

REPORT ON THE ZILOR GROUP OF CLAIMS,  
ROSSLAND MINING CAMP, TRAIL CREEK  
MINING DIVISION, BRITISH COLUMBIA

FOR

RAY SPINKS , SALMO, B.C.

COVERING:

ZILOR (Crown Grant No. 1051)

LILY MAY (Crown Grant No. 1052)

BLACK HORSE (Crown Grant No. 1509)

RICHMOND (Crown Grant No. 1508)

LOCATED: Lat. 49° 03' Long. 117° 48' MTS 82 K/4

Elev. 3100'ASL

Owned By: Ray Spinks, Salmo, B.C.

PREPARED BY:

P.J. Santos, P. Eng.

Castlegar, B.C.

GENERAL MINING BRANCH

ASSESSMENT REPORT

9054

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## I. INTRODUCTION

This report was made upon written request of Ray Spinks of Salmo, B.C. to conduct a geological study of the Zilor Claim Group comprised of the reverted crown grant Zilor and the crown grants Lily May, Richmond, and Black Horse. Ray Spinks accompanied the author in the fieldwork.

The claims Zilor (#1051), Lily May (# 1052), Richmond (#1508), and Black Horse (# 1059) are adjacent to one another located two miles (3 Km) from the center of the City of Rossland in the Trail Creek Mining Division of British Columbia. The property is located 9 kilometers from the smelter in Trail, B.C.

The Zilor is a reverted crown grant now owned by Ray Spinks while the Lily May, Richmond, and Black Horse are owned by Ross Island Mines. Ray Spinks plans to acquire these last three claims and consolidate them with the Zilor.

The claims are located at an elevation of 3400 feet above sea level. Access is via the old Dewdney Trail and Spokane Street in Rossland and Highway No. 3 to Trail.

These claims were staked before the turn of the century and featured briefly in the mining history of the Rossland Mining Camp of B.C. Rossland was a significant mining area in B.C. during the early part of this century.

Ray Spinks proposes to consolidate the property, conduct a geophysical and geochemical program followed by a drilling program and if feasible go into production and ship the ore to Trail a short distance away.

Ray Spinks, through Standomray Mines, operated successfully the the Bluebird Mine in Rossland, B.C. Operations ceased in the Bluebird when Cominco's H.B. Mine which was custom milling the Bluebird ore closed down.

He also owns the Zinc claims located three kilometers to the east.

These properties were offered to Cominco Ltd. before but were turned down because the potential size of the operation is small. This does not mean however that the property can not be mined at a profit. The necessary infrastructure now exist in the area and ore can be shipped directly to the smelter in Trail a short distance away. Hydro-power, water, and timber are available in the property and the surface rights owner has indicated no objection to a mining operation.

In May 1980, a geological evaluation was conducted on the Zilor claim and a brief study was made on the Lily May. Samples were taken from the sulfide vein exposed in the workings in the Zilor to determine the identity of the sulfides.

A search was made on the available literature regarding the Zilor, Lily May, Richmond, and Black Horse.

## II. GEOLOGY

### (a) General Geology

The geology of the Rossland area is depicted on Plate 3 taken from GSC Memoir 308 by L.W. Little. This area is underlain by meta-sedimentary and igneous rocks of Pennsylvanian to Tertiary in age.

Volcanic units of the Rossland Formation (Jurassic) overlie sedimentary units of the Mount Roberts Formation (Pennsylvanian). The Rossland and the Mount Roberts formations are in turn intruded by acid and ultrabasic rocks of the Nelson Formation during the Cretaceous and by the Coryell and Sheppard Plutonics during the Tertiary.

On the basis of regional mineralization, C.W. Drysdale (1915) divided the Rossland area into two mineralized belts, namely, the North Belt and the South Belt. According to W.H. White (1949) the Rossland ores consisted of three types representing distinctive metal zoning. The Rossland Type consists predominantly of pyrite, pyrrhotite, chalcopyrite, and gold, the principal values being from the copper and gold. The South Belt Type contains pyrite, pyrrhotite, arsenopyrite, sphalerite, galena, boulangerite, and gold, the main values being from silver, lead, zinc, and minor gold. The Transition Type is gradational between the Rossland Type and the South Belt Type with usually abundant sphalerite. R.J. Thorpe's (1967) studies using metal ratios more or less confirmed White's classification. Thorpe defined three zones, the Central Zone, the Intermediate Zone, and Outer Zone. Fig. 1 depicts the relationships of these zones to one another. Also depicted are the locations of Zilor, Lily May, Richmond, and Black House in relation to these zones and belts.

The Zilor, Lily May, Black Horse, and Richmond are all located in the South Belt. The ore values are mainly from silver, lead, zinc, and minor gold. The South Belt is underlain largely by augite porphyrite (andesite porphyry), tuffs, and meta-sediments (cherts, quartzite, &

conglomerate) of the Rossland Formation intruded by diorite porphyry, granite porphyry, and lamprophyre dykes of the Nelson Plutonics. Underlying the Rossland Formation are slates, argillites, and silicified siltstones of the Mount Roberts Formation. Exposure of this formation is relatively minor in comparison to the formations. This area is traversed by E-W trending, steeply dipping joints and fracture systems broken into segments by NE-NW crossfaults dipping 60-80° E. The E-W shears are mineralized with sulfides while the NE-NW crossfaults became the locale of intruding dykes. The net effect is an en-echelon arrangement of the orebodies.

(b) Zilor Claim

The Zilor Claim (#1051) was crown granted in 1896. It belonged to various owners and eventually reverted to the crown. Ray Spinks obtained possession of the claim in 1980. It is located along the old Dewdney Trail three kilometers from downtown Rossland at an elevation of 3400 feet above sea level. The surface rights belong to Jim Drake who operates a dairy farm nearby. Work apparently started prior to 1896 because by this time the property already had three shafts. In 1899 a shipment of 60 tons of 12 oz./ton Ag was made and 100 feet of work in shafts was recorded. No other work is recorded on this property up to the present time.

An occurrence of black slates and gray silicified siltstone is exposed on the Zilor Claim just west of the Dewdney Trail. A 30" sulfide vein trending at an azimuth of 290° and dipping 55° to the northeast cuts through these sediments. This vein consists of massive sulfides composed

mostly of coarse aggregates of sphalerite set in a matrix of pyrrhotite as shown in an ore slab, Fig. 6. In the order of the magnitude of occurrence, the sulfides are pyrrhotite, sphalerite, chalcopyrite, pyrite, arsenopyrite, galena, and the iron oxide limonite.

Under the microscope, inclusions of fine grains of galena, sphalerite, chalcopyrite occur in the interstitial spaces of the pyrrhotite grains. Chalcopyrite segregations are seen between massive sphalerite and pyrrhotite and as rims mantling the pyrite (Fig. 7).

On Fig. 8 can be seen euhedral pyrite partly replaced by chalcopyrite. Fine inclusions of galena-pyrrhotite-chalcopyrite occur within the sphalerite aggregates (Fig. 9). Weathering of the massive pyrrhotite results in the formation of birds-eye texture (Figs. 6 & 10).

Arsenopyrite and pyrite appear to have formed first followed by pyrrhotite, sphalerite, chalcopyrite, and galena. Limonite, formed by weathering was formed last.

Two shafts (No. 1 and No. 2) 150 feet apart were sunk on this vein which may be two of the three shafts that were said to have been sunk in the property (Plate 4). Shaft No. 1 is now completely filled in. The dump material consist entirely of barren volcanics. This appears to be the first shaft that was reported to be in barren diorite. This shaft was sunk in the footwall so that the vein was missed entirely. The second shaft (Shaft No. 2) is filled except for the last 12 feet from the collar. A 36" sulfide vein is exposed on opposite sides of the shaft. The dump material consists of considerable sulfides, slates and siltstones, and andesite porphyry. This appears to be the shaft said to have been sunk 60 feet that started in a good body of ore, but passed into barren rock, although ore is reported to be in the bottom." An intervening



shaft said to have been sunk 30 feet with "considerable ore on the dump, similar to the Lily May ore" can no longer be located. To the east and west of Shaft No.2 the sulfide vein is exposed in a trench and a road cut for a total length of 260 feet. Farther to the west the vein peters out to disseminations of sulfides in siltstone, mainly pyrite. Samples were taken across the vein and from the wall rocks as shown on Plate 4. The sample descriptions and assay results are listed in the Appendix of this report. The average assays of the vein samples are as follows: .81 o/o Pb, 9.15 o/o Zn, 1.34 oz./ton Ag, and .015 oz./ton Au. With the said depth of 60 feet, width of 2.5 feet, and length of 260 feet, a potential tonnage of 3500 tons is indicated. Using Metals Week Prices of May 26, 1980 (Pb, 36¢/lb; Zn, 37.48¢/lb; \$11.80/oz. Ag; \$514.25/oz. Au, US funds) the potential gross value of this material is \$97.83 US (112.50 Can.) per ton. Mining this vein with an adit driven from the elevation of the Dewdney Trail probably will not be economic since not enough ore will be developed. To have a sufficient back the adit must be driven from farther down, say, the elevation of No Name Creek, or, a hoisting shaft should be used.

The wall rock assays averaged .48 oz./ton Ag indicating the dispersion of the silver into the wall rocks. The dispersion of Au in the wall rocks are too low for heap leach possibilities. It is not known if any diamond drilling was ever done on this property, chances are there was none. A potentiometer survey was done by Rossland Mines over the Zilor and a narrow but well defined anomaly was found which appears to be over this vein. The anomaly goes beyond the Zilor into the adjoining Black Horse Claim.

This anomaly has never been drill tested. There are indications therefore that the orebody is open along strike and down dip ( See Plate 5.).

Because the property has good exploration potential , further exploration should be done.

(c) Lily May Claim

The Lily May (#1052) was the first claim staked in the Rossland Mining Camp. It was located in 1889, recorded in 1890, and crown-granted in 1896. The discovery of iron-stained capping during the construction of the Dewdney Trail led to the staking of the Lily May. This claim is adjacent to and lies to the north of the Zilor claim. Several underground workings were sunk to explore and mine ore that assayed in silver, lead, and gold. The record of production from the Lily May is meager and apparently the production was intermittent and small. It is recorded that 100 tons was produced in 1899 that assayed 50 oz. Ag per ton.

The Lily May shaft was sunk to a depth of 207 feet on a NE striking vein occurring in Mount Roberts slate. It appears that the property shut down in 1905 although some ore was shipped in 1910. In 1913 the Richmond Consolidated Mining Company rehabilitated the property. The Lily May then was grouped with the Richmond, Hattie , Black Horse and some small fractions. Mine buildings and a headframe were constructed, a hoist and compressor installed, and the Lily May Shaft de-watered. The Lily May vein was explored by drifting and drifts (630 feet) were driven to the north and west. The west drift encountered low grade mineralization and was re-directed north to undercut a high grade showing of gold and gold-copper in Mount Roberts slates. The northerly drift started from the bottom of

the Lily May Shaft and was driven to cut a series of five veins outcropping on the adjoining Richmond and Hattie claims in what is probably Rossland volcanics. These veins were never reached as funds gave out by the end of 1913. The property became dormant again except for a small shipment made in 1935.

Presently, all workings are caved in and only the foundations of the compressor, hoist, and headframe remain. Like the Zilor, the timber in the Lily May was logged in 1979.

Ross Island Mines is the present owner of the Lily May ( in 1980). It is not known if the Lily May was ever diamond drilled, the old exploration work appears to be mainly trenching and drifting. A potentiometer survey conducted by Ross Island Mines detected an anomaly in the Lily May (See Plate 5). This anomaly (Lily May Anomaly) extended through to the adjoining Black Horse claim and to the Richmond claim in the east. According to Ray Spinks this anomaly was never drilled.

#### (d) Richmond Claim

The Richmond claim (#1508) was crown granted in 1899. Ross Island Mines now owns the claim. This claim is adjacent to and lies to the north of the Lily May. According to records, the Richmond is underlain by fine grained monzonite cut by numerous basic dykes. A series of five narrow sulfide veins occur within a width of 250 feet on the Richmond and Hattie claims. The sulfides consists of a mixture of arsenopyrite, pyrite, and chalcopyrite. These veins were explored with open cuts and shallow shafts. Narrow widths of oxidized ore assayed 0.33 - 2.01 oz./ ton Au, 1.7 - 5.3 oz./ton Ag, and 5.02 % Cu.

In 1913, The Richmond Consolidated Company made serious efforts to reach the Richmond veins by drifting from the Lily May shaft. The company ran out of funds before the objective could be reached and the property laid dormant from 1914 to the present day.

An anomaly detected by a potentiometer survey conducted by Rossland Mines occurs on the southeast corner of the Richmond claim. This anomaly has never been drill tested. It is not known if the Richmond veins have ever been drilled either.

(e) Black Horse Claim

The Black Horse claim (#1059) was crown granted near the turn of this century at about the same time as the Zilor. This claim is adjacent to and lies to the west of the Lily May and the Zilor. Records say that this claim was prospected in 1896. Little is written about the Black Horse and it appears that not much work was ever done on this property.

The Lily May anomaly detected by a potentiometer survey conducted by Rossland Mines extends into and goes beyond the Black Horse claim. This anomaly has not been drill tested.

### III. SUMMARY AND CONCLUSION

The Zilor Group (Zilor, Lily May, Richmond, and Black Horse) located in the South Belt area of the Rossland Mining Camp of British Columbia is a silver-zinc-lead property with a modest tonnage

potential. The property is close to a modern smelter in Trail, B.C.

It will not be economic to mine the Zilor vein alone but taking collectively all the mineralization in this claim group may be a more attractive proposition for further exploration and development.

Although the assays of the samples indicate some dispersion of the metals in the wall rocks surrounding the vein, the values are still too low for heap leach possibilities.

A fairly inexpensive geophysical and geochemical program can be done on the property and if the results are promising, a drilling program should follow.

As in any mining venture there is a certain amount of speculation and risk due to variables which cannot be determined for certain. Production should be preceded by diamond drilling, and drilling should be preceded by geophysical, geochemical, and geological work. This logical sequence will insure the wise utilization of financial resources and lessen the risks.

#### IV. RECOMMENDATIONS

The following sequence of work is recommended on the Zilor Group:

- (a) Conduct an E.M. survey on the property with lines running North-South. Orientation tests should be made over the Zilor vein to calibrate the method before this survey is done.
- (b) Conduct a soil sampling survey for Au, As, Pb, Zn, and Cu using the same geophysical lines.

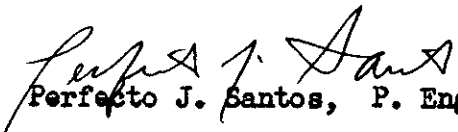
- (c) The above surveys should be supplemented with geological mapping to locate the Zilor vein in relation to the veins in the Lily May and Richmond.
- (d) Depending on the above surveys, conduct a drilling program in two stages, as follows,
1. Stage I - Drill off the Zilor Vein, the Lily May anomaly, and the Richmond anomaly,
  2. Stage II- Drill any other anomalies detected by the geochemical and geophysical surveys.

An estimate of the above exploration program is shown below:

E.M. Survey (Instrument rental and operator)	\$ 2500.00
Soil Sampling (Labor and assays)	1500.00
Geological Mapping	1000.00
	\$ 5000.00
Diamond Drilling	
Stage I    Zilor Vein (1800 feet)	36000.00
Lily May Anomaly (1000 feet)	20000.00
Richmond Anomaly (1000 feet)	20000.00
	\$76000.00
Stage II  Assume 2000 feet	40000.00
	\$40000.00
	TOTAL
	<u>\$121000.00</u>
	say \$130000.00

As in any mining venture there is a certain amount of speculation and risk due to variables that cannot be determined for certain. Production

should be preceded by diamond drilling, and drilling should be preceded by geophysical, geochemical, and geological work. This logical sequence will insure the wise utilization of financial resources and reduce risks.

  
Perfecto J. Santos, P. Eng.

Geologist

## V. REFERENCES

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## VI. APPENDIX

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(a) Sample Descriptions	15
(b) Assay Results	16
(c) Illustrations	17 - 27

## VI (a). SAMPLE DESCRIPTIONS - - - Zilora Claim

<u>Sample Number</u>	<u>Description</u>
10301	Chip sample, 30 " across vein at collar of shaft. Pyrrhotite, sphalerite, arsenopyrite. East side of Shaft No. 2 .
10302	Chip sample, 36" across sulfide vein taken 10 feet below collar of Shaft No. 2, west side. Pyrrhotite, sphalerite, arsenopyrite.
10303	Chip sample, 30" across vein exposed on road cut 27 meters (88.5 feet) west of Shaft No. 2 . Pyrite, pyrrhotite, sphalerite, arsenopyrite.
10304	Chip sample, 36" across silicified siltstone with sulfide dissemination (Mt. Roberts) 47 meters (154 feet) west of Shaft No. 2 .
10305	Chip sample, wall rocks (Mt. Roberts) enclosing vein exposed in a trench 21 meters ( 69 feet) east of Shaft No. 2. Disseminated sulfides, mainly pyrrhotite in silicified siltstone.
10306	Chip sample, 24" across vein exposed in a trench 29 meters (90 feet) east of Shaft No. 2. Pyrrhotite, sphalerite, & pyrite.
10307	Chip sample of wall rocks of vein (silicified siltstone-Mt. Roberts) with disseminated sulfides taken 36 meters (120 feet) east of Shaft No. 2
10308	Chip sample, 30" across sulfide vein exposed in trench 36 meters (120 feet) east of Shaft No. 2 . Pyrrhotite, pyrite, minor arsenopyrite.

VI (b).

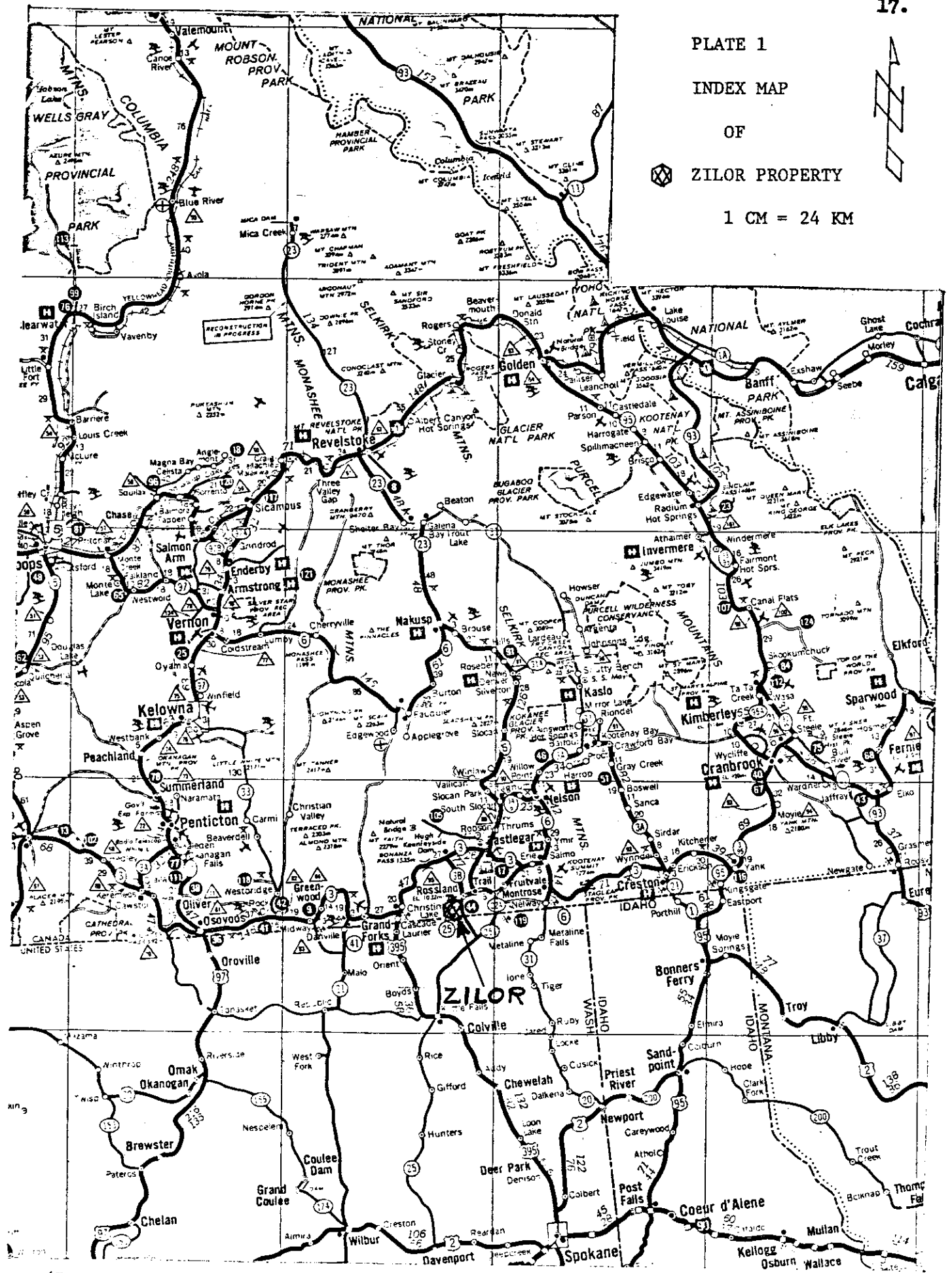
ASSAY RESULTS OF ZILOR CLAIM SAMPLES

<u>Sample No.</u>	<u>o/o Pb</u>	<u>o/o Zn</u>	<u>o/o Ag</u>	<u>oz/ton Ag</u>	<u>oz/ton Au</u>
10301	0.45	5.95	0.40	0.92	0.005
10302	0.36	9.95	5.07	0.85	0.005
10303	1.90	8.25	3.70	2.94	0.024
10304	NA	NA	NA	0.32	-0.003
10305	NA	NA	NA	0.63	0.003
10306	0.50	5.75	0.15	1.08	0.010
10307	NA	NA	NA	0.49	0.005
10308	0.86	13.50	0.10	1.44	0.030

NA Not assayed

For sample locations, refer to Plate 4

PLATE 1  
 INDEX MAP  
 OF  
 ZILOR PROPERTY  
 1 CM = 24 KM



(From B.C. Road Map 1979 1980)



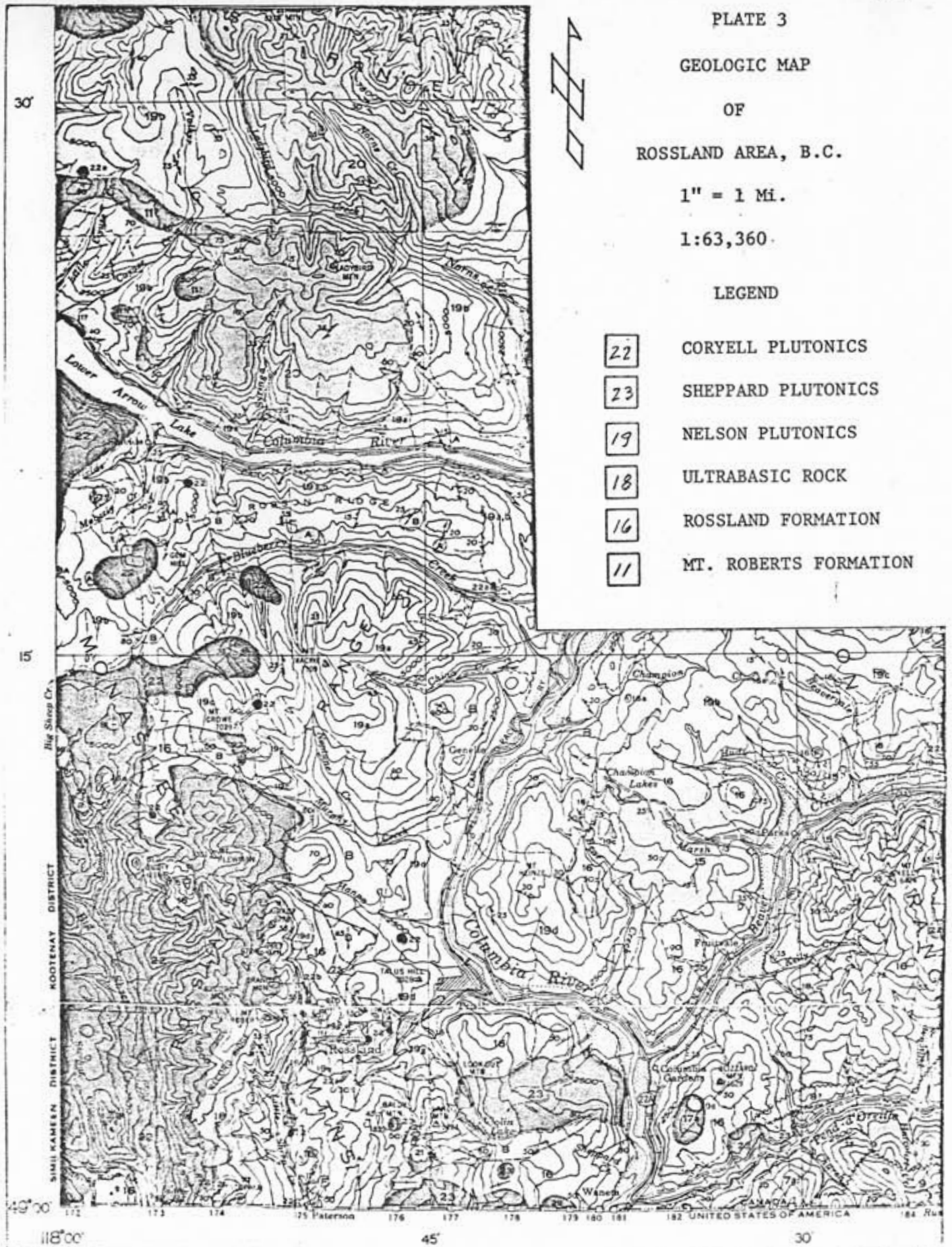
PLATE 3  
GEOLOGIC MAP  
OF  
ROSSLAND AREA, B.C.

1" = 1 Mi.

1:63,360

LEGEND

- |    |                       |
|----|-----------------------|
| 22 | CORYELL PLUTONICS     |
| 23 | SHEPPARD PLUTONICS    |
| 19 | NELSON PLUTONICS      |
| 18 | ULTRABASIC ROCK       |
| 16 | ROSSLAND FORMATION    |
| 11 | MT. ROBERTS FORMATION |

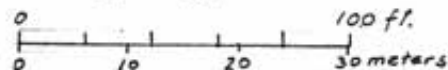


(From Map 1090A, GSC Muncir 308 H.W. Little)

PLATE 4  
GEOLOGIC MAP  
of  
ZILOR PROPERTY  
Trail M.D.  
B.C.



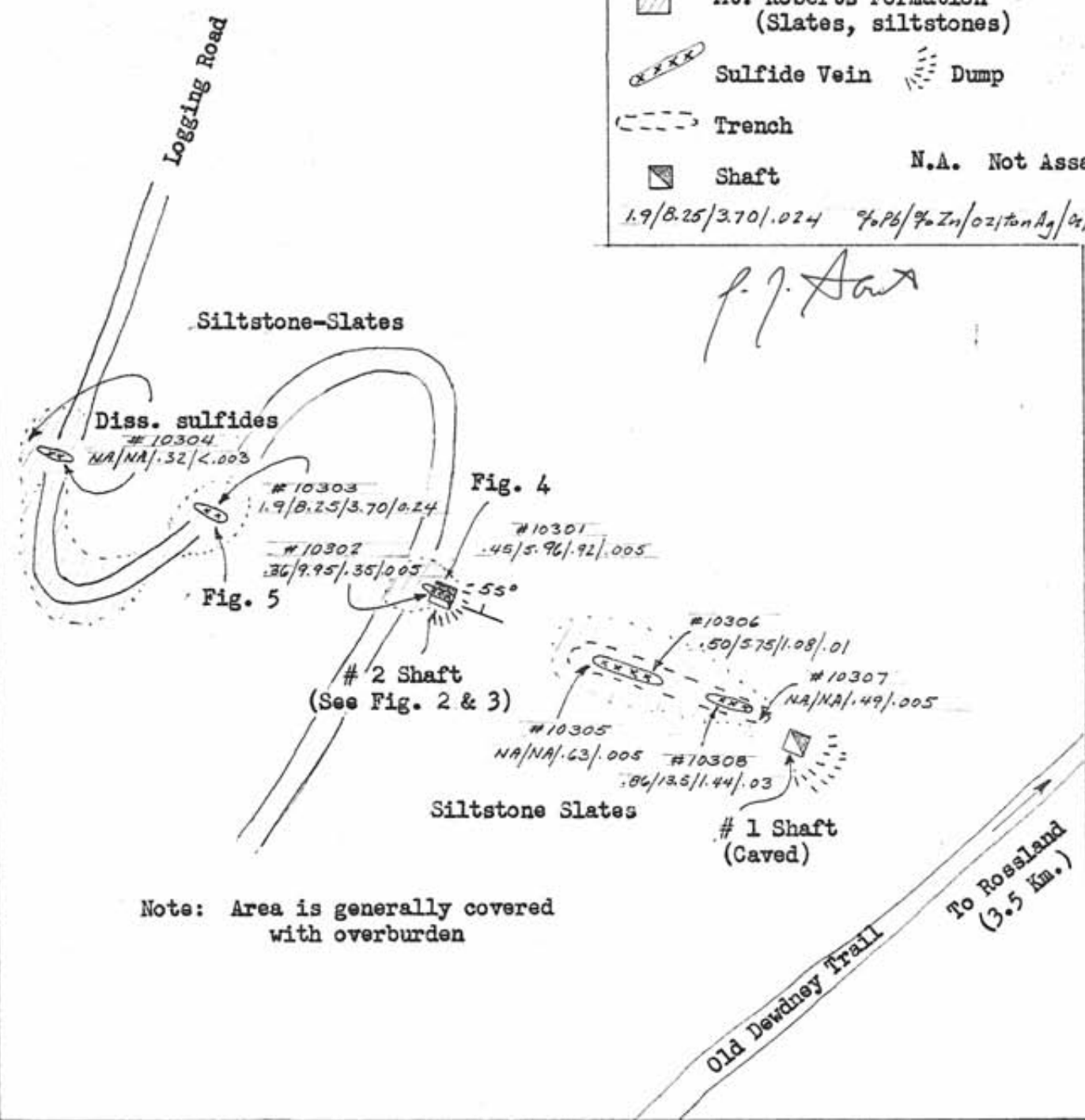
1" = 60'



Legend

- Mt. Roberts Formation (Slates, siltstones)
  - Sulfide Vein
  - Trench
  - Shaft
  - Dump
  - N.A. Not Assayed
- 1.9/8.25/3.70/.024 %Pb/%Zn/oz/ton Ag/oz/tan Au

*f. j. Shaw*

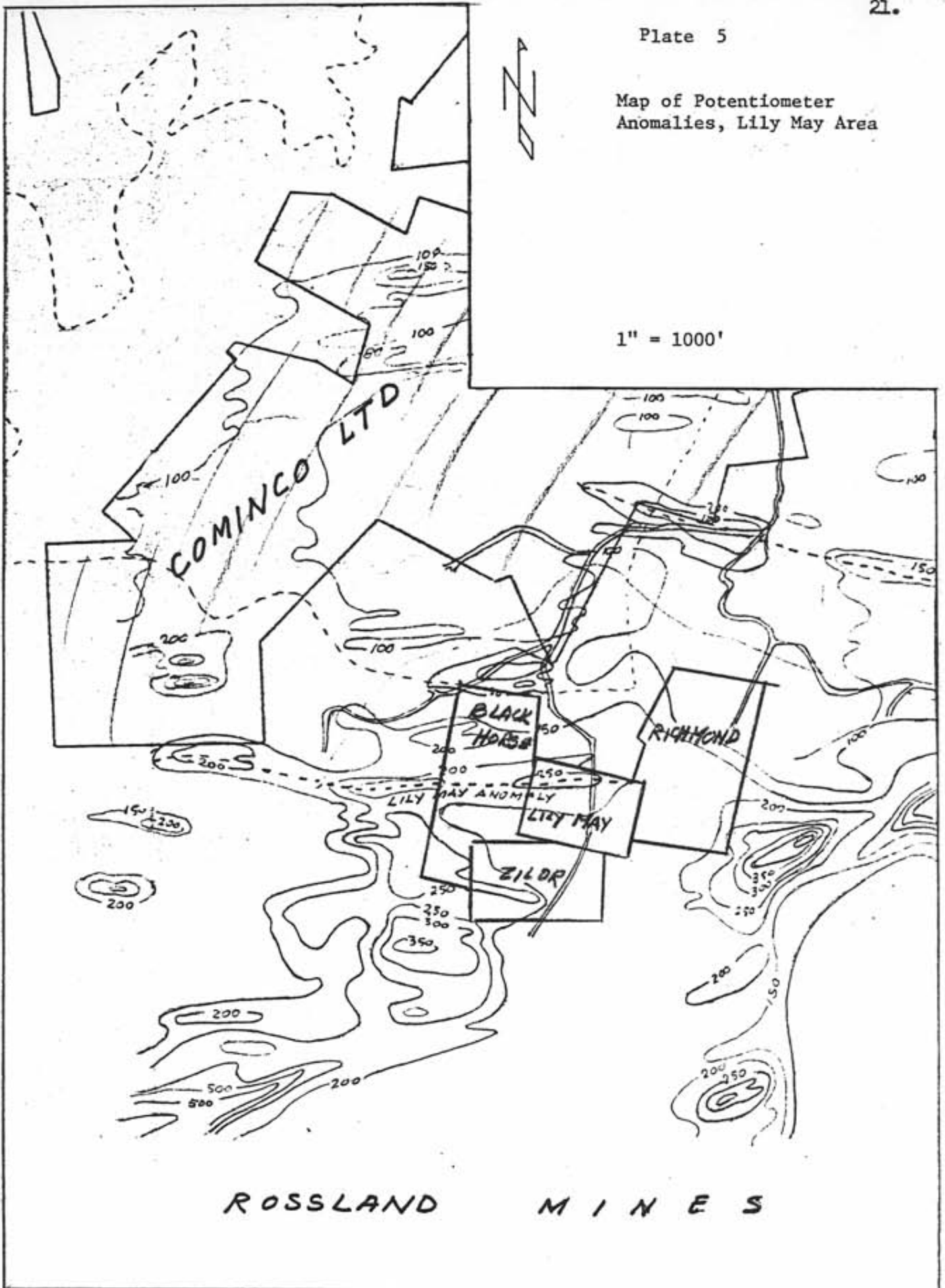


Note: Area is generally covered with overburden



Map of Potentiometer  
Anomalies, Lily May Area

1" = 1000'





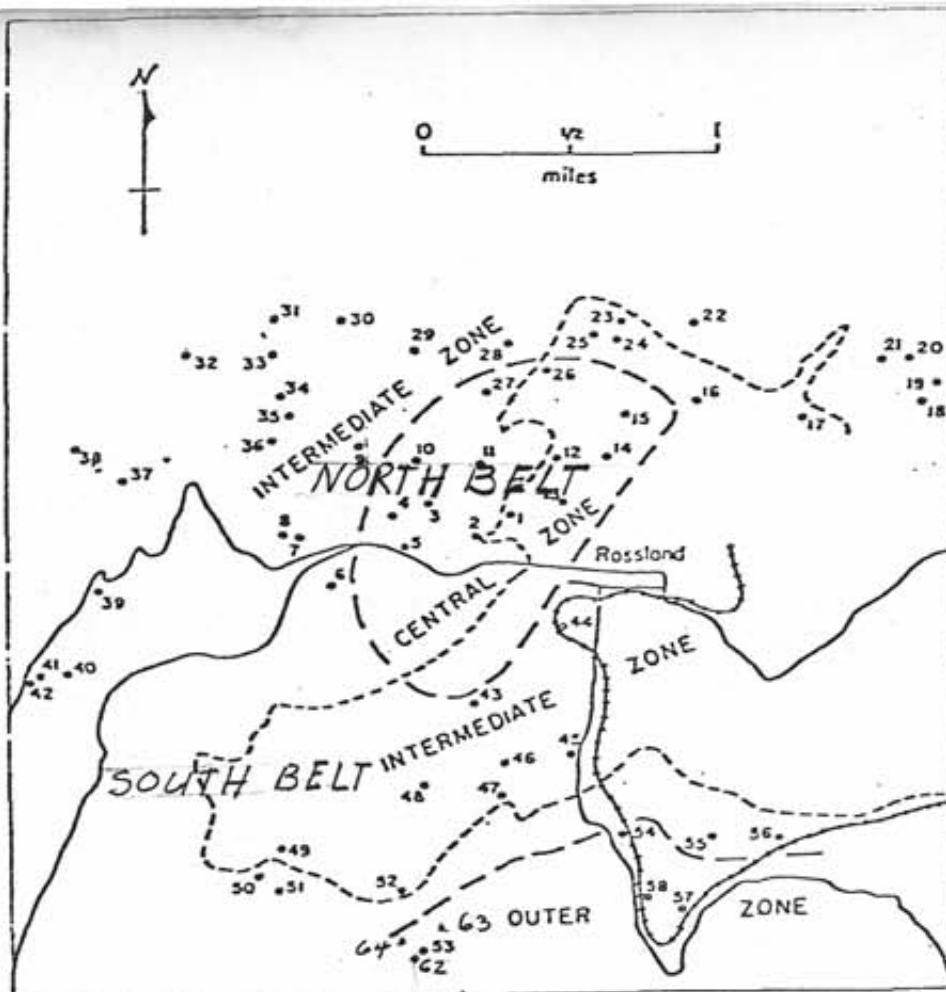


Fig.1 Property locations and zone boundaries in the Rosland district. The zone boundaries are indicated by long dashes. The short dash line gives the approximate location of the monzonite contact.

Location No.	Property	Location No.	Property
1.	Centre Star	33.	Coxey (north)
2.	LeRoi	34.	Coxey (south)
3.	Josie	35.	Novelty claim
4.	Annie	36.	Giant
5.	Black Bear	37.	Lower workings Atlantic Cable
6.	White Bear	38.	Upper workings Atlantic Cable
7.	California	39.	Snowdrop
8.	E. edge Evening cl.	40.	Midnight
9.	Gertrude	41.	I.X.L.
10.	No. 1	42.	O.K.
11.	War Eagle	43.	Phoenix
12.	Iron Mask	44.	Spitzee
13.	Nickel Plate	45.	Nest Egg
14.	Idaho		
15.	Virginia	46.	Sunset (north)
16.	Iron Horse	47.	Sunset (south)
17.	Iron Colt (Alberta cl.)	48.	E. edge Gold Hunter cl.
18.	Upper Mascot workings	49.	Pit N.E. of Deer Park
19.	Mascot adit	50.	Deer Park
20.	No. 6 adit, Columbia-Kootenay	51.	S. E. of Deer Park
21.	Upper workings Columbia-Kootenay	52.	Hattie
22.	Evening Star	53.	Lily May
23.	N. of Monte Christo	54.	Homestake
24.	Upper adit Monte Christo	55.	Gopher
25.	Lower workings Monte Christo	56.	Robert E. Lee
26.	Mabel	57.	Mayflower
27.	Red Mountain	58.	Bluebird
28.	Cliff	59.	Union (see Fig. 3)
29.	Consolidated St. Elmo	60.	Crown Point (see Fig. 3)
30.	St. Elmo	61.	New Sunset (see Fig. 3)
31.	View	62.	Zilor
32.	Jumbo	63.	Richmond
		64.	Black Horse

(From "Controls of Hypogene Sulphide Zoning, Rosland, B.C." by I.R. Thorpe)

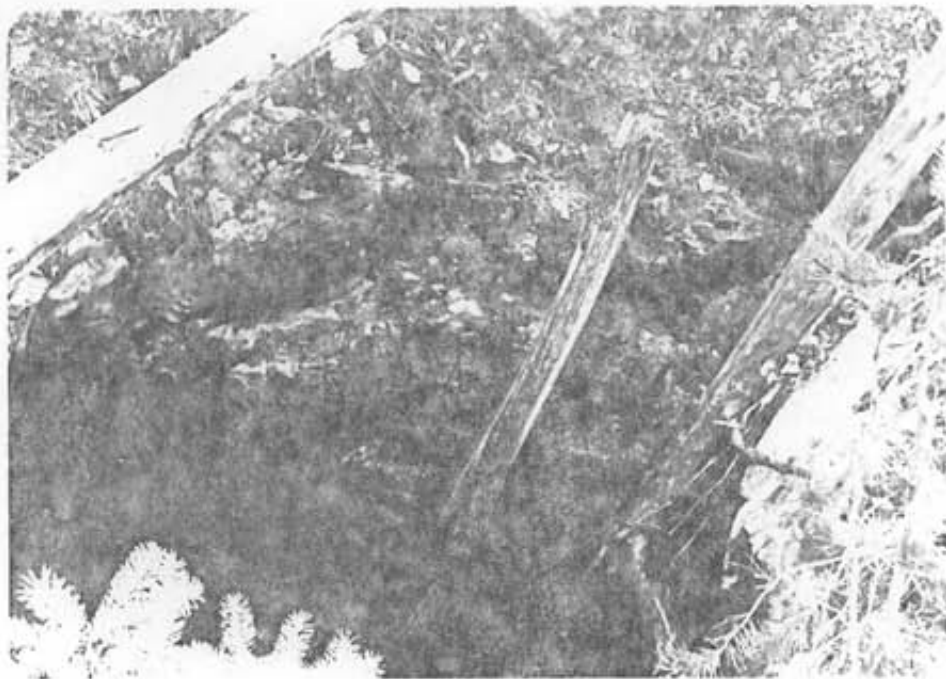


Fig. 2

Photo of east side of Shaft No. 2 in the Zilor Claim, Rossland, B.C. about 30 inches of sulfide vein is exposed.

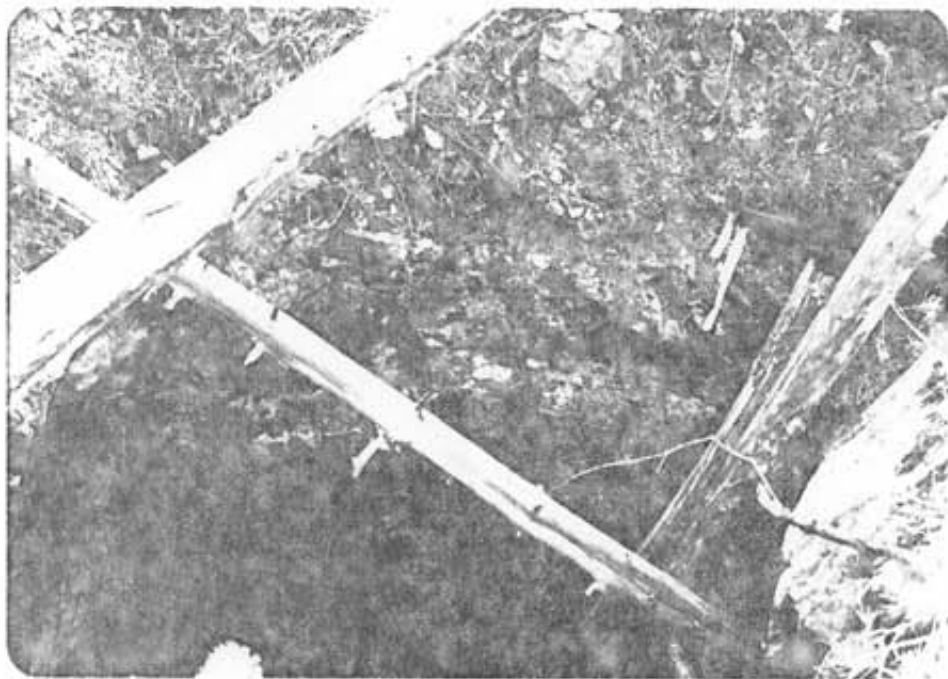


Fig. 3

Closer shot of photo shown in Fig. 2 . Sample No. 10301 was taken across the collar of the shaft.



Fig. 4  
Photo of west side of Shaft No. 2,  
Zilor Claim, showing 36 inches of sulfide  
vein. Sample No. 10302 taken across vein  
10 feet from collar of shaft.



Fig. 5  
Photo of sulfide vein exposed on road cut  
at the Zilor Claim. Sample No. 10303 was  
taken across the vein.

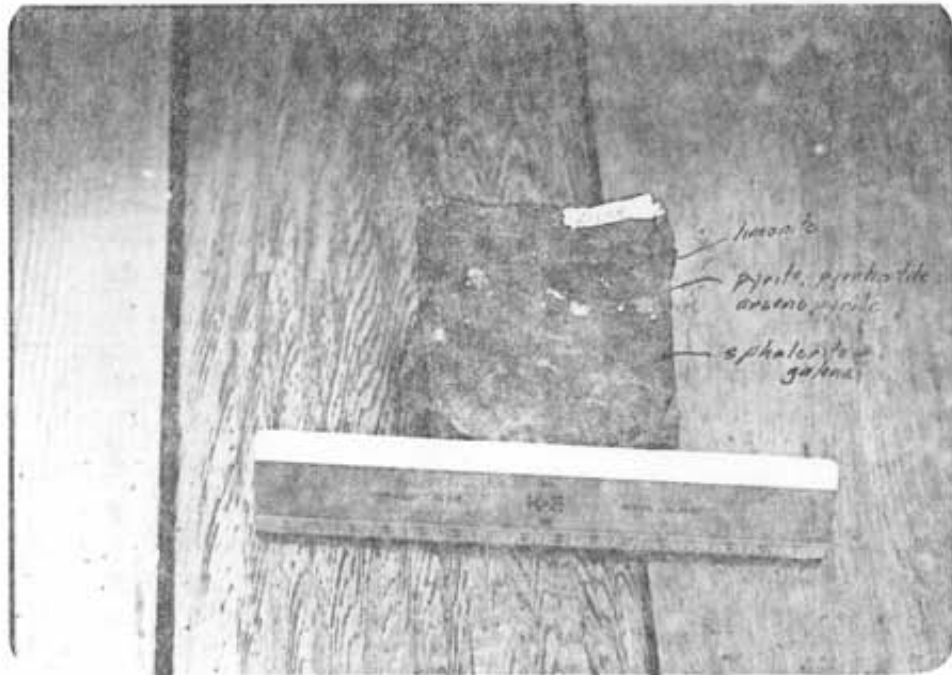


Fig. 6

Photograph of high grade ore slab from Zilor Claim taken from an exposure in a trench.



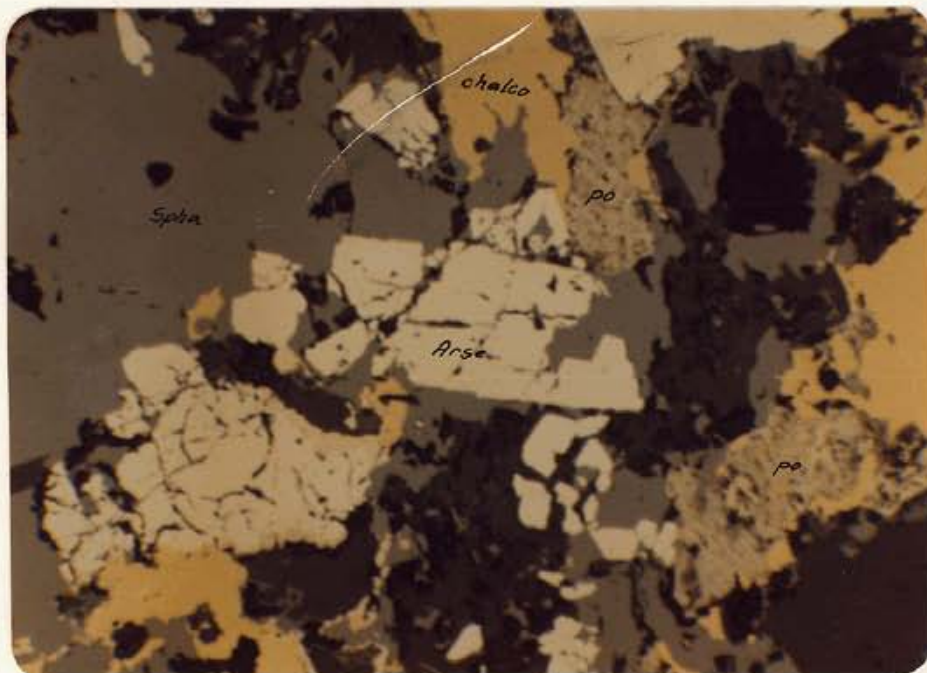


Fig. 7

Photomicrograph showing chalcopyrite (chalco) rimming pyrite (py). Chalcopyrite also occur between massive sphalerite (spha) and pyrrhotite (po). Arsenopyrite (arse) being replaced by sphalerite. x 160, reflected light, photomicrograph.

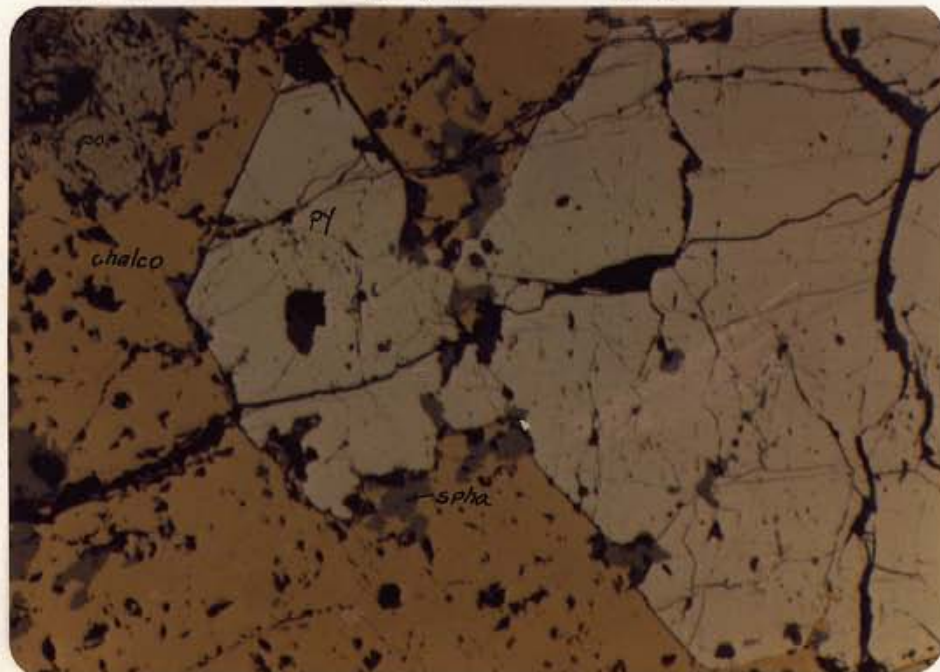


Fig. 8

Euhedral pyrite (py) partly replaced by chalcopyrite (chalco). Sphalerite (spha) replacing chalcopyrite and pyrite. x 40, reflected light, photomicrograph.

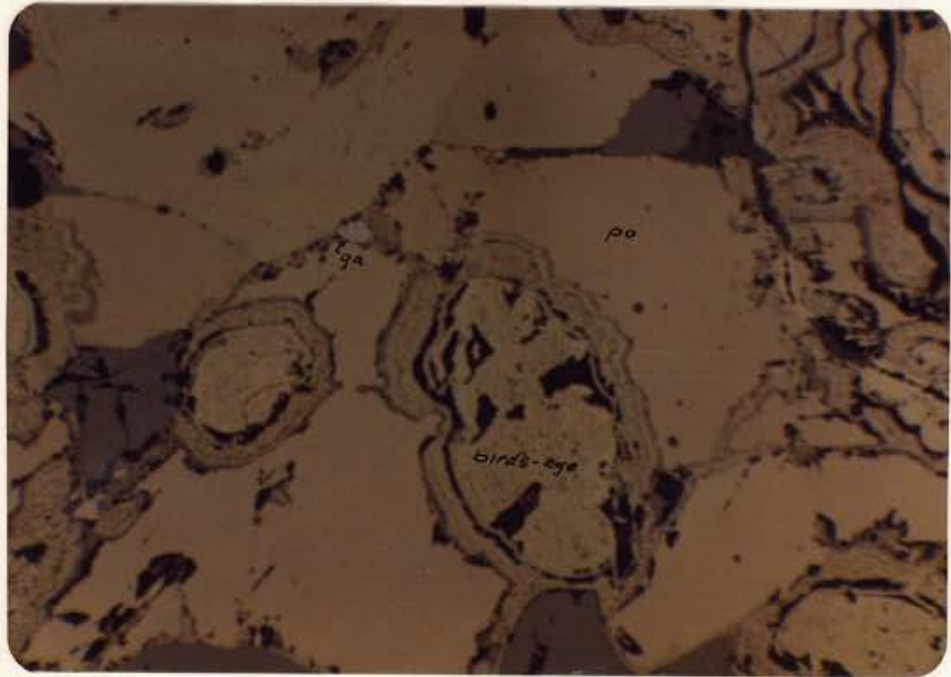


Fig. 10

Birds-eye texture resulting from the weathering of the massive pyrrhotite (po). Interstitial to the pyrrhotite grains are galena (ga) and sphalerite (spha). x 160, reflected light, photomicrograph.

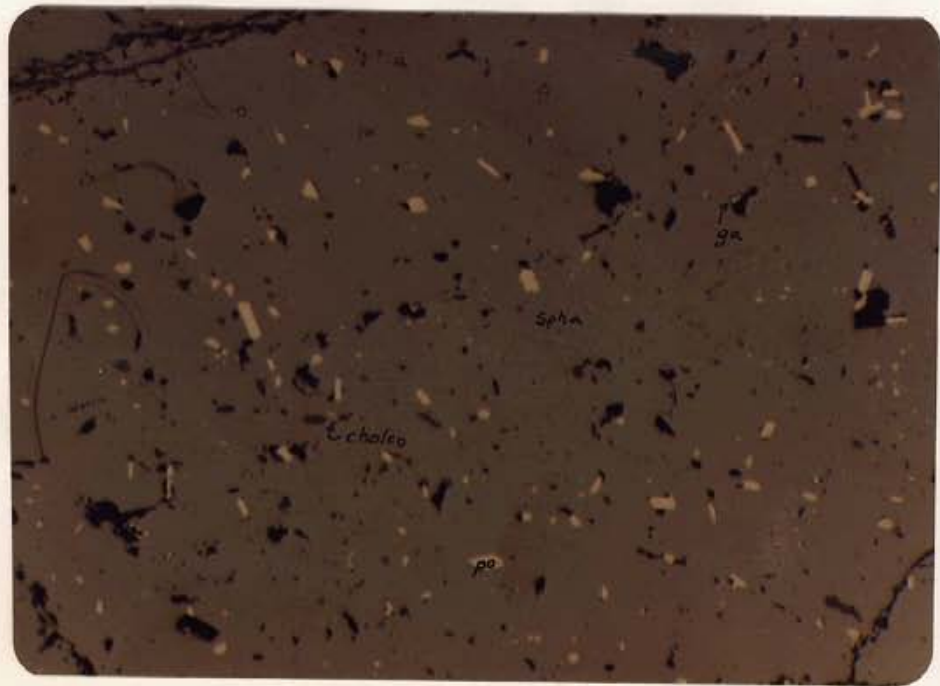


Fig. 11

Inclusions of pyrrhotite (po), galena (ga), and chalcopryite (chalco) in massive sphalerite (spha). x80, reflected light, photomicrograph.

VII.

## CERTIFICATE OF PROFESSIONAL QUALIFICATION

This is to certify that the undersigned, Perfecto J. Santos, of Castlegar, British Columbia, is a Professional Engineer legally authorized to engage in the practice of Professional Engineering in the Province of British Columbia in accordance with the terms of the Engineering Profession Act of the Province and the By-Laws of the Association.

This is also to certify that the undersigned has 19 years experience in the practice of his profession .

  
P. J. Santos, P. Eng.

June 7, 1980

General Delivery,  
Salmo, B.C.

April 26, 1980

P. J. Santos  
626 3rd Ave. N.  
Castlegar, B.C. V1N 1M4

Dear Pec,

I would like to request you to conduct a geological study of my property, the Zilor Claim, located south of the City of Rossland. I would like to request also that you conduct a literature search for information regarding the Lily May, Black Horse, and Richmond claims which are located adjacent to the Zilor. I want to bring these properties into production and in this connection I want to raise funds from investors who are interested to participate in this mining venture. In this connection I will need a report written by a qualified professional engineer of B.C.

I do not intend to offer these properties to Cominco since in my experience with this company they are not interested to participate in any venture of this size.

Please get in touch for a suitable date for the property investigation.

Thank you and regards.

Yours truly,

*R. Sprinks*

SAMPLING, ASSAYING, MAPPING (CONTRACT) \$ 500.00