Report on the

Geology and Geochemistry

of the

Pilot Claim Group

Lat. 50°53' N Long. 122°56' W

NTS 92-J-15W

Lillooet Mining Division

for

X-Calibre Resources Ltd.,

Gold Bridge, B. C.

by

Richard J. Mazur, P. Geol.

Mazur Resource Consultants

Kingston, Ontario

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# GEOLOGICAL BRANCH ASSESSMENT REPORT

11,877

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#### 1.0 Summary and Conclusions

X-Calibre Resources Ltd. holds ground containing the underground workings of the Pilot Gold Mine, located in the Bralorne-Pioneer Gold Mining Camp of British Columbia. The property has good potential for the extension of the major structure hosting this deposit. Geological interpretation suggests that the 155° trending "Pilot Shear Zone" could extend for approximately 3.5 kilometres on the property. A heavy mineral stream sediment sample, taken in the vicinity of this interpreted structure, approximately 1.2 kilometres northwest of the Pilot Mine, contains 950 ppb gold.

The tenor of mineralization reported from the Pilot Mine is approximately 0.30 oz/ton Au in a series of sheeted vein structures in the Pilot Shear Zone within granodiorite of the Bendor Batholith. Surface mineralization has been discovered on the property, 300 metres to the north of the mine, grading 0.324 oz/ton Au and 1.66 oz/ton Ag over a true width of 0.91 metres.

Albitite altered Noel Formation tuff, 600 metres to the east of the Pilot Shear Zone, contains 1495 ppb gold (approximately 0.04 oz/ton) in grab samples over a 30 metre wide zone. This grade of mineralization may be amenable to open pit mining - heap leach extraction of gold.

Another area of gold potential on the property occurs approximately one kilometre east of the Gem gold-cobalt showing

which contains an estimated 27,700 tonnes of ore grading 0.634 oz/ton gold and 2.045% cobalt within sericite altered granodiorite. A similar zone of alteration occurs on the Pilot property with anomalous rock geochemical values in gold, arsenic and antimony.

A four month programme of geological mapping, geochemical sampling, geophysical surveying, prospecting and trenching is recommended to evaluate the potential of these three targets for gold mineralization. Underground mapping and sampling of the Pilot Mine is recommended to evaluate the grade and tonnage of ore in this deposit.

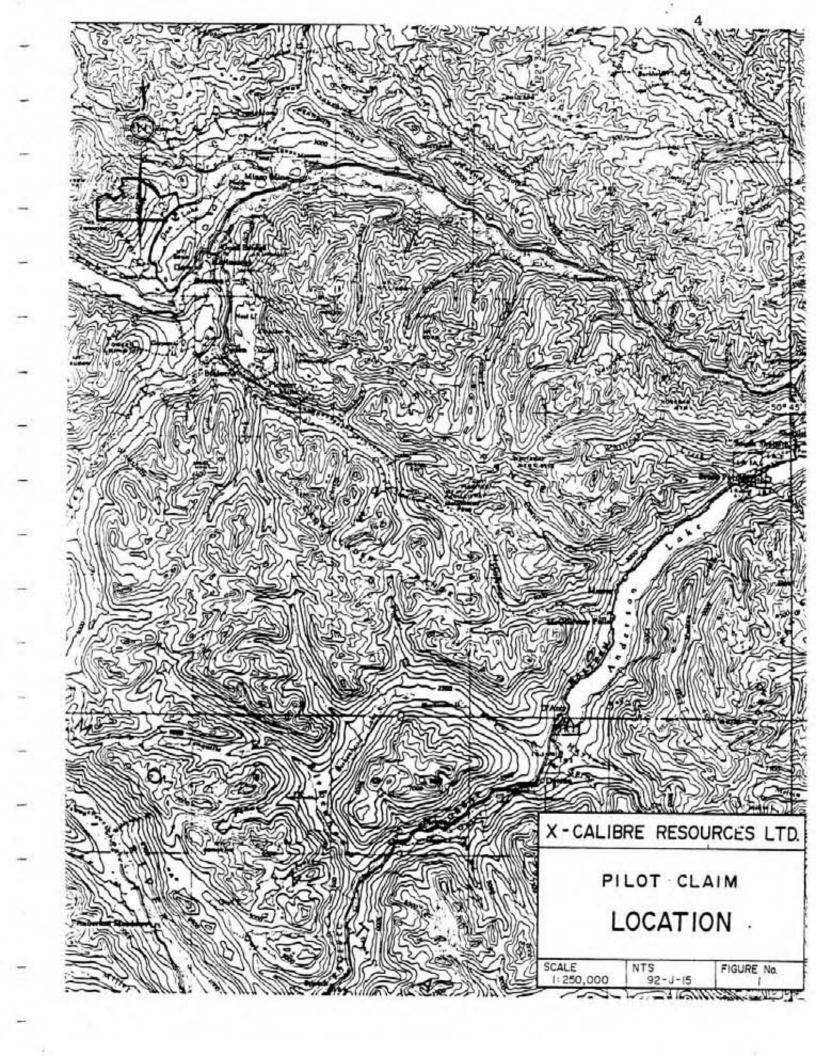
#### 2.0 Introduction

A programme of geological mapping, rock geochemical sampling and prospecting was undertaken on:

- 1) the Pilot Extension claims on August 13 and August 25, 1983
- 2) the Pilot A & B claims on August 18, 1983 and
- 3) the Pilot Reverted Crown Grants from June 25 28, 1983 for X-Calibre Resources Ltd., Gold Bridge, B. C. The latter programme is documented in the "Report on the Geology and Geochemistry of the Pilot Reverted Crown Grants, August 21, 1983." Information from this programme is included in this compilation of all geological work completed on the Pilot property.

Geological mapping at a scale of 1:12,500 was completed on the Pilot Extension Claims by traverses on ridge tops, mainly at the northern extremity of the property. Prospecting was completed along talus slopes in the high cirques. A total of 52 rock geochemical samples and 15 heavy mineral stream sediment samples were collected during this programme.

A programme of geological mapping with special attention to structural mapping and vein sampling was conducted on the Pilot A and B claims. A total of 34 rock geochemical samples were collected.



## 3.0 Location and Access

The Pilot Mineral Claim is located in the Bridge River Mining

Camp at latitude 50°53'N, longitude 122°56'W in NTS Map Area

92-J-15 W (Figure 1). The centre of the property lies 3.5 km north
west of Gun Lake.

It is accessible by the Gun Lake Road which goes southwest around Mount Zola then north along the northwest shore of Gun Lake approximately 10.5 km from Gold Bridge, B. C.

# 4.0 Current Claim Status

The Pilot Extension Claim, Pilot A and B, and 12 reverted crown grants form the Pilot Claim Group held in good standing by X-Calibre Resources Ltd., Gold Bridge, B. C. (Table I) (Map I)

Table I Claim Status

Claim	No, of Units	Record No.	Anniversary Date
Pilot Ext	. 20	2224	Dec. 13, 1983
Pilot Ext	.#2 20	2244	Dec. 22, 1983
Pilot Ext	.#3 16	2252	Jan. 10, 1984
Pilot A	1	2568	Aug. 19, 1984
Pilot B	1	2569	Aug. 19, 1984

Table I Claim Status (Cont.)

Crown Grant	Lot. No.	Record No.	Anniv. Date
Gold Pass #1	6999	2080	July 23, 1986
Ypres Fr.	5689	2081	July 23, 1986
GLG #3	5688	2082	July 23, 1986
Gold Pass #2	7000	2083	July 23, 1986
GLG #1	1322	2084	July 23, 1986
GLG #2	1323	2085	July 23, 1986
GLG #4	1324	2086	July 23, 1986
GLG #5	1325	2087	July 23, 1986
GLG #7	1326	2088	July 23, 1986
GLG #8	1327	2089	July 23, 1986
GLG #9	1328	2090	July 23, 1986
GLG Fr.	1340	2230	Nov. 17, 1986

# 5.0 Exploration History

The reverted crown grants and a portion of the Pilot Extension claim area were previously held by Mr. John Tanconi, who reported no work and allowed them to lapse.

The total Pilot Claim Group encompasses the area between the Pilot Mine on Gun Lake and the Gem and Jewel deposits on Roxey and Jewel Creeks to the northwest.

In 1934, Pilot Gold Mines Ltd., Vancouver, B. C. acquired the original Ypres group of eighteen claims and developed approximately

1500 metres of underground workings on a series of quartz veins occurring in a north trending shear zone. Assays up to 0.30 oz/ton have been reported from this underground development programme (Cairnes, 1937).

The Gem Au-Co-U occurrence, immediately northwest of the Pilot Extension Claim Group, contains massive lenses of arsenopyrite, danaite, lollingite-safflorite gold and uraninite within sericitic altered granodiorite.

This prospect was first staked in 1934 by W. Haylmore and W. H. Ball. J. M. Taylor acquired the claims in 1937. Various options on the property were taken and subsequently dropped until 1958. During this time, two adits were driven and diamond drilling was done. Indicated reserves of 27,700 tonnes grading 0.634 oz/ton Au and 2.045% Co have been reported on the total Gem deposit by the National Mineral Inventory. The Gem prospect is presently held by Mr. Ray Taylor of Vancouver, B. C., one of the original owners.

The Jewel prospect occurs in the next creek east of the Gem deposit. It was originally staked by J. M. Taylor in 1933. Work over the years on the property consists of trenching, two shafts and an adit.

Irregular veins in serpentine contain an average of 2 oz/ton
Au, 1.26 oz/ton Ag and 1.7% copper.

The current owners are unknown to this writer.

#### 6.0 Physiography

Two major drainages, Walker Creek and Pilot Creek, form large cirques on the western half of the Pilot property (Map I). At elevations up to 8000 ft ASL, this area is characterized by minimum alpine vegetation on precipitous rock exposures and talus slopes.

The eastern half of the property is mainly forest covered with a minimum elevation of 3800 ft ASL. Outcrops are restricted to the creek levels and occur sporadically in tree cover.

A recent volcanic ash deposit and Pleistocene till cover much of the eastern half of the property.

# 7.0 General Geology of the Bridge River Area

The geology and mineral deposit descriptions of the Bridge
River Area are reported by McCann (1922), Cairnes (1937, 1943),
Roddick and Hutchison (1973), Woodsworth (1977) and various
government and assessment publications. Figure 2 shows the general
geology of the Bridge River Area.

The northeastern margin of the Coast Crystalline Belt trends northwesterly throughout the area. The northeastern flank of this belt of plutonic rock is represented by granodiorite to quartz diorite of the Late Cretaceous Bendor Batholith which intrudes the southwestern flank of a paralleling antiform. The antiform has a maximum width of 45 km and plunges gently northwest.



With the exception of some exposures of schist and gneiss,
this antiformal structure consists of a package of complexly
deformed Triassic volcanics and clastics, metamorphosed to a lower
greenschist facies.

The most widespread formation which is exposed in the core of the antiform is the Middle Triassic Bridge River or Fergusson Group of chert, argillite and greenstone. Conformably overlying these rocks is the Upper Triassic Cadwallader Group consisting of the basal Noel Formation clastics, the middle Pioneer Formation volcanics and the upper Hurley Formation calcareous sedimentary rocks.

In the Cadwallader Creek Valley, northwest to Eldorado Creek and southeast to Anderson Lake is a belt of plutonic rocks collectively mapped as the Bralorne Intrusions. These intrusives occur along a belt of folded and faulted Cadwallader Group rocks and serpentine of the President Intrusives, forming the Cadwallader Structural Complex. The Bralorne Intrusives are extraordinarily complex and variable in composition from gabbro, augite diorite, hornblende diorite, "greenstone diorite", quartz diorite and soda granite to albitite. The phases of soda granite are of particular economic significance as they are related to the gold deposits of the Bralorne-Pioneer Mining District. Here, gold mineralization averaging 0.52 oz/ton in ribboned quartz veins have produced some four million ounces of gold throughout its production since 1932.

#### 8.0 Property Geology

# 8.1 Introduction

The Pilot property encompasses a northwest trending batholith of Bendor granodiorite measuring approximately 5 km in area (Map II). This batholith intrudes Middle Triassic Fergusson Group sediments which are contact metamorphosed to quartzite, silicified argillite and foliated tuffaceous sediments.

A major shear (Pilot Shear) trending at 150°AZ, brings
Upper Triassic Noel Formation silicified tuff in contact with
granodiorite and Fergusson sediments. At the southeastern end
of the property, this shear is intensely sericite altered and
quartz veined forming the host of the Pilot mine. Mineralization
grading 0.324 oz/ton Au and 1.66 oz/ton Ag over 0.9 metres has
been discovered 300 metres northwest of the Pilot mine along
this structure (Map III). Map IV illustrates the geology of this
shear zone at the location of the Pilot mine, from a geological
traverse along the Gun Lake Road.

Plugs and dikes of ultramafic intrusive occur on the property with a major mafic-ultramafic intrusive occurring in the southwest corner of the property near Mount Penrose.

#### 8.2 Lithology

#### 8.2.1 Fergusson Group (Unit 1)

This unit has been contact metamorphosed adjacent to the Bendor granodiorite. Clastic sediments consist mainly of

buff to white, fine to medium grained pyritic quartzite which weather a rust colour. Finer grained assemblages consist of silicified argillite and foliated tuffaceous sediments.

The quartzites fracture into large blocks whereas the finer sediments are flaggy and platy fractured. Minor quartz-carbonate veins occur in these rocks.

# 8.2.2 Noel Formation (Unit 2)

Massive bedded, silicified tuff of the Upper
Triassic Noel Formation forms an escarpment at L 2+00W STN 5+00S
in the southeastern portion of the Property (Map III). They
weather brownish grey and appear medium grey on fresh surface.
The matrix is aphanitic with fine grained angular volcanic fragments being barely visible. Minor quartz-carbonate veins occur.

# 8.2.3 Ultramafic Intrusives (Unit Um)

An ultramafic dike, trending at 150°AZ, occurs in the northeastern corner of the property along the extension of the Pilot Shear Zone. Orange weathering, fine grained greenish-black peridotite is magnetic and alters the surrounding Noel and Fergusson sediments for up to 20 metres to a buff coloured albitite.

A plug of ultramafic intrusive was observed at the northwest corner of the property, intruding into granodiorite.

This intrusive shows a strong jointing pattern at 030°/15°SE.

A large complex of mafic and ultramafic rocks occurs in the vicinity of Mount Penrose at the upper end of the

cirque of Pilot Creek. Microveinlets of asbestos occur in ultramafic rocks of this intrusive.

# 8.2.4 Bralorne Intrusive (Unit B)

A small plug of variable composition from diorite to sodic granite within Bendor quartz diorite has tentatively been assigned as a Bralorne-type intrusive. This occurrence lies above the forks of Walker and Pilot Creeks. Epidote veining is commonly associated with this intrusive.

# 8.2.5 Bendor Granodiorite (Unit Gd)

The main body of this intrusive, found north of Walker Creek, consists of grey weathering, medium grained granodiorite. Granodiorite forms the more resistive peaks on the Pilot property. Phases of this intrusive more closely resemble quartz diorite in the southeastern portion of the property.

Zones of alteration within this intrusive seem to be related to mineralization events on the property and surrounding area. Salmon-pink to orange weathering sericite altered zones are closely related to mineralization at the Pilot and Gem gold occurrences. Kaolinite alteration in an area between the Gem and Jewel deposits occurs as a white, intensely weathered zone between these two prospects.

#### 8.3 Structure

Two major structural trends occur on the property at 155°AZ and 105°AZ. Figure 3 is a Wulff net stereo projection of

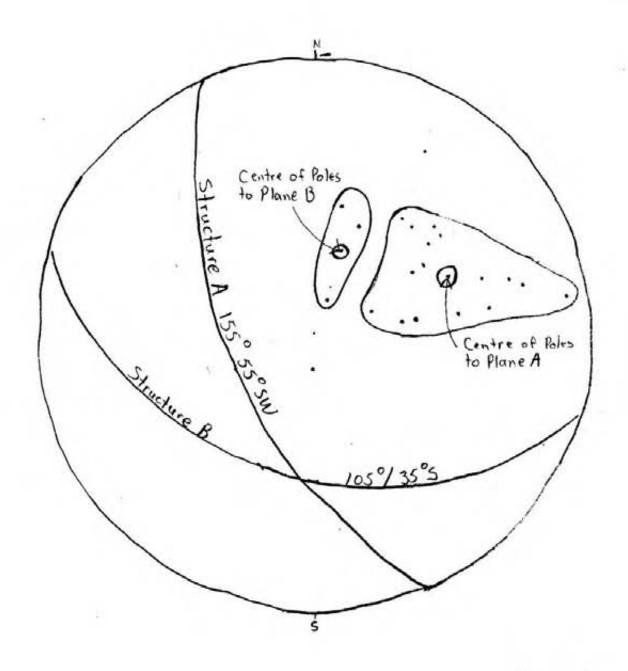


Figure 3
WULFF NET
Pilot A and B Claims
VEIN STRUCTURE

vein structures measured along the Gun Creek Road for approximately 650 metres northeast of Walker Creek, across the "Pilot Shear Zone" in the vicinity of the Pilot Mine. Two structures at 155°/55°SW and 105°/35°S predominate. Map III illustrates the major trend of the Pilot Shear Zone at 155 AZ on the Pilot property. Interpretation of air photo lineaments suggest that this shear zone extends to the northwest onto the Pilot Extension Claims (Map II). Further evidence to support this interpretation lies in the emplacement of an ultramafic dike along this shear structure at the northeast corner of the property. A 125°AZ fault, paralleling Walker Creek, offsets the Pilot Shear Zone for a distance of 200 metres to the west. Parallel fault structures have been interpreted east and west of the Pilot Shear Zone which mainly bound the granodiorite intrusive. Another structure in the southwest corner of the property has been observed with this orientation.

Structures with trends of 100°-110°AZ serve to control the change in orientation of the granodiorite intrusive in the middle of the property. A structure with this orientation trending east from the Gem showing seems to be associated with areas of sericite alteration within granodiorite.

Jointing patterns in quartz diorite at the southeastern corner of the property have two trends at 055°-070°AZ and 125°-155°AZ. In the main body of the intrusive, the major joint

direction is from 0000-0150AZ.

## 8.4 Mineralization

A sericite altered shear zone in quartz diorite hosts the Pilot Mine gold vein swarm with grades reported at 0.30 oz/ton Au (Cairnes, 1937). Further mineralization was discovered 300 metres northwest of the Pilot mine, grading 0.324 oz/ton Au and 1.66 oz/ton Ag over 0.9 metres (Map III). Good potential exists for gold mineralization along the full extent of the Pilot Shear Zone which extends for a length of 3.5 km on the Pilot property.

An occurrence of massive stibnite in a 2 cm quartz-carbonate vein was discovered within a zone of sericite altered granodiorite which occurs one km east of the Gem showing, along a 100°AZ fault structure. The associated sericite alteration and occurrence of vein mineralization is favourable for the exploration of gold in the area.

A minor occurrence of malachite stained granodiorite occurs in the middle of the intrusive body, north of Walker Creek.

Within the mafic-ultramafic complex at Mount Penrose, there occurs asbestos mineralization as discovered from prospecting in the area. Rock specimens revealed 5 mm wide veinlets of chrysotile with a density of 8 veinlets in 8 cm.

# 9.0 Property Geochemistry

## 9.1 Introduction

A total of 106 rock geochemical samples have been collected on the Pilot property. Nineteen samples on the Pilot Reverted Crown Grants were collected and sent to Nuclear Activation Services Ltd., Hamilton, Ontario for analysis by neutron activation. Results and interpretation are documented in the "Report on the Geology and Geochemistry of the Pilot Reverted Crown Grants, Aug. 21, 1983". A zone of anomalous gold, silver, arsenic and antimony occur for a length of 275 metres in an area of observed gold mineralization.

A total of 52 rock geochemical samples were collected during the reconnaissance geological mapping and prospecting programme of the Pilot Extension Claims.

A total of 34 rock geochemical samples were collected on the Pilot A and B claims by sampling veins and country rock along the Gun Lake Road.

During sampling, a minimum of one kilogram of sample material was collected.

Fifteen heavy mineral stream sediment samples were collected on Walker Creek, Pilot Creek and an unnamed creek draining the northern part of the property. Five kilogram samples of sediment sieved through -20 mesh, in the field, were collected.

# 9.2 Methods of Geochemical Analysis

Rock geochemical samples from the Pilot Extension and Pilot A and B claims were sent to Kamloops Research and Assay Laboratories Ltd., Kamloops, B. C. All samples were ground to -100 mesh. Gold was analyzed by the fire assay-atomic absorption technique and Ag, As, Sb, W, Co, Cu and Mo were analyzed by specific standard techniques. Appendix I shows some of these analytical methods.

Heavy mineral stream sediment samples were sent to

Chemex Labs Ltd., Vancouver, B. C. The samples were immersed
in a solution of tetrabromethane to separate sediment greater
than 2.96 specific gravity. This fraction was ring ground to
-100 mesh and a 25 gram sample was analyzed for Au - fire assay;
atomic absorption, Sb, W, Ag, Co, and Cu.

#### 9.3 Results

Map IV shows the results of the geochemistry across the Pilot Shear Zone in the vicinity of the Pilot Mine, by means of a graphical form.

Map V shows the rock geochemical results obtained from the programme on the Pilot Crown Grants.

Maps VI to XIII illustrate rock geochemical results and heavy mineral stream sediment results on the whole Pilot property for Au, Ag, As, Sb, W, Co, Cu and Mo respectively.

Appendix II tabulates all results received from the

laboratories. Appendix III contains histograms of rock geochemical results and heavy mineral stream sediment results from the Pilot Extension claims.

Anomalous values are determined by examination of the distribution of results in the histograms. All the elements form normal or log normal distributions. The point where the fitted curve begins to tail out is chosen as the threshold value. All values greater than the threshold value are considered anomalous (Table II).

Table II Geochemical Anomalies

Element	Backgrou	and Value	Threshold	Value	
	( <u>Me</u>	ean)	Cumulative % of Population	Geochem	ical Value
Rock Geocl	hemical Sam	nples			
Au	12.3	ppb	84.6%	20	ppb
Ag	.9	ppm	94.2%	1.5	ppm
As	2.1	ppm	71.1%	5	ppm
Sb	0.3	ppm	92.3%	0.6	ppm
W	2.1	ppm	96.1%	3	ppm
Co	18.6	ppm	86.5%	30	ppm
Cu	78.2	ppm	94.2%	200	ppm
Mo	4.0	ppm	Not And	omalous	

Table II Geochemical Anomalies (Cont.)

Element	Background Value	Threshold	d Value
	( <u>Mean</u> )	Cumulative % of Population	Geochemical Value
Heavy Min	eral Stream Sediment	Samples	
Au	31.7 ppb*	66.6%	25 ppb
Sb	3.4 ppm	93.3%	5 ppm
W	3.7 ppm	93.3%	8 ppm
Cu	44.3 ppm	93.3%	70 ppm

<sup>\*</sup> Mean skewed by two large sample results.

#### 9.4 Interpretation

#### 9.4.1 Pilot A and B Claim

Map IV delineates the Pilot Shear Zone by a 125 metre wide gold, arsenic and antimony anomaly. Anomalous values obtained over this zone are 60-70 ppb Au, greater than 15 ppm As and 4-17 ppm Sb which are well above background in the area. The shear zone is characterized by limonitic and sericitic altered quartz diorite which has been intensely sheared.

The maximum gold value obtained in vein material is 965 ppb, approximately 0.028 oz/ton Au. Although this value, by itself, does not constitute ore grade material, the Pilot Shear Zone is outlined by anomalous rock geochemistry, indicating potential gold mineralization along its extent.

The greatest anomaly discovered from this programme occurs in altered Noel Formation tuff, approximately

400 metres east of the Pilot Shear Zone. A 30 metre wide interval of buff coloured, "albitite" altered tuff contains 1495 ppb Au (approximately 0.043 oz/ton Au). Further mapping and sampling is recommended to evaluate the open pit mining - heap leach extraction potential of this gold mineralization.

#### 9.4.2 Pilot Crown Grants

Map V illustrates a 275 metre long gold, silver, arsenic and antimony anomaly occurring over a showing of gold-silver mineralization within the Pilot Shear Zone. Sample 5043 contains 0.324 oz/ton gold and 1.66 oz/ton silver in a vein structure measuring 0.91 metres in width.

#### 9.4.3 Pilot Extension Claims

Maps VI to XIII show two main areas of interest with geochemical anomalies worthy of further investigation;

- 1) Pilot Shear Zone
- 2) Gem East Area

A 950 ppb heavy mineral stream sediment sample occurs on Walker Creek, 1.2 km north of the Pilot Mine, along the interpreted trend of the Pilot Shear Zone. Anomalous antimony in stream sediment of 32 ppm occurs along this zone as well.

An arsenic anomaly associated with the ultramafic dike, which is interpreted to occur along the extension of the main Pilot fault, may indicate further potential for gold mineralization along the full extent of the Pilot Shear Zone.

The Gem East area of sericite altered granodiorite contains anomalous gold (20-65 ppb), arsenic (greater than 15 ppm) and antimony (0.3 to >500 ppm) over a one km X 0.5 km area. Massive stibnite vein mineralization has been discovered within this area where a heavy mineral stream sediment sample contains anomalous gold and antimony values of 50 ppb and 3.0 ppm respectively.

Three isolated gold anomalies occur,

- at a contact between granodiorite and Fergusson sediments
- with malachite mineralization within the granodiorite body

and 3) within the ultramafic complex. Further prospecting of these anomalies is suggested.

Copper and molybdenum are unrelated to gold geochemistry and cobalt is related to ultramafic intrusives on the property. Silver and tungsten anomalies are associated with mineralization on the Pilot Crown Grants and at the granodiorite-Fergusson contact. Prospecting of the contact in areas of these anomalies is recommended.

#### 10.0 Recommendations

A four month programme of geological mapping, rock and soil/biogeochemical sampling, geophysical surveying, prospecting and trenching are recommended to evaluate;

- gold-silver mineralization discovered to date on the Pilot Crown Grants
- potential for gold mineralization along the Pilot Shear Zone.
- and 3) potential for gold mineralization in the Gem East Area.

Tenders should be solicited from a professional mining engineering firm to re-open the Pilot Mine for safe entry to conduct a mapping and sampling programme. If the costs are too great, then diamond drilling of the mine area may be the more viable option.

Table III shows the estimated costs of such a programme, leading to a stage of diamond drilling.

# Table III Estimated Exploration Costs

# <u>Objectives</u>

- Search records of operations at the Pilot Mine and map and sample the underground workings of the mine.
- 2) Conduct a detailed programme of geological mapping, prospecting, trenching, rock, soil and/or biogeochemical sampling and geophysical surveying on the Pilot Crown Grant grid (see earlier report).
- 3) Map, prospect and sample outcrops along the trend of the Pilot Shear Zone.
- 4) Survey the eastern boundary of the Pilot Extension

  Claims to verify the existence of the shear zone on X-Calibre's

property.

- 5) Upon verification of 3) and 4) above, establish a grid with east-west lines at 100 metre intervals with 50 metre stations over the 3 km extension of the Pilot Shear Zone for a total of 30 one km lines.
- 6) Conduct a programme of soil and/or biogeochemical sampling over the grid. Magnetometer and VLF-EM surveying maybe warranted depending on its application on the Crown Grant grid.
- 7) Map, prospect and sample the albitite altered Noel Formation rocks east of the Pilot Shear Zone.
- 8) Map, prospect and sample the Gem East area at a reconnaissance level.
- 9) Establish a grid in the Gem East area upon encouragement from 8) above. A programme of detailed geological mapping and rock geochemical sampling could then be initiated.
- 10) Complete reconnaissance level mapping and prospecting on the southern half of the property.
- 11) Trench and sample any showings of interest.

  Pilot Crown Grant Programme one month \$ 47,640

  Pilot Mine Underground Mapping and Sampling one month 25,000

  (excluding start up costs to open mine)

  Pilot Extension Programme two months

Labour - Geologist 60 days X \$200/day	\$ 12,000
Linecutters 2 men X 30 days X \$100/day	6,000
Geochemical Sampler 30 days X \$100/day	3,000
Geophysical Operator 30 days X \$100/day	3,000
Prospector/Trencher 60 days X \$150/day	9,000
Surveyor 10 days X \$200/day	2,000
Food - 250 man-days X \$20/man-day	5,000
Accommodation - 250 man-days X \$20/man-day	5,000
Transportation - 4X4 2 mos. X \$1800/mo + gas	4,500
Helicopter @ \$500/hr X 30 hrs	15,000
Field Supplies - geological, line cutting, blasting	8,000
Bulldozer Rental - 50 hrs X \$65/hr	3,250
Geophysical Equipment Rental - magnetometer, VLF-EM	4,000
Geochemical Analyses - 100 assays X \$20/assay	2,000
750 geochem X \$25/sample	18,750
Report Preparation	2,500
Administrative Expense	4,500
Subtotal	\$180,140
Plus 15% Contingency	27,020
Total	\$207,160

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Methods

of

Geochemical

Analysis

### Geochemical Analysis Procedure

#### Sample Preparation:

A. Silts and Sediments

Dry sample thoroughly and sieve through an 80 mesh stainless steel sieve. The oversize portion is discarded (unless we have been requested to save it) and the analyses are performed on the -80 mesh portion.

B. Vegetation

29.17 grams of material are weighed and placed in 20 gm assay crucibles which are then placed in a relatively cool assay furnace and the temperature is raised gradually. The samples are left in the furnace until the organics are completely burned off. The residue is then assayed.

#### Fire Assay Re-agents

1.	Litharge	1 .	C.P.
2.	Sodium Carbonate	:	C.P.
3.	Borax Glass	:	C.P.
4.	Potassidm Nitrate		C.P.
5.	Flour	:	9,000,000
6.	Herman Inquarts	:	C.P.
7.	Si 02	:	C.P.

#### Atomic Absorption Re-agents

For Ay, Cu, Pb, In, Ca, Cd, Ni, Nn, Fe, Cr, Mo

Nitric Acid		C.P. 70%
Hydrochloric Acid		C.P. 37%
Aluminum Chloride	:	C.P.+99%

# Fire Assny-A.A. Method for Gold

Weigh 29.17 gms of sample. Fuse with re-agents as above in proportions necessary to obtain a good melt with clean pour and slag easily separated from lead button. (For silicates use flour; for sulphides use potassium nitrate.) Cupel lead bead and place in test tube. Dissolve bead in nitric acid then hydrochloric (3 times the amount of nitric). Bulk to 10 mls and read on atomic absorption spectrophotometer.

#### Arsenic Geochem

- Weigh 1.0 gram of sample in test tube.
- Digest in 0.5 ml. HNO<sub>3</sub> for ½ hour and 1.5 ml. HCl for 1½ hour.
- 3. Pipette 2 ml. of sample into large test tubes.
- 4. Add 75 ml. H<sub>2</sub>0

25 % ml. HC1

1.0 2 ml. KI solution

f = # ml. SnGl, solution

- 5. Let stand 15 20 minutes.
- 6. Add & teaspoon zinc metal and quickly plug with cotton and rubber stopper.
- Bubble into pyridine solution for 30 minutes under fume hood.
- 8. Read at 540.

#### REAGENTS

KI - 15 grams in 100 ml. H20 Kerpin dante maile

SnCl<sub>2</sub> - 40 grams in 100 ml. HCl

Pyridine - 1 gram silver deithyldithio carbamate (SDOC) in 200 ml. pyridine.

As stock solution (1000 ug/ml) - weigh 1.3 20 grams  $As_2O_3$ 

- dissolve in H<sub>2</sub>O with 4 grams NaOH

- dilute to 1 litre

Prepare a 1 ug/ml As standard solution. Make (1.1. dail)

Run with samples, standard of 0.5, 1.0, 2.0, 3.0, 5.0, 10.8, 15.0 ug.

1.0 ug Au = 5 ppm As in sample

Weigh CPB - 0.1 - 0.54 -> 100ml

#### CEOCHEM

#### KRAL Tungsten

- 1. Weigh .25 g sample into a test tube.
- 2. Add ~ 1.25 g Potassium Bisulfhate, mix and fuse.
- 3. Leach with 5 ml 10M HCl in bath (ligh volume).
- 4. Mix and cool settle.
- Pipette 2 ml sol'n and 2 ml SnCl<sub>2</sub> into test tube and mix.
- 6. Heat 0 80°C for 5 minutes in bath.
- 7. Add, while hot, 1 ml dithiol solution.
- Continue heating until color forms low volume ester phase do not form a globule that sinks.
- 5. Remove from bath and cool.
- 10. Add 1 ml petroleum spirit and shake gently.
- 11. Compare with standards.

#### Standards

- To 12 test tubes containing 2 ml 5nCl, sol'n add respectively 2.0, 1.8, 1.6, 1.4, 1.2, 1.0, 1.8, 1.7, 1.6, 1.5, 1.3, 1.0 ml 10M HCl.
- Add tungsten in the following order 0, .2, .4, .6, .8, 1.0, ml of 1µg/ml standard sol'n, and .2, .3, .4, .5, .7, 1.0 ml of 10 µg/ml standard sol'n.
- Continue from step 6 above.

#### Standards

```
Reagents - 10M HCl = 835 ml conc →100 ml

SnCl sol'n = 10 g → 100 ml of 10M HCl 2 = .8 ppm

Dithiop = 1 g Zn_Dithiol -:100 ml flask; = 1.6 ppm

and 1 ml conc HCl - dilute 4 = 2.4 ppm

to 100M with iso-amylacotate; = 3.2 ppm

Standard W = 1000 ppm, 100 ppm 6 = 4 ppm

10 ppm, 1 ppm 7 = 8 ppm

8 = 12 ppm

9 = 16 ppm

10 = 20 ppm

11 = 28 ppm

12 = 40 ppm
```

#### Instrumental Neutron Activation Analysis

This INAA technique is applicable to any biogeochemical type material such as plants, pine needles, the humic forest cover or in fact any biological material. Samples of approximately 20-50 grams of material are collected, screened (-30 mesh), dried and macerated. Eight grams of this material is briquetted in a press at 30,00 PSI to form a 40 mm briquette about 6 mm thick (figure 1). Briquettes are then batch irradiated under thermal or epithermal neutron fluxes depending on the elements besides gold that are to be determined. The samples are allowed to decay from four days to one week where, they are counted singly using a combination of hyperpure germanium detector linked to a multichannel analyzer-computer system (figure 2). Detection limits may vary with the type of material being analyzed but will usually be in the 0.1 to 1 ng/g range. Briquettes are quite simply made and have been prepared in the field by one exploration company.

The advantages of the technique are many, including being multielement where many common gold pathfinder elements (As, Sb, W and Cr) may be analyzed simultaneously. The technique avoids dry or wet asking of the sample and therefore possible asking losses or contamination of the sample. The method is very cost effective and rapid, and finally the sensitivity for gold is still unrivalled by any of the previously mentioned analytical techniques.

As every method has its drawbacks, this technique is no exception.

Some materials may have large quantities of certain elements which can cause an effective increase in the detection limits. An example of this is the bromine content of some pine needles. In general though this has not proved to be a problem for 99.9% of the samples submitted for analysis don't have any interferring elements. In performing humic biogeochemical surveys the amount

Appendix II

Geochemical

Results



## CHEMEX LABS LTD.

212 BROOKSBANK AVE NORTH VANCOUVER, B.C. CANADA V7J 2C1

TELEPHONE (604) 984-0221

043-52597

· ANALYTICAL CHEMISTS

· GEOCHEMISTS

REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TG : X-CALIBRE RESOURCES LIMITED TYAUGHTON LAKE ROAD GENERAL DELIVERY GOLD BRIDGE. B.C.

VOK 1PC

CERT. # : A8312372-CC1-

INVCICE # : 18312392 DATE : 22-JUL-83

TELEX

P.C. # : NCNE

						-Tim	五
Sample	Prep	Cu	Ag	Co	AU-AA	h	50
description	code	ppm	ppm	ppm	ppb	ррп	pcm
P-C01	213	29	0.1	16	680	2.5	3.8
P-003	213	36	0.1	17	20	1	32.0



certified by HautiSichler



## CHEMEX LABS LTD.

212 BROOKSBANK AVE. NORTH VANCOUVER, B.C. V7J 2C1 CANADA

TELEPHONE: (604) 984-0221

TELEX: 043-52597

· ANALYTICAL CHEMISTS

GEOCHEMISTS

· REGISTERED ASSAYERS

CERTIFICATE OF ANALYSIS

TO : X-CALIBRE RESOURCES LIMITED

TYAUGHTON LAKE ROAD GENERAL DELIVERY

GOLD BRIDGE. B.C.

VOK 1PO

: A8314352-001-/ CERT. #

INVOICE # : I8314352

: 12-SEP-83 DATE

P.O. # : NONE

Sample	Prep	Cu	Ag	Cd	H	Sb	Au ppb
description	code	ppm	ppm	ррп	ppm	ppm	. FA+AA
5284	213	49	0.1	0.1	4	1.0	50
5285	213	40	0.1	0.2	4	1.2	10
5286	213	40	0.1	0.1	2	1.2	10
5287	213	39	0.1	0.1	2	0.6	10
5288	213	32	0.1	0.1	2	0.6	15
5289	213	40	0-1	0.1	2	0.8	950
5290	213	29	0.1	0.1	2	0-4	5
5291	213	27	0.1	0.1	2	0.6	5
5292	213	35	0.1	0.1	2	0.7	20
5293	213	31	0.1	0.1	2	0.8	60
5294	213	59	0.1	0.1	2	1.2	10
5295	213	126	0.1	0.2	2	3.0	<20
5296	213	52	0.1	0.1	2	3.0	50

#### **B.C. CERTIFIED ASSAYERS**

912 LAVAL CRESCENT — KAMLOOPS, B.C. V2C 5P5 PHONE: (604) 372-2784 — TELEX: 048-8320

### GEOCHEMICAL LAB REPORT

X-Calibre Resources Ltd. General Delivery Gold Bridge, B.C. VDK 1PD

Ell	MAC	

DATE August 30, 1983
ANALYST G-887

KRAL NO.	DENTIFICATION	ppb Au	ppm Cu	ppm No	ppm Ag	pp In Co	M bbs	ppm As	ppm Sb	ppm Pb	ppm Zn
1	/ 5188	200	10	9	.8	203	L4	G15	1.3	-	-
2	5190	- 10	49	2	.8	21	L4	G15	L.2	-	-
3	5191	10	50	3	.7	8	L4	2	L.2		-
4	5192	5	76	4	.7	12	L4	2	L.2	-	-
5	5193	L5	55	3	.7	7	L4	2	L.2	3	-
6	5194	110		7	4.2	35	L4	G15	L.2	4	-
7 Pil.	f 5195	L5	12	6	1.4	14	L4	7	L.2	-	- 5
8	5196	L5	50	3	.7	10	L4	5	L.2	-	-
9	5197	L5	26	2	1.1	18	L4	2	L.2	-	-
10	5198	L5	58	5	1.5	60	4	G15	1.0	-	-
11	5199	L5	87	3	1.0	18	L4	5	L.2	-	-
12	5200	L5	65	2	.6	11	L4	L2	L.2	-	
13	5201	L5	58	3	.7	15	L4	L2	1.2	-	12
14	5202	120	-	-	4.2	-	-	-	-	224	6400
15	5203	L5	195	-	.9	-	-			18	96
16	5204	L5	56	-	.8	-	-	-		13	10
17	5205	L5	585	~	1.1	-	-	-		:15	7
18	5206	1.5	30	-	.3	-	-	-	-	7	1
19	/ 5207	L5	59	2	.7	6	L4	5	L.2	-	-
20	5208	L5	61	2	.6	15	4	6	L.2		-
21	5209	L5	60	3	.6	13	L4	10	L.2	-	-
22	5210	L5	88	3	.7	11	L4	4	L.2	-	-
23	5211	1.5	62	2	.6	12	L4	4	L.2	-	-
24	5212	5	47	2	.6	8	L4	L2	L.2		-
24 25 Find	5213	L5	96	2	.6	11	L4	2	L.2	14	-
26	5214	L5	105	2	.5	8	L4	4	.2	-	-
27	5215	L5	500	3	.8	10	L4	L2	L.2		-
28	5216	L5	40	2	.6	7	L4	2	L.2		-
29	5217	3	23	2	.8	18	L4	L2	L.2		-
30	5218	5	45	2	.8	25	L4	2	L.2		

### GEOCHEMICAL LAB REPORT

		l eeb	000	P. 5		T nom	ppm	ppm	ppm	_
KRAL NO.	DENTIFICATION	Ppb	ppm Cu	ppm Mo	ppm Ag	Ppm Co	,W	As	Sb	
31	F.1et 5219	L5	92	.2	.6	7	L4	3	L.2	
32	5220	L5		-	.8	-	L4	2	.6	
33	5221	L5	1-1	-	1.4	-	L4	10	12	
34	5222	5		-	1.2	-	L4	2	4.6	
35	5223	5		-	1.0	-	L4	5	3.5	
36	5224	L5	-	- 1	.8	-	L4	L2	L.2	
37	5225	140	-		9.7	-	4	G15	29.0	
38	5226	LS	-	-	.8	-	L4	3	2.7	
39	5227	120	-	-	1.0		4	G15	11.7	
40	5228	L5	-	-	.8	-	14	5	.9	
41	5229	72	-	-	1.2		10	G15	11.8	
42	5230	L5		-	.8	-	L4	9	1.6	
43	5231	69	-	-	1.1	-	8	G15	10.4	
44	5232	5			1.0	-	6	12	6.2	
45	5233	20	12	-	.9	2	8	G15	10.7	
46	5234	L5		-	.7	-	L4	L2	9.8	
47	5235	55	-	-	1,1	-	10	G15	8.8	
48	5236	65		-	1.0	-	4	G15	17.7	
49	5237	65		-	2.7	-	4	G15	10.0	
50	5238	L5		20	1.0	1 2	L4	3	2.2	
51	5239	460		- 2	3.2	-	L4	G15	7.3	
52	5240	-55	-	-	.0		L4	G15	12.2	
53	5241	965			5.3	-	4	G15	13.9	
54	5242	50	-		1.8	-	L4	G15	3.2	
55	5243	65		-	2.6	-	L4	G15	4.6	- 1
56	5244	35		-	1.4	2	L4	G15	6.3	
57	5245	L5	-	20	.9		1.4	7	2.5	
58	5246	35			1.1	-	L4	9	3.0	
59	5247	35	+	-	1.6	-	L4	12	1.2	
60	5248	10	-	-	1.4	_	L4	5	L.2	

### GEOCHEMICAL LAB REPORT

	FLENO G-887	-		۴.	let		PAGE _	3		
KRAL NO	DENTIFICATION	ppb Au	ppm Cu	ppm Mo	ppm Ag	ppm Co	ppm W	ppm As	ppm Sb	
61	5249	25	G4000	4	3.9		L4	4	12	
62	5250	20	_	120	.4		L4	3	L.2	
63	5251	35	-	- 2	.7	-	L4	9	L.2	
64	5252	1495	-	-	.5	-	L4	3	L.2	
65	5253	25	-	-	6.0	-	4	G15	G>0.0	
	L means "Less th	100								
	G means "Greater									
_	Rock Geochem: C	rush ent ulverize	in ring	grinde	to appro	ximately -	-100 mesh	_		_
	Au Method: F	ire Assa tomic Ab	sprotion							
	Cu, Mo, Ag, Co,	Pb, Zn M tamic Ab	ethod: sorption	Hot Aci	Extrocti	on .				
		union olorimet	ric							
	As Method: N	itric Hy olorimet	drochlor ric	ic Dige	stion					
	Sb Method: A	cid Extr .A. Hydr	abtion ide Gene	ration						
						_				
		+	-	-				_		

#### **B.C. CERTIFIED ASSAYERS**

912 LAVAL CRESCENT — KAMLOOPS, B.C. V2C 5P5 PHONE: (604) 372-2784 — TELEX: 048-8320

### GEOCHEMICAL LAB REPORT

X-Calibre Resources Ltd. General Delivery Gold Bridge, B.C. VOK 1PO

FILE NO.

DATE	September	9,	1983	_
ANALYST				

P. let

FILE NO \_\_\_\_\_ G-899

RAL NO.	DENTIFICATION	ppb Au	ppm Cu	ppm Pb	ppm Zn	ppm Mo	ppm Ag	ppm As	pp in Sb	ppm Ca	ppm W
1	5254	65	-	100	353	-	.8	-	-	-	
2	5255	120	-	26	50		1.1	-	-	*	-
3	5256	10	1.7	19	13	-	1.0	-	-	-	-
4	5257	55	78	-		4	.7	L2	.8	16	L4
5	5258	50	35	-	-	4	1.0	L2	L.2	43	L4
6	5259	10	40	~	-	3	.7	L2	L.2	25	L4
7	5260	L5	29	-	-	4	.6	15	L.2	17	L4
8	5261	15	37	-		3	.6	15	G500	13	L4
9	5262	20	36	-		5	.6	14	.5	17	L4
10	5263	L5	62	-	-	4	.6	G15	.3	18	L4
11	5264	L5	63	-	-	6	.7	L2	L.2	13	L4
12	5265	L5	80	-	-	4	.6	L2	.6	9	L4
13	5266	L5	51	-	-	4	.6	L2	L.2	12	L4
14	5267	L5	76	-		5	.6	L2	L.2	9	L4
15	5268	L5	64	12		7	.6	10	L.2	12	L4
16	5269	L5	11	-	-	3	1.2	G15	L.2	76	L4
17	5270	25	30	-		4	.7	G15	L.2	.10	L4
18	5271	65	147	-		7	.7	L2	L.2	14	14
19	5272	5	87	-	+	4	.7	15	.2	11	14
20	5273	55	94	-	-	6	1.1	G15	L.2	14	14
21	5274	35	G4000	-	-	5	2.9	L2	L.2	17	L4
22	5275	L5	65	-	-	6	2.0	L2	.4	11	14
23	5276	L5	37	-		5	.6	L2	.3	10	L4
24	5277	5	27	-		3	1.1	L2	L.2	70	L4
25	5278	80	257	-	-	4	.9	L2	1.8	11	La
26	5279	1.5	45	-	-	5	.9	L2	L.2	40	L4
27	5280	1.5	49	-	-	4	.8	L2	L.2	44	L4
28	5281	5	139	-	-	5	.7	L2	L.2	23	L4
29	5282	5	54	-	-	4	.6	L2	L.2	14	L4
30	5283	1.5	58	- 1	2	6	.6	L2	L.2	18	14



B.C. LICENSED ASSAYERS GEOCHEMICAL ANALYSTS METALLURGISTS

912 - 1 LAVAL CRESCENT — KAMLOOPS, B.C. V2C 5P5 PHONE: (604) 372-2784 — TELEX: 048-8320

CERTIFICA	ATE C	F AS	SAY
-----------	-------	------	-----

	reby certify that the follo	1P0 wing are the result	s of assays made	by us upon	the herein des	scribed	sample	s
Kral No.	Marked	Au	Ag	Со				
		ounces/ton	ounces/ton	percent				
1	5189 (Gem)	.369	1.84	5.42				
			26		12.			

Registered Assayer, Province of British Columbia



B.C. LICENSED ASSAYERS GEOCHEMICAL ANALYSTS METALLURGISTS

912 - 1 LAVAL CRESCENT — KAMLOOPS, B.C. V2C 5P5 PHONE: (604) 372-2784 — TELEX: 048-8320

#### CERTIFICATE OF ASSAY

	neral Delivery	tg.		Certificate No. K-5756
Goldbridge, B.C.  3 Ijereby certify that the following are the results of assay		11.61		
Kral No	Marked	Au		
1 2 3 4 5	043A 043G 043C 043D 043E	ounces/ton .001 .005 .176 .027 .7		

NOTE Rejects retained three weeks Pulps retained three months unless otherwise arranged

Registered Assayer, Province of British Columbia



Rejects retained three weeks Pulps retained three months unless otherwise arranged

TO X-Calibre Resources Ltd.

### KAMLOOPS RESEARCH & ASSAY LABORATORY LTD.

B.C. LICENSED ASSAYERS GEOCHEMICAL ANALYSTS METALLURGISTS

912 - 1 LAVAL CRESCENT — KAMLOOPS, B.C. V2C 5P5 PHONE: (604) 372-2784 — TELEX: 048-8320

#### **CERTIFICATE OF ASSAY**

G	General Delivery				Certificate No. K-5794  Date August 24, 1983
	The state of the s	VOK 1P0 following are the results		Project Crown 6 e by us upon the herein	described samples
Kral No	Marked	Ag ounces/ton	As percent	Sb percent	
1 2 3 4 5	043A 043B 043C 043D 043E	.11 .10 .38 .40 3.56	.01 .04 .27 .30 .72	.01 .01 .02 .02 .06	

Registered Assayer, Province of British Columbia

SAMPLE		CO PPM	Mec it.	CU PPH	ZN PPM	V2 500	oner.
5001					130	1.0	
5003					110	5	
5003			1270	12.0	31.0	68	
5304			142		56.0	2	
5005					64.0	2	
5006					71.0	3	
5007					37.7	7	
5003					54.0	3	1
5010					28.3	67	
5011					56.0	<1	
- :1 '					29.0	3	
5013			-		38.0	2	
			1		50.0	2	
5015					66.0	7	
9215					240	18	
3717					78.0	13	
5011					53.0	5	
F-17					33.3		
รกไว						-3 -3	
		-57-55-4	70.7	(7.7)		55	
5021			7.7	775	7.	10	
2022		-			7.7	1.7	
5023						• •	
5024						-	
5025						+3	
5025						8	
5027			77 1		7.5	s	
£ 727						2	
£027						;	
5030						1	
5031	in.					1	
5032			200		770	1	
5033						1 -	
5034						8	
5035		3		45.0		3 /	
5035		15		37.0		2 /	
5037		14		62.0		10	
5039		31		120		74	
5037		22		72.0		100	
5040		13		36.0		7	
5041		19		.46.0	1	1300	
5042		7		39.0		51	
5043		6		180		3200	
5044		15		37.0		20	
5245		14		39.0		2"	P +
5045		27	22	. 50.0		140	
5047		16		47.0		1?	tru.
5049		34	,	73.0		63 1	G
5747	7/. 24%	24	^	41.0		3	A
5050		21		48.0		2	
5251		13	17.57	48.0		22	
5052		13		140		2?	
5053		16		53.0		,	

SIL

NUCLEAR ACTIVATION SERVICES 10-AUG-50 REPORT 1797 REF. FILE 2007- 0105

SA"PLE	AC PPM	33 .2PM	W PPM	AU PPE	D_ 304
5001	, 0.5	5.9	3	52	20
5003	<0.5	2.5	ĩ	<1	
5003	<0.5	3.3	3	<1	10
		2.2			
5004	0.5		1	<1	1.2
5005	0.5	7.5	<1	<1	1.4
5904	- 0.5	0.3	1	<1	16
5007	<0.5	0.2	1	<1	15
5003	<0.5	2.5	1	<1	Э
5010	- <0.5	5.4	3	<1	4
5011	0.5	< 2 . 2	2	<1	12.
5013	<0.5	1 - 4	<1	<1	1.5
5013	<0.5	7.8	3	<1	3
5014	<0.5	< n . ?	1	K1	3
5015	0.5	0.4	1	3	1 2
5014	ō•₹	1 - 4	3	<b>K1</b>	1.5
5717	<0.5	9.9	3	2	17
5013	<0.5	7.7	<1	3	3
5017		1.2	<1	<1	
5023	•	1.3	2	<1	
5021		4.4	<1	<1	
5027		3.9	1	<1	
5027		1.0	2	<1	
5026		2.4	3	<1	
5025		2.1	<1	<1	
5024		2.5	3	<1	
5027		2.4	1	<1	
5722		2.4	4	<1	
F 2 2 2		2.2	1	<1	
5732		2.2	ī	7	
5031		2.3	2	<1	
£032		< 2.2	3	2	
5032		1.4	<1	. 2	
5034		5.5	3	<1	
5135	<0.5	5.3	2	1	
5035	<0.5	2.3	<1	7	
			1		
3037	<0.5	2.2	2 2	12	75070
5033	0.5	3.3		12	
		13.2	<1	12	
5040	1.0	2.7	<1	3.00	
5741	4.0	25.0	<1	390	
5042	3.5	1.3	5 9 2 <1 3 1	11	
5043 1	54.0	220	9	6400	
5944	1.0	2 • 1	2	23	\
5045	0.5	7.7	<1	1.5	P. 1
5046	1.5	1.0	3	21	I C.
5047	<0.5	1.0	1	6	/ 6.55
5749	0.5	? . 1		13	
5042	0.5	7.4	<1	5 7	
5050	<0.5	0.3	1		
5031	<0.5	2.1	1	43	
575?	<0.5	1.7	<1	17	1
5053	<0.5	1.1	<1	. 20	

-

Appendix III

Histograms

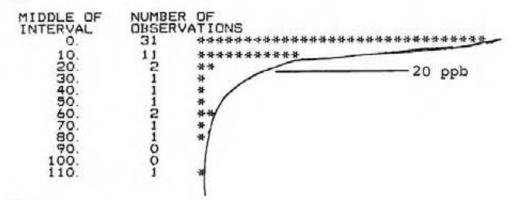
Au, Ag, As, Sb, W, Cu, Co

#### Rock Geochemistry

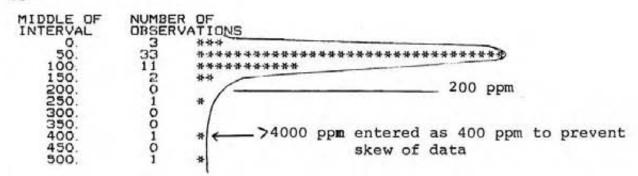
```
DESCRIBE C1-CB
AU N
CU N
                                                                         ST. DEV.
                                                                                                22. 8
85. 0
                                                         12.346
78.173
                                      MEAN =
                                      MEAN =
                                                       0.88462
                                                                         ST. DEV.
                                                                                               0.617
    AG
                    N
                            52
                                      MEAN =
    CO
                   N
                           52
                                      MEAN =
                                                        18.596
                                                                         ST. DEV.
                                                                                                 15.2
                                                                         ST. DEV.
ST. DEV.
ST. DEV.
                                                       2. 0769
5. 7500
0. 29231
                           52
                                      MEAN =
                                                                                     =
                                                                                               0.388
                           52
52
                                                                                               6.89
    AS
                                      MEAN =
                                                                                      =
                    N
                                      MEAN =
    SB
```

HISTOGRAM C1-C8

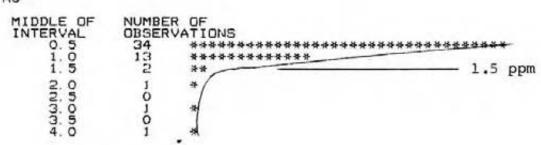
AU

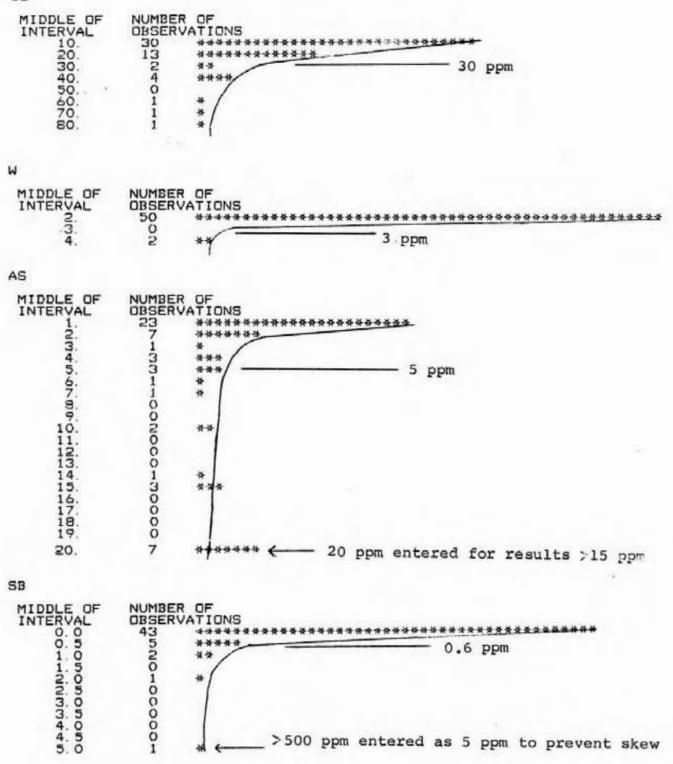


CU



AG

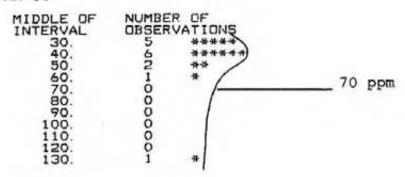




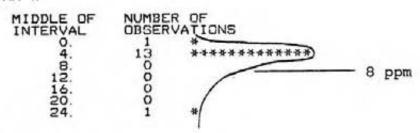
HM-CU HM-W HM-SB HM-AU	2222	15 15 15	MEAN = MEAN = MEAN =	3. 7333 3. 3933	ST. DEV. ST. DEV. ST. DEV. ST. DEV.	= = =	24. 4 5. 93 7. 98 32. 9

#### HISTOGRAM C1-C4

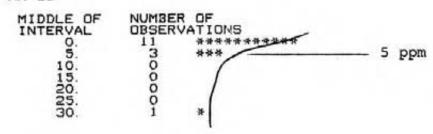
#### HM-CU



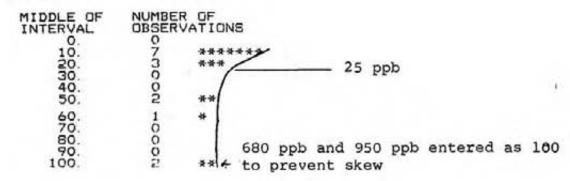
#### HM-W



#### HM-SB



#### HM-AU



Appendix IV

Itemized

Cost

Statement

### Itemized Cost Statement

### Pilot Report

Geologist 6 days field	
6 days office @ \$200/day	\$ 2,400
Labour 5 men x 5 days @ \$120/day	3,000
Project Manager 12 days @ \$150/day	1,800
Food \$10 per man day x 37 man days	370
Accomodation 2 men x 6 days @ \$40/day	480
Helicopter 2.5 hrs @ \$500/hr	1,250
Truck rental 8 days @ \$40/day	320
Analysis 106 rock samples @ \$22/sample 15 heavy mineral @ \$50/sample	2,332 750
Supplies	180
Drafting and Reproduction	3,600
Office overhead, Secretarial, Misc.	450
	16,932

Appendix V

Certificate

of

Qualification

#### Appendix V

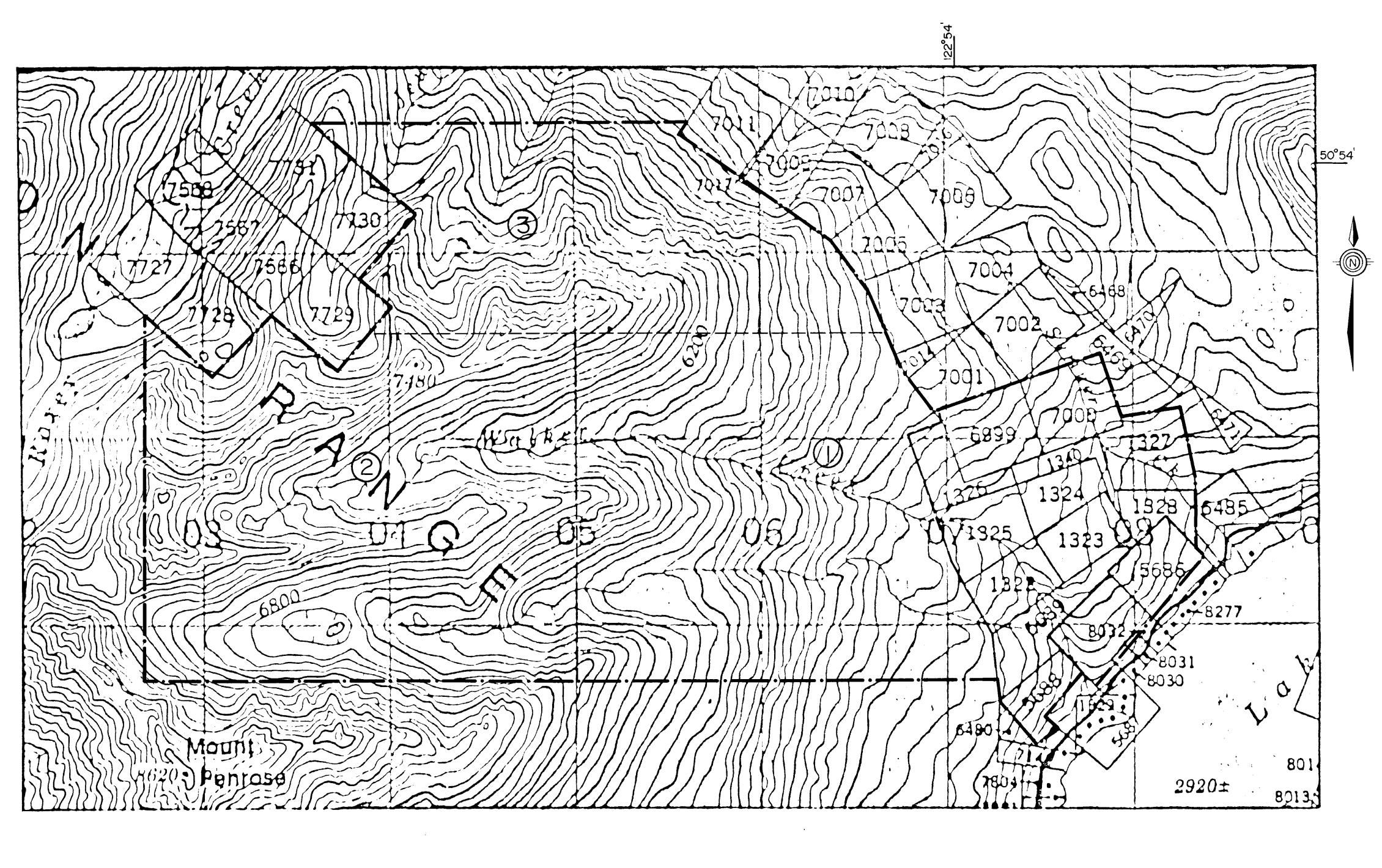
#### Certificate of Qualification

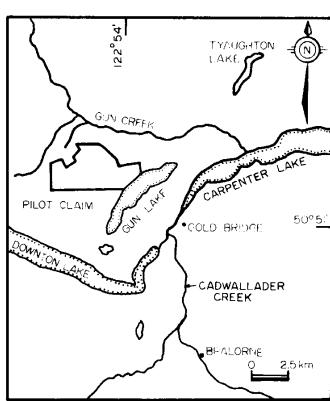
- I, Richard J. Mazur, hereby certify that;
- I am a registered professional geologist residing at 586
   Portsmouth Avenue, Kingston, Ontario.
- 2. I am a graduate of the University of Toronto, having been granted an Honours Bachelor of Science Degree in Geology in 1975.
- I have primarily been employed in the mineral exploration industry since 1975.
- 4. I have been a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta continuously since 1980 to the present as a Professional Geologist.
- 5. I have no interest in the Pilot Claim Group or X-Calibre
  Resources Ltd., nor have I been promised any interest. The only
  remuneration I expect for work leading to this report is the amount
  of my professional fee for performing such work.
- I agree to keep all information documented in this report confidential.
- 7. I hereby grant X-Calibre Resources Ltd. permission to use this report for its corporate purposes.

Dated this /5H day of November, 1983 at Kingston, Ontario.

Richard J. Mazur

P. Geol.





PILOT REVERTED CROWN GRANTS

- 1 PILOT EXTENSION
- 2 PILOT EXTENSION 2
- 3 PILOT EXTENSION 3

GEOLOGICAL BRANCH ASSESSMENT REPORT

11,877

MAP I

X-CALIBRE RESOURCES LTD.

PILOT MINERAL CLAIM

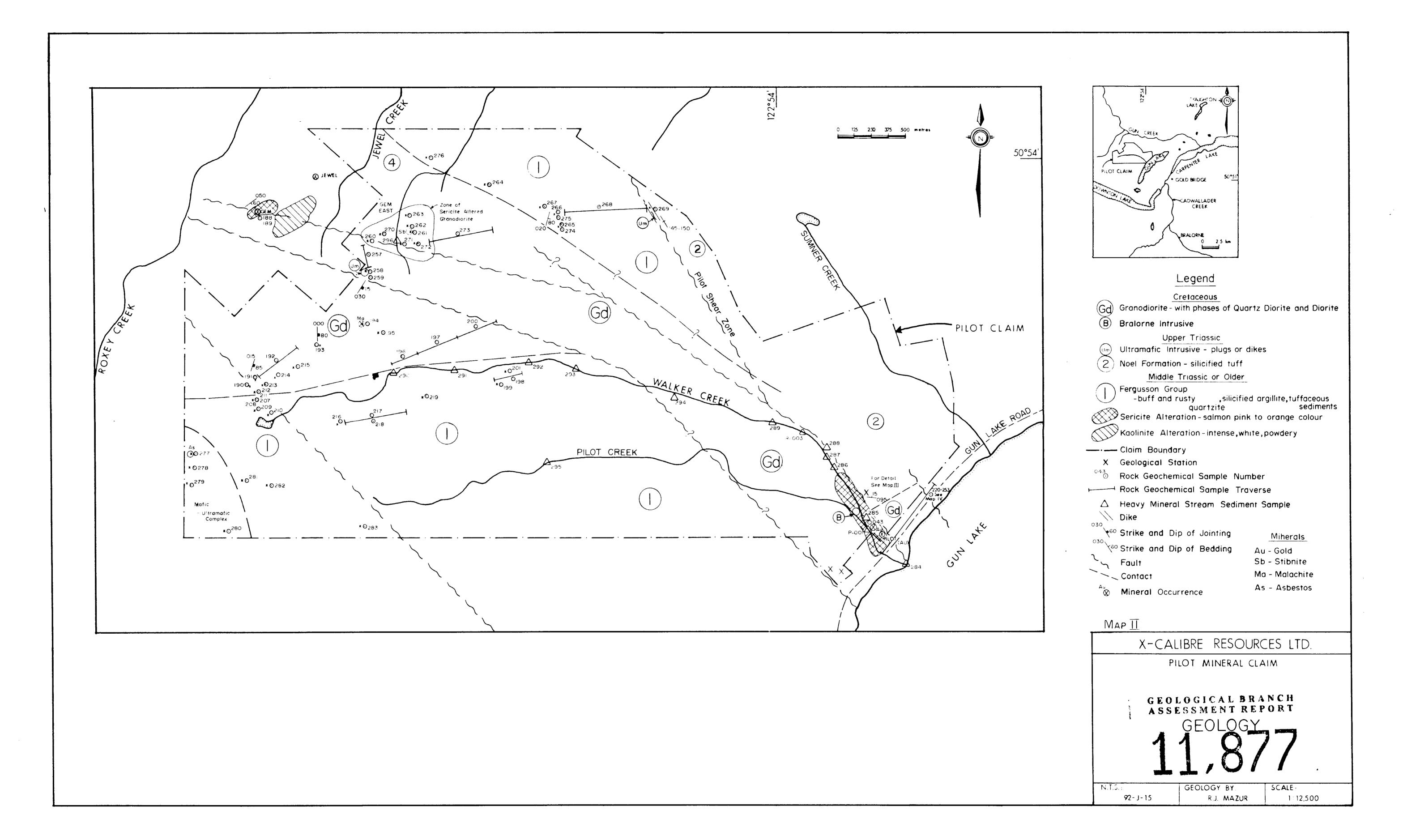
TOPOGRAPHY

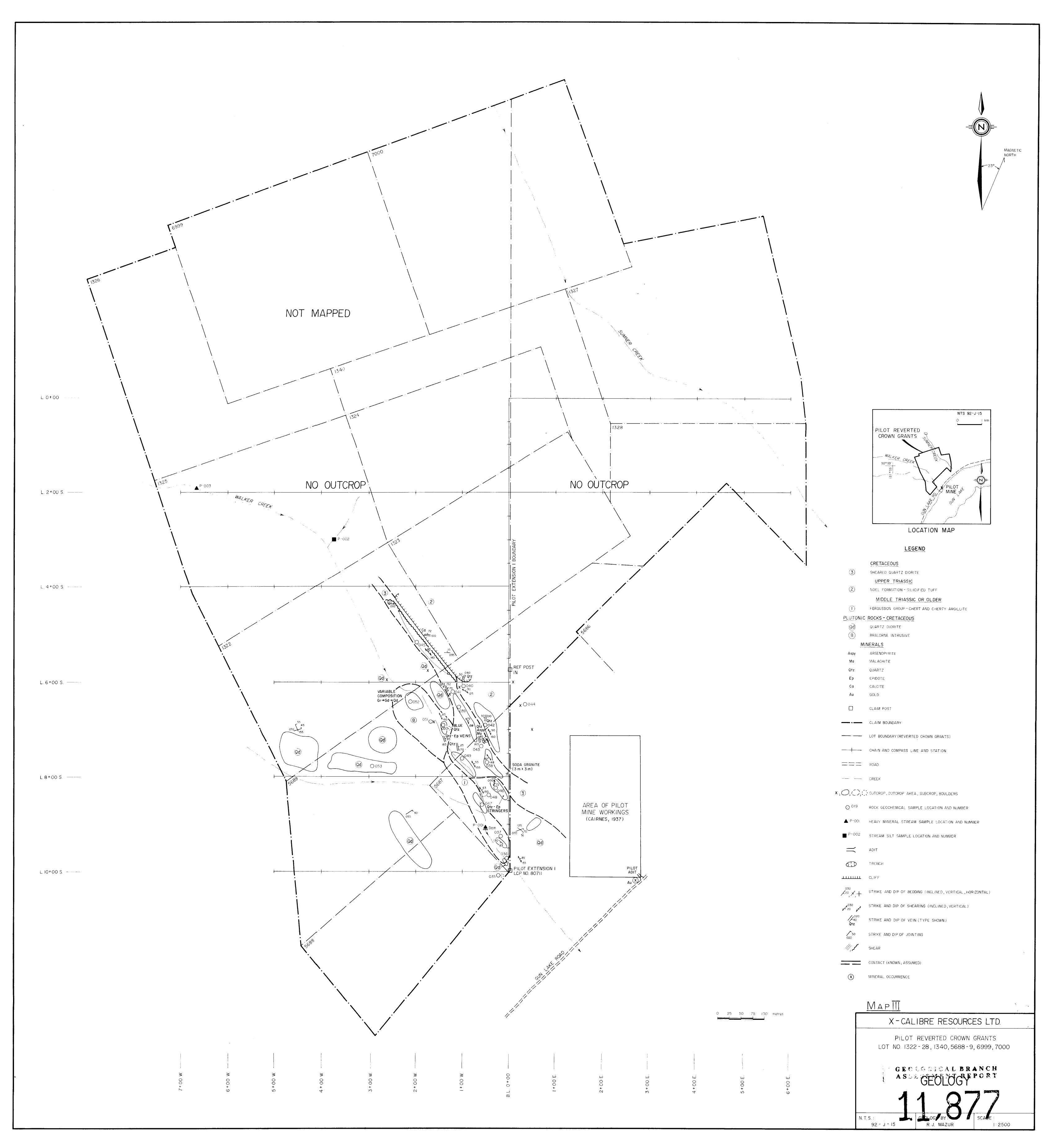
8

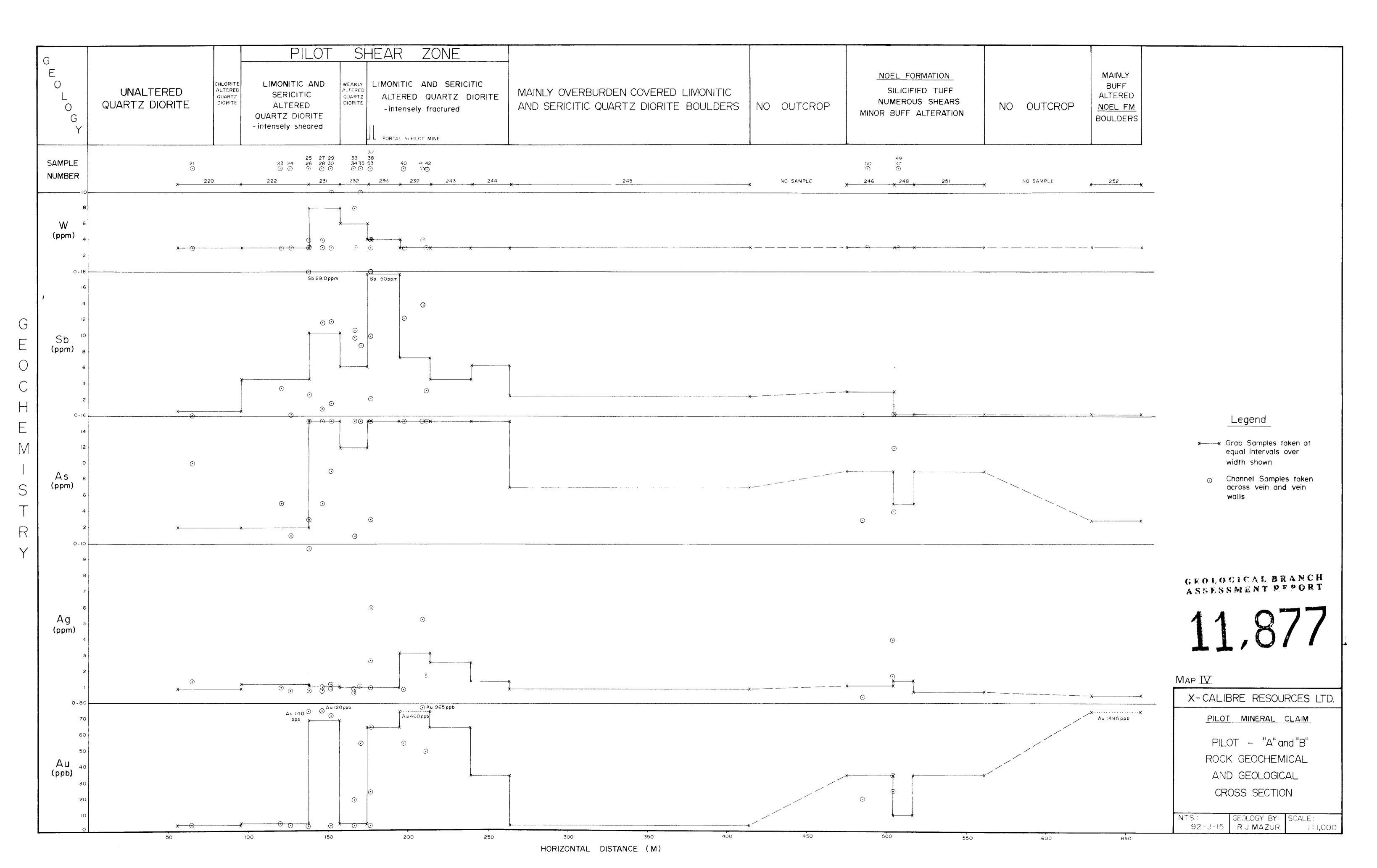
CLAIM LOCATION

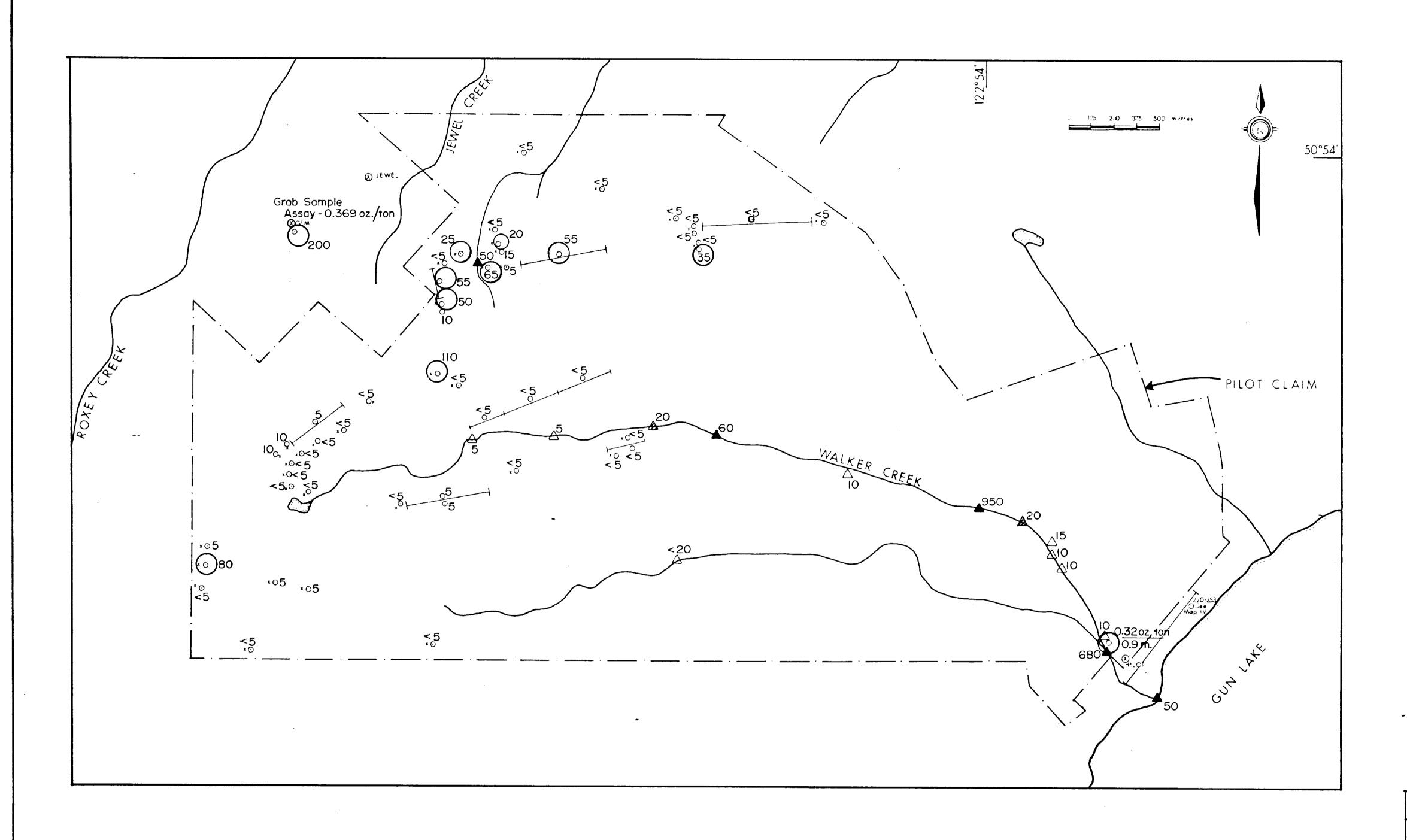
N.T.S.: 92-J-15

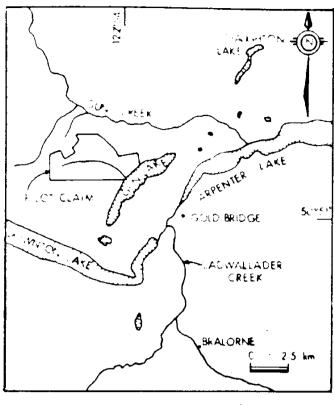
GEOLOGY BY: R.J. MAZUR SCALE: 1:12,500











- O ROCK GEOCHEMICAL SAMPLE (PPB)
- (o) 1st. ORDER ANOMALY Au >20 ppb
- 2 nd. ORDER ANOMALY Au >15ppb
- △ HEAVY MINERAL STREAM SEDIMENT SAMPLE
- ▲ 1st. ORDER ANOMALY Au >25ppb
- 2 nd. ORDER ANOMALY Au >15ppb

GEOLOGICAL BRANCH ASSESSMENT REPORT

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Map VI

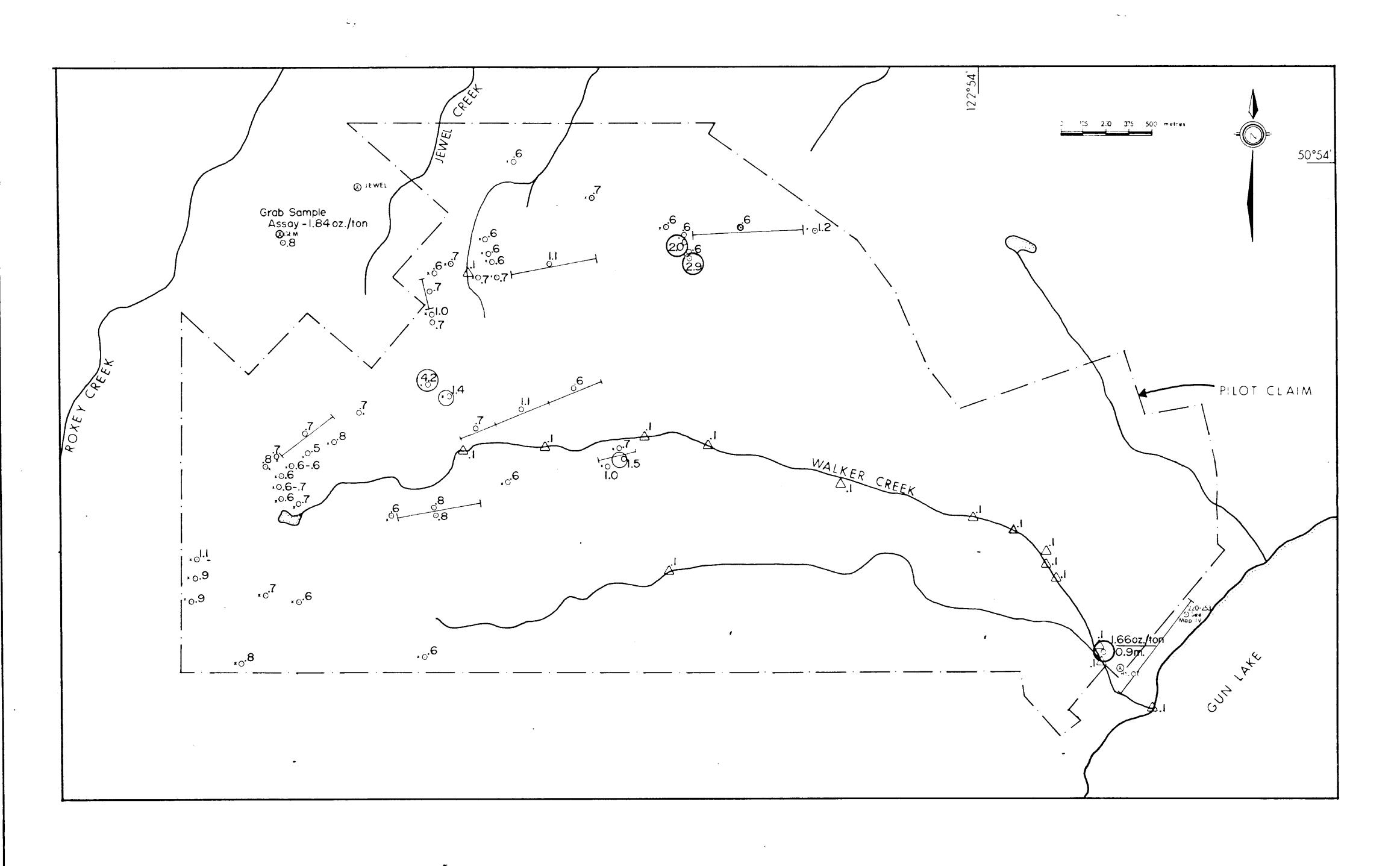
# X-CALIBRE RESOURCES LTD.

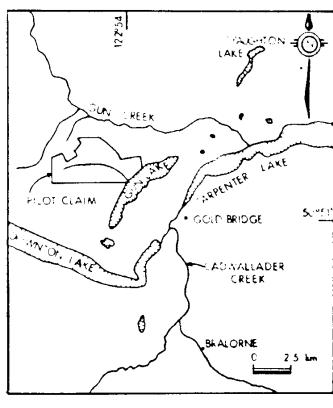
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

GOLD (ppb)

N.T.S.: GEOLOGY BY: SCALE:
92-J-15 R.J. MAZUR 1:12,500





- o ROCK GEOCHEMICAL SAMPLE (PPM)
- (o) 1st. ORDER ANOMALY Ag >1.5 ppm
- ② 2nd. ORDER ANOMALY Ag>1.3ppm
- △ HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM)

GEOLOGICAL BRANCH TASSESSMENT REPORT

11,877

Map VII

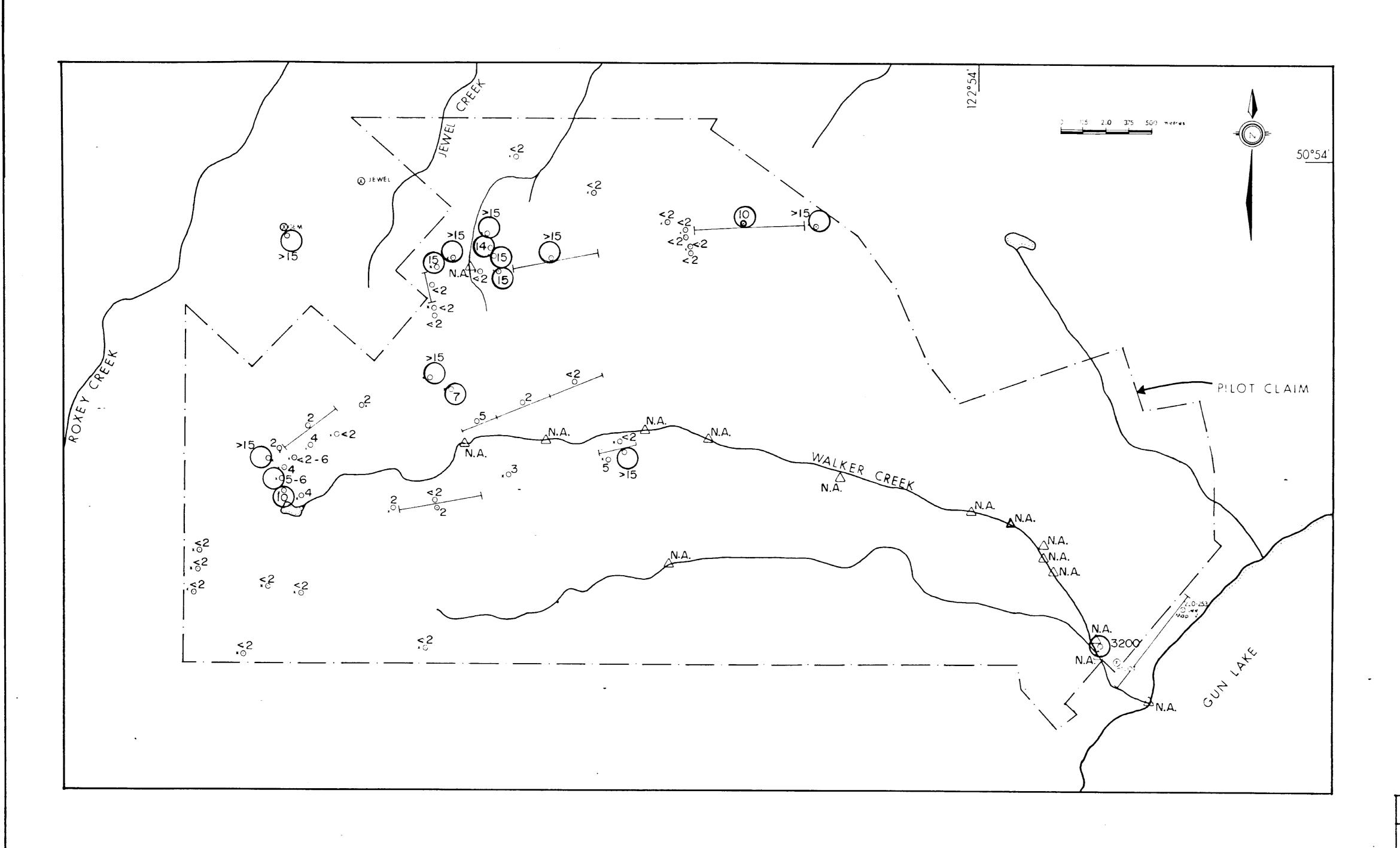
# X-CALIBRE RESOURCES LTD.

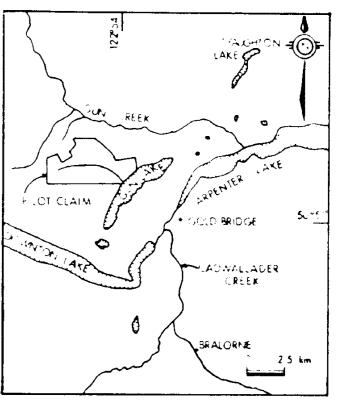
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

SILVER (ppm)

14.7.3.1 GEOLOGY BY SCALE-92-J-15 RUMAZUR 1 12,500





- ROCK GEOCHEMICAL SAMPLE (PPM)
- (9) Ist. ORDER ANOMALY As >5 ppm
- △ HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM: N.A. NOT ANALYZED

G AUGIEAL BRANCH :

11,877

Map VIII

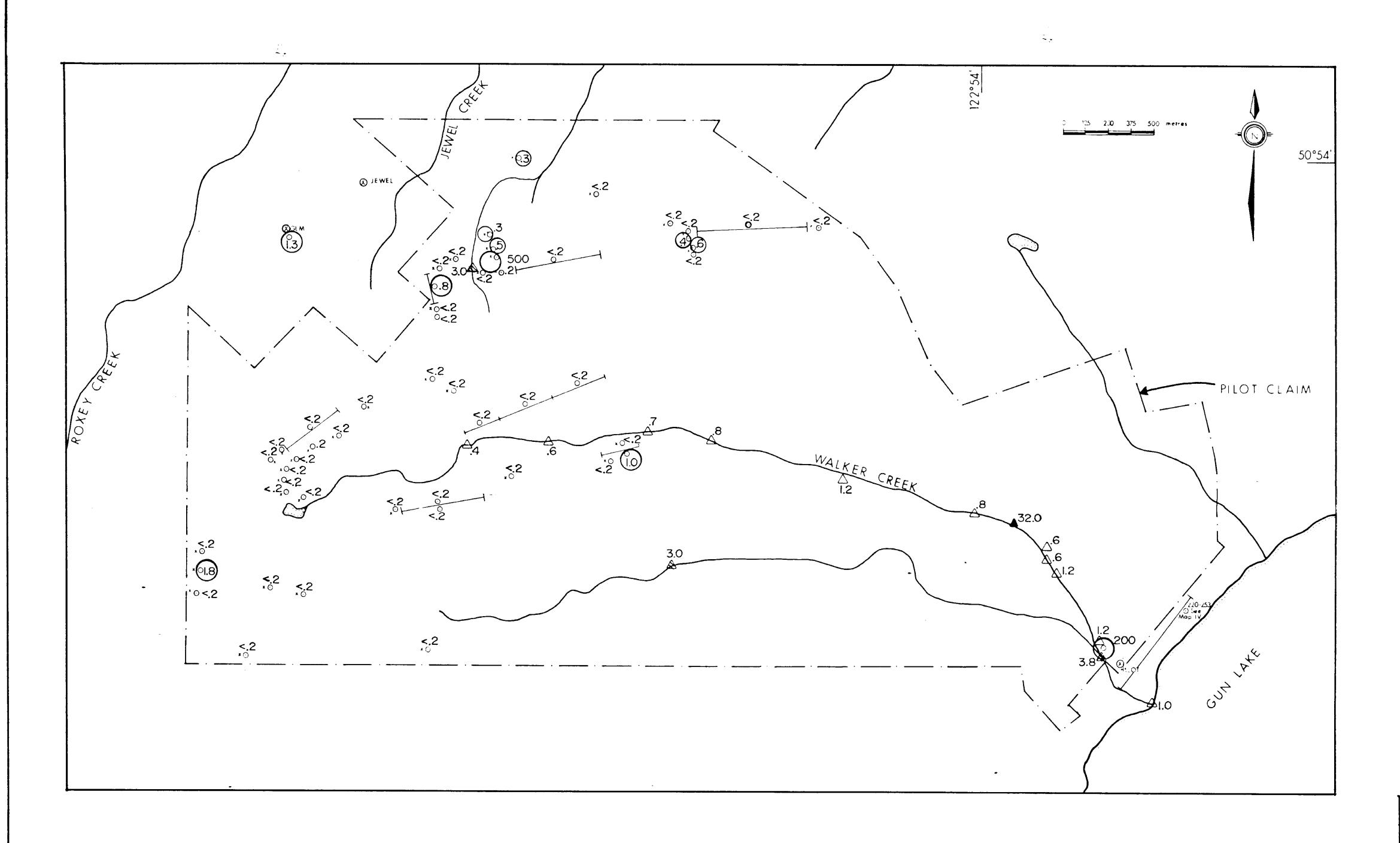
X-CALIBRE RESOURCES LTD.

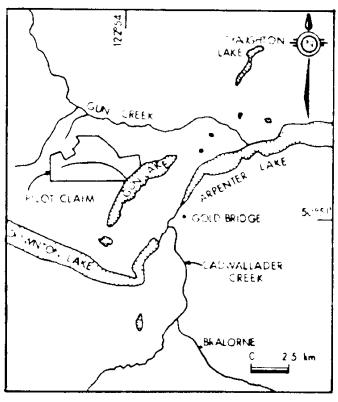
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

ARSENIC (ppm)

N.T.S.: GEOLOGY BY. SCALE: 92-J-15 R.J. MAZUR 1 !2,500





- O ROCK GEOCHEMICAL SAMPLE (PPM)
- (o) 1st. ORDER ANOMALY Sb > 0.6 ppm
- ② 2 nd. ORDER ANOMALY Sb >0.25 ppm
- Δ HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM)
- ▲ 1st. ORDER ANOMALY Sb >5ppm
- $\triangle$  2 nd. ORDER ANOMALY Sb > 2.5 ppm

GEOLOGICAL BRANCH ASSESSMENT REPORT

11,877

Мар <u>IX</u>

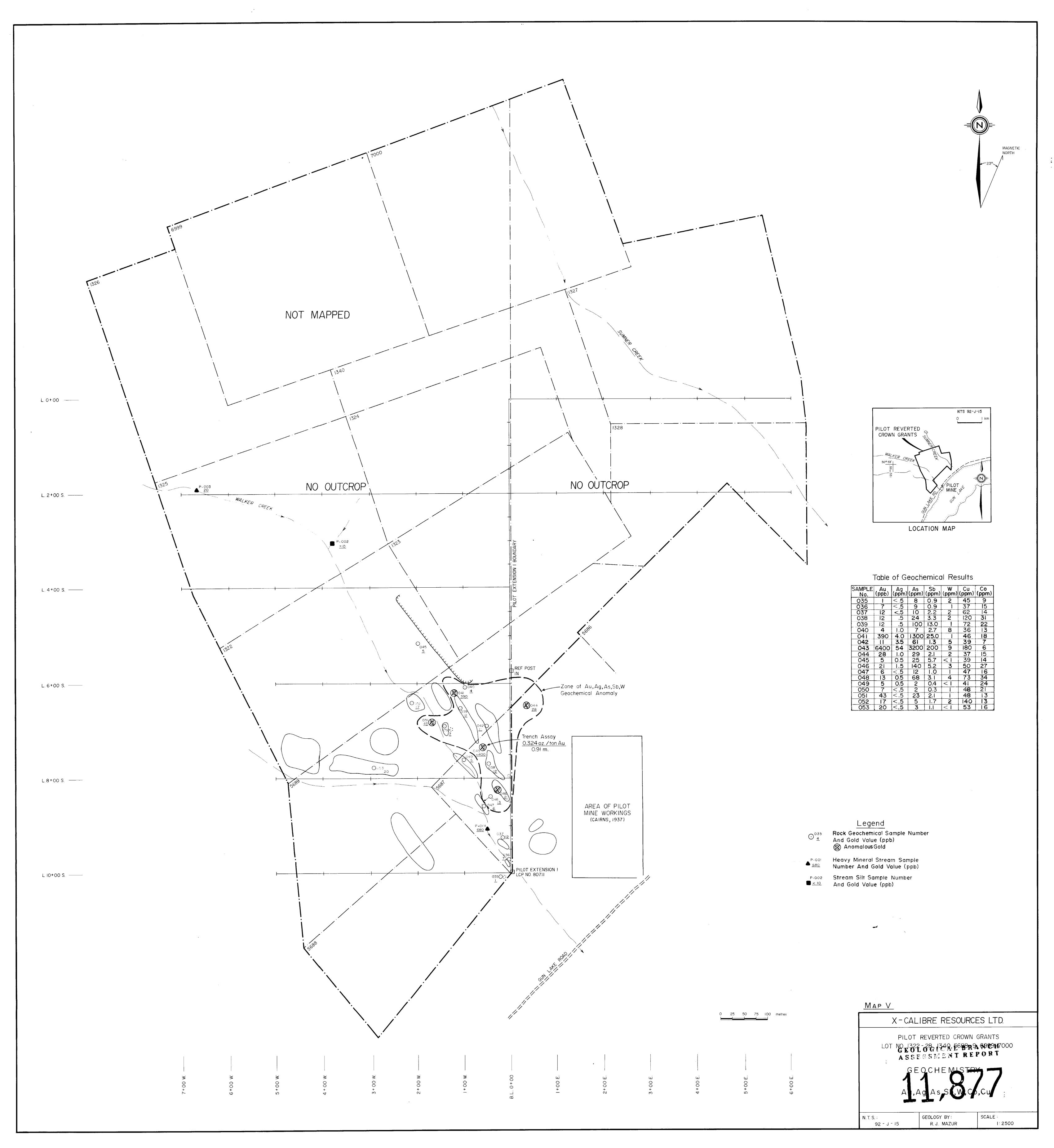
# X-CALIBRE RESOURCES LTD.

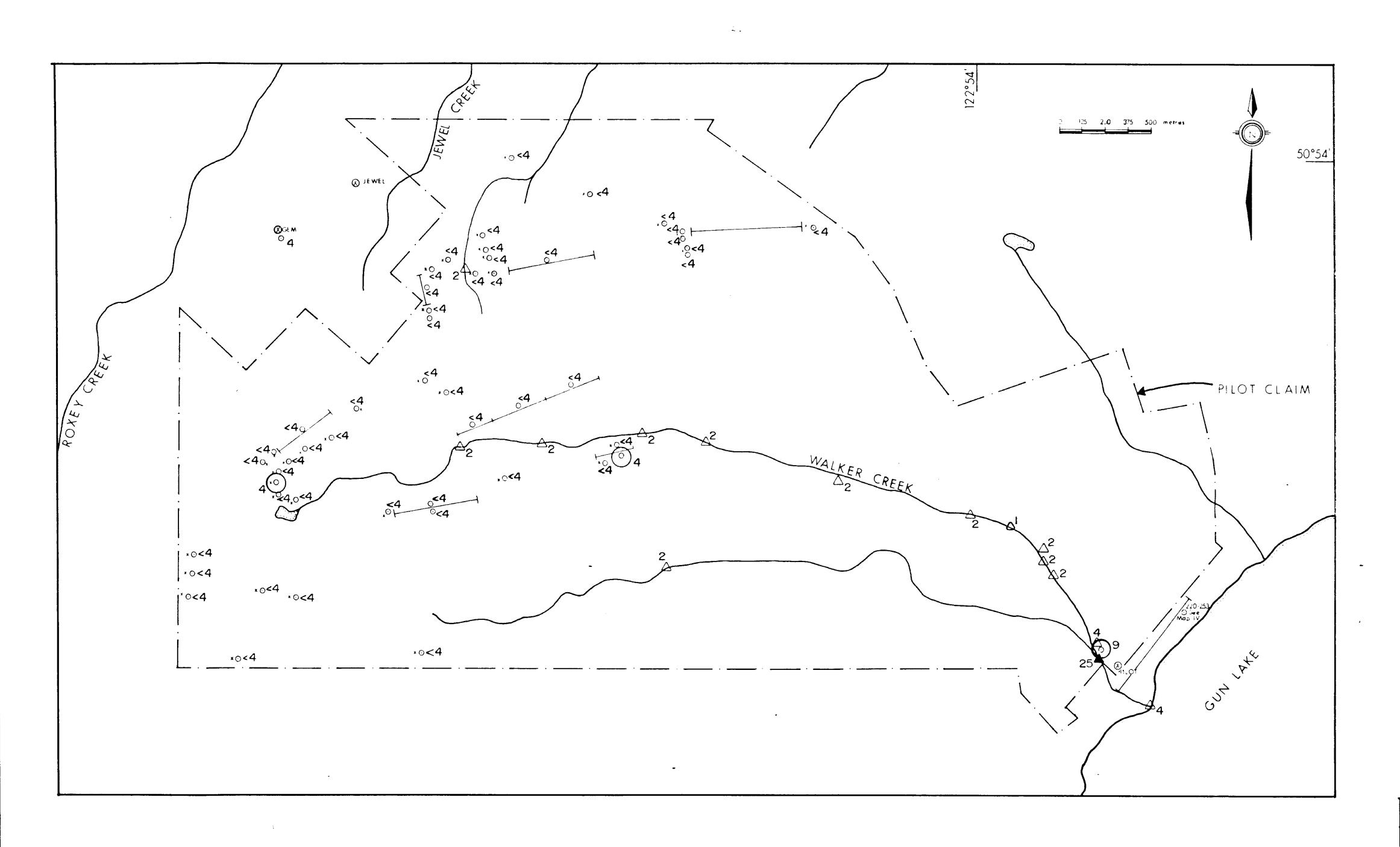
PILOT MINERAL CLAIM

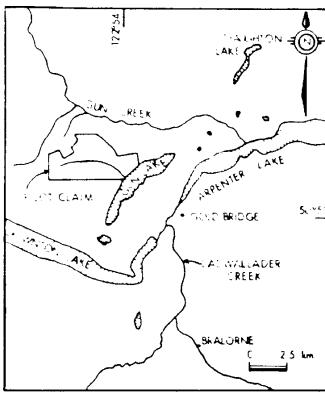
ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

ANTIMONY (ppm)

GEOLOGY BY SCALE:
92-3-15 R.J. MAZUR 1 12,500







## <u>LEGEND</u>

- O ROCK GEOCHEMICAL SAMPLE (PPM)
- (i) Ist. ORDER ANOMALY W>3ppm
- A HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM)
- ▲ Ist. ORDER ANOMALY W>8ppm

GEOLOGICAL BRANCH ASSESSMENT VEPORT

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Map X

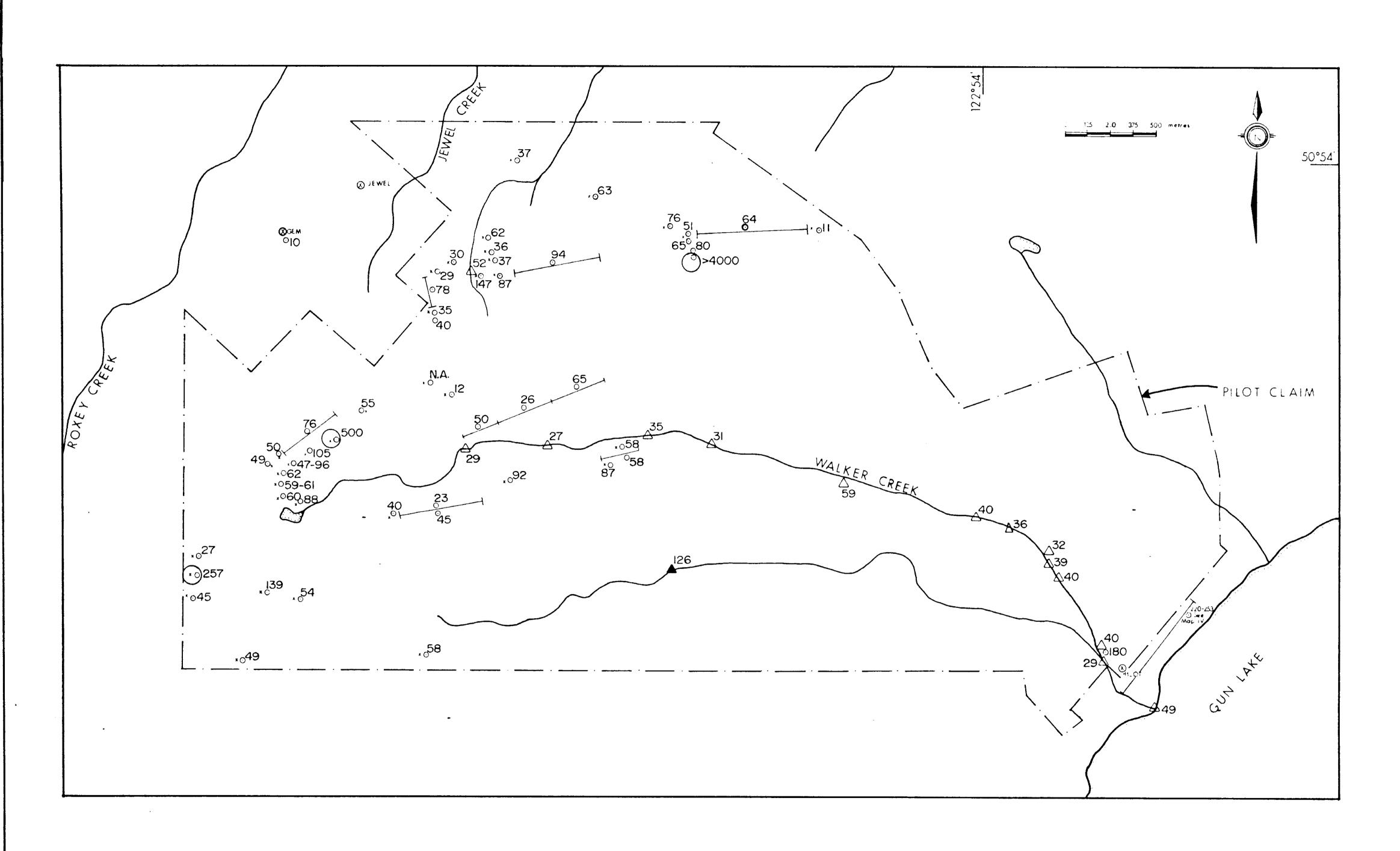
# X-CALIBRE RESOURCES LTD.

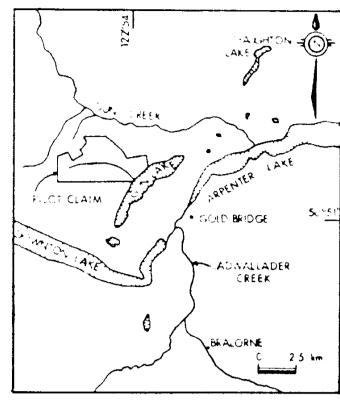
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

TUNGSTEN (ppm)

74.7.5 | GEOLOGY BY | SCALE - 92- J-15 | R.J. MAZUR | 1:12,500





- O ROCK GEOCHEMICAL SAMPLE (PPM)
- (o) 1st. ORDER ANOMALY Cu > 200 ppm
- $\Delta$  HEAVY MINERAL STREAM SEDIMENT SAMPLE
- ▲ 1 st. ORDER ANOMALY Cu > 70 ppm N.A. - NOT ANALYZED

GEOLOGICAL ANCH ASSESSMENT REPORT

Map XII

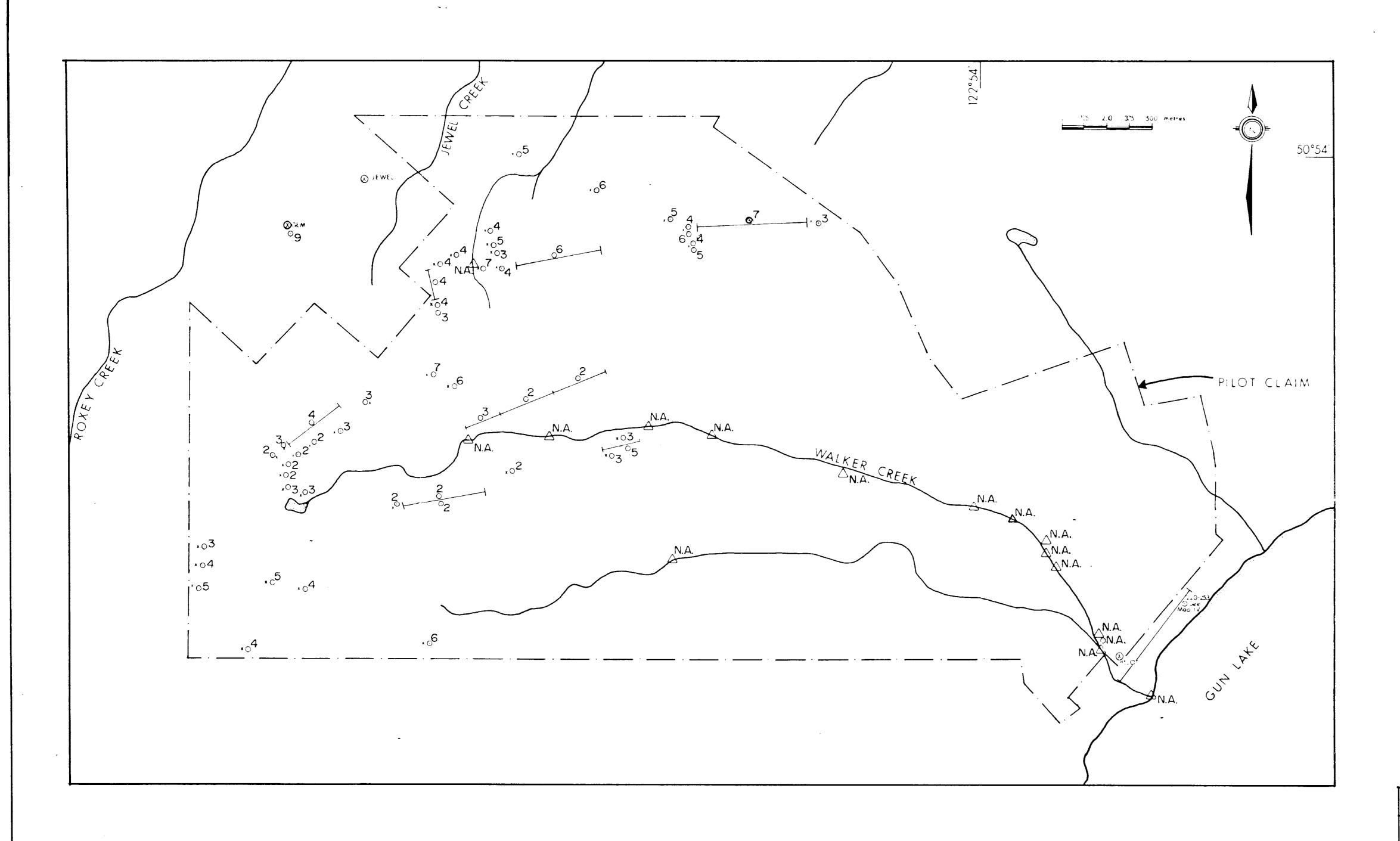
X-CALIBRE RESOURCES LTD.

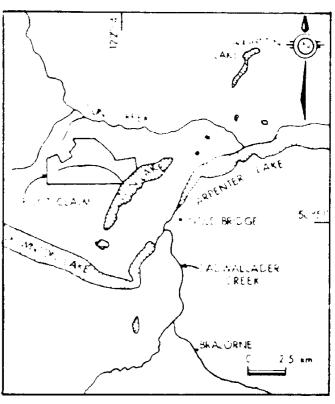
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL STREAM SEDIMENT GEOCHEMISTRY

COPPER (ppm)

N.T.S.: GEOLOGY BY: SCALE: 92-1-15 RU. MAZUR 1112,500





> GY TO DGICAL BRANCH ASSESSMENT REPORT

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Map XIII

X-CALIBRE RESOURCES LTD.

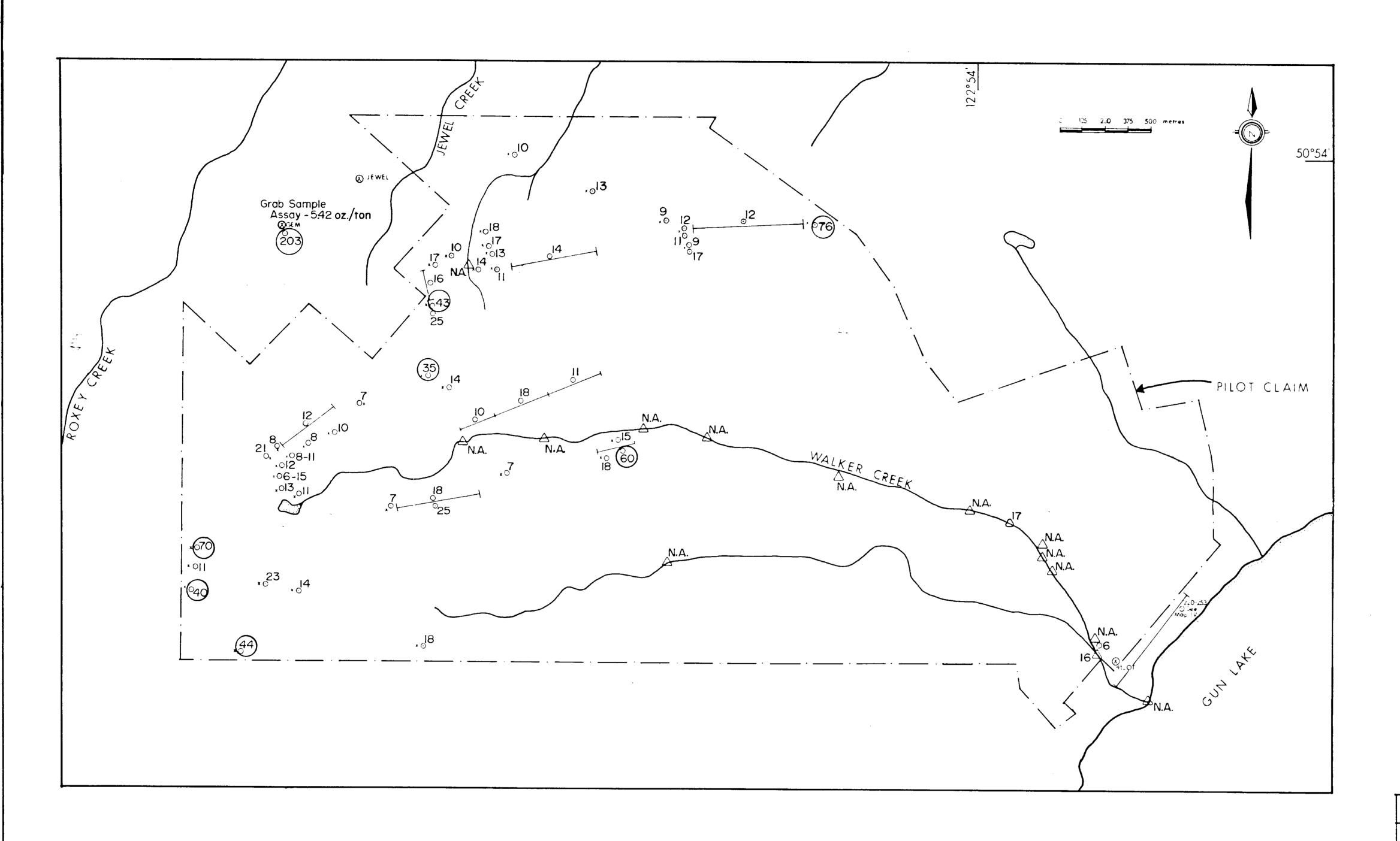
PILOT MINERAL CLAIM

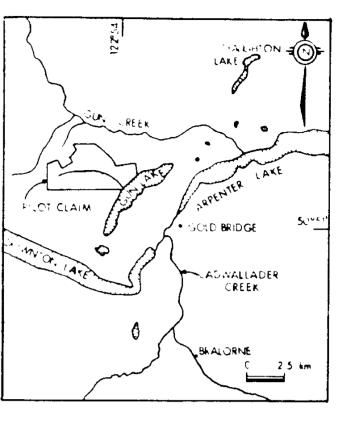
ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

MOLYBDENUM (ppm)

 N.T.S.:
 GEOLOGY BY
 SCALE: 

 92-J-15
 R.J. MAZUR
 1:12,500





- O ROCK GEOCHEMICAL SAMPLE (PPM)
- ( o) 1st. ORDER ANOMALY Co>30 ppm
- △ HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM)
  N.A.-NOT ANALYZED

GEOFIGICAL BRANCH ACTE DE LEMINT REPORT

11,877

 $MAP\overline{X}$ 

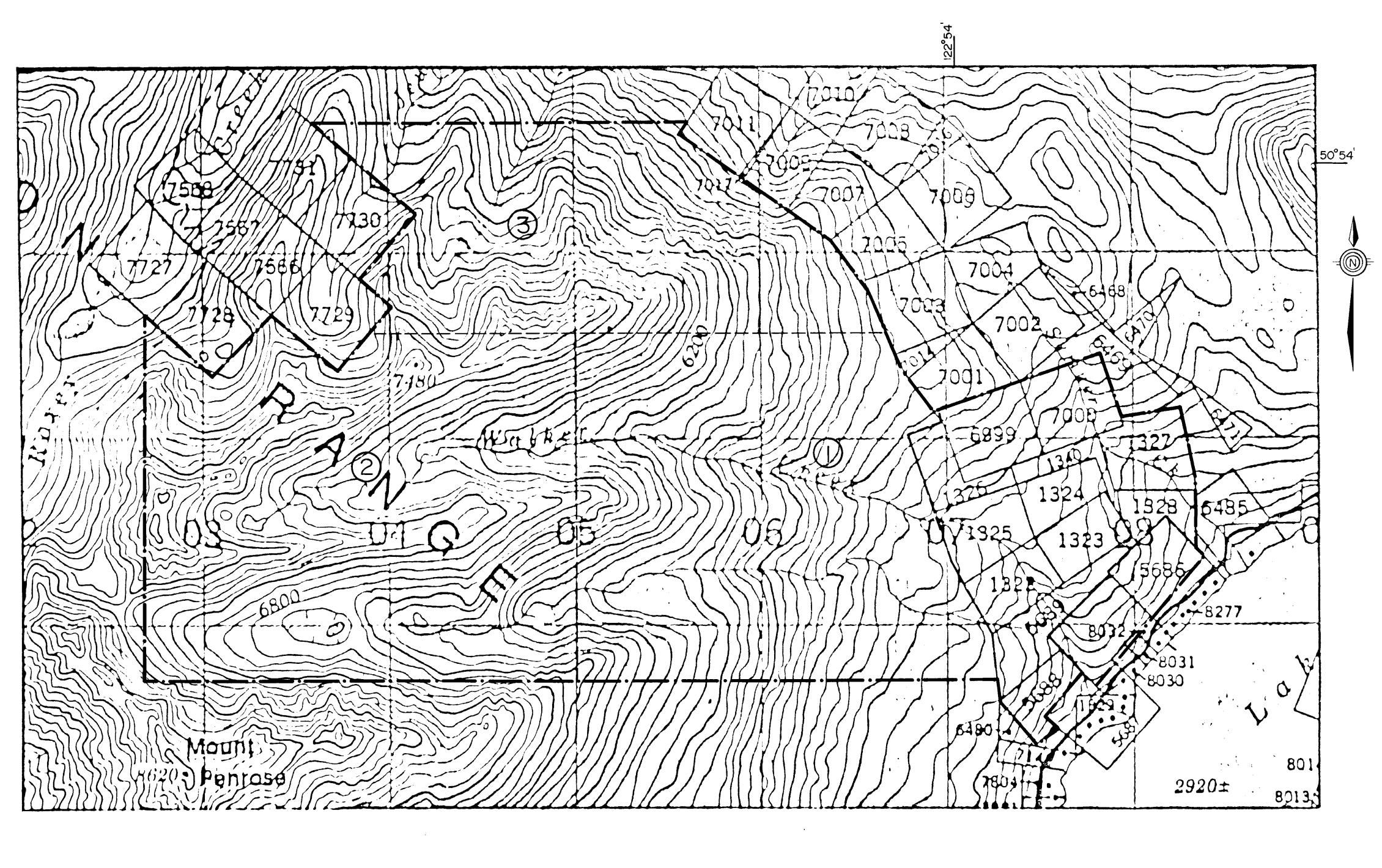
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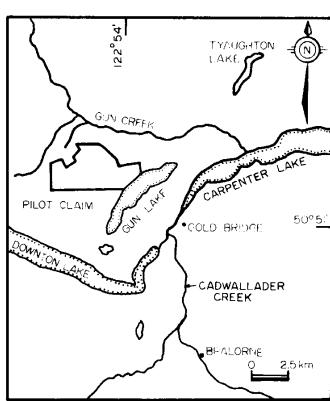
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

COBALT (ppm)

#UT.S.: GEOLOGY BY. SCALE:
92-J-15 R.J. MAZUR 1:12,500





PILOT REVERTED CROWN GRANTS

- 1 PILOT EXTENSION
- 2 PILOT EXTENSION 2
- 3 PILOT EXTENSION 3

GEOLOGICAL BRANCH ASSESSMENT REPORT

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MAP I

X-CALIBRE RESOURCES LTD.

PILOT MINERAL CLAIM

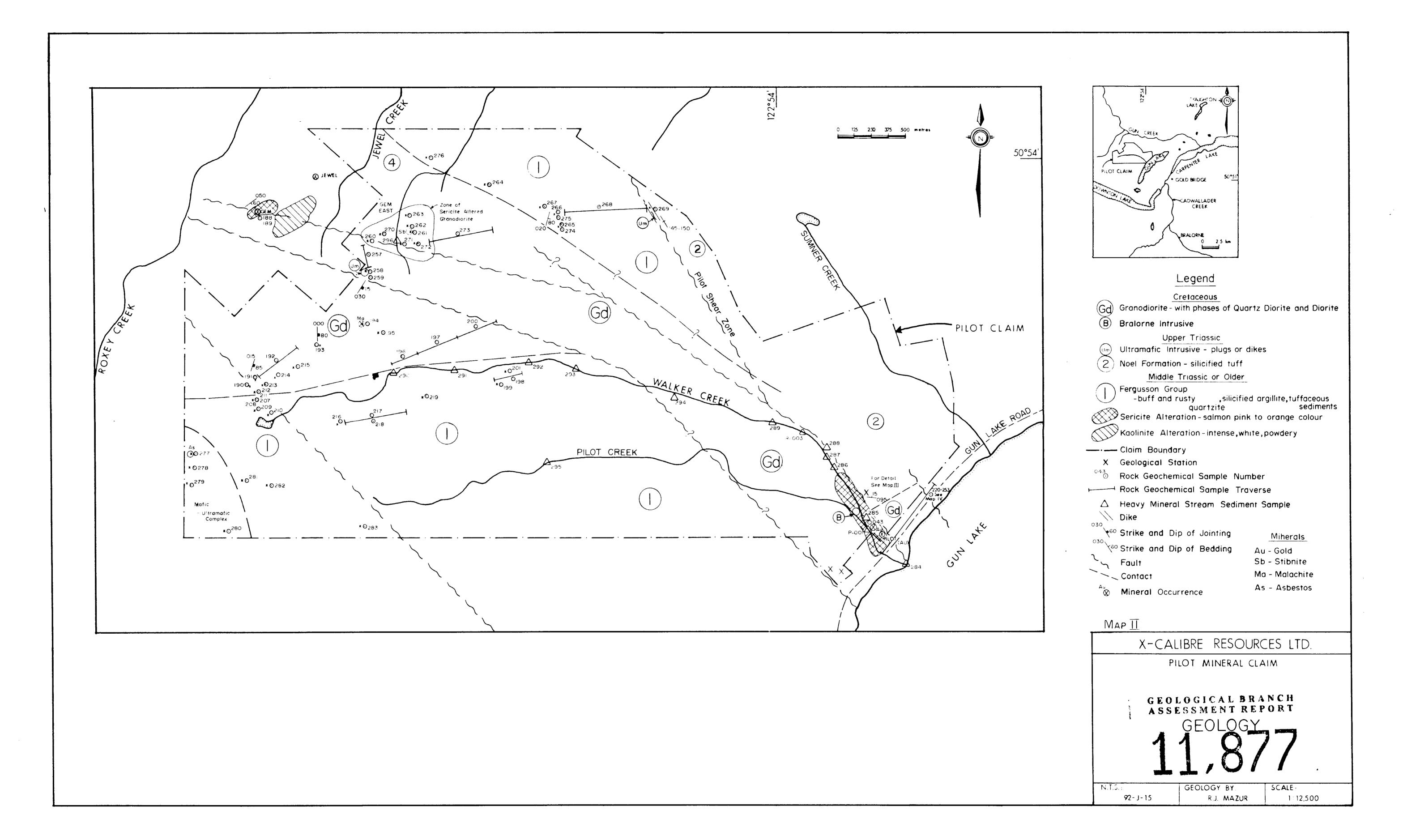
TOPOGRAPHY

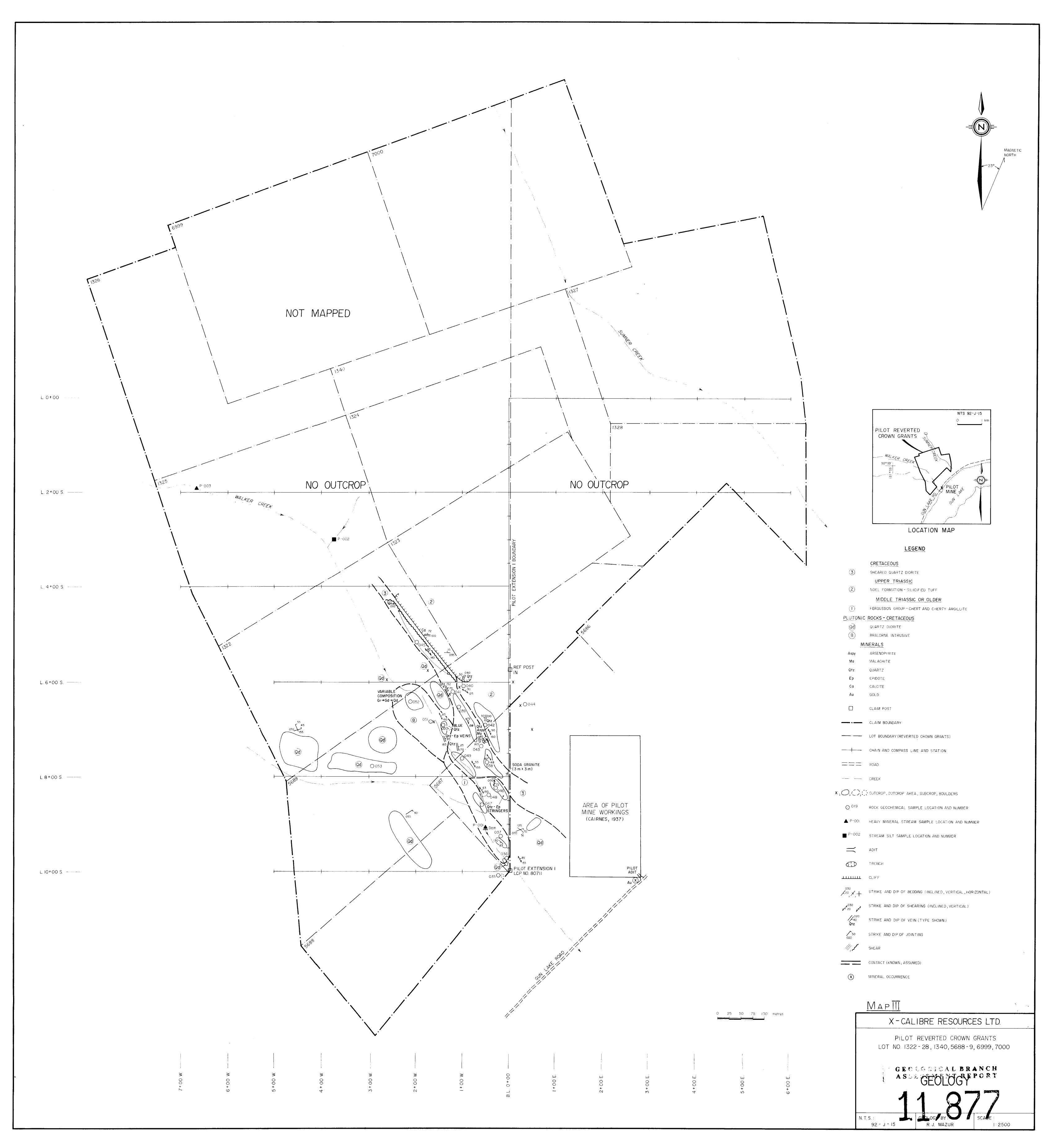
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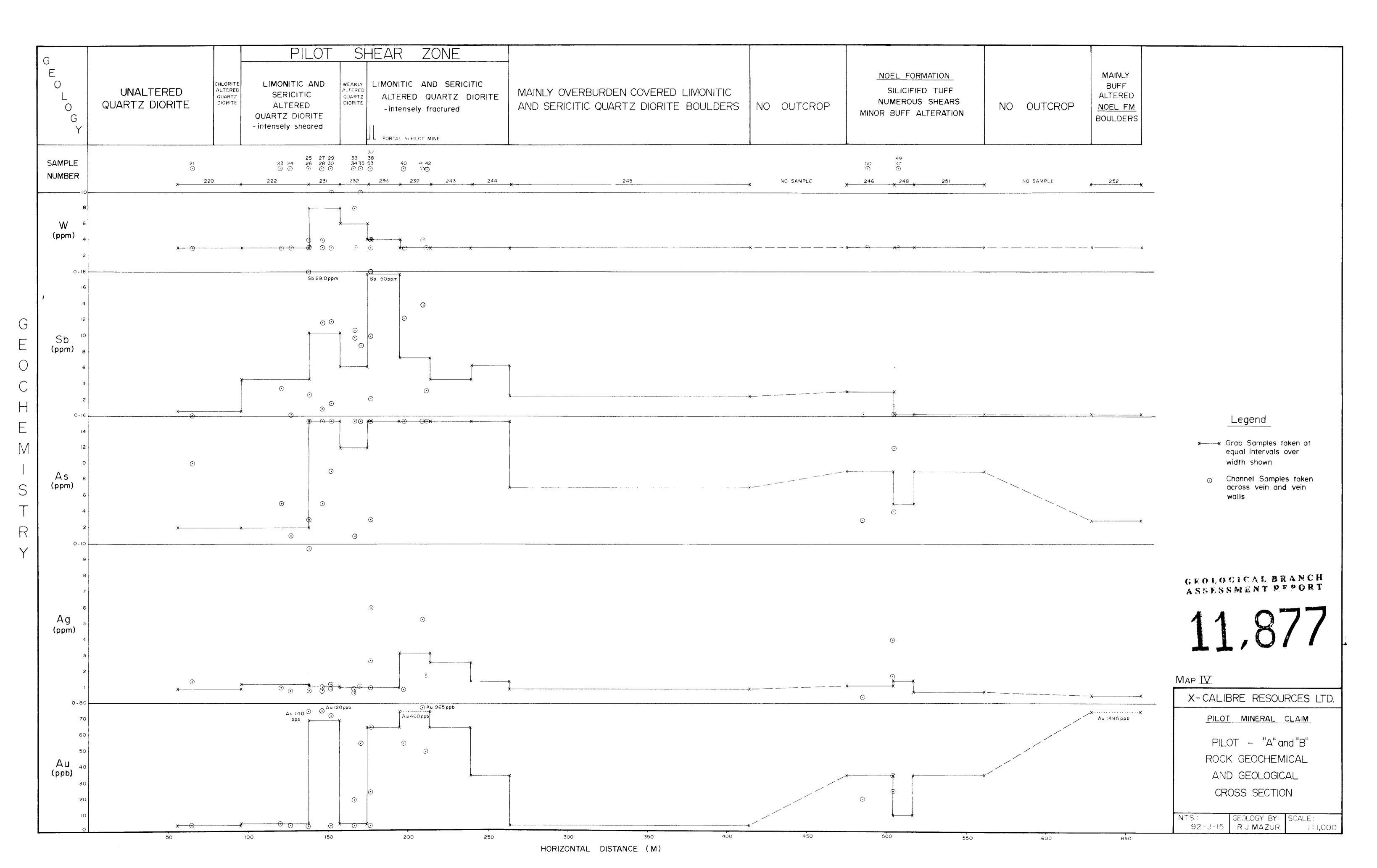
CLAIM LOCATION

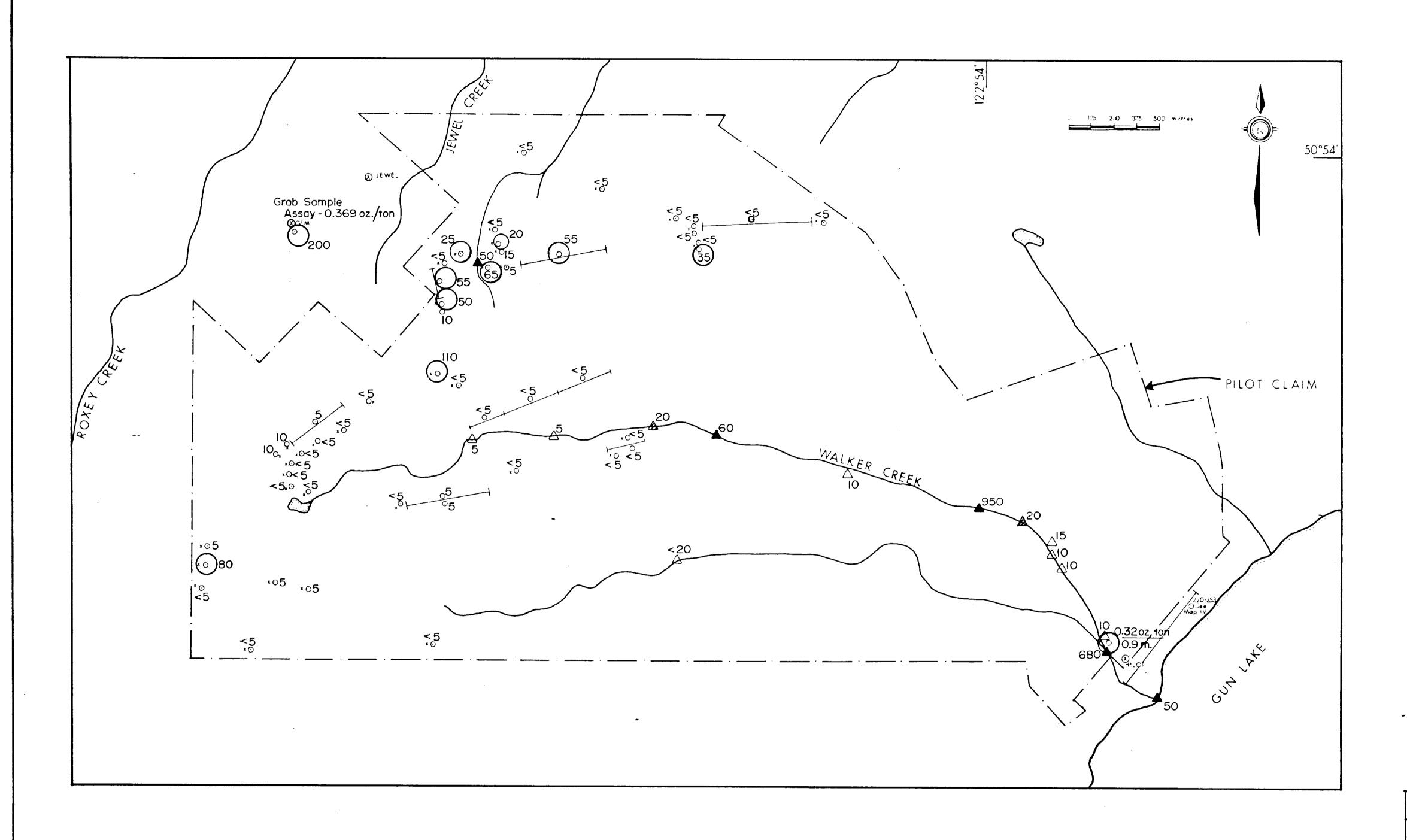
N.T.S.: 92-J-15

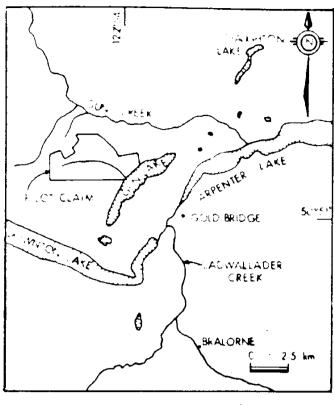
GEOLOGY BY: R.J. MAZUR SCALE: 1:12,500











- O ROCK GEOCHEMICAL SAMPLE (PPB)
- (o) 1st. ORDER ANOMALY Au >20 ppb
- 2 nd. ORDER ANOMALY Au >15ppb
- △ HEAVY MINERAL STREAM SEDIMENT SAMPLE
- ▲ 1st. ORDER ANOMALY Au >25ppb
- 2 nd. ORDER ANOMALY Au >15ppb

GEOLOGICAL BRANCH ASSESSMENT REPORT

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Map VI

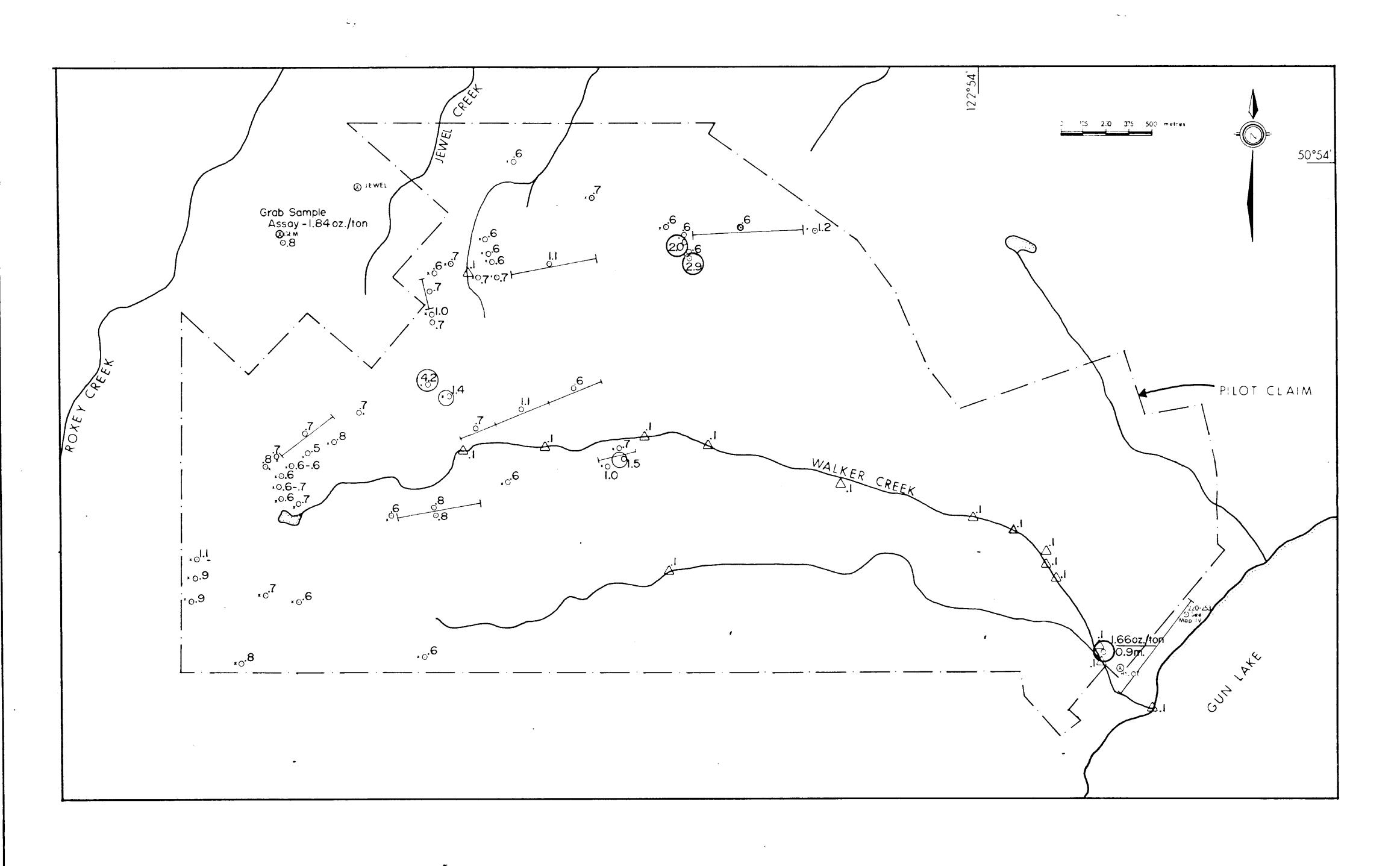
# X-CALIBRE RESOURCES LTD.

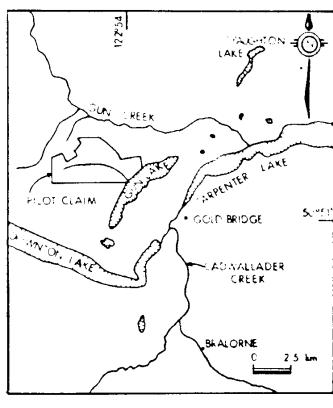
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

GOLD (ppb)

N.T.S.: GEOLOGY BY: SCALE:
92-J-15 R.J. MAZUR 1:12,500





- o ROCK GEOCHEMICAL SAMPLE (PPM)
- (o) 1st. ORDER ANOMALY Ag >1.5 ppm
- ② 2nd. ORDER ANOMALY Ag>1.3ppm
- △ HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM)

GEOLOGICAL BRANCH TASSESSMENT REPORT

11,877

Map VII

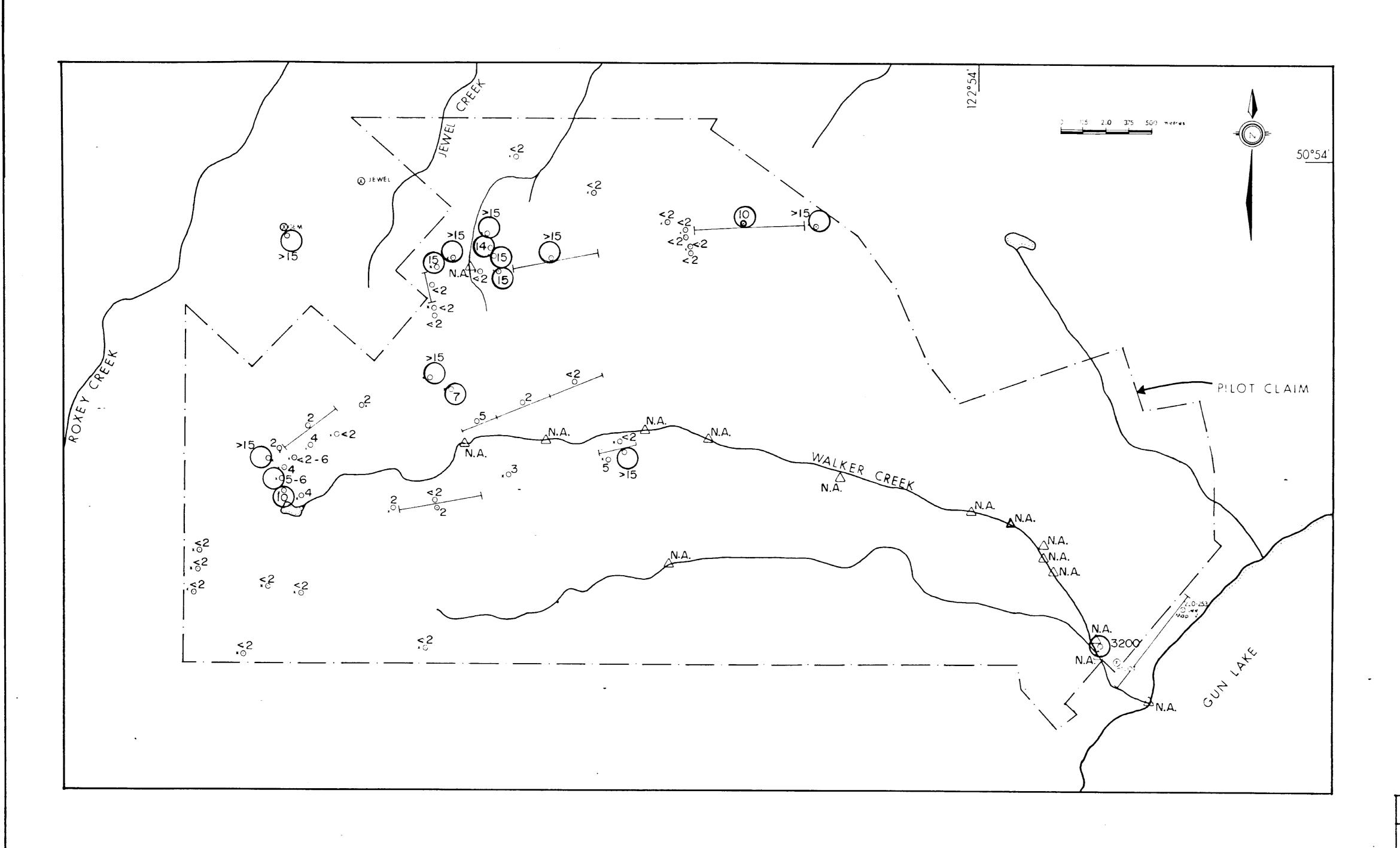
# X-CALIBRE RESOURCES LTD.

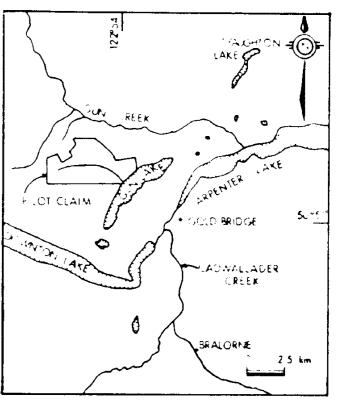
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

SILVER (ppm)

14.7.3.1 GEOLOGY BY SCALE-92-J-15 RUMAZUR 1 12,500





- ROCK GEOCHEMICAL SAMPLE (PPM)
- (9) Ist. ORDER ANOMALY As >5 ppm
- △ HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM: N.A. NOT ANALYZED

G AUGIEAL BRANCH :

11,877

Map VIII

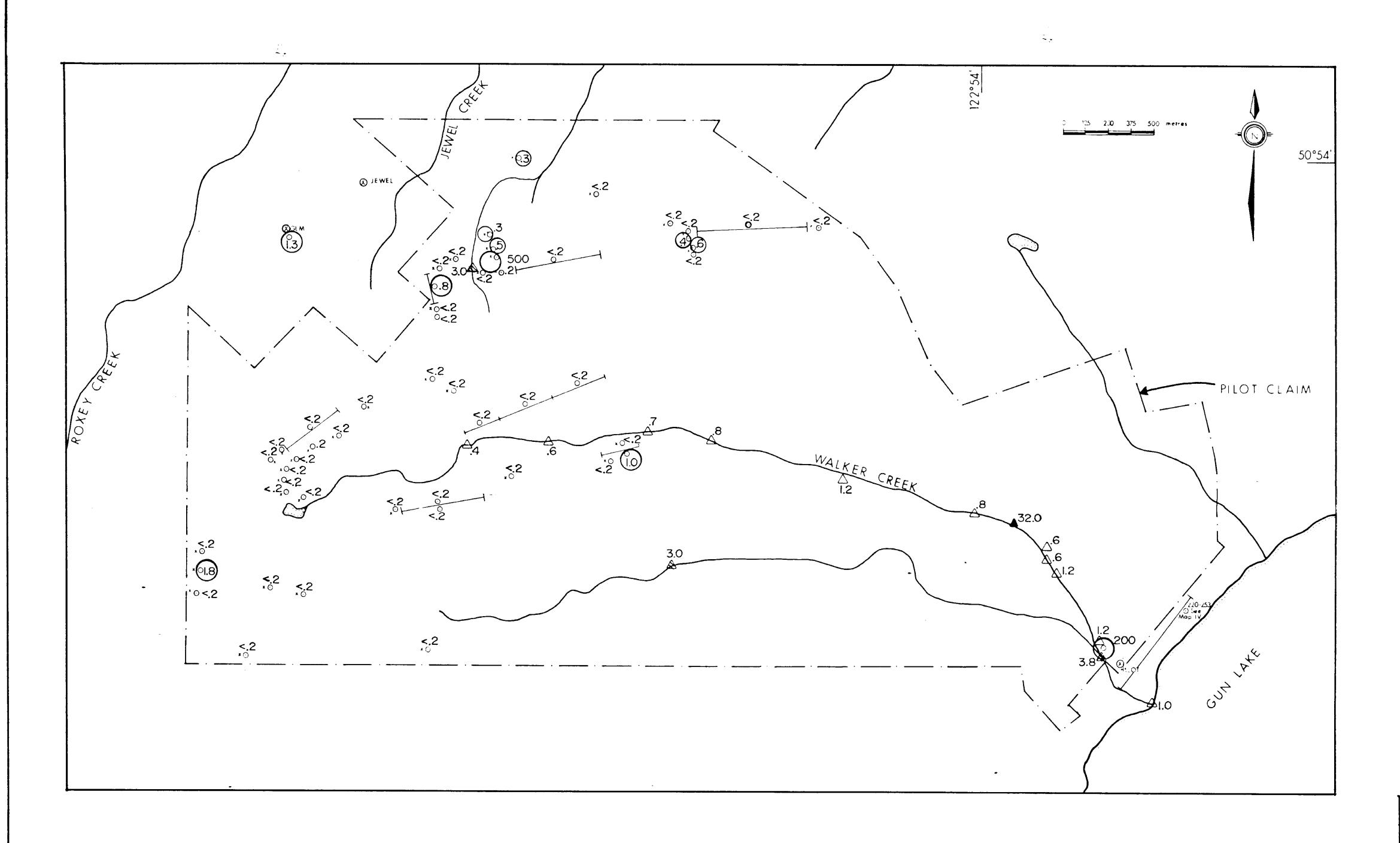
X-CALIBRE RESOURCES LTD.

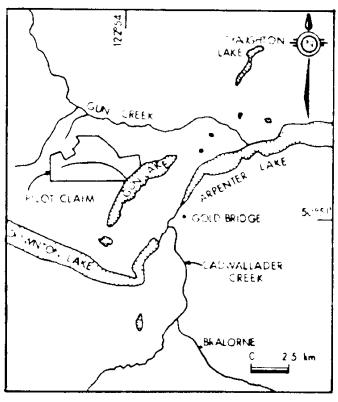
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

ARSENIC (ppm)

N.T.S.: GEOLOGY BY. SCALE: 92-J-15 R.J. MAZUR 1 !2,500





- O ROCK GEOCHEMICAL SAMPLE (PPM)
- (o) 1st. ORDER ANOMALY Sb > 0.6 ppm
- ② 2 nd. ORDER ANOMALY Sb >0.25 ppm
- Δ HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM)
- ▲ 1st. ORDER ANOMALY Sb >5ppm
- $\triangle$  2 nd. ORDER ANOMALY Sb > 2.5 ppm

GEOLOGICAL BRANCH ASSESSMENT REPORT

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Мар <u>IX</u>

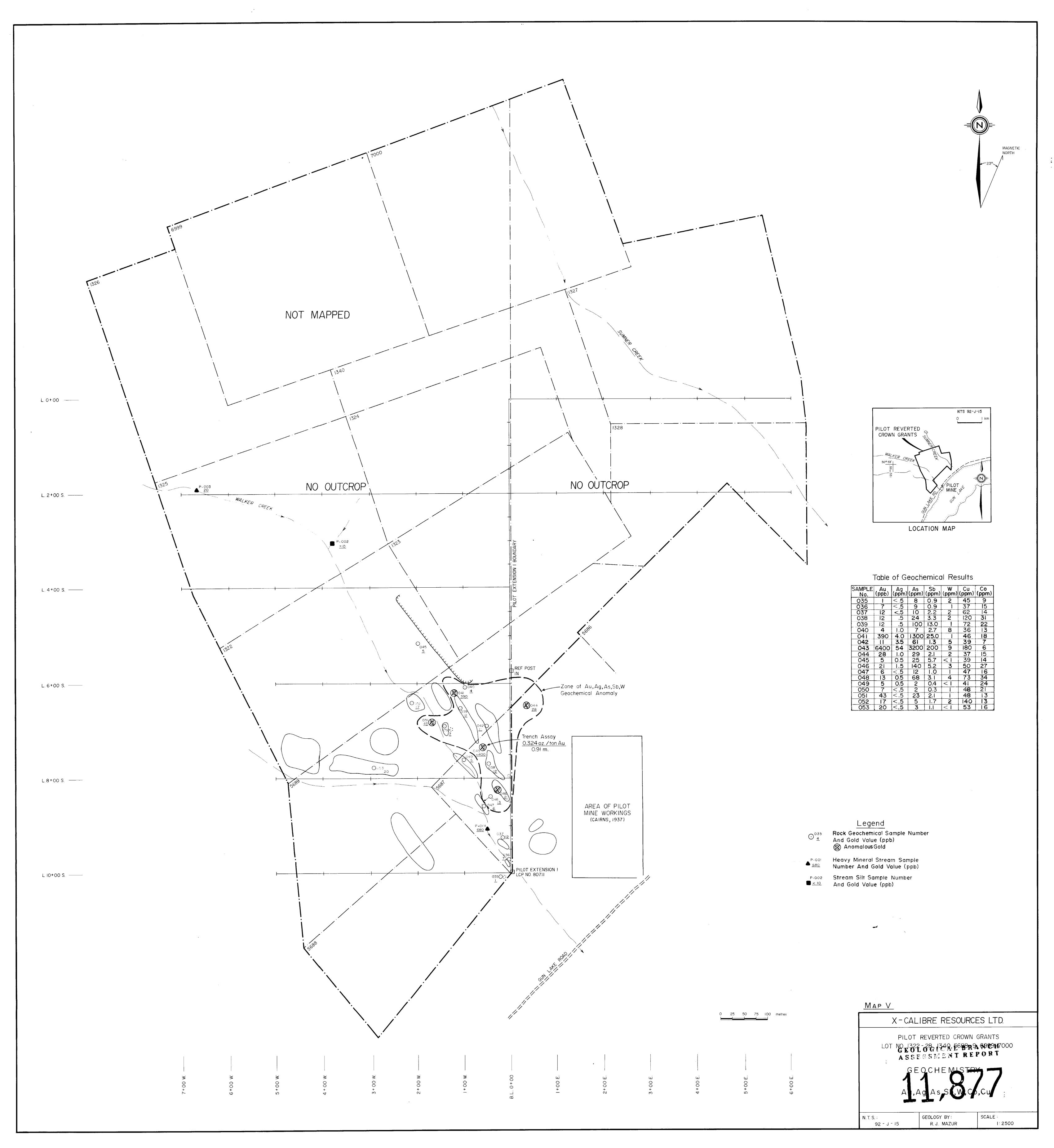
# X-CALIBRE RESOURCES LTD.

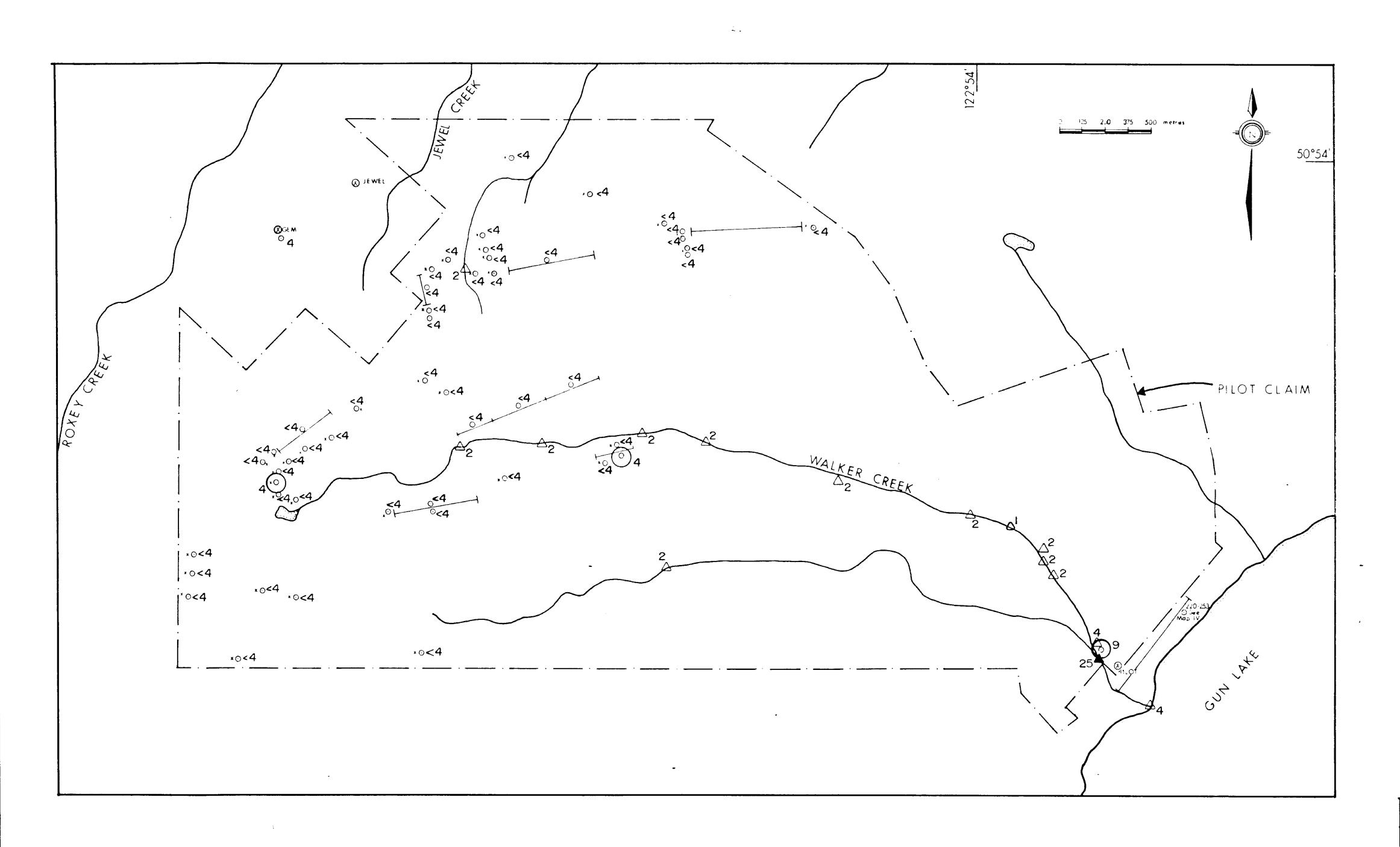
PILOT MINERAL CLAIM

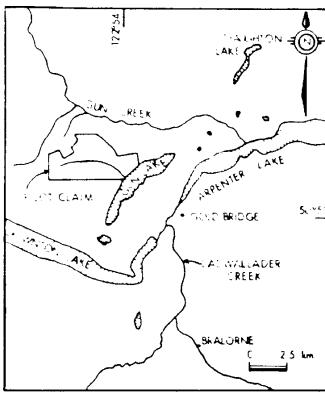
ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

ANTIMONY (ppm)

GEOLOGY BY SCALE:
92-3-15 R.J. MAZUR 1 12,500







## <u>LEGEND</u>

- O ROCK GEOCHEMICAL SAMPLE (PPM)
- (i) Ist. ORDER ANOMALY W>3ppm
- A HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM)
- ▲ Ist. ORDER ANOMALY W>8ppm

GEOLOGICAL BRANCH ASSESSMENT VEPORT

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Map X

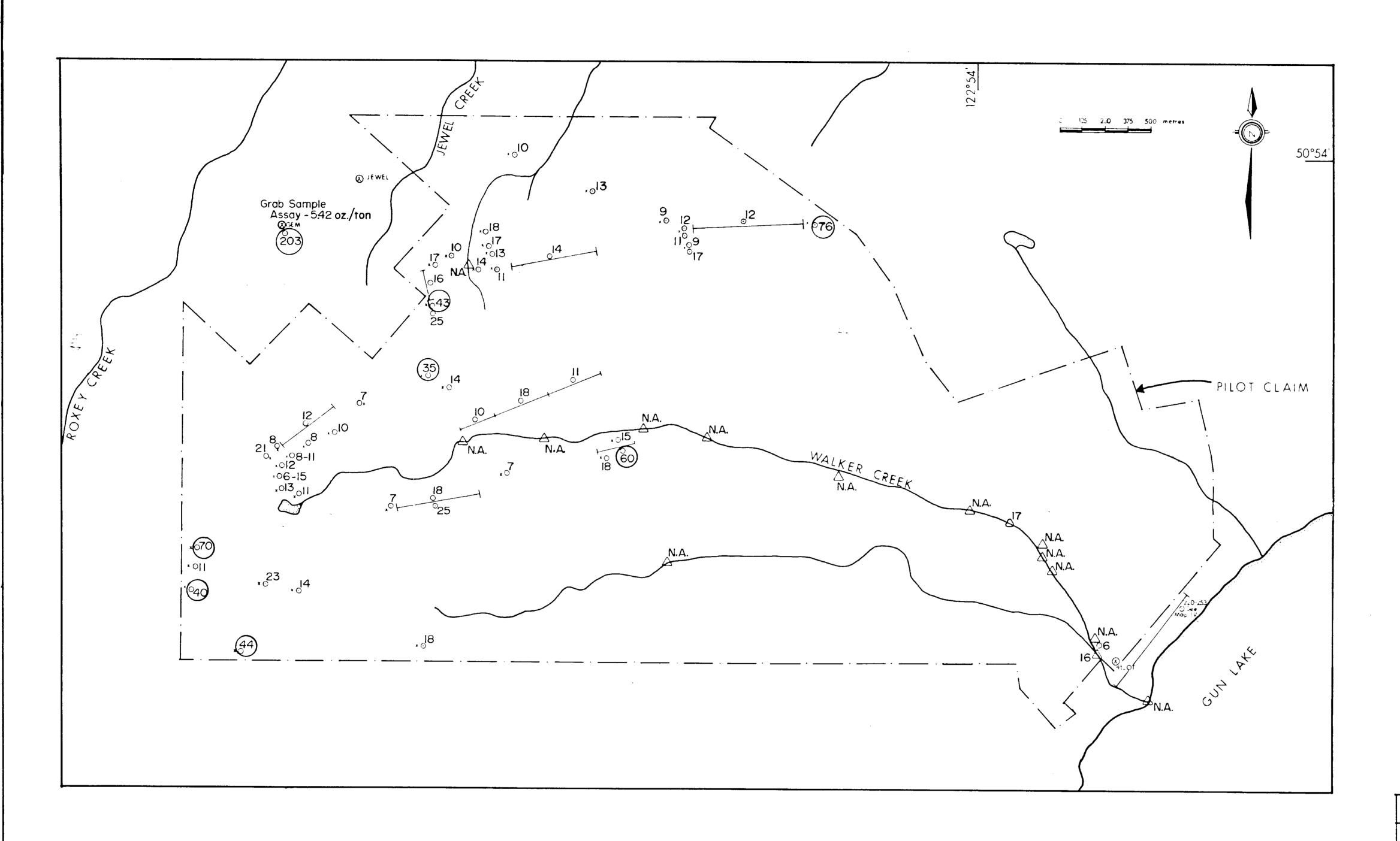
# X-CALIBRE RESOURCES LTD.

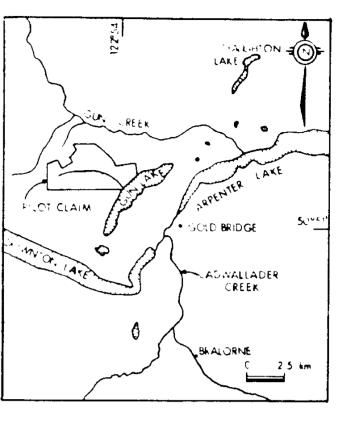
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

TUNGSTEN (ppm)

74.7.5 | GEOLOGY BY | SCALE - 92- J-15 | R.J. MAZUR | 1:12,500





- O ROCK GEOCHEMICAL SAMPLE (PPM)
- ( o) 1st. ORDER ANOMALY Co>30 ppm
- △ HEAVY MINERAL STREAM SEDIMENT SAMPLE (PPM)
  N.A.-NOT ANALYZED

GEOFIGICAL BRANCH ACTE DE LEMINT REPORT

11,877

 $MAP\overline{X}$ 

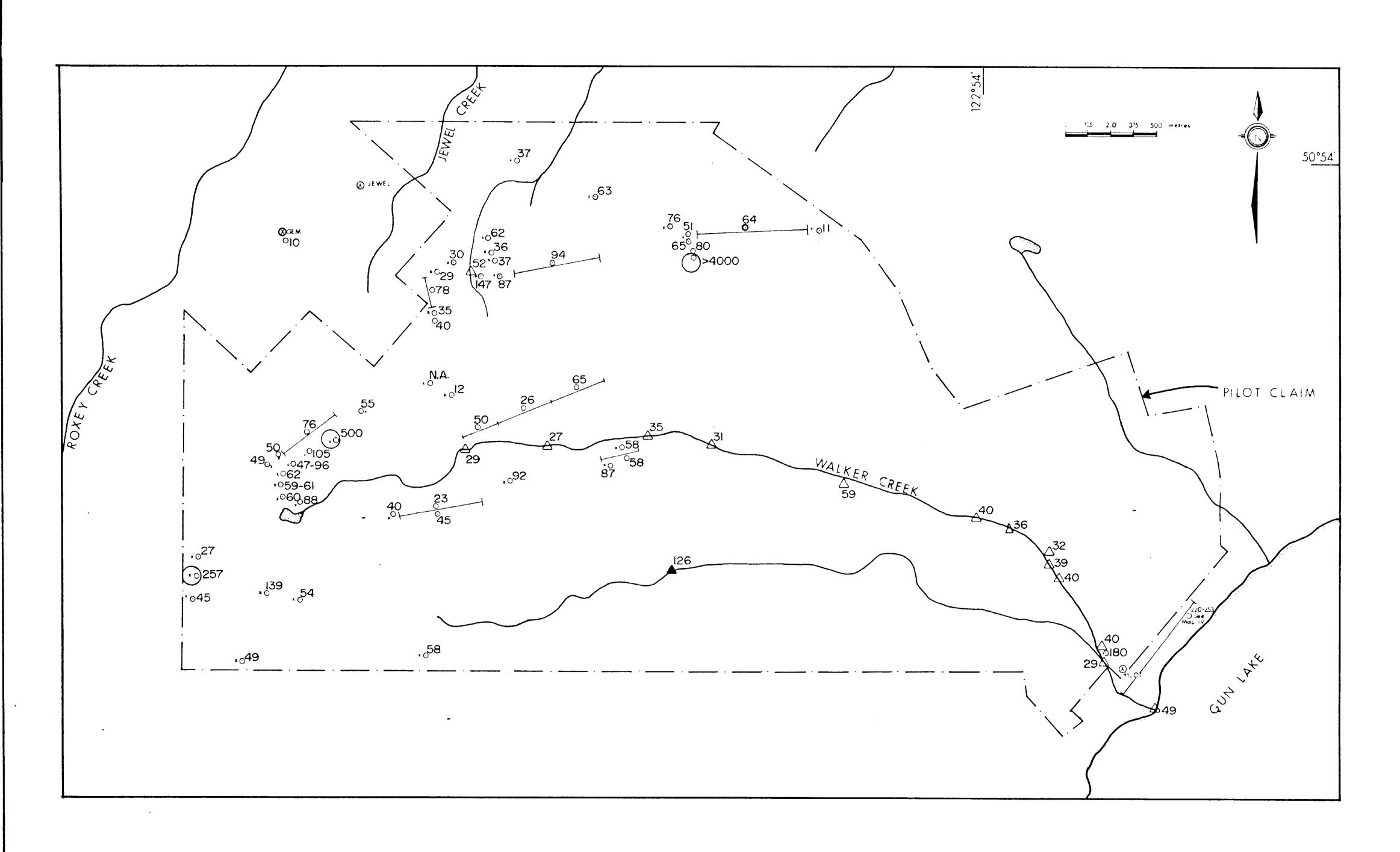
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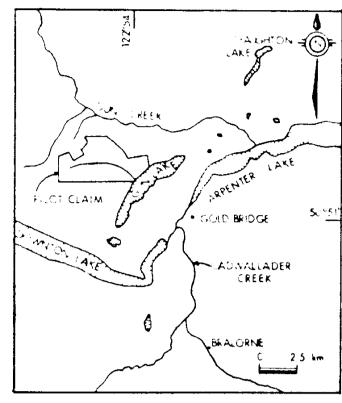
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

COBALT (ppm)

#UT.S.: GEOLOGY BY. SCALE:
92-J-15 R.J. MAZUR 1:12,500





- O ROCK GEOCHEMICAL SAMPLE (PPM)
- (o) 1st. ORDER ANOMALY Cu > 200 ppm
- $\Delta$  HEAVY MINERAL STREAM SEDIMENT SAMPLE
- ▲ 1 st. ORDER ANOMALY Cu > 70 ppm N.A. - NOT ANALYZED

GEOLOGICAL ANCH ASSESSMENT REPORT

Map XII

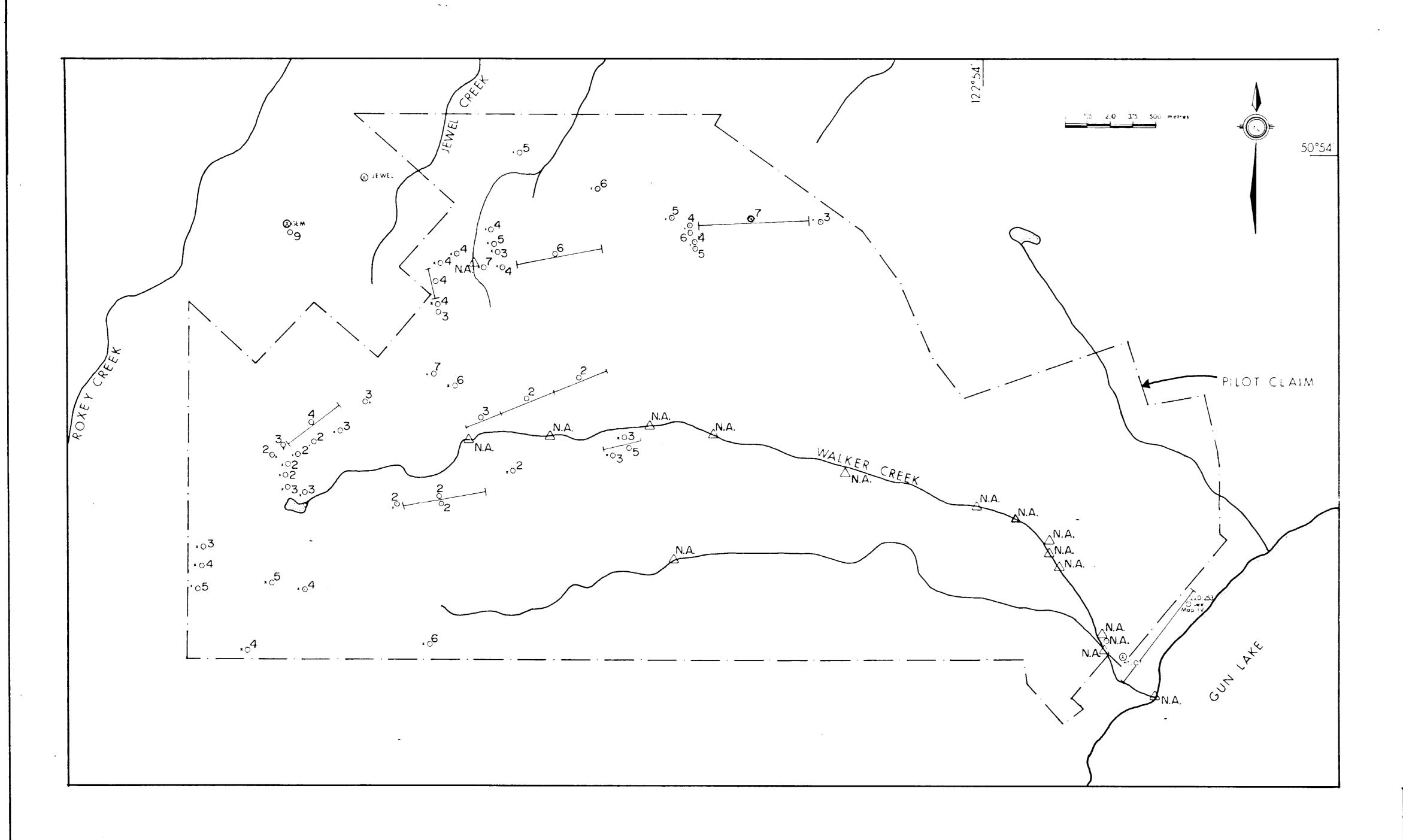
X-CALIBRE RESOURCES LTD.

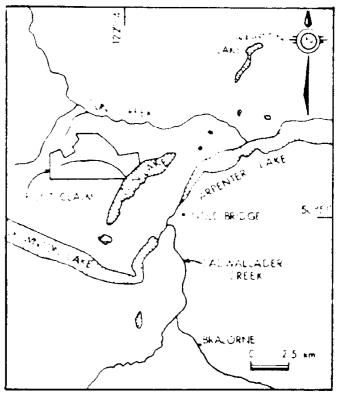
PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL STREAM SEDIMENT GEOCHEMISTRY

COPPER (ppm)

N.T.S.: GEOLOGY BY: SCALE: 92-1-15 RU. MAZUR 1112,500





> GY TO DGICAL BRANCH ASSESSMENT REPORT

11,877

Map XIII

X-CALIBRE RESOURCES LTD.

PILOT MINERAL CLAIM

ROCK AND HEAVY MINERAL
STREAM SEDIMENT
GEOCHEMISTRY

MOLYBDENUM (ppm)

 N.T.3.:
 GEOLOGY BY
 SCALE: 

 92-J-15
 R.J. MAZUR
 1:12,500