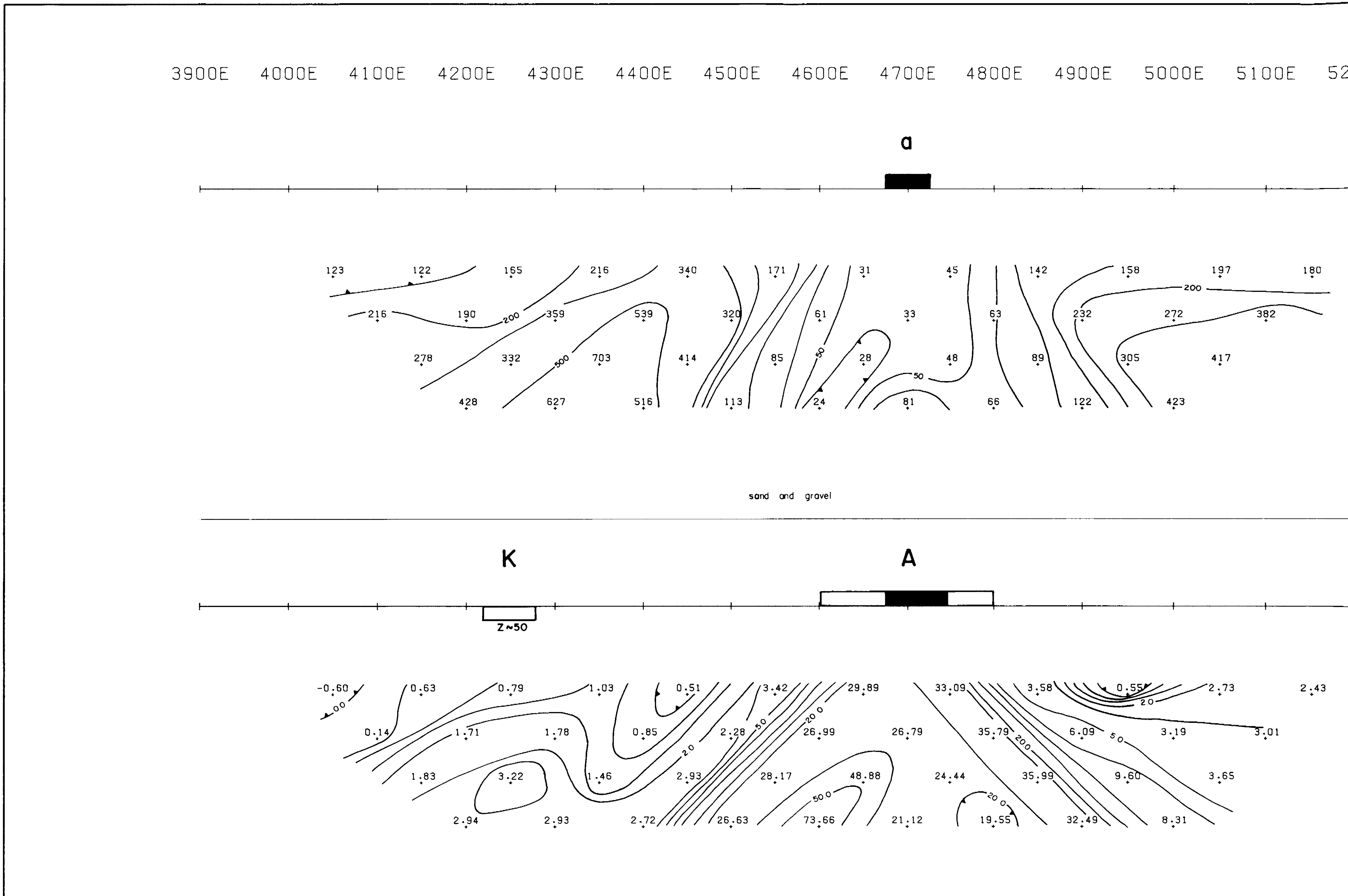
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 4+00 SOUTH

Project No. C-998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No. Figure P-58	Date: July, 1987

MPH **MPH Consulting Limited**


3900E 4000E 4100E 4200E 4300E 4400E 4500E 4600E 4700E 4800E 4900E 5000E 5100E
a
sand and gravel
K
A
Z~50

RRENT RESISTIVITY
-M

AL CHARGEABILITY
(MSEC)

LEGEND

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⊢ a ⊣ C_2 na P_1 ⊢ a ⊣ P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

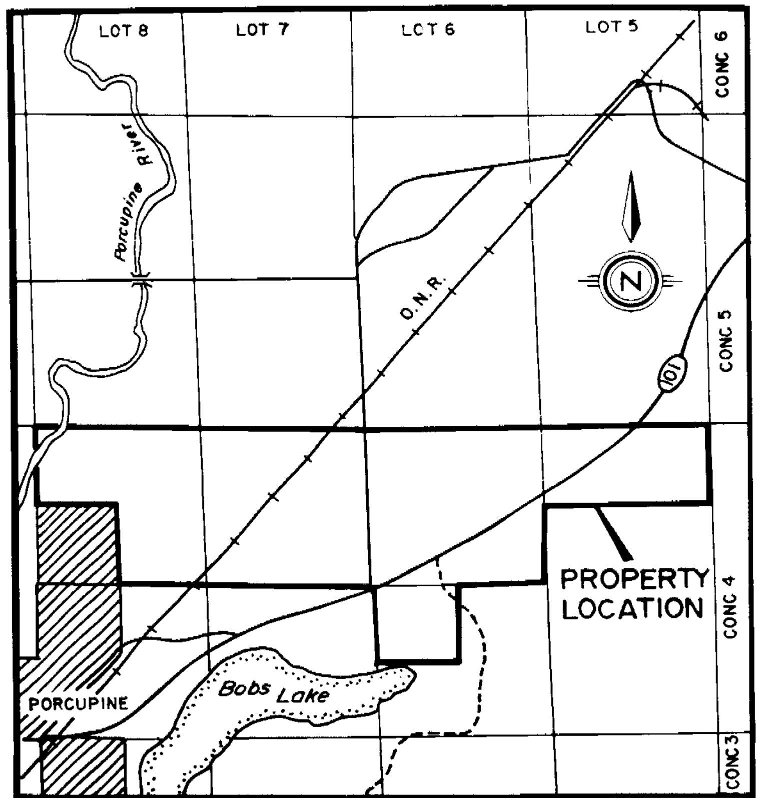
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth*

Z~ 10 *Estimated Depth*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

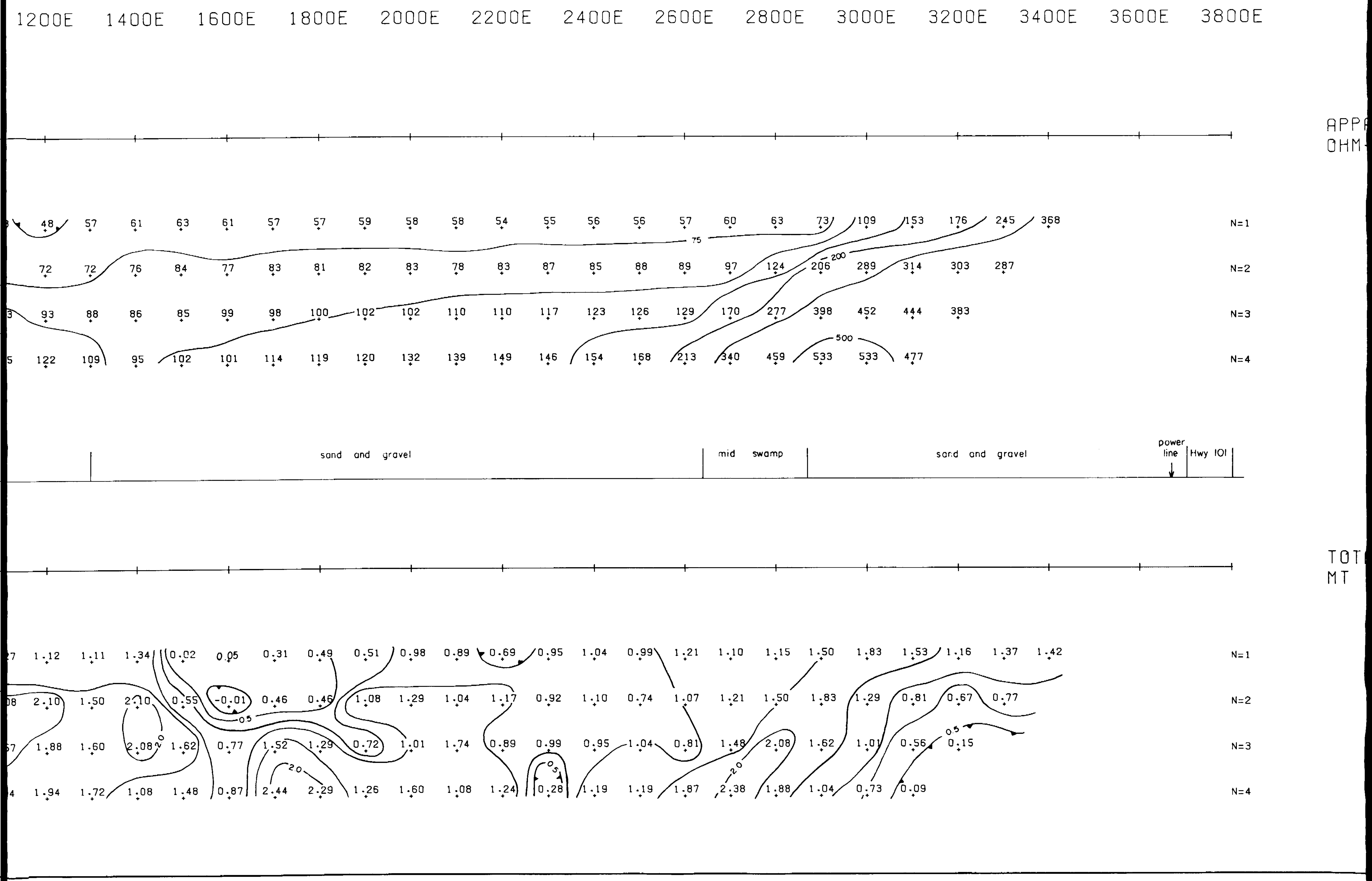
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

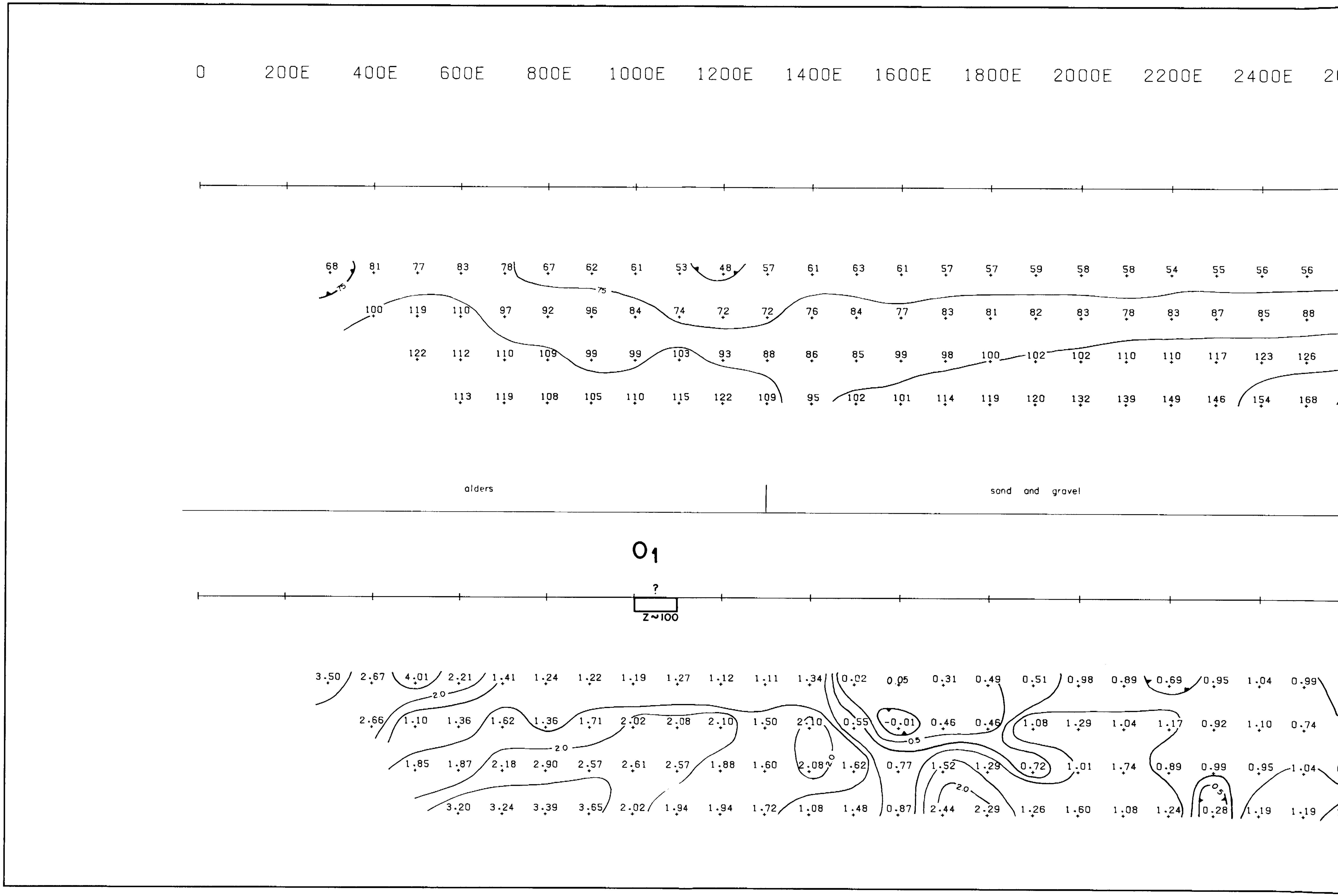
ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 4+00 SOUTH

Project No. C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P-59	Date: July, 1987

MPH Consulting Limited



1200E 1400E 1600E 1800E 2000E 2200E 2400E 2600E 2800E 3000E 3200E 3400E 3600E 3800E
APPA
OHM-
48 57 61 63 61 57 57 59 58 58 54 55 56 56 57 60 63 73 109 153 176 245 368 N=1
75
200
72 72 76 84 77 83 81 82 83 78 83 87 85 88 89 97 124 206 289 314 303 287 N=2
93 88 86 85 99 98 100 102 102 110 110 117 123 126 129 170 277 398 452 444 383 N=3
500
122 109 95 102 101 114 119 120 132 139 149 146 154 168 213 340 459 533 533 477 N=4
sand and gravel
mid swamp
sand and gravel
power line
Hwy 101
TOT
MT
1.12 1.11 1.34 0.02 0.05 0.31 0.49 0.51 0.98 0.89 0.69 0.95 1.04 0.99 1.21 1.10 1.15 1.50 1.83 1.53 1.16 1.37 1.42 N=1
2.10 1.50 2.10 0.55 -0.01 0.46 0.46 1.08 1.29 1.04 1.17 0.92 1.10 0.74 1.07 1.21 1.50 1.83 1.29 0.81 0.67 0.77 N=2
1.88 1.60 2.08 1.62 0.77 1.52 1.29 0.72 1.01 1.74 0.89 0.99 0.95 1.04 0.81 1.48 2.08 1.62 1.01 0.56 0.15 N=3
1.94 1.72 1.08 1.48 0.87 2.44 2.29 1.26 1.60 1.08 1.24 0.28 1.19 1.19 1.87 2.38 1.88 1.04 0.73 0.09 N=4



0
200E
400E
600E
800E
1000E
1200E
1400E
1600E
1800E
2000E
2200E
2400E
26
alders
sand and gravel
O_1
?
Z~100

ARENT RESISTIVITY
-M

AL CHARGEABILITY
(MSEC)

L E G E N D

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 100' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

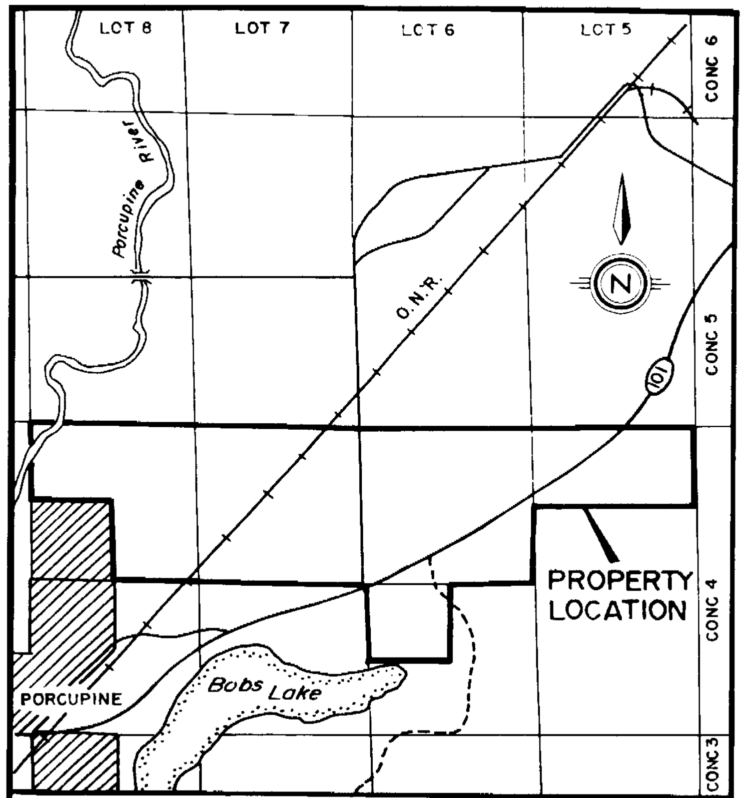
Resistivity Low at Depth

Z~ 10 *Estimated Depth*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth*



DETAILED LOCATION MAP

SCALE
0 500 1000
METRES

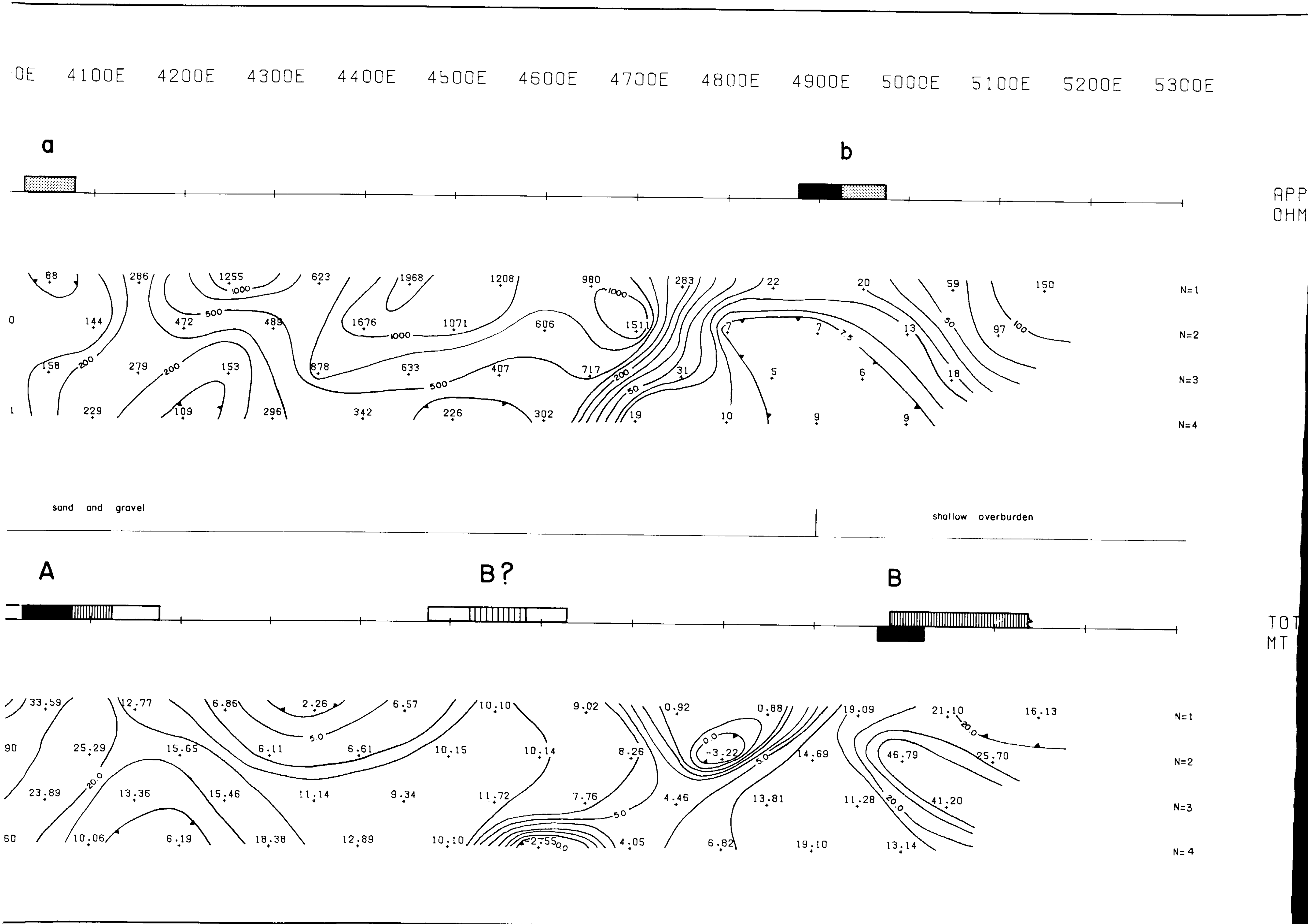
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 8+00 SOUTH

Project No. C - 998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No: Figure P-60	Date: July, 1987

MPH Consulting Limited



0E 4100E 4200E 4300E 4400E 4500E 4600E 4700E 4800E 4900E 5000E 5100E 5200E 5300E
a
b
APP
OHM
88 286 1255 623 1968 1208 980 283 22 20 59 150 N=1
0 144 472 489 1676 1071 606 1511 7 7 13 97 N=2
158 279 153 878 633 407 717 31 5 6 18 N=3
1 229 109 296 342 226 302 19 10 9 9 N=4
1000 500 200 50 7.5 100
sand and gravel
shallow overburden
A
B?
B
TOT
MT
33.59 12.77 6.86 2.26 6.57 10.10 9.02 0.92 0.88 19.09 21.10 16.13 N=1
90 25.29 15.65 6.11 6.61 10.15 10.14 8.26 -3.22 14.69 46.79 25.70 N=2
23.89 13.36 15.46 11.14 9.34 11.72 7.76 4.46 13.81 11.28 41.20 N=3
60 10.06 6.19 18.38 12.89 10.10 -2.55 4.05 6.82 19.10 13.14 N=4
5.0 20.0 0.0

RESISTIVITY

RGEABILITY

L E G E N D

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⊢— a —⊣ C_2 na P_1 ⊢— a —⊣ P_2

Station Location

a = 200' n=1,2,3,4,5

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

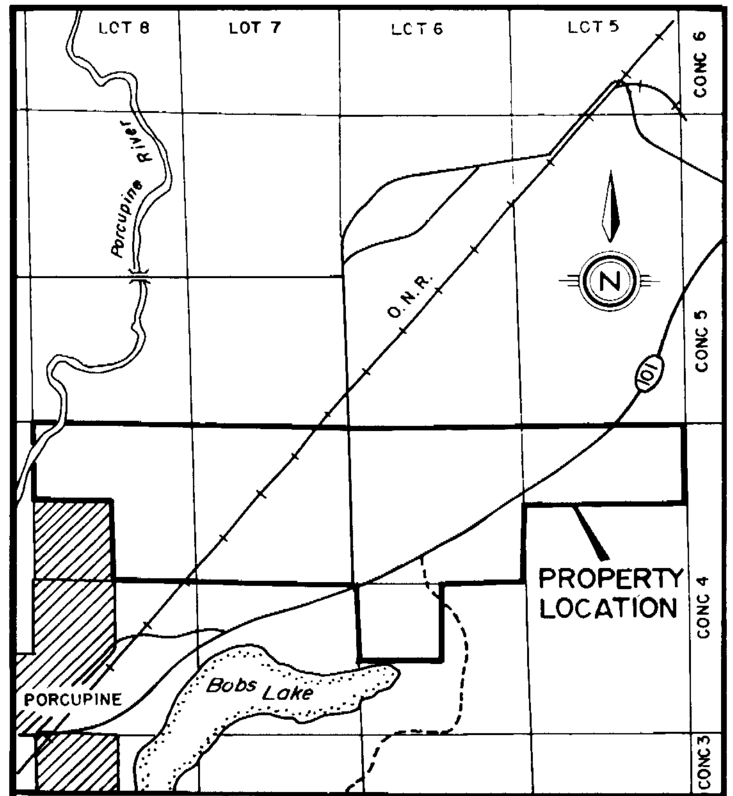
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth*

Z~ 10 *Estimated Depth*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

INDUCED POLARIZATION SURVEY PSEUDOSECTION

LINE 12+00 SOUTH

Project No. C-998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P-63	Date: July, 1987

MPH Consulting Limited

APPARENT RESISTIVITY
OHM-M

TOTAL CHARGEABILITY
MT (MSEC)

L E G E N D

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 —— a —— C_2 na P_1 —— a —— P_2

Station Location

a = 100' n = 1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

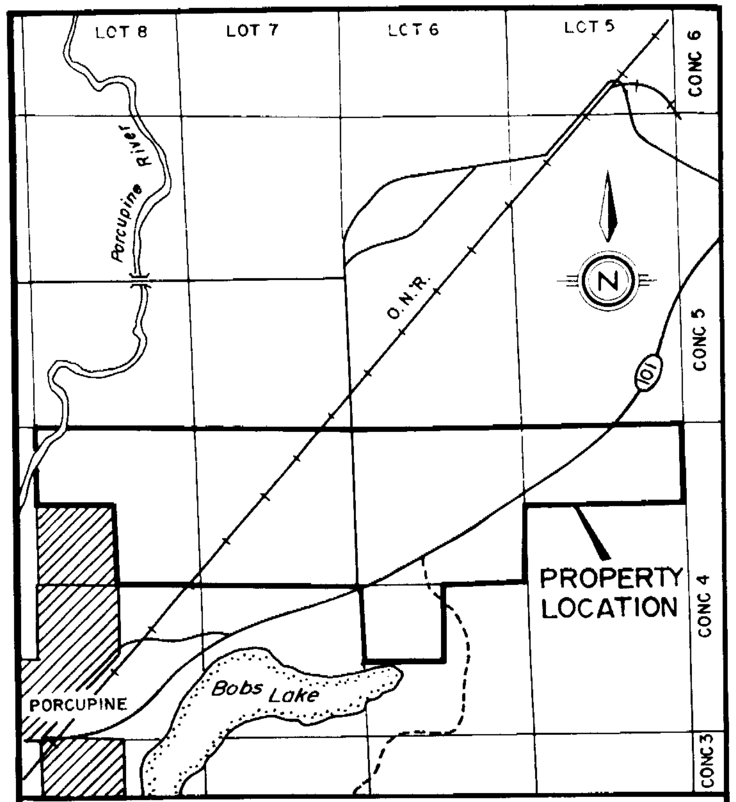
Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z ~ 10 *Estimated Depth* Z ~ 10 *Estimated Depth*



DETAILED LOCATION MAP

SCALE
0 500 1000
METRES

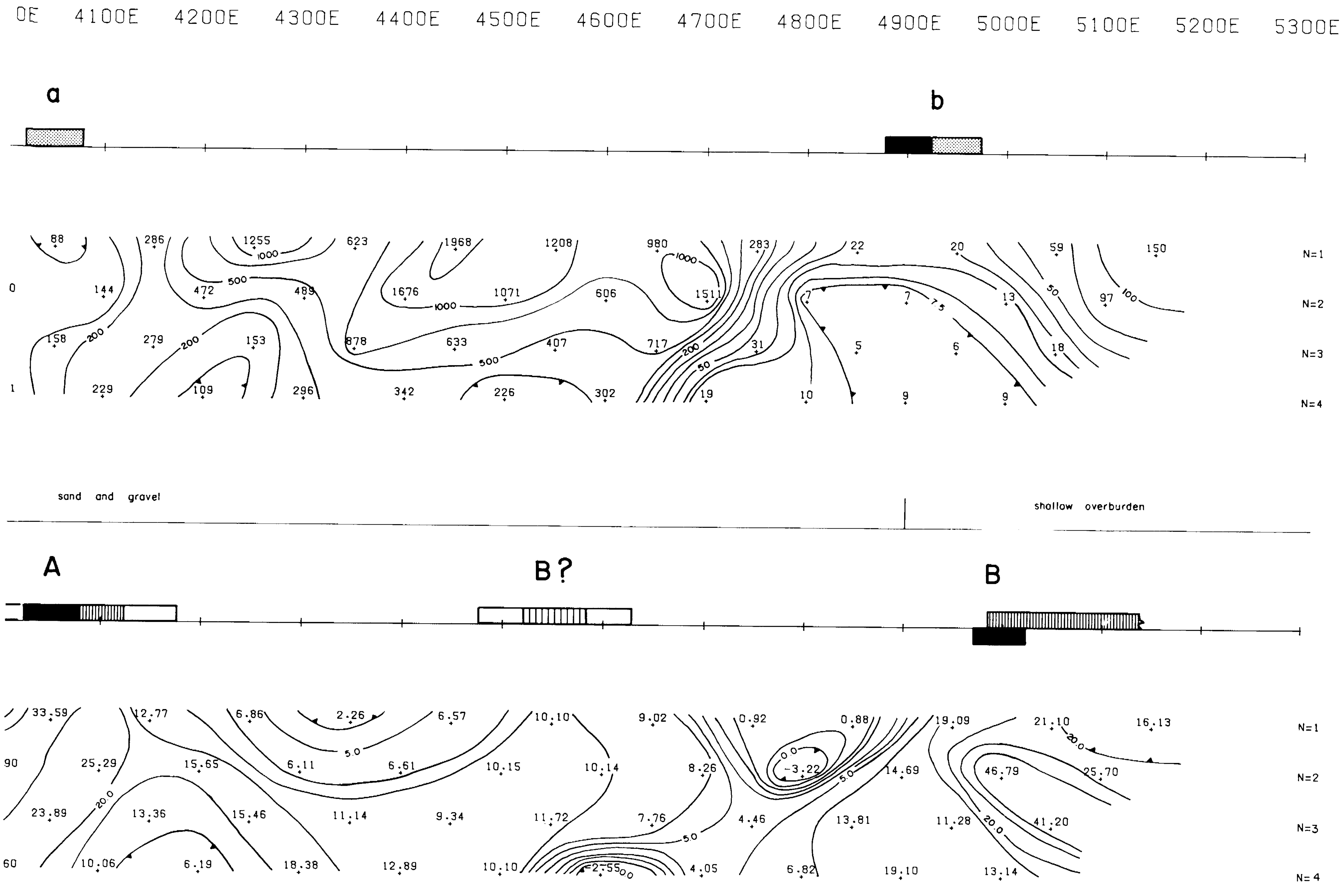
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

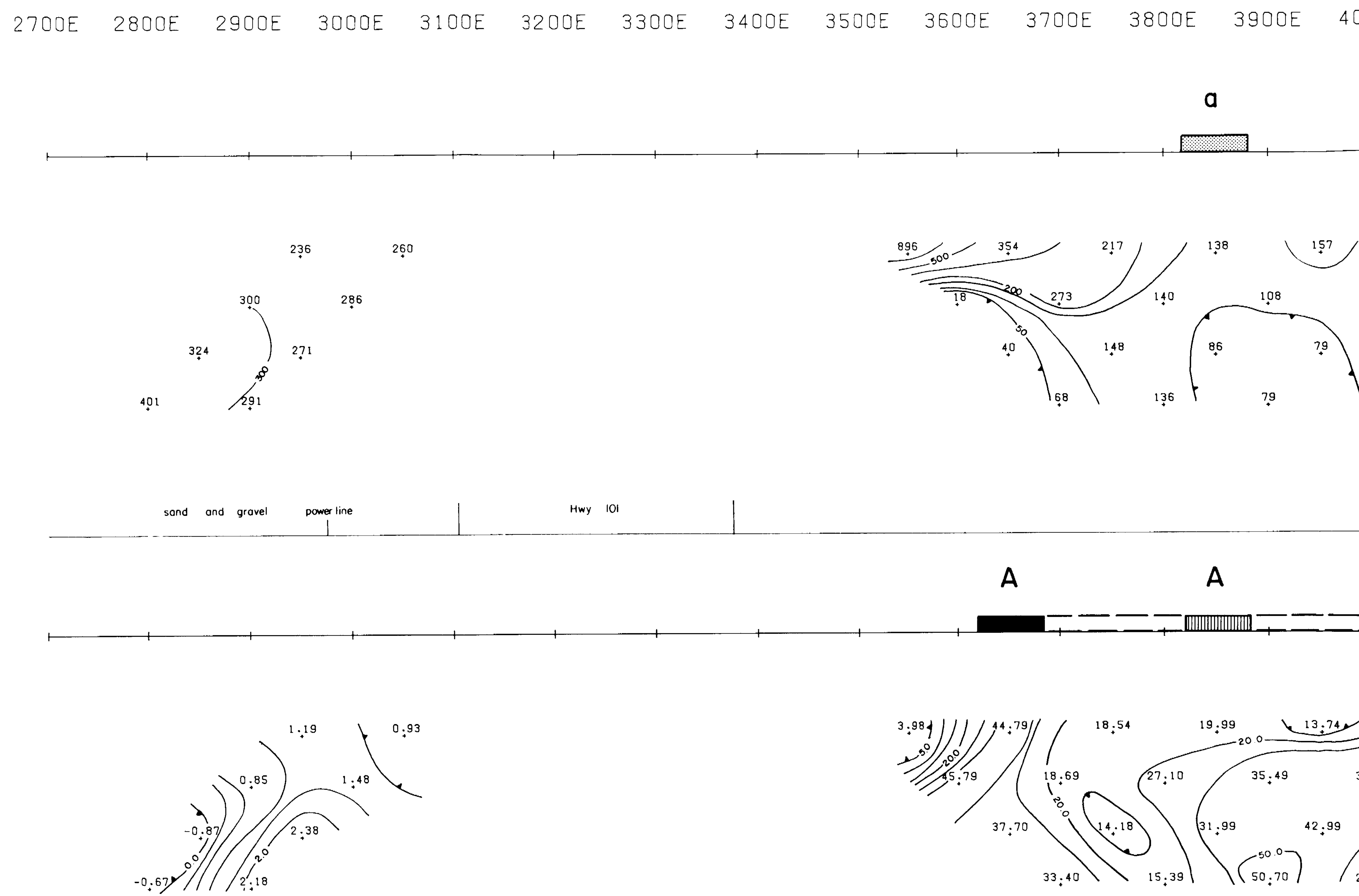
ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 8+00 SOUTH

Project No. C – 998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No. Figure P – 60	Date: July, 1987

MPH Consulting Limited



0E 4100E 4200E 4300E 4400E 4500E 4600E 4700E 4800E 4900E 5000E 5100E 5200E 5300E
a
b
N=1
N=2
N=3
N=4
sand and gravel
shallow overburden
A
B?
B
N=1
N=2
N=3
N=4



2700E 2800E 2900E 3000E 3100E 3200E 3300E 3400E 3500E 3600E 3700E 3800E 3900E
a
236 260 300 286 324 271 401 291 300
896 500 354 217 138 157 18 200 273 140 108 50 40 148 86 79 68 136 79
sand and gravel
power line
Hwy 101
A
A
1.19 0.93 0.85 1.48 -0.87 2.38 0.0 2.0 -0.67 2.18
3.98 44.79 18.54 19.99 13.74 20.0 5.0 200 45.79 18.69 27.10 35.49 20.0 37.70 14.18 31.99 42.99 50.0 33.40 15.39 50.70

STIVITY

BILITY

LEGEND

TRANSMITTER — Huntec 7.5

RECEIVER — Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200'

n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

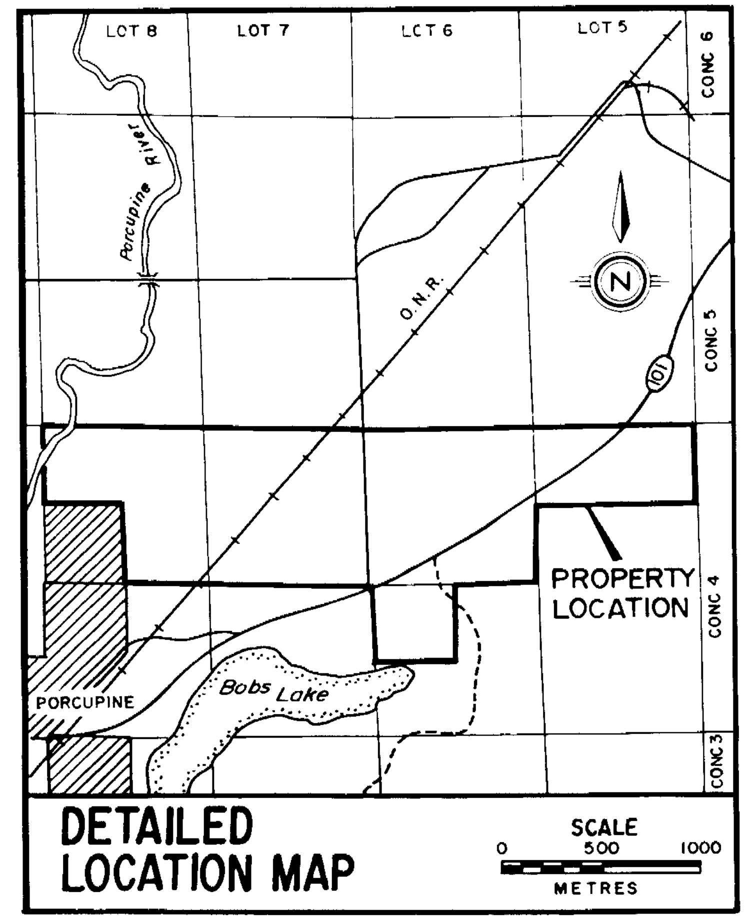
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 Estimated Depth

Z~ 10 Estimated Depth



SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

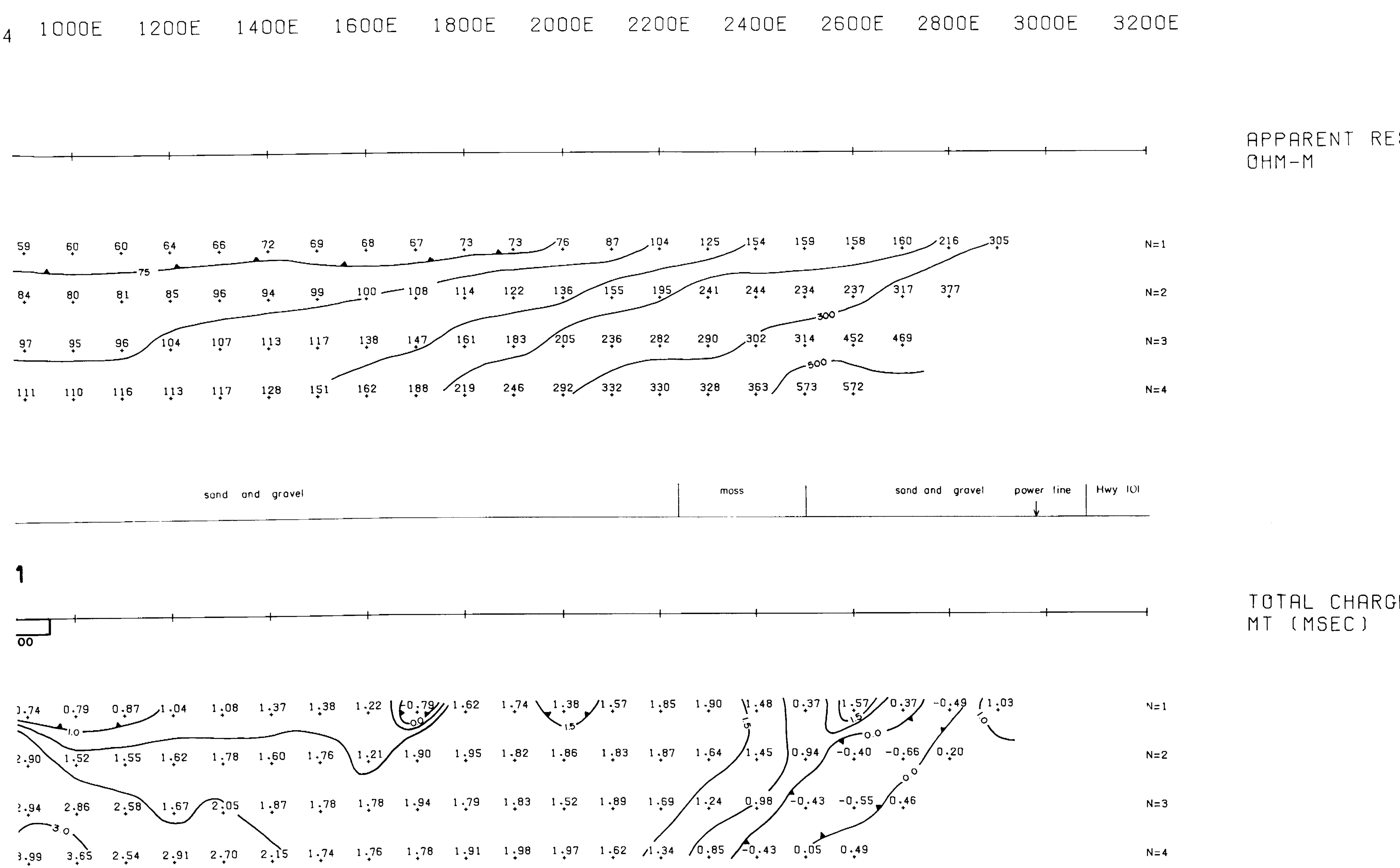
INDUCED POLARIZATION SURVEY

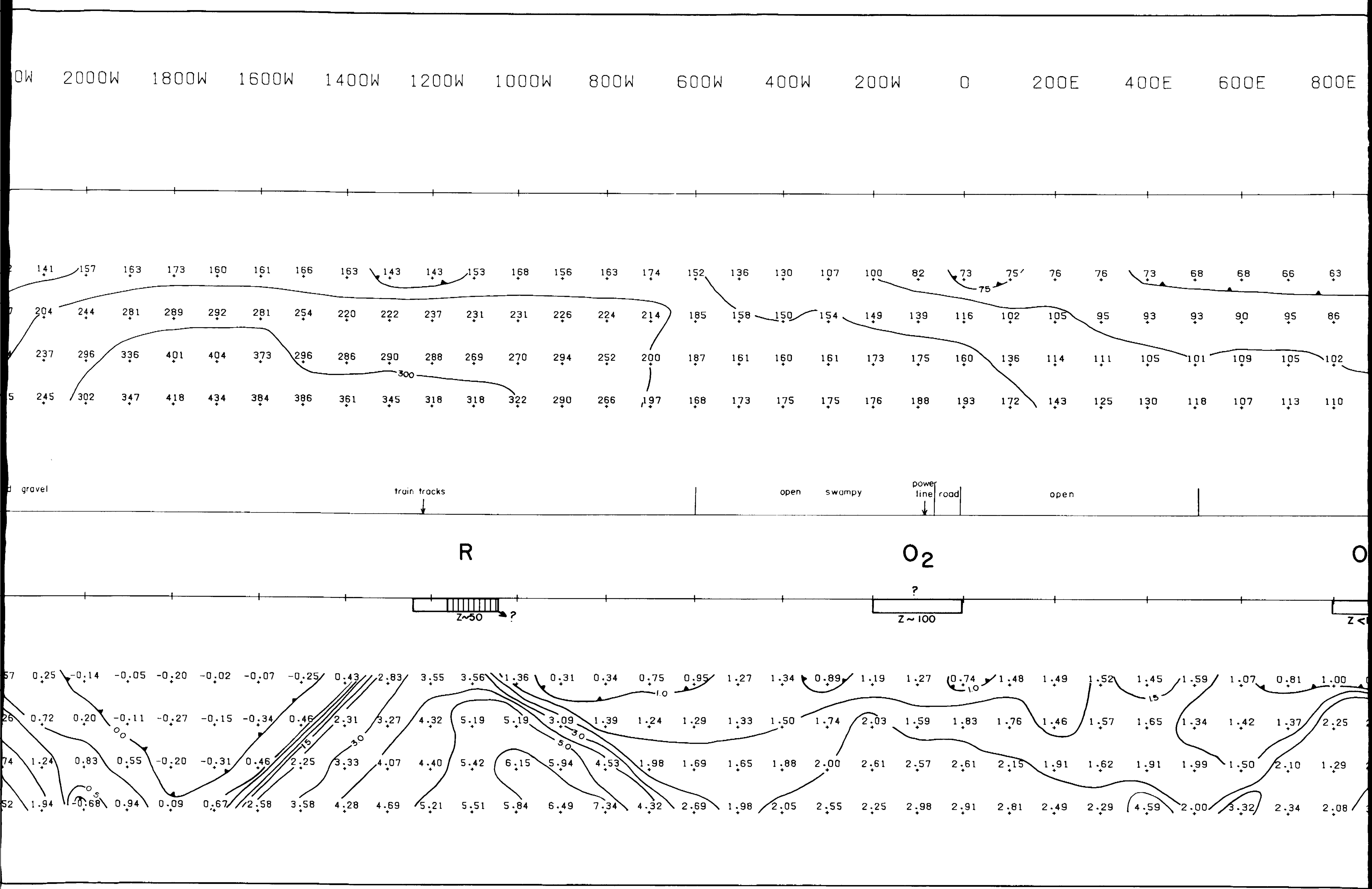
PSEUDOSECTION

LINE 8+00 SOUTH

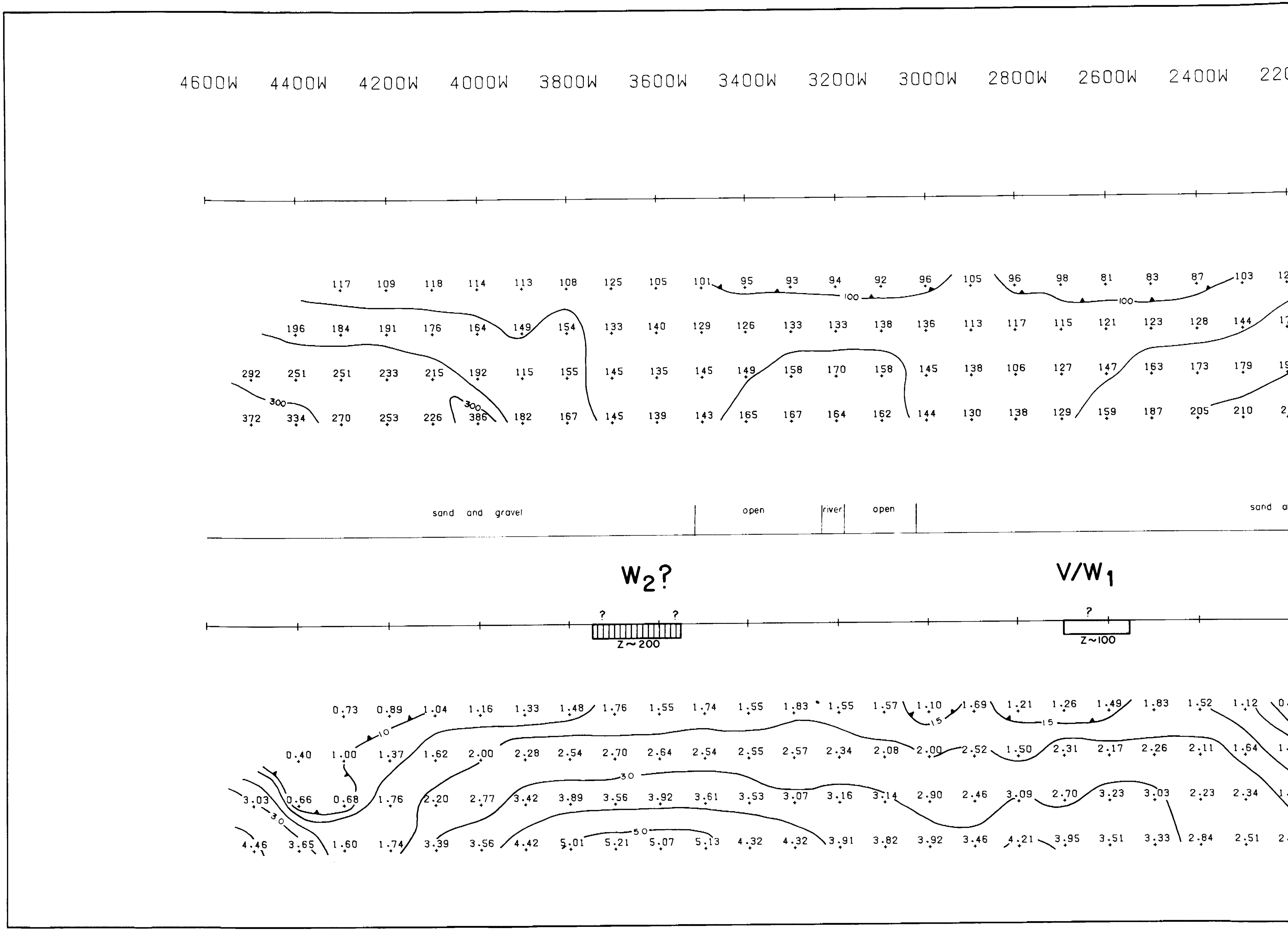
Project No. C – 998	By: S. J. Bate
Scale: 1 : 2400	Drawn: MPH
Drawing No. Figure P – 61	Date: July, 1987

MPH Consulting Limited


4 1000E 1200E 1400E 1600E 1800E 2000E 2200E 2400E 2600E 2800E 3000E 3200E
APPARENT RES
OHM-M
59 60 60 64 66 72 69 68 67 73 73 76 87 104 125 154 159 158 160 216 305 N=1
84 80 81 85 96 94 99 100 108 114 122 136 155 195 241 244 234 237 317 377 N=2
97 95 96 104 107 113 117 138 147 161 183 205 236 282 290 302 314 452 469 N=3
111 110 116 113 117 128 151 162 188 219 246 292 332 330 328 363 573 572 N=4
sand and gravel
moss
sand and gravel
power line
Hwy 101
TOTAL CHARGE
MT (MSEC)
1.74 0.79 0.87 1.04 1.08 1.37 1.38 1.22 -0.79 1.62 1.74 1.38 1.57 1.85 1.90 1.48 0.37 1.57 0.37 -0.49 1.03 N=1
2.90 1.52 1.55 1.62 1.78 1.60 1.76 1.21 1.90 1.95 1.82 1.86 1.83 1.87 1.64 1.45 0.94 -0.40 -0.66 0.20 N=2
2.94 2.86 2.58 1.67 2.05 1.87 1.78 1.78 1.94 1.79 1.83 1.52 1.89 1.69 1.24 0.98 -0.43 -0.55 0.46 N=3
3.99 3.65 2.54 2.91 2.70 2.15 1.74 1.76 1.78 1.91 1.98 1.97 1.62 1.34 0.85 -0.43 0.05 0.49 N=4



2000W 1800W 1600W 1400W 1200W 1000W 800W 600W 400W 200W 0 200E 400E 600E 800E
gravel
train tracks
open
swampy
power line
road
open
R
O_2
O
Z~50
?
Z ~ 100


4600W 4400W 4200W 4000W 3800W 3600W 3400W 3200W 3000W 2800W 2600W 2400W
sand and gravel
open
river
open
sand
W2?
V/W1
Z~200
Z~100

5100E

APPARENT RESISTIVITY
OHM-M

N=1

N=2

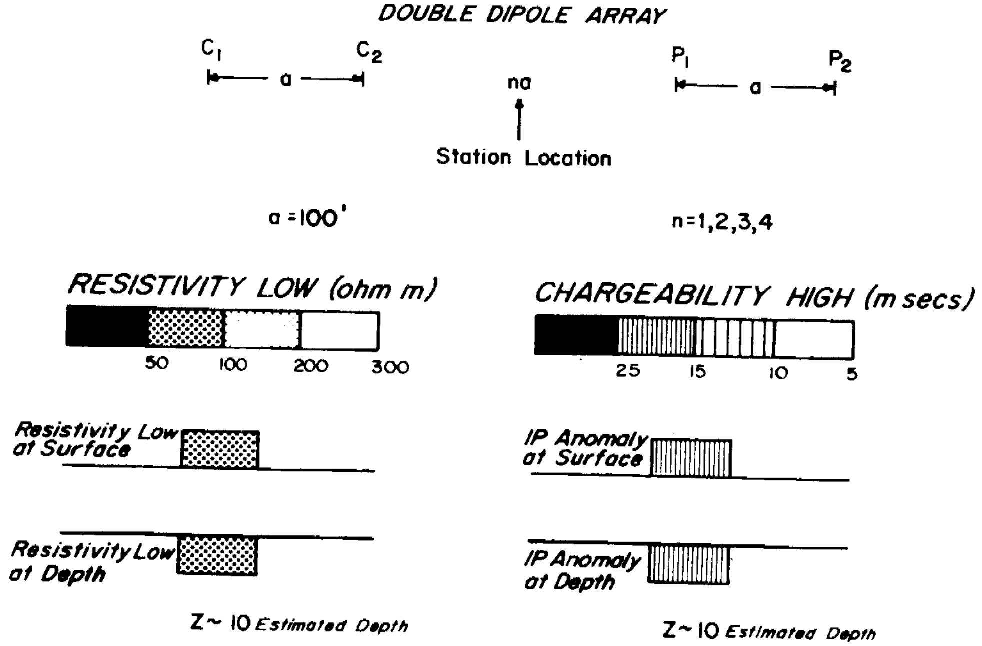
N=3

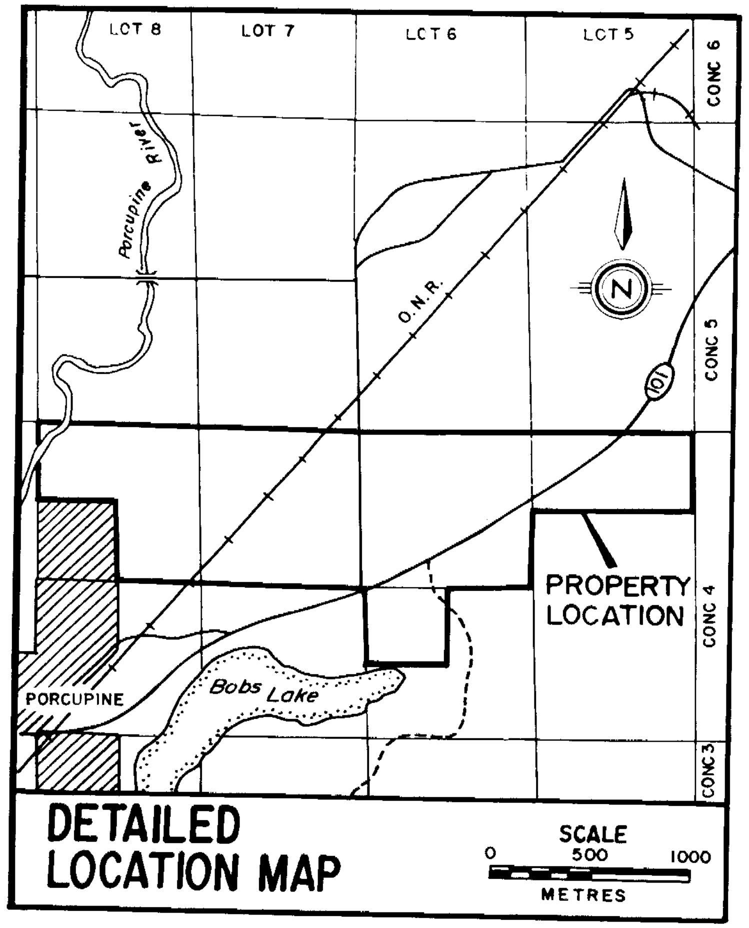
N=4

L E G E N D

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY





TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

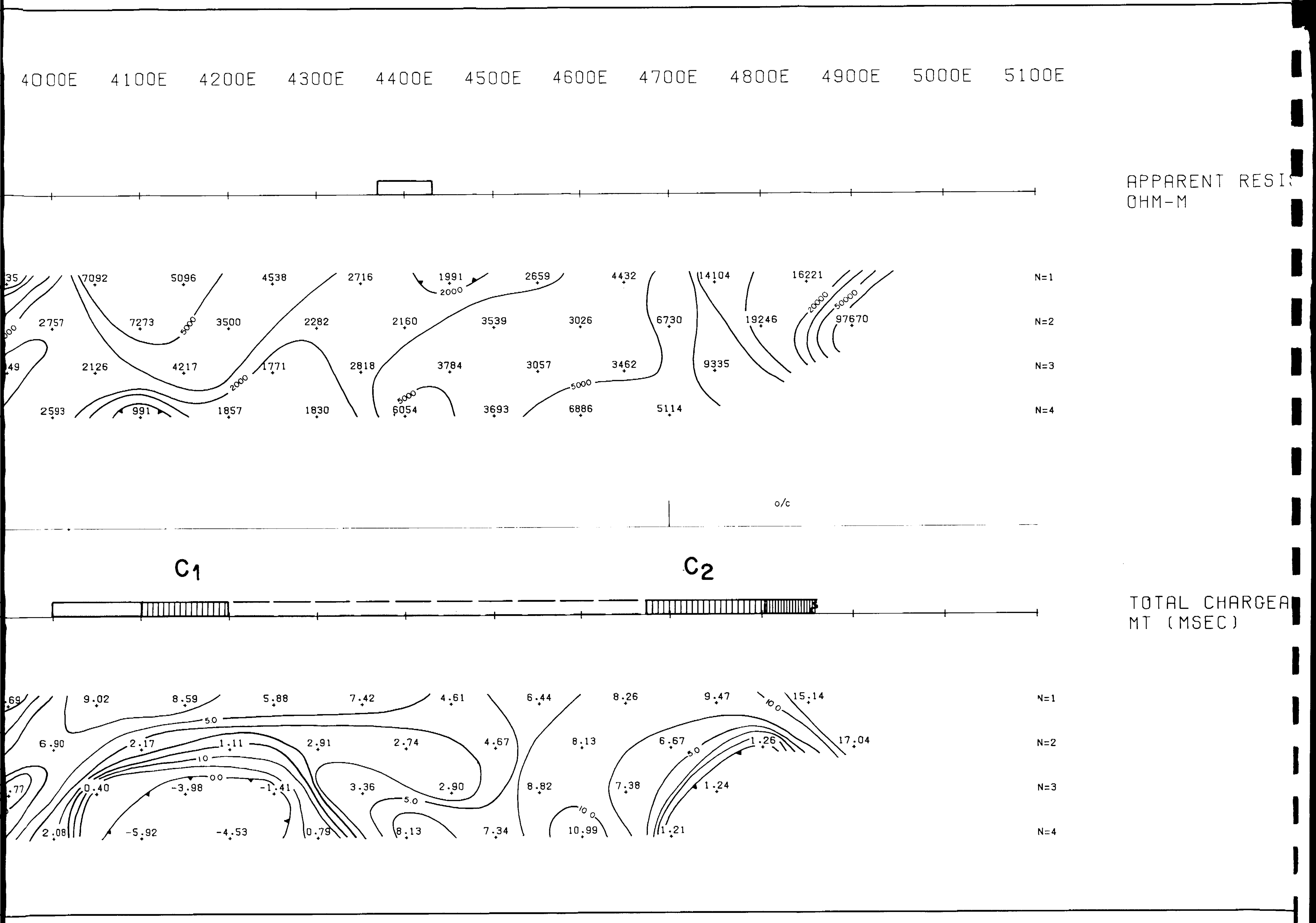
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

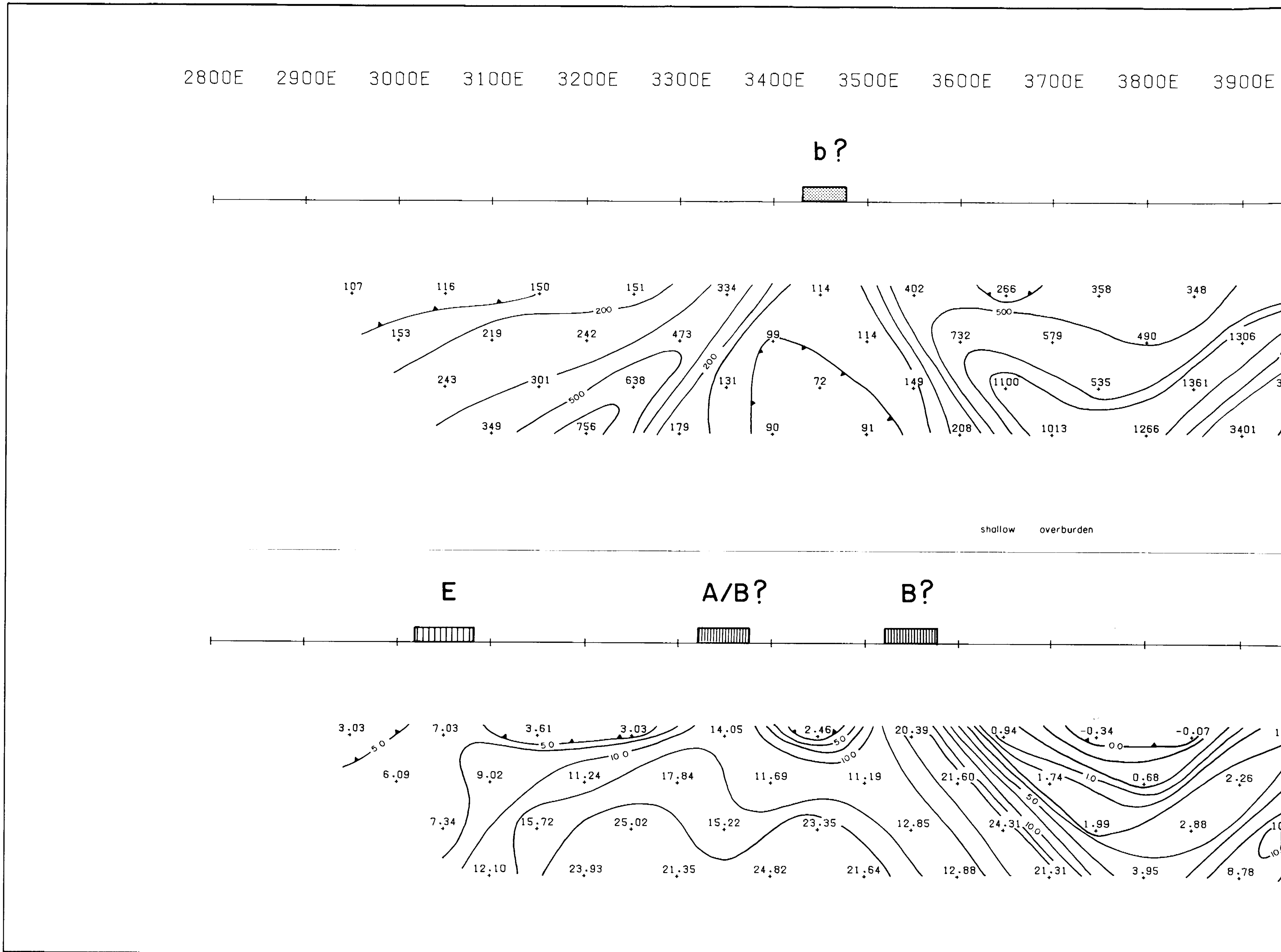
ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 12+00 SOUTH

Project No: C-998	By: S. J. Bate
Scale: 1 1200	Drawn: MPH
Drawing No: Figure P-62	Date: July, 1987

MPH Consulting Limited



4000E 4100E 4200E 4300E 4400E 4500E 4600E 4700E 4800E 4900E 5000E 5100E
APPARENT RESI
OHM-M
N=1
N=2
N=3
N=4
o/c
C1
C2
TOTAL CHARGEA
MT (MSEC)



2800E 2900E 3000E 3100E 3200E 3300E 3400E 3500E 3600E 3700E 3800E 3900E
b?
107 116 150 151 334 114 402 266 358 348
153 219 242 473 99 114 732 579 490 1306
243 301 638 131 72 149 1100 535 1361
349 756 179 90 91 208 1013 1266 3401
200
500
shallow overburden
E
A/B?
B?
3.03 7.03 3.61 3.03 14.05 2.46 20.39 0.94 -0.34 -0.07
6.09 9.02 11.24 17.84 11.69 11.19 21.60 1.74 0.68 2.26
7.34 15.72 25.02 15.22 23.35 12.85 24.31 1.99 2.88
12.10 23.93 21.35 24.82 21.64 12.88 21.31 3.95 8.78
50
100
10
0.0

RESISTIVITY

RGEABILITY

LEGEND

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

↑ Station Location

a = 200'   n=1,2,3,4,5

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

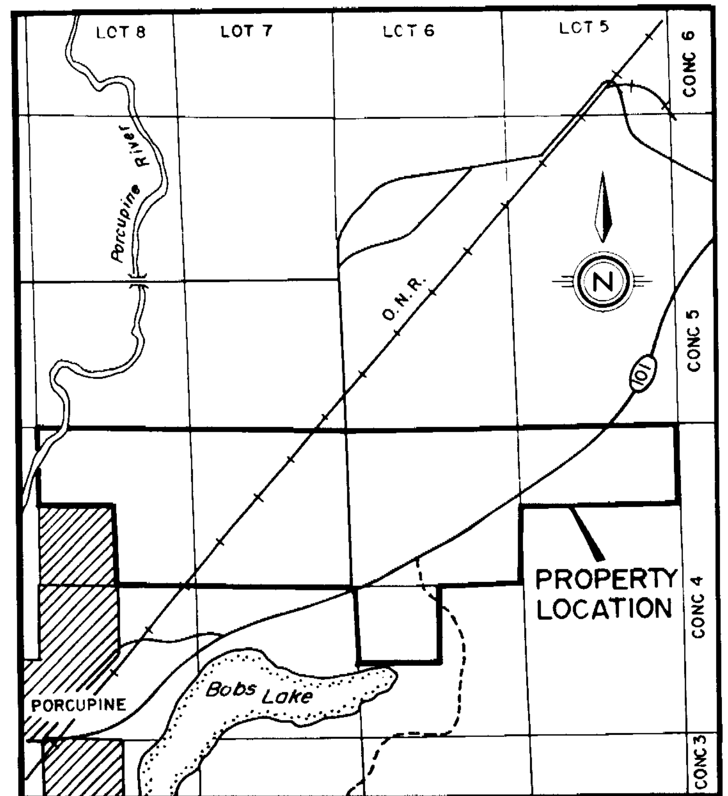
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth*

Z~ 10 *Estimated Depth*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

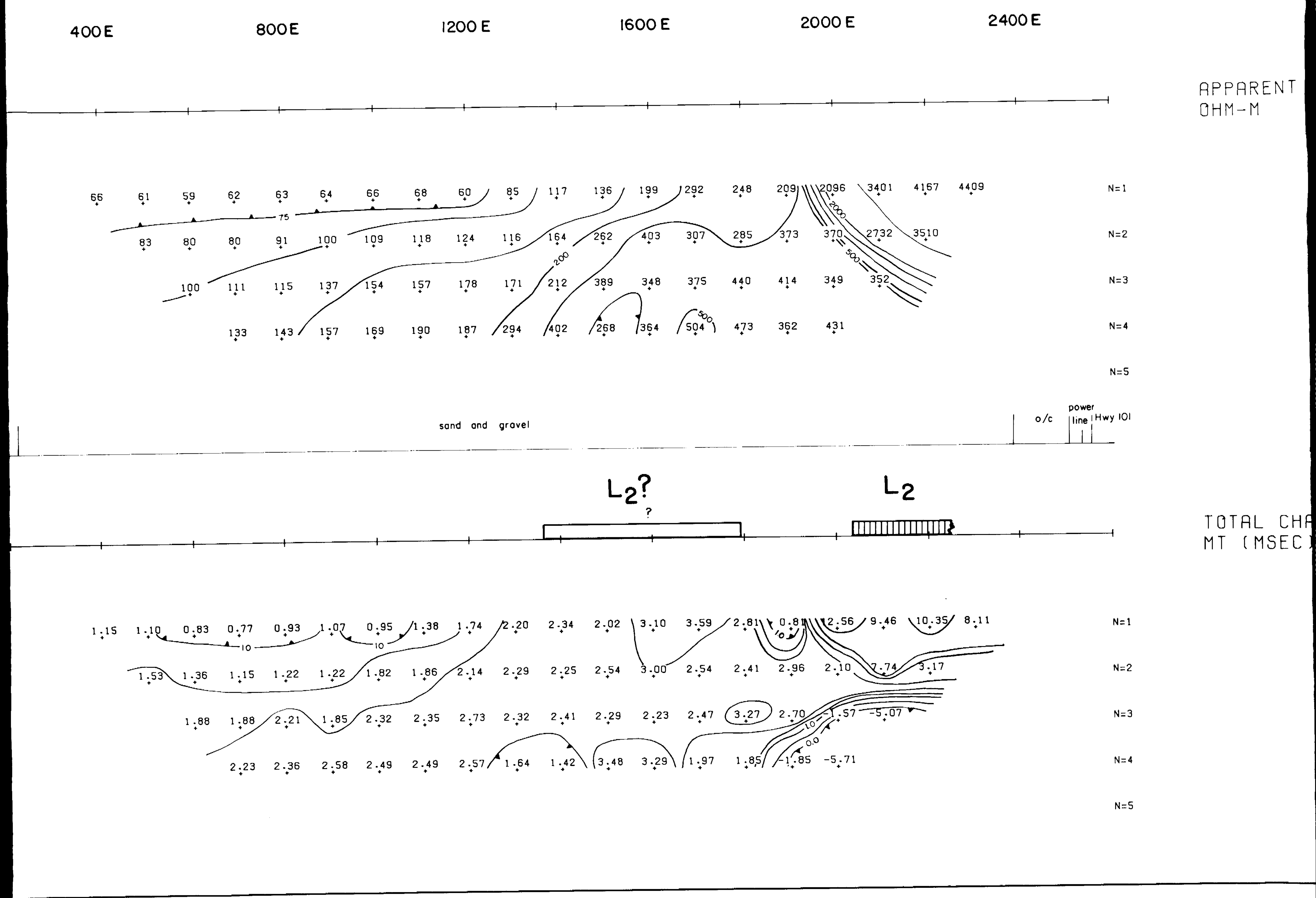
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

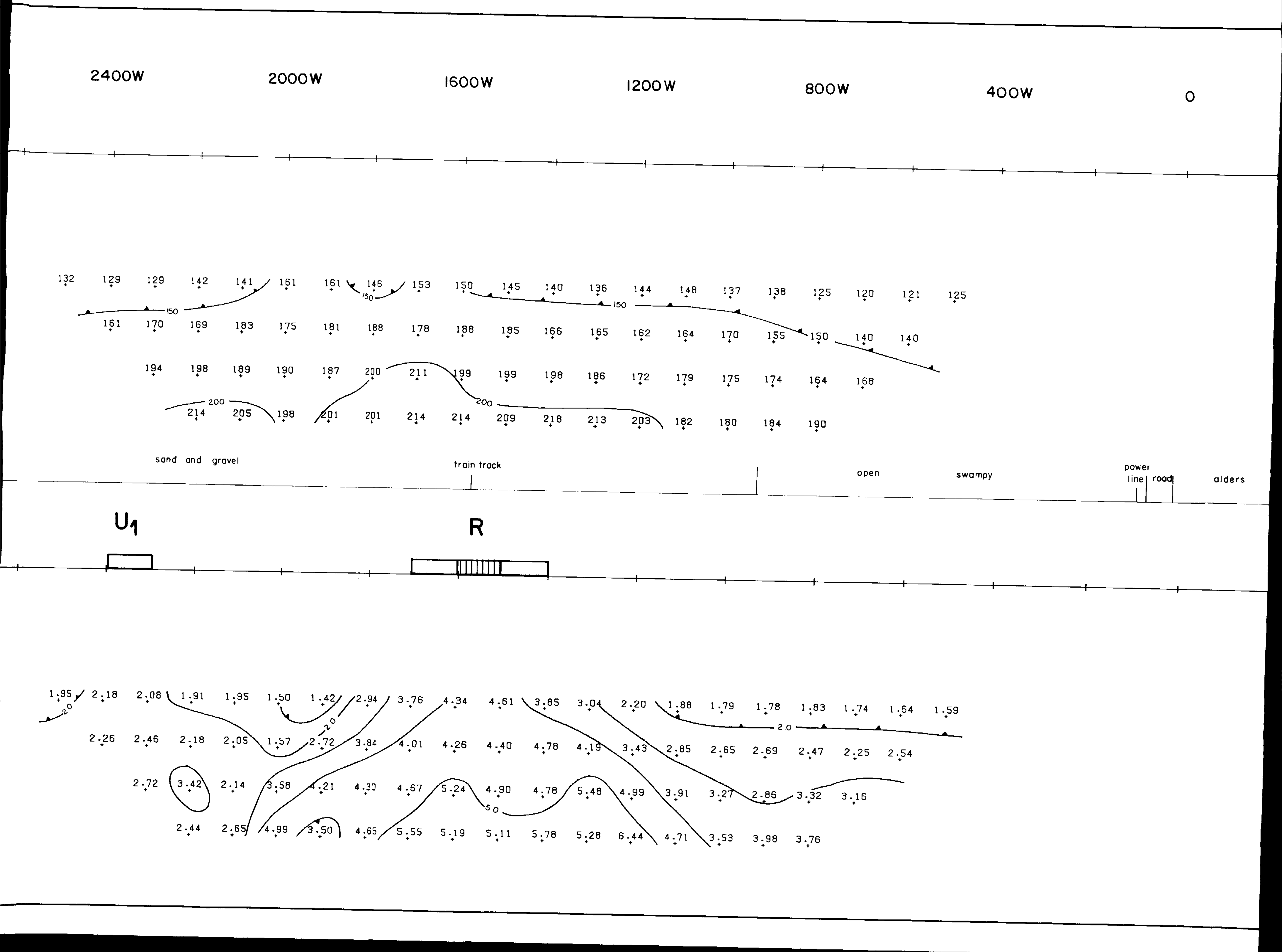
ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 12+00 SOUTH

Project No. C – 998	By: S. J. Bate
Scale: 1 2400	Drawn: MPH
Drawing No: Figure P-63	Date: July, 1987

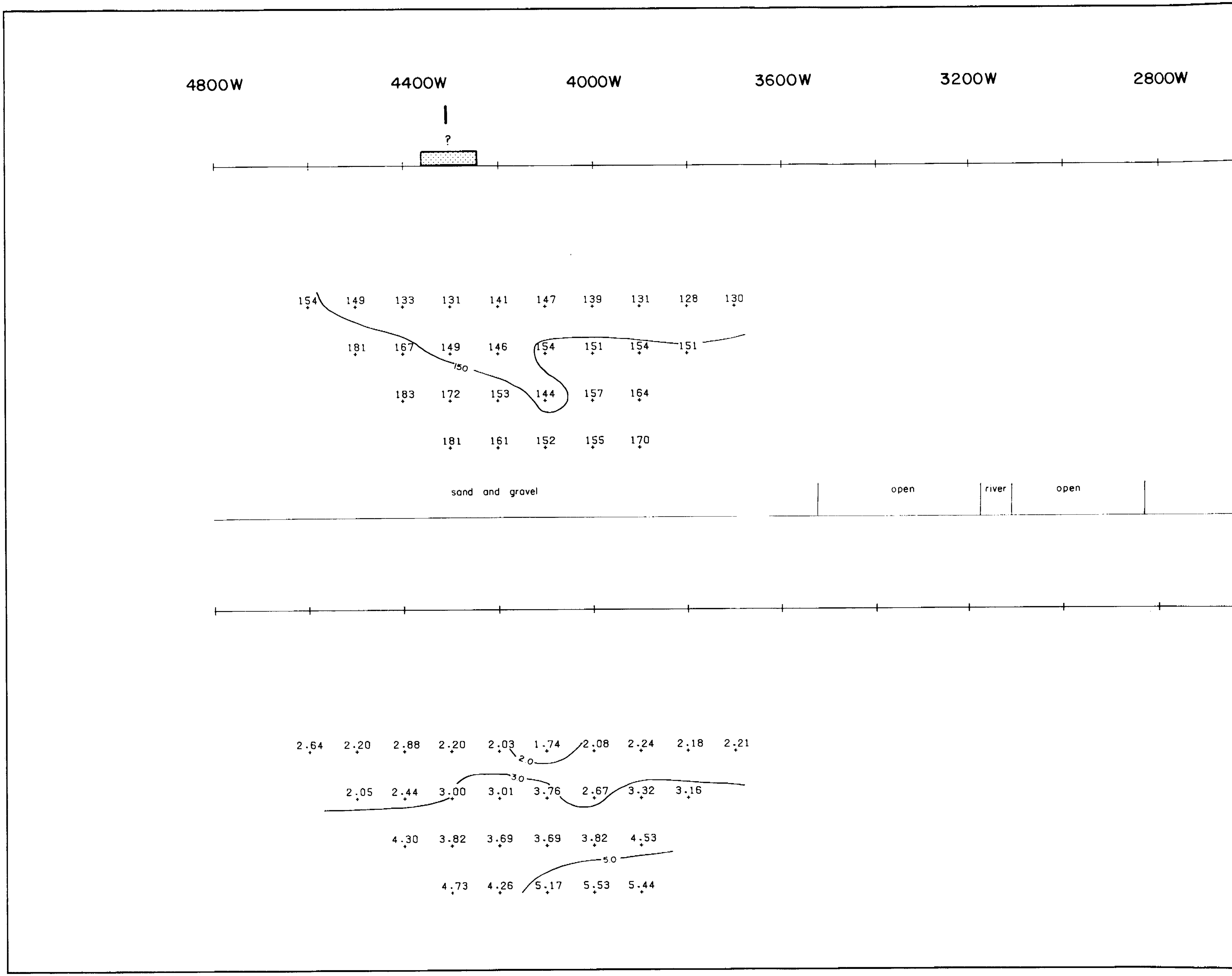
MPH Consulting Limited



400E
800E
1200 E
1600 E
2000 E
2400 E
APPARENT
OHM-M
N=1
N=2
N=3
N=4
N=5
sand and gravel
o/c
power line
Hwy 101
L2?
L2
TOTAL CHA
MT (MSEC)



2400W
2000W
1600W
1200W
800W
400W
0
sand and gravel
train track
open
swampy
power line
road
alders
U1
R



4800W
4400W
4000W
3600W
3200W
2800W
?
154 149 133 131 141 147 139 131 128 130
181 167 149 146 154 151 154 151
150
183 172 153 144 157 164
181 161 152 155 170
sand and gravel
open
river
open
2.64 2.20 2.88 2.20 2.03 1.74 2.08 2.24 2.18 2.21
2.0
3.0
2.05 2.44 3.00 3.01 3.76 2.67 3.32 3.16
4.30 3.82 3.69 3.69 3.82 4.53
5.0
4.73 4.26 5.17 5.53 5.44

)OE

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

L E G E N D

TRANSMITTER	*Huntec 7.5*
RECEIVER	*Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na P_1 ⟵ a ⟶ P_2

↑
Station Location

a = 200' n = 1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

Resistivity Low at Depth

Z~ 10 *Estimated Depth (ft)*

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 *Estimated Depth (ft)*

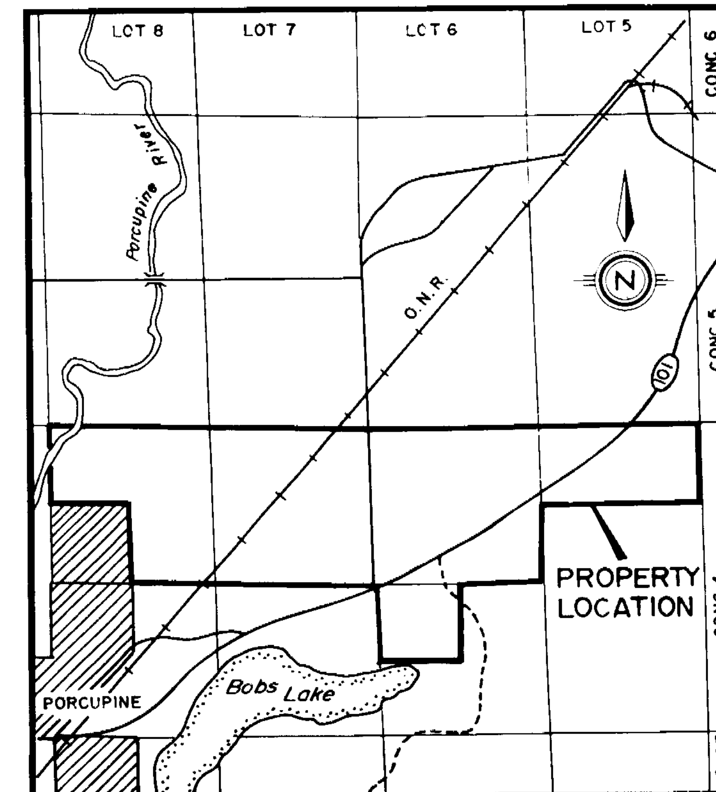
TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4



DETAILED LOCATION MAP

SCALE
0 500 1000
METRES

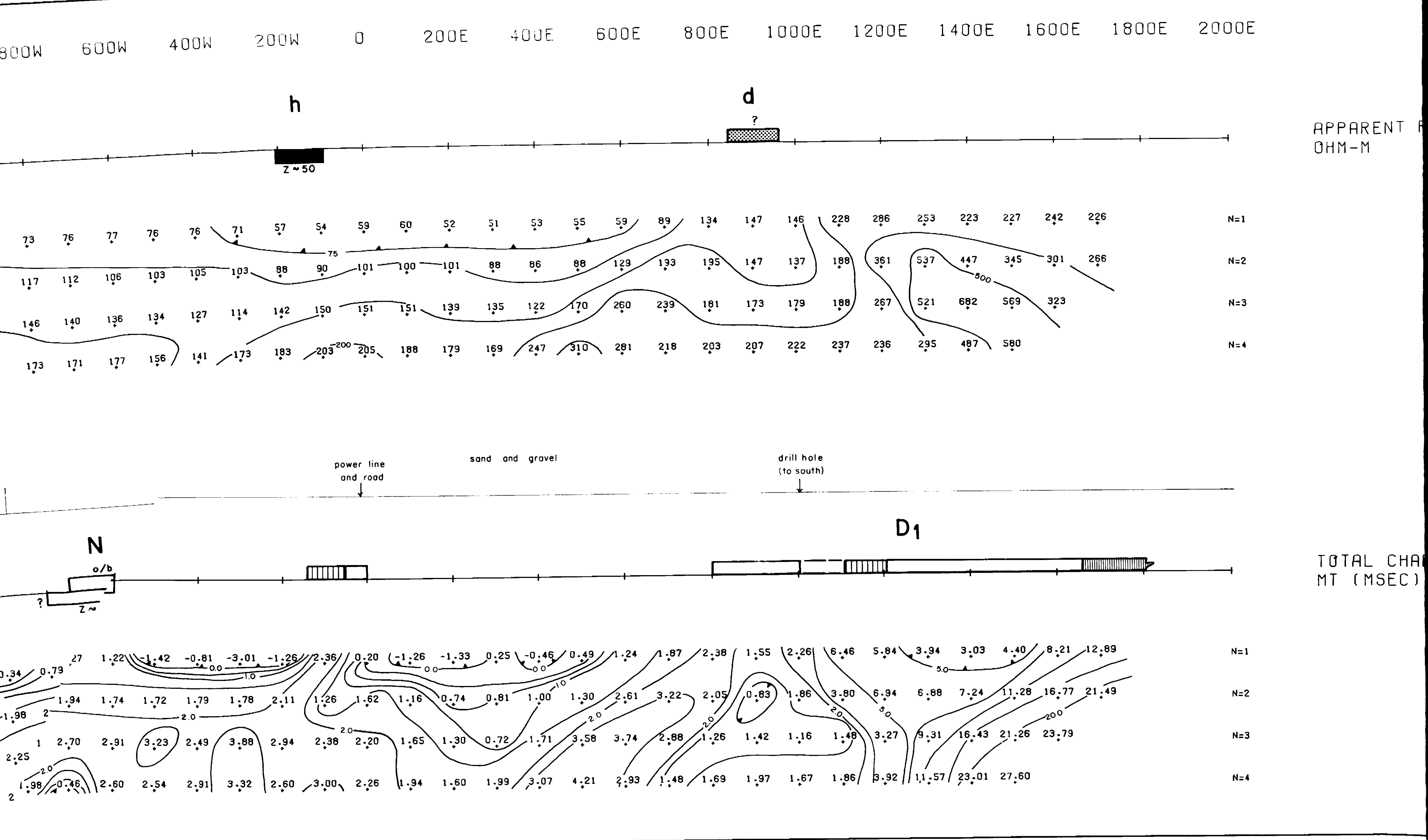
SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

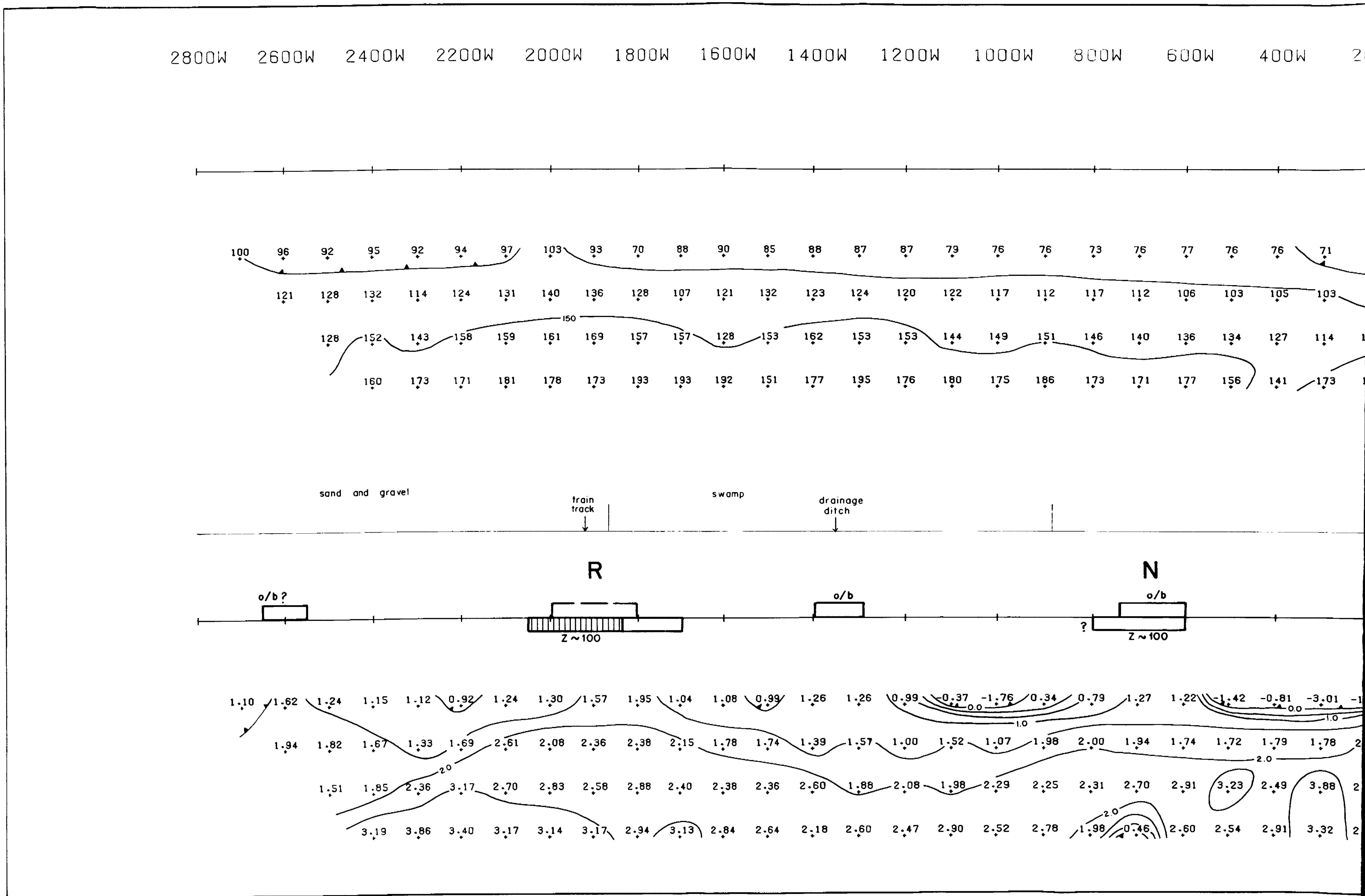
ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 16+00 SOUTH

Project No. C-998	By: S. J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No: Figure P-64	Date: July, 1987

MPH Consulting Limited



800W 600W 400W 200W 0 200E 400E 600E 800E 1000E 1200E 1400E 1600E 1800E 2000E
h
d
?
Z ~ 50
APPARENT R
OHM-M
N=1
N=2
N=3
N=4
power line and road
sand and gravel
drill hole (to south)
N
o/b
Z ~
?
D1
TOTAL CHA
MT (MSEC)


2800W 2600W 2400W 2200W 2000W 1800W 1600W 1400W 1200W 1000W 800W 600W 400W
100 96 92 95 92 94 97 103 93 70 88 90 85 88 87 87 79 76 76 73 76 77 76 76 71
121 128 132 114 124 131 140 136 128 107 121 132 123 124 120 122 117 112 117 112 106 103 105 103
128 152 143 158 159 161 169 157 157 128 153 162 153 153 144 149 151 146 140 136 134 127 114
150
160 173 171 181 178 173 193 193 192 151 177 195 176 180 175 186 173 171 177 156 141 173
sand and gravel
train track
swamp
drainage ditch
R
N
o/b ?
o/b
o/b
?
Z ~ 100
Z ~ 100
1.10 1.62 1.24 1.15 1.12 0.92 1.24 1.30 1.57 1.95 1.04 1.08 0.99 1.26 1.26 0.99 -0.37 -1.76 0.34 0.79 1.27 1.22 -1.42 -0.81 -3.01
0.0
1.0
1.94 1.82 1.67 1.33 1.69 2.61 2.08 2.36 2.38 2.15 1.78 1.74 1.39 1.57 1.00 1.52 1.07 1.98 2.00 1.94 1.74 1.72 1.79 1.78
2.0
1.51 1.85 2.36 3.17 2.70 2.83 2.58 2.88 2.40 2.38 2.36 2.60 1.88 2.08 1.98 2.29 2.25 2.31 2.70 2.91 3.23 2.49 3.88
3.19 3.86 3.40 3.17 3.14 3.17 2.94 3.13 2.84 2.64 2.18 2.60 2.47 2.90 2.52 2.78 1.98 0.46 2.60 2.54 2.91 3.32

200W

APPARENT RESISTIVITY
OHM-M

N=1

N=2

N=3

N=4

TOTAL CHARGEABILITY
MT (MSEC)

N=1

N=2

N=3

N=4

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

Resistivity Low at Surface

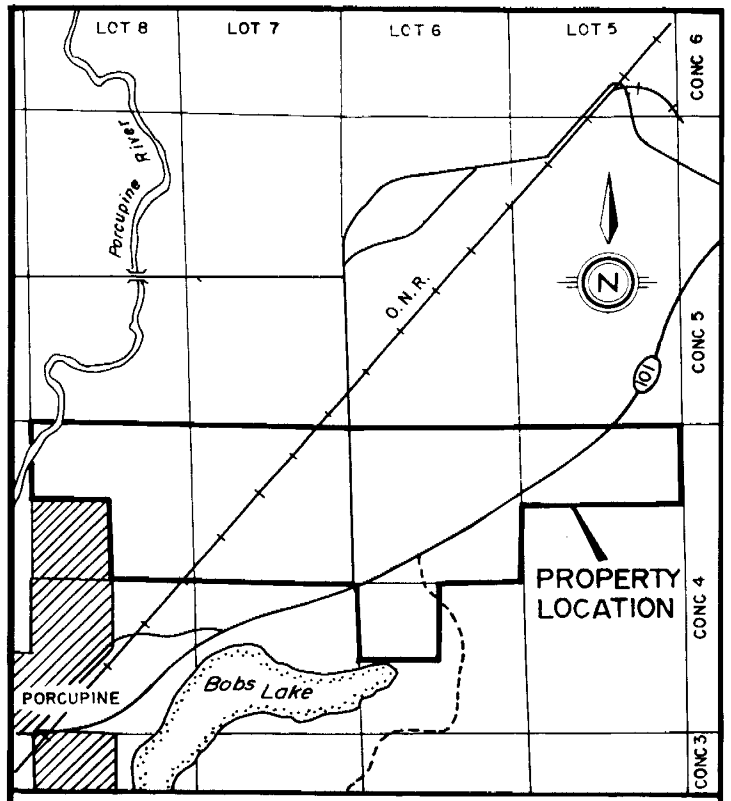
IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 *Estimated Depth*

Z~ 10 *Estimated Depth*



DETAILED LOCATION MAP

SCALE 0 500 1000 METRES

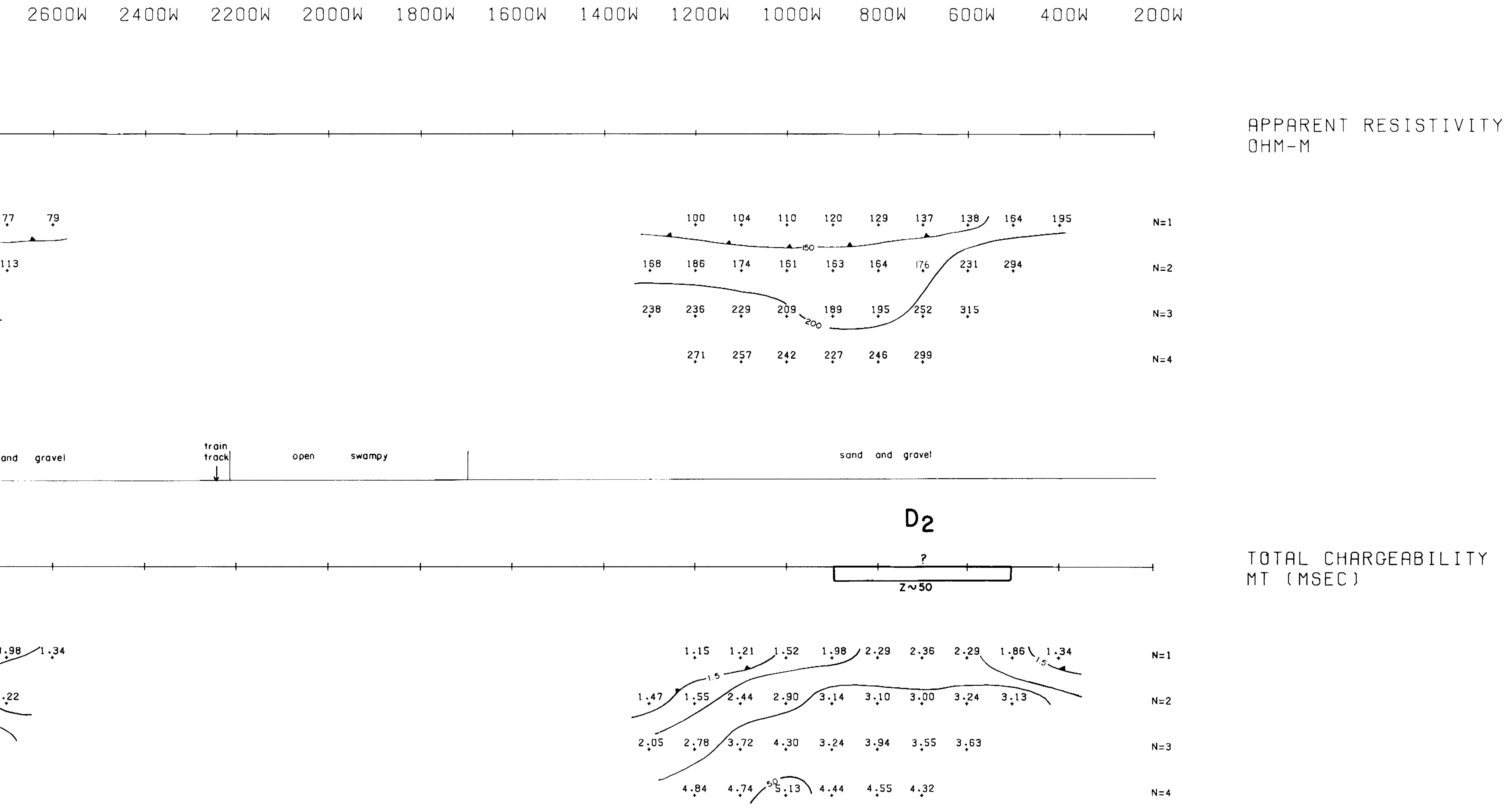
SCALE 100 0 100 200 300 400 FEET

SYNGOLD EXPLORATION INC.

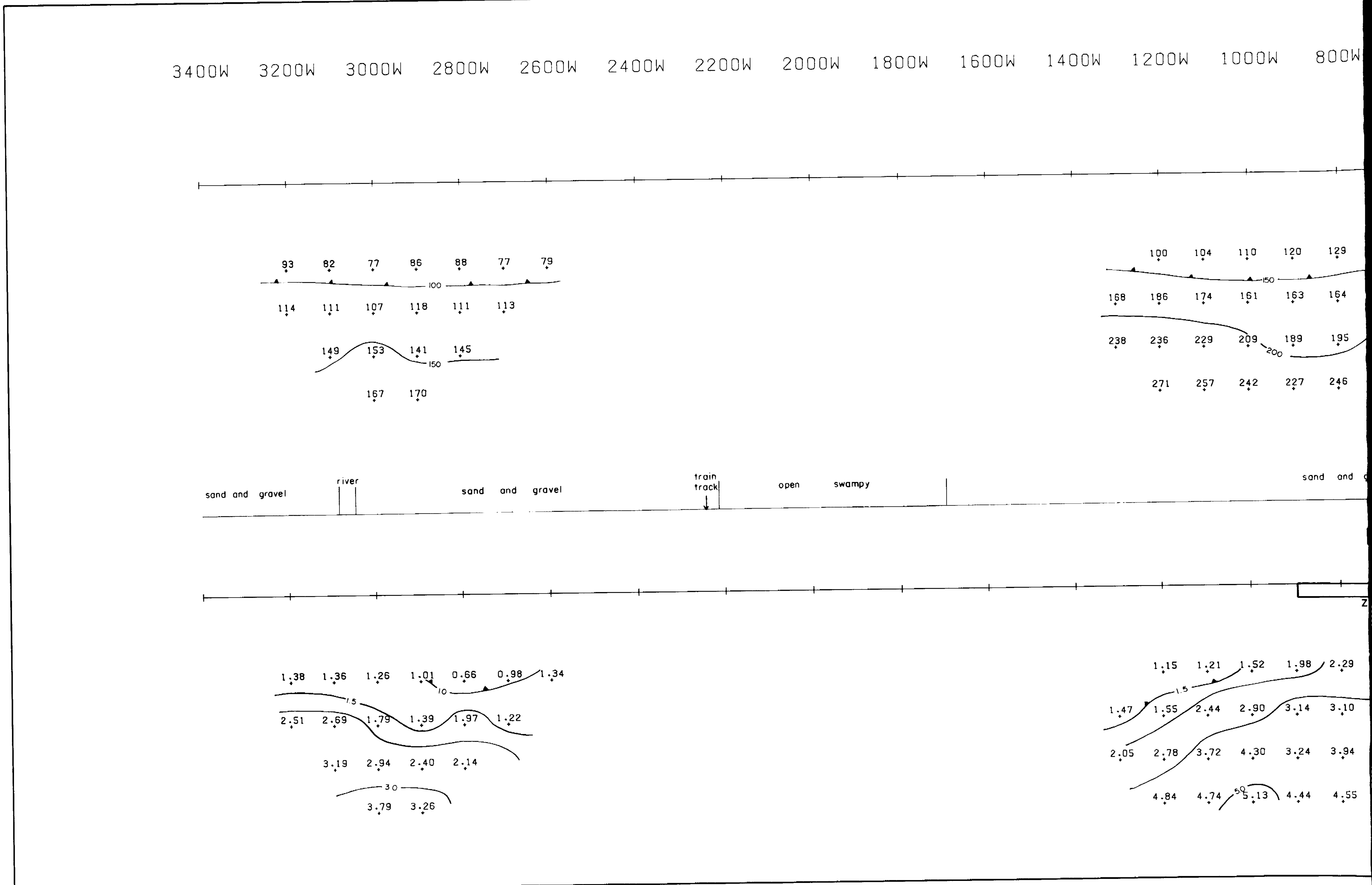
ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 20+00 SOUTH

Project No. C-998	By: S. J Bate
Scale: 1 2400	Drawn: MPH
Drawing No. Figure P-65	Date: July, 1987

MPH Consulting Limited



2600W 2400W 2200W 2000W 1800W 1600W 1400W 1200W 1000W 800W 600W 400W 200W
APPARENT RESISTIVITY
OHM-M
77 79
113
100 104 110 120 129 137 138 164 195 N=1
168 186 174 161 163 164 176 231 294 N=2
238 236 229 209 189 195 252 315 N=3
271 257 242 227 246 299 N=4
150
200
and gravel
train track
open swampy
sand and gravel
D2
?
Z~50
TOTAL CHARGEABILITY
MT (MSEC)
.98 1.34
.22
1.15 1.21 1.52 1.98 2.29 2.36 2.29 1.86 1.34 N=1
1.47 1.55 2.44 2.90 3.14 3.10 3.00 3.24 3.13 N=2
2.05 2.78 3.72 4.30 3.24 3.94 3.55 3.63 N=3
4.84 4.74 5.13 4.44 4.55 4.32 N=4
1.5
5.0



3400W 3200W 3000W 2800W 2600W 2400W 2200W 2000W 1800W 1600W 1400W 1200W 1000W 800W
93 82 77 86 88 77 79
100
114 111 107 118 111 113
149 153 141 145
150
167 170
100 104 110 120 129
150
168 186 174 161 163 164
238 236 229 209 189 195
200
271 257 242 227 246
sand and gravel
river
sand and gravel
train track
open
swampy
sand and
1.38 1.36 1.26 1.01 0.66 0.98 1.34
10
15
2.51 2.69 1.79 1.39 1.97 1.22
3.19 2.94 2.40 2.14
30
3.79 3.26
1.15 1.21 1.52 1.98 2.29
15
1.47 1.55 2.44 2.90 3.14 3.10
2.05 2.78 3.72 4.30 3.24 3.94
50
4.84 4.74 5.13 4.44 4.55

IVITY

LITY

LEGEND

TRANSMITTER *Huntec 7.5*

RECEIVER *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 ⟵ a ⟶ C_2 na ↑ Station Location P_1 ⟵ a ⟶ P_2

a = 100' n = 1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

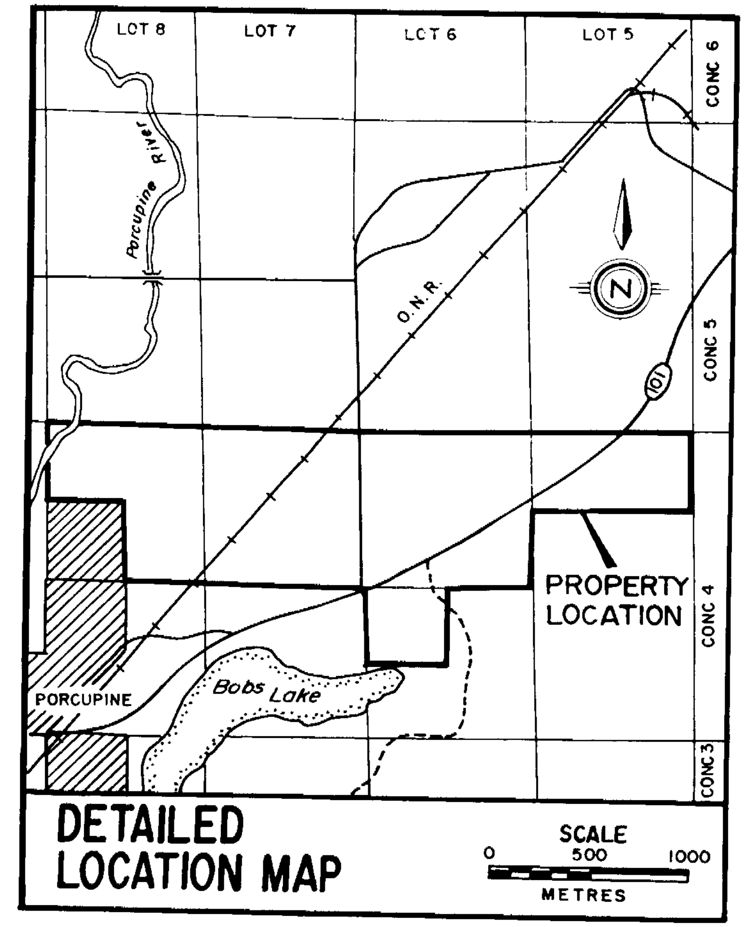
Resistivity Low at Depth

Z ~ 10 *Estimated Depth*

IP Anomaly at Surface

IP Anomaly at Depth

Z ~ 10 *Estimated Depth*



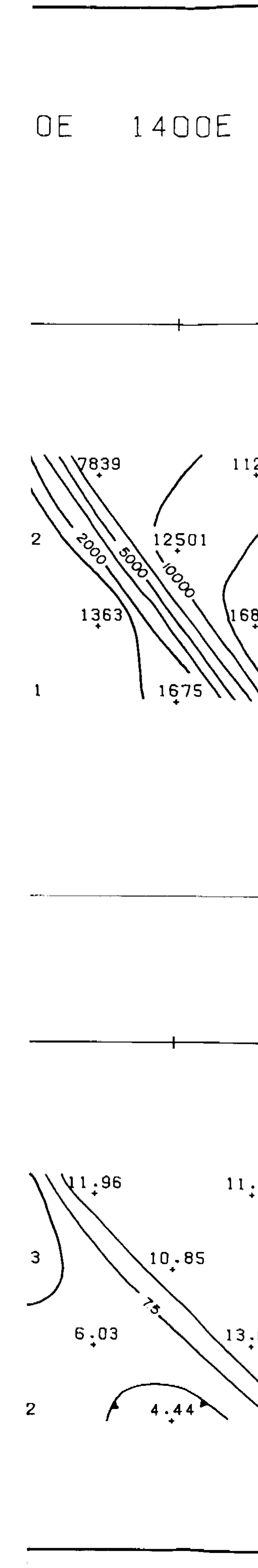
SCALE
100 0 100 200 300 400
FEET

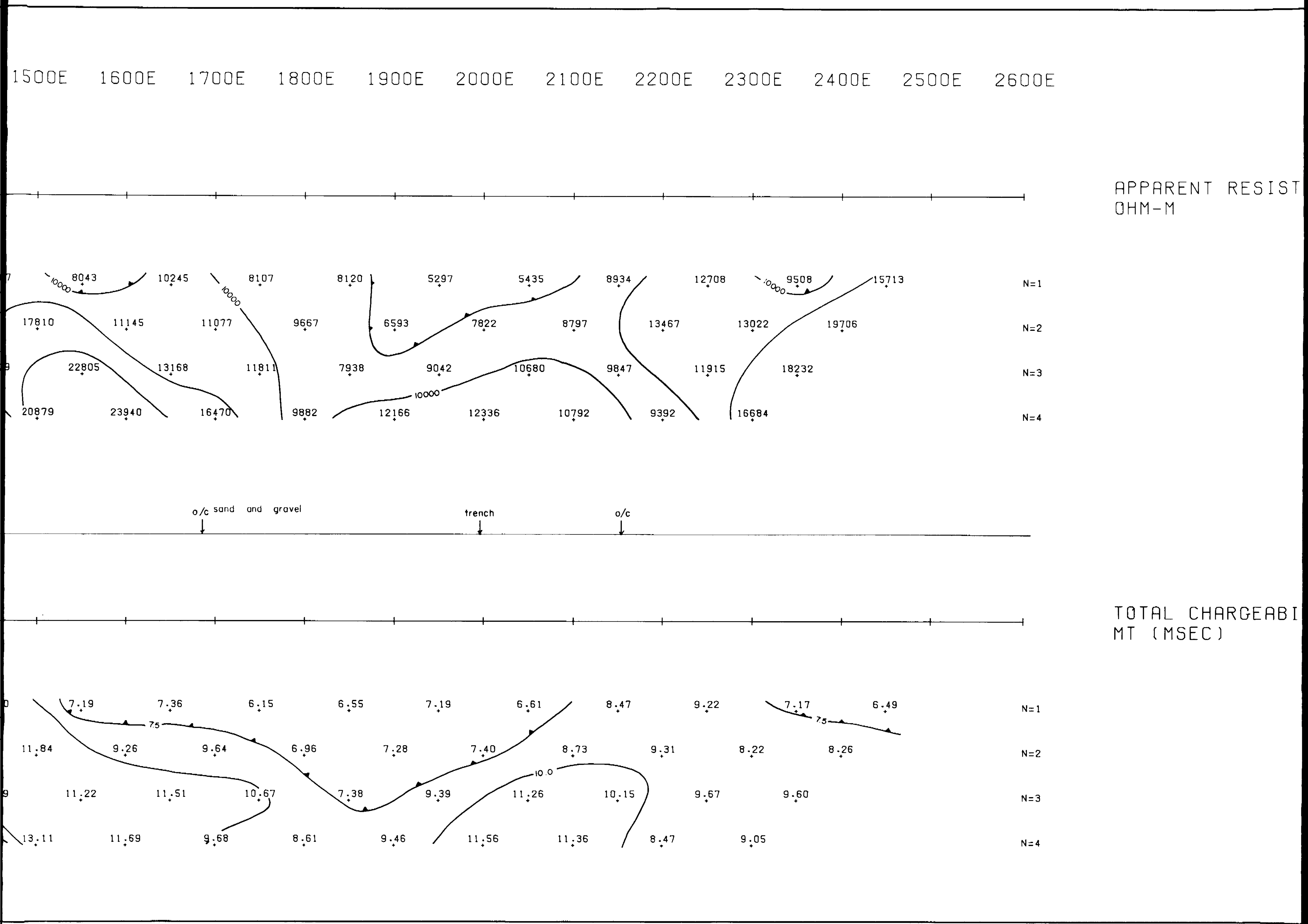
SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 24+00 SOUTH

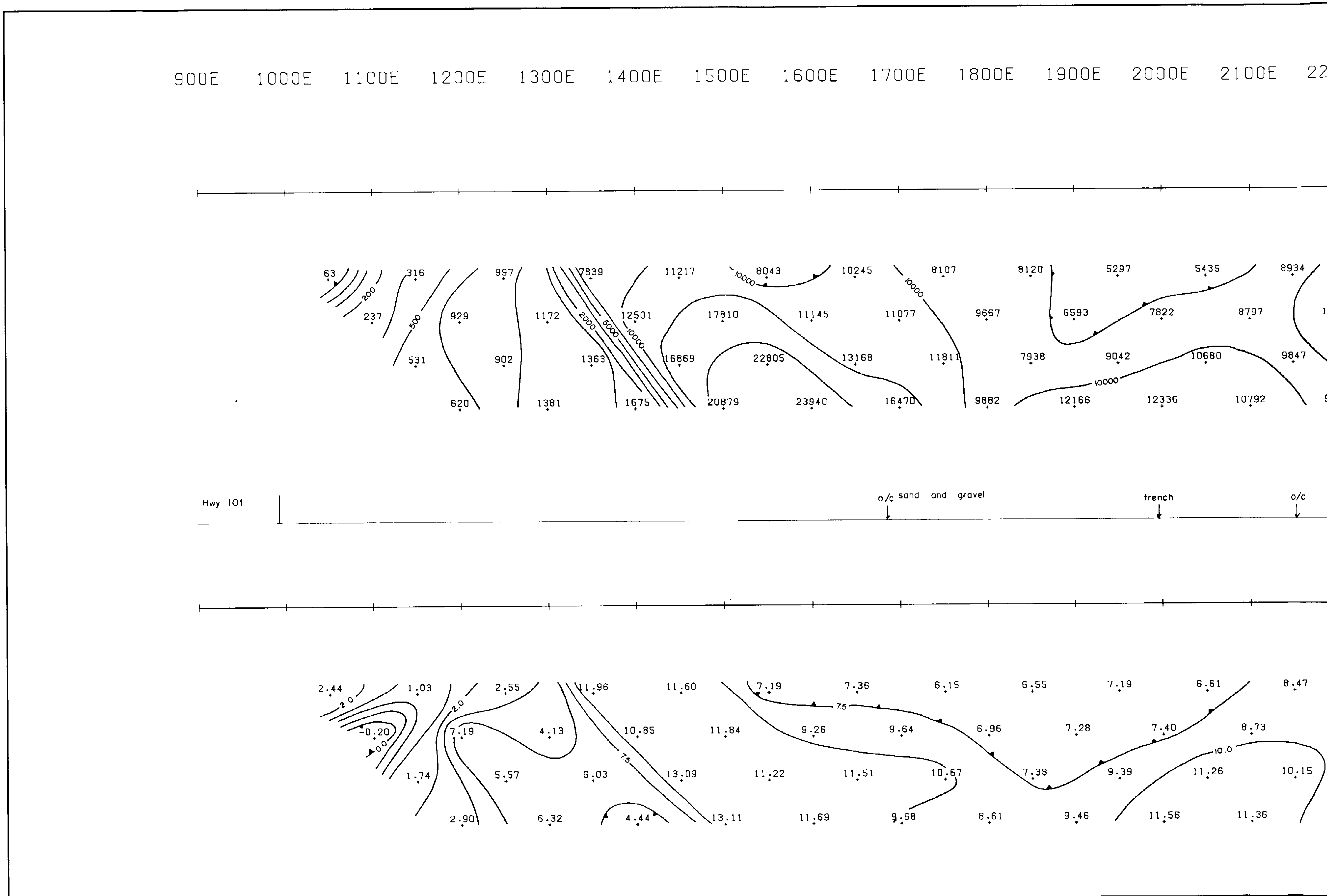
Project No: C-998	By: S. J. Bate
Scale: 1 : 1200	Drawn: MPH
Drawing No: Figure P-66	Date: July, 1987

MPH Consulting Limited





1500E 1600E 1700E 1800E 1900E 2000E 2100E 2200E 2300E 2400E 2500E 2600E
APPARENT RESIST
OHM-M
N=1 8043 10245 8107 8120 5297 5435 8934 12708 9508 15713
N=2 17810 11145 11077 9667 6593 7822 8797 13467 13022 19706
N=3 22805 13168 11811 7938 9042 10680 9847 11915 18232
N=4 20879 23940 16470 9882 12166 12336 10792 9392 16684
10000
o/c sand and gravel
trench
o/c
TOTAL CHARGEABI
MT (MSEC)
N=1 7.19 7.36 6.15 6.55 7.19 6.61 8.47 9.22 7.17 6.49
N=2 11.84 9.26 9.64 6.96 7.28 7.40 8.73 9.31 8.22 8.26
N=3 11.22 11.51 10.67 7.38 9.39 11.26 10.15 9.67 9.60
N=4 13.11 11.69 9.68 8.61 9.46 11.56 11.36 8.47 9.05
7.5
10.0



900E
1000E
1100E
1200E
1300E
1400E
1500E
1600E
1700E
1800E
1900E
2000E
2100E
63
316
997
7839
11217
8043
10245
8107
8120
5297
5435
8934
200
237
929
1172
12501
17810
11145
11077
9667
6593
7822
8797
500
2000
5000
10000
531
902
1363
16869
22805
13168
11811
7938
9042
10680
9847
620
1381
1675
20879
23940
16470
9882
12166
12336
10792
Hwy 101
o/c sand and gravel
trench
o/c
2.44
1.03
2.55
11.96
11.60
7.19
7.36
6.15
6.55
7.19
6.61
8.47
2.0
-0.20
0.0
7.19
4.13
10.85
11.84
9.26
9.64
6.96
7.28
7.40
8.73
7.5
10.0
1.74
5.57
6.03
13.09
11.22
11.51
10.67
7.38
9.39
11.26
10.15
2.90
6.32
4.44
13.11
11.69
9.68
8.61
9.46
11.56
11.36

L E G E N D

TRANSMITTER — *Huntec 7.5*

RECEIVER — *Huntec Mk IV*

DOUBLE DIPOLE ARRAY

C_1 —a— C_2 na ↑ Station Location P_1 —a— P_2

a = 200'

n=1,2,3,4

RESISTIVITY LOW (ohm m)

50 100 200 300

CHARGEABILITY HIGH (m secs)

25 15 10 5

Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

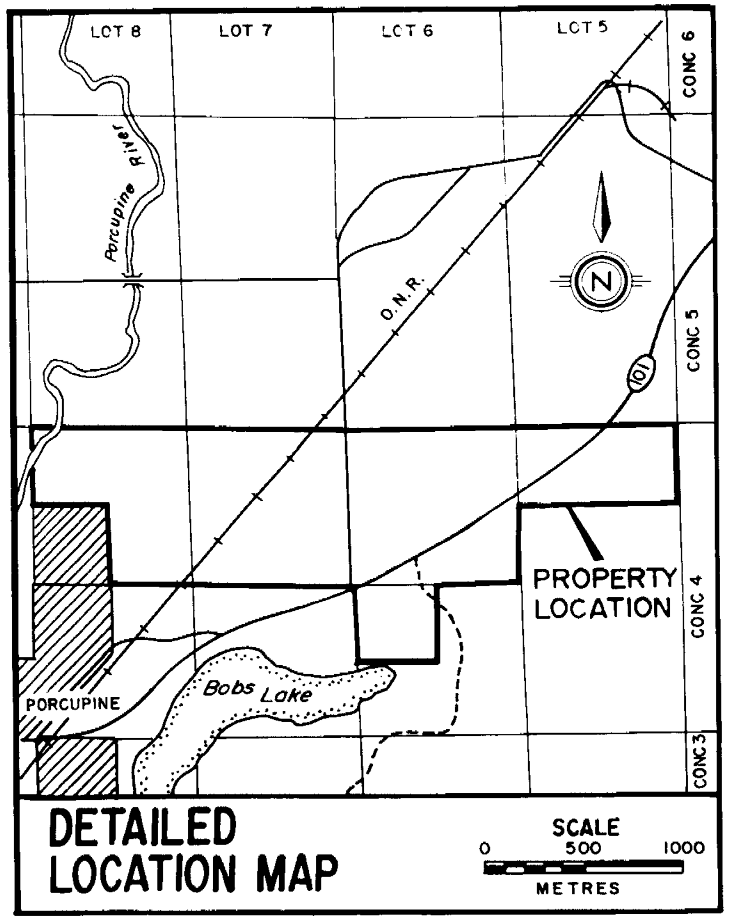
IP Anomaly at Depth

Z~ 10 *Estimated Depth*

Z~ 10 *Estimated Depth*

(1.33)

poor decay



SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

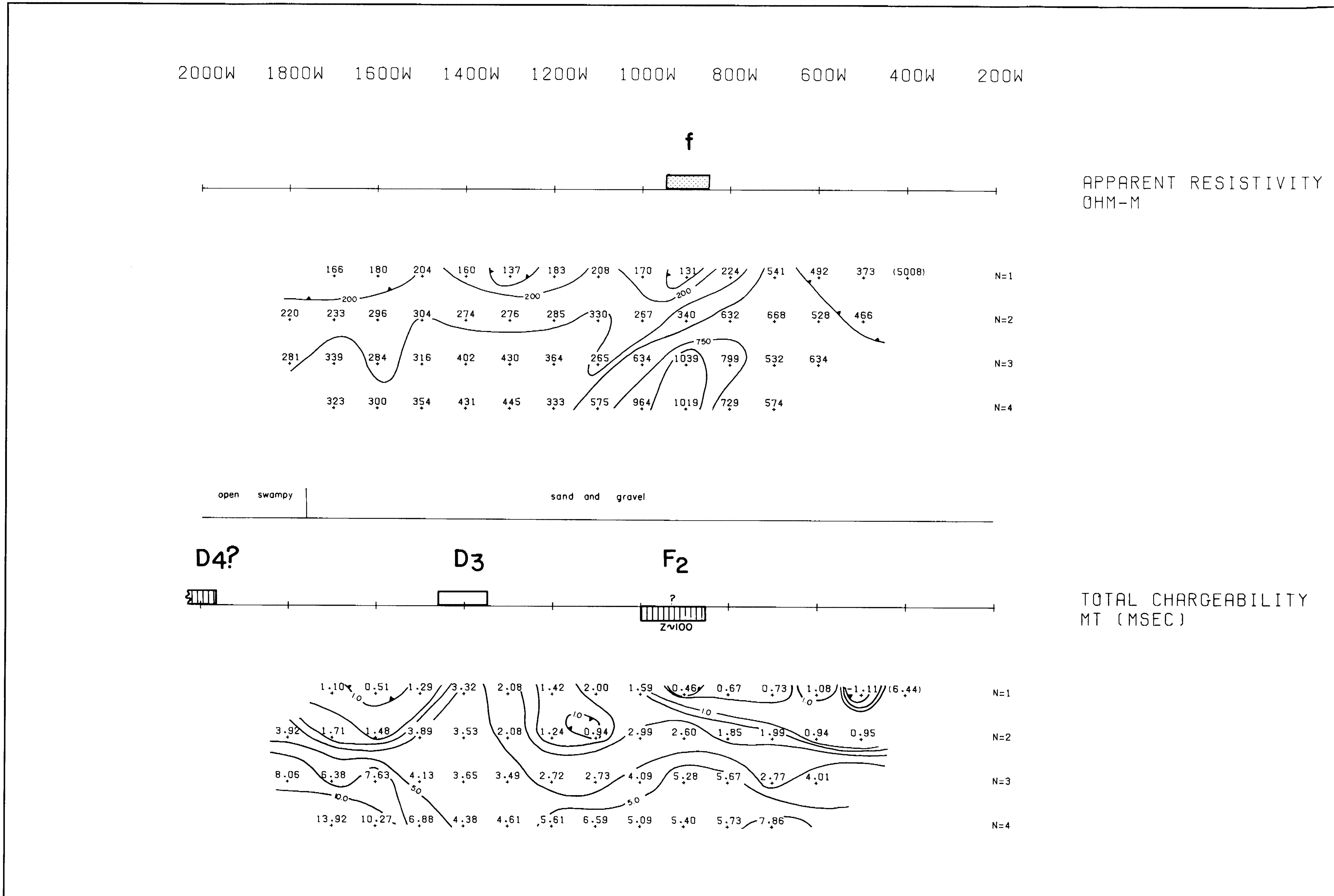
ALLERSTON PROPERTY - WHITNEY TWP.

INDUCED POLARIZATION SURVEY PSEUDOSECTION

LINE 24+00 SOUTH

Project No. C - 998	By: S. J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No. Figure P - 6 7	Date: July, 1987

MPH Consulting Limited


2000W 1800W 1600W 1400W 1200W 1000W 800W 600W 400W 200W
f
APPARENT RESISTIVITY
OHM-M
166 180 204 160 137 183 208 170 131 224 541 492 373 (5008) N=1
200
220 233 296 304 274 276 285 330 267 340 632 668 528 466 N=2
750
281 339 284 316 402 430 364 265 634 1039 799 532 634 N=3
323 300 354 431 445 333 575 964 1019 729 574 N=4
open swampy
sand and gravel
D4?
D3
F2
?
Z~100
TOTAL CHARGEABILITY
MT (MSEC)
1.10 0.51 1.29 3.32 2.08 1.42 2.00 1.59 0.46 0.67 0.73 1.08 -1.11 (6.44) N=1
10
3.92 1.71 1.48 3.89 3.53 2.08 1.24 0.94 2.99 2.60 1.85 1.99 0.94 0.95 N=2
8.06 6.38 7.63 4.13 3.65 3.49 2.72 2.73 4.09 5.28 5.67 2.77 4.01 N=3
50
10.0
5.0
13.92 10.27 6.88 4.38 4.61 5.61 6.59 5.09 5.40 5.73 7.86 N=4

MAP SYMBOLOGY

Aerial Cableway, Boundary (International, Interprovincial, District, Township, Indian Reserve, Approximate, Lot, Concession, Approximate, Park Boundary), Bridge (Road, Railroad), Building, Chimney, Cliff, Pit, Pile, Contours (Interpolated, Approximate, Depression), Control Points (Horizontal, Vertical), Culvert, Falls (Double line river), Fence, Hedge, Wall, Feature Outline (Construction features, etc.), Flooded Land, Lock, Marsh or Swamp, Mast, Mine Head Frame, Outcrop

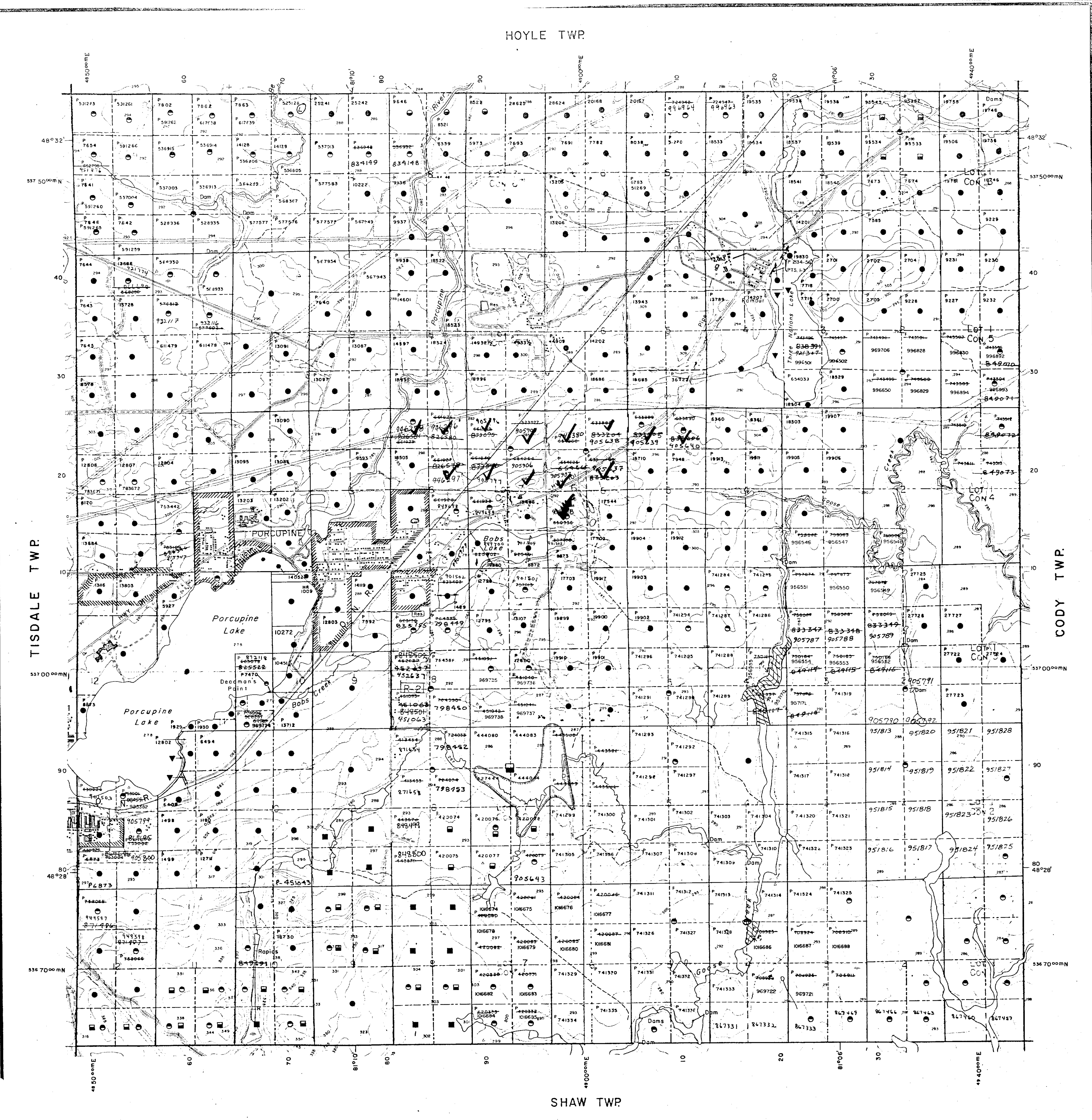
Pipeline (above ground), Railroad (Single Track, Double Track, Abandoned, Turntable), Road (Highway, County, Township; Access (road of doubtful maintenance or significant driveway); Trail, Bush Road (portage only)), Rapids (Double line river with multiple rapids), Reservoir, River, Stream, Canal (Approximate, Direction of flow), Rock (significant), Shoal, Spot Elevation (see elevations), Tower, Transmission Line (Poles, Pylons), Tunnel, Utility Poles, Wharf, Dock, Pier, Wooded Area

AREAS WITHDRAWN FROM DISPOSITION

M.R.O. – MINING RIGHTS ONLY
S.R.O. – SURFACE RIGHTS ONLY
M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File
R-2	W-59/87 NR	87/06/01	M+S.	L.F.055

(R1) APPLICATION PENDING UNDER PUBLIC LANDS ACT SURFACE RIGHTS WITHDRAWN.



LEGEND

HIGHWAY AND ROUTE No
OTHER ROADS
TRAILS
SURVEYED LINES:
TOWNSHIPS, BASE LINES, ETC
LOTS, MINING CLAIMS, PARCELS, ETC
UNSURVEYED LINES
LOT LINES
PARCEL BOUNDARY
MINING CLAIMS ETC
RAILWAY AND RIGHT OF WAY
UTILITY LINES
NON PERENNIAL STREAM
FLOODING OR FLOODING RIGHTS
SUBDIVISION OR COMPOSITE PLAN
RESERVATIONS
ORIGINAL SHORELINE
MARSH OR MUSKEG
MINES
TRAVERSE MONUMENT

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◓
" , MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	⬒
" , MINING RIGHTS ONLY	⬓
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	Ⓡ
CANCELLED	⊗
SAND & GRAVEL	Ⓢ

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC. 1.

Metres 500 0 1000 Metres
Chains 10 0 10 20 30 40 50 60 70 Chains
Feet 500 0 1000 2000 3000 4000 5000 Feet

SCALE 1:20 000
GRID ZONE: 17

Note:
Flooding rights reserved to the crown.
- DUCKS UNLIMITED - SEE LAND ROLL FILE

RECEIVED
SEP 15 1987

TOWNSHIP
WHITNEY

M.N.R. ADMINISTRATIVE DISTRICT
TIMMINS

MINING DIVISION
PORCUPINE

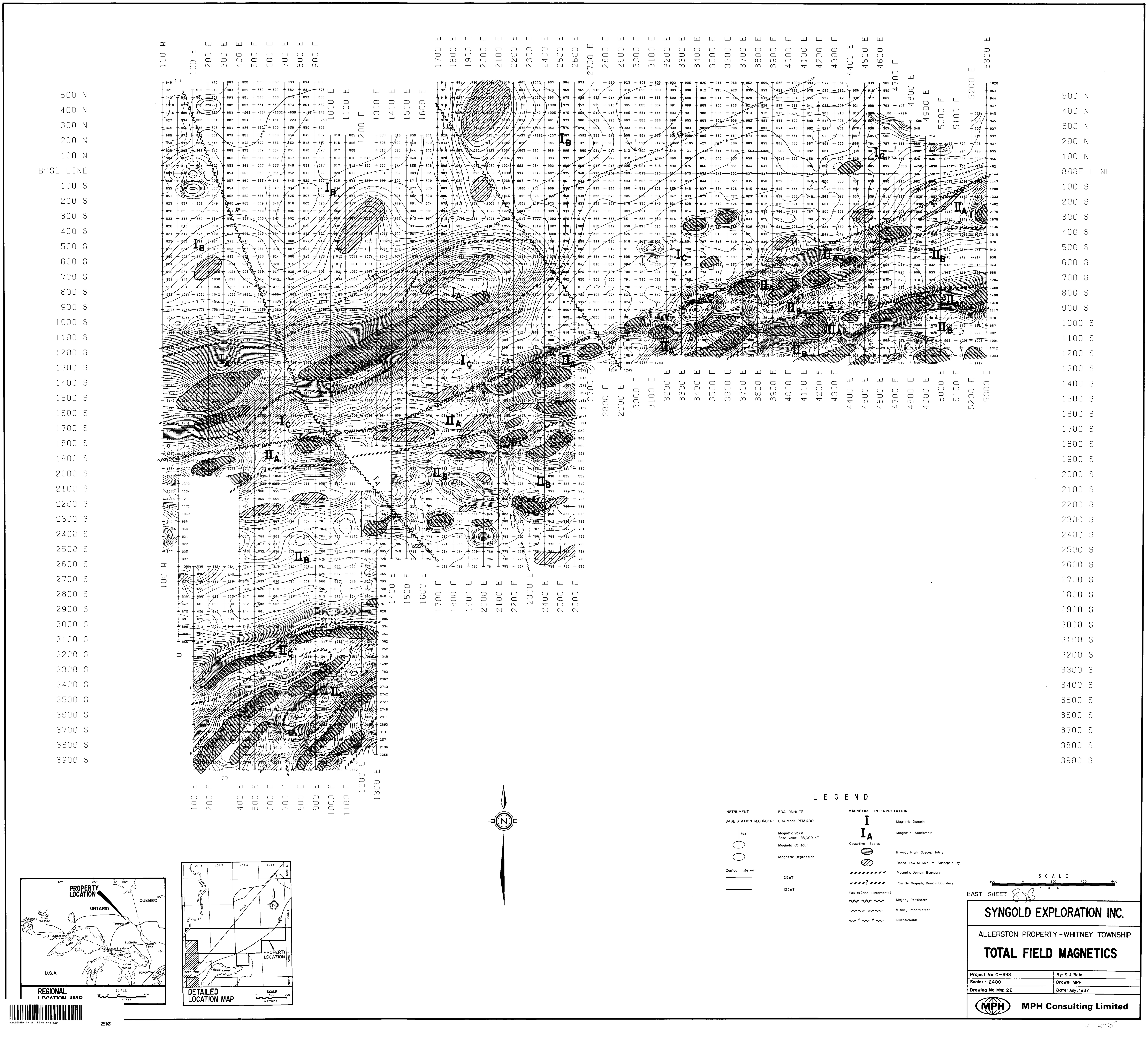
LAND TITLES / REGISTRY DIVISION
COCHRANE

Ministry of Natural Resources — Land Management Branch
Ontario

ORIGINAL COMPILATION JULY 1984
REVISED:
Number G-3975

42A06NE0114 2.10575 WHITNEY

200



EAST SHEET

SYNGOLD EXPLORATION INC.

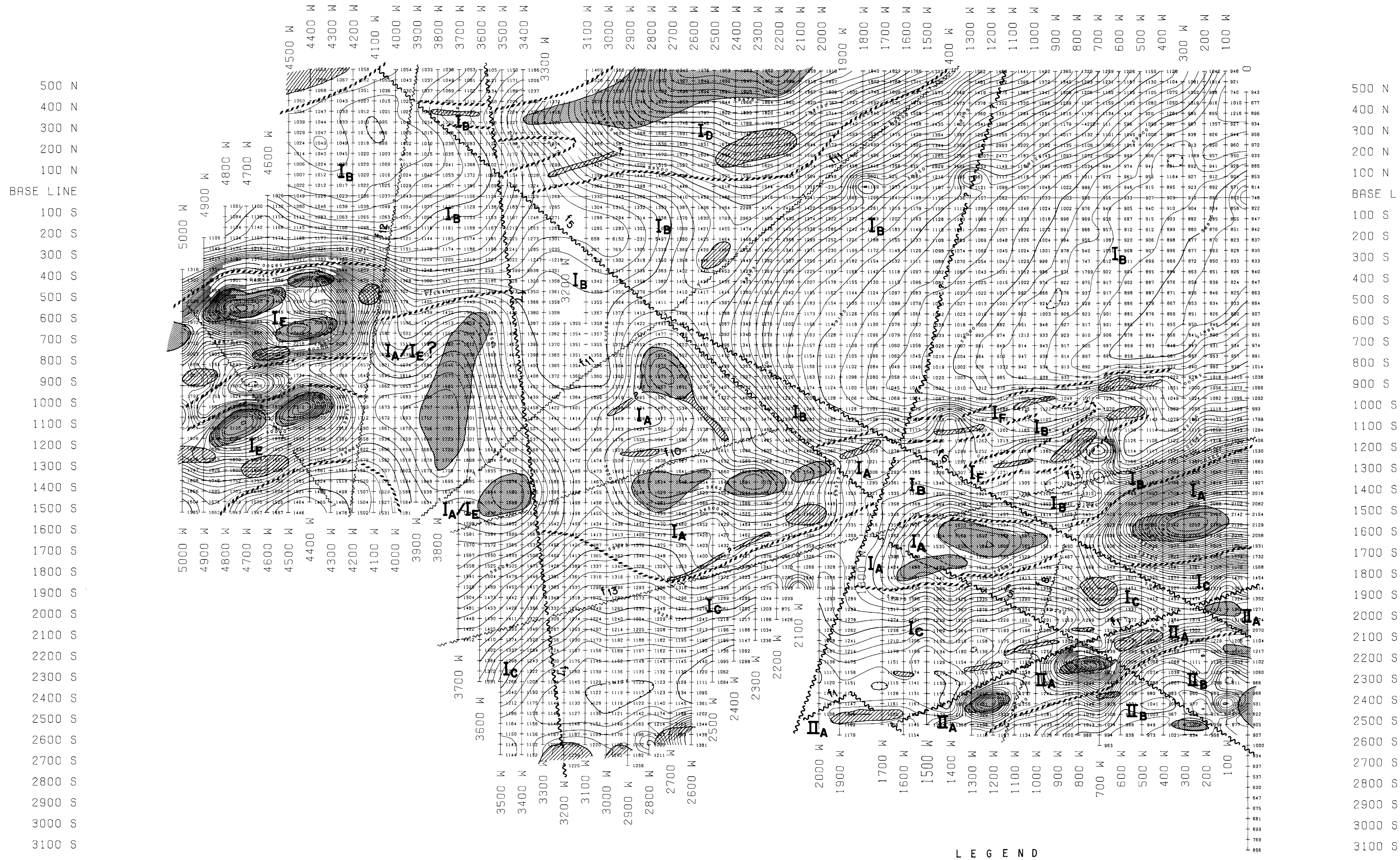
ALLERSTON PROPERTY - WHITNEY TOWNSHIP

TOTAL FIELD MAGNETICS

Project No: C-998	By: S.J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No: Map 2E	Date: July, 1987

MPH Consulting Limited

210



LEGEND

INSTRUMENT	EDA OMNI IV
BASE STATION RECORDER:	EDA Model PPM 400
	Magnetic Value Base Value 58,000
	Magnetic Contour
	Magnetic Depression
Contour Interval	25 nT
	125 nT

MAGNETICS INTERPRETION

- I — Magnetic Domain
- I_A — Magnetic Subdomain
- Causitive Bodies
  - Broad, High Susceptibility
  - Broad, Low to Medium Susceptibility
- Magnetic Domain Boundary
- Possible Magnetic Domain Boundary
- Faults (and Lineaments)
  - Major, Persistent
  - Minor, Impersistent
  - Questionable

SCALE

WEST SHEET

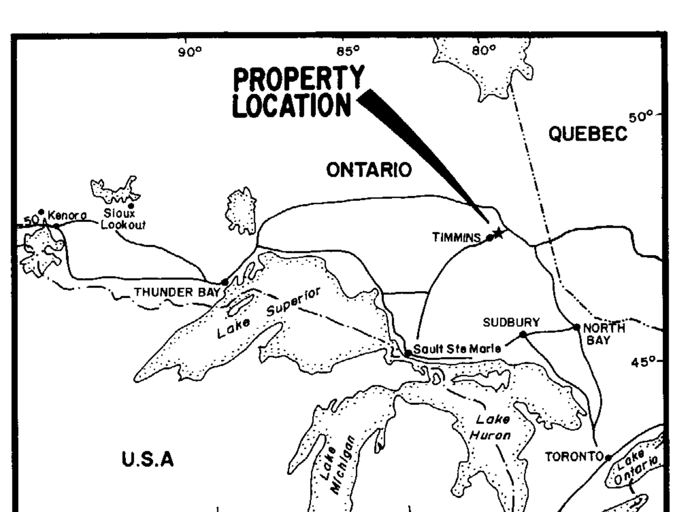
SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TOWNSHIP

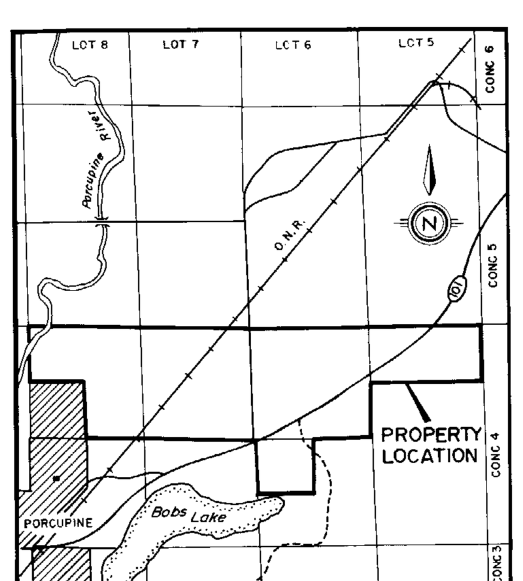
TOTAL FIELD MAGNETICS

Project No: C-998	By: S.J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No: Map 2W	Date: July, 1987

MPH Consulting Limited



REGIONAL LOCATION MAP



DETAILED LOCATION MAP

220

SYNGOLD EXPLORATION INC.

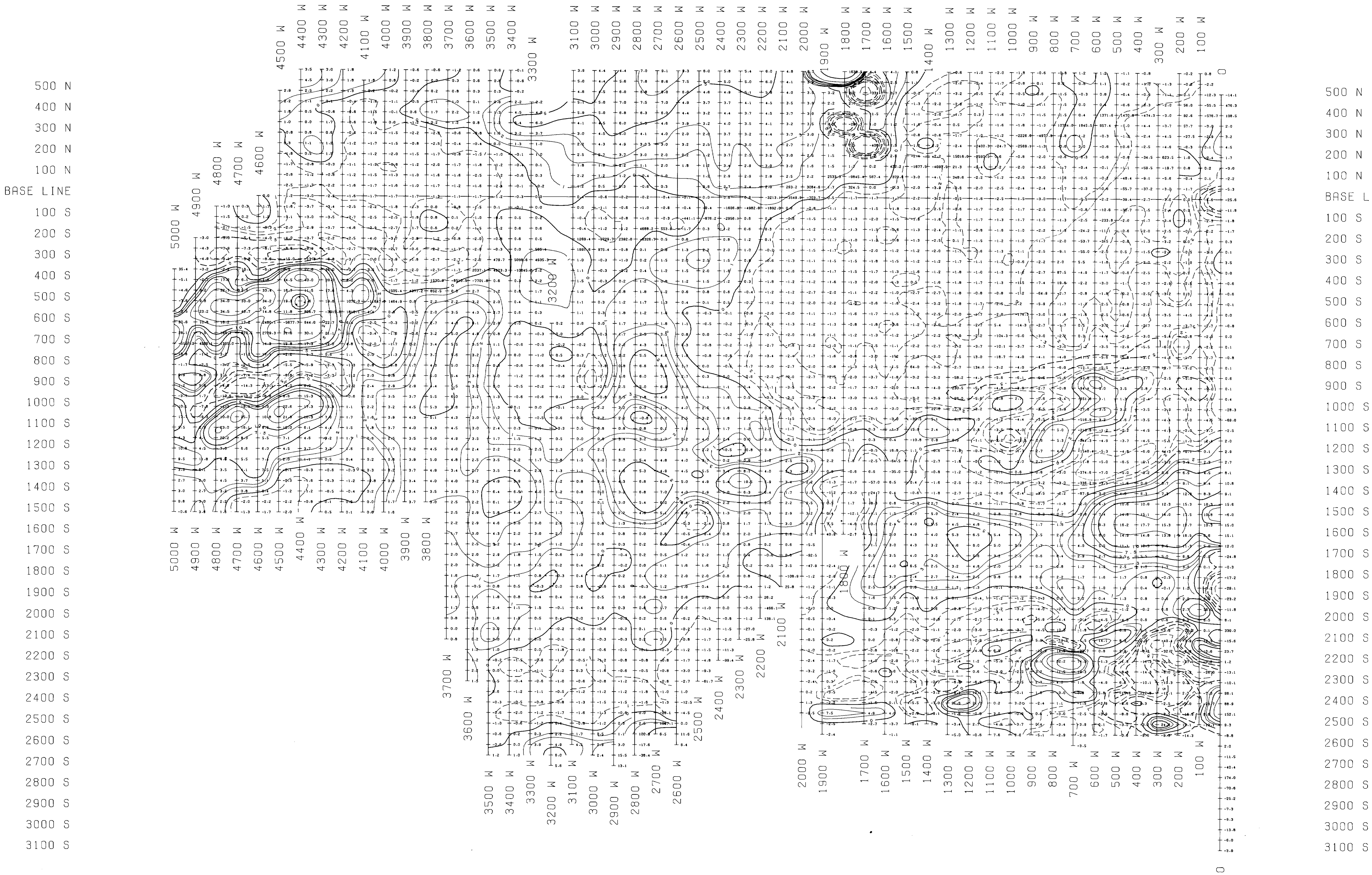
ALLERSTON PROPERTY - WHITNEY TOWNSHIP

TOPOGRAPHY MAP

Project No: C-998	By: S.J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No: Map 1	Date: July, 1987

MPH Consulting Limited

230



LEGEND

INSTRUMENT	EDA OMNI IV
3.2	Vertical Gradient Value
	Positive Vertical Gradient Contour
	Negative Vertical Gradient Contour
CONTOUR INTERVAL	Logarithmic

SCALE
200 0 200 400 600
FEET

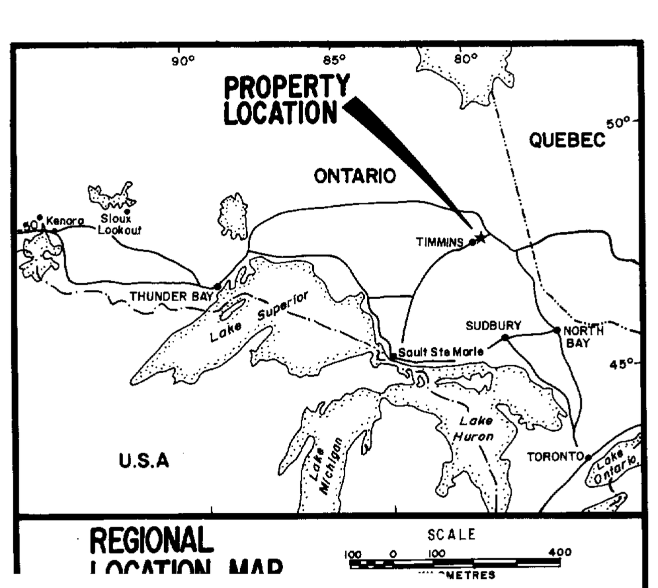
SYNGOLD EXPLORATION INC.

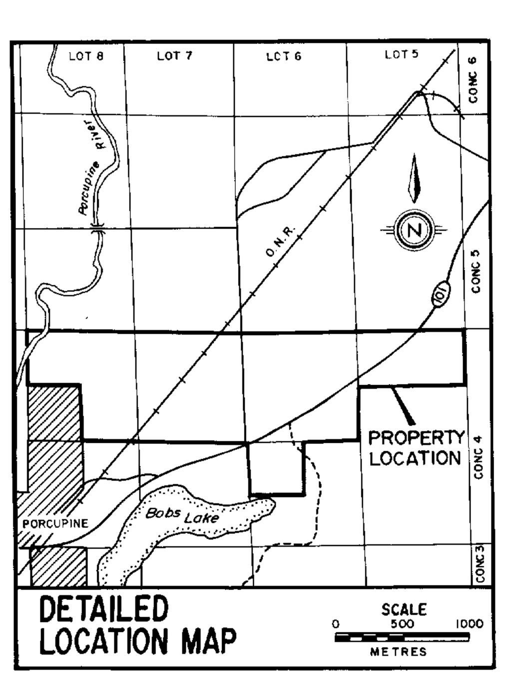
ALLERSTON PROPERTY - WHITNEY TOWNSHIP

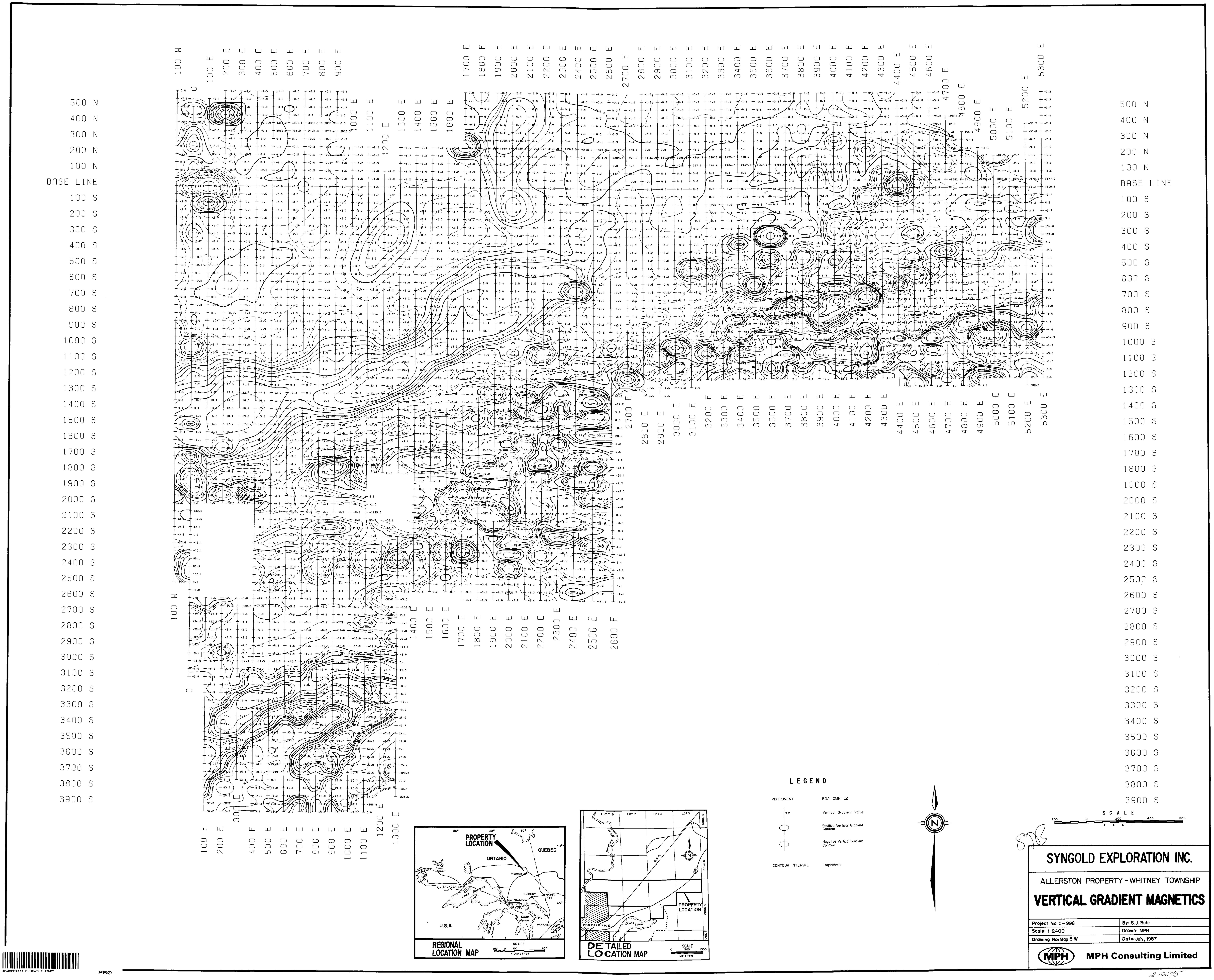
VERTICAL GRADIENT MAGNETICS

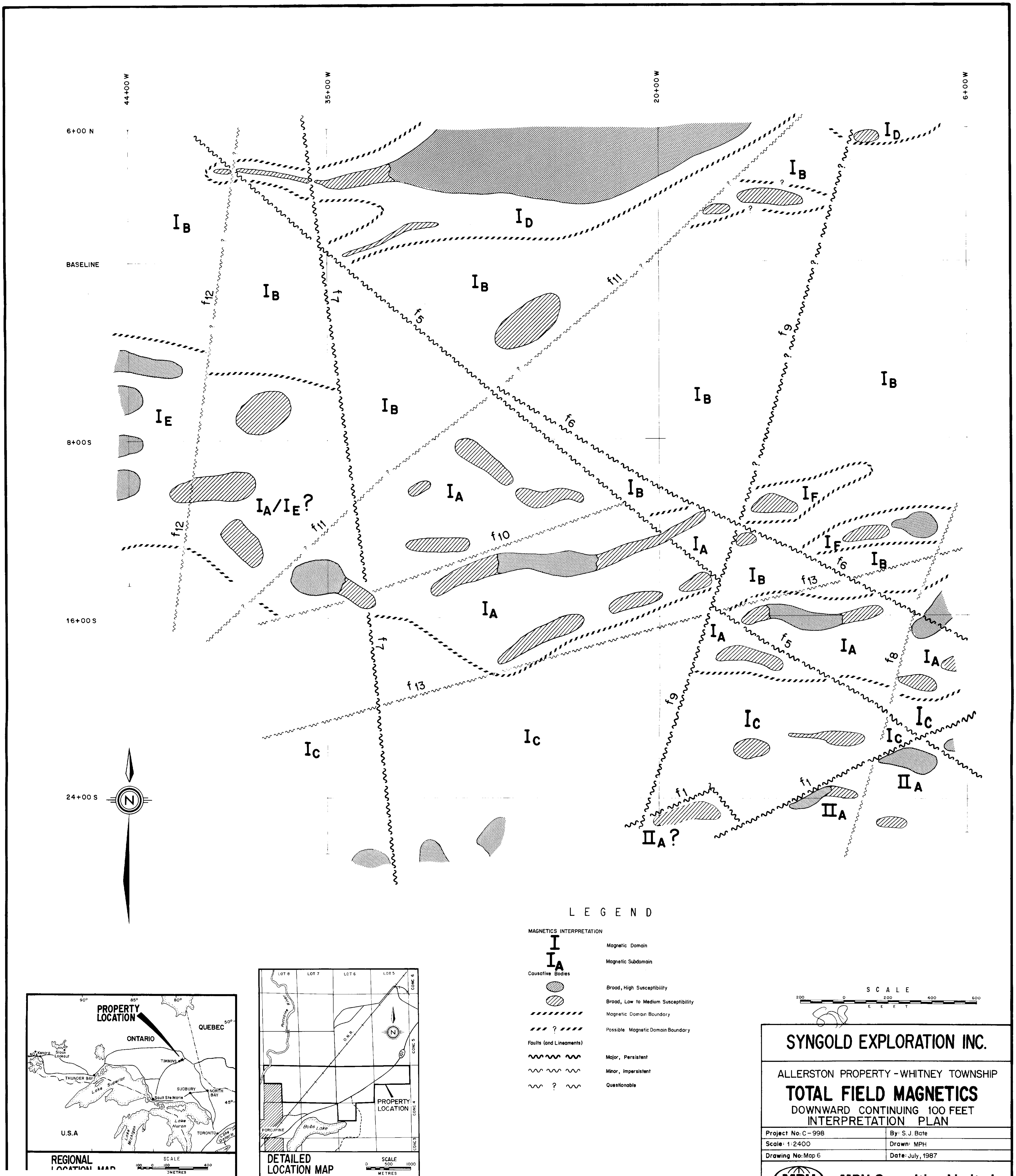
Project No: C-998	By: S. J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No: Map 5E	Date: July, 1987

MPH Consulting Limited






SYNGOLD EXPLORATION INC.
ALLERSTON PROPERTY - WHITNEY TOWNSHIP
VERTICAL GRADIENT MAGNETICS
Project No: C-998
By: S. J. Bate
Scale: 1:2400
Drawn: MPH
Drawing No: Map 5 W
Date: July, 1987
MPH Consulting Limited
LEGEND
INSTRUMENT
EDA OMNI IV
Vertical Gradient Value
Positive Vertical Gradient Contour
Negative Vertical Gradient Contour
CONTOUR INTERVAL
Logarithmic
SCALE
FEET
REGIONAL LOCATION MAP
PROPERTY LOCATION
ONTARIO
QUEBEC
U.S.A
DETAILED LOCATION MAP
BASE LINE
100 W
250



SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TOWNSHIP

TOTAL FIELD MAGNETICS

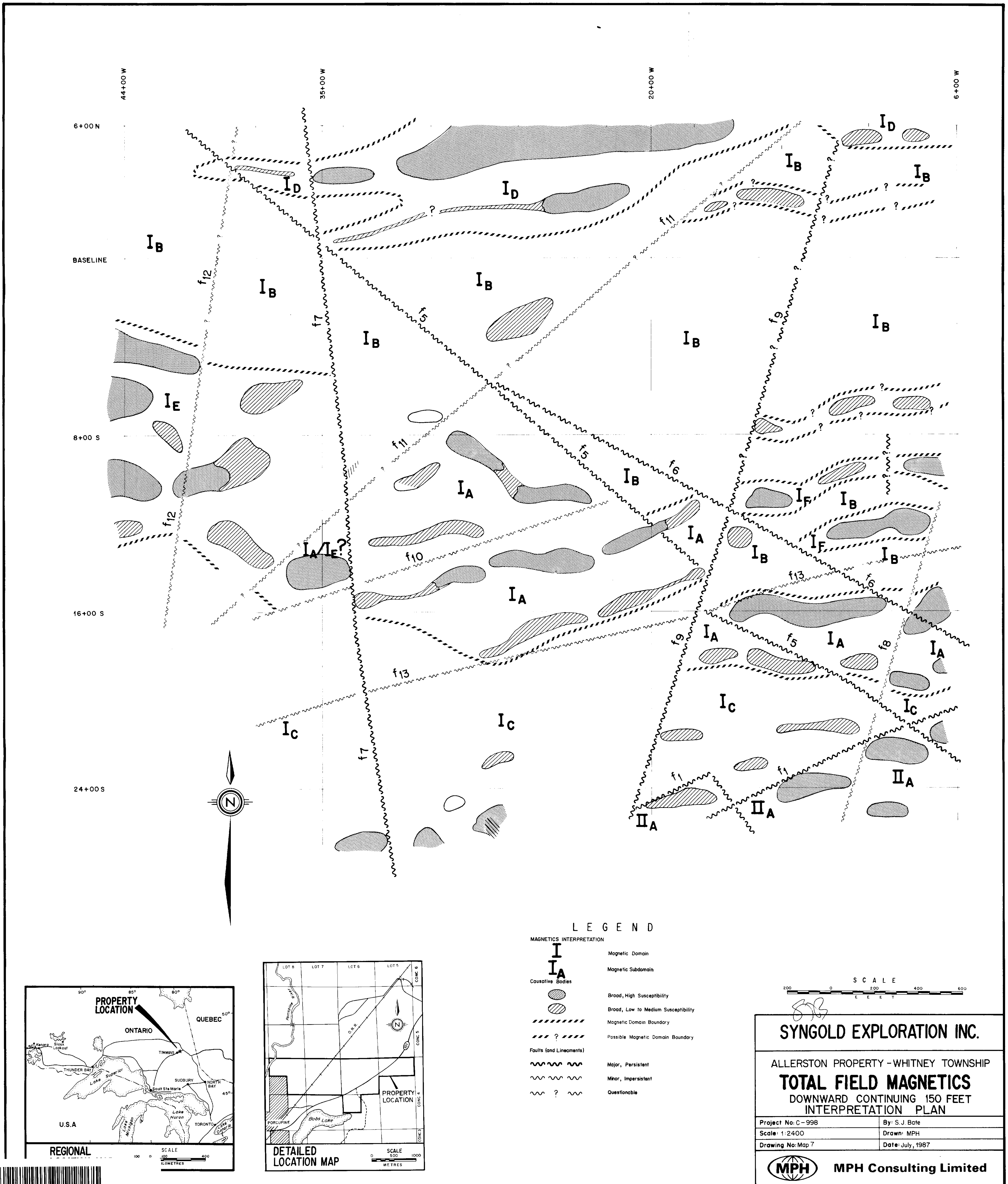
DOWNWARD CONTINUING 100 FEET
INTERPRETATION PLAN

Project No: C-998	By: S.J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No: Map 6	Date: July, 1987

MPH Consulting Limited

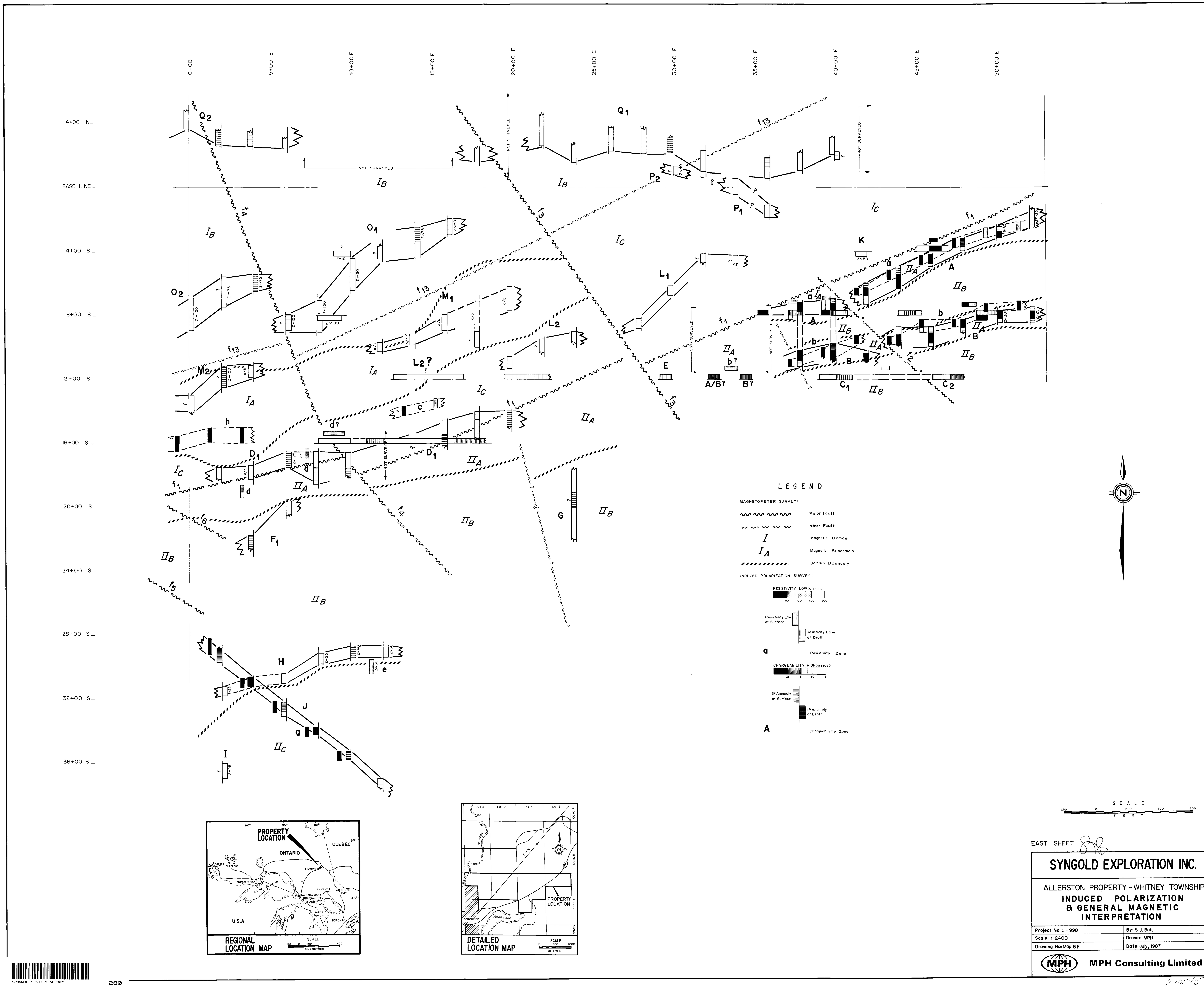
42A06NE0114 2.10575 WHITNEY 260

2.10575

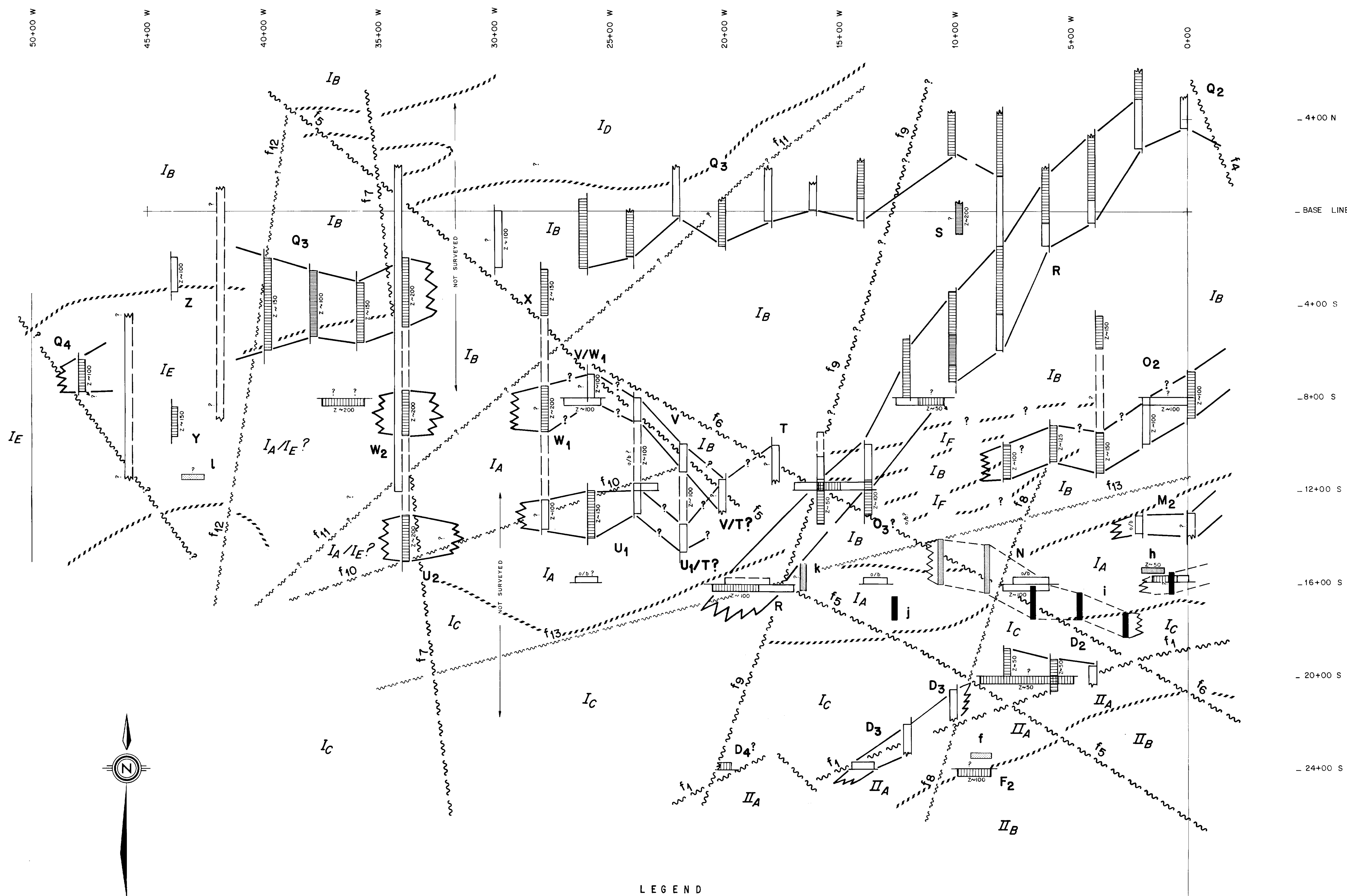


42A09NE0114 2.10575 WHITNEY

270



0+00
5+00 E
10+00 E
15+00 E
20+00 E
25+00 E
30+00 E
35+00 E
40+00 E
45+00 E
50+00 E
4+00 N
BASE LINE
4+00 S
8+00 S
12+00 S
16+00 S
20+00 S
24+00 S
28+00 S
32+00 S
36+00 S
NOT SURVEYED
LEGEND
MAGNETOMETER SURVEY:
Major Fault
Minor Fault
Magnetic Domain
Magnetic Subdomain
Domain Boundary
INDUCED POLARIZATION SURVEY:
RESISTIVITY LOW (ohm m)
Resistivity Low at Surface
Resistivity Low at Depth
Resistivity Zone
CHARGEABILITY HIGH (m secs)
IP Anomaly at Surface
IP Anomaly at Depth
Chargeability Zone
SCALE
FEET
REGIONAL LOCATION MAP
PROPERTY LOCATION
ONTARIO
QUEBEC
U.S.A
DETAILED LOCATION MAP
PROPERTY LOCATION
METRES
EAST SHEET
SYNGOLD EXPLORATION INC.
ALLERSTON PROPERTY - WHITNEY TOWNSHIP
INDUCED POLARIZATION & GENERAL MAGNETIC INTERPRETATION
Project No: C-998
By: S.J. Bate
Scale: 1:2400
Drawn: MPH
Drawing No: Map 8E
Date: July, 1987
MPH Consulting Limited
280



LEGEND

MAGNETOMETER SURVEY:

Major Fault

Minor Fault

I Magnetic Domain

I_A Magnetic Subdomain

Domain Boundary

INDUCED POLARIZATION SURVEY

RESISTIVITY LOW (ohm m) 50 100 200 300

Resistivity Low at Surface

Resistivity Low at Depth

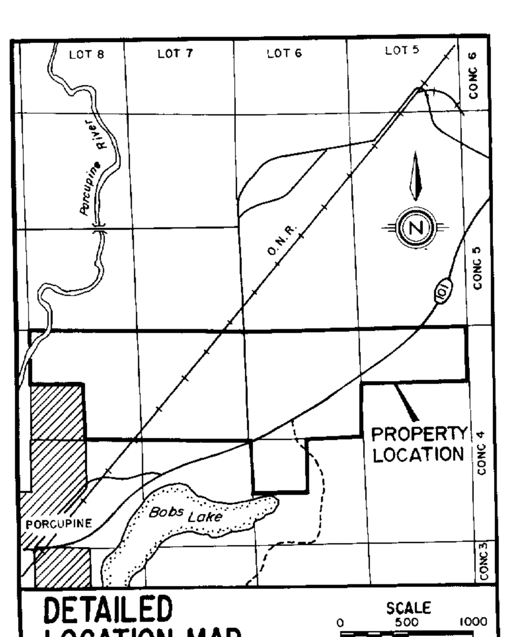
a Resistivity Zone

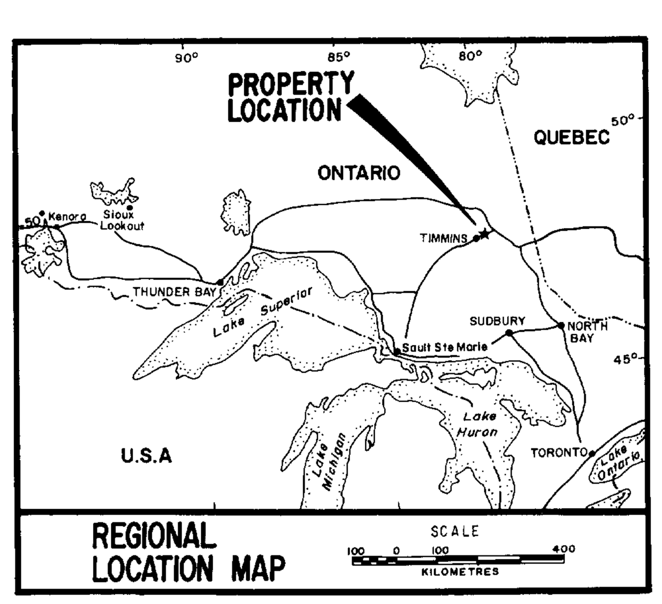
CHARGEABILITY HIGH (m secs) 25 15 10 5

IP Anomaly at Surface

IP Anomaly at Depth

A Chargeability Zone





SCALE 200 0 200 400 600 FEET

WEST SHEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TOWNSHIP

INDUCED POLARIZATION & GENERAL MAGNETIC INTERPRETATION

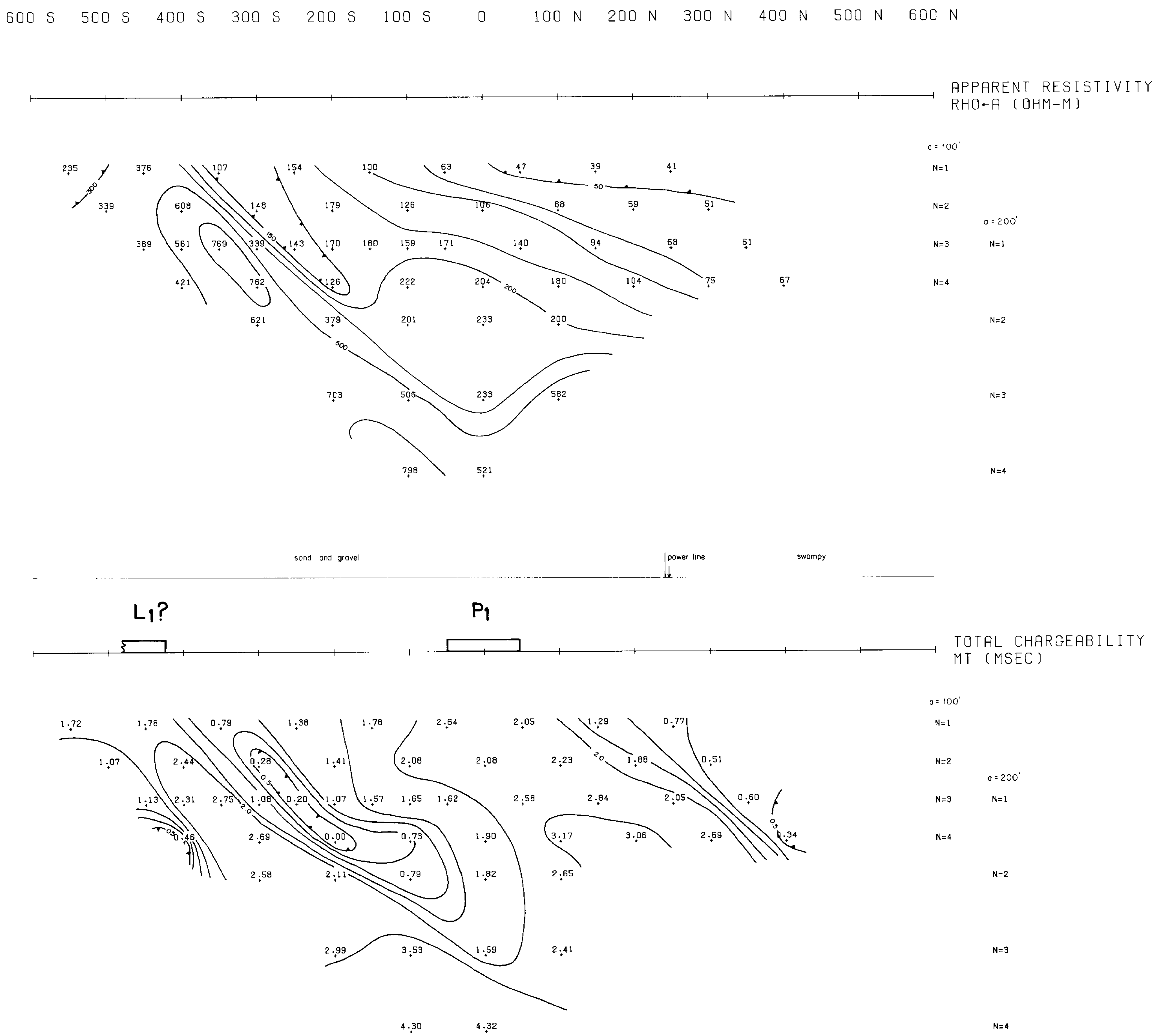
Project No: C-998	By: S.J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No: Map 8W	Date: July, 1987

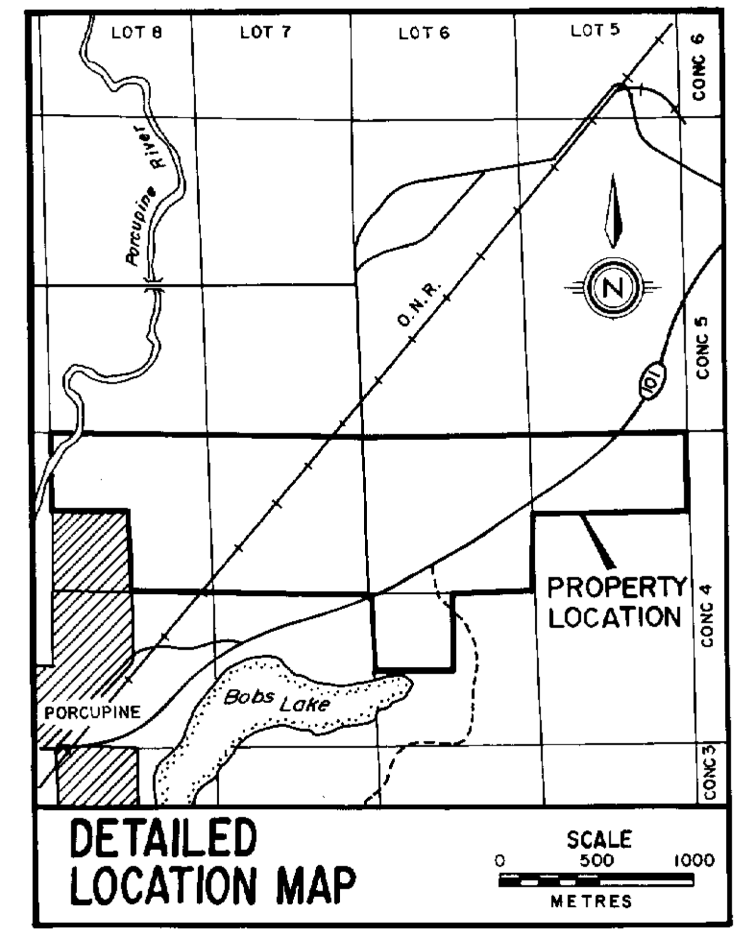
MPH Consulting Limited

290

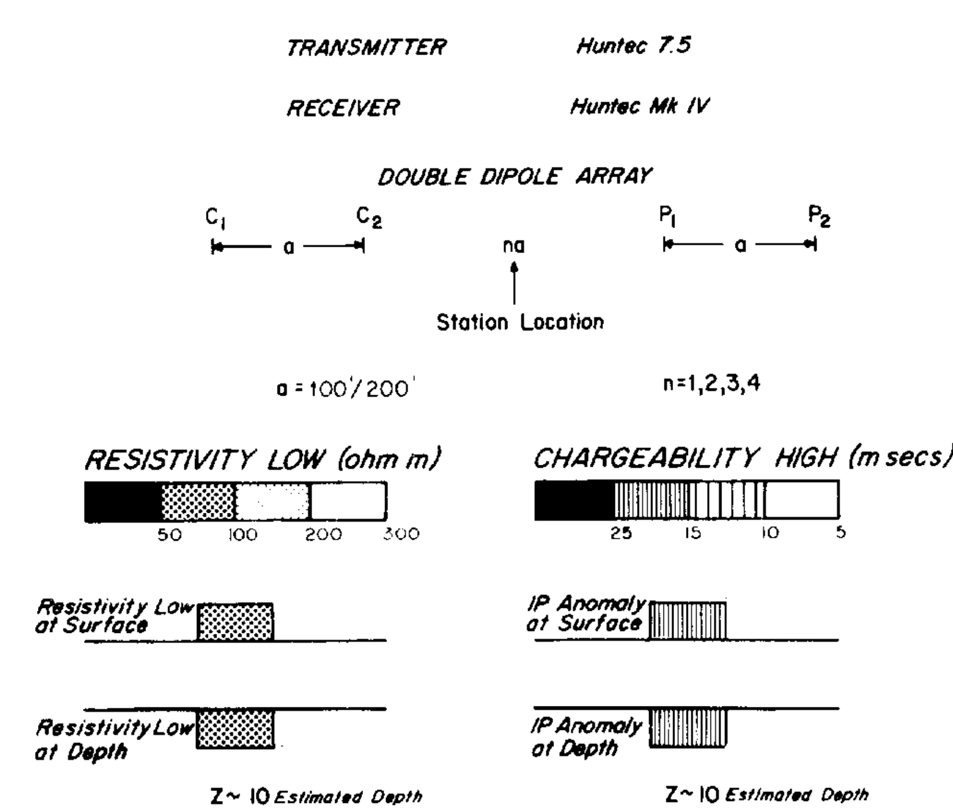
42A06NE0114 2.10575 WHITNEY

300





LEGEND



SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

INDUCED POLARIZATION SURVEY

PSEUDOSECTION

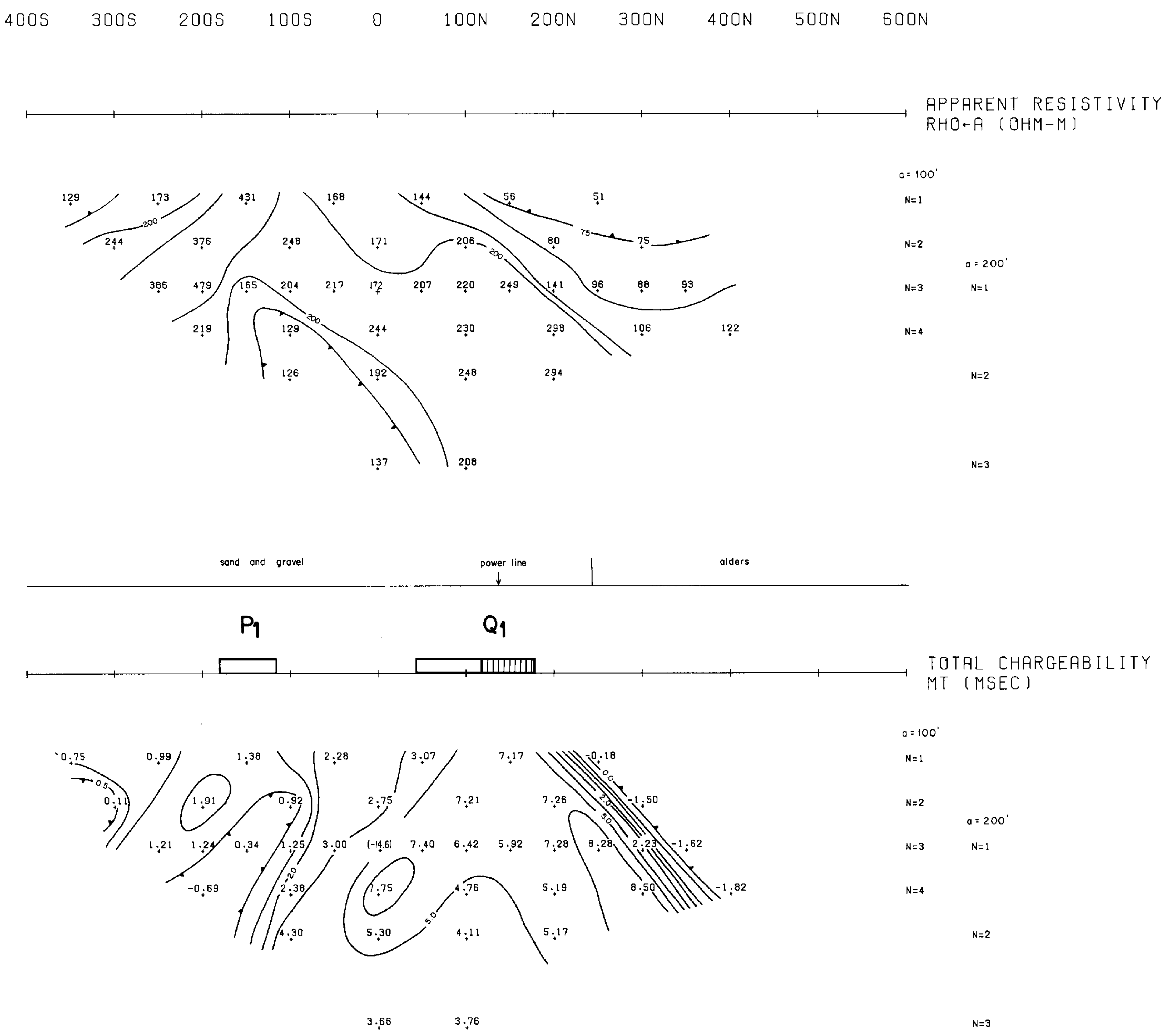
LINE 34+00 EAST

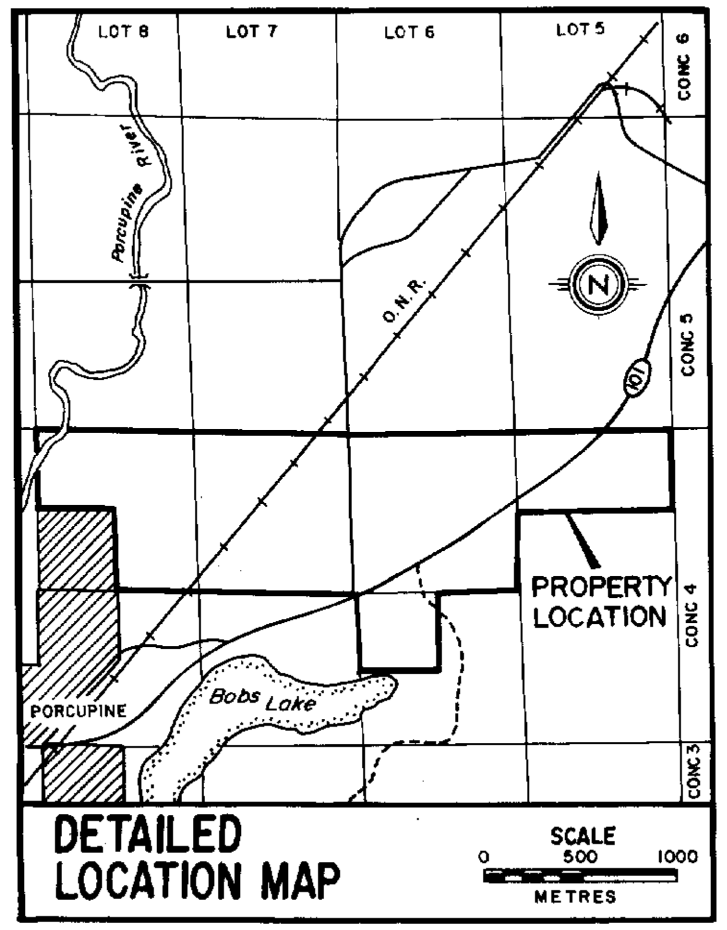
Project No. C – 998	By: S. J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No: Figure P – 10	Date: July, 1987

MPH Consulting Limited

42A06NE0114 2.10575 WHITNEY

310





LEGEND

TRANSMITTER Huntec 7.5

RECEIVER Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 100'/200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

Resistivity Low at Depth

Z~ 10 Estimated Depth

IP Anomaly at Surface

IP Anomaly at Depth

Z~ 10 Estimated Depth

SCALE
100 0 100 200 300 400
FEET

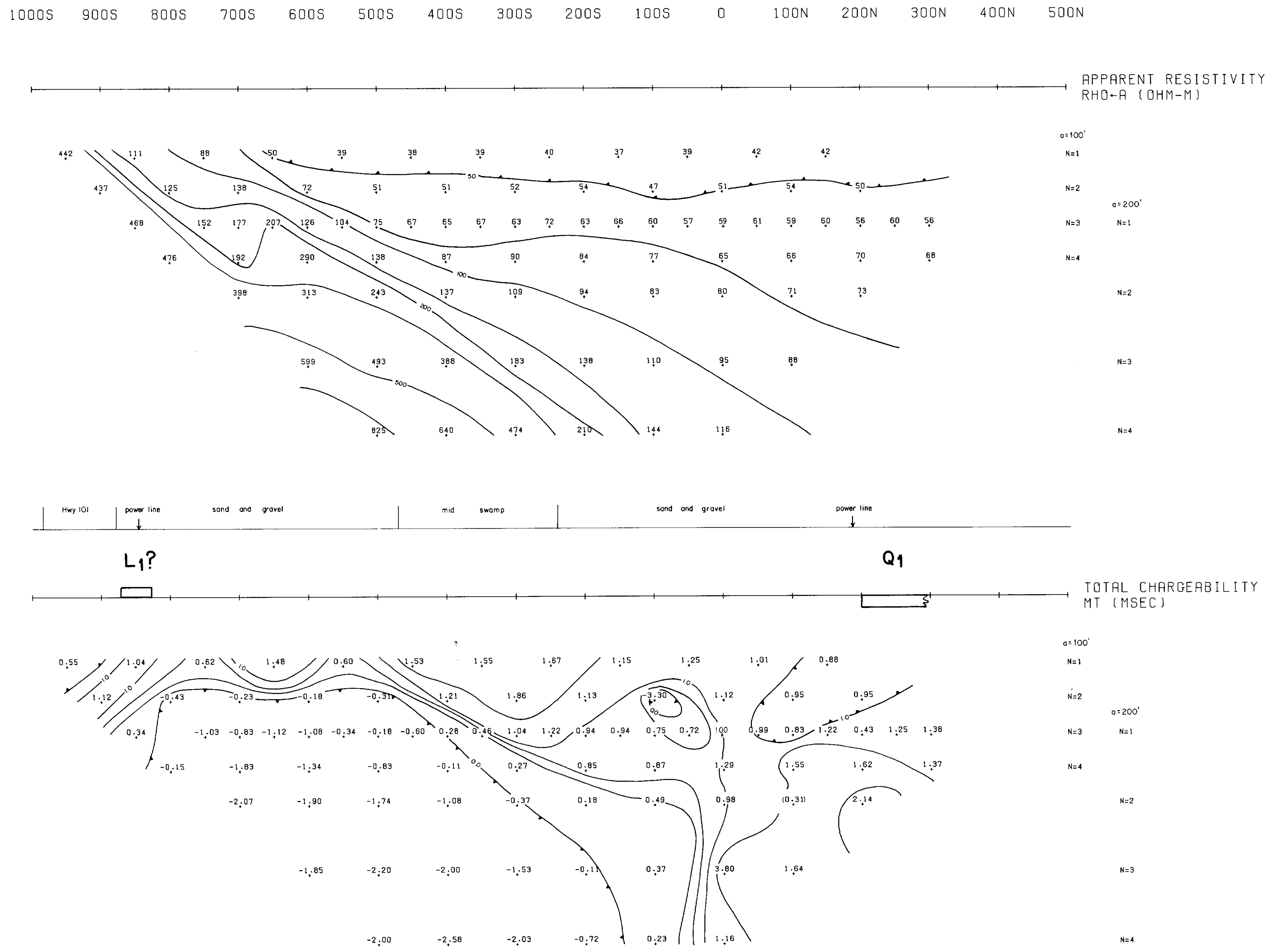
SYNGOLD EXPLORATION INC.

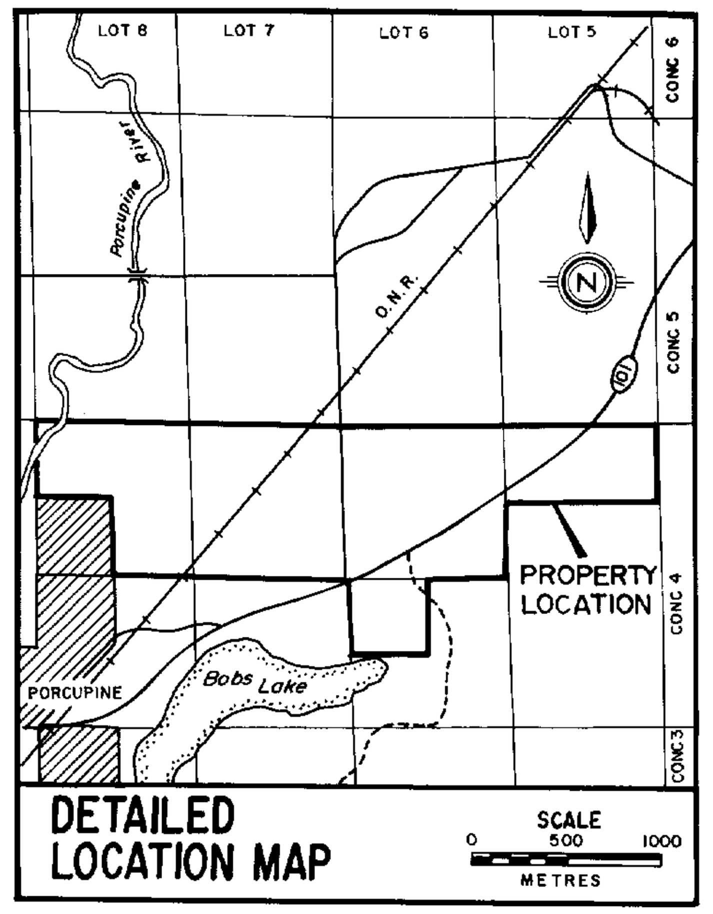
ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 36+00 EAST

Project No. C-998	By: S.J. Bate
Scale: 1:1200	Drawn: MPH
Drawing No. Figure P-9	Date: July, 1987

MPH Consulting Limited

1000S 900S 800S 700S 600S 500S 400S 300S 200S 100S 0 100N 200N 300N 400N 500N 600N
APPARENT RESISTIVITY
RHO-A (OHM-M)
a=100'
N=1
N=2
N=3
N=4
a=200'
N=1
N=2
N=3
N=4
sand and gravel
mid swamp
sand and gravel
claim post
power line
Q1
TOTAL CHARGEABILITY
MT (MSEC)
DETAILED LOCATION MAP
LOT 8
LOT 7
LOT 6
LOT 5
CONC 6
CONC 5
CONC 4
CONC 3
PROPERTY LOCATION
PORCUPINE
Bobs Lake
Porcupine River
O.N.R.
SCALE
0 500 1000
METRES
LEGEND
TRANSMITTER Huntec 7.5
RECEIVER Huntec Mk IV
DOUBLE DIPOLE ARRAY
Station Location
a = 100'/200'
n=1,2,3,4
RESISTIVITY LOW (ohm m)
50 100 200 300
CHARGEABILITY HIGH (m secs)
25 15 10 5
Resistivity Low at Surface
Resistivity Low at Depth
IP Anomaly at Surface
IP Anomaly at Depth
Z~10 Estimated Depth
Z~10 Estimated Depth
SCALE
100 0 100 200 300 400
FEET
SYNGOLD EXPLORATION INC.
ALLERSTON PROPERTY - WHITNEY TWP
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 26+00 EAST
Project No. C-998
Scale: 1" 200'
Drawing No. Figure P-14
By: S. J. Bate
Drawn: MPH
Date: July, 1987
MPH Consulting Limited
42A06NE0114 2.10575 WHITNEY
330





LEGEND

TRANSMITTER Huntec 7.5

RECEIVER Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a=100'/200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50, 100, 200, 300

CHARGEABILITY HIGH (m secs): 25, 15, 10, 5

Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~10 Estimated Depth

Z~10 Estimated Depth

SCALE
100 0 100 200 300 400
FEET

SYNGOLD EXPLORATION INC.

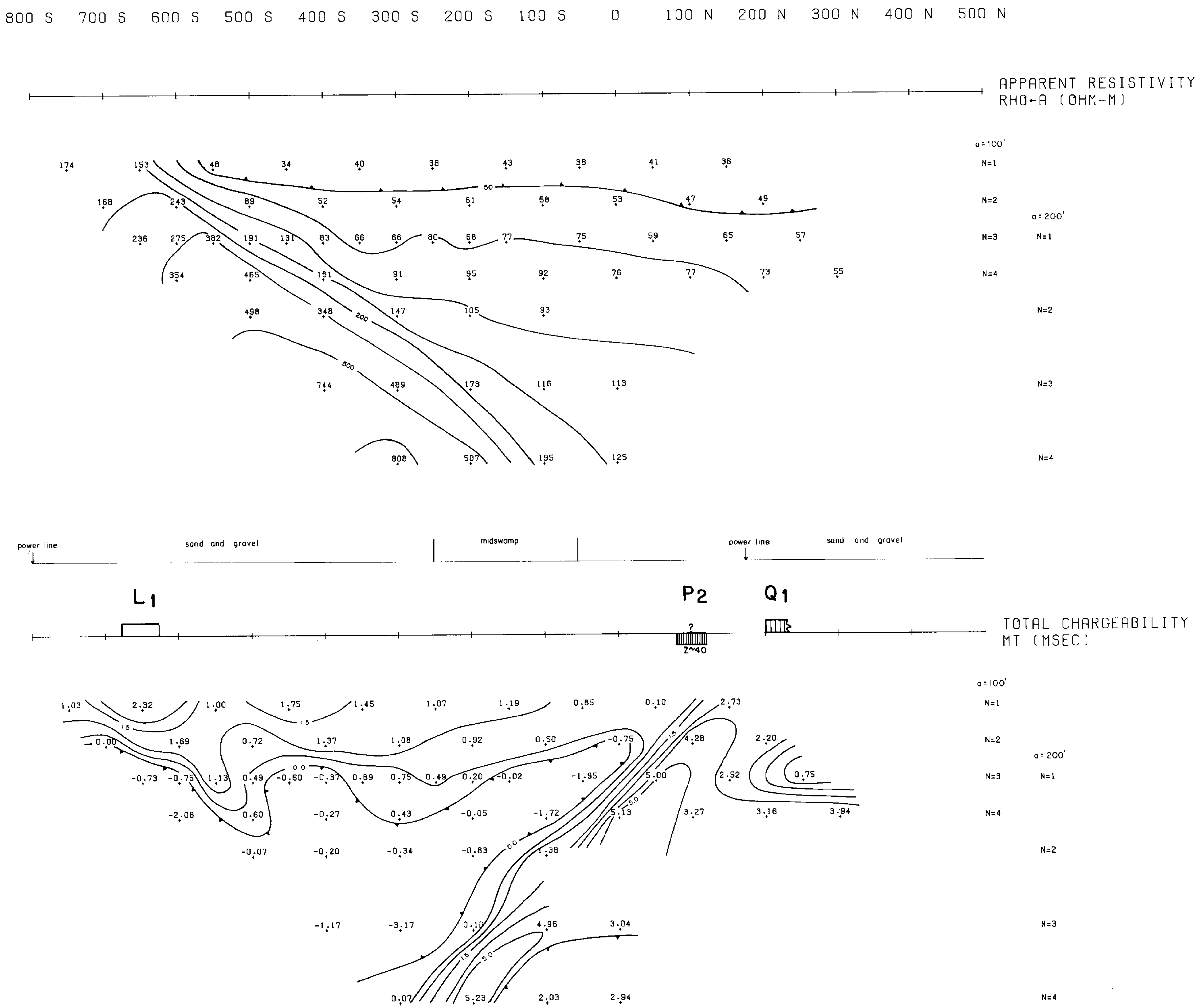
ALLERSTON PROPERTY - WHITNEY TWP
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 28+00 EAST

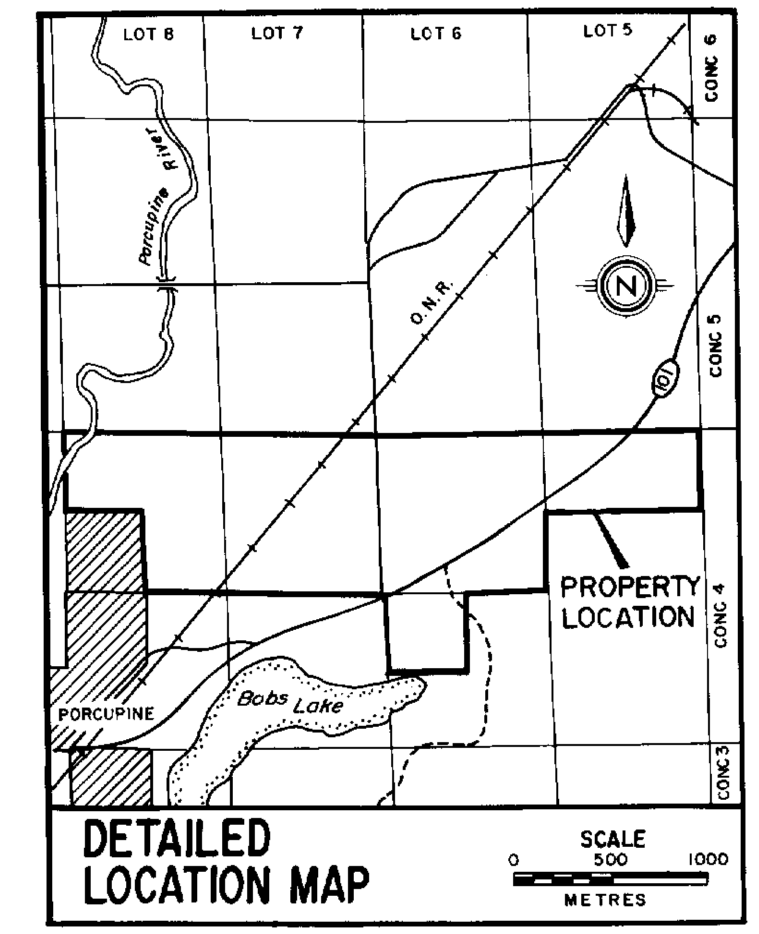
Project No. C-998	By S.J.Bate
Scale 1:200	Drawn MPH
Drawing No. Figure P-13	Date July, 1987

MPH Consulting Limited

42A06NE0114 2.10575 WHITNEY

340





LEGEND

TRANSMITTER	Huntec 7.5
RECEIVER	Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 100'/200' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

Resistivity Low at Surface

IP Anomaly at Surface

Resistivity Low at Depth

IP Anomaly at Depth

Z~ 10 Estimated Depth

Z~ 10 Estimated Depth

SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY – WHITNEY TWP.

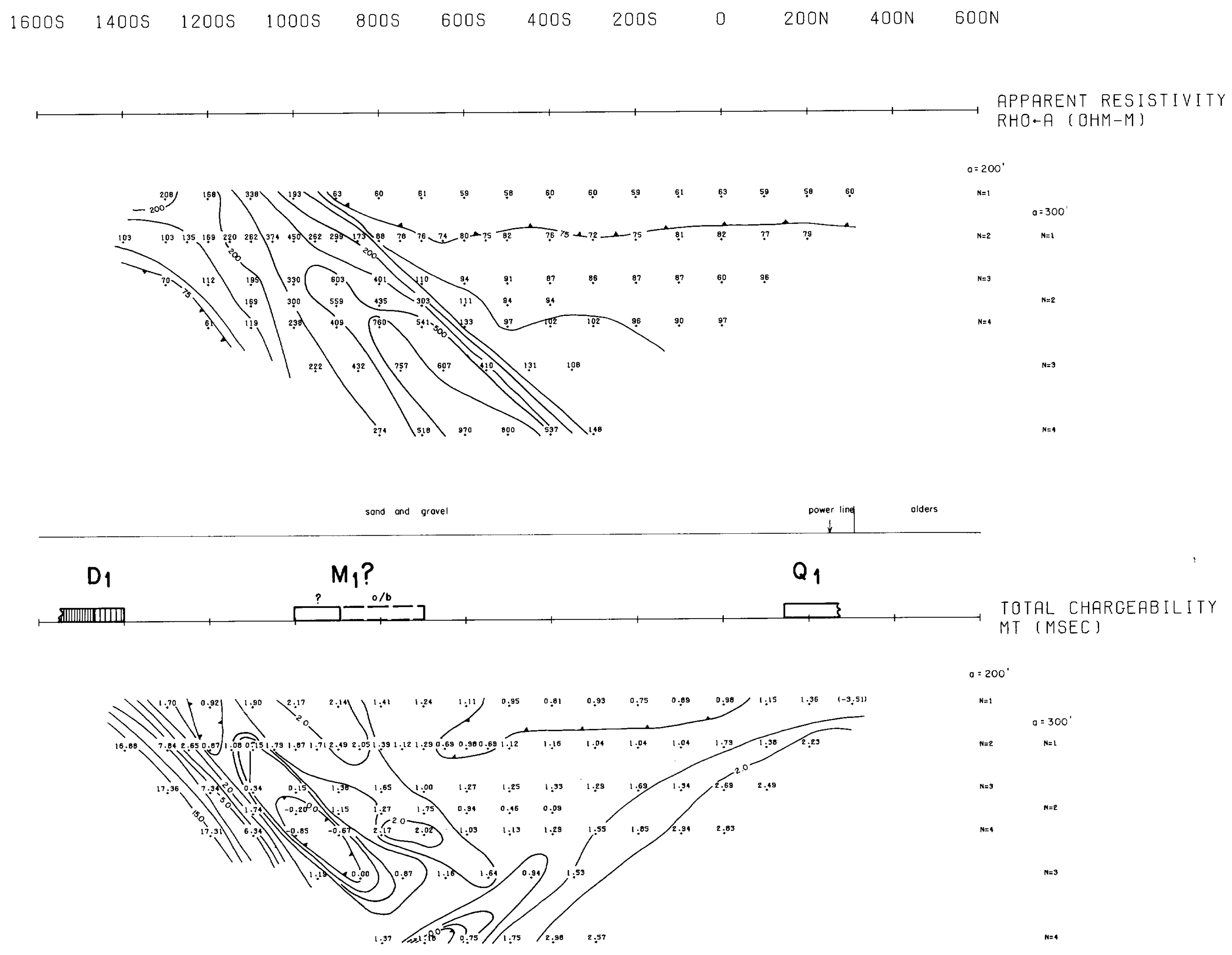
INDUCED POLARIZATION SURVEY PSEUDOSECTION LINE 30+00 EAST

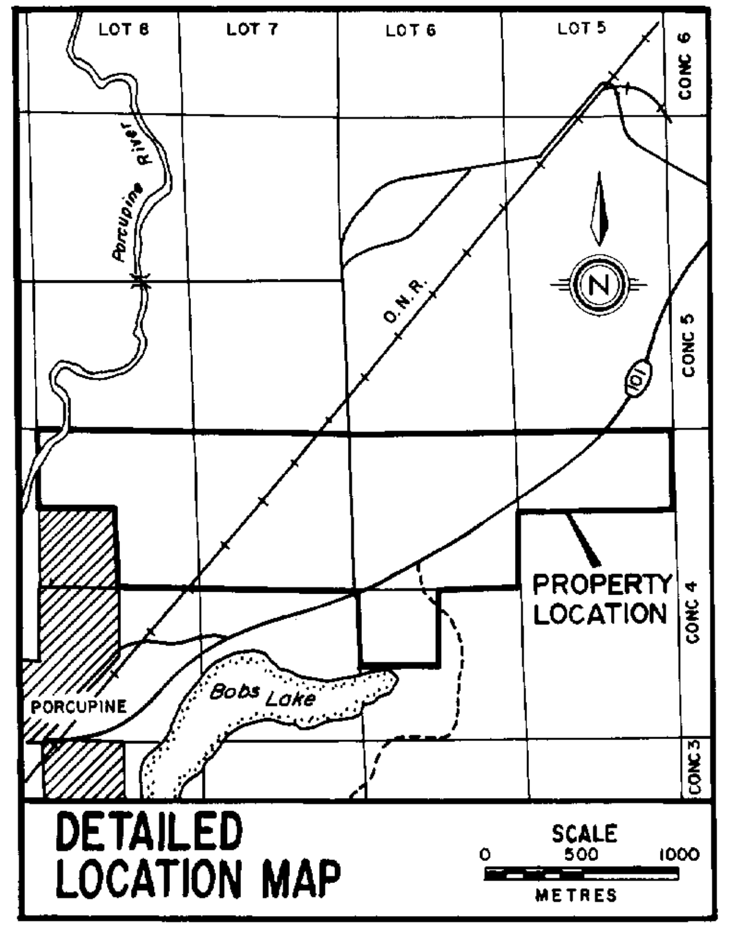
Project No. C-998	By: S. J. Bate
Scale: 1 1200	Drawn: MPH
Drawing No: Figure P-12	Date: July, 1987

MPH Consulting Limited

42A08NE0114 2.10575 WHITNEY

350





LEGEND

TRANSMITTER Huntec 7.5

RECEIVER Huntec Mk IV

DOUBLE DIPOLE ARRAY

C_1 — a — C_2 na P_1 — a — P_2

Station Location

a = 200'/300' n=1,2,3,4

RESISTIVITY LOW (ohm m): 50 100 200 300

CHARGEABILITY HIGH (m secs): 25 15 10 5

Resistivity Low at Surface — 17 Estimated Intrinsic Resistivity (ohm m)

IP Anomaly at Surface — 75 Estimated Intrinsic Chargeability (msecs)

Resistivity Low at Depth — 17 Estimated Intrinsic Resistivity (ohm m); Z~10 Estimated Depth

IP Anomaly at Depth — 75 Estimated Intrinsic Chargeability (msecs); Z~10 Estimated Depth

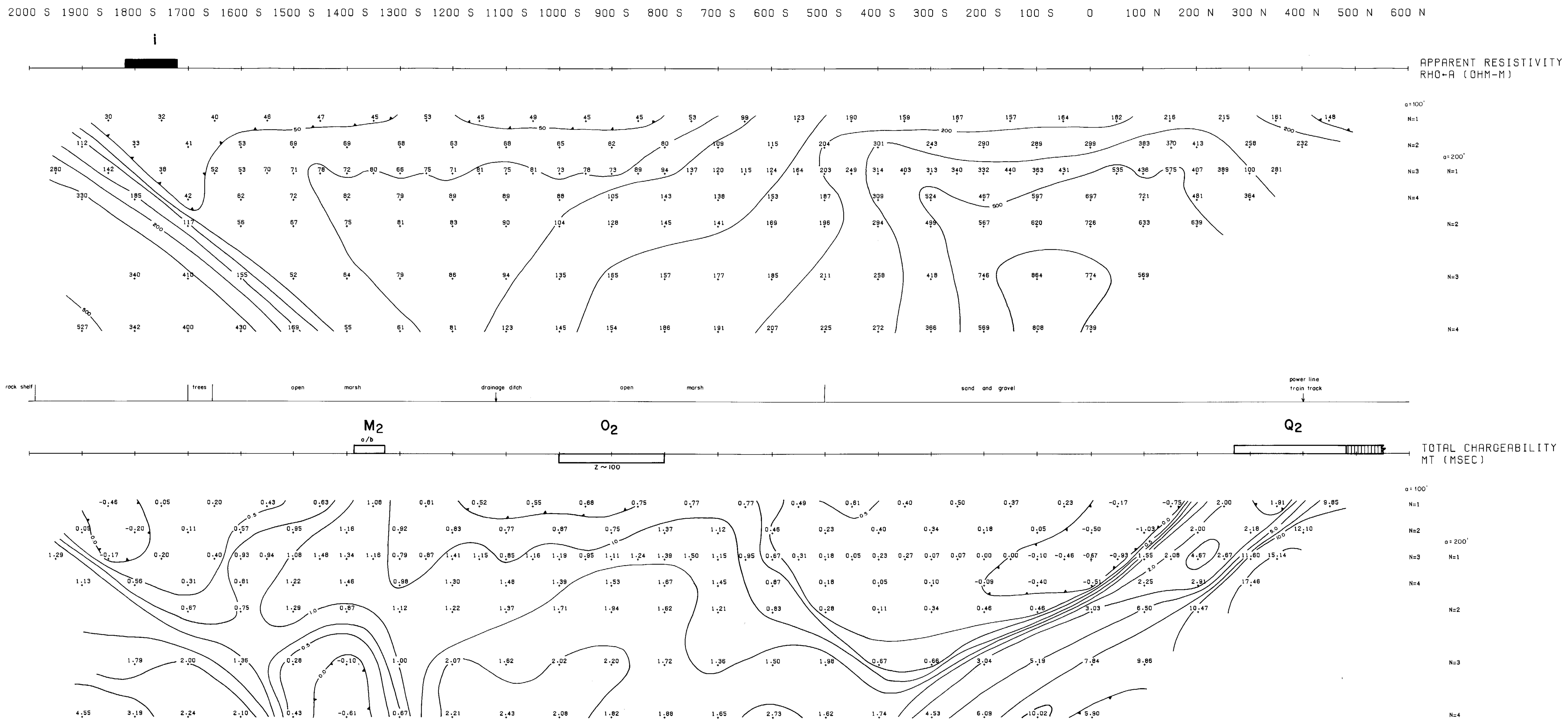
SCALE: 100 0 100 200 300 400 FEET

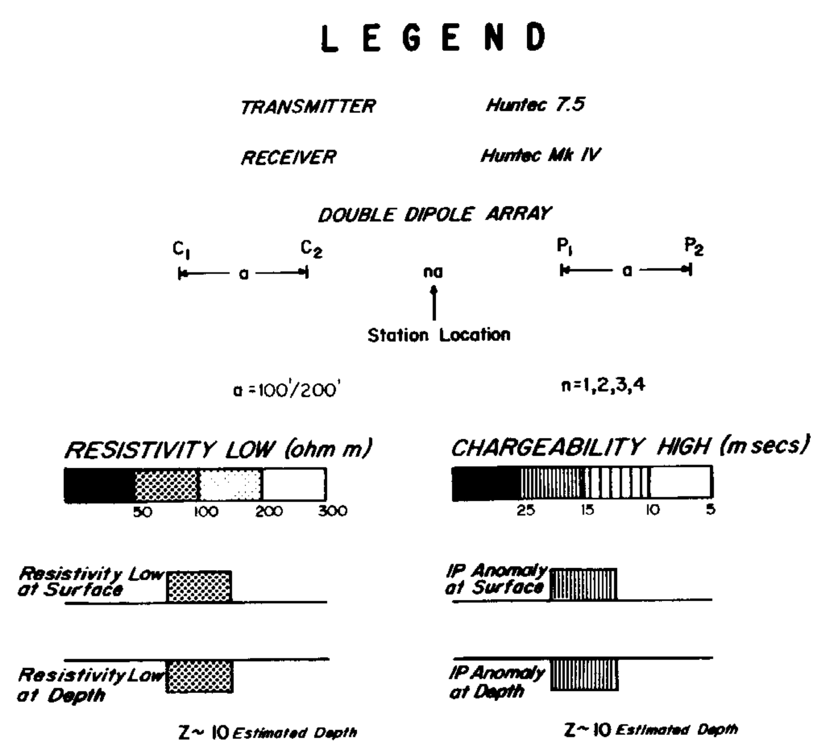
SYNGOLD EXPLORATION INC.

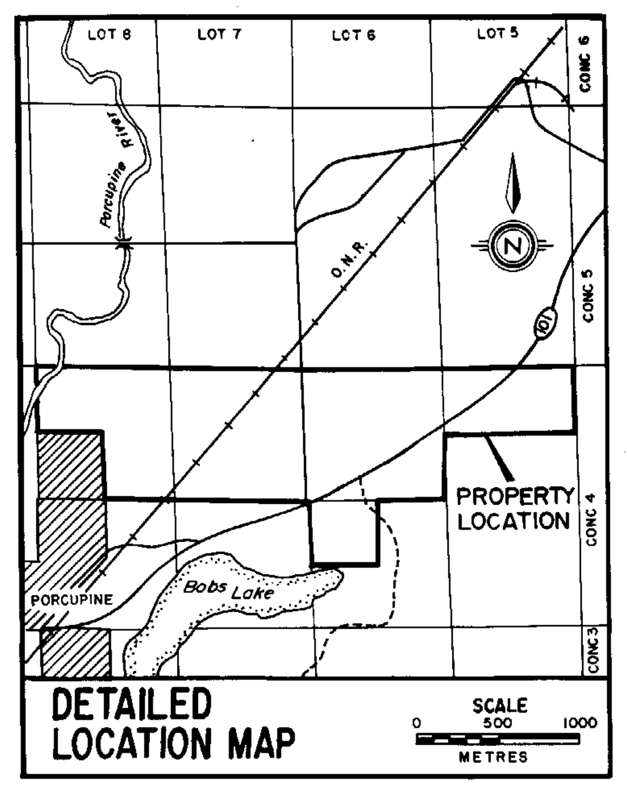
ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 18+00 EAST

Project No. C-998	By: S.J. Bate
Scale: 1:2400	Drawn: MPH
Drawing No. Figure P-18	Date: July, 1987

MPH Consulting Limited







SCALE

100 0 100 200 300 400

FEET

SYNGOLD EXPLORATION INC.

ALLERSTON PROPERTY - WHITNEY TWP.
INDUCED POLARIZATION SURVEY
PSEUDOSECTION
LINE 2+00 WEST

Project No: C-998	By: S. J. Bate
Scale: 1: 1200	Drawn: MPH
Drawing No: Figure P-34	Date: July, 1987

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