TOUCHE 1-56 CLAIMS

GEOLOGY, GEOPHYSICS AND GEOCHEMISTRY, 1981

DAWSON MINING DISTRICT

NTS: 106L and 116I

LATITUDE: 66°51'N

LONGITUDE: 136°02'W

AUTHOR: J. BICZOK, H.B.Sc.

OWNER: MATTAGAMI LAKE EXPLORATION LIMITED

DATE: DECEMBER 1981

090983

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 $ 23,794.97.

P. Watson

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

ABSTRACT

The TOUCHE 1-56 claims are located in the northern Richardson Mountains, Yukon Territory at 136°02'W, 66°51'N. They were staked by the company in 1980 to cover outcrops of spectacular crystalline barite, weak Zn+Ag±Pb±Ba(?) mineralization associated with quartz-carbonate gouge in a major fault zone and the presumed source area of massive chalcopyrite float. In 1981 a 2.6km grid was laid out along the fault zone. Soil sampling and a Radem survey were completed in order to localize areas of likely mineralization along the fault. Three geochemically anomalous areas were located while the Radem survey proved to be of little use. Geological mapping on a reconnaissance scale was completed over the property but no new mineralized outcrops were located.

Further detailed soil sampling, trenching and various geophysical surveys are recommended for the geochemical anomalies. Detailed mapping of the property and prospecting along the fault zone away from the claims are also proposed.

TABLE OF CONTENTS

LIST OF FIGURES

CHAPTER ONE: INTRODUCTION

1.1: Location and Access

The TOUCHÉ 1-56 claims are located in the northern Richardson Mountains at 136°02'W, 66°51'N (Figure 1). They straddle Cornwall Creek, a tributary of the Rock River, approximately 12km east of the Dempster Highway (Figure 2). The town of Inuvik is approximately 300km by road to the north, and Dawson 500km to the south.

Access was by helicopter from a gravel pit beside the Dempster Highway. If future developments warrant it, a road could easily be constructed to the property. The potential routes traverse an area of rolling hills with gentle slopes.

1.2: History of the Claims

The TOUCHÉ 1-56 claims were staked by the author and his crew on July 1, 1980 and recorded on July 8, 1980. Grant numbers assigned to the claims are YA 52693 to YA 52748 inclusive. Upon filing of this report the claims will be in good standing until July 8, 1985.

The TOUCHÉ area was first investigated by the company during a 1979 regional stream sampling program. Ground follow-up of Cu-Ba geochemical anomalies led to the discovery of outcrops of spectacular crystalline barite and fault related Pb-Zn-Ag mineralization. The TOUCHÉ claims were immediately staked to cover this mineralization. A minor stream sampling and prospecting program was subsequently carried out by company personnel in the summer of 1980.

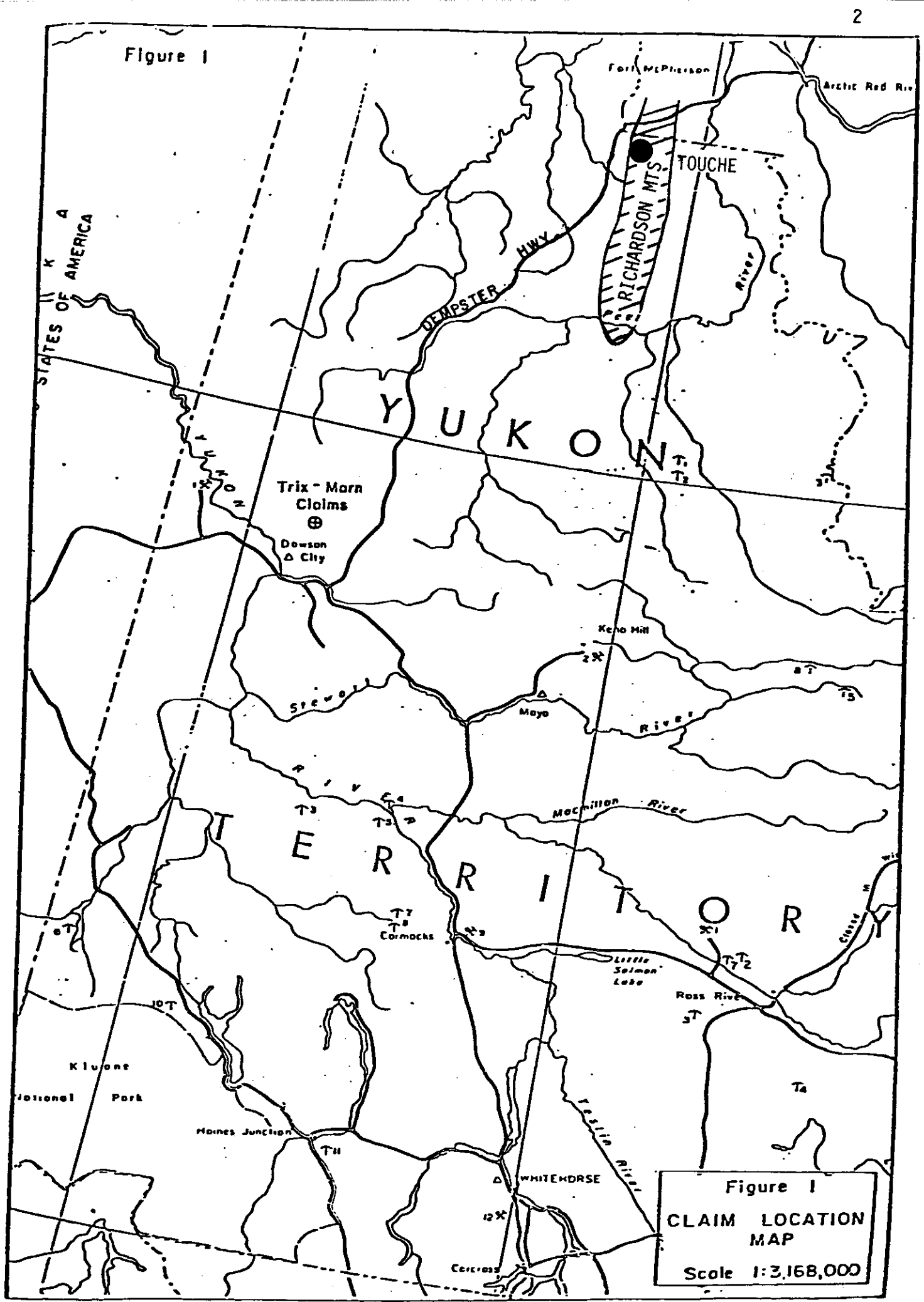


Figure 1
Fort McPherson
Arctic Red Riv
TOUCHE
RICHARDSON MTS.
DEMPSTER HWY
STATES OF AMERICA
YUKON
TERRITORY
Trix - Marn Claims
Dawson City
Keno Hill
Stewart
Mayo
River
Macmillan River
Carmacks
Little Salmon Lake
Ross River
Klusne
National Park
Haines Junction
WHITEHORSE
Fossil River
Carcross
Figure 1
CLAIM LOCATION MAP
Scale 1:3,168,000

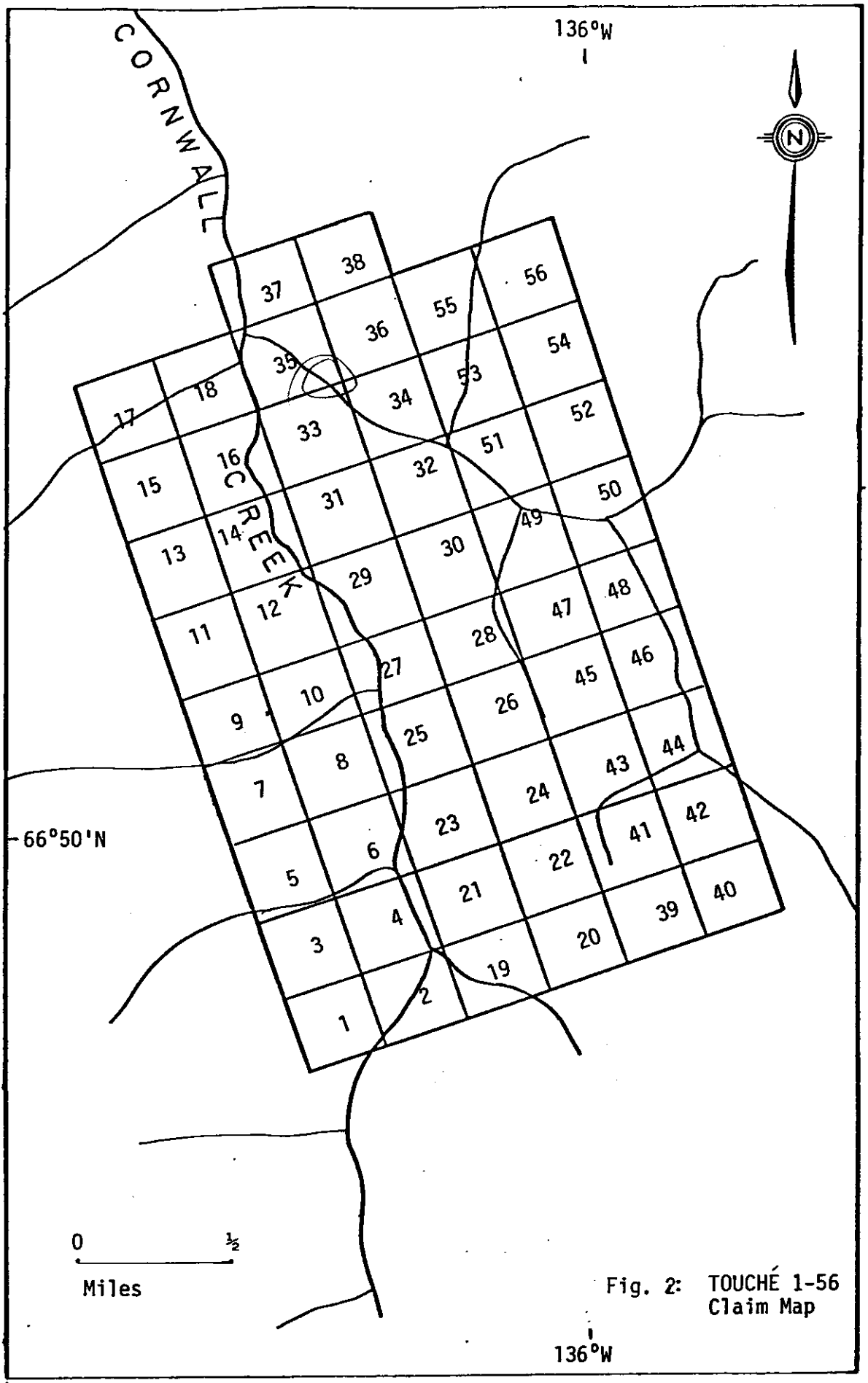


Fig. 2: TOUCHÉ 1-56
Claim Map

1.3: Physiography and Vegetation

In the Rock River area, the Richardson Mountains form a north-south trending belt, roughly 20km wide, separating the Porcupine Plain on the west from the Peel Plateau to the east. Since the range consists almost entirly of relatively shallow dipping sedimentary strata which have not been glaciated, it is topographically expressed as a series of low rolling hills, often with moderate slopes. Water erosion has produced numerous V-shaped valleys and canyons but these are generally of little consequence to the region's accessibility. The maximum local elevation seldom exceeds 3,500 ft. (1,067m).

Trees and shrubs of a significant height are quite rare in the Richardson Mountains. They are generally found in sheltered valley bottoms. Most slopes are covered with grass, lichen and moss. On the TOUCHÉ property, shrubs and trees are found on the steep eastern bank of Cornwall Creek, extending uphill to the western edge of the grid. The rest of the property is largely bare of trees or shrubs.

1.4: 1981 Work Program

Camp was established on the property from July 14th to July 27th. The work program consisted of grid layout, soil sampling, a Radem survey, detailed geological mapping and prospecting. Helicopter support was provided at different times by a Hiller 12E and a Bell Jet Ranger 206B, both on contract from Buffalo Airways Ltd. of Fort Smith, N.W.T.

The crew consisted of the following personnel:

J. Biczok	Project Geologist
P. Wagner	Temporary Party Chief
S. Wiecek	Senior Assistant
B. Lockhart	Junior Assistant
K. Hyndman	Junior Assistant
K. Tomlinson	Junior Assistant
K. Anderson	Junior Assistant
M. Annable	Cook
D. Brierly	206B Pilot
P. Kindle	12E Pilot
T. Dube	Helicopter Engineer

These personnel did not remain on the property throughout the entire duration of the camp. A total of 74 mandays were expended on the property by company personnel in the following manner:

Prospecting	2 mandays
Geological Mapping	4 mandays
Radem Survey	3 mandays
Soil Sampling	12 mandays
Grid Layout	7 mandays
Drafting	2 mandays
General	42 mandays
Total	74 mandays

The General category includes time spent performing camp moves and the period when the crew was prevented from returning to camp by the closing of the Dempster Highway due to flooding. This period of flooding also forced us to move the camp to a higher location. Expediting duties and the cook's tenure are also included in the General category.

CHAPTER TWO: GEOLOGY

2.1: General Geology

The geology of the Richardson Mountains has been previously described in company reports (Biczok, 1979 and Metcalfe, 1980) and by D.K. Norris of the GSC (1979). Briefly, the range consists of a breached north-south trending anticlinorium cored by a Cambrian sequence of limestone and siltstone. This is flanked to the east and west by the Ordovician-Silurian Road River Formation and a middle to upper Devonian clastic sequence of shale, sandstone and conglomerate. Igneous intrusions are unknown in this range.

2.2: Detailed Geology

The claims were mapped at a scale of 1:12,600 on a blow-up of the local claim map. Air photographs and 1:50,000 topographic maps are unavailable for this area.

The TOUCHÉ claims straddle a major fault zone which separates middle Cambrian clastics to the west from the Road River Formation to the east (Map 1). The fault strikes about 160° and extends for 27km to the southeast and at least 20km to the northwest. It appears to have a vertical dip and a width of up to 50m. Since the fault zone is recessive,it generally forms a prominent depression flanked on one, or both sides, by a prominent escarpment.

The Cambrian clastic sequence consists of quartzite, conglomerate and shale. Due to the structural complexity of this formation, a detailed stratigraphy has not yet been determined. The quartzite/sandstone member predominates along the western side of the fault zone, but within 500m to the west, the shale member assumes pre-eminence. Conglomerate is found in only

two locations and may form small lenses within both the quartzite and shale members.

The Road River Formation consists of two significant members - a graptolite facies shale and a thick limestone member. Minor amounts of slate occur adjacent to the fault zone and may simply be a result of shearing. The shale member occurs along the eastern margin of the fault zone and is overlain to the east by the thick limestone sequence.

Contacts between all members and formations, as well as most bedding and foliation trends, strike sub-parallel to the fault zone. Dip measurements collected so far do not reveal a discernible structural pattern and will have to be augmented by further detailed mapping. Mapping to date has been somewhat limited since emphasis was placed on completing the geochemical grid.

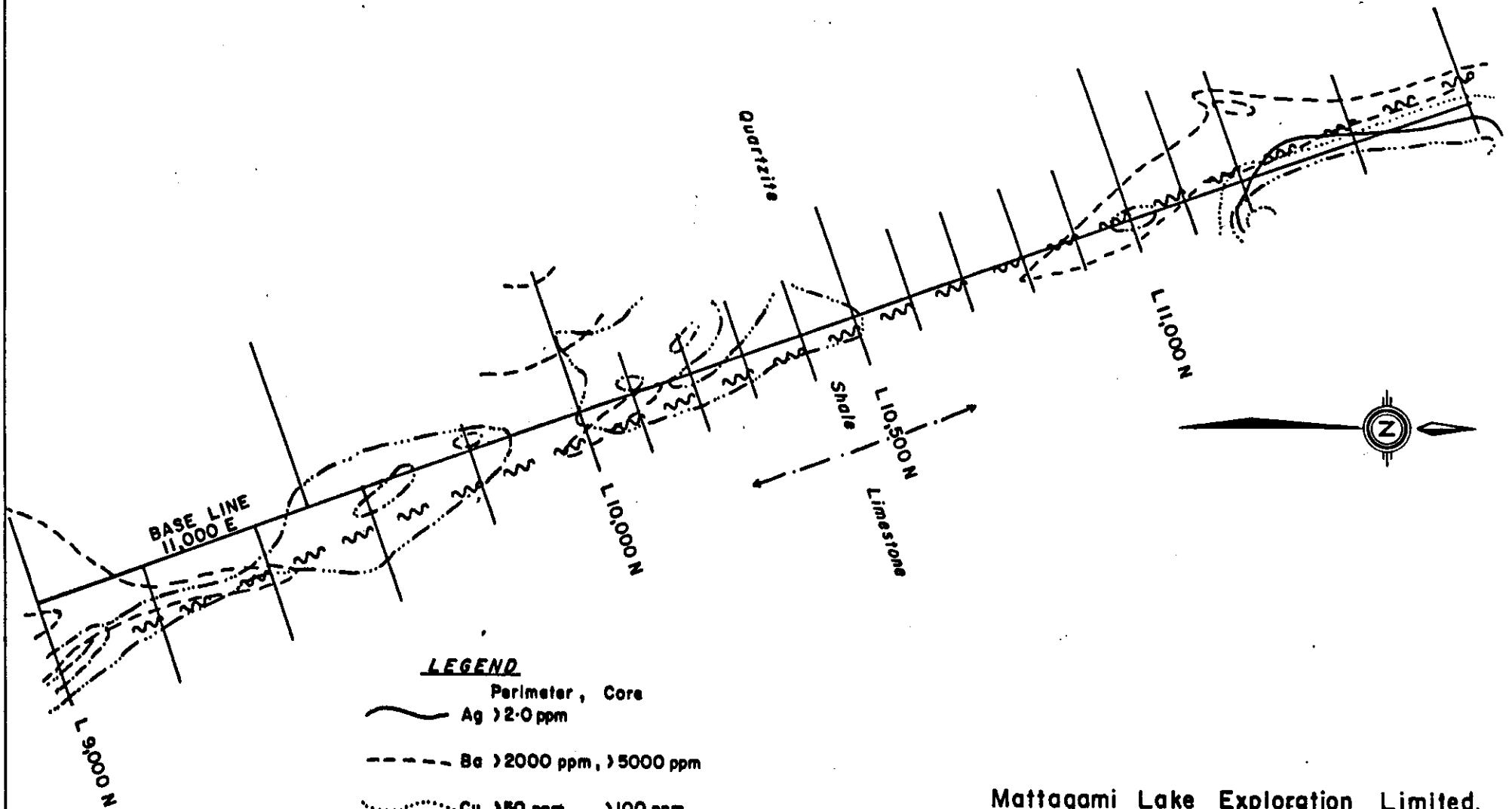
CHAPTER THREE: GEOCHEMISTRY

In an effort to localize potential mineralization along the fault zone, a 2.6km long grid was laid out and 7.4km of lines chained and picketed. Soil samples (A and/or B horizon) were collected at 12.5m intervals over the fault zone and at 25m intervals elsewhere with a total of about 300 samples collected. Samples were analyzed for the following elements: Cu, Pb, Zn, Ag and Ba.

Due to the absence of glaciation, severe frost action, climate, etc. in this area, soil development has not produced a normal series of horizons. In areas underlain by Road River shale, the true A_o horizon is very thin, <5cm. Below this solely organic horizon however is a zone of mixed A and C horizons, that is, rich organic soil containing up to 70% coarse shale fragments. In areas underlain by the Devonian clastic rocks, a thin A_o horizon overlies a light brown, sandy, B(?)-horizon.

Results of the soil sampling are plotted on Figures 4 through 8 and summarized in Figure 3. Significant multi-element geochemical anomalies occur at 3 locations on the grid and generally coincide well with the location of the fault zone (Figure 3).

Coincident Cu-Zn-Ag-Ba anomalies occur along the grid between L11,000N and L11,600N. This is the most prominent anomaly discovered on the grid and contains silver values of up to 3.8 ppm, Cu to 90 ppm, Zn to 360 ppm and Ba to 5,900 ppm. The barite anomaly, as is the case for the other anomalous zones, extends downhill to the west considerably farther than do the other elements. This is presumably due to its insoluble nature and subsequent tendency to be transported mechanically.



LEGEND

Perimeter, Core

Ag >2·0 ppm

Ba >2000 ppm, >5000 ppm

Cu >50 ppm, >100 ppm

Pb >50 ppm

Zn >200 ppm, >500 ppm

Geological Contact (approximate)

Fault (contact)

Mattagami Lake Exploration Limited.

YUKON TOUCHE PROJECT

FIGURE 3

COMPILATION OF GEOCHEMICAL ANOMALIES

DRB 12/81

The two other anomalous areas, between L10,000N and L10,500N, and between L9,000N and L9,800N, feature somewhat less coincident Pb-Zn-Ba anomalies. Individual anomalies are not always centred in the same areas within the two zones, however they generally occur along, or slightly downslope from, the fault zone. Maximum values recorded in these zones are 1,300 ppm Zn, 130 ppm Pb and 6,130 ppm Ba.

Three hundred metres to the west of the central anomaly, at 10,750E on L10,000N is a very significant barioum anomaly of 14,950 ppm. The source of this anomaly is unknown since it does not appear to be directly related to the fault zone. Further work will be required to define its extent and source.

CHAPTER FOUR: GEOPHYSICS

The only geophysical technique utilized on the property to date was a Radem survey which was completed over the entire grid (Figure 9). Field strength values show little variation or correlation with observed geological features. Minor anomalies on lines 9,000N, 11,400N and 11,600N may be related to the fault zone. To the north of L9,600N fluctuations in the dip angle correlate fairly well with the location of the fault zone, however these anomalies are quite weak relative to the significant variations on lines 10,800N to 11,200N. Fluctuations of up to 40° are observed on these lines, however they do not correspond to any known geological feature or geochemical anomaly. Further detailed work - geological, geochemical and geophysical - will be required over this area.

On line 10,000N, between 10,750E and 10,850E, a 20° dip angle anomaly coincides with a very significant barium anomaly (14,950 ppm). This anomaly should be re-surveyed in detail and the centre of the anomaly trenched.

Generally this Radem survey has not been very useful, presumably due to the nature of the mineralization - low grade Zn-Ag±Pb±Ba in a quartz-carbonate fault gouge. No strong crossovers, indicative of more massive, sulphide mineralization were located on the grid. We may wish to test a variety of techniques (eg. magnetometer, EM31) over the fault zone in order to obtain a more useful tool. The large volume of quartz-carbonate fault gouge may create a negative magnetic and a positive resistance anomaly which would be defined by the aforementioned instruments.

CHAPTER FIVE: CONSLUSIONS AND RECOMMENDATIONS

During the 1981 program, preliminary geological mapping, grid layout, soil sampling and geophysical surveying were completed on the TOUCHÉ 1-56 claims. No further outcrops of the previously located crystalline barite were discovered, nor were any outcrops located of the massive chalcopyrite float discovered earlier in Cornwall Creek. However, the time spent prospecting was minimal and there is considered to be good potential for locating other mineralized occurrences in this area.

The soil sampling program has outlined three large anomalous areas which appear to emanate from the fault zone. Anomalous values of Cu-Pb-Zn-Ag and Ba were lcoated in these zones and a very strong barium anomaly was located 300m away from the fault zone. Soil sampling should be extended to define the extent and centre of these anomalies. Blast trenching could then be completed over the anomaly centres.

Recommendations:

1) The present grid should be extended 400m to the north and south and cross lines picketed 200m to the east and west of the fault zone. Lines 9,000N and 10,000N to 10,500N should be extended 100m to the east while lines 10,700N to 11,600N should be extended 200m to the east. Lines 9,700N to 10,300N should be completed to 10,600E. Soil sampling at 12.5m intervals should be completed in the most anomalous areas and at 25m intervals elsewhere. Blast trenches should be completed across the centres of the geochemical anomalies.
2) VLF, magnetometer and EM16R or EM31 test surveys should be completed over the fault zone in an effort to discover a useful geophysical technique.

The most promising method could then be applied over the three anomalous zones.

3) Detailed prospecting and silt sampling should be completed over the entire property and surrounding area. We have not yet located the source of massive chalcopyrite boulders located in Cornwall Creek and so far there has been no indication that they are derived from the major fault zone.

A more detailed exploration proposal will be forthcoming in the spring of 1981.

Respectfully submitted,

John Biczok

J. Biczok

Exploration Geologist

JB/sal

/

LIST OF REFERENCES

BICZOK, J.B., 1979: Yukon Uranium Project, Reconnaissance Exploration 1979, Internal Company Report.

METCALFE, P., 1980: Yukon Uranium Project, Exploration 1980, Internal Company Report.

NORRIS, D.K., 1974: Geological Map of Trail River, Yukon-Northwest Territories, Geological Survey of Canada.

NORRIS, D.K., 1979: GSC Open File 621, Geological Map of Eagle River, Yukon Territory.

STATEMENT OF COSTS

Wages

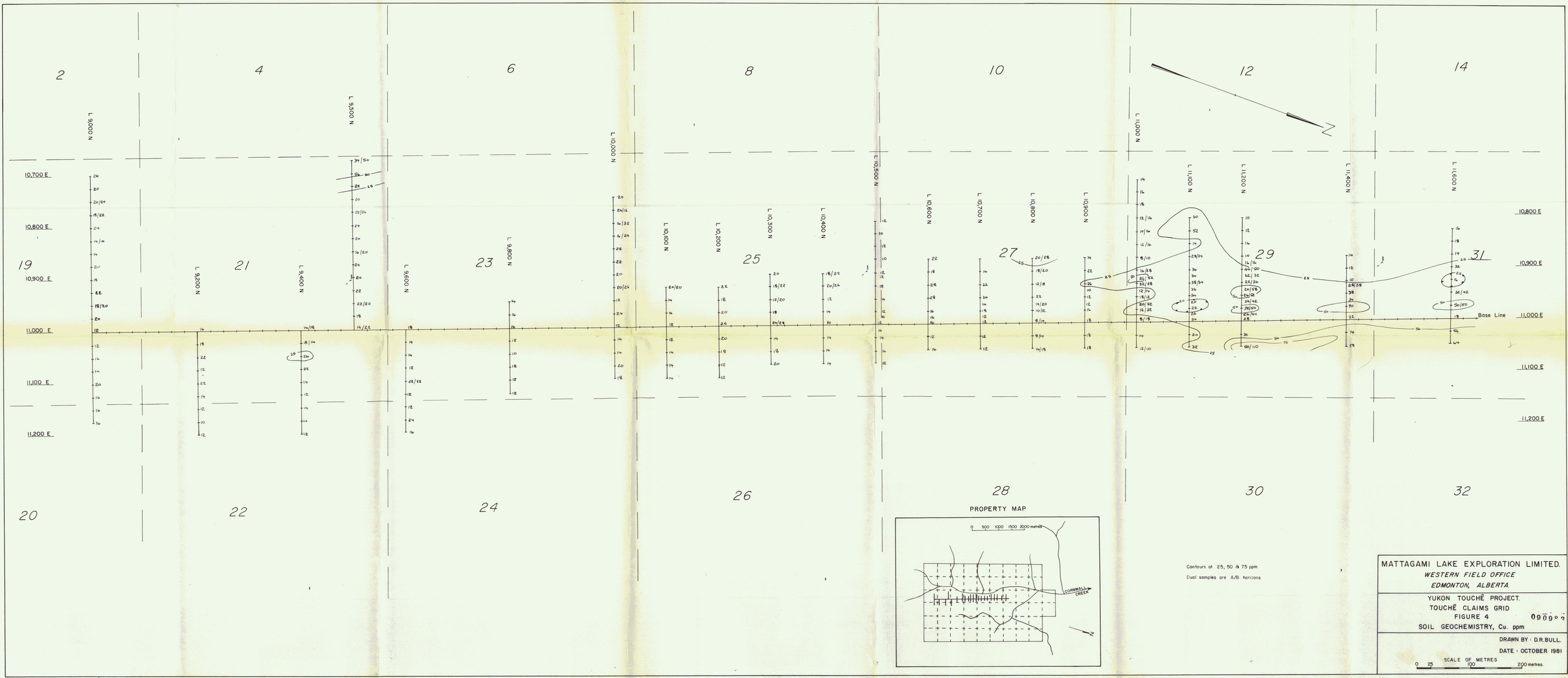
J. Biczok	$ 68.22 x 3 days	$ 204.66
P. Wagner	$ 79.33 x 8 days	634.64
S. Wiecek	$ 56.37 x 6 days	338.22
B. Lockhart	$ 52.19 x 6 days	313.14
K. Hyndman	$ 42.17 x14 days	590.39
K. Tomlinson	$ 45.93 x14 days	643.02
K. Anderson	$ 50.10 x14 days	701.40
M. Annable	$ 65.75 x 6 days	394.50
TOTAL		$ 3,819.96

Helicopter

Buffalo Airways 206B:	21.1 hours x $ 350/hour	$ 7,385.00
Buffalo Airways 12E:	11.0 hours x $ 200/hour	2,200.00
T.N.T.A. 206B:	4.1 hours x $ 500/hour	2,043.52
TOTAL		11,628.52

Helicopter Fuel Costs	1,282.75
Truck Rental	637.10
Accomodations	1,282.75
Groceries and Camp Supplies	1,621.43
Miscellaneous Supplies	165.15
Expediting Fees	507.50
Telephone Charges	61.73
Geochemical Analyses	2,235.84
Report Writing and Drafting	
8 days x $ 68.22/day	545.76
TOTAL COSTS	$ 24,355.74

23794.97



PROPERTY MAP

Contours at 25, 50 & 75 ppm

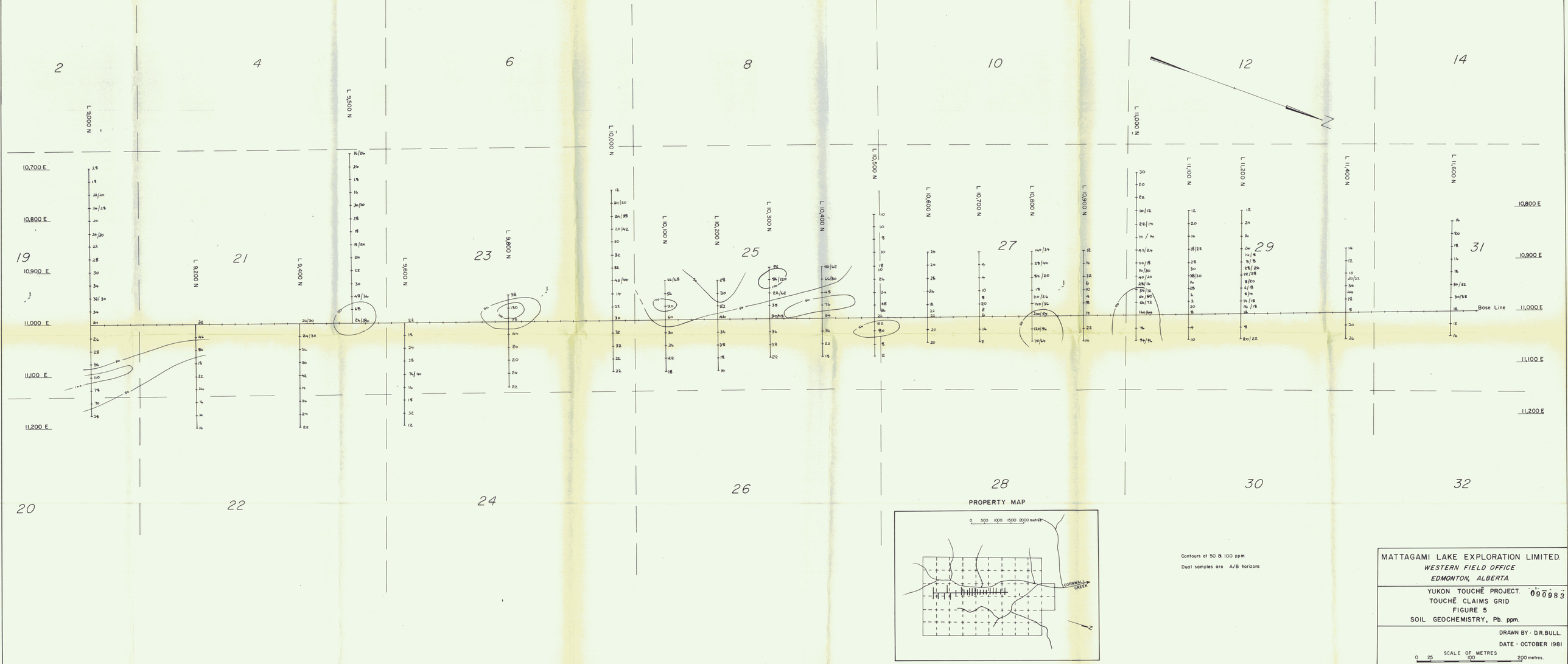
Dual samples are A/B horizons

MATTAGAMI LAKE EXPLORATION LIMITED.
WESTERN FIELD OFFICE
EDMONTON, ALBERTA.

YUKON TOUCHÉ PROJECT.
TOUCHÉ CLAIMS GRID
FIGURE 4 0909-3
SOIL GEOCHEMISTRY, Cu. ppm

DRAWN BY : D.R.BULL.
DATE : OCTOBER 1981

SCALE OF METRES
0 25 100 200 metres.



PROPERTY MAP

Contours at 50 & 100 ppm

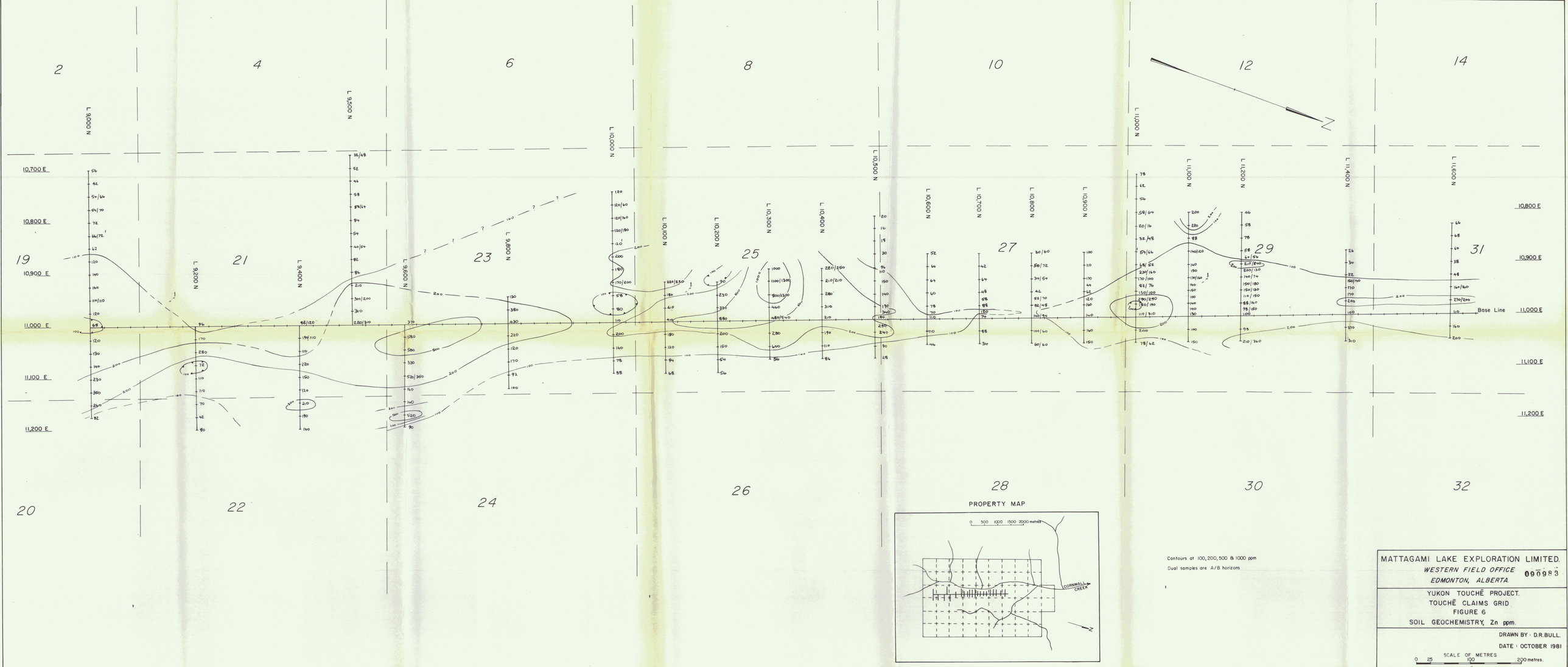
Dual samples are A/B horizons

MATTAGAMI LAKE EXPLORATION LIMITED.
WESTERN FIELD OFFICE
EDMONTON, ALBERTA.

YUKON TOUCHÉ PROJECT. 090983
TOUCHÉ CLAIMS GRID
FIGURE 5
SOIL GEOCHEMISTRY, Pb. ppm.

DRAWN BY : D.R.BULL.
DATE : OCTOBER 1981

SCALE OF METRES
0 25 100 200 metres.



PROPERTY MAP

Contours at 100, 200, 500 & 1000 ppm
Dual samples are A/B horizons

MATTAGAMI LAKE EXPLORATION LIMITED.
WESTERN FIELD OFFICE
EDMONTON, ALBERTA.
090983

YUKON TOUCHÉ PROJECT.
TOUCHÉ CLAIMS GRID
FIGURE 6
SOIL GEOCHEMISTRY, Zn ppm.

DRAWN BY : D.R.BULL.
DATE : OCTOBER 1981

SCALE OF METRES
0 25 100 200 metres.

PROPERTY MAP

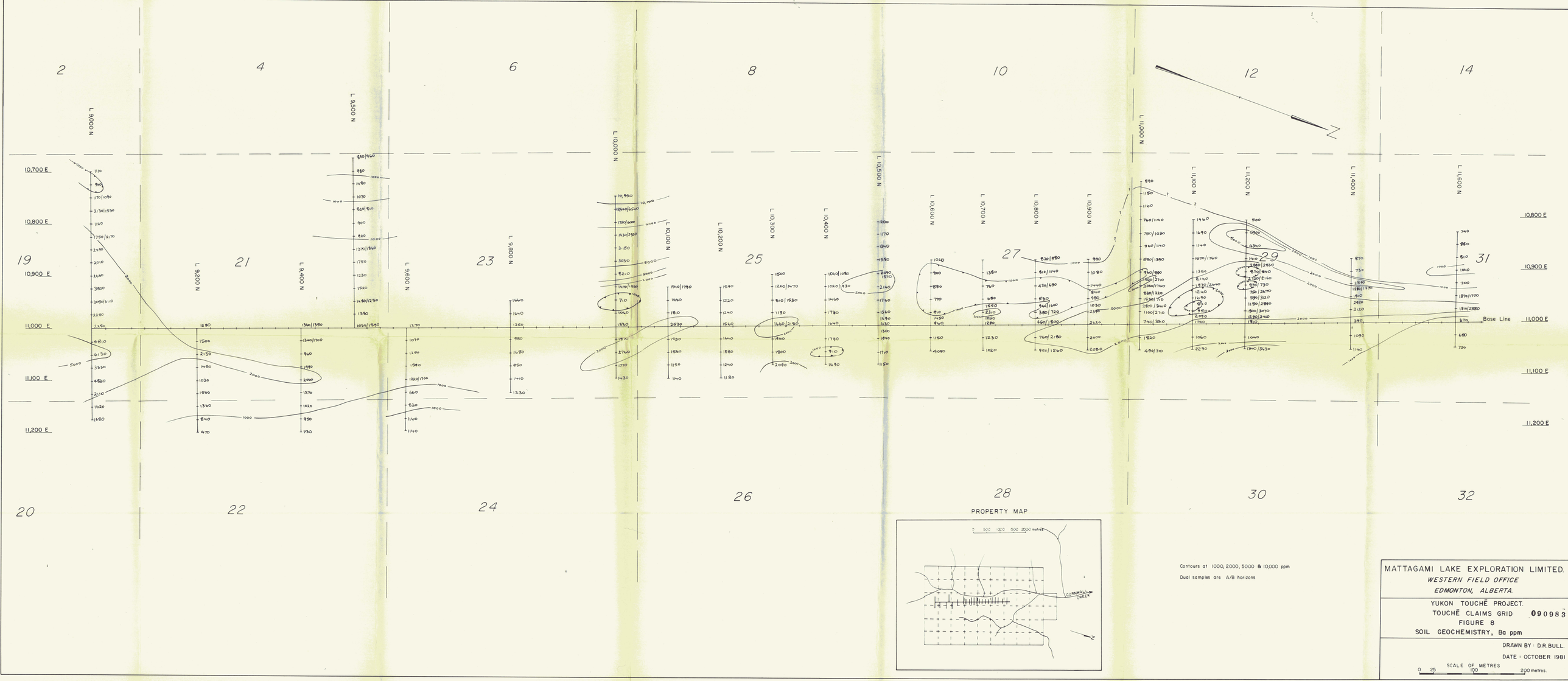
Contours at 0·5, 1·0, 2·0, 3·0 ppm
Dual samples are A/B horizons

MATTAGAMI LAKE EXPLORATION LIMITED.
WESTERN FIELD OFFICE
EDMONTON, ALBERTA.

YUKON TOUCHÉ PROJECT. **090983**
TOUCHÉ CLAIMS GRID
FIGURE 7
SOIL GEOCHEMISTRY, Ag ppm.

DRAWN BY : D.R.BULL.
DATE : OCTOBER 1981

SCALE OF METRES
0 25 100 200 metres.



PROPERTY MAP

Contours at 1000, 2000, 5000 & 10,000 ppm

Dual samples are A/B horizons

MATTAGAMI LAKE EXPLORATION LIMITED.
WESTERN FIELD OFFICE
EDMONTON, ALBERTA.

YUKON TOUCHÉ PROJECT.
TOUCHÉ CLAIMS GRID 090983
FIGURE 8
SOIL GEOCHEMISTRY, Ba ppm

DRAWN BY : D.R.BULL.
DATE : OCTOBER 1981

SCALE OF METRES
0 25 100 200 metres.

PROPERTY MAP

NOTE: DUAL SAMPLE NUMBERS ARE 'A' HORIZON / 'B' HORIZON

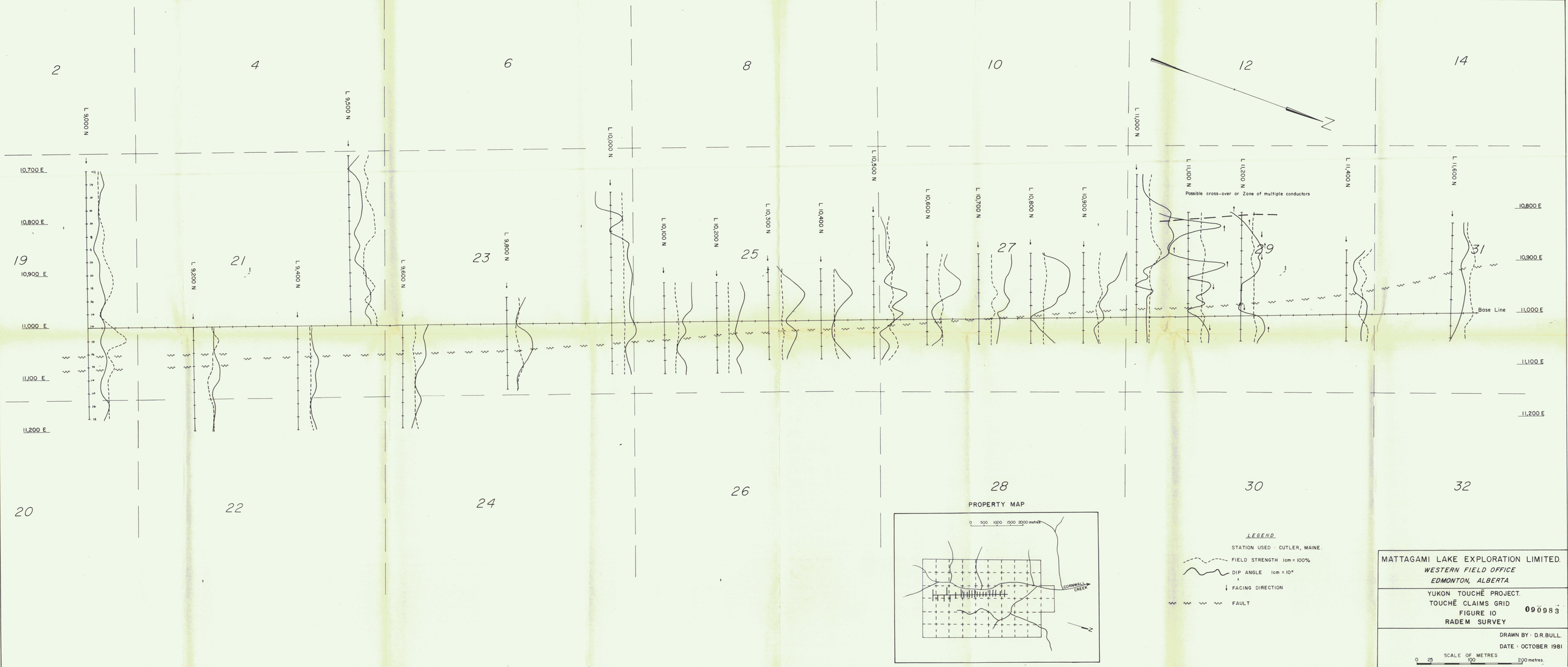
MATTAGAMI LAKE EXPLORATION LIMITED.
WESTERN FIELD OFFICE
EDMONTON, ALBERTA.

090983

YUKON TOUCHÉ PROJECT.
TOUCHÉ CLAIMS GRID
FIGURE 9
SOIL SAMPLE LOCATIONS

DRAWN BY : D.R.BULL.
DATE : OCTOBER 1981

SCALE OF METRES
0 25 100 200 metres.



PROPERTY MAP

LEGEND

STATION USED : CUTLER, MAINE.

FIELD STRENGTH 1cm = 100%

DIP ANGLE 1cm = 10°

FACING DIRECTION

FAULT

MATTAGAMI LAKE EXPLORATION LIMITED.
WESTERN FIELD OFFICE
EDMONTON, ALBERTA.

YUKON TOUCHÉ PROJECT.
TOUCHÉ CLAIMS GRID
FIGURE 10 090983
RADEM SURVEY

DRAWN BY : D.R.BULL.

DATE : OCTOBER 1981

SCALE OF METRES
0 25 100 200 metres.

Longitude 136°00' W.

CORNWALL CREEK

CLAIM BOUNDARY

Carb. with Zn, Ag

11,000 N

10,000 N

9,000 N

11,000 E

After Norris, 1975

Latitude 66°50' N

Longitude 136°00' W.

LEGEND

ORDOVICIAN - SILURIAN

[3] ROAD RIVER FORMATION

3a: Shale, minor black limestone & quartzite

3b: Slate, 3c: Limestone.

UPPER CAMBRIAN

[2] UN-NAMED CLASTICS, Quartzite.

MIDDLE CAMBRIAN

[1] UN-NAMED CLASTICS

1a: Quartzite, 1b: Conglomerate, 1c: Shale.

Mineralized Vein

X Outcrops: Large, Small

55 Bedding strike & dip

Geological Boundary: defined, inferred.

Fault Zone: defined, approximate.

Fold Axis

Drag Fold with plunge indicated.

Claim Group Boundary

11,000 E Grid lines with co-ordinates.

SOME DATA AFTER D.K. NORRIS, 1979

MATTAGAMI LAKE EXPLORATION LIMITED.

WESTERN FIELD OFFICE

EDMONTON, ALBERTA.

YUKON TOUCHÉ PROJECT.

TOUCHÉ CLAIMS 1-56

GEOLOGY MAP 09 0933

MAP 1

DRAWN BY: D.R.BULL.

DATE: NOVEMBER 1981

Scale 1:12,600

0 250 500 metres