

PROSPECTUS  
July 17, 1987.  
062273

REPORT ON THE ROMAN PROPERTY  
Watson Lake Mining District, Yukon  
and  
Liard Mining Division, British Columbia

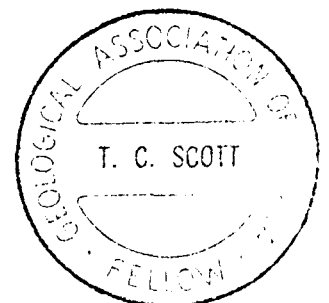
. Prepared for .

SAMARKAND RESOURCES INC.  
Suite 302, 119 West Pender Street,  
Vancouver, British Columbia

. Prepared by .

T. C. Scott, B.Sc., F.G.A.C.  
Suite 900, 850 West Hastings Street,  
Vancouver, British Columbia  
V6C 1E1

January, 1987



**REPORT ON THE ROMAN PROPERTY**  
**Yukon and British Columbia**

**TABLE OF CONTENTS**

	<u>Page</u>
1.0 INTRODUCTION	.1.
2.0 SUMMARY	.1.
3.0 LOCATION AND ACCESS	.3.
4.0 PROPERTY DEFINITION	.3.
5.0 HISTORY	.4.
6.0 PHYSIOGRAPHY, VEGETATION AND CLIMATE	.6.
7.0 GEOLOGY	
7.1 Regional Geology	.6.
7.2 Property Geology	.8.
7.3 Mineralization	.9.
8.0 GEOPHYSICAL SURVEYS	.12.
9.0 GEOCHEMICAL SURVEYS	.13.
10.0 DIAMOND DRILLING	.13.
11.0 DISCUSSION OF ROMAN PROPERTY	.14.
12.0 CONCLUSIONS	.15.
13.0 RECOMMENDATIONS	.16.
 <b>APPENDICES</b>	
Appendix A	Cost Estimates
Appendix B	Bibliography
Appendix C	Certificate of Qualifications and Consent

..cont'd

REPORT ON THE ROMAN PROPERTY  
Yukon and British Columbia

TABLE OF CONTENTS (cont'd)

LIST OF TABLES	<u>Page</u>
Table 1 List of Claims	.4.
Table 2 History of Recent Work	.5.
Table 3 Sample Results, G. Prior (1982)	.10.
Table 4 Sample Results (ICP Analytical Method), T. C. Scott (1986)	.11.

LIST OF FIGURES (Following Text)

Figure 1	Property Location: Liard Mining Division, British Columbia and Watson Lake Mining Division, Yukon
Figure 2	Survey Grid
Figure 3	Geological Setting
Figure 4	Property Geology
Figure 5	Main Showing: Geology
Figure 6	West Showing: Geology
Figure 7	Induced Polarization Survey: Chargeability
Figure 8	Induced Polarization Survey: Resistivity
Figure 9	Electromagnetic Surveys: Horizontal Loop
Figure 10	Electromagnetic Surveys: VLF

## 1.0 INTRODUCTION

This report is prepared at the request of Samarkand Resources Inc., Suite 302, 119 West Pender Street, Vancouver, British Columbia.

Field examinations of the Roman Property were conducted by the writer on August 24, 1982 and from October 20th to 29th, 1986. During the latter period, geological mapping was carried out by the writer, while Samarkand Resources conducted geophysical surveys on the property.

The report is based on the results of this work, on geotechnical data acquired by previous operators, and on several published and unpublished maps, reports and correspondence which pertain to the property. This report summarizes this information and recommends an exploration program designed to delineate possible argentiferous sulphide bodies within the property boundaries.

## 2.0 SUMMARY

The Roman Property straddles the British Columbia - Yukon border, eight kilometers southeast of the town of Watson Lake, Yukon. The property comprises 64 mineral claims in the Yukon and six mineral claims (110 units) in British Columbia, an area of 3645 hectares. Samarkand Resources Inc., holds the claims under an option agreement with J. W. Melnychuk dated July 23, 1986.

The property covers part of the Liard Plain, a glacio-fluvial outwash area. Bedrock outcrops are generally restricted to the banks of the Liard River which flows southeast, diagonally across the claims.

Four-wheel drive access to the property exists from the Alaska Highway. The southern portion of the property is accessible by river boat or by helicopter, a ten minute return flight from Watson Lake.

Although sulphide mineralization was noted by G. M. Dawson in 1886, the property had seen little development work until 1980. From 1980 to 1986, in excess of \$232,000 worth of work has been performed on the property by Logan Mines Ltd. (1980/81), Billiton Canada Ltd. (1984) and by the current operators, Samarkand Resources Inc. (1986).

The property is located near the faulted juncture of the allochthonous Slide Mountain / Sylvester terrain, with mid-Paleozoic basinal and platformal facies of the Selwyn Basin and its southern extension, the Kechika Trough. Although volcanic rocks outcrop to the extreme east, the majority of the property appears to be underlain by a folded sequence of clastic sediments that include: carbonaceous black shale; phyllitic, grey, calcareous mudstone; calcareous chert pebble grit; and carbonaceous sandstone facies which may correlate with the Earn Group of Devonian-Mississippian age.

Sulphide mineralization found at the Main Showing includes: patches of galena, sphalerite and tetrahedrite within zones of intense silicification; massive bedded pyrite in carbonaceous black shale; and 20-centimeter wide conformable lenses of massive, very fine-grained galena and sphalerite in calcareous mudstones. Assays from the latter return values as high as: silver 20.27 ounces/ton; copper, 0.098%; lead, 65.0%; and zinc 16.9%. Mineralization found at the West Showing, four and one-half kilometers upstream, occurs primarily as very fine-grained, bedded pyrite in carbonaceous black shale. Barite veins and lenses are also present. Although base metal values are low, the shale can assay as high as 10% iron.

The extensive multi-spectral geophysical surveys carried out by Billiton in 1984 have revealed numerous strong, coincident, Induced Polarization and Horizontal Loop electromagnetic anomalies on the property. Of particular significance are two IP anomalies on Line 21S, as both are coincident with a 1.0-milligal Gravity anomaly.

In summary, the character of mineralization, stratigraphy and geophysical anomalies of the Roman Property indicates the property is

underlain by a geological environment with the potential to host a manto-type silver-lead-zinc deposit or one of stratiform, exhalative sedimentary origin.

A two-staged program of development is recommended. The Stage I program, for 1987, is to include geological mapping and supplementary detailed geophysical work at an estimated cost of \$70,000. The Stage II program, for 1988, is to include 2000 feet of diamond drilling to test selected geophysical targets at an estimated cost of \$93,000.

### **3.0 LOCATION AND ACCESS**

The Roman Property straddles the British Columbia - Yukon border, eight kilometers southeast of the town of Watson Lake, Yukon (population 1500).

The northern portion of the property is accessible with 4-wheel drive vehicles via access roads leading south and west from approximately seven kilometers east of Watson Lake on the Alaska Highway, which, itself, cuts across the northeastern corner of the property (Figure 1).

The southern portion of the property is accessible by riverboat launched from the settlement of Upper Liard (seven kilometers west of Watson Lake) via the Liard River which flows southeasterly across the property). A helicopter based at Watson Lake is also available for access to the property. Road access to the southern portion of the property could be facilitated through the extension of logging roads originating at Upper Liard. These currently reach to within approximately six kilometers of the west boundary of the property.

### **4.0 PROPERTY DEFINITION**

The Roman Property comprises 64 mineral claims in the Watson Lake Mining District of the Yukon and six mineral claims (110 units) in the Liard Mining Division of British Columbia (Figure 1). With allowances made for the overlap of some claims, the property covers approximately 3645 hectares.

Samarkand Resources Inc. presently holds the property under an option agreement with J. W. Melnychuck, Watson Lake, Yukon, dated July 23, 1986. The claims included in the agreement are shown on Table 1. All claims are in good standing.

**Table 1**  
**LIST OF CLAIMS**

<u>Claim Name</u>	<u>No. of Units</u>	<u>Record No.</u>	<u>Record Date</u>
<b>BRITISH COLUMBIA CLAIMS</b>			
Roman 50	10	1795(1)	20 Jan '83
Rom 1	20	2747(6)	02 Jun '83
Rom 2	20	2748(6)	02 Jun '83
Vent 19	20	2744(5)	26 May '83
JM 1	20	3595(7)	21 Jul '86
JM 2	20	3596(7)	21 Jul '86
<b><u>No. of Claims</u></b>			
<b>YUKON CLAIMS</b>			
Roman 1-16 inc.	16	YA36877-36892	11 Jun '69
Man 1-8 inc.	8	YA70060-70067	20 May '83
Man 9-14 inc.	6	YA70068-70073	20 May '83
Man 15-16 inc.	2	YA70142-70143	16 Jun '83
Man 17-24 inc.	8	YA70144-70151	17 Jun '83
Rom 17-20 inc.	4	YA70285-70288	05 Aug '83
Rom 25-32 inc.	8	YA70169-70176	28 Jun '83
Rom 33-36 inc.	4	YA70212-70215	15 Jul '83
Rom 37-38 inc.	2	YA70216-70217	15 Jul '83
Rom 39-44 inc.	6	YA70271-70276	01 Aug '83

## 5.0 HISTORY

Reports of argentiferous galena in the Lower Liard Canyon were first noted by G. M. Dawson in 1886. Recent work on the Roman Property is outlined in Table 2. The areas over which geotechnical surveys have been conducted are shown on Figure 3. Total expenditures on the property, from 1980 to present, exceed \$232,000: Logan Mines Ltd. (\$80,000); Billiton Canada Ltd. (\$97,000); and Samarkand Resources Inc. (\$55,000).

**Table 2**  
**HISTORY OF RECENT WORK**

Year	Work Activity
1962	Staked by F. Lutz as JIM and MOOSE.
1965	Re-staked by R. Kirk as BARITE.
1968	Re-staked by C. Pete as KIRK.
1969	Re-staked by N. Zinchuk as NAZO. Minor trenching in 1969, 1971 and 1973.
1975	Re-staked by P. Kremar as N.
1979	Re-staked by J. Melnychuck as ROMAN. St. Joseph Exploration optioned Roman 1 to 16 and completed geologic mapping and geochemical sampling in 1979 and 1980.
1980	Logan Mines Ltd. optioned the property and completed two diamond drill holes totalling 123 meters on Roman 1 to 16, and an EM-16 survey in the vicinity of main barite showing.
1981	Logan Mines completed 9.2 line kilometers of soil geochemical and magnetometer surveys.
1983	Messrs. Robertson, Price and Christopher enter into a syndicate agreement with Melnychuck. The syndicate staked the Rom and Man claims in the Yukon and the Rom 2 and Vent 19 claims in British Columbia, adjacent to the original Roman 1 to 16 and Rom 50 claims.
1984	Billiton Canada Ltd. completed a ground geophysical survey program on the Roman grid which included Induced Polarization, VLF-EM Horizontal Loop EM, Magnetometer and Gravity surveys. A geochemical orientation survey was also completed.
1985	Access road from Lucky Lake on Alaska Highway to the West Showings constructed by Melnychuck.
1986	JM 1 and JM 2 claims staked by Melnychuck in British Columbia, to south of existing claim groups.
	Samarkand Resources Inc. entered into an option agreement with Melnychuck. Samarkand completed 45.63 kilometers of line cutting, 46 kilometers of GENIE (Horizontal Loop) EM survey, 45.63 kilometers of VLF-EM survey, 45.63 kilometers of Proton Magnetometer survey, and conducted geological mapping and sampling.



## 6.0 PHYSIOGRAPHY, VEGETATION AND CLIMATE

The property occupies a region of relatively flat, low-lying, drift-covered terrain known as the Liard Plain. South of the Liard River, the average elevation is approximately 640 meters above sea level and the relative relief is less than 100 meters. Locally, eskers and kettles form an irregular, hummocky terrain. Klassen (1978) describes the region as a glacio-fluvial plain consisting of gravel, sand and some silt to a depth of between five and 20 meters. North of the Liard River the elevation increases to 700 meters and the terrain is dominated by alluvial terraces of sand, gravel and silt, five to 20 meters deep. The main streams are entrenched generally into glacial drift, but locally, as in the case of the Liard River (elevation 520 meters), into bedrock by as much as 60 meters.

The gravel and sand terraces support a growth of lodgepole pine, aspen and black poplar; black spruce is abundant in poorly drained areas. Willow and labrador tea is common.

The Watson Lake region of the Liard Plain is relatively dry with an average annual precipitation of 42 centimeters, of which half falls as snow (200 centimeters of snow). The maximum daily temperatures during June, July and August range from 15°C to 21°C. During January and February, temperatures may fall as low as -50°C. Although the summer months are most suitable for geological field work, work on the property can be comfortably carried out from break-up in May until freeze-up towards the end of October.

## 7.0 GEOLOGY

### 7.1 Regional Geology

The Roman Property is located near the junction between the allochthonous Slide Mountain/Sylvester terrain, mid-Paleozoic basinal and platformal facies of the Selwyn Basin and Kechika Trough, and the Northern Rocky Mountain Trench Fault (Figure 2).

In early- to mid-Paleozoic time, sedimentation on the northwestern margin of North America consisted of shallow water platformal carbonates to the east and basinal, dark grey to black shale with limestone and chert in the outer Selwyn Basin. This basinal facies has been designated as the Road River Group. In Devono-Mississippian time, transgressive shales and cherts covered the platformal rocks, while basin-derived chert conglomerate and related clastic sediments accumulated in submarine fans to the west. The return to normal marine shelf, clastic sedimentation, during the mid-Mississippian period, blanketed the area with clean quartz sandstone (Gordey et al, 1982).

The Devono-Mississippian facies of the Northern Cordillera, informally called the 'Black Clastic Group', is now termed the Earn Group (Gordey et al, 1982). The lower Earn Group is characterized by its predominantly silver/gun-blue weathering, siliceous shale and chert, while the upper Earn Group is mainly brown-weathering shale. Coarse clastics characterized by conglomerates of rounded pebbles to cobbles of chert, quartz sandstone and shale clasts, in a matrix of chert and quartz sand, are common throughout members of the Earn Group. The grit, sandstone, shale and conglomerates of the upper Earn Group are, however, characteristically brown-weathering (Dawson and Orchard, 1982). Bedded barite deposits also occur throughout the Earn Group, and are commonly adjacent to stratiform massive sulphides.

The allochthonous terrains include strata of the Devono-Mississippian Sylvester Group, the lower part of which contains slate, argillite, chert, siltstone, chert-pebble conglomerate and minor limestone, while the upper part is typically greenstone, agglomerate, dacitic tuff, minor chert and metadiorite (Gabrielse, 1963).

## 7.2 Property Geology

Exposures of the bedrock underlying the Roman Property are generally restricted to the shoreline and steep walls of the Liard River canyon and to road cuts along the Alsaka Highway. Rock exposures along the highway on the northeast portion of the property display a sequence of volcanic and sedimentary rocks which include andesite, maroon ash tuff, volcanic sandstone, black and hematitic chert, black limestone and carbonaceous shale (Figure 4). Gabrielse (1963) classifies these rocks as part of the Sylvester Group.

The rocks exposed along the Liard river are predominantly clastic sediments. In the vicinity of the West Showing, carbonaceous black shale comprises both calcareous and siliceous beds (Figure 5). Minor carbonaceous sandstone units are also present. On the north bank, the black shale hosts numerous concordant and cross-cutting barite-quartz lenses and veins in widths of up to 20 centimeters. A conformable barite lense two meters wide, and a cross-cutting barite vein 0.4 meter wide occur in black shales on the south bank.

Intercalated black shale and buff-weathering, phyllitic, grey, calcareous mudstone are exposed along the walls of the Liard River canyon. A distinctive, ochre- to brown-weathering, fissile, mudstone facies occurs half way along the canyon.

Further east on the north shore of the Liard River, opposite the Main Showing, a carbonaceous black shale is overlain by a coarser, carbonaceous, sandstone facies, with a 15-meter thick unit of ochre-weathering, grey-brown chert and calcareous grit occurring at the interface. The grit contains 0.5 centimeter diameter, rounded, chert pebbles and elongate shale clasts in a fine, sandy matrix.

Intrusive rocks observed to date on the Roman Property occur as one- to five-meter wide, andesitic dykes striking subparallel to the shales at the west end of the Liard River canyon.

Bedding attitudes indicate that the folded strata underlying the Roman Property strike generally in a south-southeast direction. The character of the folding is, however, uncertain. Normal faulting is common and observed displacements are small.

### 7.3 Mineralization

Sulphide mineralization found in the vicinity of the Main Showing occurs in three distinct environments. At the low water mark, on the south bank of the river, conformable lenses of massive, very fine-grained galena and sphalerite occur in grey, calcareous mudstones. Each 20-centimeter wide lense can be followed for approximately 10 meters before leading under the Liard River. A typical assay from these lenses (Sample No. 27970C) is: silver, 8.94 ounces/ton; lead, 46.3%; and zinc, 22.6%. One hundred meters to the east, the contact zone between carbonaceous black shales and the overlying carbonaceous quartzites, is intensely silicified and cut by a flood of narrow quartz stringers. Patches of galena, sphalerite and tetrahedrite are found within the zone of silicification which can be traced along the contact to the west. A channel sample from this zone (Sample No. CS-135), taken adjacent to the shore line, assayed: silver, 9.1 ounces/ton; copper, 0.2%; lead, 24.95%; and zinc, 2.23% across 0.6 meters. The third type of sulphide depositional environment is located on the north shore at the interface between carbonaceous black shale and the overlying grit/chert unit. Here, a conformable massive pyrite lense occurs with quartz at the top of the shale. Although the base metal content is low, the iron content is 17.8% (Sample No. CS-121). Additional sample locations from the Main Showing are displayed on Figure 6. Descriptions and assay values are listed on Tables 3 and 4.

Base metal - silver mineralization in the West Showing is restricted to isolated patches in barite veins and beds. Of greater economic significance is the occurrence of fine-grained, bedded pyrite within the carbonaceous black shales and the massive pyrite in

quartz-barite cemented breccia zones. The bedded pyrite horizon is in excess of 20 meters thick. The multiple association of bedded pyrite, barite, silicification and traces of galena and sphalerite is often indicative of a sedimentary-hosted, exhalative sulphide environment. Figure 5 contains sample locations for the West Showing.

Elsewhere on the property, observed sulphide mineralization occurs as traces of galena, sphalerite, chalcopyrite and tetrahedrite, associated with narrow quartz veins and quartz stockworks (Figure 4). These veins generally display an east to northeast strike, and are steeply dipping, some are concordant with bedding.

Table 3  
SAMPLE RESULTS, G. Prior (1982)

Sample No.	Assays					Description
	Ag (oz/t)	Pb (%)	Zn (%)	Ba (%)	Cu (%)	
27907C				53.6		Conformable barite vein
27909C				52.9		Cross-cutting barite vein w/ pyrite 1m wide
27910C	0.01	0.07	0.04	56.0		Cross-cutting barite vein w/ trace galena, 0.4m wide
27911C	0.12	0.04	0.01			Conformable pyrite lense w/ quartz, 0.2-0.6m wide
27915C	2.62	14.2	14.8			4cm quartz vein w/ sulphides
27917C	14.12	36.0	0.85			Massive sulphides w/ quartz
27919C	0.40	1.89	0.23			Sulphides in quartz
27961C	0.32	2.34	0.37			Quartz vein w/ disseminated sulphides
27963C	0.04	0.13	0.02	30.0		Quartz-barite vein w/ minor galena, 20cm wide
27964C	0.32	20.5	3.78			Galena & sphalerite in zone of intense quartz veining
27967C	0.40	3.26	0.59			Black shale w/ pyrite & galena
27968C	0.06	0.23	0.33	34.1		Barite 'bed' w/ galena, 2m wide
27969C	0.05	0.08	1.17	46.0		Barite float w/ spalerite
27970C	8.94	46.3	22.6			Massive sulphide float adjacent to lense on shore line
27971C	0.78	1.08	1.84		0.23	Black shale w/ disseminated sulphides.

Table 4  
 SAMPLE RESULTS  
 (ICP Analytical Method)  
 T. C. Scott, 1986

Sample No.	Assay Results						Description
	Ag (ppm)	Ba (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	Fe (%)	
SR-4	1.8	161	2572	24	43	1.4	Specimen: rusty quartz vein w/ trace chalcopyrite & tetrahedrite
SR-10	1.8	85*	27	182	17	10.5	Specimen: black shale containing 15% very fine bedded pyrite
SR-10A	1.2	202*	42	147	20	10.2	Specimen: pyritic black shale w/ fine quartz-barite stockwork
SR-10B	2.2	221*	49	235	23	16.1	Specimen: brecciated black shale cemented w/ quartz, barite & pyrite; bedded pyrite in clasts display cross-bedding
SR-28	0.4	126	22	14	21	0.8	Specimen: yellow-weathering, grey-black, carbonaceous chert w/ trace of pyrite
SR-29	0.6	186	7	17	22	1.2	Specimen: chert & shale pebble grit (calcareous)
SR-32	2.0	59	19	121	24	18.2	Specimen: massive 'bedded' pyrite w/ quartz & carbonaceous material
SR-33	0.4	46	25	12	10	1.0	Specimen: chert & shale pebble grit (siliceous)
CS-119	0.7	7	71	37	24	2.2	Channel Sample: 0.8m wide-base of grit unit, pyritic
CS-121	2.0	61	22	252	36	17.8	Grab Sample: 15cm-block of massive 'bedded' pyrite w/ quartz & carbonaceous material
CS-135	278.7 (9.1 oz/t)	98	2177	142,315 (24.95%)	19,286 (2.23%)	1.8	Channel Sample: 0.6m - galena, sphalerite & tetrahedrite in quartz-flooded rusty black shale (Main Showing)
CS-136	11.6	107	410	12,990 (1.56%)	17,769 (2.20%)	1.6	Channel Sample: 2.0m-galena, sphalerite & trace copper staining in quartz-flooded, shattered, thin-bedded chert
CS-137	29.7	99	116	28,293 (3.32%)	2400	1.5	Channel Sample: 2.1m-galena, trace sphalerite in quartz-flooded, thin-bedded chert, immediately above pyritic, black carbonaceous shale
RS-53	(20.27 oz/t)		(0.098%)	(65.0%)	(16.9%)		

\* The standard digestion procedure used in ICP analysis has only a minor effect on barite. Values appear significantly lower than expected from mineralogy of sample.

( ) Denotes analysis by assay methods.

## 8.0 GEOPHYSICAL SURVEYS

The preliminary geophysical surveys conducted by Logan Mines in 1980/81 were superseded by the extensive multi-spectral geophysical surveys carried out by Billiton Canada Ltd. in 1984 (Figure 3). The Billiton surveys tested Induced Polarization, Horizontal Loop and Very Low Frequency Electromagnetic, Magnetic and Gravity responses at a line spacing of 300 to 600 meters (Rainsford, 1984).

The induced polarization survey has delineated 14 anomalous trends, the majority of which fall into strong to moderate categories (Figures 7 and 8). The most prominent is a broad, high chargeability zone with a central low resistivity response which parallels the baseline from Line 18N to Line 15S. The anomalies on Line 21S may be a continuation of this zone, but they display higher resistivity and lower chargeability.

The HL and VLF electromagnetic surveys (Figures 9 and 10) delineate numerous conductors which generally coincide with the IP anomalies. Analysis of HLEM data indicates that most conductors are steeply dipping and buried by less than 10 meters of overburden.

The magnetics on the property are generally of low amplitude. Of possible significance is a broad, subtle, magnetic low from 21N-3W to 6S-0+50W which is coincident with the broad conductivity zone detected by HLEM. Also of possible significance is a linear magnetic high on Line 0 and Line 3S at 14E, which coincides with a strong HLEM conductor.

Gravity surveys were conducted on several lines over the strong, coincident IP and HLEM anomalies which parallel the baseline. Terrain-corrected data detected two anomalies of 1.0 milligals and 0.9 milligals on Line 21S at 0+75E and at 2+50W. These are directly coincident with IP anomalies detected on Line 21S, which is the southern limit of both IP and Gravity survey coverage.

In 1986, Samarkand Resources Inc. conducted 'GENI' HLEM surveys, VLF-EM surveys and magnetic surveys over the grid area shown on Figure 3. The results confirm the existence of electromagnetic anomalies in the vicinity of the Main Showing and in the overlapped area at the south end of the Billiton survey grid. South of Line 24S, however, both the VLF and HLEM anomalies appear to dissipate quickly.

## 9.0 GEOCHEMICAL SURVEYS

In 1980 and 1981, Logan Mines Ltd. carried out soil geochemical surveys over the grid areas indicated on Figure 2. These surveys detected a subdued lead-silver anomaly on the north shore of the Liard River, opposite the Main Showing. The anomaly reflects the presence of minor galena, sphalerite and tetrahedrite in narrow quartz veins; however, overburden in the area is less than 1.5 meters thick.

Billiton, in 1984, conducted soil geochemical orientation surveys along selected lines in areas of known mineralization and across the main coincident IP-HLEM anomaly area. The results show that anomalous values occur in the soil but that they are restricted to the area of known mineralization or are of restricted areal extent. Furthermore, because of the glacial-fluvial nature of the overburden and its depth, up to 10 meters, the sample results do not accurately reflect the metal content of the underlying bedrock (Rainsford, 1984).

## 10.0 DIAMOND DRILLING

A total of 123 meters of BQ-diameter diamond drilling was undertaken by Logan Mines Ltd. in 1980 (Figure 5). The two holes tested a two-meter wide barite vein on the south shore of the river, at the West Showing.

At 54.4 meters, on a 60° angle, the first hole intersected a quartz-barite vein 1.3 meters wide. This section assayed 0.10 ounces/ton silver, 0.31% lead, 0.14% zinc, 1.26% barium sulphate, and 75.3% silica.



The second hole, drilled at an angle of  $-47^{\circ}$ , intersected a quartz-filled fracture zone at 10.8 meters. A 0.8-meter section containing three- to five-centimeter bands of pyrite assayed 0.002 ounces/ton gold, trace silver and 0.15% zinc.

These results are consistent with those expected in a distal exhalation environment, and indicate that the massive, conformable barite is lensoid.

## 11.0 DISCUSSION OF THE ROMAN PROPERTY

The Earn Group of the Selwyn basin is host to several important stratiform massive sulphide deposits (Figure 2). These shale hosted on sedimentary exhalation deposits appear to have been formed from submarine exhalative brines that vented from growth faults controlling deposition, or from ruptured hinge lines at the basin platform interface. The typical mineralogy is barite, galena, sphalerite, pyrite and/or pyrrhotite, and the ores usually contain significant concentrations of silver.

Barite and/or silica enrichment of the facies of the deposits generally exists with barite (pyrite) being distal to the vent areas, while zinc (copper, pyrite) or lead-zinc (pyrite) are more proximal. Often, vent areas are represented by sulphide stringers or stockworks that resemble feeder zones from massive sulphide deposit.

The manto-type replacement, massive sulphide deposits, on the other hand, are generally better developed in carbonate rocks, as opposed to shales, and display epigenetic replacement textures. Although the stratabound lead-zinc-silver deposits of this type are often much smaller in dimension than the stratiform deposits, they usually contain much higher concentrations of silver. The Midway deposits, hosted by Sylvester Group carbonates in the allochthonous terrain 90 kilometers west of the Roman Property, exhibit characteristics of this type of deposit (Figure 2). It should be noted that exhalative, bedded barite is found in strata peripheral to and stratigraphically above the Midway deposits (MacIntyre, 1982).

The Roman Property is underlain by strata favourable to host both stratiform and manto-type deposits. Although the rocks underlying the Roman Property were included in the Sylvester Group by Gabrielse (1963), recent mapping by the author and subsequent discussions with Dr. K. M. Dawson of the Geological Survey of Canada, present the possibility that the sedimentary sequence is part of the Earn Group, perhaps the upper Earn Group. This has yet to be confirmed through detailed petrographic and paleontological studies. It remains, however, that the occurrence of bedded pyrite and barite in the black carbonaceous shale of the West Showing area has characteristics similar to the distal sulphide facies of stratiform, sedimentary, exhalative, massive sulphide deposits hosted by the Earn Group throughout the Selwyn Basin and Kechika Trough.

While sulphur isotope analysis suggests a late Devonian - early Mississippian age for barite from the West showing, lead isotope studies on the massive lead-zinc mineralization at the shoreline of the Main Showing indicate epigenetic origin, similar to the Midway - Ketzka family of replacement deposits (Dawson, 1986, personal communication).

This implies that the conformable lenses of massive sphalerite - galena and the adjacent base metal - silver occurrences of the Main Showing area are not genetically related to the bedded pyrite, but instead to a much younger mineralizing event which may have had the capability of forming manto-type replacement deposits in the calcareous mudstones underlying the property.

## 12.0 CONCLUSIONS

The assemblages of carbonaceous black shales, calcareous mudstones and coarser elastics that underly the Roman Group is similar to the stratigraphy of the Earn Group found within the Selwyn Basin and Kechika Trough.

Sulphide occurrences observed to date display characteristics similar to sulphide assemblages associated with a) shale-hosted, exhalative,

massive sulphide deposits, and b) epigenetic, manto-type, silver-lead-zinc, massive sulphide deposits.

The highest silver-lead-zinc assays obtained on the property to date come from massive sulphide lenses at the Main Showing. Although the lenses as observed are of limited dimension, the tenure is of 'ore' quality.

The geophysical surveys have delineated several strong Induced Polarization and Horizontal Loop Electromagnetic anomalies. Many of these are coincident. The anomalies are consistent with the response expected from sulphide bodies hosted by carbonaceous shales, and as such, are viable drill targets.

The results of geochemical orientation surveys indicate that soil geochemistry is unreliable in this terrain. The prioritization of the geophysical anomalies for drilling must, therefore, be based principally on geological extrapolations from bedrock exposures along the Liard River, and on the nature of the anomalies themselves.

In conclusion, the analysis of data compiled to date indicates that the Roman Property is underlain by a geological environment which has the potential to host an economically significant, silver-lead-zinc, massive sulphide deposit, and warrants further development.

### **13.0 RECOMMENDATIONS**

Drill testing of the existing geophysical anomalies is a priority; however, in order to facilitate the prioritization of targets, detailed mapping of the property should first be completed. Better definition of the anomalous geophysical responses in the vicinity of Line 21S is also required. A two-staged program of development, to be carried out on the property during 1987 and 1988, is therefore recommended. (Refer to Appendix A for Cost Estimates.)

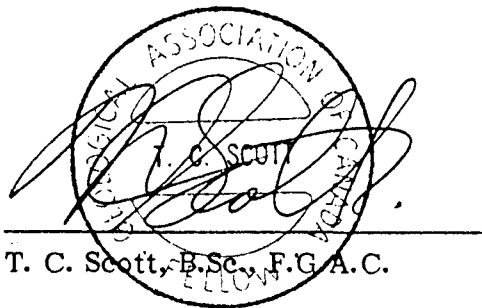
The Stage I program, to be conducted during 1987, should include:

- (1) detailed geological mapping of the south shore line of the Liard River, from the West showing easterly to Line 24S;
- (2) geological mapping of other outcrop areas found on the property;
- (3) delineation of the coincident IP and Gravity anomalies on Line 21S, with detailed IP and Gravity surveys from Line 18S to Line 25S on a line spacing of 100 meters; and
- (4) an IP survey along Line 21N from 10W to 7E, to assist in geophysical interpretation with respect to geology.

The estimated cost of Stage I is \$70,000.

The Stage II program, to be conducted during 1988, should comprise a 2000-foot diamond drilling program, with the prioritization of targets based on a review of current data.

The estimated cost of this program is \$93,000.



T. C. Scott, B.Sc., F.G.A.C.

**APPENDIX "A"**

**COST ESTIMATES**

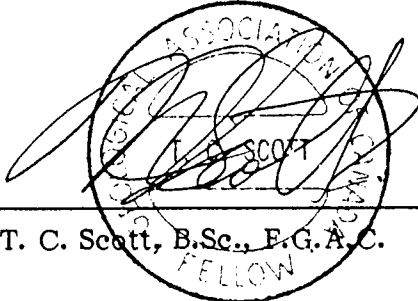
## COST ESTIMATES

### Stage I    Geophysical Surveys and Geological Mapping

Induced Polarization (10 kilometers)	\$ 15,000	
Gravity (7.2 kilometers)	9,300	
Engineering & Supervision (Engineer/Geologist & Assistant)	7,200	
Mobilization/Demobilization	8,000	
Assaying Services	2,000	
Transportation (Helicopter, River Boat, 4X4 Vehicle)	7,500	
Room & Board	5,000	
Report Preparation	4,000	
Management	<u>5,000</u>	
		\$ 63,000
Contingency		<u>7,000</u>
Total, Stage I		<u><u>\$ 70,000</u></u>

### Stage II    (1988) Diamond Drilling

Diamond Drilling 2000 feet @ \$30/foot (all inclusive)	\$ 60,000	
Assay Services	3,000	
Engineering & Supervision	8,000	
Report Preparation	4,000	
Mobilization/Demobilization (Company Employees)	2,000	
Management	<u>7,000</u>	
		\$ 84,000
Contingency		<u>9,000</u>
Total, Stage II		<u><u>\$ 93,000</u></u>

  
T. C. Scott, B.Sc., F.G.A.C.

Tgn#2(87.01)

**APPENDIX "B"**

**BIBLIOGRAPHY**

## BIBLIOGRAPHY

- Cukor, V.(1980): Roman Claims - Report on Diamond Drilling Program; private report for Logan Mines Ltd.
- \_\_\_\_\_ (1981): Logan Mines Ltd., Roman Group, Geochemical and Geophysical Report; private report for Logan Mines Ltd.
- Dawson, K. M. and Orchard, M. J. (1982): Regional metallogeny of the northern Cordillera: biostratigraphy, correlation and metallogenic significance of bedded barite occurrences in eastern Yukon and western District of Mackenzie; in Current Research, Part C, Geological Survey of Canada, Paper 82-1C, p. 31-38.
- Fritz, W. H. (1985): The basal contact of the Road River Group - a proposal for its location in the type area and in other selected areas in the Northern Canadian cordillera; in Current Research, Part B, Geological Survey of Canada, Paper 85-1B, p. 205-215.
- Gabrielse, H. (1963): McDame Map-Area, Cassiar District, British Columbia; in Geological Survey of Canada, Memoir 319, 138 p.
- \_\_\_\_\_ (1966): Geology, Watson Lake, Yukon Territory; Geological Survey of Canada, Map 19-1966.
- Gordey, S.P., Abbott, J.G., and Orchard, M.J. (1982): Devonian-Mississippian (Earn Group) and younger strata in east-central Yukon; in Current Research, Part B, Geological Survey of Canada, Paper 82-1B, p. 93-100.
- Gordey, S.P., Gabrielse, H. and Orchard, M.J. (1982): Stratigraphy and structure of Sylvester Allochthon, southwest McDame map area, northern British Columbia; in Current Research, Part B, Geological Survey of Canada, Paper 82-1B, p. 101-106.
- Klassen, R. W. (1978): Surficial Geology, NTS 105A-1,2, 104P-15,16, Blind Lake, Yukon Territory and British Columbia; in Geological Survey of Canada, Open File 594.
- MacIntyre, D.G. ( ): Midway Occurrence; in British Columbia Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1981, Paper 1982-1, p. 162-166.
- McClay, K. R. ( ): Structure of Clastic Hosted Lead-Zinc Deposits, Case Histories; in Geological Association of Canada, Short Course Notes, 150 p.
- McClay, K. R. and Insley, M. W. ( ): Structure and Mineralization of the Dripile Creek Area, Northeastern British Columbia (94E/16, 94F/14, 94K/4, 94L/1); in British Columbia Ministry of Energy, Mines and Petroleum Resources, Geological Fieldwork, 1985, Paper 1986-1, p. 343-350.
- Prior, G. (1982): Summary Report on the Roman Mineral Claims, NTS 105A/2E, 104P/15E; private report for J. C. Stephen Explorations Ltd.
- Rainsford, D. R. B. (1984): Geophysical Report on Val, Roman 50, Rom 1, Rom 2, Vent 19 Claims; private report for Billiton Canada Ltd.



APPENDIX "C"

CERTIFICATE OF QUALIFICATIONS AND CONSENT

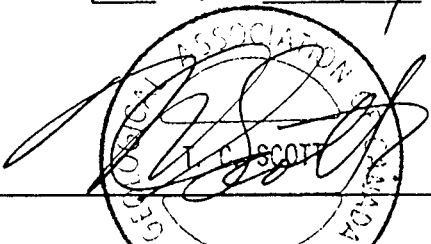
STATEMENT OF QUALIFICATIONS AND CONSENT

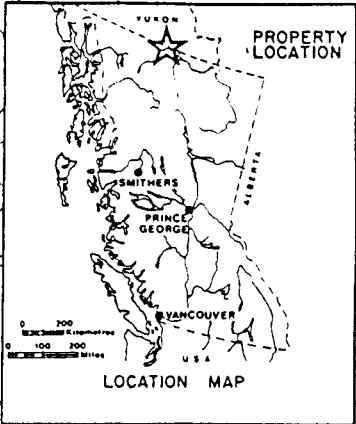
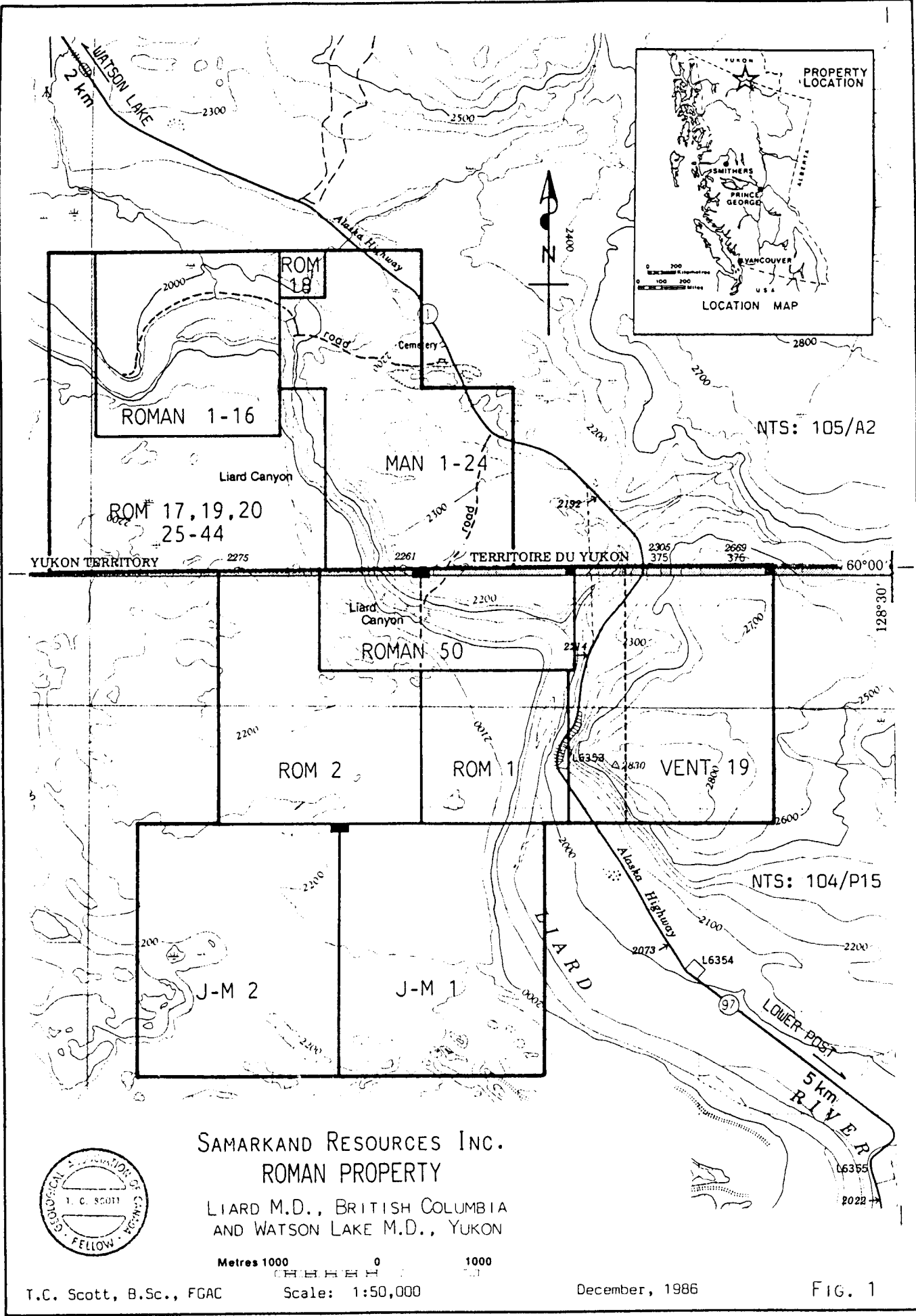
I, T. CAMERON SCOTT, of 2505 West 1st Avenue in the City of Vancouver, Province of British Columbia, DO HEREBY CERTIFY:

1. THAT I am a self-employed Consulting Geologist with offices at Suite 900, 850 West Hastings Street in the City of Vancouver, Province of British Columbia;
2. THAT I am a graduate of the University of British Columbia where I did obtain my Bachelor of Science degree in Geology;
3. THAT I am a Fellow of the Geological Association of Canada;
4. THAT my primary employment since 1963 has been in the field of mineral exploration, mainly as Field and Project Geologist;
5. THAT my experience has covered a wide range of geological environments and has allowed considerable familiarization with geophysical and geochemical techniques;
6. THAT this report is based on data supplied by Samarkand Resources Inc., on literature and documentation available for public inspection, and on data collected by me during my work on the property on August 24, 1982 and from October 20 to 29, 1986; and
7. THAT I have no interest in the Roman Property or in the securities of Samarkand Resources Inc., nor do I expect to receive any.

I consent to the use by Samarkand Resources Inc. of this report in a Prospectus or Statement of Material Facts or any other such document as may be required by the Vancouver Stock Exchange or the Office of the Superintendent of Brokers for British Columbia.

DATED at Vancouver, British Columbia, this the 23 day of January, 1987.

  
T. Cameron Scott, B.Sc., F.G.A.C.



NTS: 105/A2

NTS: 104/P15

**SAMARKAND RESOURCES INC.  
ROMAN PROPERTY**

LIARD M.D., BRITISH COLUMBIA  
AND WATSON LAKE M.D., YUKON



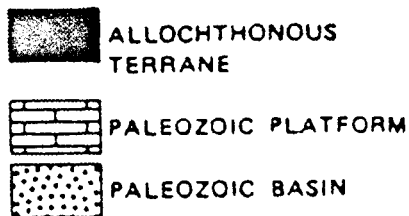
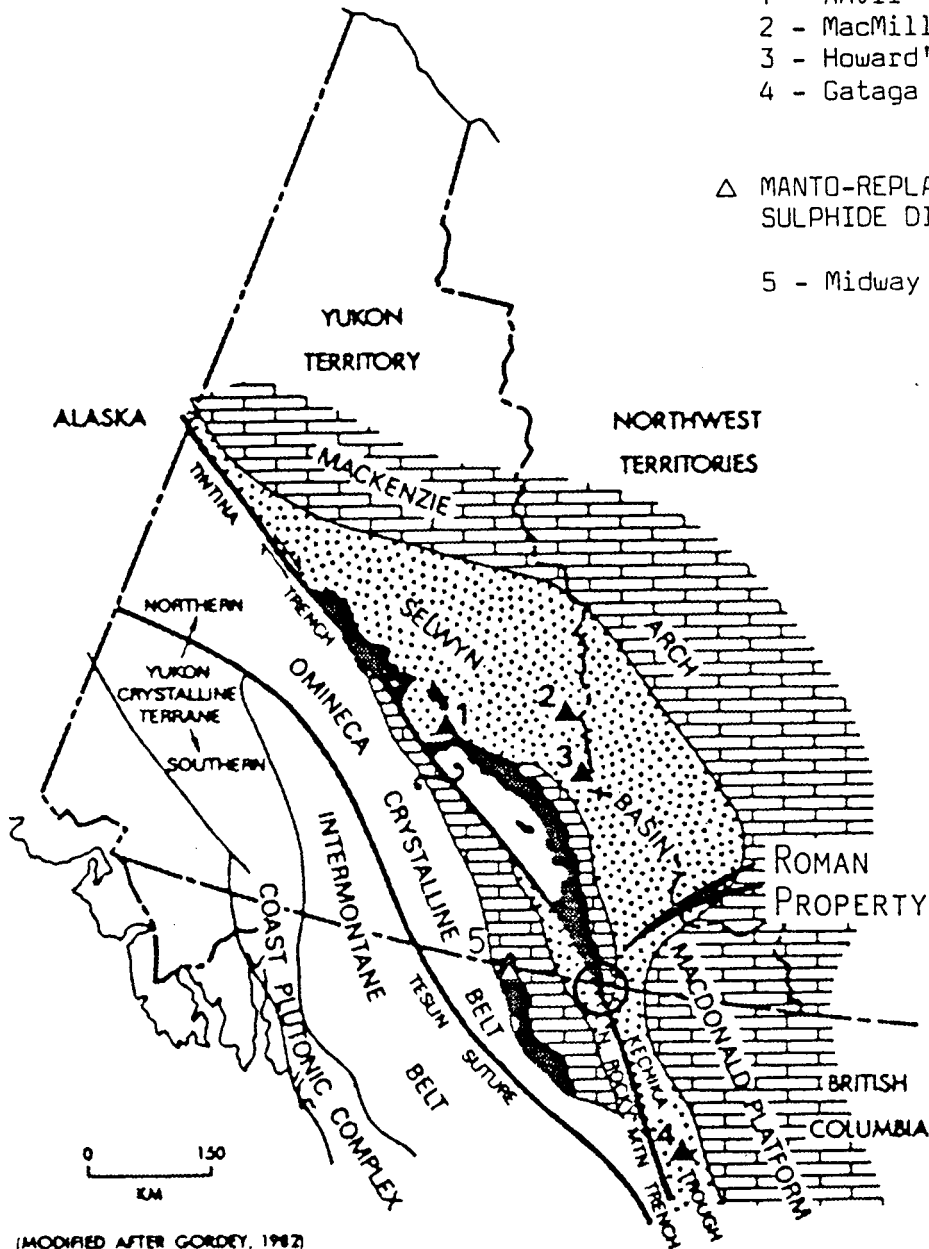
Metres 1000 0 1000  
Scale: 1:50,000

▲ STRATIFORM MASSIVE SULPHIDE DISTRICTS

- 1 - Anvil
- 2 - MacMillan Pass
- 3 - Howard's Pass
- 4 - Gataga

△ MANTO-REPLACEMENT MASSIVE SULPHIDE DISTRICT

- 5 - Midway / Meister



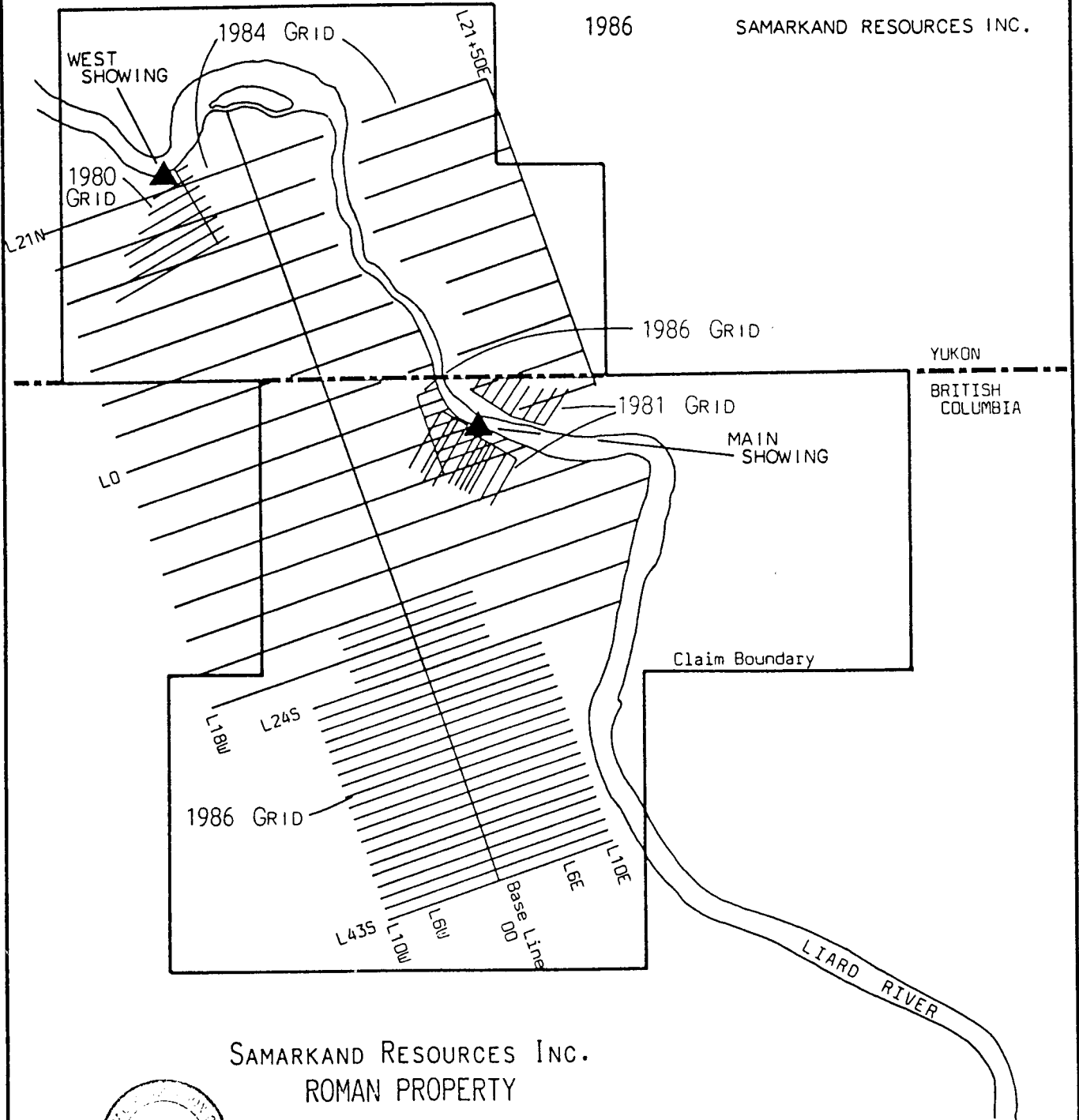
SAMARKAND RESOURCES INC.  
 ROMAN PROPERTY  
 GEOLOGICAL SETTING



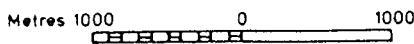


LEGEND

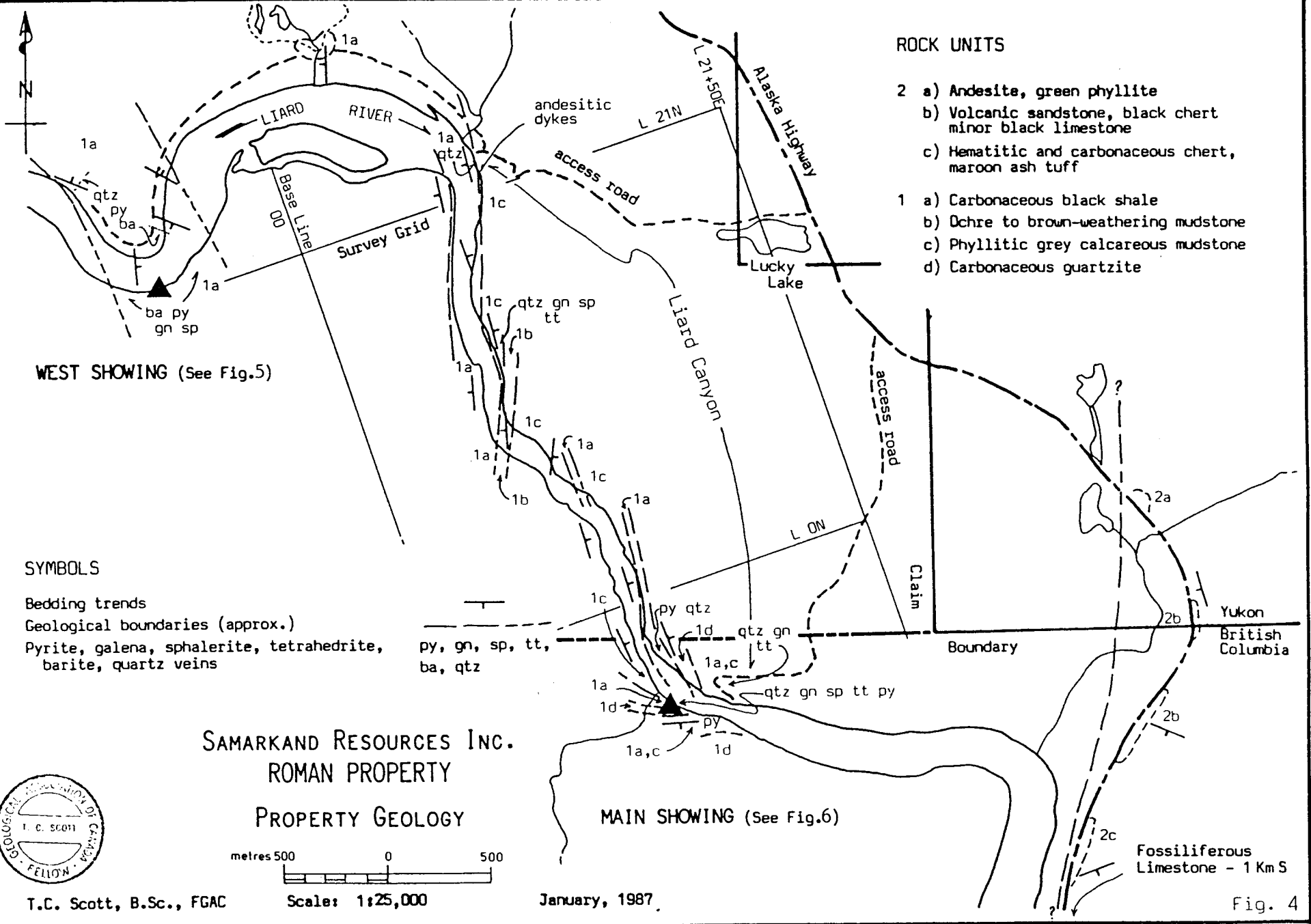
GRID	WORK DONE BY
1980	LOGAN MINES LTD.
1981	LOGAN MINES LTD.
1984	BILLITON CANADA LTD.
1986	SAMARKAND RESOURCES INC.



SAMARKAND RESOURCES INC.  
 ROMAN PROPERTY  
 SURVEY GRIDS



Scale: 1:50,000



**ROCK UNITS**

- 2 a) Andesite, green phyllite
- b) Volcanic sandstone, black chert  
      minor black limestone
- c) Hematitic and carbonaceous chert,  
      maroon ash tuff
- 1 a) Carbonaceous black shale
- b) Ochre to brown-weathering mudstone
- c) Phyllitic grey calcareous mudstone
- d) Carbonaceous quartzite

WEST SHOWING (See Fig.5)

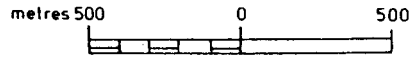
MAIN SHOWING (See Fig.6)

**SYMBOLS**

- Bedding trends
- Geological boundaries (approx.)
- Pyrite, galena, sphalerite, tetrahedrite,  
barite, quartz veins

**SAMARKAND RESOURCES INC.**  
**ROMAN PROPERTY**

**PROPERTY GEOLOGY**



Scale: 1:25,000

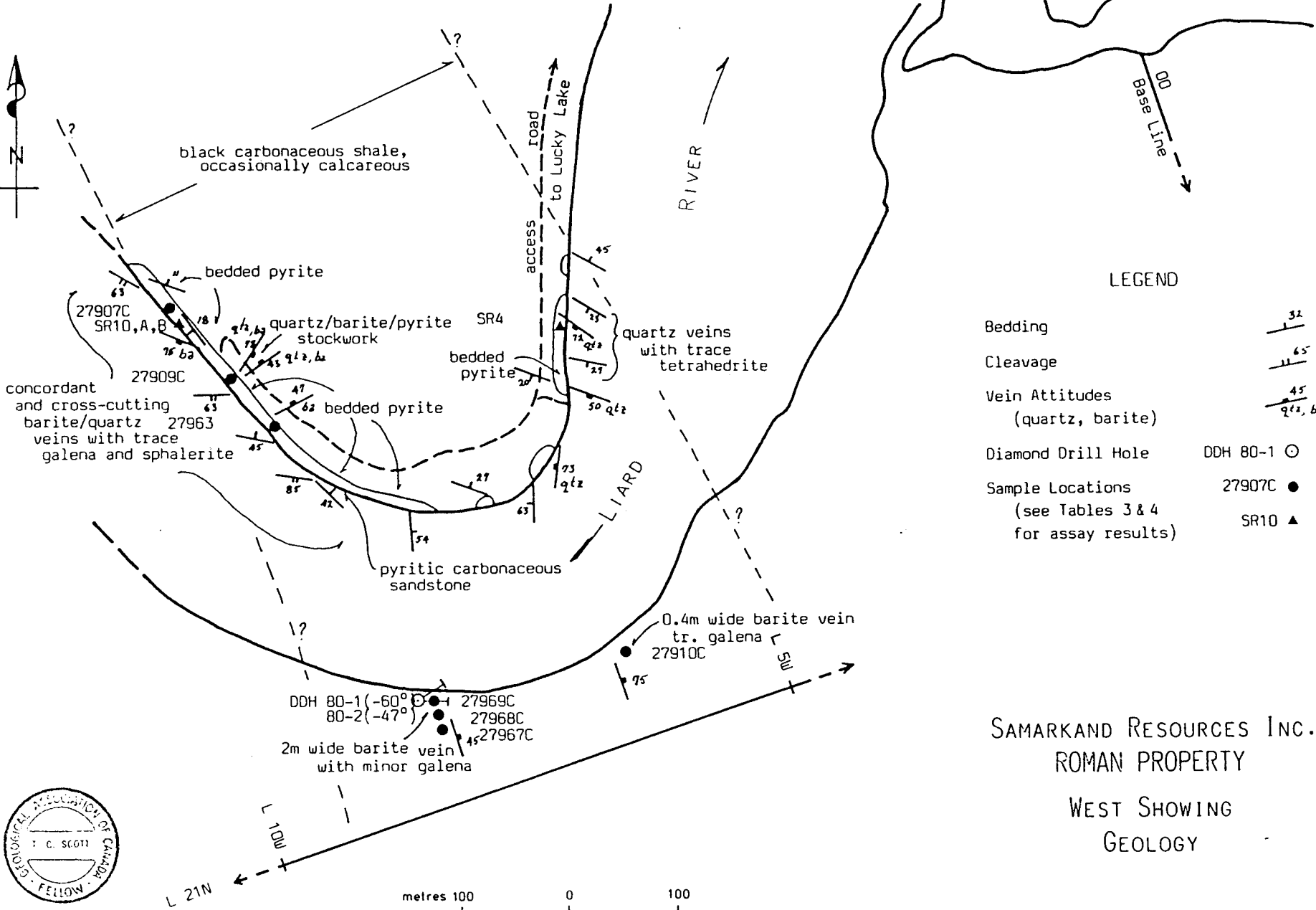
January, 1987









T.C. Scott, B.Sc., FGAC

Fossiliferous Limestone - 1 Km S

Fig. 4



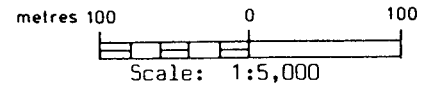
LEGEND

- Bedding  32
- Cleavage  65
- Vein Attitudes (quartz, barite)  45
- Diamond Drill Hole DDH 80-1 
- Sample Locations (see Tables 3 & 4 for assay results) 27907C  SR10 

SAMARKAND RESOURCES INC.  
 ROMAN PROPERTY  
 WEST SHOWING  
 GEOLOGY



T.C. Scott, B.Sc., FGAC



January, 1987

FIG. 5




Yukon  
British Columbia

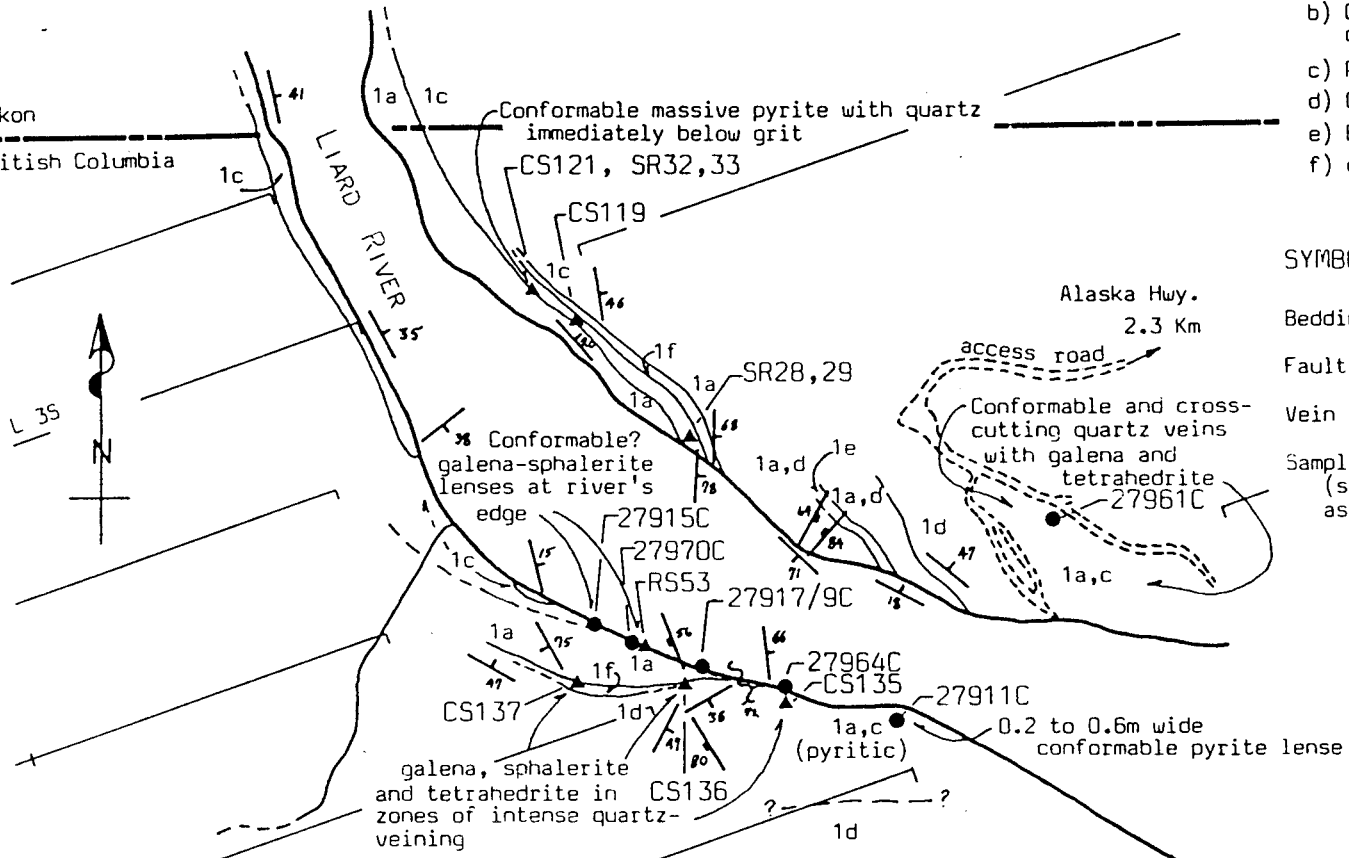
LIARD RIVER

ROCK UNITS

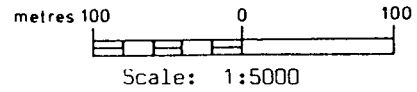
- 1 a) Carbonaceous black shale
- b) Ochre to brown weathering calcareous mudstone
- c) Phyllitic grey calcareous mudstone
- d) Carbonaceous quartzite
- e) Black carbonaceous sandstone
- f) grey-brown chert; calcareous grit

SYMBOLS

- Bedding 
- Fault 
- Vein attitudes (quartz, barite) 
- Sample locations (see Tables 3 & 4 for assay results)
  - 27915C ●
  - CS135, SR32 ▲



SAMARKAND RESOURCES INC.  
ROMAN PROPERTY  
MAIN SHOWING  
GEOLOGY

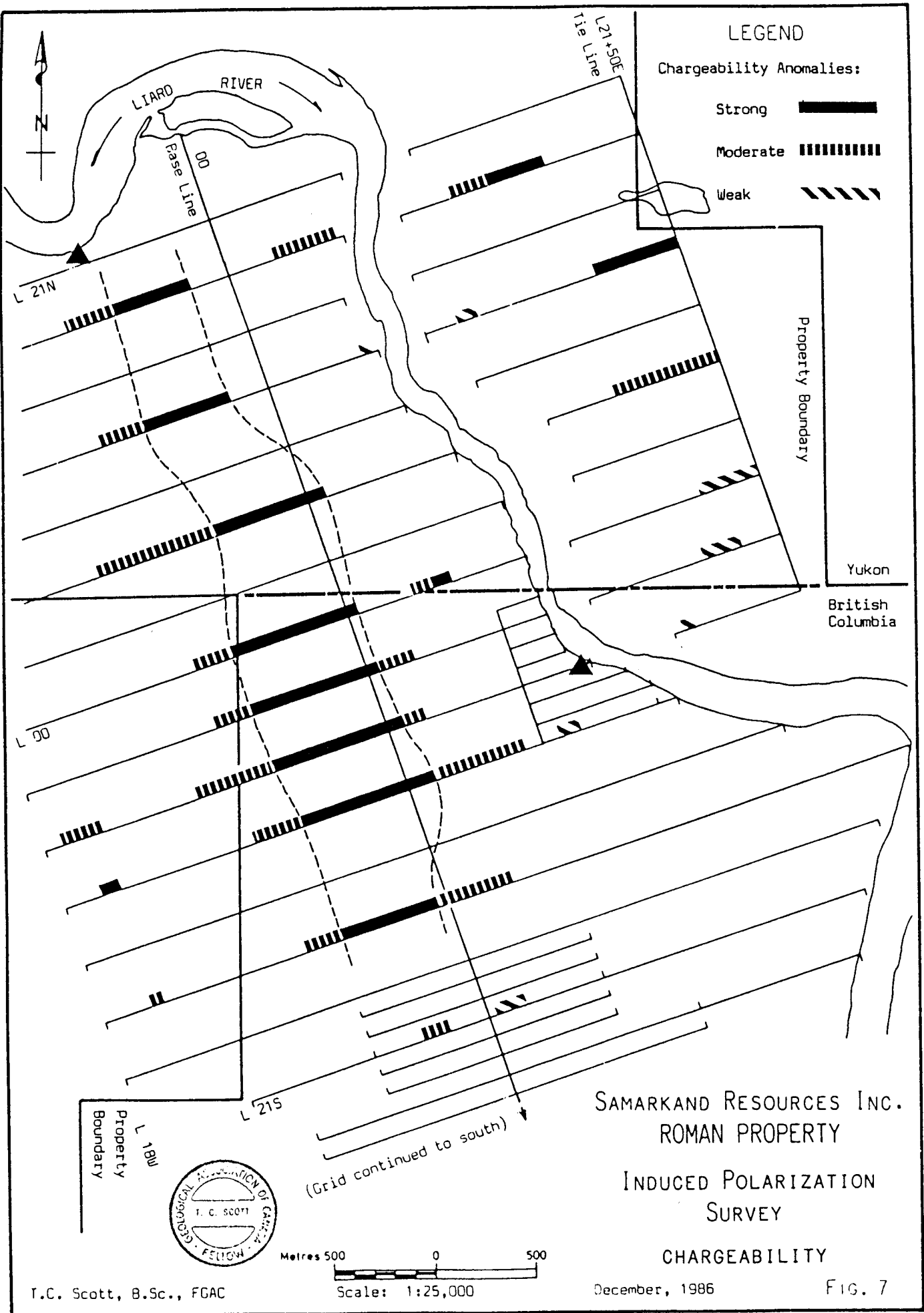


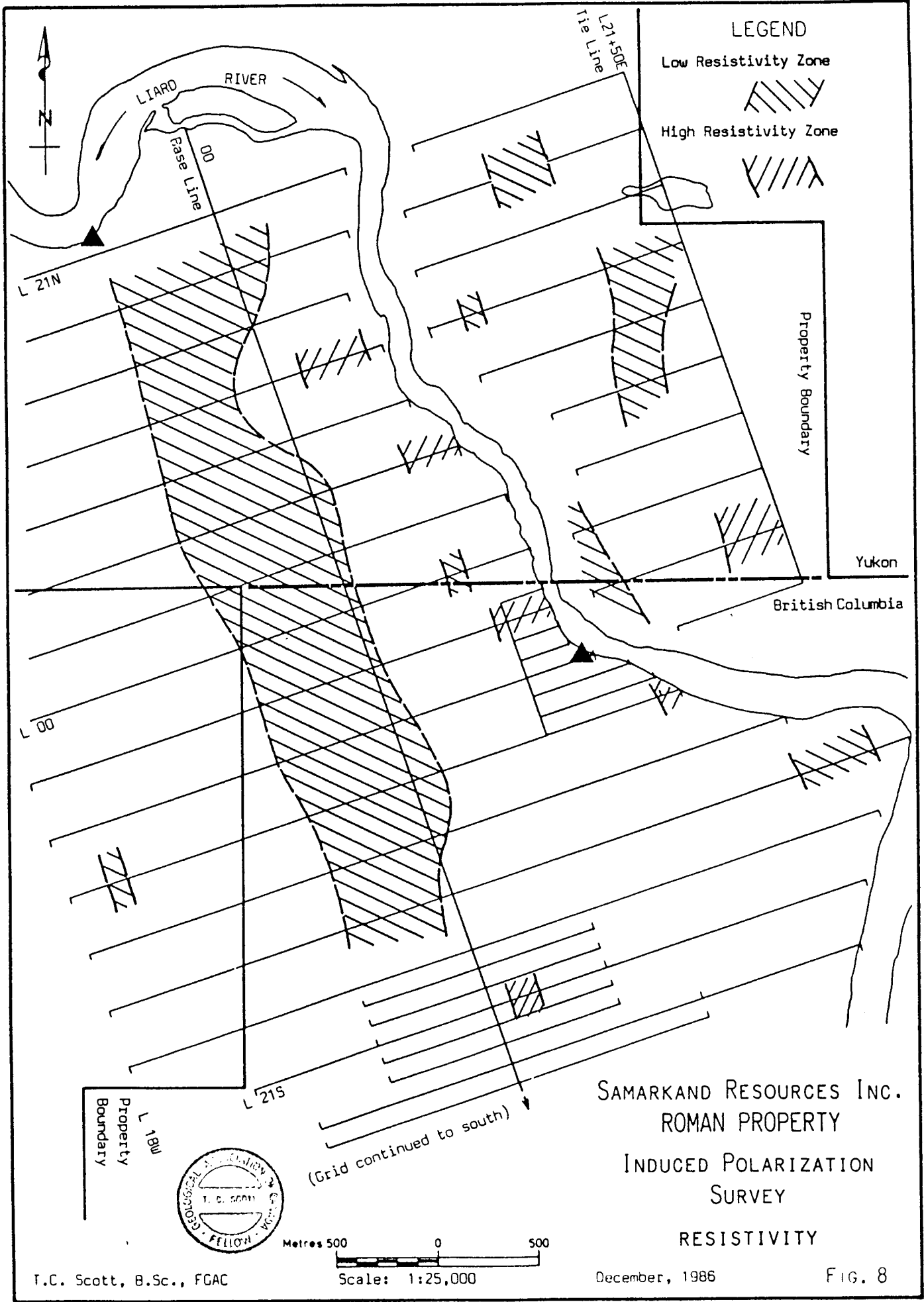
T.C. Scott, B.Sc., FGAC

January, 1987

FIG. 6

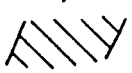




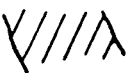


LEGEND

Low Resistivity Zone



High Resistivity Zone



Property Boundary

Yukon

British Columbia

SAMARKAND RESOURCES INC.  
 ROMAN PROPERTY  
 INDUCED POLARIZATION  
 SURVEY

RESISTIVITY

December, 1986

FIG. 8

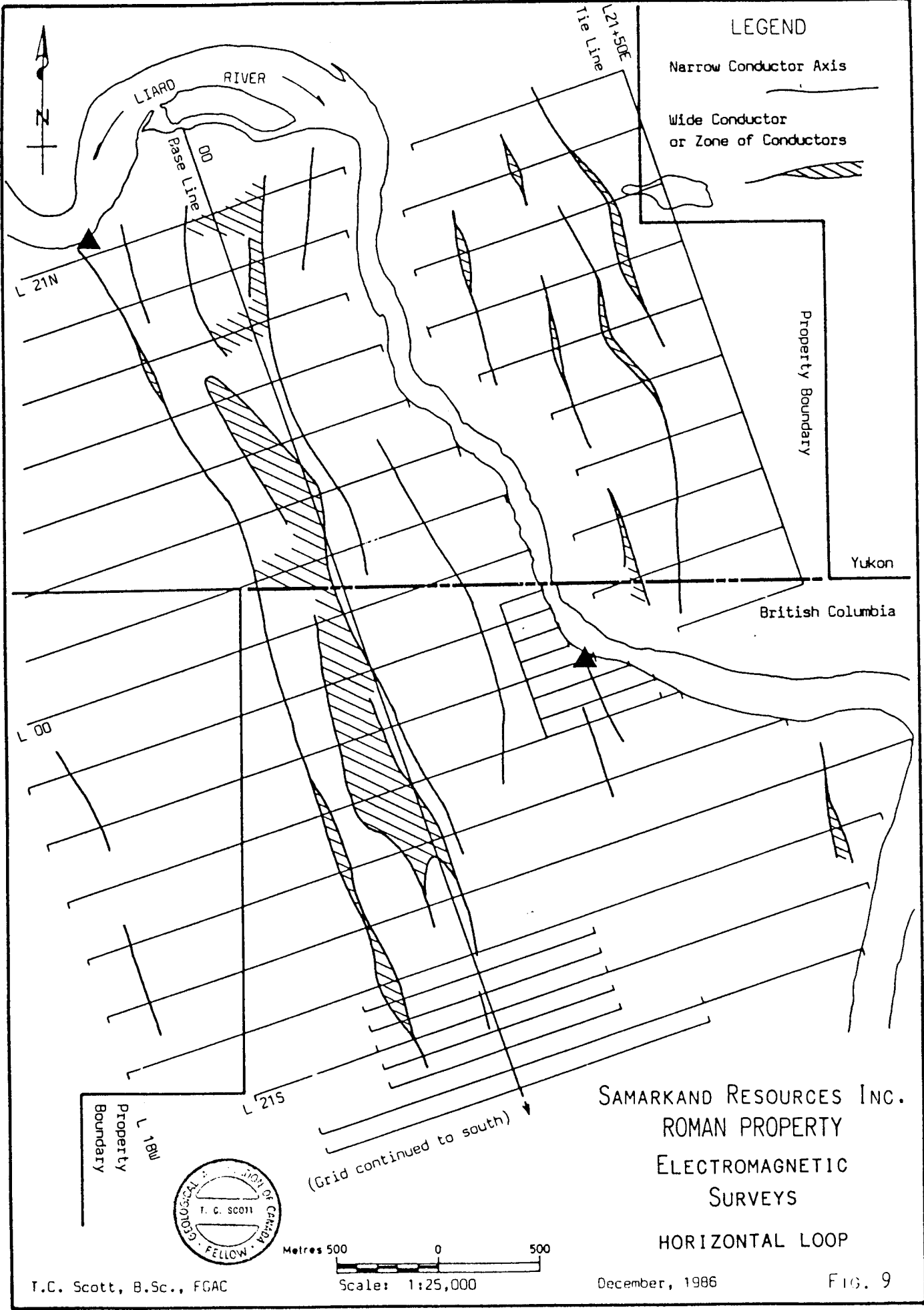
T.C. Scott, B.Sc., FGAC

Scale: 1:25,000



Metres 500 0 500

(Grid continued to south)



LEGEND

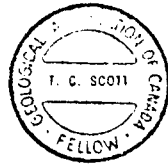
- Narrow Conductor Axis
- Wide Conductor or Zone of Conductors

Property Boundary

Yukon

British Columbia

SAMARKAND RESOURCES INC.  
 ROMAN PROPERTY  
 ELECTROMAGNETIC  
 SURVEYS  
 HORIZONTAL LOOP



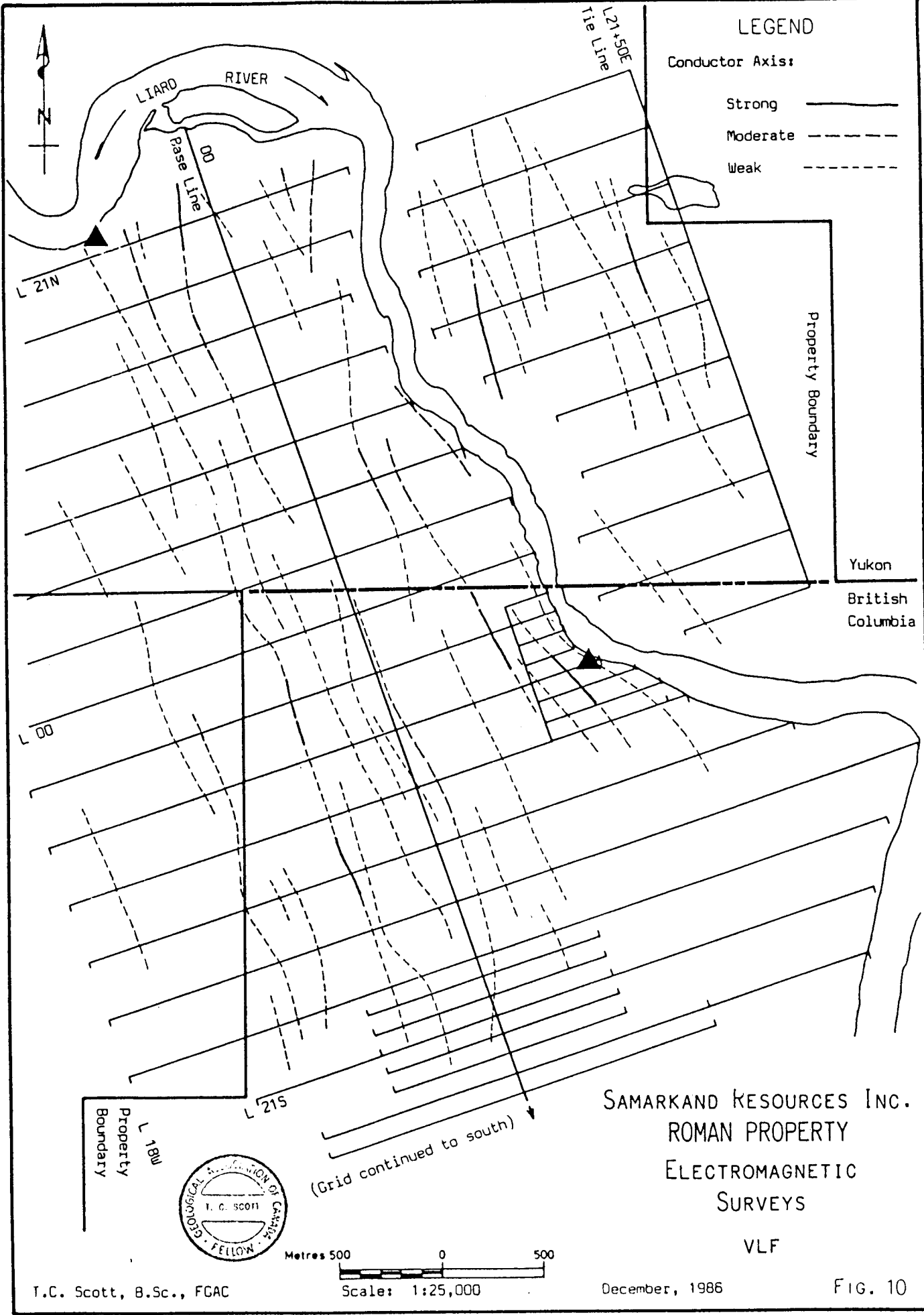
Metres 500 0 500

Scale: 1:25,000

T.C. Scott, B.Sc., FGAC

December, 1986

FIG. 9



LEGEND

Conductor Axis:

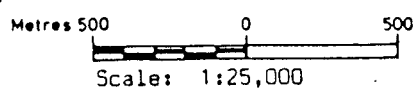
- Strong —————
- Moderate - - - - -
- Weak        - - - - -

Property Boundary

Yukon  
British  
Columbia

SAMARKAND RESOURCES INC.  
ROMAN PROPERTY  
ELECTROMAGNETIC  
SURVEYS

VLF



T.C. Scott, B.Sc., FGAC

December, 1986

FIG. 10