MAP NO.: 105 H 6	**ASSESSMENT REPORT** X **PROSPECTUS** **CONFIDENTIAL** X **OPEN FILE**	**DOCUMENT NO:** 092740 **MINING DISTRICT:** Watson Lake **TYPE OF WORK:** Geological, Geochemical, Geophysical

REPORT FILED UNDER: Pulse Resources Ltd.

DATE PERFORMED: Sept.-Oct., 1988 | **DATE FILED:** July 25, 1989

LOCATION: **LAT.:** 62o 28'N | **AREA:** Frances Lake

LONG.: 129o 25' 30"W | **VALUE $:** 11,700.00

CLAIM NAME & NO.: BARB 9-15, 17-32, 61-64 YA20216-217,234-238, YA36636-651, YA54502-505; BETH 2, 4-27 YB00654-678; BINTI 1-8 YB15412-419

WORK DONE BY: P.S. Roberts and A.E. Hunter (Strato Geological Engineering Ltd.)

WORK DONE FOR: Pulse Resources Ltd.

DATE TO GOOD STANDING:

REMARKS: #17 MATT BERRY Work consisted of soil geochemistry (277 samples), rock geochemistry (12 samples), 9.5 km I.P. resistivity survey, two Wenner array depth soundings, 9.9 km of S.P. survey, 3.3 km VLF-EM survey, 1.5 km of CEM survey and 475 m detailed CEM survey over MATT BERRY and MONEY zones. The Money Zone has similar geochemical signature to Matt Berry. Two IP resistivity targets.

PULSE RESOURCES LTD.

Report

on the

Barb Mineral Claim Group

Watson Lake Mining Division

Yukon Territories

61°

N. Latitude: 62° 28' 00"   W. Longitude: 129° 25' 30"

NTS 105 H/6

by

P.S. Roberts, B.Sc. and A.E. Hunter, Geop.

STRATO GEOLOGICAL ENGINEERING LTD.
3566 King George Highway
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December 21, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

092740

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 11,700.00.

D D Emond

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

SUMMARY

The basis of this report is field work carried out by Strato Geological Engineering Ltd. in September and October of 1988 on the Beth, Barb and Binti mineral claims, on behalf of Pulse Resources Ltd., of Vancouver, B.C. The claims are located on the east shore of the east arm of Frances Lake, approximately 160 air-kilometers north of the village of Watson Lake, Y.T. Access to the claims is by air from Watson Lake, using helicopter, or alternately by road and water.

The area around the Beth, Barb and Binti claims has been prospected and explored since the discovery of lead-zinc-silver mineralization in the 1930's. Considerable geophysical, geochemical and geological surveying has been carried out on the property, including some 3900 meters (12,800 feet) of drilling.

The property consists of 59 mineral claims. The claim area is underlain largely by phyllitic rocks, with minor outcroppings of quartz augen schist. The property is located on the gently-dipping western limb of a north-northwest trending syncline which exhibits extensive deformation locally within units. A stratabound massive sulphide, known as the Matt Berry Zone, is associated with the quartz augen schist unit at the mouth of Thompson Creek. This unit extends to the southeast.

The Matt Berry Zone has been largely delineated by drilling. The zone contains massive sulphide mineralization consisting of argentiferous galena, sphalerite, pyrite, pyrrhotite, boulangerite, arsenopyrite and manganiferous siderite. The zone has an overall thickness of about 12 meters. Ore reserves have been estimated at 588,000 tons of ore running 6.1% Pb, 4.6% Zn and 3.0 oz/ton Ag. This figure represents the total ore reserves for all estimation classifications (i.e. drill indicated and inferred).

In 1987 Strato Geological Engineering Ltd. conducted an exploration program consisting of reconnaissance geochemical, magnetic and geological surveys. This work identified a zone (the Money Zone) with a geochemical signature similar to the Matt Berry zone. The 1988 program detailed and extended the geochemistry done on the Money Zone and surveyed this area

with induced polarization (I.P.) resistivity and self potential (S.P.) geophysical techniques. VLF-EM (distant source) and Crone electromagnetic (CEM-local source) geophysical surveys were tested over the Matt Berry and Money Zones. The geology of the area was confirmed and new claim areas were mapped.

The work consisted of collection and analysis of a total of 277 soil and 12 rock samples, 9.5km of I.P. resistivity survey, two Wenner array depth soundings, 9.9km of S.P. survey, 3.3km of VLF-EM survey, 1.5km of CEM survey and 475 meters of detailed CEM over the Matt Berry Zone.

The field work confirmed the geochemical signature of the Money Zone. The VLF-EM and CEM techniques were shown to be ineffective, probably because of thick overburden cover. The existence of substantial overburden over much of the area was suggested by the Wenner array depth soundings. A fault inferred by Cominco in 1980 was suggested by the geophysical data. A second fault was also suggested by the geophysical data. Two distinct anomalous zones were delineated by the I.P. resistivity survey. One of these zones is closely associated with the quartz augen schist unit and soil geochemistry anomalies. It is felt that further geological information about the Money Zone is best established by drilling.

In conclusion, the work done to date suggests the Money Zone has the same potential as the Matt Berry Zone. This remains to be tested by drilling. Geology suggests that the Money Zone could extend to the north and south. Detailed geochemical and geophysical work could be done to confirm this. Large portions of the claim block remain relatively unexplored and reconnaissance geoscientific surveys could be conducted over these areas.

Respectfully submitted,
Strato Geological Engineering Ltd.

A.E. Hunter
Geophysicist
December 21, 1988

P.S. Roberts, B.Sc.
Geologist

STRATO GEOLOGICAL ENGINEERING LTD.

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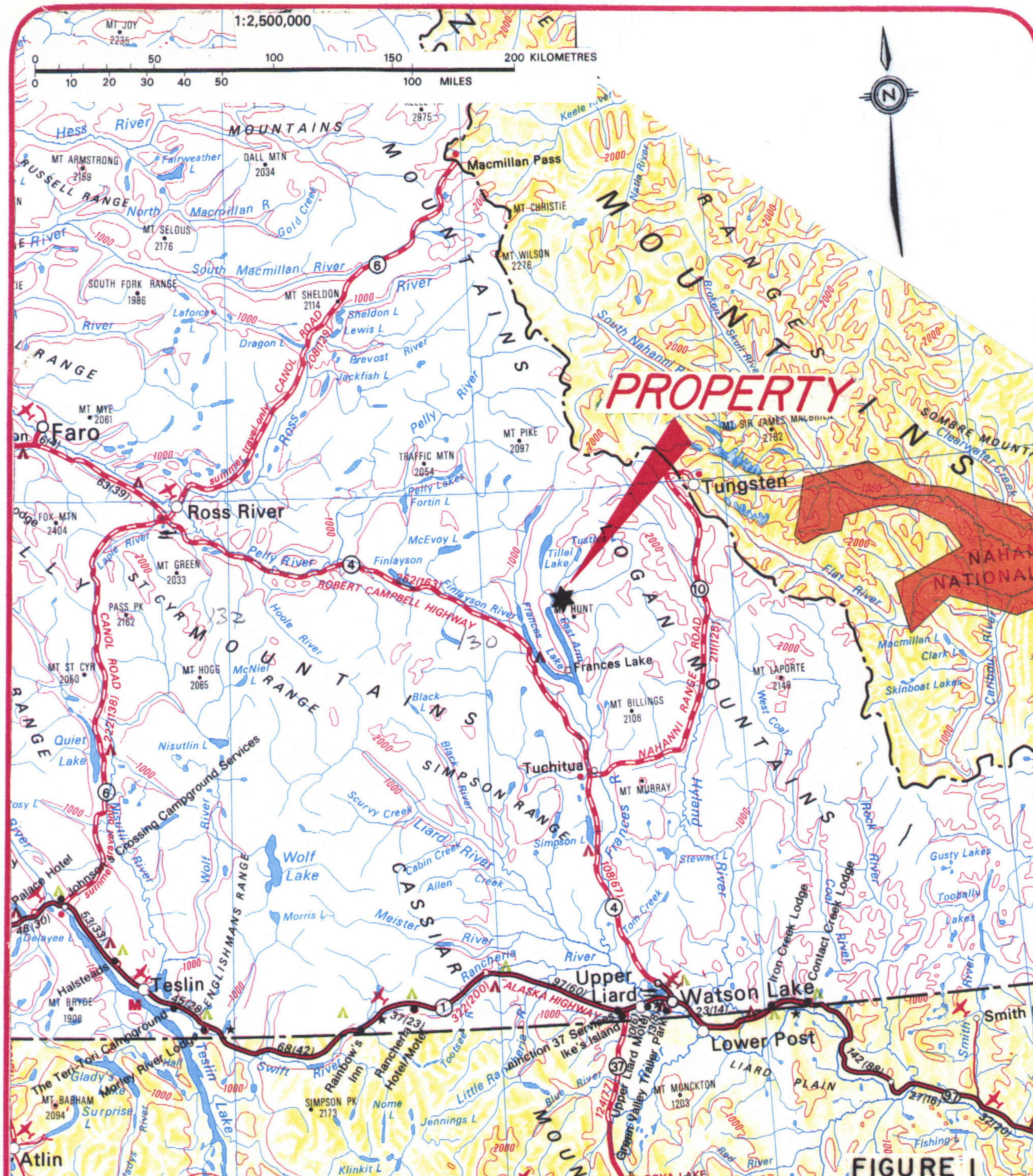

FIGURE I

PULSE RESOURCES LTD.

Money Zone Project - Frances Lake Area

Watson Lake M.D., Y.T. **NTS 105 H/6**

LOCATION MAP

November 1988

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1. INTRODUCTION

1.1 Objectives

Pursuant to a request by the Directors of Pulse Resources Ltd., a geophysical exploration and detailed soil sampling program were performed on the Barb and Beth claims. This report is based upon results of the field work carried out over the Money Zone within the Beth Mineral claim group. The work was conducted by geophysicists A.E. Hunter and M. Falk, geologist P.S. Roberts, and field assistants D. Stretton and G. Smith between the dates of September 18 and October 21, 1988.

1.2 Location and Access

The Barb mineral claims are located on the east shore of the East Arm of Frances Lake, approximately 160 air-kilometers north of the town of Watson Lake, Yukon Territory (Figure 1). The claims can be accessed using float plane or helicopter from Watson Lake or alternatively by road and boat. The Campbell Highway travels along the west side of the West Arm of Frances Lake. Boats can be put in at the Forestry campsite located approximately half-way up the west arm of the lake. The total surface trip entails approximately 160 kilometers of travel along the gravel surface Campbell Highway and 60 kilometers of water travel.

The Money Zone is located approximately 1.2km east of the lake shore. There is currently one road accessible by tracked vehicle from the Matt Berry zone to the Money Zone 1.8km away.

1.3 Physiography (See Figure 2)

The property is located on the gently-dipping western limb of a north-northwest trending syncline which exhibits extensive deformation within the geological units. Elevations range from 734m, at the lake shore, to about 1400m at the southeast corner of the newly acquired Binti claims.

The property is lightly forested with birch, tamarack, black spruce, jack pine and, locally, thick alder. Much of the area underlying the Money Zone is

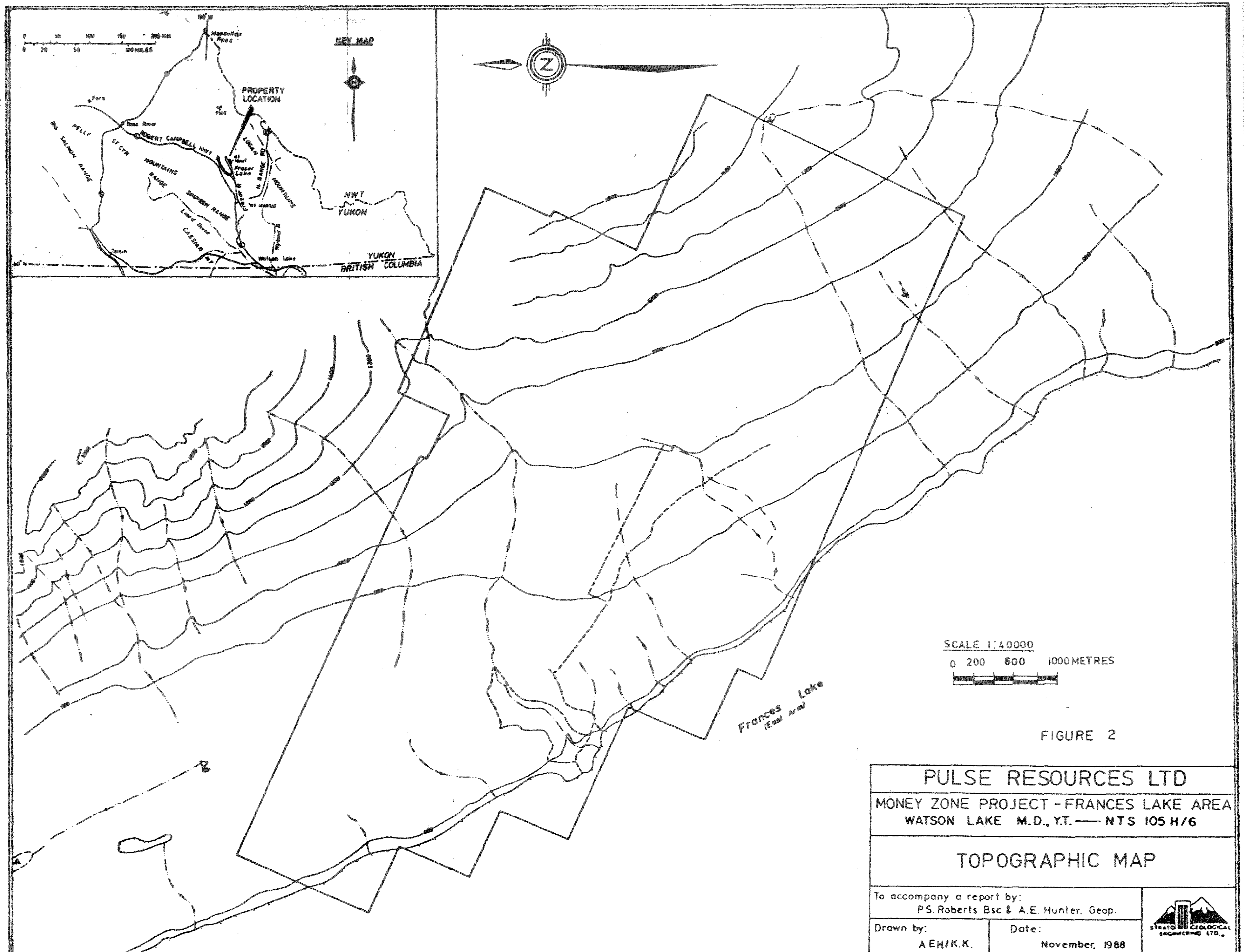

FIGURE 2

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6

TOPOGRAPHIC MAP

To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.

Drawn by: AEH/K.K.

Date: November, 1988

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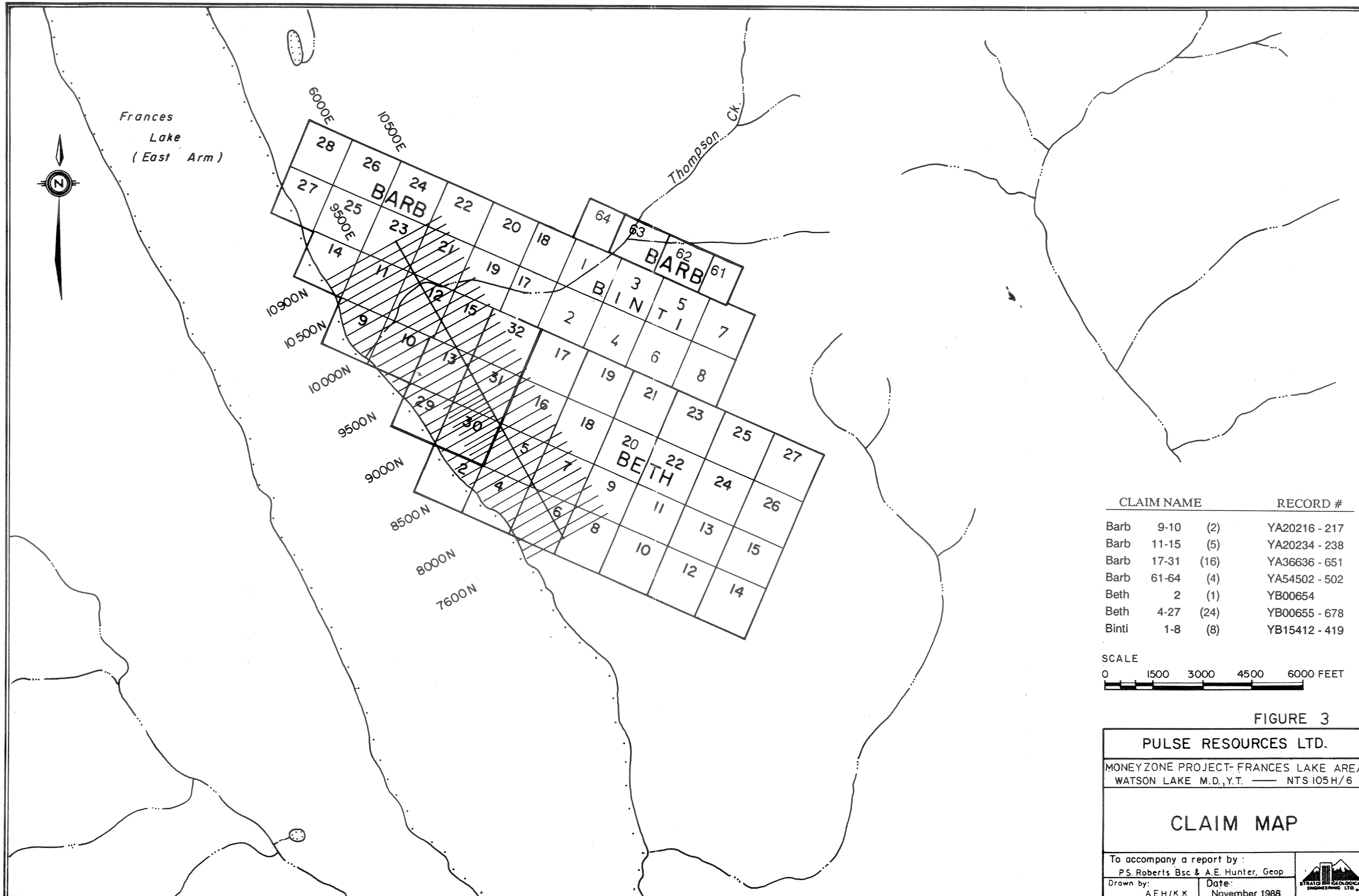
covered by wet bog and large boulders. Numerous small drainage creeks cut the property.

1.4 Property Status

The property consists of 60 claims (Figure 3) as follows:

CLAIM(S)		RECORD #	RECORD DATE	DUE DATE
Barb 9	(1)	YA20216	Jun. 13/77	Feb. 19/92
Barb 10	(1)	YA20217	Jun. 13/77	Feb. 19/93
Barb 11-15	(5)	YA20234-238	Jun. 27/77	Feb. 19/92
Barb 17-32	(16)	YA36636-651	May 23/79	Feb. 19/89
Barb 61-64	(4)	YA54502-505	Jun. /80	Feb. 19/90
Beth 2	(1)	YB00654	Jul. 24/87	Jul. 24/89
Beth 4-27	(24)	YB00655-678	Jul. 24/87	Jul. 24/89-90
Binti 1-8	(8)	YB15412-419	Oct. 3/88	Oct. 3/89

The property is the subject of an option agreement, through which Barytex Resources Corp. granted an option to Pulse Resources Ltd. to acquire an interest in the property. Barytex and Pulse have confirmed that Barytex is the registered owner of the Barb and Binti claims and Pulse is the registered owner of the Beth claims subject to the terms of their option agreement.



CLAIM NAME			RECORD #
Barb	9-10	(2)	YA20216 - 217
Barb	11-15	(5)	YA20234 - 238
Barb	17-31	(16)	YA36636 - 651
Barb	61-64	(4)	YA54502 - 502
Beth	2	(1)	YB00654
Beth	4-27	(24)	YB00655 - 678
Binti	1-8	(8)	YB15412 - 419

FIGURE 3

PULSE RESOURCES LTD.

MONEYZONE PROJECT- FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105H/6

CLAIM MAP

To accompany a report by :
P.S. Roberts Bsc & A.E. Hunter, Geop

Drawn by: A E H / K.K.
Date: November 1988

2. HISTORY

Lead-zinc-silver mineralization was first discovered in the claim area in the late 1930's and the area was prospected subsequently by Cominco in 1943. Hand trenching and sampling were carried out by Datalaska Mines in the early 1960's.

Matt Berry Mines Ltd. was formed in 1966 in order to develop the mineralized showing. Between 1966 and 1970 considerable work was carried out including hand trenching, VLF electromagnetic surveying, geochemical surveying, Turam electromagnetic surveying and approximately 2728 meters of drilling.

In 1970, an additional 1282 feet of diamond drilling was carried out under an agreement with Metallgesellschaft Canada Ltd. and Canadian Nickel Company Ltd.

During 1973 an option was held on the property by New Joburke Explorations and in 1974, Cyprus Anvil Mining Corporation held an option on the property and carried out a gravity survey.

In 1978 the property was optioned to New Frontier (N.P.L.) and a pulse electromagnetic survey was carried out. The property subsequently reverted to Sovereign Metals Corp. (N.P.L.). A trenching program was carried out in 1979 and an ore reserve calculation was made. The property was optioned to Cominco Ltd. in 1980. During the 1980 season a drilling program was carried out. A total of 1219 meters were drilled in five widely spaced holes which failed to intersect any mineralization of interest. During the 1981 field season, Cominco Ltd. carried out a program of 1:5000 scale geological mapping and soil/rock geochemical sampling.

3. GEOLOGY

3.1 Previous Geological Work

Systematic mapping on the property was carried out by Sovereign Metals Corporation on a limited area around the showings during the 1979 field season (13). Cominco Limited carried out 1:10,000 scale mapping during the 1980 field season (15) and 1:5000 scale mapping during the 1981 season (16). In 1987, Strato Geological Engineering carried out a soil geochemical sampling program and a geophysical magnetic survey. Several anomalous zones were identified, including the Money Zone which was the target of follow-up work for the current program. Much of the geological information gained on this property has been gathered from over 3900 meters of drilling carried out between 1966 and 1980 and from trenching carried out in 1979. The majority of the outcrop on the property is found along the lake shore or along the banks of Thompson Creek.

3.2 Regional Geology

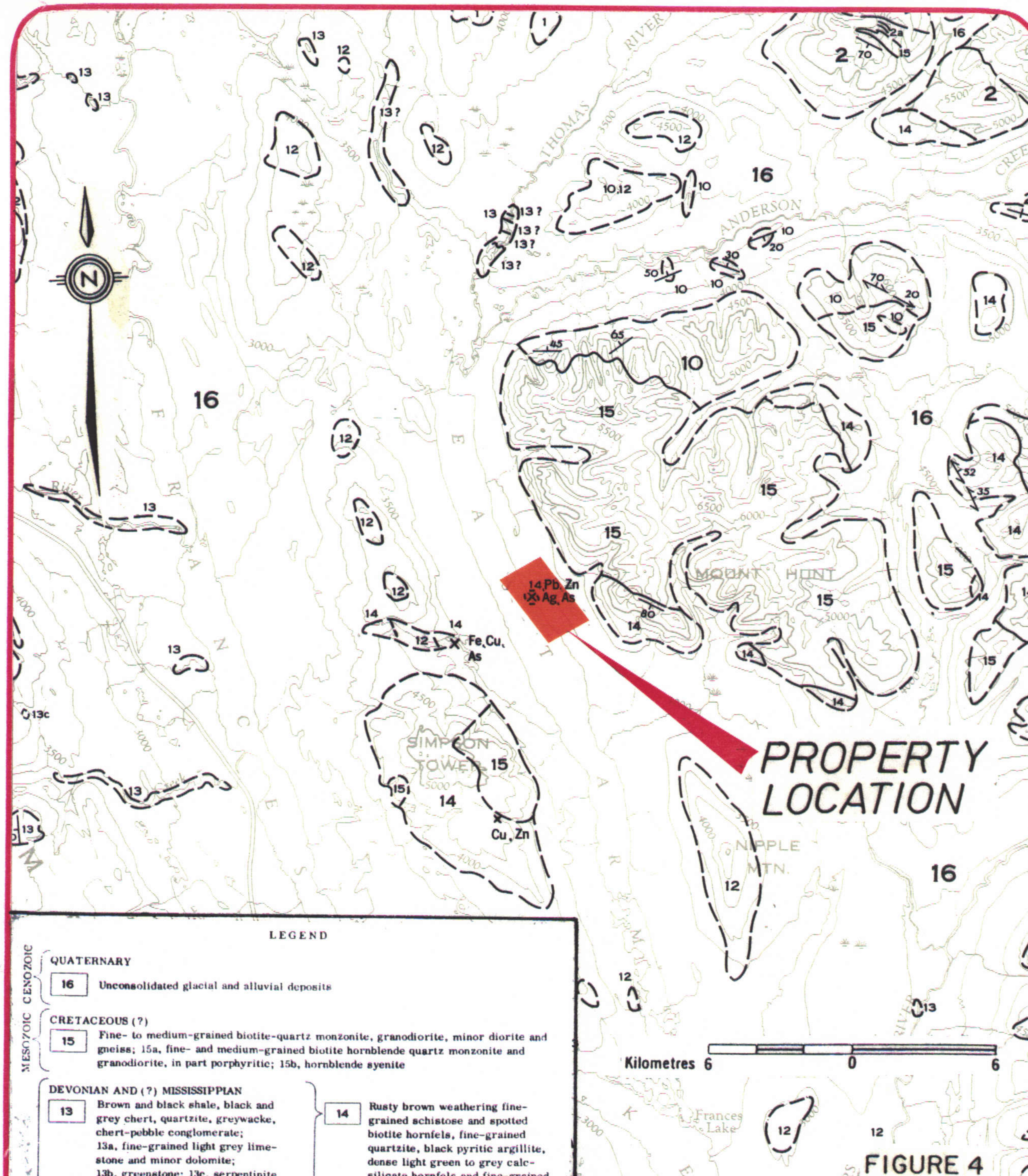
The area has been mapped by the Geological Survey of Canada and produced on Map 6 - 1966 Frances Lake N.T.S. 105H at a scale of 1:250,000 (see Figure 4 and Figure 5).

The property is largely covered by glacial and alluvial material. The region is underlain by interbedded phyllitic mudstones quartz sericite schist hornfels and calcareous phyllites of probable Devonian - Mississippian age. To the northeast, the phyllites have been intruded by Cretaceous age quartz monzonite and granodiorite.

Regional faulting in the area is extensive with major east/west striking faults dipping steeply north with southerly offsets to the east. Less pronounced northeasterly faulting occurs with westerly offsets to the south.

3.3 Property Geology (excerpted from A.B. Mawer, Cominco, 1980)

"The Barb Group is underlain by two phyllitic units, a dark green to black phyllitic mudstone overlies a light grey finer



LEGEND

MESOZOIC CENOZOIC

QUATERNARY

16	Unconsolidated glacial and alluvial deposits

CRETACEOUS (?)

15	Fine- to medium-grained biotite-quartz monzonite, granodiorite, minor diorite and gneiss; 15a, fine- and medium-grained biotite hornblende quartz monzonite and granodiorite, in part porphyritic; 15b, hornblende syenite

DEVONIAN AND (?) MISSISSIPPIAN

13	Brown and black shale, black and grey chert, quartzite, greywacke, chert-pebble conglomerate; 13a, fine-grained light grey limestone and minor dolomite; 13b, greenstone; 13c, serpentinite

SILURIAN AND DEVONIAN (?)

12	Fine-grained light to dark grey dolomite and quartzite; minor buff-grey dolomitic quartzite and silty to sandy dolomite

14	Rusty brown weathering fine-grained schistose and spotted biotite hornfels, fine-grained quartzite, black pyritic argillite, dense light green to grey calc-silicate hornfels and fine-grained marble; minor slate, silty limestone and greywacke; 14a, light grey thin-bedded fine-grained marble and calc-silicate hornfels. May include some 1 and 2

CAMBRIAN AND/OR EARLIER

10	Dark grey and brown silty shale and finely laminated siltstone, dark grey slate, thin-bedded brown-grey fine-grained sandstone; minor hornfels
2	Quartz-feldspar-mica gneiss and schist, granitoid gneiss, feldspathic and micaceous quartzite, biotite schist, minor marble and skarn; numerous small granitic bodies, aplite and pegmatite; 2a, fine- to coarse-grained marble

FIGURE 4

PULSE RESOURCES LTD.

Money Zone Project - Frances Lake Area

Watson Lake M.D., Y.T. NTS 105 H/6

AREA GEOLOGY

November 1988

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grained unit. The overlying darker phyllitic mudstones contain fine silt lamina and thin interbeds of fine grained quartzite or meta-chert. It is in or near the transition of these two units that an increase in siliceous tuffaceous beds are most common and it is this section that is referred to as the favourable horizon. The "Matt Berry" stratabound zone is located within the favourable horizon. At surface the sulphide beds are interbedded and interlaminated with the siliceous tuffaceous beds. Within the exposed surface trace of the favourable horizon the sulphide beds are laterally quite continuous but appear to be less continuous down the dip.

Throughout the area minor quartz veining is exposed, the attitude frequently cuts the foliation, but is usually parallel to it. Minor to trace sulphides are sometimes associated with the quartz veining.

A particular rock unit of interest has been noted in the lower portions of DD holes 26A, 23, 19 and in DD holes 80-1, 80-2. This unit consists of 1-2mm quartz porphyroblasts in a siliceous sericitic matrix. The contacts with the phyllitic mudstone and siliceous tuffaceous units are sharp and appear to be conformable. The interpretation at present is that this unit is an intercalated quartz crystal tuff. The upper portion of DDH 80-3 contains several beds of dark grey to black calcareous mudstone with 15-20% 2mm to 6mm diamond semi-rounded fragments. These beds are inferred to be volcanic lapilli tuffs, intercalated with these beds are a few fine grained yellowish green tuffaceous beds up to 10cm thick.

Preliminary geological mapping along the lake shore 1km to the south of the "Matt Zone" located a siliceous-sericitic, pyritic unit approximately 2.0 meters in thickness. This unit is intercalated with black siliceous pyrrhotite rich mudstone. Within this horizon are found bands and layers of sphalerite galena and pyrite, as evidenced by angular float along the strike.

A geological map from a private report illustrates a quartz augen sericite schist band up to 30 meters thick in the southern portion of the property. This is inferred to be a stratigraphic unit similar to or the faulted extension of the quartz crystal tuff which underlies the "Matt Zone".

These observations indicate that the stratigraphic package on the Barb Group contains a considerable amount of intercalated intermediate to acid volcanic material."

3.4 Geology of the Money Zone Area (See Appendix III for rock sample location descriptions)

The Money Zone survey area is underlain mostly by fine grained phyllite mapped as unit 1 (see Figure 6). This rock varies in color from medium grey to dark grey-black and displays a strongly foliated fabric. Minor quartz veining parallels the dominant foliation trend with a pinch and swell habit. Occasional minor cross-cutting veinlets of quartz are also encountered.

A quartz augen schist strikes across the grid at approximately 150 degrees. This unit was mapped as Unit 2 and is identified in previous reports. It's presence is indicated by no more than 5-6 outcrops over approximately 800m, however occasional float was also found at other localities. These outcrops typically display no more than 1-2m squared of surface exposure allowing for a very limited view of the unit. This schist is typically light grey-green in color, strongly foliated and contains up to 50% quartz as augen structure contained within a sericite matrix. Minor sulphides were noted in float belonging to this unit, however no sulphides were seen in outcrop form.

All outcrops visited were sampled and in two locations, outcrops B and I, flagging attributable to Cominco, was identified. This schist is a strataform unit contained within the sedimentary pile. Cominco mapped a large outcrop with defined upper and lower contacts in the vicinity of location F on line 8100N (see Figure 6). This area was fully investigated to confirm this and one sample MZ-88-003 was taken. However, only one very small outcrop was identified. No lithological contacts were found.

3.5 Structure

The property is located on the gently dipping western limb of a north-northwest trending syncline which locally exhibits extensive deformation within the units.

Ostler (Nov., 1979) attributes this to three stages of deformation:

1. Formation of large near isoclinal folds with north-northwest trending fold axis.
2. Intrusion of granitic plutons to the east resulting in moderate southwest dipping cleavage and minor kink folds.
3. Deformation resulting in broad upright folds with near vertical axial planes trending north-northeast.

Numerous faults transect the property. They generally trend east-west with near vertical dips to the north. They have been described as oblique faults with the north side shifted down and to the west relative to the south block.

Over the Money Zone it is likely that an east-west fault bisects the target area (Cominco, 1980). The I.P. survey also suggests the presence of a northeast/southeast trending fault following the trend of the small creek which traverses the property (see Figure 6). It's attitude and sense of movement are unknown, however displacement is likely northwest side up and to the northeast. This assumes a conjugate set relationship with the east-west fault previously defined by Cominco.

4. GEOCHEMISTRY

4.1 Previous Geochemical Work

Before Cominco Limited carried out a systematic geochemical soil survey in 1981 (16) the only geochemical surveys completed on the property were confined to the immediate area of the mineralized showing. During the 1981 field season, Cominco took a total of 1179 soil/16 stream sediment/34 rock samples on a survey grid over the area to the southeast of the mineralized showing. Samples were collected every 50 meters and were analyzed in the company laboratory for lead, zinc, silver and copper. A major copper anomaly was interpreted as being caused by chalcopyrite present in quartz veins cutting the various rock units on the property. Several small lead and zinc anomalies were interpreted as being caused by traces of galena and sphalerite found along the foliation planes of the quartz augen schist unit. There were no significant silver anomalies.

In the summer of 1987, Strato Geological Engineering Ltd. conducted a geochemical soil survey on the property consisting of 720 soil samples. The results were analyzed for lead, zinc, silver, copper and arsenic. Several geochemical anomalies were delineated. The Money Zone was chosen for further investigation because it has soil geochemistry similar to the Matt Berry Zone.

4.2 Survey Method

A survey grid was established over the Money Zone to confirm the soil geochemistry results returned as part of the 1987 field program carried out by Strato Geological Engineering Ltd. Fourteen grid lines were spaced 100 meters apart between the previously established grid lines. The lines are for the most part 550m long with four lines established over 350m for a total line length of 6.9km (see Figure 6). Samples were taken every 25m from within the "B" horizon. Care was taken to sample beneath the often present volcanic ash horizon, however at some stations no true soil was encountered. A greenish grey to black silt was sometimes the only available material, especially in the bog areas.

The data is plotted, on Figures 8 to 13, along with the previously obtained results from 1987 to facilitate in determining a source area of mineralization.

4.3 Soil Geochemistry

A total of 277 soil samples were taken and analyzed for copper, lead, zinc, arsenic and silver. Because the soils were concentrated over a known zone that contains anomalous values for all the metal tested, statistical analyses were not performed. The anomalous threshold values previously established by Symonds, 1987, were felt to better represent the survey area since background values were more often encountered during that program than during this one.

With the exception of silver, which does not clearly show an anomalous trend, the other metals coincide to produce a significant multi- element anomaly across slope. A description of each is as follows:

<u>Copper</u>

Copper (see Figure 9) is considered weakly anomalous above 35 ppm and strongly anomalous above 55 ppm. Two anomalous zones were identified within the grid. Zone 1 returned a high value of 262 ppm and remains open to the southeast. Zone 2 remains marginally anomalous with a high value of 64 ppm and remains open to the northwest. Other smaller multi-element anomalies occur over the grid area generally in the 10100E-10200E range. There is no clearly continuous zone across the grid lines, however enough single samples are present to suggest weak mineralization may be present in the area.

<u>Lead</u>

Lead (see Figure 10) is considered weakly anomalous above 30 ppm and strongly anomalous above 45 ppm. Two anomalous zones were identified, however it is likely that these represent one continuous strata bound zone with significant downhill soil creep responsible for the elongation effect. Line 8450N which represents the strongest anomaly around Zone 1 is coincidental with a small creek which has caused the dispersion of mineralized soil. Zone 2 is also located near significant downhill water run-off resulting in an elongation effect. Since no strongly anomalous values are found east of 10150E, this is the area from where mineralization is most likely originating.

Zinc

Zinc (see Figure 11) is considered weakly anomalous above 130 ppm and strongly anomalous above 180 ppm. One irregularly shaped anomalous zone has been identified. Ignoring downslope drift, the zone takes on a linear trend cross-cutting the grid lines at 10150E from line 8850N to line 8400N for a strike length of 450 meters. A high value of 576 ppm was returned along with several others above 300 ppm.

Arsenic

Arsenic (see Figure 12) is considered weakly anomalous above 40 ppm and strongly anomalous above 65 ppm. Two anomalous zones were identified, however the high mobility of arsenic makes the zones seem exceedingly strong. Once again ignoring the downhill drift, there is a seemingly linear trend from line 8850N across the 10175E-10200E stations to line 8150N for a strike length of 700m. This is not a continuous trend. A soils grid with 10m station intervals and tighter line spacing would be required to confirm this.

Silver

Silver (see Figure 13) is considered weakly anomalous above 0.5 ppm and anomalous above 0.7 ppm. A high value was returned of 1.8 ppm. Silver occurrence was found to be very sporadic over the grid area. A weak trend of anomalous values is found stretching from line 8850N to 8600N. This trend is seen in only one sample per line, however it is more or less coincidental with the linear trend established by other metal values. Generally high anomalous values are found downhill to the west of stations 10200E, however isolated anomalous values were also returned uphill.

5. GEOPHYSICS

5.1 Introduction

Four different geophysical techniques were used in an effort to trace the lead-zinc zone of the Matt Berry discovery to the area of the Money Zone established by its geochemical similarity with the Matt Berry area (DiSpirito & Symonds, 1987). A total of 9.5 line kilometers of induced polarization (I.P.)-resistivity survey and 9.9 line kilometers of self potential (S.P.) survey were run over the Money Zone, 3.3 line kilometers of detailed VLF-EM survey was run over the zone and 1.5 kilometers of CEM was run over the Money Zone. Four hundred and fifty meters of detailed CEM was also done over the Matt Berry zone. A pair of perpendicular Wenner array resistivity depth soundings were completed to estimate the depth to bedrock.

An I.P. resistivity survey involves measuring the effects of a current introduced into the ground to yield an idea of subsurface electrical properties. An S.P. survey involves measuring the effects of natural ground currents. A VLF-EM survey employs a distant very low frequency (VLF) radio transmitter and a receiver that measures the effect electromagnetic coupling with local conductors has on the attitude and size of the resultant received signal. The Crone EM (CEM) survey is a type of horizontal loop EM system designed to counteract terrain effects. Two coils are involved, both acting as transmitter and receiver in turn. The receiver is aligned with the electromagnetic field resulting from coupling of the transmitter signal with subsurface conductors. Using two receivers equal and opposite results are achieved in the absence of a conductor. The Wenner array can be systematically increased in size to measure changes in resistivity at increasing depth in order to estimate the depth to bedrock. All geophysics, except the Wenner array, was conducted on grids blazed and flagged in the 1987 field season. Generally every 100 meter station was marked with a labeled sheet metal tag.

5.2 Depth Soundings

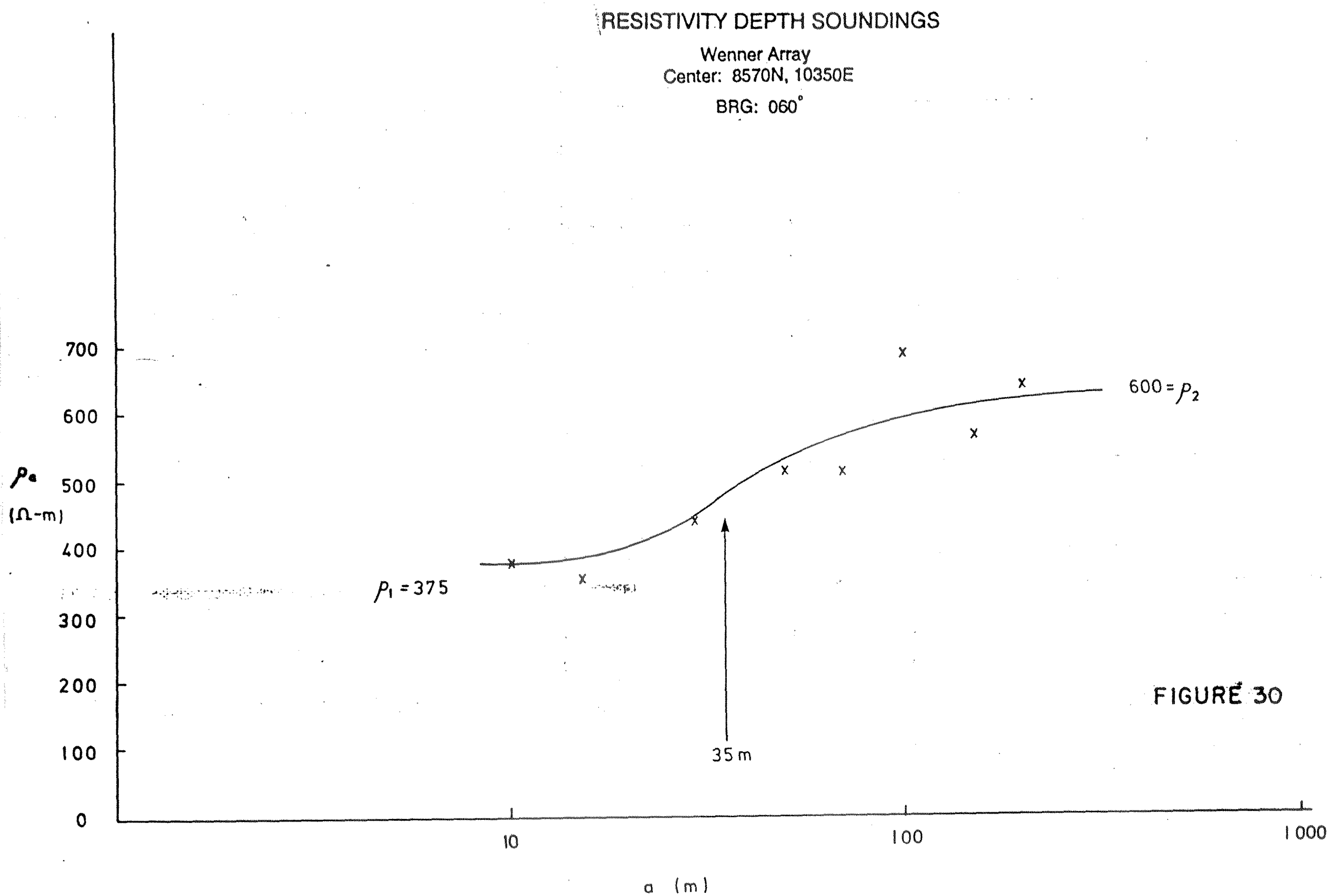
Two Wenner array depth soundings were completed. Both were centered at 8570N and 10350E on the grid. The two were run at bearings of 150 degrees and 60 degrees, which is perpendicular and parallel to the grid

Table 1

TAGG'S CURVES WENNER ARRAY BRG 60 DEGREES @ 8570N 10350E

assume **what is**

a	10	15	30	50	70	100	150	200
	380	355	446	518	517	695	570	644
	1.0	1.07	0.85	0.73	0.74	0.55	0.67	0.59
K			h/a, h					
0.1			0.24					
			7.2					
0.2			0.60	0.28	0.29			
			18	14	20.3			
0.3			0.82	0.50	0.51	0.05	0.34	0.19
			25	25	36	5	51	38
0.4			0.96	0.63	0.64	0.28	0.50	0.36
			29	32	45	28	75	72
0.5			1.07	0.75	0.76	0.40	0.61	0.47
			32	38	53	40	91.5	94
0.6			1.18	0.84	0.85	0.50	0.70	0.57
			35	42	60	50	105	114
0.7			1.30	0.92	0.93	0.57	0.80	0.65
			39	46	65	57	120	130
0.8			1.39	1.00	1.02	0.65	0.86	0.73
			42	50	71.5	65	129	146
0.9			1.45	1.07	1.09	0.74	0.93	0.80
			44	53.5	76.5	74	139.50	160
1.0			1.57	1.14	1.16	0.82	0.99	0.96
			47	57	81	82	149	192



RESISTIVITY DEPTH SOUNDINGS
Wenner Array
Center: 8570N, 10350E
BRG: 060°
700
600
ρa
500
(Ω-m)
400
300
200
100
0
ρ1 = 375
600 = ρ2
35 m
10
100
1 000
a (m)

FIGURE 30

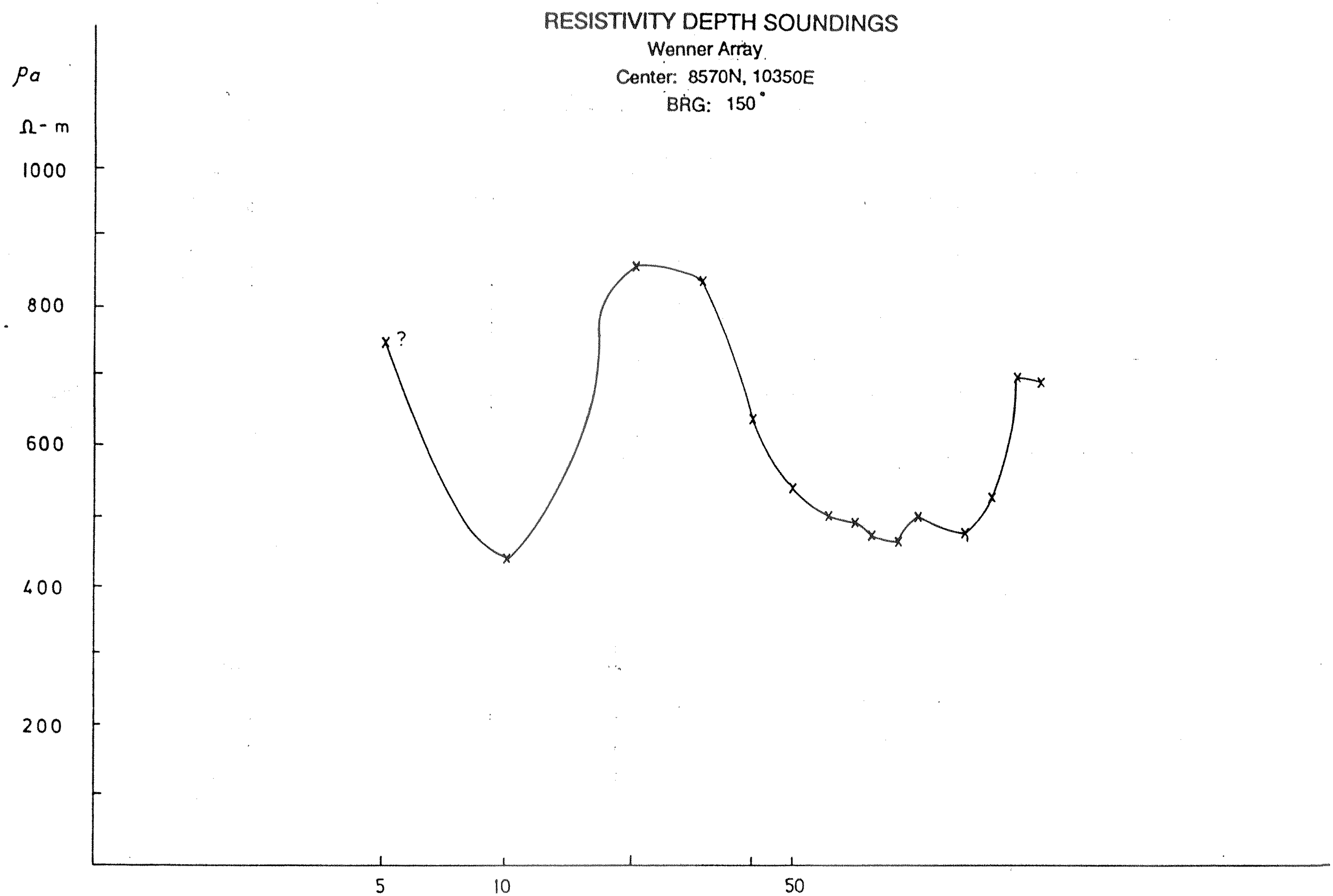

RESISTIVITY DEPTH SOUNDINGS
Wenner Array
Center: 8570N, 10350E
BRG: 150°
ρa
Ω - m
1000
800
600
400
200
5
10
50
?

FIGURE 31

TAGG'S CURVES INTERPRETATION

Wenner Array
Center: 8570N, 10350E
BRG: 060°

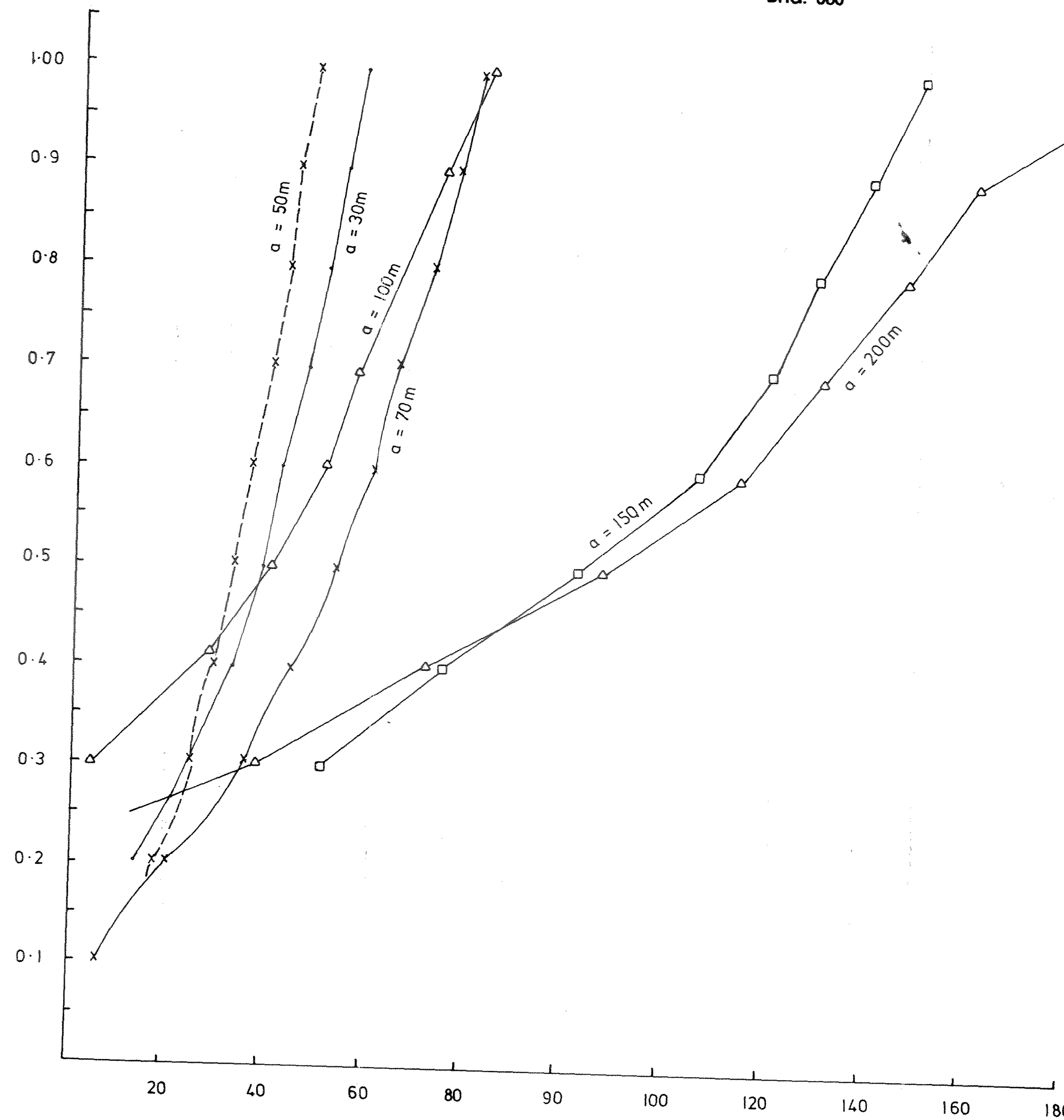


FIGURE 32

a36 PSR

MOORES CUMULATIVE PLOT

Resistivity Depth Sounding
Wenner Array
Center: 8570N, 10350E
BRG: 150°

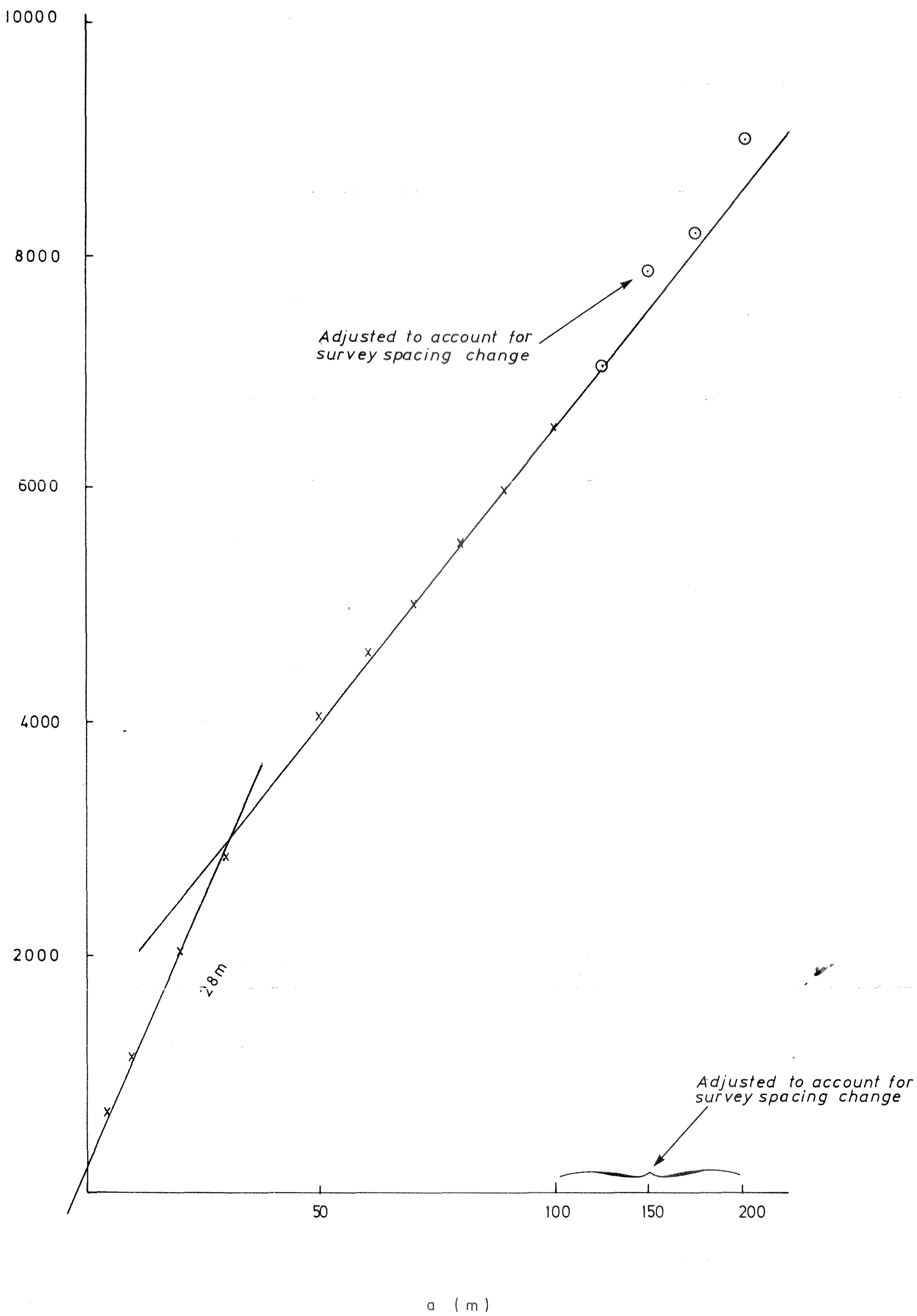


FIGURE 33

respectively. The Mark IV Huntec receiver and transmitter (see Appendix IV) were used for the soundings. The spacing was varied from 5 to 200 meters. The purpose was to establish a depth to bedrock estimate.

The two soundings showed very different results. The sounding run at 60 degrees shows the apparent resistivity gradually increasing from 375 to 600 ohm-meters (see Figure 30). This leads to a simple two layer model with the depth to the bottom layer being about 35 meters and the two layers having resistivities of 375 and 600 ohm meters. A Tagg's Curves analysis (see Table 1 and Figure 32) yielded estimates for the interface at depths between 15 and 30 meters and estimates for the resistivity of the second layer between 875 and 560 ohm feet. The scatter of the data is the result of lateral variations in the subsurface and is most noticeable at larger spacings.

The depth sounding run at 150 degrees shows (see Figure 31) the apparent resistivity peaking at spacings of 25 and 200 meters with resistivity values of 850 and 700 ohm meters respectively. The resistivity lows between these highs range from four to five hundred ohm-meters. The total lack of similarity between this sounding and the first is probably the result of a major structural feature being crossed by the sounding running at 150 degrees. Separate evidence suggests a fault crosses the sounding run at 150 degrees around 8500N. This sounding yields a clean break on the Moore's Cumulative plot (Figure 33) at around thirty meters. This is consistent with the first sounding.

The depth to bedrock estimate obtained with these two soundings is between 15 to 30 meters. This estimate can be thought of as an approximate maximum depth to Bedrock at 8570N, 10350E. Approximately 150 meters southeast of this point bedrock is found on surface.

5.3 I.P. Resistivity and S.P. Surveys - Detailed Discussion

The induced polarization resistivity survey employed a Huntec Mark IV 7.5kW transmitter and a matching generator system and receiver (see Appendix IV). The survey was conducted in the time domain using a pulse frequency of 1/8 Hz (2 seconds on (+), 2 seconds off, 2 seconds on (-), 2 seconds off). The chargeability was sampled over ten 150 ms windows commencing 200 ms after shutdown. The array configuration used was pole-dipole. The

Table 2

I.P. RESISTIVITY ANOMALIES

Anomaly	Location	Figure	Type	Strength	Comments
81-1	10300-10400E	14	fault	moderate	-ve chargeabilities could indicate channelling.
81-2	10050-10150E	14	conductive zone	weak	-ve chargeabilities could indicate channelling.
81-3	9700-9775E	14	chargeability	very weak.	
82-1	10050-10150E	15	conductive zone	moderate	-ve chargeabilities could indicate channelling.
82-2	9725-9825E	15	fault	strong	associated S.P. drop off.
83-1	9850-9975E	16	fault	strong	some -ve chargeabilities and an S.P. drop off.
83-2	9725-9800E	16	chargeability	weak.	
84-1	10000-10075E	17	conductive zone	weak.	
84-2	9775-9850E	17	chargeability	weak	associated S.P. drop off.
85-1	9900-10025E	18	conductive zone	strong	associated S.P. drop off.
85-2	9725-9800E	18	chargeability	very weak.	

Anomaly	Location	Figure	Type	Strength	Comments
86-1	10025-10125E	19	conductive zone and fault	moderate	
86-2	9775-9875E	19	chargeability	moderate	associated S.P. anomaly.
87-1	9975-10075E	20	conductive zone	weak.	
87-2	9650-9750E	20	chargeability	weak	
88-1	10000-10100E	21	conductive zone	strong.	
88-2	9625-9725	21	chargeability	strong	associated S.P. anomaly.
89-1	10000-10100E	22	conductive zone	moderate	some -ve chargeabilities and associated S.P. anomaly.
89-2	9600-9700	22	chargeability	strong.	

dipole spacing was 50 meters and six were employed. All survey lines employed a common infinity electrode for the transmitter which was located about 1000 meters northeast of the camp. The transmitter was set up and operated from the field camp. Nine lines were run over a total distance of 9.5 line kilometers. The lines run from the northeast to the northwest at a bearing of 240 degrees with the receiver dipole array leading the receiver which was followed by the current stake. A crew of four was used to run the survey. All members of the crew maintained contact using Motorolla HT-90 VHF-FM transceivers. Pseudo section presentations of the I.P. resistivity data are presented on Figures 14 to 22. Plan map presentations of the I.P. resistivity data presented on Figures 23 to 28.

The self-potential (S.P.) survey was done over the same area as the I.P. resistivity survey using a high input impedance (Fluke 8080B) digital multimeter. The survey lines were run with a pair of copper sulfate pots and the self potential values were referenced to one point on the grid. The self-potential data is presented below the I.P. resistivity pseudo sections on Figures 14 to 22. It is also presented in plan form on Figure 29.

What follows is a detailed description of the I.P. resistivity and S.P. anomalies found on each line.

Line 8100N (see Figure 14)

Generally three different types of geophysical responses are suggested by the I.P. resistivity survey. Examples of each signature type are found in this survey line. The different types of responses suggest separate causes and are given descriptive titles for easy reference.

Anomaly 81-1 is located between 10400E and 10300E. It shows a grid west dipping apparent resistivity low with an associated high chargeability and with negative chargeabilities. The latter can be caused by channelling around strong conductors. This response is moderate and the data suggests a steeply dipping planar conductor, such as an unsealed fault. This geophysical signature type is thus called a "fault" anomaly in this report. The dip of the pattern cannot reliably be used to establish a real fault dip since the array configuration can affect the pattern.

Anomaly 81-2 occurs from 10050 to 10150E. This anomaly shows a broad zone of slightly lower apparent resistivities and generally higher chargeabilities and metal factors. This very week response suggests a shallow to moderate dipping planar conductor as a source. A Matt Berry type stratabound massive sulphide qualifies as a source. For discussion this response type will be referred to as a "conductive zone" anomaly.

Anomaly 81-3, located between 9700 and 9775E, shows generally higher chargeabilities and metal factors to depth associated with relatively low apparent resistivities at the surface and will henceforth be known as a chargeability type anomaly. The higher chargeabilities and metal factors can point to an increase in metallic sulphides and their widespread nature indicates this increase is spread over a large zone. An alternate explanation for the anomaly is the presence of buried clay horizons. The response is very weak; a stronger response of this type is found on anomaly 88-2.

Line 8200N (see Figure 15)

Anomaly 82-1 is located between 10050 and 10150E. Apparent resistivity defines a broad low that extends to depth where it narrows. This is accompanied by a sharp chargeability high dipping at 45 degrees towards grid west and flanked by negative chargeabilities. The latter could indicate channelling caused by a narrow highly conductive zone. Moderate metal factors accompany this zone. The response is moderate and the data shows a "conductive zone" anomaly.

Anomaly 82-2, found from 9725 to 9825E, exhibits a moderate response and is a "fault" anomaly. A steeply dipping strong conductive zone is accompanied by high chargeabilities and metal factors which are very high near surface and mark the zone to depth. The area is also marked by a steep drop in self potential of almost 60 millivolts to grid west.

Line 8300N (see Figure 16)

Anomaly 83-1 is between 9850 and 9975E. The apparent resistivity zone defines a broad resistivity low which narrows at depth. This zone is flanked by a steeply dipping band of very high chargeabilities which lead to high metal factors. This band has two negative chargeabilities bracketing it. The zone also has a steep drop in self potential to grid west at 9875E. The broad resistivity low suggests a "conductive zone", whereas the narrow chargeability and metal factor band suggests a "fault" anomaly. The response is moderate and will be considered a "fault" anomaly.

Anomaly 83-2 is located between 9725 and 9800E, exhibits a weak response and is a "chargeability" anomaly. Near the surface the apparent resistivity is relatively low while the chargeability is relatively high to depth. This results in high metal factors near the surface.

Line 8400N (see Figure 17)

Anomaly 84-1 is located between 10000 and 10075E, exhibits a weak response and is a "conductive zone" anomaly. The apparent resistivity shows a wide conductivity low which extends to depth. The anomaly is marked by a slight chargeability and metal factor low.

Anomaly 84-2, found between 9775 and 9850E, exhibits a weak response and is a "chargeability" anomaly. High chargeability is found to depth accompanied by low surficial apparent resistivity which results in very high surficial metal factors. A self potential signature accompanies this anomaly and is characterized by a 80 millivolt drop off to grid west.

Line 8500N (see Figure 18)

Anomaly 85-1 occurs between 9900 and 10025E, exhibits a moderate response and is a "conductive zone" anomaly. It is characterized by low apparent resistivity to depth and moderate chargeabilities flanked by lower and some negative chargeability values. The metal factor data reveals a broad zone of high values flanked by lower ones especially to grid west.

Anomaly 85-2, located between 9725 and 9800E, exhibits a weak response and is a "chargeability" anomaly. High chargeability extends to depth although a pronounced surficial resistivity low is not found.

The self potential anomalies on this line are off a different character. A 70 millivolt drop off occurs in conjunction with anomaly 85-1, but it drops off to grid east. To the east of this the self potential continues to drop steadily to the east until 10450E where it drops quickly by 160 millivolts. The self potential data is presented in plan form on Figure 29 and this line dominates the map. It is possible that the strong self potential low at the east end of line 8500N reflects the presence of a fault subparallel to the line in this area.

Line 8600N (see Figure 19)

Anomaly 86-1 is located between 10025 and 10125E. A wide apparent resistivity low narrows at depth and is associated with moderate chargeabilities which increase with depth. This results in a relative high in metal factors which outlines the apparent resistivity anomaly at depth. The response is weak and the data suggests a cross between a "conductive zone" and "fault" anomaly.

Anomaly 86-2, located between 9775 and 9875E, exhibits a moderate response and is a "chargeability" anomaly. Relatively high chargeabilities to depth are associated with low apparent resistivities at surface. A weak drop off of about 50 millivolts to grid west accompanies this anomaly.

Line 8700N (see Figure 20)

Anomaly 87-1, located between 9975 and 10075E, exhibits a very weak response and is a "conductive zone" anomaly. The apparent resistivity pattern reveals a broad resistivity low to depth which is accompanied by moderate chargeabilities which increase to depth and decrease quickly to grid east.

Anomaly 87-2, located between 9650 and 9750E, exhibits a very weak response and is a "chargeability" anomaly. It shows relatively high chargeabilities to depth and low surficial apparent resistivities.

A self potential drop of about 50 millivolts which decrease to the west is found at 9825E about 75 meters grid east of anomaly 87-2. This coincides with the location of a fault proposed by Cominco in 1980.

Line 8800N (see Figure 21)

Anomaly 88-1, located between 10000 and 10100E, exhibits a strong response and is a "conductive zone" anomaly. A broad and well defined apparent resistivity low is associated with moderate chargeabilities which increase slightly with depth.

Anomaly 88-2 is located between 9625 and 9725E, exhibits a strong response and is a "chargeability" anomaly. An area of relatively high chargeabilities is associated with a sharp low in the near surface resistivity. The anomaly is accompanied by a self potential anomaly indicative of a buried conductive zone which coincides with the location of a fault proposed by Cominco in 1980. A small magnetic anomaly coincides with these anomalies (DiSpirito & Symonds, 1987).

<u>Line 8900N (see Figure 22)</u>

Anomaly 89-1, located between 10000 and 10100E, exhibits a very weak response and is a "conductive zone" anomaly. A broad apparent resistivity low extends to and narrows at depth. The zone falls close to a sharp boundary between low to negative and moderate chargeabilities. It is accompanied by a self potential anomaly which exhibits a 100 millivolt drop to grid west.

Anomaly 89-2, located between 9600 and 9700E, exhibits a moderate response and is a "chargeability" anomaly. Low surficial resistivity is accompanied by high chargeability to depth.

What follows is a discussion of the plan map presentation of the I.P. data. The data is presented for values of n=2 and n=4 which corresponds to average depths of penetration of 75 meters and 125 meters respectively. Plots of the apparent resistivity, chargeability and metal factors are presented on Figures 23 to 28.

<u>Apparent Resistivity n=2 (Figure 23)</u>

The lower anomalous zone loosely follows a trend of apparent resistivity lows. The center of these lows coincide exactly with the anomalous zone at 9750E, 8200N; 9825E, 8600N; and 9675E, 8800N. The first of these lows also corresponds with a northeast trending fault proposed in this report. The last of these lows corresponds with a east-west trending fault proposed by Cominco in 1980. The upper anomalous zone follows loosely a series of apparent resistivity lows. These lows correspond most closely with the upper

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anomalous zone at 8100N, 10080E; 8300N, 9850E; and 8700N, 10000E. The upper anomalous zone also appears to be offset in two places. The pair of faults discussed previously explain these offsets. At 8300N and 9850E a resistivity low corresponds with a proposed fault trace. The area of the quartz augen schist unit is not outlined in this data. A fault type anomaly centered at 10350E and 8100N corresponds to a resistivity low which would suggests that, if this is a fault marked by an apparent resistivity low, it trends to the north.

Apparent Resistivity n=4 (Figure 26)

The lower anomalous zone corresponds loosely to the 7000 ohm meter contour which forms a bench in this part of the contour map. The upper anomalous zone correlates with a series of apparent resistivity lows. These lows are offset and broken up where the east-west and northeast trending proposed faults cross the zone. The area of the quartz augen schist is marked by several resistivity highs (entered at 8450N, 10200E and 8550N, 10125E) to the northwest and a resistivity low to the southeast (centered at 10200E and 8270N). The east-west trending proposed fault is marked by a series of high apparent resistivity zones. The proposed northeast trending fault is poorly outlined.

Chargeability n=2 (Figure 24)

A chargeability high is associated with the lower anomalous zone. Relative chargeability highs mark the proposed east-west (Cominco, 1980) and northeast trending faults. The upper anomalous zone is poorly delineated. The upper boundary of the quartz augen schist is marked by a sharp gradient between high and low (to the northeast) chargeabilities from lines 8600N to 8900N.

Chargeability n=4 (Figure 27)

The lower anomalous zone is associated with chargeability highs. Other features are poorly marked by this data.

Metal Factor n=2 (Figure 25)

The lower anomalous zone corresponds to generally high metal factor values. The upper anomalous zone does not correlate with this data.

Metal Factor n=4 (Figure 28)

The lower anomalous zone correlates with an area of relatively high metal factor values. The upper anomalous zone is loosely associated with relatively high metal factor values. Especially on lines 8300N, 8500N, 8600N and 8700N.

5.4 VLF-EM Survey

Detailed VLF-EM survey was conducted on 3.3 kilometers of line over the Money Zone with a station spacing of 12.5 meters (see Figure 34). The instrument used was a Sabre Electronics Model 27 VLF-EM receiver (see Appendix IV). Two different transmitter stations were employed: Seattle, WA at 24.8 kHz and Hawaii at 23.4 kHz. No significant response was found although the I.P. resistivity and S.P. surveys found six anomalies. Three of these I.P. resistivity anomalies showed a broad zone of low apparent resistivity to depth. This pattern could correspond to a shallow dipping conductor. The Wenner array revealed the presence of substantial amounts of conductive overburden. The VLF-EM unit is designed to respond best to steeply dipping conductors under shallow overburden. The other three anomalies are shallow and wide low resistivity zones. Both types of anomalies do not correspond well to the VLF-EM units ideal target. The VLF-EM survey was discontinued when it failed to yield any anomalies.

5.5 CEM Survey

Numerous surveys were conducted with the Crone EM (CEM) system (see Appendix IV). A total of 1.5 line kilometers of measurements were taken over the Money Zone using both medium (1830 Hz) and high (390 Hz) frequencies (see Figure 35). Readings were taken at 12.5 meter intervals using a 50 meter coil spacing and the horizontal shoot-back configuration to maximize depth of penetration. No anomalies were detected over known I.P. resistivity anomalies. A detailed survey was conducted over the location of the massive sulfides of the Matt Berry zone. A total of 325 meters were surveyed using a 100m coil spacing, 12.5 meter stations and the medium (1830 Hz) frequency. Another 150 meters of line were surveyed using a 50m coil spacing, the medium frequency and a five meter station spacing. No anomalies were detected.

5.6 Summary (see Figure 8)

The VLF-EM surveys and the CEM surveys failed to establish any anomalies over the Money Zone. Overburden, the small conductivity thickness product and the assumed shallow dip of the target probably accounts for this. The CEM survey was also conducted over an area 50 meters down strike from a one meter wide outcrop of massive sulphides in the Matt Berry zone, again with no result. Since overburden is probably minimal in this area it is likely that the conductivity thickness product is too small for the CEM system to detect this zone.

The self potential survey data showed a 160 millivolt low at the east end of line 8500N with a general decrease of all values to the east past 9900E. This pattern is thought to be associated with a fault or faults subparallel to the line in this area. The data also featured smaller drops in self potential to the west which are weakly associated with I.P. resistivity anomalies but could be caused by vegetation changes. One anomaly at 9700E on line 8800N suggests a buried conductive zone which coincides with an east-west fault proposed by Cominco in 1980.

The induced polarization-resistivity survey revealed two anomalous zones and three different types of responses. A "conductive zone" anomaly is characterized by a broad low apparent resistivity (less than 5,000 ohm-meters) zone extending from less than 50 meters below surface to depth and accompanied by relatively high chargeability (usually greater than 10 msec.) and relatively high metal factor zones (usually greater than 10 msec/ohm-meter). Such an anomaly could be caused by a buried thin planar conductor with a high conductivity and a moderate dip. This type of geophysical target would correspond to a Matt Berry type massive sulphide.

A "chargeability" anomaly is characterized by a high chargeability (from 20 to 90 msec.) from less than 50 meter below surface to depth with surficial apparent resistivity lows (under 500 ohm-meters). This type of anomaly often characterizes broad zones of bedrock with increased metallic sulphide content.

A "fault" anomaly is characterized by a well defined steeply dipping apparent resistivity low (less than 5,000 ohm-meters), extending from less than 50 meters below surface to depth, accompanied usually by a chargeability high (often higher than 20 msec.) and sometimes by negative chargeabilities. This type of anomaly can be caused by a steeply dipping planar conductor. Current channelling along such a conductor is known to cause negative chargeabilities. Such a conductor can be the result of a mineralized or open steeply dipping fault zone.

The two distinct anomalous zones display different responses. A broad lower anomalous zone cuts across the grid at around 9700E and is characterized largely by "chargeability" anomalies. The lower anomalous zone could be the result of an area enriched in disseminated sulphide mineralization, bearing 150 degrees, with a strike length of 800 meters, open at either end and extending from less than 50 meters below surface to depth. The second upper anomalous zone cuts across the grid at around 10050E and generally exhibits "conductive zone" anomalies. This zone is coincident with the lower contact of the quartz augen schist (as inferred by Cominco, 1980). Scarcity of outcrop prevents establishing the exact limits of this schist unit. Anomalous soil geochemistry is also found in the area of the upper anomalous zone. Stratigraphy, established by drilling in the Matt Berry zone suggests the source of the geochemical anomaly is a massive sulphide unit near the upper contact of the quartz augen schist. Current information suggest this is about 100 meters upslope of the upper geophysical anomalous zone. However, the geophysical response of the upper anomalous zone suggests a Matt Berry type strata bound massive sulphide with a bearing of 150 degrees, a strike length of 800 meters which extends from less than 50 meters below surface to depth and is open at either end.

Two steeply dipping faults trending east-west, with a left lateral slip movement, were inferred by Cominco in 1980. Only one of these crosses a significant portion of the grid. The only surficial geology to support its presence is found on 9000N near the lake (see Figure 5). It does however offset the lower and upper I.P. resistivity anomalous zones. The upper anomalous zone suggests a conductive fault zone on line 8600N. It is possible that the positions of these inferred faults varies up to 100 meters from the locations shown. Another fault is inferred from the results of this program. The inferred fault is steeply dipping with a northeasterly trend, probably with a right lateral movement, and probably forming a conjugate pair with the inferred Cominco faults. This inferred fault offsets the upper I.P. resistivity anomalous zone and is suggested by the I.P. resistivity data on the upper and lower anomalous zones on lines 8300N and 8200N respectively. The inferred fault trace follows the course of a major stream in the area. Once again the location of this inferred fault cannot be determined accurately and could vary up to 100m from its present location. Lack of significant surficial geology means the presence of these faults can only be established by drilling.

The Huntec Mark IV I.P. resistivity system was used to do a pair of crossed Wenner resistivity soundings. These established a probable maximum depth to bedrock estimate of 15 to 30 meters at 8570N and 10350E. Significant lateral variations were noticed in the data. The general pattern of the two soundings was significantly different and it is thought that one of the soundings crossed a conductive zone, possibly a fault. Outcrop is found within 200 meters of this point.

6. CONCLUSIONS

The 1988 program detailed and extended the geochemistry done on the Money Zone and surveyed this area with induced polarization (I.P.) resistivity and self potential (S.P.) geophysical techniques. VLF-EM (distant source) and Crone electromagnetic (CEM-local source) geophysical surveys were tested over the Matt Berry and Money Zones. The geology of the area was confirmed and new claim areas were mapped.

The field work confirmed the geochemical signature of the Money Zone. The VLF-EM and CEM techniques were shown to be ineffective, probably because of thick overburden cover. Geologically, there was little new information gathered that is able to contribute to a meaningful interpretation of the local structural setting of the Money Zone anomaly. The existence of substantial overburden over much of the area is suggested by the Wenner array depth soundings. A fault, inferred by Cominco in 1980, is suggested by the geophysical data. A second fault is also suggested by the geophysical data.

Two distinct anomalous zones were delineated by the I.P. resistivity survey. The upper zone is closely associated with the quartz augen schist unit and the soil geochemistry anomalies. This anomalous zone cuts across the grid at around 10050E. The geophysical response is consistent with the presence of a moderately dipping Matt Berry type stratabound massive sulphide, bearing about 150 degrees, extending from less than 50 meters below surface to depth. The strike length of this anomaly is 800 meters and it remains open at either end. The lower anomalous zone has a geophysical response consistent with the presence of a zone enriched in disseminated massive sulphides extending from less than 50 meters below surface to depth. This anomalous zone cuts across the grid at around 9700E. The anomalous zone has a strike of 150 degrees, a strike length of 800 meters and is open at either end. It is felt that further geological information about the Money Zone is best established by drilling.

In conclusion, the work done thus far suggests the Money Zone has the same potential as the Matt Berry Zone. This remains to be tested by drilling. There is also a good possibility that the Money Zone extends to the north and south. Geophysical and geochemical work could be conducted to define an extension of the zone. Previous work is especially sparse to the south of the Money Zone. Large portions of the claim block remain relatively unexplored and reconnaissance geoscientific surveys could be conducted over these areas. Mobilization costs are high in this area and care should be taken to minimize them.

Respectfully submitted,
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Geologist

December 21, 1988

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A Survey of Known Mineral Deposits in Cranstone, D.A. Canada That Are Not Being Mined, Mineral Development Sector, Energy, Mines & Resources, 1976.

12. Ikona, C.K.
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14. Ikona, C.K.
Summary Report on the Barb Group, for Sovereign Metals Corporation, January 10, 1980.

15. Mawer, A.B.
Year End Report, Barb Option, Cominco Ltd., November, 1980.

16. Hodson, T.W.
Year End Report, Barb Option, Cominco Ltd., December, 1981.

8. CERTIFICATES

I, AL E. HUNTER, of Vancouver, British Columbia, Canada do hereby certify the following:

1. I have completed the courses of the Bachelor of Applied Science program in Geological Engineering (Option II) from the University of British Columbia, Vancouver, British Columbia, and will receive a degree upon completion of a thesis.

2. Since leaving University I have practiced my profession in western and northern Canada for approximately 7 years.

3. I have no direct, indirect or contingent interest, nor do I expect to receive such interest, in the securities or properties of Pulse Resources Ltd.

DATED at Surrey, British Columbia this 21st day of December, 1988.

A.E. Hunter
Geophysicist

I, Paul S. Roberts of 3190 East 29th Avenue, of the City of Vancouver, Province of British Columbia do hereby certify that:

1. I graduated in 1986 from Memorial University of Newfoundland with a Bachelor of Science degree in Geology.

2. I am employed as a Geologist by Strato Geological Engineering Ltd. with offices at 3566 King George Highway, Surrey, B.C., V4A 5B6.

3. I have worked fulltime as a Geologist with Strato Geological Engineering Ltd. since the fall of 1987 and prior to that worked intermittently as a research assistant during the summer months.

4. I have not received, nor do I expect to receive any direct, indirect or contigent interest in the properties or securities of Pulse Resources Ltd.

DATED at Surrey, British Columbia, this 21st day of December, 1988.

PS Roberts

Paul S. Roberts, B.Sc.
Geologist

APPENDIX I:
Analytical Procedures

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone 253-3158

GEOCHEMICAL LABORATORY METHODOLOGY

Sample Preparation

1. Soil samples are dried at 60°C and sieved to -80 mesh.
2. Rock samples are pulverized to -100 mesh.

Geochemical Analysis (AA and ICP)

0.5 gram samples are digested in hot dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. Extracted metals are determined by :

A. Atomic Absorption (AA)

Ag*, Bi*, Cd*, Co, Cu, Fe, Ga, In, Mn, Mo, Ni, Pb, Sb*, Tl, V, Zn
(* denotes with background correction.)

B. Inductively Coupled Argon Plasma (ICP)

Ag, Al, As, Au, B, Ba, Bi, Ca, Cd, Co, Cu, Cr, Fe, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, Ti, U, V, W, Zn.

Geochemical Analysis for Au*

10.0 gram samples that have been ignited overnite at 600°C are digested with 30 mls hot dilute aqua regia, and 75 mls of clear solution obtained is extracted with 5 mls Methyl Isobutyl Ketone.

Au is determined in the MIBK extract by Atomic Absorption using background correction (Detection Limit = 1 ppb).

Geochemical Analysis for Au**, Pd, Pt, Rh

10.0 - 30.0 gram samples are subjected to Fire Assay preconcentration techniques to produce silver beads.

The silver beads are dissolved and Au, Pd, Pt, and Rh are determined in the solution by graphite furnace Atomic Absorption. Detections - Au=1 ppb; Pd, Pt, Rh=5 ppb

Geochemical Analysis for As

0.5 gram samples are digested with hot dilute aqua regia and diluted to 10 ml. As is determined in the solution by Graphite Furnace Atomic Absorption (AA) or by Inductively Coupled Argon Plasma (ICP).

Geochemical Analysis for Barium

0.25 gram samples are digested with hot NaOH and EDTA solution, and diluted to 20 ml.

Ba is determined in the solution by ICP.

Geochemical Analysis for Tungsten

0.25 gram samples are digested with hot NaOH and EDTA solution, and diluted to 20 ml. W in the solution determined by ICP with a detection of 1 ppm.

Geochemical Analysis for Selenium

0.5 gram samples are digested with hot dilute aqua regia and dilute to 10 ml with H_2O. Se is determined with $NaBH_3$ with Flameless AA. Detection 0.1 ppm.

Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone: 253-3158

Geochemical Analysis for Uranium

0.5 gram samples are digested with hot aqua regia and diluted to 10 ml.

Aliquots of the acid extract are solvent extracted using a salting agent and aliquots of the solvent extract are fused with NaF, K_2CO_3 and Na_2CO_3 flux in a platinum dish.

The fluorescence of the pellet is determined on the Jarrel Ash Fluorometer.

Geochemical Analysis for Fluorine

0.25 gram samples are fused with sodium hydroxide and leached with 10 ml water. The solution is neutralized, buffered, adjusted to pH 7.8 and diluted to 100 ml.

Fluorine is determined by Specific Ion Electrode using an Orion Model 404 meter.

Geochemical Analysis for Tin

1.0 gram samples are fused with ammonium iodide in a test tube. The sublimed iodine is leached with dilute hydrochloric acid.

The solution is extracted with MIBK and tin is determined in the extract by Atomic Absorption.

Geochemical Analysis for Chromium

0.1 gram samples are fused with Na_2O_2. The melt is leached with HCl and analysed by AA or ICP. Detection 1 ppm.

Geochemical Analysis for Hg

0.5 gram samples is digested with aqua regia and diluted with 20% HCl.

Hg in the solution is determined by cold vapour AA using a F & J scientific Hg assembly. An aliquot of the extract is added to a stannous chloride / hydrochloric acid solution. The reduced Hg is swept out of the solution and passed into the Hg cell where it is measured by AA.

Geochemical Analysis for Ga & Ge

0.5 gram samples are digested with hot aqua regia with HF in pressure bombs.

Ga and Ge in the solution are determined by graphite furnace AA. Detection 1 ppm.

Geochemical Analysis for Tl (Thallium)

0.5 gram samples are digested with 1:1 HNO_3. Tl is determined by graphite AA. Detection .1 ppm.

Geochemical Analysis for Te (Tellurium)

0.5 gram samples are digested with hot aqua regia. The Te extracted in MIBK is analysed by AA graphite furnace. Detection .1 ppm.

Geochemical Whole Rock

0.1 gram is fused with .6 gm $LiBO_2$ and dissolved in 50 mls 5% HNO_3. Analysis is by ICP or M.S. ICP gives excellent precision for major components. The M.S. can analyze for up to 50 elements.

APPENDIX II:

Soil and Rock Geochemistry Assay Certificates

TULSE FRANCES LAKE 1.1.

133-
275

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6
PHONE(604)253-3158 FAX(604)253-1716

DATE RECEIVED: OCT 24 1988
DATE REPORT MAILED: Nov. 2/88.

GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER.
THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: P1-P4 SOIL P5 ROCK

SIGNED BY. C. Leong .. D.TOYE, C.LEONG, B.CHAN, J.WANG; CERTIFIED B.C. ASSAYERS

STRATO GEOLOGICAL LTD. PROJECT FRANCES LAKE FILE # 88-5460 Page 1

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
L9350N 9950E	34	8	85	.2	6
L9350N 9975E	34	22	77	.2	13
L9350N 10000E	23	15	59	.1	12
L9350N 10025E	19	12	52	.1	10
L9350N 10050E	18	9	42	.1	11
L9350N 10075E	12	5	34	.1	5
L9350N 10100E	27	9	43	.1	9
L9350N 10125E	58	14	82	.1	17
L9350N 10150E	35	9	48	.3	4
L9350N 10175E	54	16	82	.3	23
L9350N 10200E	63	19	117	.4	14
L9350N 10225E	57	20	136	.3	21
L9350N 10250E	53	18	139	.4	16
L9350N 10275E	48	21	123	.1	24
L9350N 10300E	50	24	97	.4	23
L9250N 9975E	32	10	36	.2	2
L9250N 10000E	25	7	43	.3	4
L9250N 10025E	24	17	75	.3	15
L9250N 10050E	10	7	34	.1	8
L9250N 10075E	7	7	40	.2	12
L9250N 10100E	15	11	61	.1	21
L9250N 10125E	14	10	54	.2	18
L9150N 9950E	22	14	104	.2	18
L9150N 9975E	25	14	74	.4	13
L9150N 10000E	8	9	38	.1	12
L9150N 10025E	11	12	41	.1	16
L9150N 10050E	9	4	50	.2	12
L9150N 10075E	21	9	71	.2	22
L9150N 10100E	8	10	42	.1	19
L9150N 10125E	9	11	51	.1	17
L9150N 10150E	15	6	47	.1	13
L9150N 10175E	17	18	67	.2	19
L9150N 10200E	10	9	38	.1	5
L9150N 10225E	35	16	79	.4	18
STD C	62	39	132	7.1	39

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
L9150N 10250E	64	24	119	.2	11
L9150N 10275E	50	25	116	.3	9
L9150N 10300E	57	20	100	.2	9
L9050N 9950E	34	17	84	.6	57
L9050N 9975E	12	7	38	.1	16
L9050N 10000E	10	12	63	.1	12
L9050N 10025E	19	12	62	.2	11
L9050N 10050E	10	14	40	.1	13
L9050N 10075E	11	11	46	.2	11
L9050N 10100E	9	12	57	.1	18
L9050N 10125E	3	4	15	.1	2
L9050N 10150E	10	7	26	.1	2
L9050N 10175E	14	18	37	.1	13
L9050N 10200E	18	11	51	.1	10
L9050N 10225E	5	4	23	.1	6
L9050N 10250E	16	7	47	.1	10
L9050N 10275E	20	11	47	.3	9
L9050N 10300E	16	14	52	.1	15
L8250N 9950E	42	29	119	.1	91
L8250N 9975E	36	33	92	.1	110
L8250N 10000E	38	38	120	.1	118
L8250N 10025E	30	36	124	.3	91
L8250N 10050E	30	31	98	.1	75
L8250N 10075E	43	44	104	.2	87
L8250N 10100E	38	28	84	.1	43
L8250N 10125E	38	42	76	.1	86
L8250N 10150E	49	55	105	.4	106
L8250N 10175E	41	18	83	.1	35
L8250N 10200E	27	24	94	.5	31
L8250N 10225E	42	24	105	.4	24
L8250N 10250E	42	19	127	.1	21
L8250N 10275E	34	18	89	.1	14
L8250N 10300E	26	16	75	.1	10
L8250N 10325E	47	16	88	.2	13
L8250N 10350E	41	14	76	.1	8
L8250N 10375E	41	22	106	.3	7
STD C	57	39	132	6.7	38

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
L8250N 10400E	37	17	117	.1	6
L8250N 10425E	39	14	120	.1	2
L8250N 10450E	40	17	134	.1	3
L8250N 10475E	29	12	109	.1	7
L8250N 10500E	20	18	90	.1	10
L8150N 9950E	27	12	62	.1	24
L8150N 9975E	13	16	117	.1	64
L8150N 10000E	15	23	122	.1	78
L8150N 10025E	12	17	133	.1	75
L8150N 10050E	16	16	98	.1	61
L8150N 10075E	23	27	94	.1	76
L8150N 10100E	57	49	145	.7	108
L8150N 10125E	49	41	124	.2	106
L8150N 10150E	33	23	96	.1	49
L8150N 10175E	30	24	121	.1	49
L8150N 10200E	26	11	67	.1	8
L8150N 10225E	33	11	52	.2	6
L8150N 10250E	48	11	45	.2	3
L3150N 10275E	13	9	51	.1	2
L8150N 10300E	35	11	65	.1	4
L8150N 10325E	63	15	69	.2	7
L8150N 10350E	67	17	103	.1	9
L8150N 10375E	98	20	125	.1	13
L8150N 10400E	28	14	65	.2	12
L8150N 10425E	21	12	134	.3	7
L8150N 10450E	23	10	70	.1	9
L8150N 10475E	42	13	90	.1	4
L8150N 10500E	40	12	88	.1	2
L8050N 9950E	27	18	88	.1	73
L8050N 9975E	33	19	75	.1	41
L8050N 10000E	31	18	86	.1	39
L8050N 10025E	21	13	74	.2	26
L8050N 10050E	25	12	71	.1	30
L8050N 10075E	30	13	67	.2	18
L8050N 10100E	30	12	87	.1	11
L8050N 10125E	32	14	73	.1	19
STD C	58	42	133	6.6	36

STRATO GEOLOGICAL LTD. PROJECT FRANCES LAKE FILE # 88-5460 Page 4

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
L8050N 10150E	45	20	83	.3	27
L8050N 10175E	20	11	64	.2	8
L8050N 10200E	40	24	87	.3	16
L8050N 10225E	23	15	54	.2	11
L8050N 10250E	41	15	68	.3	17
L8050N 10275E	17	9	45	.1	18
L8050N 10300E	34	14	60	.2	4
L8050N 10325E	37	13	68	.2	8
L8050N 10350E	53	15	85	.1	8
L8050N 10375E	80	13	85	.1	12
L8050N 10400E	92	17	63	.2	14
L8050N 10425E	76	13	77	.2	17
L8050N 10450E	110	14	75	.3	17
L8050N 10475E	71	10	71	.2	8
L8050N 10500E	103	7	56	.1	8

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
MZ-88-001	26	5	78	.3	7
MZ-88-002	28	22	68	.2	3
MZ-88-003	9	22	31	.1	59
MZ-88-004	455	10	29	.3	31
MZ-88-005	39	2	98	.1	2
MZ-88-006	10	39	1095	.4	19
MZ-88-007	6	40	21	.3	63
MZ-88-008	271	66	18	.9	2792
MZ-88-009	26	7	24	.2	73
MZ-88-010	6	6	82	.1	13
MZ-88-011	163	10	14	.1	65
MZ-88-012	12	15	1	.1	22

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS ST. VANCOUVER B.C. V6A 1R6
PHONE(604)253-3158 FAX(604)253-1716

DATE RECEIVED: OCT 24 1988
DATE REPORT MAILED: Nov. 3, 1988.

GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR NA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.
- SAMPLE TYPE: Soil -80 Mesh

SIGNED BY Bernard Chan D.TOYE, C.LEONG, B.CHAN, J.WANG; CERTIFIED B.C. ASSAYERS

STRATO GEOLOGICAL LTD. PROJECT FRANCES LAKE FILE # 88-5459 Page 1

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
L8950N 9950E	13	9	39	.1	7
L8950N 9975E	12	16	65	.2	11
L8950N 10000E	7	12	57	.1	16
L8950N 10025E	4	2	52	.1	13
L8950N 10050E	8	9	54	.1	15
L8950N 10075E	8	7	91	.1	29
L8950N 10100E	13	13	119	.1	31
L8950N 10125E	9	7	63	.1	5
L8950N 10150E	11	9	75	.1	21
L8950N 10175E	14	10	61	.1	18
L8950N 10200E	8	11	53	.1	6
L8950N 10225E	7	11	48	.1	9
L8950N 10250E	14	10	58	.1	7
L8950N 10275E	15	4	49	.1	17
L8950N 10300E	19	14	58	.1	16
L8950N 10325E	19	9	46	.1	10
L8950N 10350E	25	7	60	.1	12
L8950N 10375E	34	8	56	.1	11
L8950N 10400E	22	7	46	.1	25
L8950N 10425E	19	12	58	.1	14
L8950N 10450E	15	10	67	.1	18
L8950N 10475E	26	18	80	.1	16
L8950N 10500E	33	14	66	.1	87
L8850N 9950E	10	10	74	.1	11
L8850N 9975E	8	18	52	.1	11
L8850N 10000E	8	14	87	.1	2
L8850N 10025E	8	6	78	.1	9
L8850N 10050E	8	13	81	.1	309
L8850N 10075E	7	9	79	.1	27
L8850N 10100E	8	12	90	.1	12
L8850N 10125E	47	17	145	.2	44
L8850N 10150E	44	13	134	.1	23
L8850N 10175E	15	13	66	.1	20
L8850N 10200E	33	24	141	.1	41
L8850N 10225E	50	20	114	.5	7
L8850N 10275E	22	12	79	.1	13
STD C	57	39	131	7.2	38

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
L8850N 10350E	60	12	69	.2	20
L8850N 10375E	21	12	70	.1	24
L8850N 10400E	16	9	59	.1	11
L8850N 10425E	6	4	21	.1	5
L8850N 10450E	20	16	61	.1	19
L8850N 10475E	7	7	51	.1	7
L8850N 10500E	15	11	63	.1	10
L8750N 9975E	17	28	195	.1	77
L8750N 10000E	13	15	113	.1	79
L8750N 10025E	32	17	78	.4	21
L8750N 10050E	28	16	76	.1	20
L8750N 10075E	22	25	150	.1	78
L8750N 10100E	16	12	86	.1	24
L8750N 10125E	6	9	127	.1	27
L8750N 10150E	12	13	178	.2	59
L8750N 10175E	185	50	144	1.8	29
L8750N 10200E	13	12	65	.1	19
L8750N 10225E	8	13	61	.1	20
L8750N 10250E	13	10	54	.1	15
L8750N 10275E	24	13	60	.1	6
L8750N 10300E	26	15	51	.1	12
L8750N 10325E	18	12	57	.1	10
L8750N 10350E	12	11	50	.1	7
L8750N 10375E	17	16	53	.1	6
L8750N 10400E	10	11	56	.1	10
L8750N 10425E	8	6	43	.1	9
L8750N 10450E	8	10	94	.2	11
L8750N 10475E	9	11	85	.1	13
L8750N 10500E	8	14	48	.1	9
L8650N 9950E	5	9	43	.2	8
L8650N 9975E	27	38	257	.3	30
L8650N 10000E	15	26	176	.2	15
L8650N 10025E	17	19	52	.2	10
L8650N 10050E	5	16	77	.2	18
L8650N 10075E	16	13	101	.1	34
L8650N 10100E	9	27	240	.1	35
STD C	56	38	131	7.1	39

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
L8650N 10125E	10	30	166	.3	29
L8650N 10150E	18	29	302	.3	40
L8650N 10175E	24	15	152	.1	67
L8650N 10200E	73	33	92	.7	9
L8650N 10225E	14	19	129	.2	10
L8650N 10250E	7	9	110	.2	7
L8650N 10275E	4	9	41	.1	2
L8650N 10300E	34	15	48	.5	5
L8650N 10350E	34	11	79	.3	22
L8650N 10375E	20	16	51	.2	4
L8650N 10400E	13	14	57	.1	12
L8650N 10425E	16	20	96	.6	8
L8650N 10450E	17	7	81	.2	7
L8650N 10475E	38	26	122	.2	4
L8650N 10500E	10	19	37	.1	2
L8550N 9950E	53	28	105	.4	8
L8550N 9975E	19	47	428	.2	23
L8550N 10000E	8	9	145	.1	16
L8550N 10025E	18	15	95	.1	32
L8550N 10050E	48	41	146	.2	56
L8550N 10075E	22	21	176	.1	62
L8550N 10100E	18	20	381	.2	7
L8550N 10125E	12	12	166	.2	18
L8550N 10150E	13	11	116	.1	13
L8550N 10175E	18	26	189	.1	17
L8550N 10200E	16	10	108	.3	18
L8550N 10225E	11	15	87	.2	14
L8550N 10250E	9	9	79	.1	4
L8550N 10275E	7	13	59	.1	6
L8550N 10300E	12	10	53	.1	5
L8550N 10325E	5	10	27	.1	2
L8550N 10350E	10	13	72	.2	9
L8550N 10375E	7	12	46	.2	2
L8550N 10400E	20	13	87	.1	9
L8550N 10425E	8	5	43	.1	2
L8550N 10450E	14	13	73	.2	2
STD C	57	44	131	6.7	36

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
L8550N 10475E	14	13	79	.1	10
L8550N 10500E	12	10	70	.1	10
L8450N 9950E	34	22	326	.1	40
L8450N 9975E	44	45	285	.2	163
L8450N 10000E	53	52	295	.3	191
L8450N 10025E	27	68	275	.1	265
L8450N 10050E	30	65	408	.2	215
L8450N 10075E	54	123	490	.4	608
L8450N 10100E	49	118	265	.5	424
L8450N 10125E	43	52	190	.3	260
L8450N 10150E	26	49	137	.7	268
L8450N 10175E	15	16	90	.1	131
L8450N 10200E	19	22	119	.1	140
L8450N 10225E	18	10	31	.3	32
L8450N 10250E	26	17	80	.3	21
L8450N 10275E	28	8	36	.2	3
L8450N 10300E	39	11	61	.1	6
L8450N 10325E	59	13	96	.1	6
L8450N 10350E	14	8	34	.1	11
L8450N 10375E	46	19	80	.2	48
L8450N 10400E	32	23	85	.1	20
L8450N 10425E	8	4	36	.3	5
L8450N 10450E	30	17	124	.1	12
L8450N 10475E	21	12	54	.1	13
L8450N 10500E	40	15	96	.1	6
L8350N 9950E	24	16	64	.1	25
L8350N 9975E	21	13	35	.1	25
L8350N 10000E	29	28	58	.2	61
L8350N 10025E	23	19	87	.1	59
L8350N 10050E	18	12	97	.1	63
L8350N 10075E	12	15	89	.1	63
L8350N 10100E	15	19	109	.1	134
L8350N 10125E	18	29	99	.1	43
L8350N 10150E	8	18	108	.1	40
L8350N 10175E	14	13	118	.2	46
L8350N 10200E	23	15	36	.3	23
STD C	58	40	132	6.7	38

SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM
L8350N 10225E	9	8	53	.2	68
L8350N 10250E	4	6	56	.1	15
L8350N 10275E	73	14	81	.2	5
L8350N 10300E	53	13	78	.2	6
L8350N 10325E	57	12	75	.1	11
L8350N 10350E	64	19	85	.2	10
L8350N 10375E	52	24	131	.2	51
L8350N 10400E	27	22	129	.3	20
L8350N 10425E	56	12	60	.3	9
L8350N 10450E	46	23	68	.2	20
L8350N 10475E	53	21	94	.2	16
L8350N 10500E	51	18	88	.3	11
STD C	58	40	133	6.7	41

APPENDIX III:
Rock Sample Descriptions

Rock Sample Descriptions

"A" Consists of small 50x50cm exposures of phyllite on the west side of the creek near station 10500E on line 8500N. The foliation orientation remains fairly consistent with a 120 degrees strike/40 degrees dip NE (unsampled).

"B" Outcrop of phyllite belonging to unit 1. Previously sampled at various times (eg. Cominco TB-67). The primary foliation as seen at "A", 120 degrees strike/35 degrees NE. Secondary foliation, 120 degrees/60 degrees NE.

B' - sample location for MZ-88-001 approximately 20m downstream from "B".

B" - third outcrop of unit 1, 20m downstream from B'.

"C" Subcrop of phyllite on L8500/10425E. The foliation strikes 90 degrees away from that seen at "A" and "B". This is most likely a rotated boulder. Obvious orientation cleavage forming secondary fabric. MZ-88-002 taken as float 25m downstream from here.

"D" Float found in creek 100m south of camp. Much of creek flows beneath moss, brush cover and glacial boulders, however active stream beds are also apparent.

Upstream from "D", only unit 1 is visible (along with glacial float), however at "D" is found the rock that has characteristics of both units 1 and 2. The small quartz blobs are not elongate as in schist, while rock also displays phyllite affinities. Rock is subangular and probably has not travelled a significant distance (unsampled).

"E" Unit 2 common as float at this location. One piece only was found to contain a small bleb consisting of a chalcopyrite core surrounded by pyrite, approximately 4x6mm. To little to sample (unsampled).

"F" MZ-88-003. Sample taken in outcrop of unit 2 at 8100N/10200E. Schist displays a stronger foliation than usually seen in float. Fabric orientation 140 degrees strike/40 degrees NE. Secondary fracturing 014 degrees/85 degrees SE.

"G" Quartz block, chloritic with semi-massive pyrite (30%). Boulder looks fresh (20x25x10cm). No limonite. Sample MZ-88-004.

"H" Unit 4 purplish hornfelsed pelite. Foliation trends approximately 140 degrees/10 degrees ENE but low dip angle makes strike determination difficult. Two other cleavages are present. Secondary cleavage pattern 045 degrees/20 degrees SE with a variable dip. Tertiary cleavage 025 degrees/vertical. This unit is typical of rocks seen on the Binti claim group as float. Rock Sample MZ-88-005 taken here.

"I" Subcrop of unit 2 with associated quartz of approximately 40x50cm. The rock is most likely local, however movement appears to have taken place. Approximate foliation trend 080 degrees/30 degrees NNW with a secondary crenulation cleavage 010 degrees/85 degrees noted. MZ-88- 006 taken in quartz augen schist. MZ-88-007 taken in quartz boudin from within schist.

"J" There is an increase in quartz boudin concentration and frequency in the metasedimentary pile. There is also a moderate to strong phyllitic fabric surrounding the quartz boudins which may be as large as 1x2m, however most are smaller. Much of the quartz occurs as discrete lenses or bands within the foliation. Quartz was also noted within the tertiary fracture system in many places (030 degrees/45 degrees - 85 degrees SE). One piece of quartz float found nearby contains up to 60% pyrite, however it does not appear to have affinities with the local quartz boudins in the phyllite. MZ-88-008 pyritic quartz float. MZ-88-009 small quartz boudin in phyllite with associated quartz sericite schist. Foliation 120 degrees/30 degrees NNE.

"K" Near the northeastern Binti claim boundary. A large 8-10m thick band of milky quartzite. Sample MZ-88-010 was taken near the contact in overlying slaty pelite of unit 4. The quartz is relatively pure with no visible sulphides.

"L" Rock sample MZ-88-011 taken as float at 10325E on line 8850N.

"M" Rock sample MZ-88-012 taken in 30x10cm quartz boudin hosted by sericite rich phyllite of unit 1.

APPENDIX IV:
Equipment Specifications

CRONE GEOPHYSICS LIMITED - CEM

SPECIFICATIONS

The complete CEM instrument consists of two identical coils both capable of receiving and transmitting alternating magnetic fields at three fixed frequencies. Battery supply is contained in an aluminum box mounted on a magnesium packframe.
Standard Frequencies: 390, 1830 and 5010 Hz (others availabe upon request).

Field tilt measurement by visual null on field strength meter and audio null through crystal earphones.

Inclinometer range of 200 degrees, accuracy $\pm$ 0.5 degrees.

Receiver gain control: Linear calibrated 10 turn pot.

Field strength measurements from meter.

Operating range of coils: Up to 200 meters (600').

Battery Supply: 3 of 6 volt lantern batteries, Eveready #731 weight per battery; 1.3 Kg (2.8 lb). Audio battery supply; 1 of 9 volt, Eveready #216.

Normal operational lifetime of battery supply - 3 to 6 weeks.

Coil dimension and weight: Diameter of 56cm (22"); 3.8 Kg (8.3 lb).

Complete unit shipped in two wooden shipping boxes:

Dimensions and weight of one empty box: 31 x 61 x 77 cm (12" x 24" x 30"), 13 Kg (29 lb).

Weight of one shipping box complete with coil, packframe, batteries and earphones: 23 Kg (51 lb).

Shipping weight of complete unit (2 boxes): 46 Kg (102 lb).

OPTIONAL EXTRAS

Recharge battery supply and audio pack - 3 of 6 volt Gel cells.

Clip on battery pack (2 of 9 volt Eveready #216) for use of coil as a visual receiver only (Vertical loop surveys).

Plug in battery supply and audio pack for use of coils as audio and visual receiver only (Vertical loop surveys).

Canvas knapsack for carrying coil with above options.

Note that the CEM coil is used as a receiver with the Crone VEM - large Vertical Loop system with a range of 800 meters, (2600').

The shootback EM method is a simple field method that does not require accurate survey lines. It retains its effectiveness even in rugged terrain. The units are capable of measuring the dip angle and field strength of the EM field. The equipment can be used with the Shootback, Vertical Loop, or Horizontal Loop (in phase only), EM methods.

SABRE MODEL 27 VLF-EM RECEIVER

SPECIFICATIONS

Source of Primary Field - VLF radio stations (12 to 24 KHz).

Number of Stations - 4, selected by switch; Cutler, Main on 17.8 KHz and Seattle, Washington on 24.8 KHz are standard, leaving 2 other stations that can be selected by the user. Currently these are Hawaii at 23.4 KHz and Annapolis, MD at 21.4 KHz.

Types of Measurements

1. Dip angle in degrees, read on a meter-type inclinomter with range of + or - 60 degrees and an accuracy of + or - 1/2 degrees.

2. Field strength, read on a meter and a precision digital dial with an accuracy exceeding 1%.

3. Out of phase component, read on the field strength meter as a residual reading when measuring the dip angle.

Dimensions and Weight

Approx. 9 1/2" x 2 1/2" x 8 1/2" (24.2cm x 6.3cm x 21.6cm).

5 lbs (2.37 kg)

Batteries

8 alkaline penlite cells (AA cells). The instrument will run continuously on one set of batteries for over 200 hours; so that in normal on-off use, the batteries will last all season. The battery condition under load is shown by pushing a button and reading voltage on the field strength meter.

Note: The instrument is not waterproof and must be protected by placing in a plastic bag for use under wet survey conditions.

HUNTEC MARK IV INDUCED POLARIZATION RECEIVER

A. GENERAL SPECIFICATIONS

1. Imputs

Signal Channel

Range:	$5x10^{-5}$ to 10 volts. Automatic gain ranging. Overload indication above 10 volts.
Resistance:	Greater than 10^{9} Ohms differential (i.e. between + and - terminals).
Capacitance:	Less than 3×10^{-11} Farads.
Bias Current:	Less than 10^{-8} Amperes.
Bandwidth:	Basic bandwidth is 100Hz. A 12 Hz digital lowpass filter is selectable via a switch on the programming panel.
SP Cancellation Range:	-5 to +5 volts (automatic).
Protection:	Low leakage diode clamps, gas discharge surge arresters, field replaceable fuses.
Terminals:	Two color-coded (red and black) signal imputs plain chassis ground terminal. Push posts: 120 volt insulation, accepts maximum 1.5mm diameter wire.

Reference Channel

Maximum:	5 volts peak.
Overload Indication:	Operates above approximately 5 volts peak.
Resistance:	2×10^{5} Ohms differential.
Capacitance:	Less than 3×10^{-11} Farads.
Imput Connector:	Four pin female (includes battery and ground, for operating references isolation amplifiers).

2. Battery

10 Nickel-Cadmium "F" cells in series. Nominal 12.5 volts. 8 hours continuous operation in RUN or STANDBY mode. LOW BATTERY indicator operates at nominal 11.5 volts. Automatic shut-down occurs at approximately 10 volts to prevent battery damage and/or bad data. Battery voltage is available on digital display via keypad.

3. Functional Specifications

Electrical Memory

Random Access Memory (RAM):	4k, expandable to 8k.
Erasable Programmable Read Only Memory (EPROM):	6k, expandable to 8k.

Signal Channel

Automatic Gain Ranging Amplifier:	x1 to 4096 in increments of 2^n.
Aliasing Filter:	100 Hz low pass fourth order MURROMAF polynomial, 24 db/octave roll off.
Sample and Hold A/D Converter:	12-bit, signal aperture 125×10^{-9} seconds.
Sampling Rate:	Frequency domain mode 512 Hz. Time domain mode 256 Hz.
Synchronization:	Determined by phase locked loop. Frequency of input signal should be within 0.01% of frequency setting on sub-panel for minimum synchronization delay.
Rejection Filters:	Greater than 40 db at rejection frequency, auto tuned at start of reading.
Self Calibration:	Compensates for drift in analogue circuitry to improve accuracy of amplitude and phase measurements.

Mechanical

M-4 Receiver with battery pack:	45 cm x 33 cm x 14 cm, 9.1 kg.
M-4 Reciver (with battery pack and cassette datalogger):	Same dimensions, 10.1 kg.
Replaceable Battery Pack:	3.3 cm x 11 cm x 45 cm, 3 kg.

Environmental

Temperature:	Operation -20C to +55C Storage -40C to +70C
Humidty:	Moisture proof, operable in light drizzle. Splash-proof switches, keypad protected by rubber boots, gasket seals on programming panel cover, main chassis and cassette loader.
Altitude:	-1525 m to +4775 m.
Shock and Vibration:	Suitable for transport in bush vehicles.

B. DISPLAYS AND INDICATORS

Analogue Meter:	Ohms scale for receiver electrode resistance measurements and indication of instrument activity, which facilitates qualitative judgements of signal and noise levels.
LCD, 3 1/2 digits:	Provides the operator with numeric indication of measurement results, and of instrument faults discovered during execution of diagnostic rountines. An over-range is to be multiplied by 1000.
Signal Overload:	Blinks red when the peak signal at either input with respect to the ground terminal exceeds about 10 volts.

REF Overload:	Blinks red when the reference input level should be reduced (active only during the reference "ON" time).
Low Battery:	Blinks red when the battery voltage falls below 11.5 volts.
Power:	Steady red indicates power is on.

HUNTEC MARK IV 7.5 KW TRANSMITTER

SPECIFICATIONS

Power:	96-144 V line to neutral, 3 phase, 400 Hz (from Huntec generator set), 7500W.
Output:	Voltage: 100-3200V dc in 10 steps; Current: 16A maximum on low ranges.
Current regulator:.	<0.1% current change for 10% change in load resistance. Settling time to 1% approx. 15 msec.
Output frequency (selectable on front panel):	1/16 Hz to 1 Hz (time domain and complex resistivity). 1/16 Hz to 4 Hz (frequency domain).
Frequency accuracy:	$\pm$ 50 ppm, -30 degrees to 60 degrees C.
Output duty cycle - defined as tON/(tON + tOFF):	1/2 to 15/16 in increments of 1/16 (time domain). 15/16 (complex resistivity). 3/4 (frequency domain).
Output current meter:	Two ranges - 0-10A, 0-20A.
Ground resistance meter:	Two ranges - 0-10K ohms, 0-100K ohms.
Input voltage meter:	0-150V.
Dummy load:	Two levels - 2000W, 6000W.
Temperature range:	-34 degrees C to 50 degrees C.
Size:	53 x 43 x 43 cm (21 x 17 x 17 ins).
Weight:	50 kg (110 lbs.)

ALTERNATOR

SPECIFICATIONS

Engine

Type:	Onan 25HP, NHC-MS 3600 rpm.
Fuel:	regular or unleaded automobile grade gasoline.
Tank capacity:	3 3/4 gallons (US) 14 litres.
Duration:	typically 2 hours.
Lubricating Oil:	3 1/2 quartz (US), below 0 degrees F, 5W-30 SAE, 0 degrees to 30 degrees F, 10W-30, 5W-30 SAE, above 30 degrees F, 30SAE.
Starter:	electric start.

Alternator

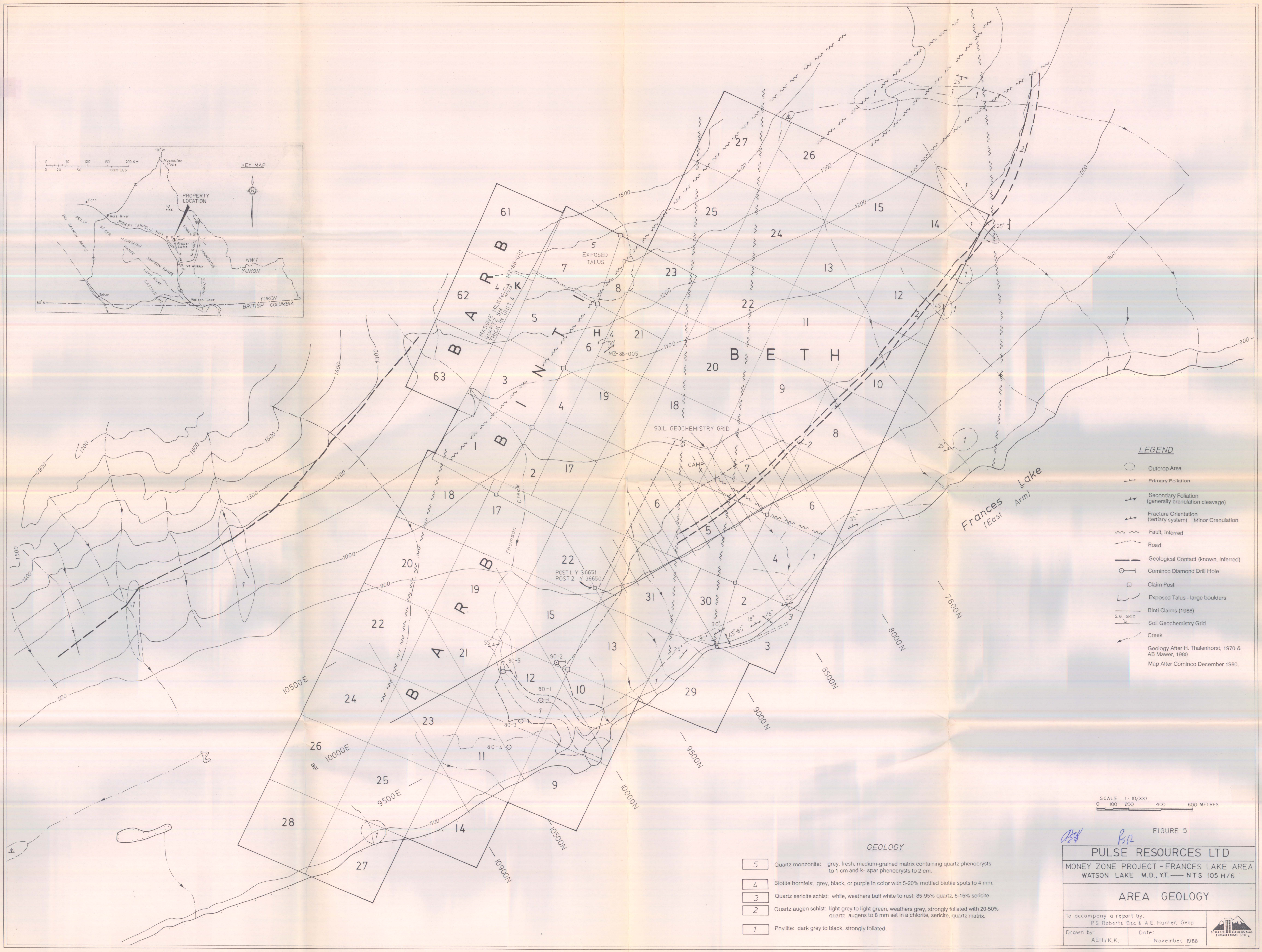
Type:	Bendix Eclipse - Pioneer 28E01-1-A.
Drive:	Double Vbelt, Gates Rubber Co., matched pair 3V-400 super HC V belt.

Mechanical

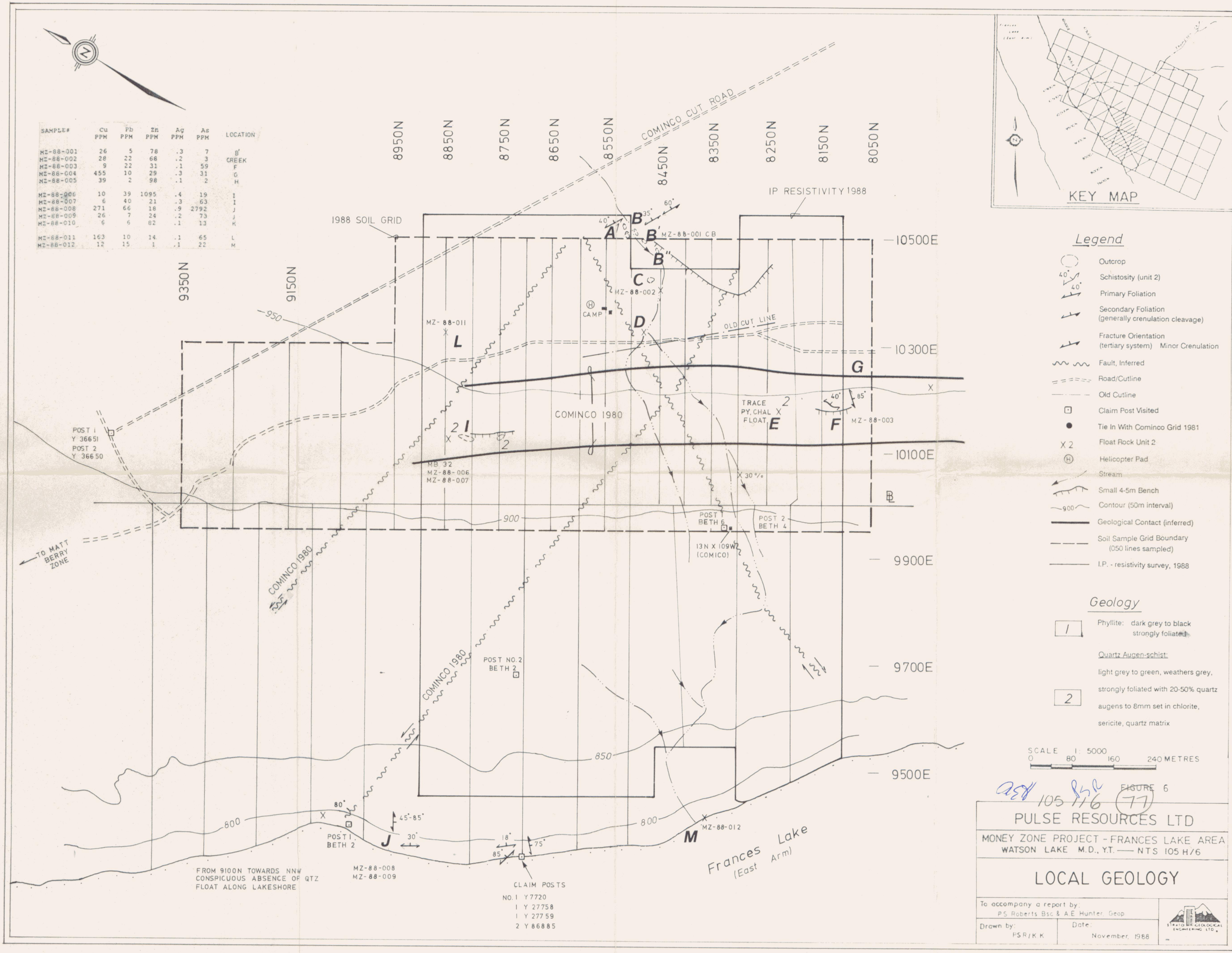
Overhall height:	31 ins., 79 cm.
Width:	31 ins., 79 cm.
Length:	40 ins., 102 cm.
Weight:	450 lbs., 205 kg (with fuel and oil).

Voltage regulator

Type:	Huntec 100-1999
Regulation:	9%, no load to full load.
Output cable/connector:	50 ft. cable terminated with connector type MS3106E18-10S.
Size:	9 1/2 ins x 6 3/4 ins x 4 5/8 ins. (24 mm x 17 mm x 12 mm).
Weight:	4 1/4 lbs., 1.9 kg.


KEY MAP
PROPERTY LOCATION
NWT
YUKON
BRITISH COLUMBIA
Watson Lake
Ross River
ROBERT CAMPBELL HWY
PELLY
MOUNTAINS
Macmillan Pass
BARB
BINTI
BETH
EXPOSED TALUS
MASSIVE MILKY QUARTZ 5 M THICK IN UNIT 4
MZ-88-010
MZ-88-005
SOIL GEOCHEMISTRY GRID
CAMP
POST 1 Y 36651
POST 2 Y 36650
Thomson Creek
Frances Lake (East Arm)
80-1
80-2
80-3
80-4
80-5
10500E
10000E
9500E
7600N
8000N
8500N
9000N
9500N
10000N
10500N
10900N
LEGEND
Outcrop Area
Primary Foliation
Secondary Foliation (generally crenulation cleavage)
Fracture Orientation (tertiary system) Minor Crenulation
Fault, Inferred
Road
Geological Contact (known, inferred)
Cominco Diamond Drill Hole
Claim Post
Exposed Talus - large boulders
Binti Claims (1988)
S.G. GRID
Soil Geochemistry Grid
Creek
Geology After H. Thalenhorst, 1970 & AB Mawer, 1980
Map After Cominco December 1980.
SCALE 1: 10,000
0 100 200 400 600 METRES
GEOLOGY
5 Quartz monzonite: grey, fresh, medium-grained matrix containing quartz phenocrysts to 1 cm and k- spar phenocrysts to 2 cm.
4 Biotite hornfels: grey, black, or purple in color with 5-20% mottled biotite spots to 4 mm.
3 Quartz sericite schist: white, weathers buff white to rust, 85-95% quartz, 5-15% sericite.
2 Quartz augen schist: light grey to light green, weathers grey, strongly foliated with 20-50% quartz augens to 8 mm set in a chlorite, sericite, quartz matrix.
1 Phyllite: dark grey to black, strongly foliated.
FIGURE 5
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6
AREA GEOLOGY
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop
Drawn by: AEH / K.K.
Date: November, 1988
STRATO GEOLOGICAL ENGINEERING LTD.

092740



SAMPLE#	Cu PPM	Pb PPM	Zn PPM	Ag PPM	As PPM	LOCATION
MZ-88-001	26	5	78	.3	7	B'
MZ-88-002	28	22	68	.2	3	CREEK
MZ-88-003	9	22	31	.1	59	F
MZ-88-004	455	10	29	.3	31	G
MZ-88-005	39	2	98	.1	2	H
MZ-88-006	10	39	1095	.4	19	I
MZ-88-007	6	40	21	.3	63	I
MZ-88-008	271	66	18	.9	2792	J
MZ-88-009	26	7	24	.2	73	J
MZ-88-010	6	6	82	.1	13	K
MZ-88-011	163	10	14	.1	65	L
MZ-88-012	12	15	1	.1	22	M

FIGURE 6

105 H/6 (77)

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6

LOCAL GEOLOGY

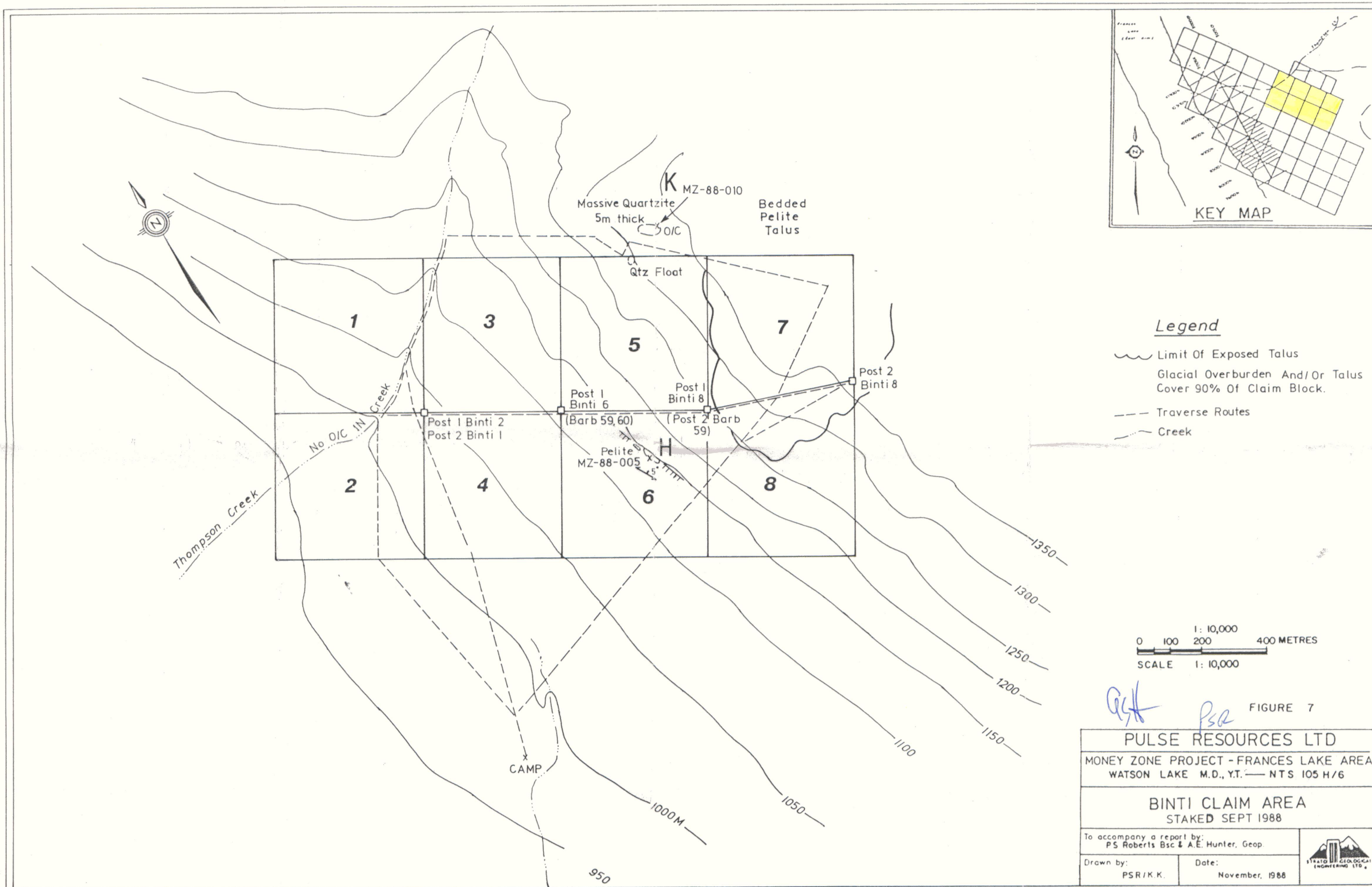
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.

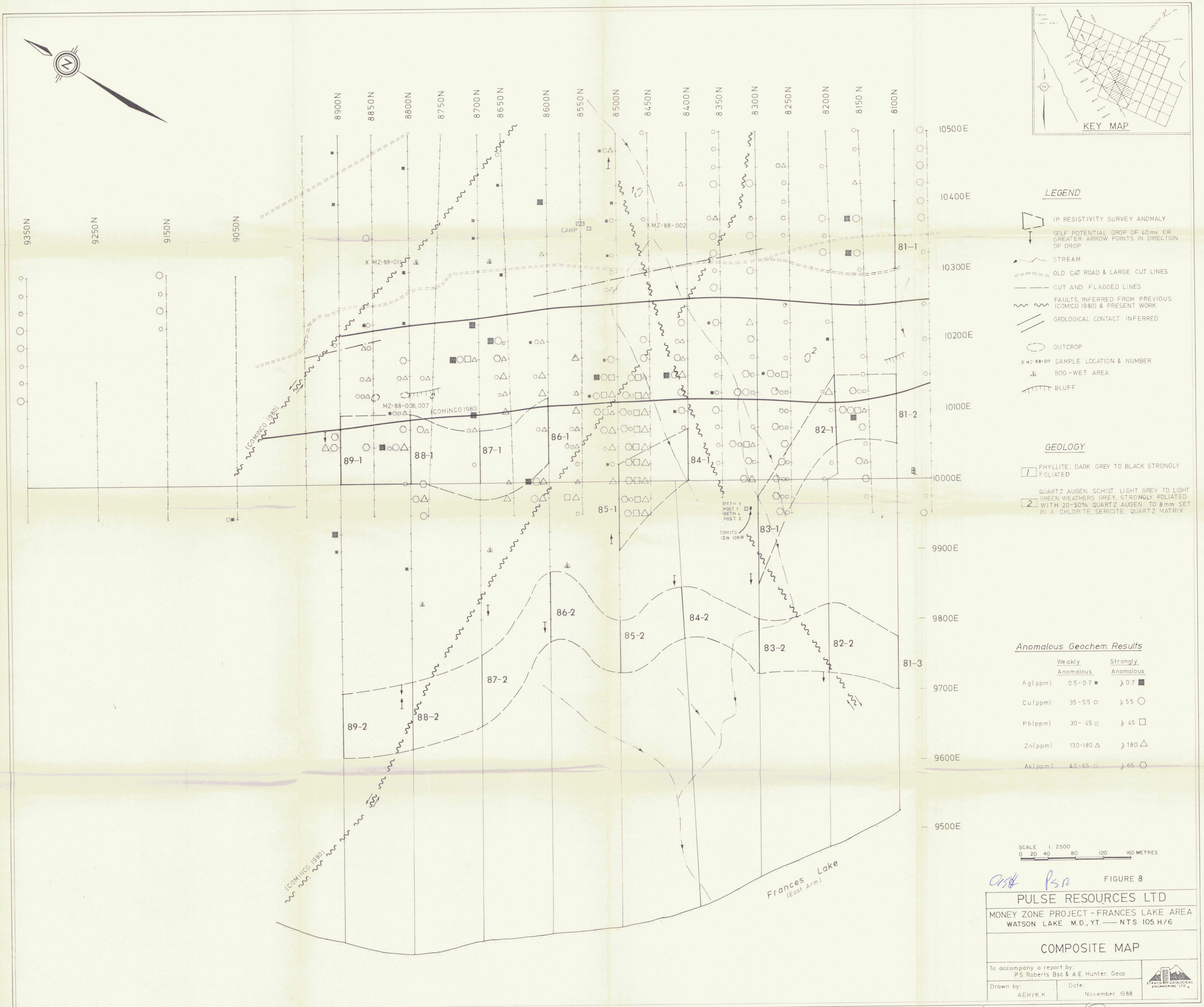
Drawn by: PSR/K.K

Date: November, 1988

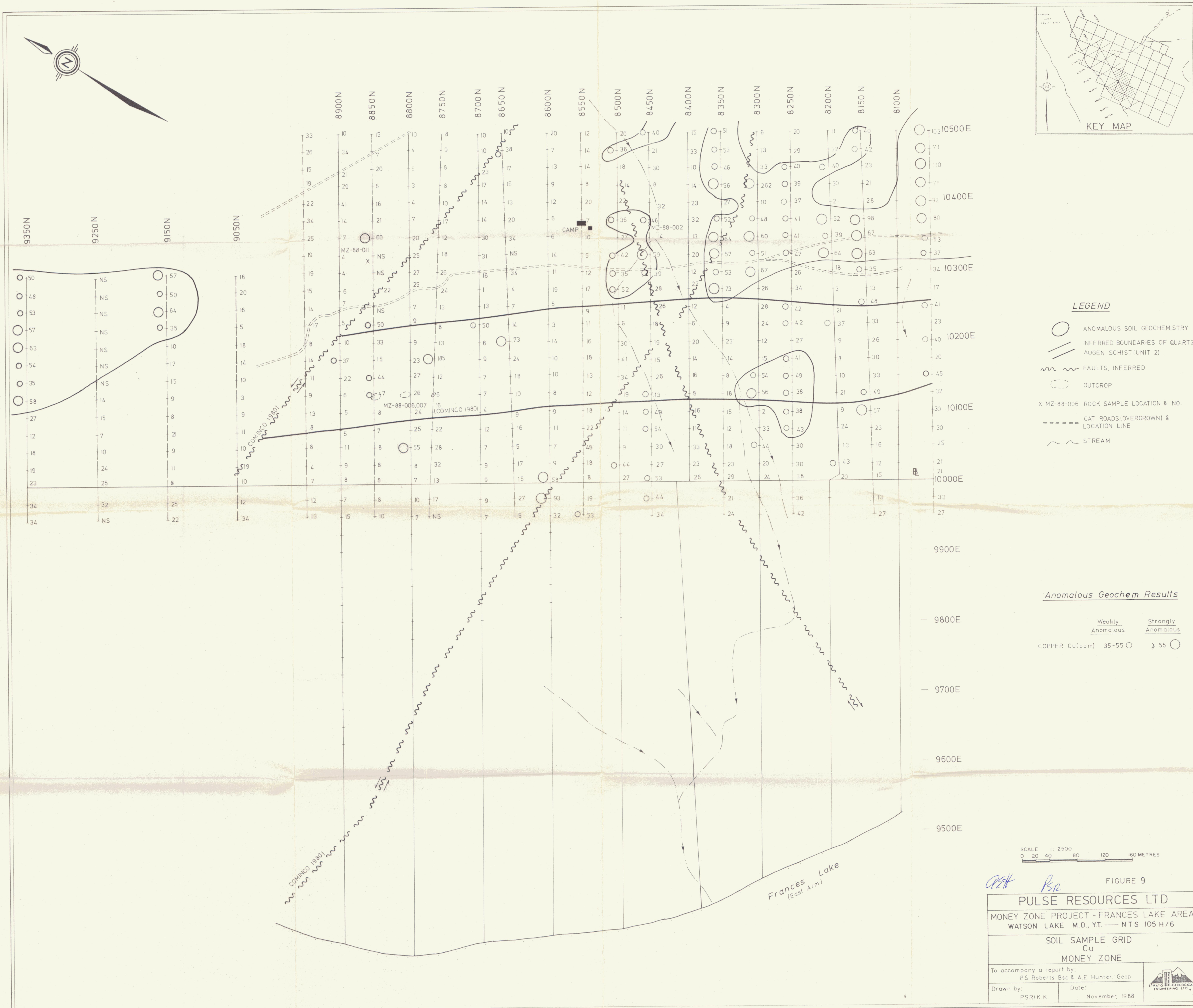
STRATO GEOLOGICAL ENGINEERING LTD.

092740


KEY MAP
Legend
Limit Of Exposed Talus
Glacial Overburden And/Or Talus Cover 90% Of Claim Block.
Traverse Routes
Creek
1
2
3
4
5
6
7
8
K MZ-88-010
Massive Quartzite 5m thick
O/C
Bedded Pelite Talus
Qtz Float
Post 1 Binti 6 (Barb 59,60)
Post 1 Binti 8 (Post 2 Barb 59)
Post 2 Binti 8
Post 1 Binti 2
Post 2 Binti 1
Pelite MZ-88-005
H
No O/C IN Creek
Thompson Creek
CAMP
1350
1300
1250
1200
1150
1100
1050
1000M
950
1: 10,000
0 100 200 400 METRES
SCALE 1: 10,000
FIGURE 7
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6
BINTI CLAIM AREA
STAKED SEPT 1988
To accompany a report by: PS Roberts Bsc & A.E. Hunter, Geop.
Drawn by: PSR/K.K.
Date: November, 1988
092740



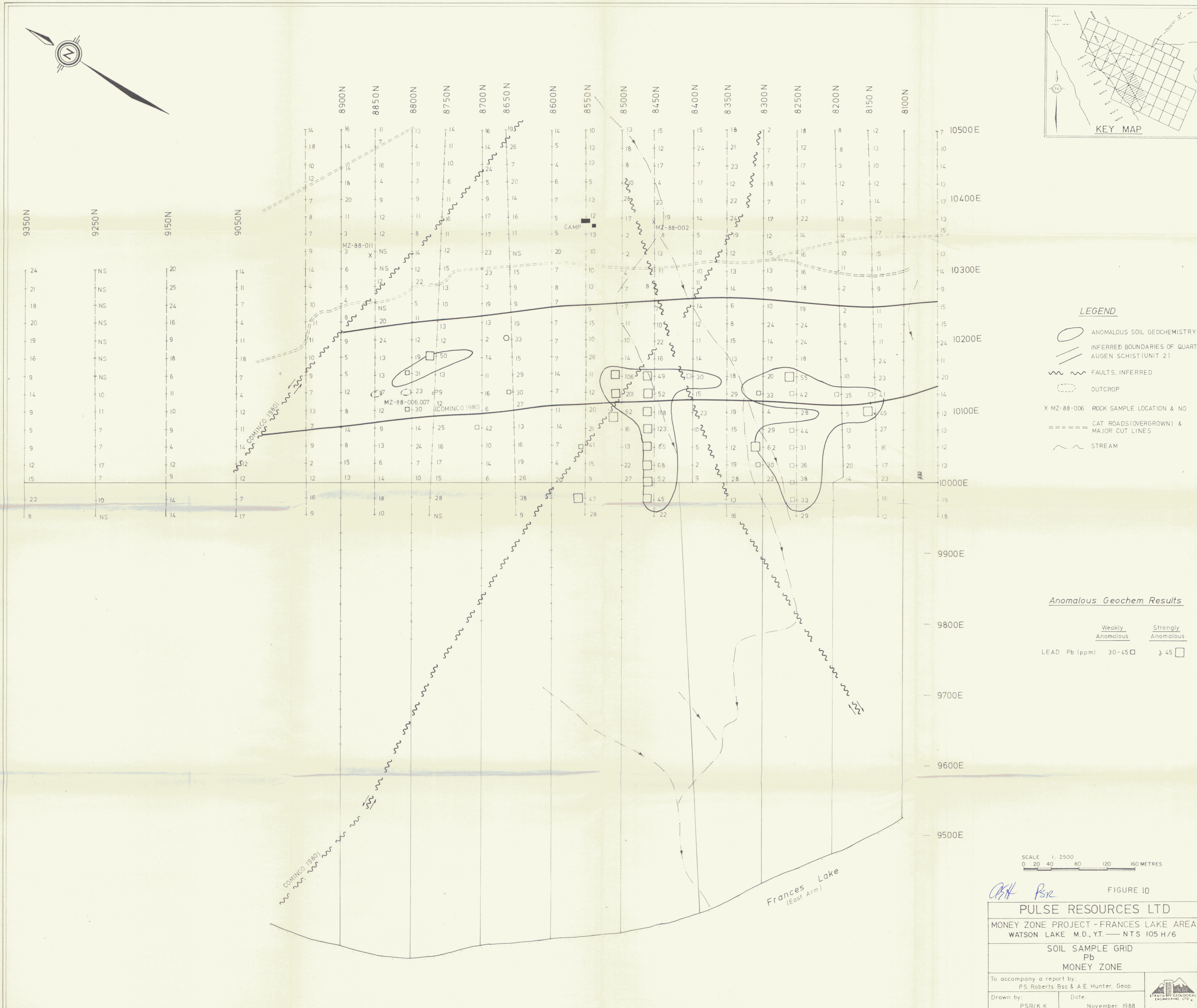
105 116 092740 (76)



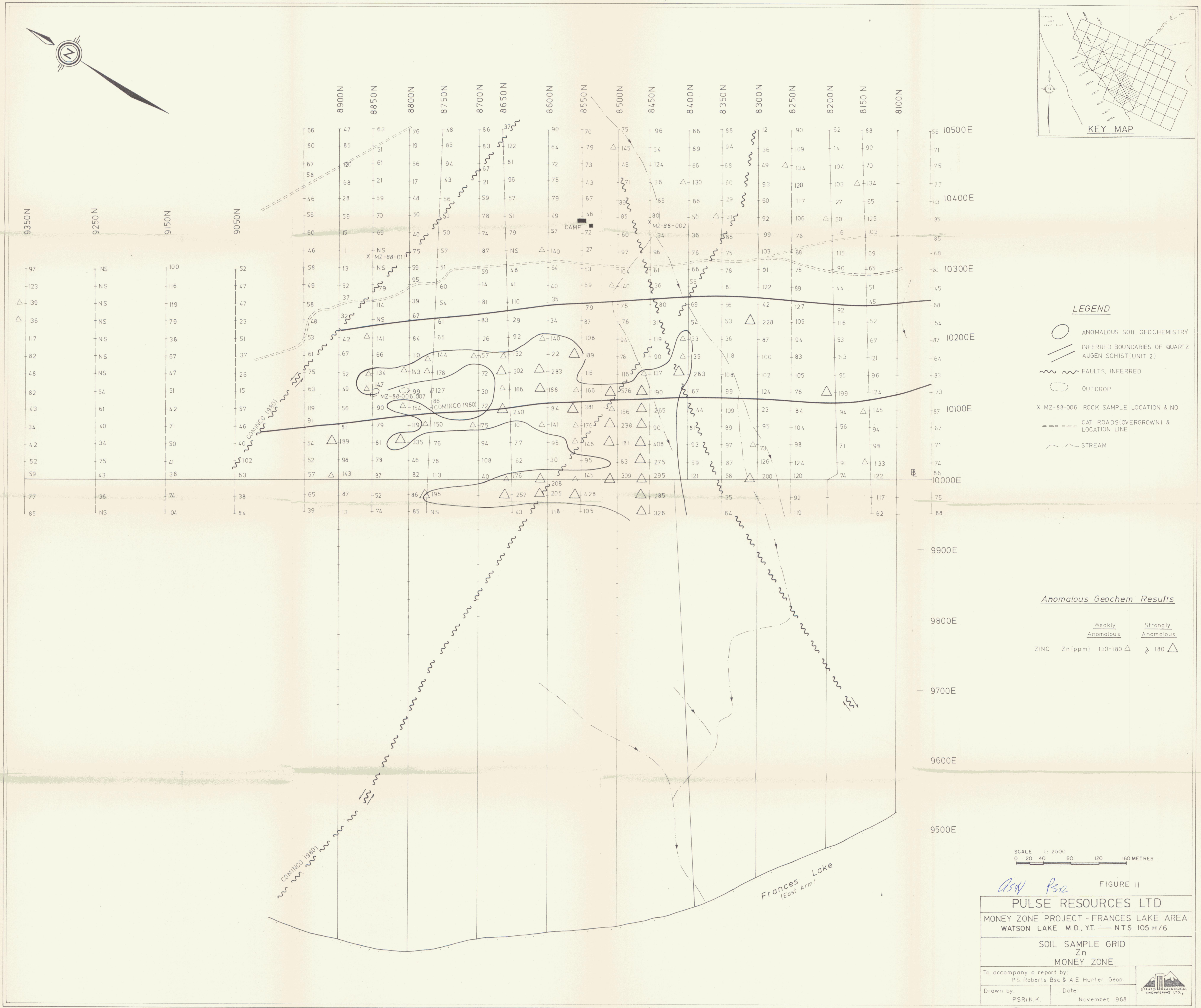
105 H 6

(75)

092740



(78) 092742 105 H 6


KEY MAP
LEGEND
ANOMALOUS SOIL GEOCHEMISTRY
INFERRED BOUNDARIES OF QUARTZ AUGEN SCHIST (UNIT 2)
FAULTS, INFERRED
OUTCROP
X MZ-88-006 ROCK SAMPLE LOCATION & NO.
CAT ROADS (OVERGROWN) & LOCATION LINE
STREAM
Anomalous Geochem. Results
Weakly Anomalous
Strongly Anomalous
ZINC Zn(ppm) 130-180 △ ≥ 180 △
CAMP
COMINCO (1980)
Frances Lake (East Arm)
SCALE 1: 2500
0 20 40 80 120 160 METRES
FIGURE 11
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6
SOIL SAMPLE GRID
Zn
MONEY ZONE
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.
Drawn by:
PSR/K.K.
Date:
November, 1988
STRATO GEOLOGICAL ENGINEERING LTD.
092740
105 H/6

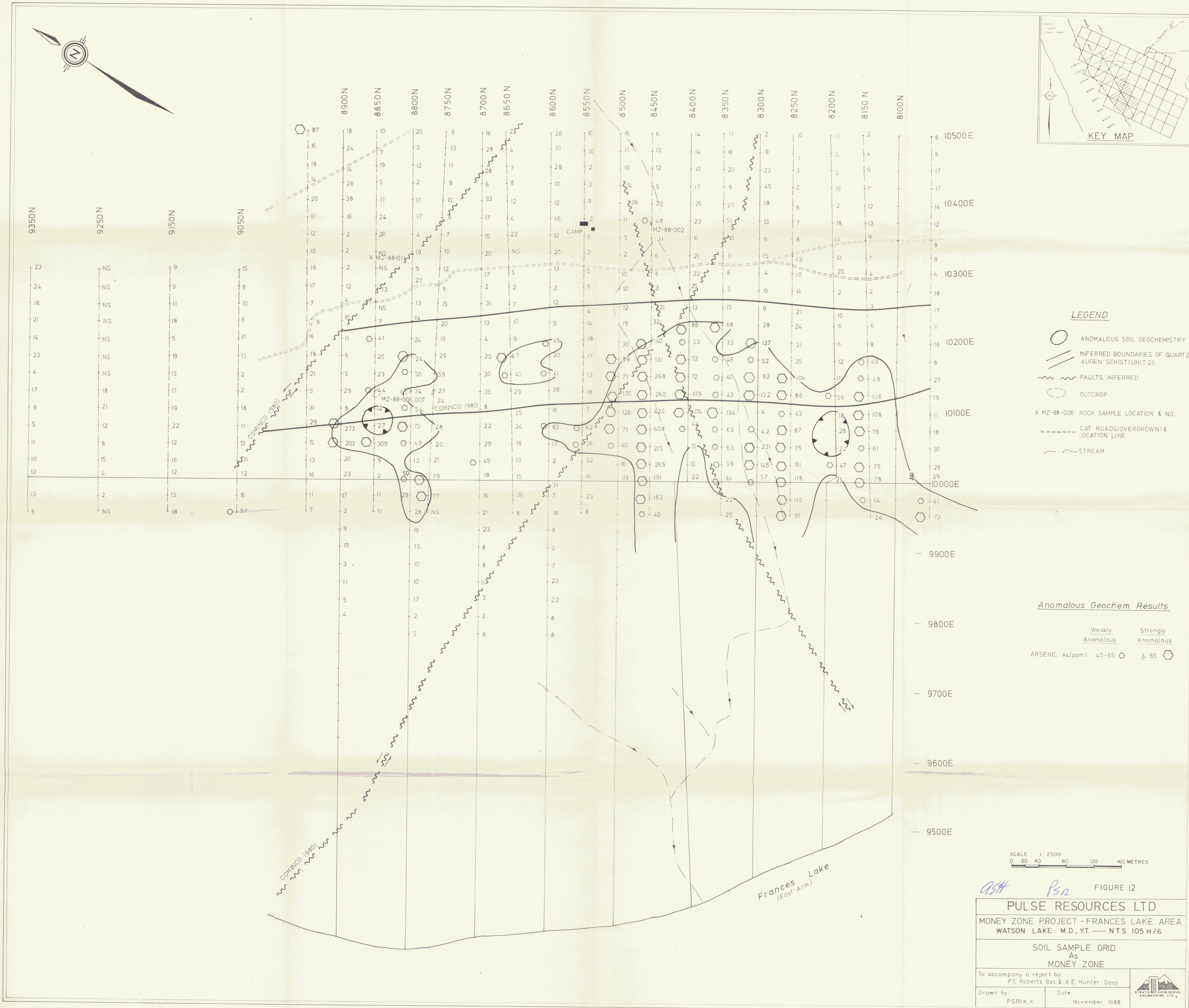


FIGURE 12

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6

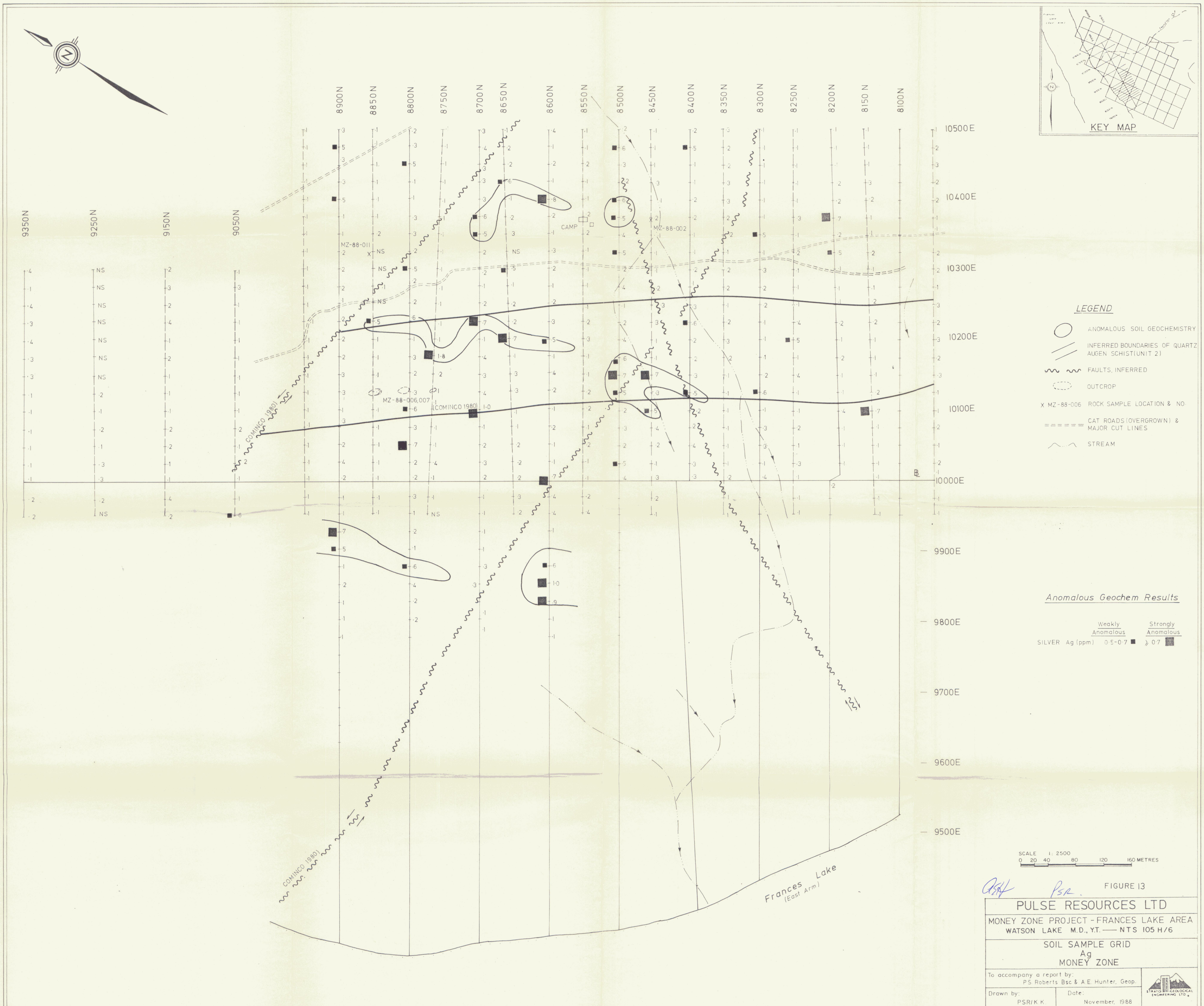
SOIL SAMPLE GRID
As
MONEY ZONE

To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.

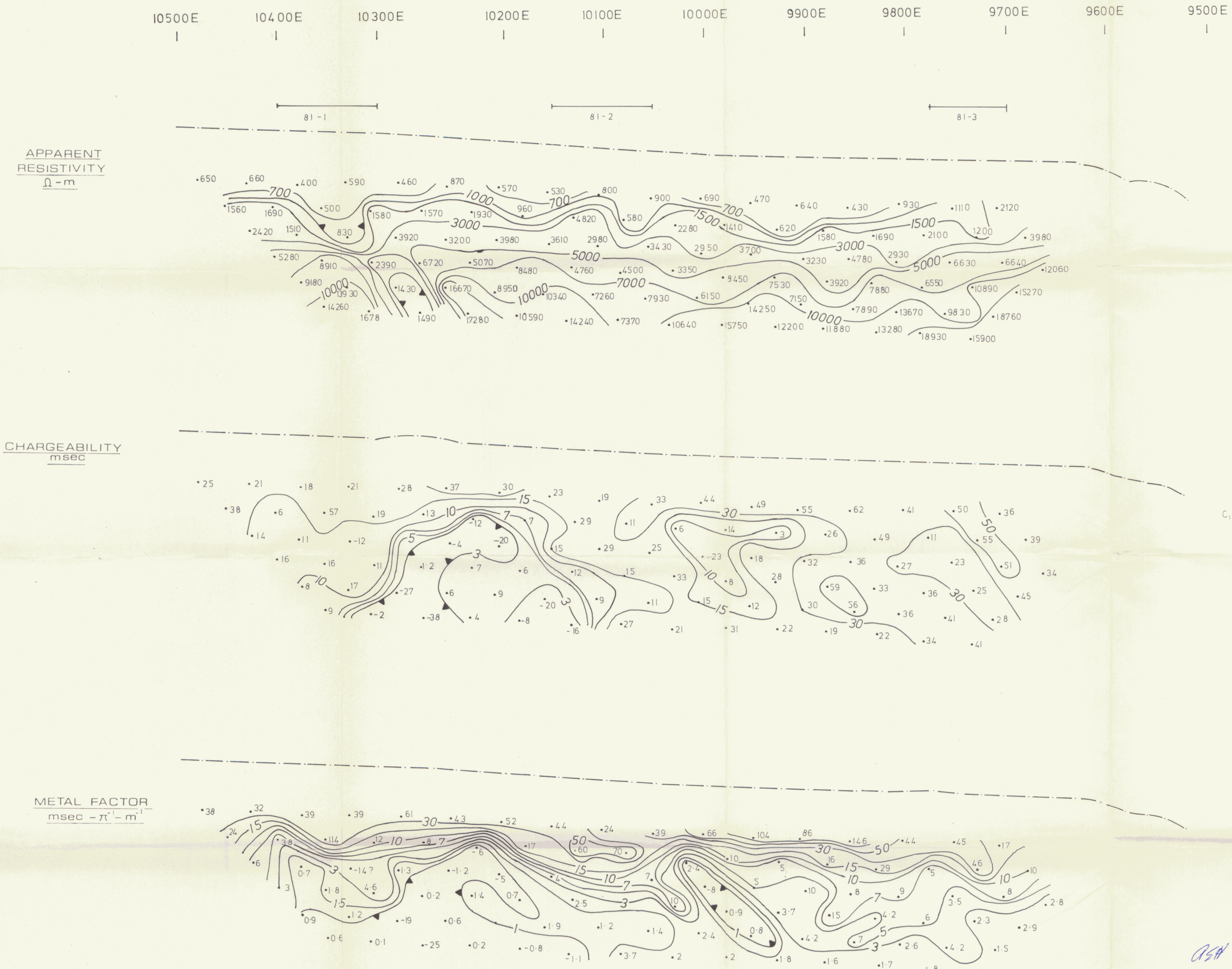
Drawn by: PSR/K.K. | Date: November, 1988

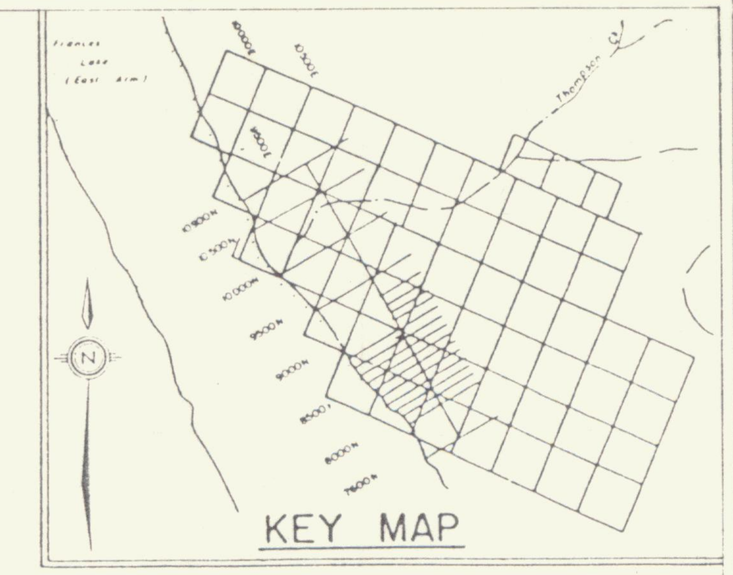
STRATO GEOLOGICAL ENGINEERING LTD.

96 092740 105 H6



78
105 I16
092740





LEGEND

- ¥ SWAMP
- A ALDER
- O/C OUTCROP

POLE-DIPOLE ARRAY

C_1 ← at ∞ — C_2 — na — P_1 — a — P_2 → 240° LINE BEARING

GROUND SURFACE

PLOTTING POINT

$\rho a = 2\pi a\, n(n+1)\frac{V}{I}\,\Omega\text{-}m$ (apparent resistivity)

M = msec (chargeability)

a = 50m

n = 1 to 6

INSTRUMENTATION

Tx : HUNTEC M4 7.5kW

Rx : HUNTEC M4

f = 1/8 Hz

To = 200MSec

T1 = 150MSec (10 WINDOWS)

TIME DOMAIN SURVEY

SELF POTENTIAL

8080B MODEL FLUKE METER

POLARITY CONVENTIONS GRID N & N -ve

CONTOUR INTERVAL 1, 1·5, 3, 5, 7, 10

(19) 105 H 6

FIGURE 14

SCALE 1: 2500

0 20 40 80 120 METRES

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA

WATSON LAKE M.D., Y.T. — NTS 105 H/6

INDUCED POLARIZATION AND SELF POTENTIAL SURVEY LINE 8100N

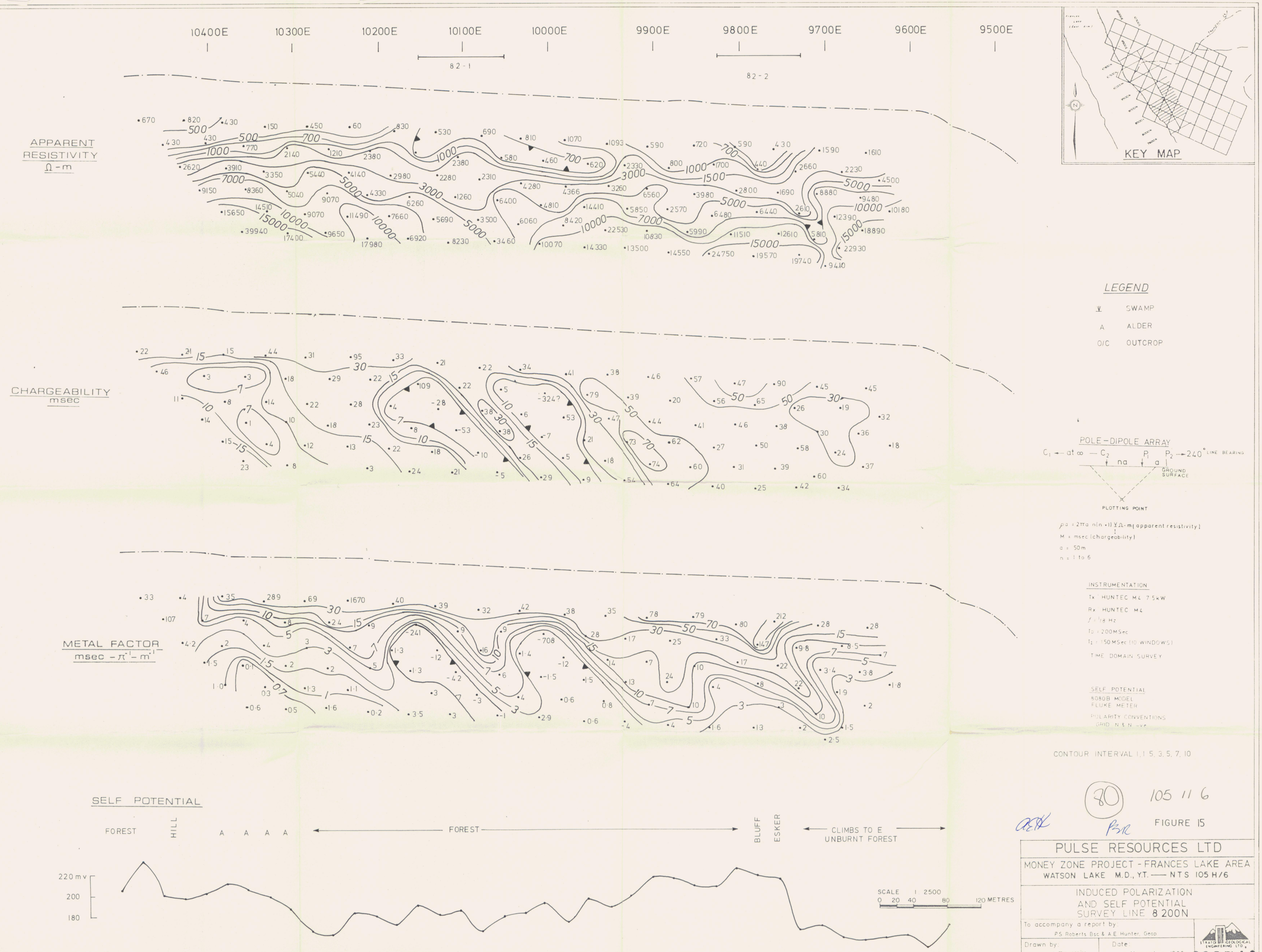
To accompany a report by: P.S. Roberts Bsc & A.E. Hunter, Geop.

Drawn by: AEH/KK

Date: November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

092740



80

105 H 6

FIGURE 15

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6

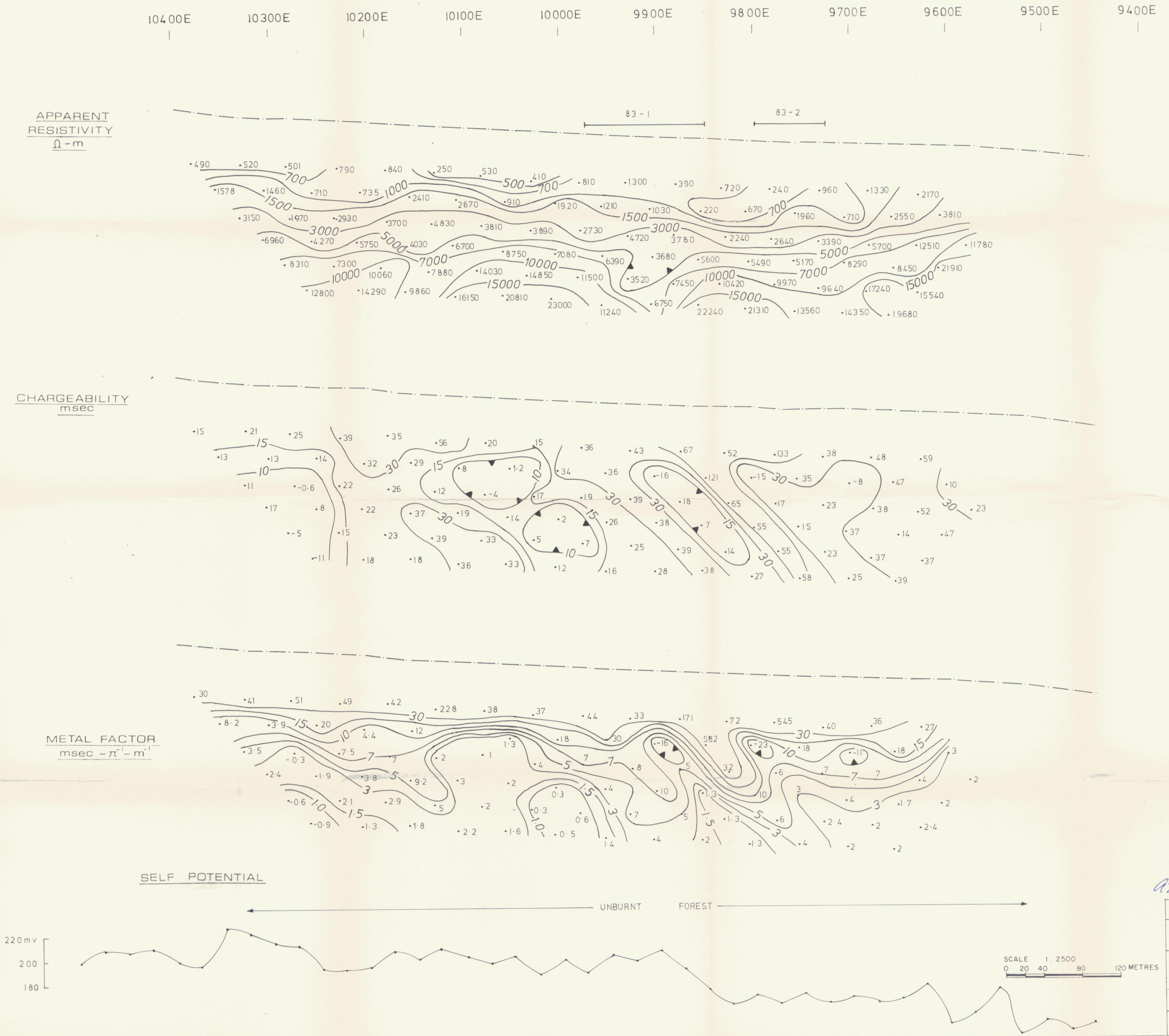
INDUCED POLARIZATION
AND SELF POTENTIAL
SURVEY LINE 8200N

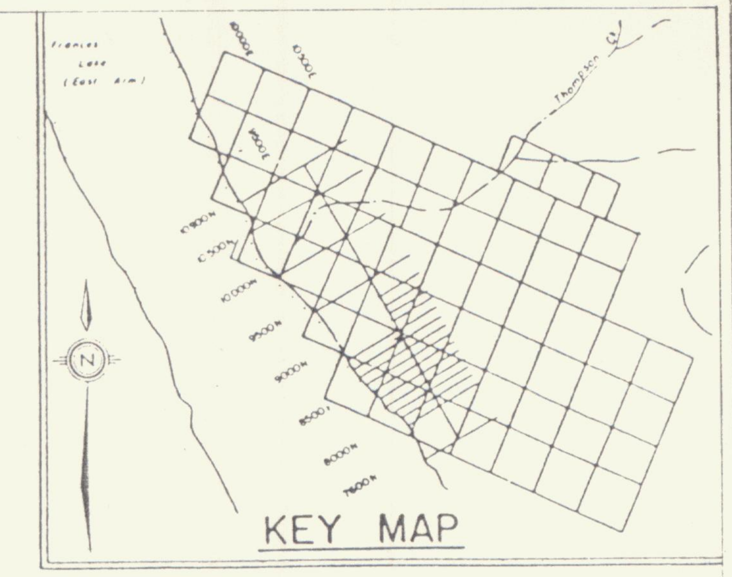
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.

Drawn by: AEH/KK
Date: November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

092740

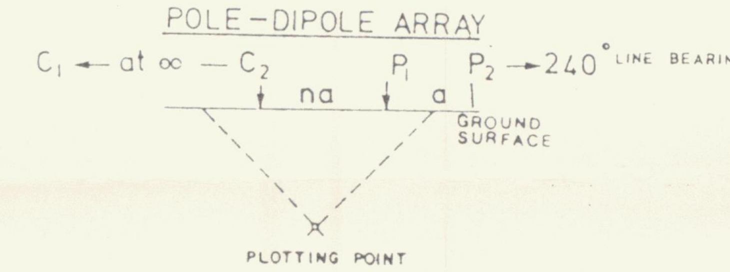




LEGEND

- SWAMP
- A ALDER
- O/C OUTCROP

POLE-DIPOLE ARRAY



ρa = 2πa n(n+1) V/I Ω-m (apparent resistivity)

M = msec (chargeability)

a = 50m

n = 1 to 6

INSTRUMENTATION

Tx HUNTEC M4 7.5kW

Rx HUNTEC M4

f = 1/8 Hz

Tp = 200 MSec

Tc = 150 MSec (10 WINDOWS)

TIME DOMAIN SURVEY

SELF POTENTIAL

8080B MODEL FLUKE METER

POLARITY CONVENTIONS GRID N & N -ve

CONTOUR INTERVAL 1, 1.5, 3, 5, 7, 10

SCALE 1:2500

0 20 40 80 120 METRES

105 H 6

FIGURE 16

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6

INDUCED POLARIZATION AND SELF POTENTIAL SURVEY LINE 8300N

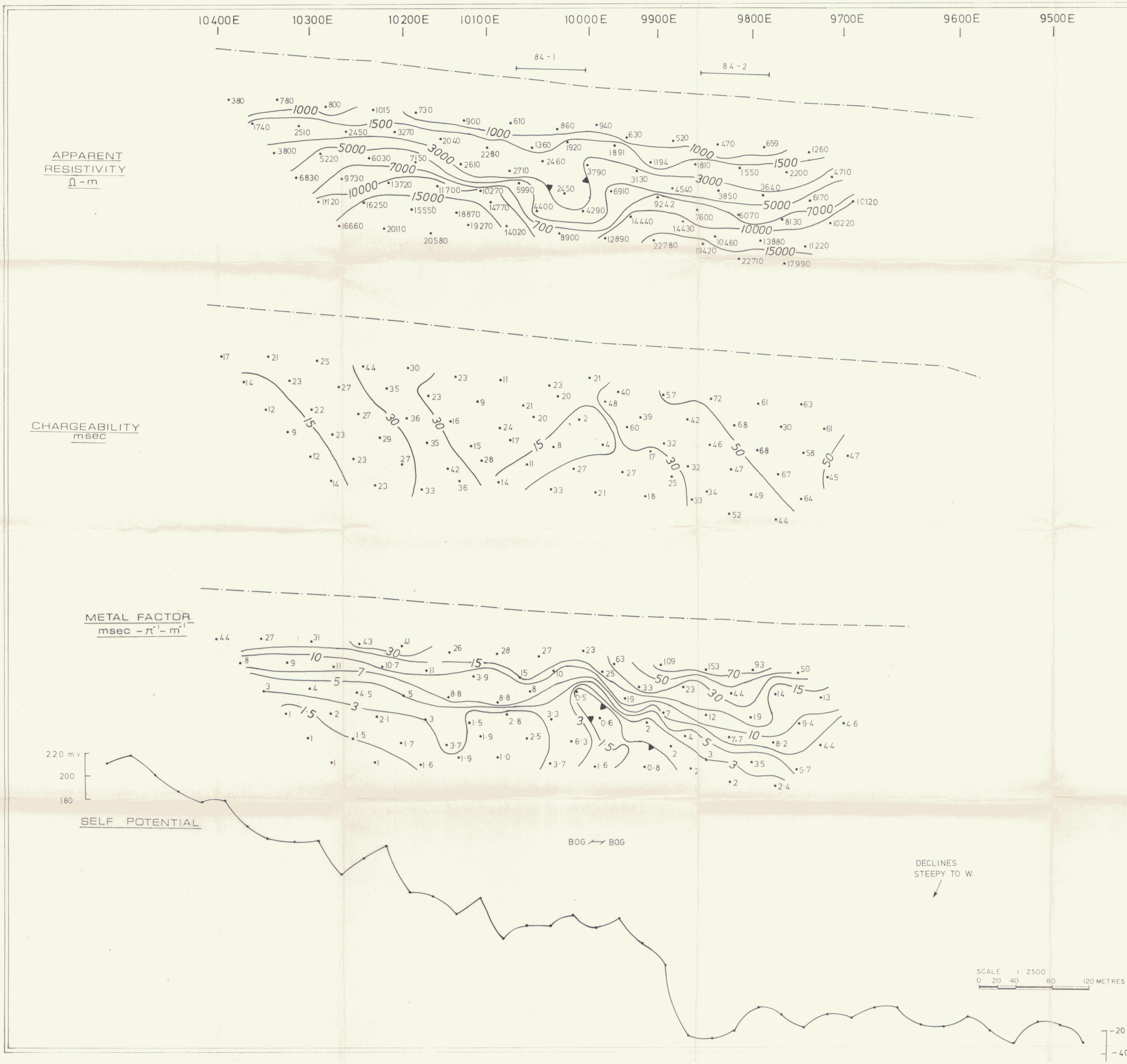
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop

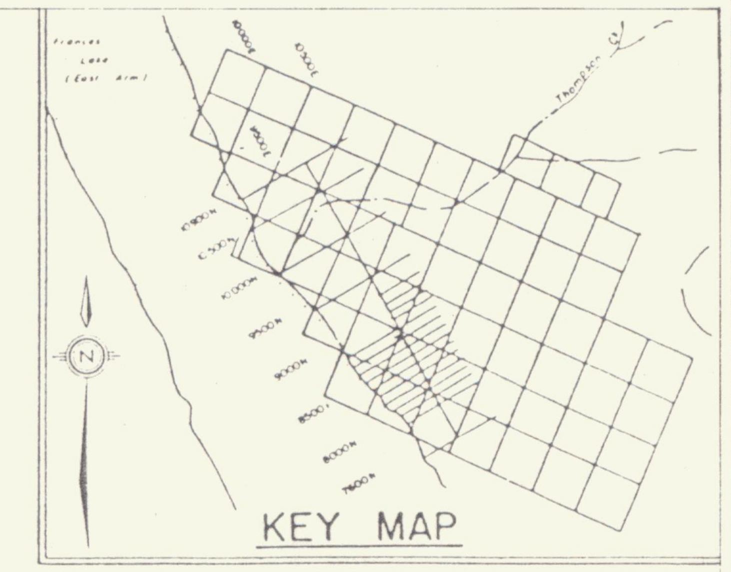
Drawn by: AEH/KK

Date: November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

092740





LEGEND

⊻	SWAMP
A	ALDER
O/C	OUTCROP

POLE-DIPOLE ARRAY

C_1 ← at ∞ — C_2 — na — P_1 — a — P_2 → 240° LINE BEARING

GROUND SURFACE

PLOTTING POINT

$\rho a = 2\pi a\, n(n+1) \frac{V}{I}$ Ω-m (apparent resistivity)

M = msec (chargeability)

a = 50m

n = 1 to 6

INSTRUMENTATION

Tx HUNTEC M4 7.5kW

Rx HUNTEC M4

f = 1/8 Hz

Tp = 200MSec

Ts = 150MSec (10 WINDOWS)

TIME DOMAIN SURVEY

SELF POTENTIAL

6080B MODEL FLUKE METER

POLARITY CONVENTIONS GRID N & N -ve

CONTOUR INTERVAL 1, 1.5, 3, 5, 7, 10

81

105 H6

FIGURE 17

SCALE 1:2500

0 20 40 80 120 METRES

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA

WATSON LAKE M.D., Y.T. — NTS 105 H/6

INDUCED POLARIZATION AND SELF POTENTIAL SURVEY LINE 8400N

To accompany a report by P.S. Roberts Bsc. & A.E. Hunter, Geop.

Drawn by A.E.H./K.K.

Date November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

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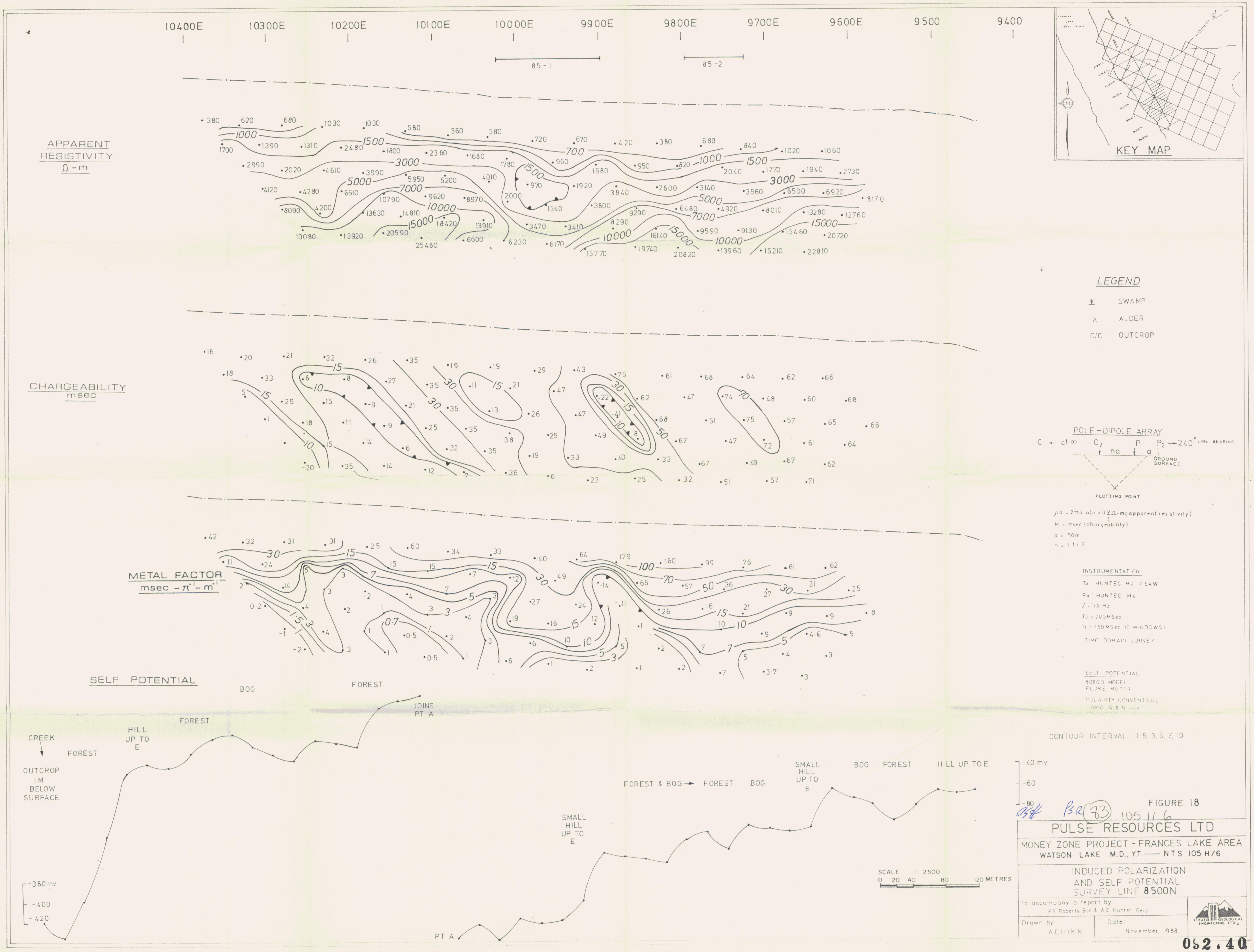
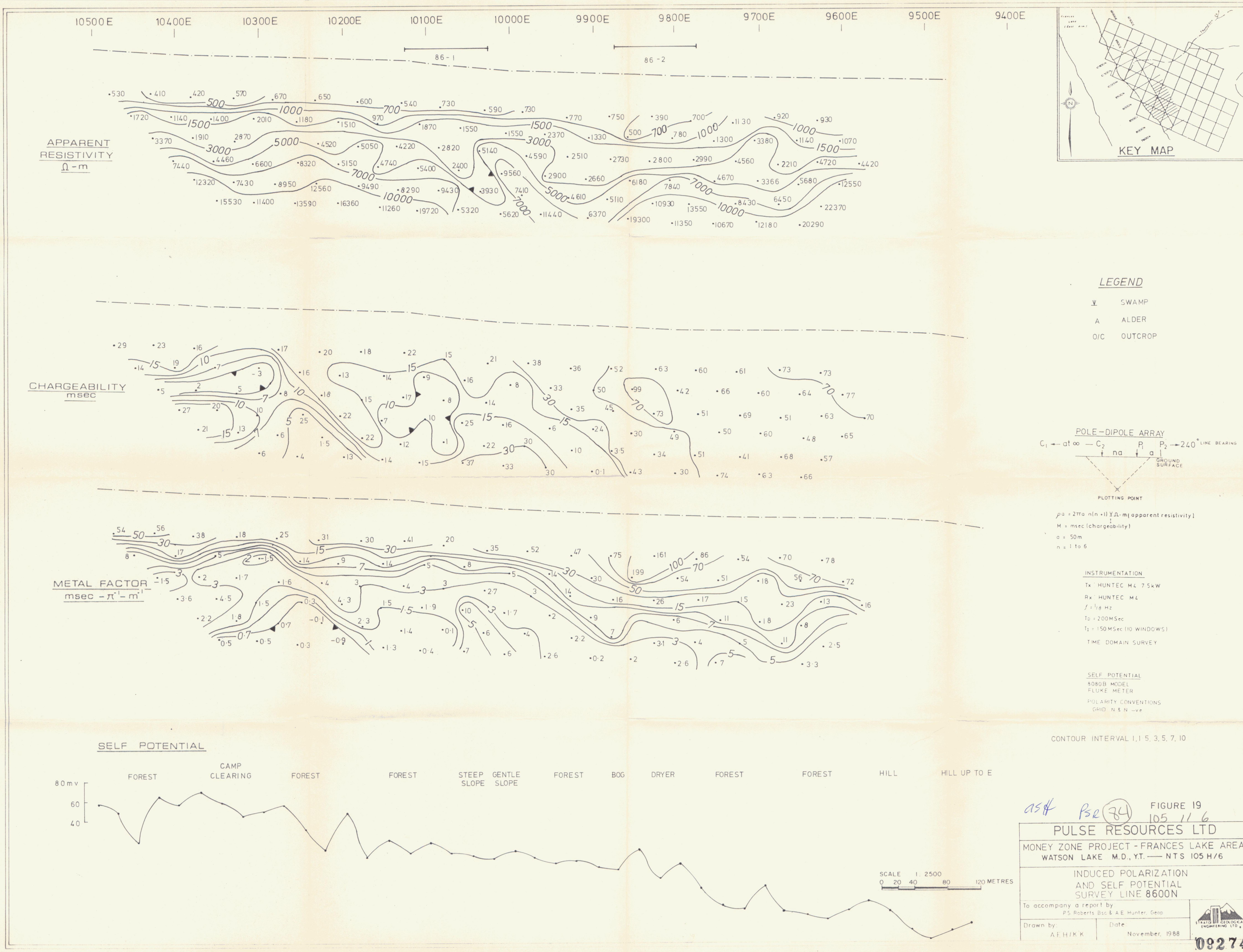
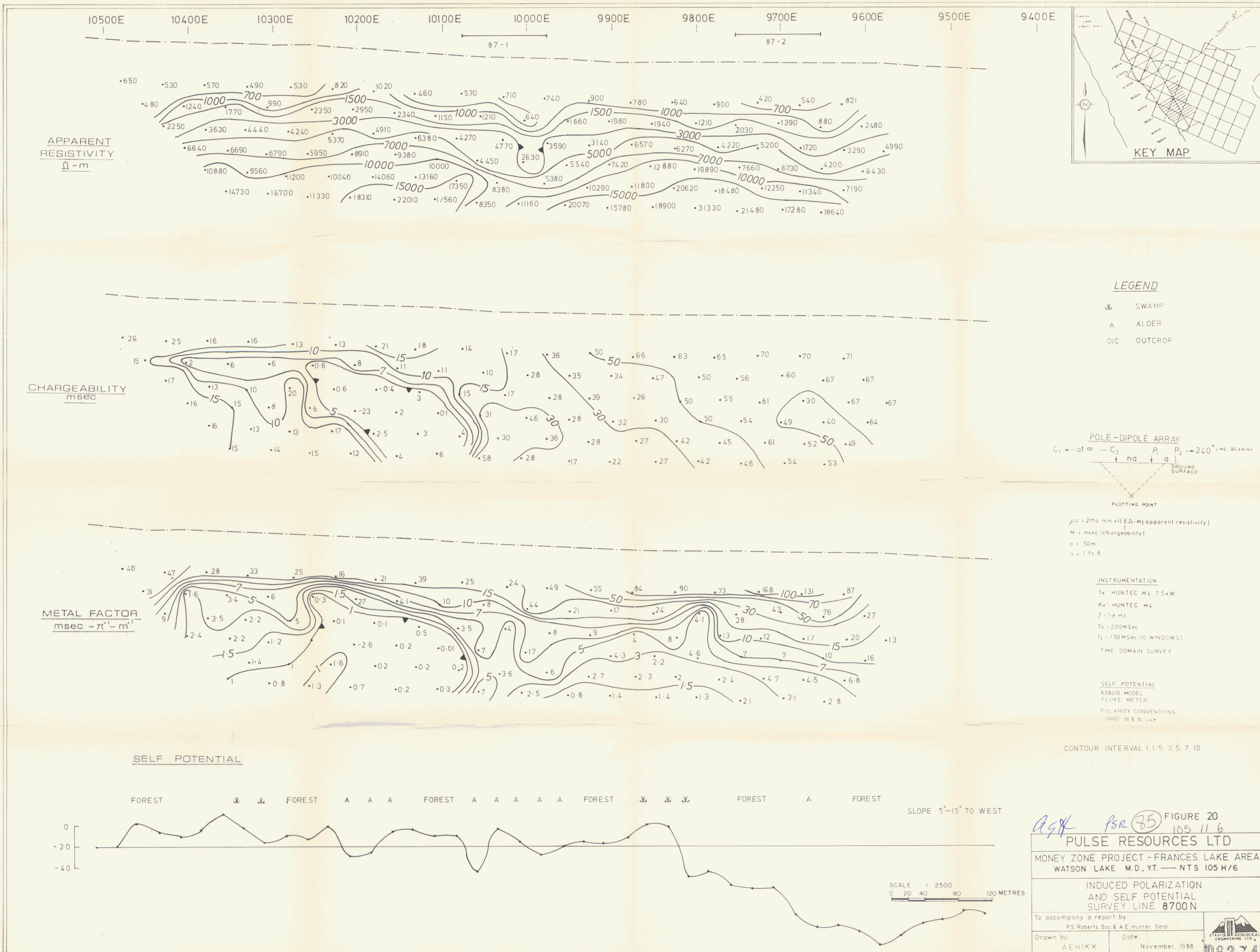


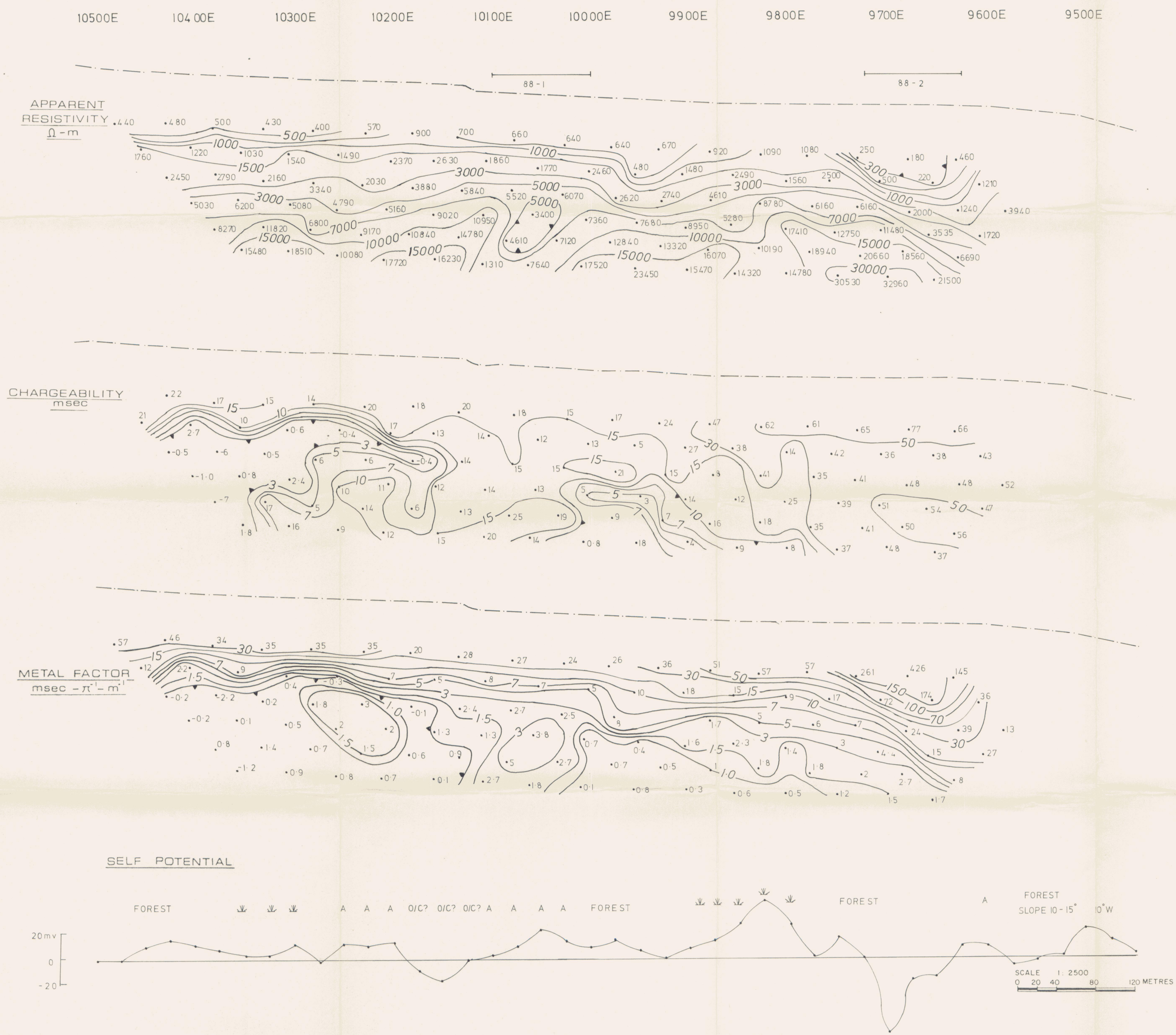
10400E
10300E
10200E
10100E
10000E
9900E
9800E
9700E
9600E
9500
9400
85-1
85-2
KEY MAP
APPARENT RESISTIVITY
Ω-m
CHARGEABILITY
msec
METAL FACTOR
msec - π⁻¹ - m⁻¹
SELF POTENTIAL
LEGEND
SWAMP
ALDER
O/C OUTCROP
POLE-DIPOLE ARRAY
C1 ← at ∞ — C2 P1 P2 → 240° LINE BEARING
na a
GROUND SURFACE
PLOTTING POINT
M = msec (chargeability)
a = 50m
n = 1 to 6
INSTRUMENTATION
Tx HUNTEC Mk 7.5kW
Rx HUNTEC Mk
TIME DOMAIN SURVEY
SELF POTENTIAL
808B MODEL
FLUKE METER
POLARITY CONVENTIONS
CONTOUR INTERVAL 1, 1.5, 3, 5, 7, 10
BOG
FOREST
JOINS PT A
CREEK
HILL UP TO E
OUTCROP 1M BELOW SURFACE
FOREST & BOG → FOREST
SMALL HILL UP TO E
HILL UP TO E
-40 mv
-60
-80
-380 mv
-400
-420
PT A
SCALE 1:2500
0 20 40 80 120 METRES
FIGURE 18
105 H 6
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6
INDUCED POLARIZATION AND SELF POTENTIAL SURVEY LINE 8500N
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter Geop
Drawn by: A.E.H./K.K.
Date: November, 1988
STRATO GEOLOGICAL ENGINEERING LTD.

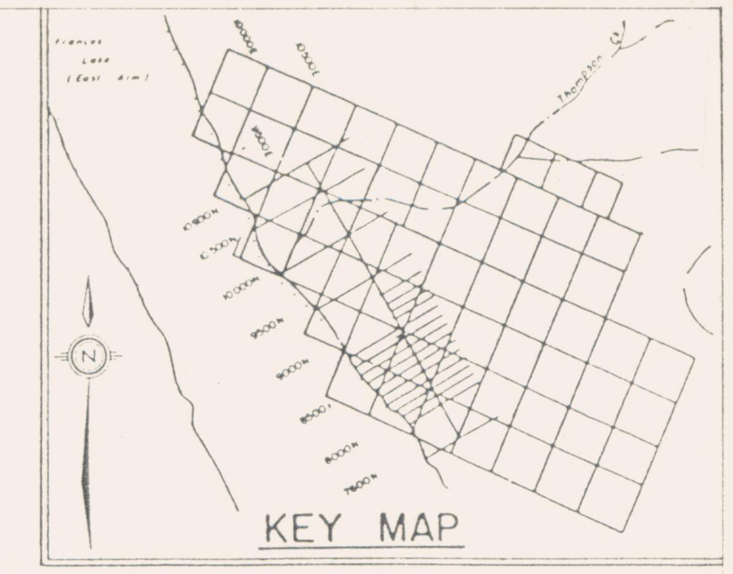
082.40


10500E 10400E 10300E 10200E 10100E 10000E 9900E 9800E 9700E 9600E 9500E 9400E
86-1
86-2
APPARENT RESISTIVITY
Ω-m
CHARGEABILITY
msec
METAL FACTOR
msec - π⁻¹ - m⁻¹
SELF POTENTIAL
80mv
60
40
FOREST
CAMP CLEARING
FOREST
FOREST
STEEP SLOPE
GENTLE SLOPE
FOREST
BOG
DRYER
FOREST
FOREST
HILL
HILL UP TO E
KEY MAP
LEGEND
SWAMP
ALDER
O/C OUTCROP
POLE-DIPOLE ARRAY
C1 ← at ∞ — C2 na P1 a P2 → 240° LINE BEARING
GROUND SURFACE
PLOTTING POINT
ρa = 2πa n(n+1) V/I Ω-m (apparent resistivity)
M = msec (chargeability)
a = 50m
n = 1 to 6
INSTRUMENTATION
Tx: HUNTEC M4 7.5kW
Rx: HUNTEC M4
f = 1/8 Hz
To = 200MSec
T1 = 150MSec (10 WINDOWS)
TIME DOMAIN SURVEY
SELF POTENTIAL
8080B MODEL
FLUKE METER
POLARITY CONVENTIONS
GRID N & N -ve
CONTOUR INTERVAL 1, 1.5, 3, 5, 7, 10
SCALE 1:2500
0 20 40 80 120 METRES
FIGURE 19
105 H 6
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6
INDUCED POLARIZATION AND SELF POTENTIAL SURVEY LINE 8600N
To accompany a report by
P.S. Roberts Bsc & A.E. Hunter, Geop.
Drawn by: A.E.H./K.K.
Date November, 1988
STRATO GEOLOGICAL ENGINEERING LTD.
092740



10500E
10400E
10300E
10200E
10100E
10000E
9900E
9800E
9700E
9600E
9500E
9400E
87-1
87-2
APPARENT RESISTIVITY
Ω-m
CHARGEABILITY
msec
METAL FACTOR
msec - Ω⁻¹ - m⁻¹
SELF POTENTIAL
FOREST
FOREST
FOREST
FOREST
FOREST
FOREST
A A A
A A A A A
A
SLOPE 5°-15° TO WEST
0
- 20
- 40
KEY MAP
LEGEND
SWAMP
A ALDER
O/C OUTCROP
POLE-DIPOLE ARRAY
C1 ← at ∞ — C2 na P1 a P2 → 240° LINE BEARING
GROUND SURFACE
PLOTTING POINT
ρa = 2πa n(n+1) V/I Ω-m (apparent resistivity)
M = msec (chargeability)
a = 50m
n = 1 to 6
INSTRUMENTATION
Tx HUNTEC M4 7.5kW
Rx HUNTEC M4
f = 1/8 Hz
To = 200MSec
Ts = 150MSec (10 WINDOWS)
TIME DOMAIN SURVEY
SELF POTENTIAL
8080B MODEL
FLUKE METER
POLARITY CONVENTIONS
GRID N & N -ve
CONTOUR INTERVAL 1, 1.5, 3, 5, 7, 10
SCALE 1:2500
0 20 40 80 120 METRES
FIGURE 20
105 H 6
85
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6
INDUCED POLARIZATION AND SELF POTENTIAL SURVEY LINE 8700N
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.
Drawn by: AEH/KK
Date: November, 1988
STRATO GEOLOGICAL ENGINEERING LTD
082740





LEGEND

- SWAMP
- A ALDER
- O/C OUTCROP

POLE-DIPOLE ARRAY

$C_1 \leftarrow$ at ∞ — C_2 na P_1 a $P_2 \rightarrow 240°$ LINE BEARING

GROUND SURFACE

PLOTTING POINT

$\rho a = 2\pi a\, n(n+1) \frac{V}{I}$ Ω-m (apparent resistivity)

M = msec (chargeability)

a = 50m

n = 1 to 6

INSTRUMENTATION

Tx HUNTEC Mk 7.5kW

Rx HUNTEC Mk

f = 1/8 Hz

To = 200 MSec

Tt = 150 MSec (10 WINDOWS)

TIME DOMAIN SURVEY

SELF POTENTIAL

8080B MODEL
FLUKE METER

POLARITY CONVENTIONS
GRID N & N -ve

CONTOUR INTERVAL 1, 1.5, 3, 5, 7, 10

SCALE 1: 2500

0 20 40 80 120 METRES

86

FIGURE 21
105 H 6

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6

INDUCED POLARIZATION AND SELF POTENTIAL SURVEY LINE 8800N

To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.

Drawn by: AEH/KK

Date: November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

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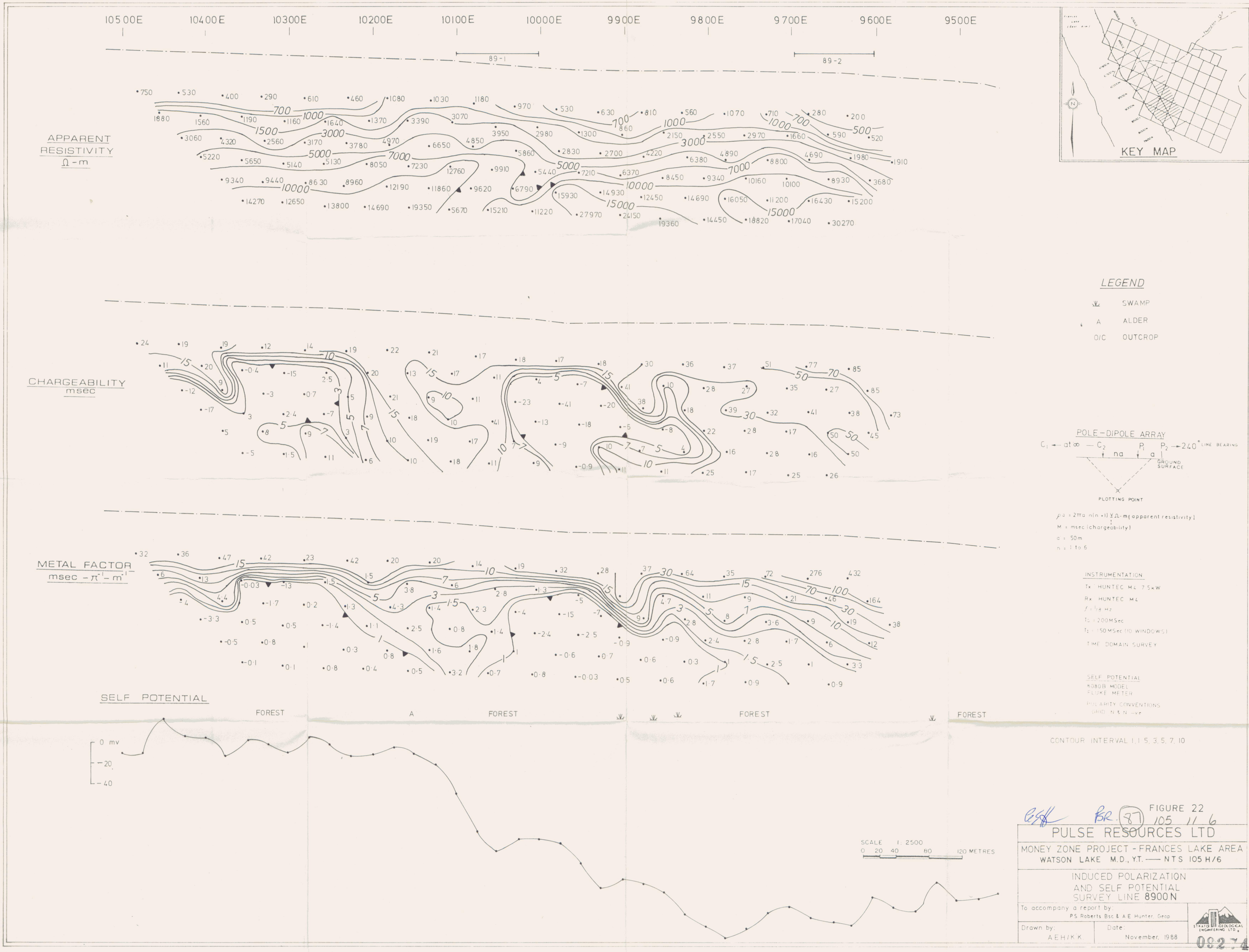
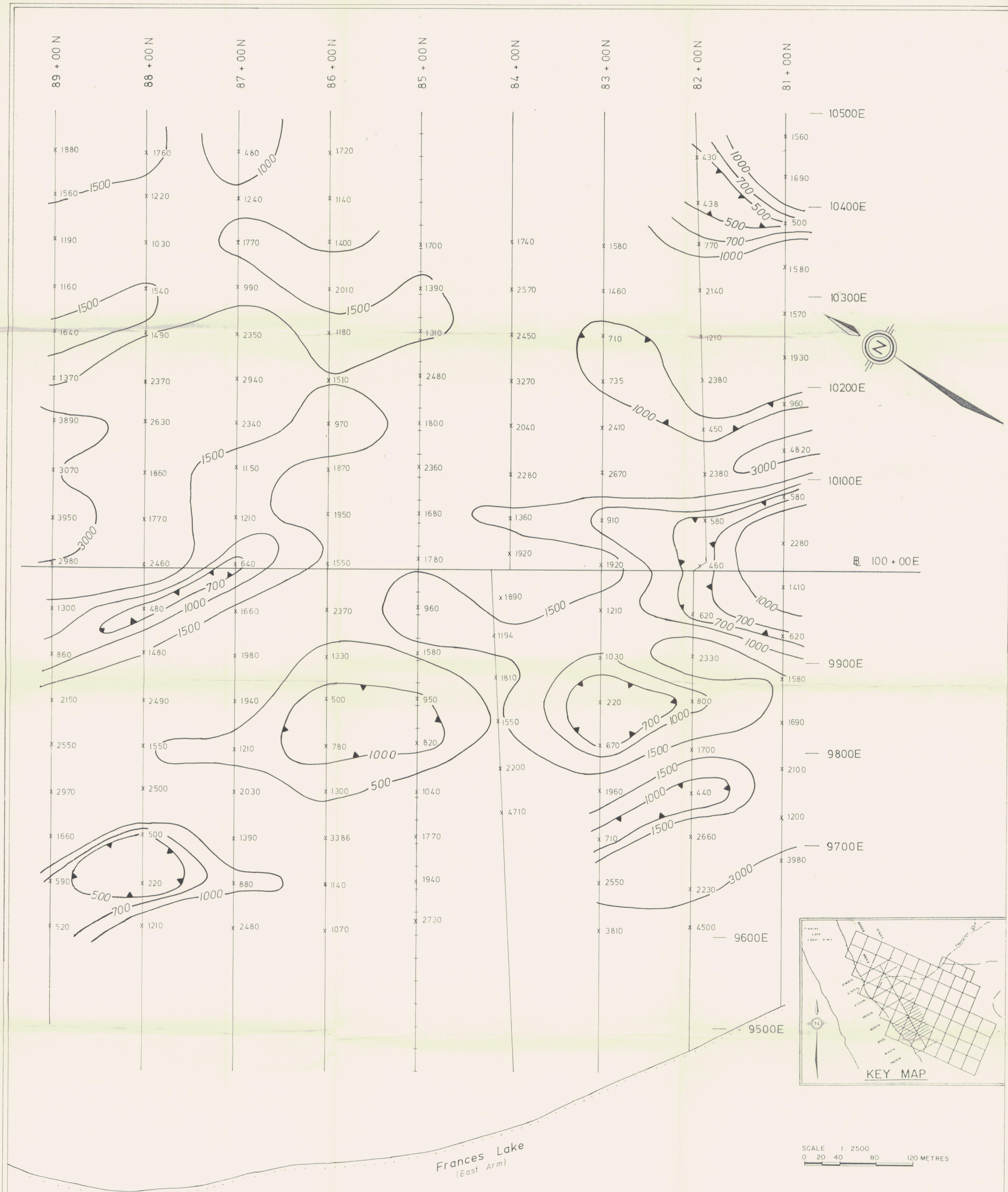

10500E
10400E
10300E
10200E
10100E
10000E
9900E
9800E
9700E
9600E
9500E
89-1
89-2
APPARENT RESISTIVITY
Ω - m
CHARGEABILITY
msec
METAL FACTOR
msec - π⁻¹ - m⁻¹
SELF POTENTIAL
FOREST
A
FOREST
FOREST
FOREST
0 mv
-20
-40
KEY MAP
LEGEND
SWAMP
A ALDER
O/C OUTCROP
POLE-DIPOLE ARRAY
PLOTTING POINT
GROUND SURFACE
M : msec (chargeability)
a : 50m
n : 1 to 6
INSTRUMENTATION
Tx HUNTEC Mk 7.5kW
Rx HUNTEC Mk
Time domain survey
SELF POTENTIAL
8080B MODEL
FLUKE METER
POLARITY CONVENTIONS
CONTOUR INTERVAL 1, 1.5, 3, 5, 7, 10
SCALE 1:2500
0 20 40 80 120 METRES
FIGURE 22
105 H 6
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6
INDUCED POLARIZATION
AND SELF POTENTIAL
SURVEY LINE 8900N
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter Geop
Drawn by:
AEH/KK
Date:
November 1988
STRATO GEOLOGICAL ENGINEERING LTD.
092740



INSTRUMENTS

Tx : HUNTEC M4 7.5kW

Rx : HUNTEC M4

$f = 1/8$ Hz

T_D = 200MSec

T_I = 150 MSec (10 WINDOWS)

TIME DOMAIN SURVEY

POLE - DIPOLE ARRAY

$\rho a = 2\pi a\ n(n+1) \frac{V}{I} \Omega$-m (apparent resistivity)

M = msec (chargeability)

a = 50m

n = 1 to 6

NOTE

CONTOUR INTERVALS 500, 700, 1500
2000, 3000 Ω - m

FIGURE 23

(88) 105 H 6

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6

APPARENT RESISTIVITY PLAN
n = 2

To accompany a report by:
P.S Roberts Bsc & A.E Hunter, Geop

Drawn by: MF/K.K.

Date: November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

092740

FIGURE 24

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6

CHARGEABILITY PLAN
n = 2

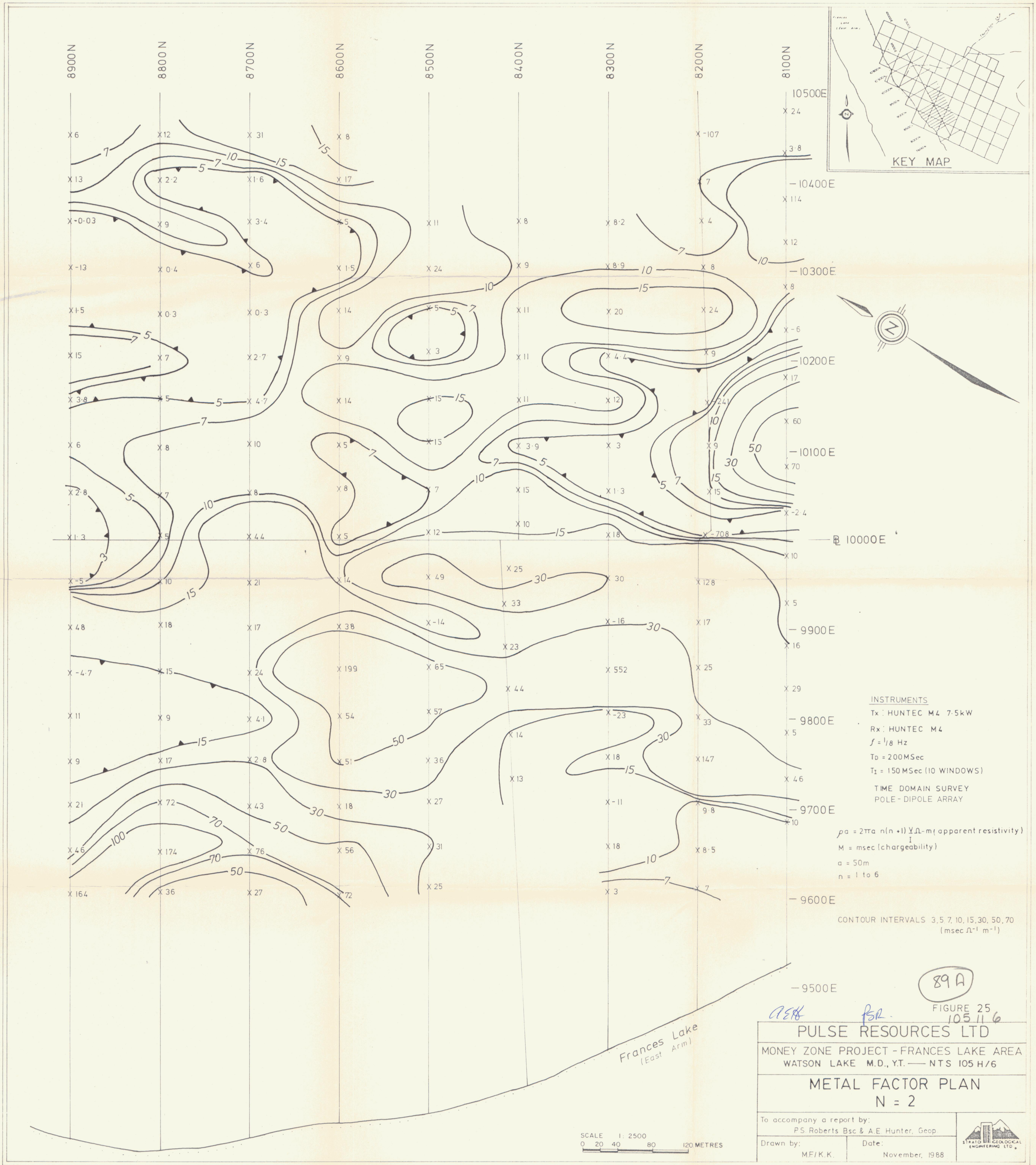
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop

Drawn by: M.F./K.K.

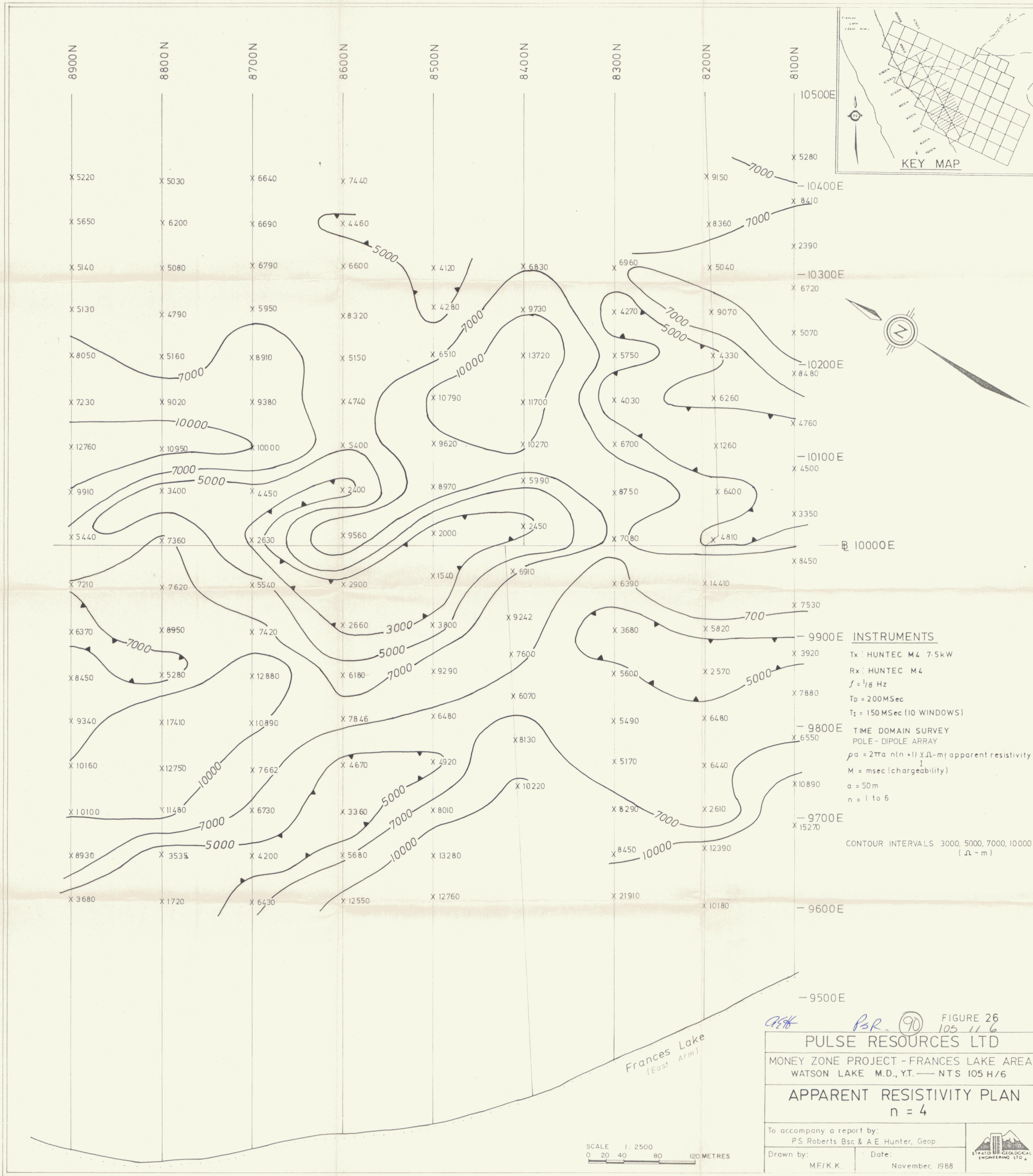
Date: November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

082 40



8900N
8800N
8700N
8600N
8500N
8400N
8300N
8200N
8100N
10500E
10400E
10300E
10200E
10100E
10000E
9900E
9800E
9700E
9600E
9500E
KEY MAP
INSTRUMENTS
Tx : HUNTEC M4 7.5kW
Rx : HUNTEC M4
f = 1/8 Hz
TD = 200MSec
TI = 150MSec (10 WINDOWS)
TIME DOMAIN SURVEY
POLE-DIPOLE ARRAY
ρa = 2πa n(n+1) V/I Ω-m (apparent resistivity)
M = msec (chargeability)
a = 50m
n = 1 to 6
CONTOUR INTERVALS 3, 5, 7, 10, 15, 30, 50, 70
(msec Ω⁻¹ m⁻¹)
Frances Lake
(East Arm)
89A
FIGURE 25
105 H 6
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6
METAL FACTOR PLAN
N = 2
SCALE 1: 2500
0 20 40 80 120 METRES
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop
Drawn by: M.F./K.K.
Date: November, 1988
STRATO GEOLOGICAL ENGINEERING LTD.
092740



INSTRUMENTS

Tx : HUNTEC M4 7.5kW
Rx : HUNTEC M4
$f = 1/8$ Hz
T_D = 200MSec
T_I = 150MSec (10 WINDOWS)

TIME DOMAIN SURVEY
POLE - DIPOLE ARRAY

$\rho a = 2\pi a\ n(n+1) \frac{V}{I} \Omega$-m (apparent resistivity)
M = msec (chargeability)
a = 50m
n = 1 to 6

CONTOUR INTERVALS 3000, 5000, 7000, 10000 (Ω - m)

FIGURE 26
105 H 6

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6

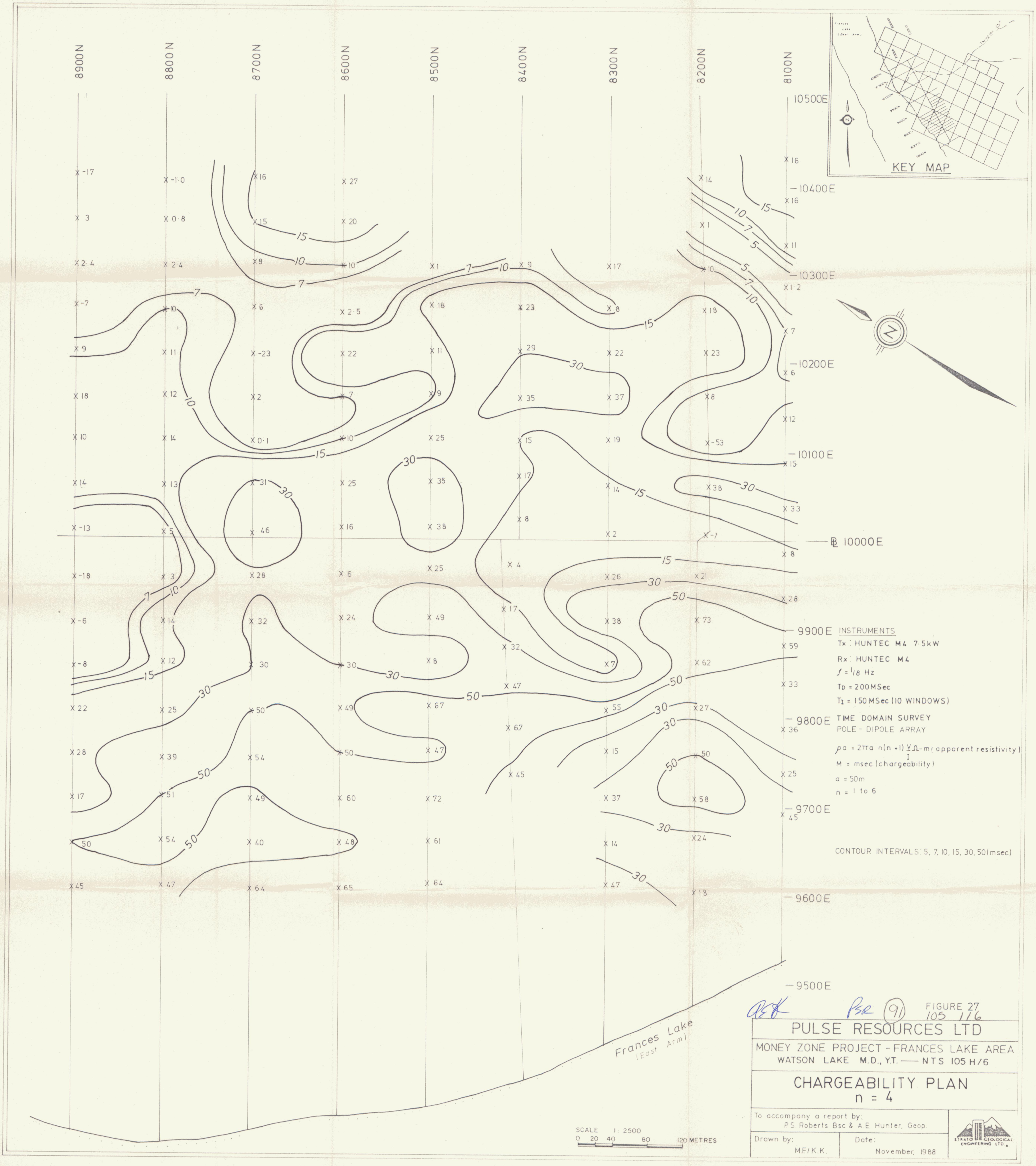
APPARENT RESISTIVITY PLAN
n = 4

To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop

Drawn by:	Date:
M.F./K.K.	November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

092740



8900N
8800N
8700N
8600N
8500N
8400N
8300N
8200N
8100N
10500E
10400E
10300E
10200E
10100E
Ḇ 10000E
9900E
9800E
9700E
9600E
9500E
KEY MAP
INSTRUMENTS
Tx : HUNTEC M4 7·5kW
Rx : HUNTEC M4
f = 1/18 Hz
TD = 200 MSec
TI = 150 MSec (10 WINDOWS)
TIME DOMAIN SURVEY
POLE - DIPOLE ARRAY
ρa = 2πa n(n+1) V/I Ω-m (apparent resistivity)
M = msec (chargeability)
a = 50m
n = 1 to 6
CONTOUR INTERVALS: 5, 7, 10, 15, 30, 50 (msec)
Frances Lake (East Arm)
SCALE 1:2500
0 20 40 80 120 METRES
FIGURE 27
105 116
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6
CHARGEABILITY PLAN
n = 4
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.
Drawn by: M.F./K.K.
Date: November, 1988
STRATO GEOLOGICAL ENGINEERING LTD.
092740

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6

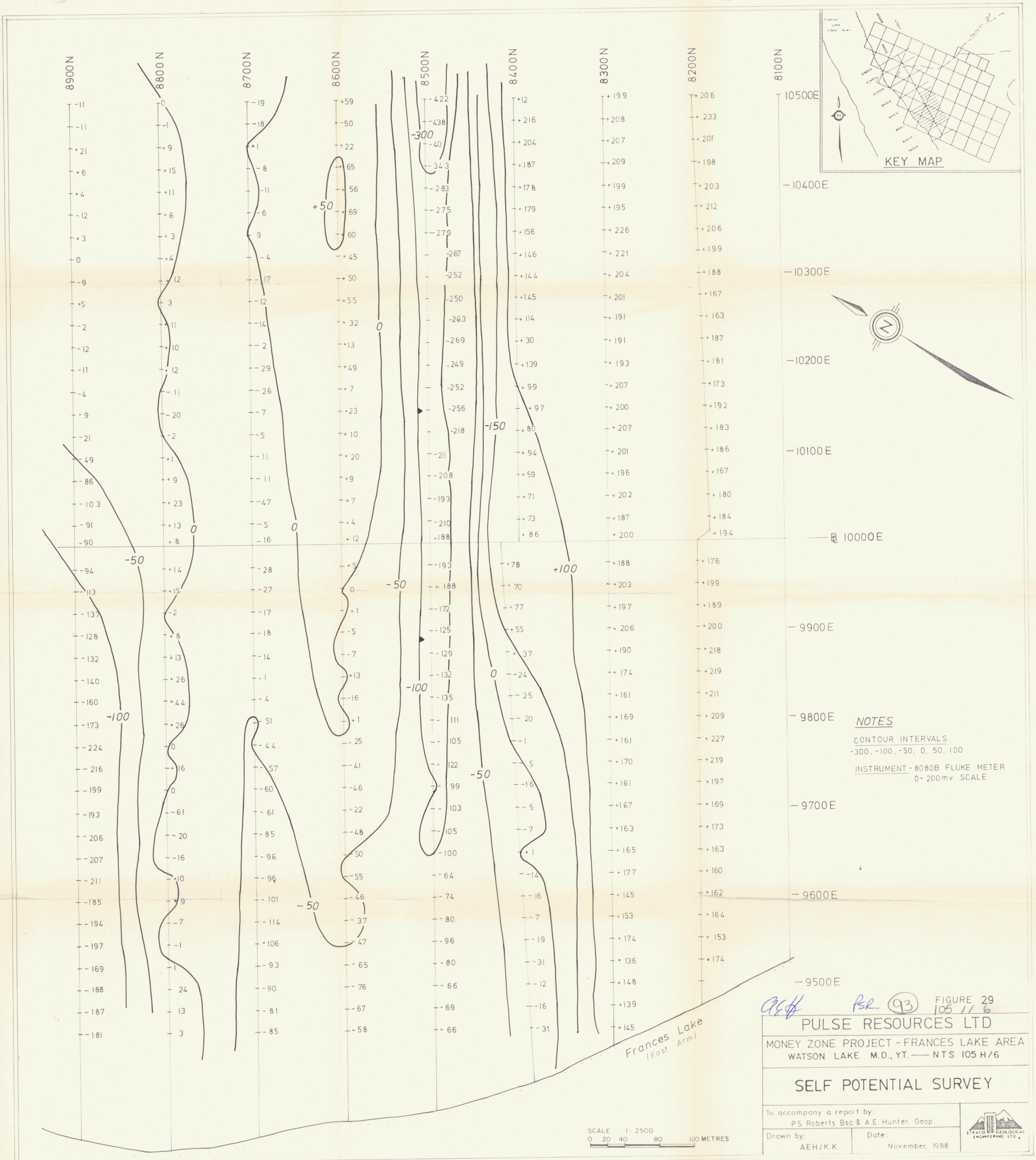
METAL FACTOR PLAN
N = 4

To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop

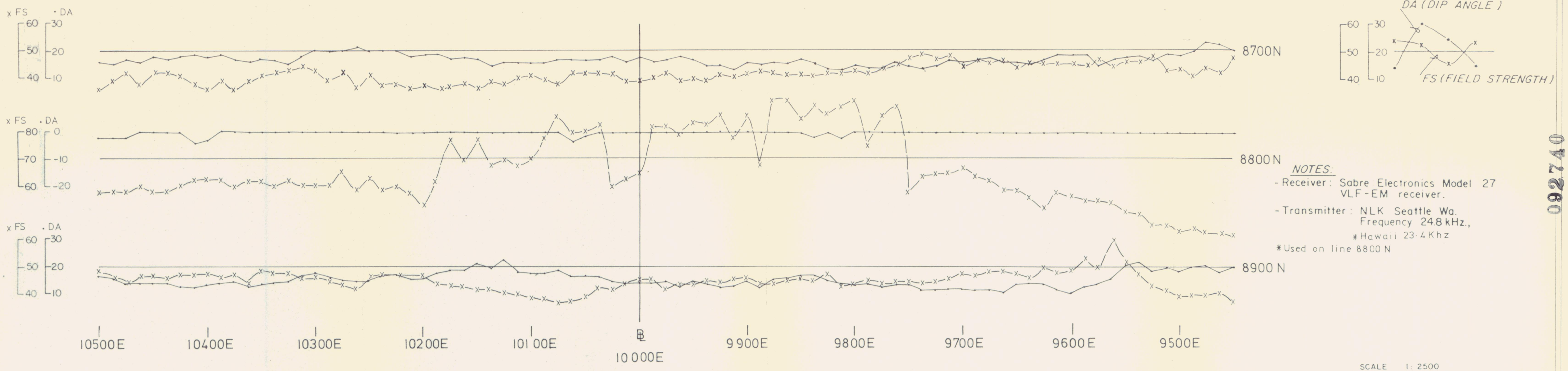
Drawn by: M.F./K.K.
Date: November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

092740


KEY MAP
NOTES
CONTOUR INTERVALS
-300, -100, -50, 0, 50, 100
INSTRUMENT - 8080B FLUKE METER
0-200mv SCALE
8900N
8800N
8700N
8600N
8500N
8400N
8300N
8200N
8100N
10500E
10400E
10300E
10200E
10100E
BL 10000E
9900E
9800E
9700E
9600E
9500E
Frances Lake
(East Arm)
SCALE 1: 2500
0 20 40 80 120 METRES
FIGURE 29
105 H 6
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6
SELF POTENTIAL SURVEY
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.
Drawn by:
AEH/K.K.
Date:
November, 1988
STRATO GEOLOGICAL ENGINEERING LTD.

092740



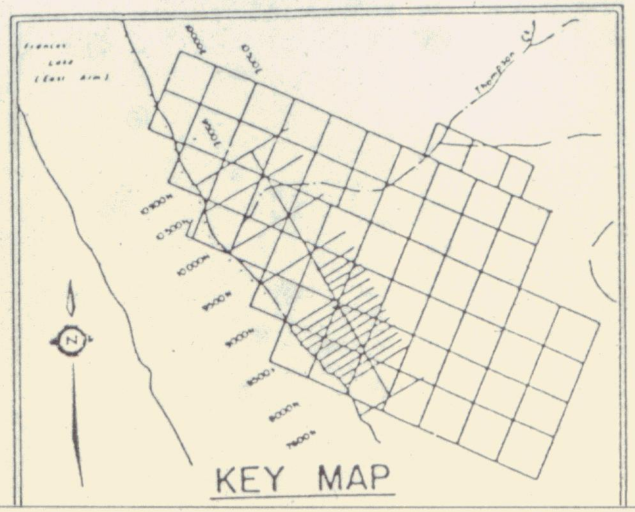
NOTES:

- Receiver: Sabre Electronics Model 27 VLF-EM receiver.
- Transmitter: NLK Seattle Wa. Frequency 24.8 kHz., *Hawaii 23.4 Khz

*Used on line 8800 N

SCALE 1: 2500

0 20 40 80 120 METRES



aEH PSR (94) FIGURE 34 105 H 6

PULSE RESOURCES LTD

MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. —— NTS 105 H/6

VLF-EM SURVEY

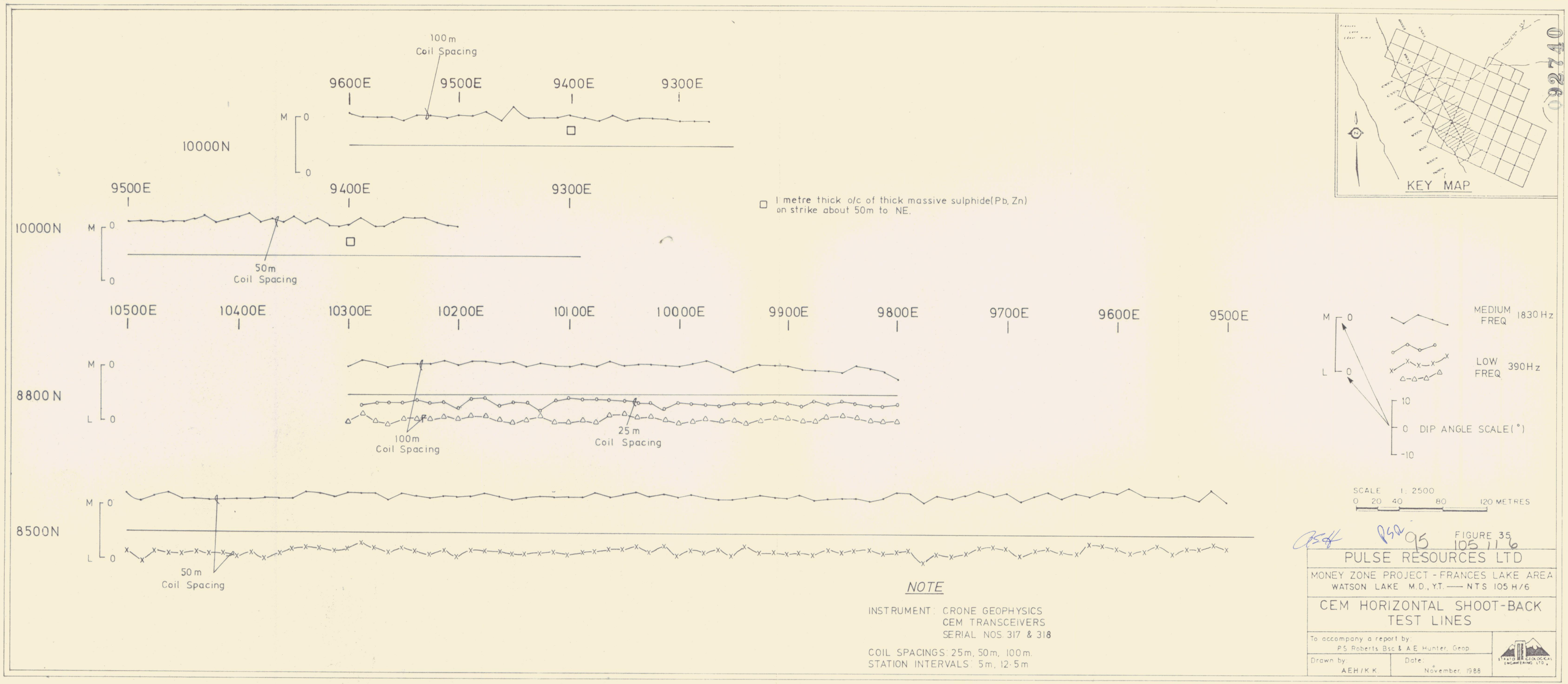
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop

Drawn by: AEH/K.K.

Date: November, 1988

STRATO GEOLOGICAL ENGINEERING LTD.

092740


100 m
Coil Spacing
9600E
9500E
9400E
9300E
M
0
0
10000N
9500E
9400E
9300E
10000N
M
0
0
50 m
Coil Spacing
I metre thick o/c of thick massive sulphide (Pb, Zn)
on strike about 50m to NE.
KEY MAP
10500E
10400E
10300E
10200E
10100E
10000E
9900E
9800E
9700E
9600E
9500E
M
0
L
0
8800 N
100 m
Coil Spacing
25 m
Coil Spacing
MEDIUM FREQ 1830 Hz
LOW FREQ 390 Hz
10
0 DIP ANGLE SCALE (°)
-10
SCALE 1: 2500
0 20 40 80 120 METRES
M
0
8500N
L
0
50 m
Coil Spacing
NOTE
INSTRUMENT: CRONE GEOPHYSICS
CEM TRANSCEIVERS
SERIAL NOS 317 & 318
COIL SPACINGS: 25m, 50m, 100m.
STATION INTERVALS: 5m, 12·5m
FIGURE 35
PULSE RESOURCES LTD
MONEY ZONE PROJECT - FRANCES LAKE AREA
WATSON LAKE M.D., Y.T. — NTS 105 H/6
CEM HORIZONTAL SHOOT-BACK
TEST LINES
To accompany a report by:
P.S. Roberts Bsc & A.E. Hunter, Geop.
Drawn by:
AEH/KK
Date:
November 1988