

BRENDA MINES LTD.  
EXPLORATION GROUP  
REPORT on GEOLOGICAL SURVEY,  
MAGNETOMETER SURVEY and  
ROAD BUILDING (1980)  
on  
SIWASH SILVER MINERAL PROPERTY

Latitude 49° 47'; Longitude 120° 20'  
Similkameen Mining Division  
N.T.S. 92H/16

Del W. Ferguson

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I INTRODUCTION

a) History of Property

The Siwash Creek area has been prospected since the early 1900's. Several adits have been driven into rock faces along creek banks and numerous hand trenches, following mineralized leads, have been excavated throughout the valley. Evidence of old placer workings is also apparent along the banks of Siwash Creek.

During the 1960's, mineral exploration was carried out in the area by several companies including Quality Exploration Corporation Ltd., Cyprus Exploration Corporation Ltd. and Diana Explorations Ltd. More recent work on the property was executed by E. Mullin of Princeton, B.C. and D.E. Agur of Summerland, B.C. The holdings of these persons were optioned to Brenda Mines Ltd. in April 1979 for further exploratory work.

b) Topography and Vegetation

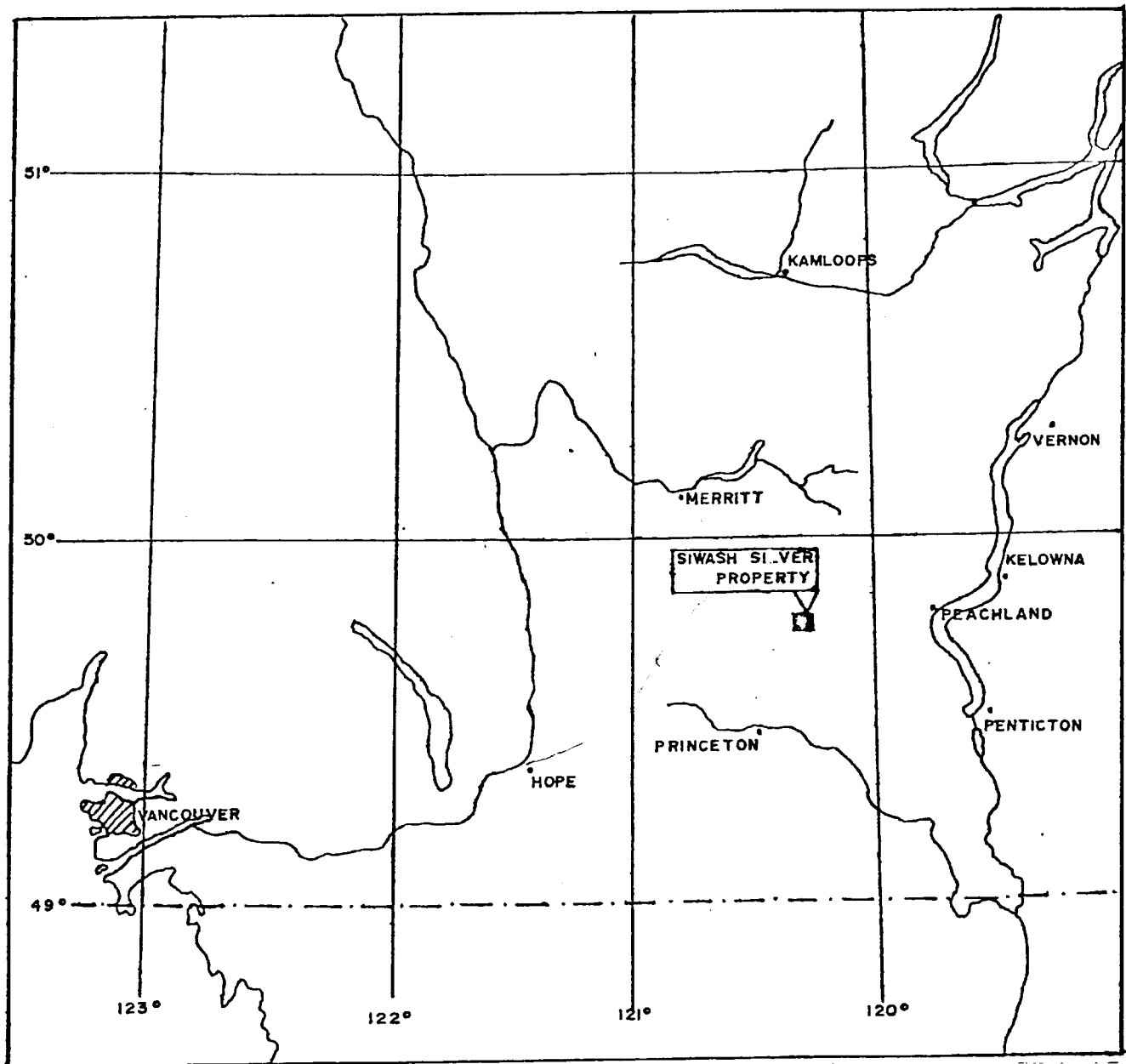
The property occupies the deep, narrow, terraced Siwash Creek valley and its surrounding plateau lands. Major tributaries include Tepee, Galena and Gavin Creeks flowing into the main valley from the east and Saskat Creek entering from the west. All of these creeks occupy the base of very steep, narrow valleys. Vegetation consists generally of well spaced stands of jackpine, fir and spruce with a lush, grassy undergrowth. Some of the more immature forests consist of tight growths of scrawny jackpine. Taigalders flourish in swampy areas within the plateau and along steep valley sides.

II PROPERTY DESCRIPTION

a) Location and Access

The Siwash Silver Property is located 38 air kilometres northeast of Princeton, B.C. The claims are situated along Siwash Creek, west of Tepee Lakes and east of Missezula Lake. There are presently two access roads to the property. One is via an 8 kilometre forestry access road which branches off of the Summerland-Princeton road, north of Osprey Lake. The other branches off of the Trout Creek logging road, 60 kilometres west of Peachland, B.C.

Figure 1 - Location Map



SCALE 1:2 000 000

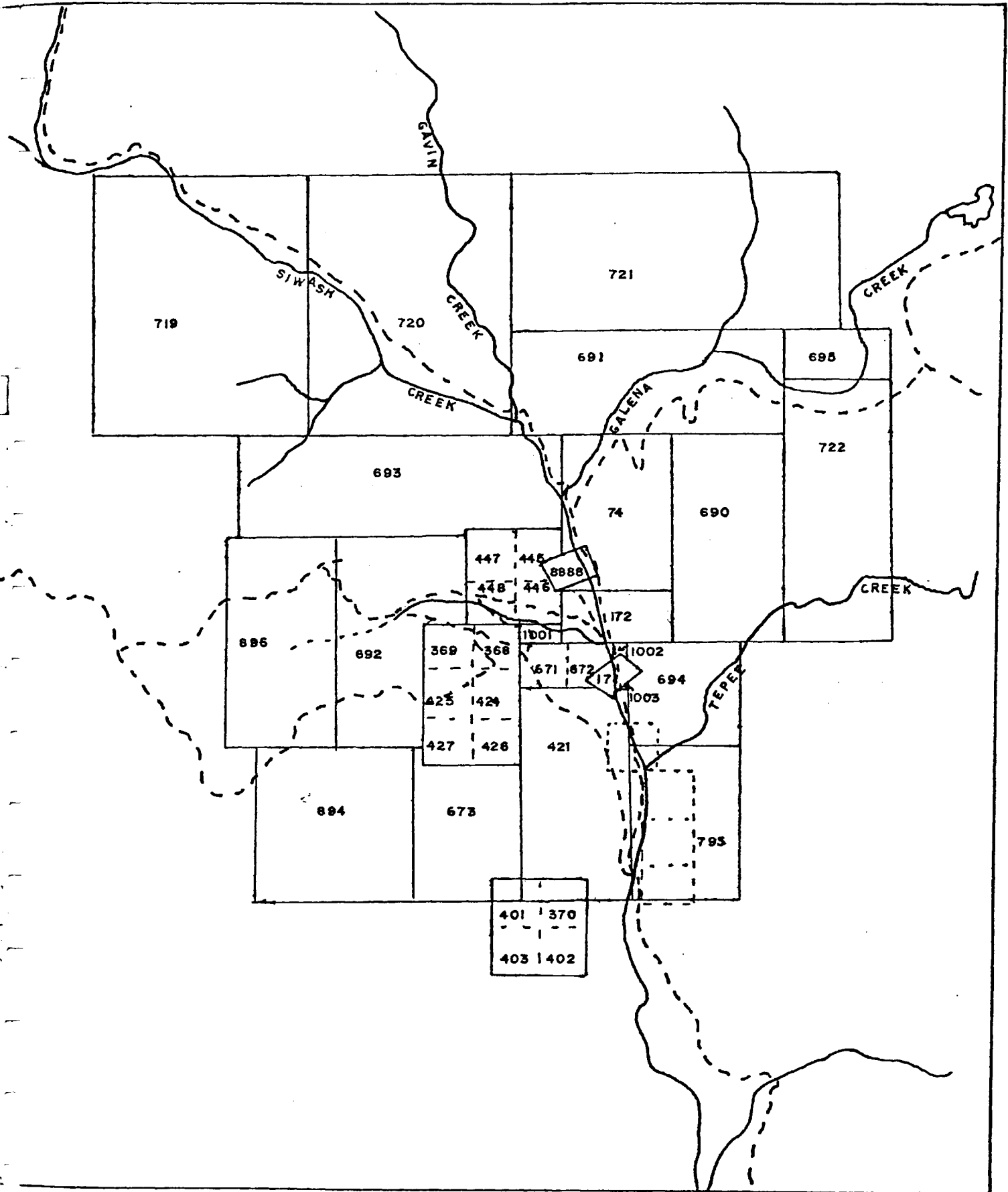


b) Claim Inventory

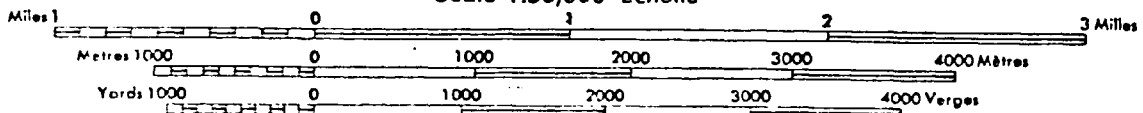
<u>Claim Name</u>	<u>Record No.</u>	<u>Units</u>	<u>Record Date</u>	<u>Assessment Date</u>
ED	74	6	June 29/76	June 29/87
ED # 2	172	2	Nov. 23/76	Nov. 23/87
Saskat 1	368	1	June 29/78	June 29/87
Saskat 2	369	1	June 29/78	June 29/87
June 1	370	1	June 29/78	June 29/86
Skye 1	401	1	Aug. 15/78	Aug. 15/86
Skye 2	402	1	Aug. 15/78	Aug. 15/86
Skye 3	403	1	Aug. 15/78	Aug. 15/86
June 2	421	8	Sept. 1/78	Sept. 1/86
Pat 1	424	1	Sept. 14/78	Sept. 14/87
Pat 2	425	1	Sept. 14/78	Sept. 14/87
Pat 3	426	1	Sept. 14/78	Sept. 14/87
Pat 4	427	1	Sept. 14/78	Sept. 14/87
V.M. 1	445	1	Oct. 5/78	Oct. 5/87
V.M. 2	446	1	Oct. 5/78	Oct. 5/87
V.M. 3	447	1	Oct. 5/78	Oct. 5/87
V.M. 4	448	1	Oct. 5/78	Oct. 5/77
Jean 1	671	1	July 26/79	July 26/87
Jean 2	672	1	July 26/79	July 26/87
Hawk	673	6	July 26/79	July 26/86
Nanci P-1	690	8	Aug. 13/79	Aug. 13/87
Nanci P-2	691	10	Aug. 13/79	Aug. 13/84
Skylab	692	12	Aug. 13/79	Aug. 13/83
B & B	693	12	Aug. 13/79	Aug. 13/84
Herdel	694	4	Aug. 13/79	Aug. 13/86
Teepee	695	2	Aug. 13/79	Aug. 13/84
ARP	719	20	Sept. 13/79	Sept. 13/82
Fergito-Allendo 1	720	20	Sept. 13/79	Sept. 13/83
Fergito-Allendo 2	721	18	Sept. 13/79	Sept. 13/84
Timbo-Tavish	722	10	Sept. 13/79	Sept. 13/82
Charlie	795	6	Oct. 25/79	Oct. 25/85
Bisbee	894	9	Dec. 12/79	Dec. 12/83
Bingham	896	8	Dec. 12/79	Dec. 12/83
Peterson	8888			Feb. 6/87
Fissure Maiden	171 (Crown Grant)			Nov. 8/86
SS 1 (fraction)	1001	frac.	Apr. 30/80	Apr. 30/81
SS 2 (fraction)	1002	frac.	Apr. 30/80	Apr. 30/81
SS 3 (fraction)	1003	frac.	Apr. 30/80	Apr. 30/81

All claims are located in the Similkameen Mining Division.

Figure 2 - Claim Map



Scale 1:50,000 Échelle



III REGIONAL SETTING

The Siwash Silver mineral property is underlain by granite, quartz-eye porphyry and quartz-feldspar porphyry related to the Otter Intrusions of Upper Cretaceous-Early Tertiary age. These units comprise the "Siwash Creek Body" referred to by Rice (1960). This body has intruded granodiorites of the Coast Intrusions, which are Jurassic in age. Older Nicola volcanics of Triassic age occur in the extreme northwest of the mineral property.

Surface mineralization occurring throughout the mineral property is hosted in:

1. Thin veinlets and brecciated areas within zones of intense chloritization and silicification.
2. Fractures crosscutting zones of intense alteration.
3. Quartz veins.

In order of abundance, the following mineralization occurs within the various host environments described; pyrite, specular hematite with minor amounts of sphalerite, galena, chalcopryite, tetrahedrite, bornite and gold. Mineralization is not homogeneous throughout the area, but varies from one location to the next with respect to the kind of mineralization incurred and the concentrations thereof.



IV WORK PROGRAM DESCRIPTION

a) Grid Establishment

The existing 1979 survey grid was extended 1,200 metres to the west via a baseline trending S 60° W. Lines were spaced at 200 metre intervals perpendicular to this baseline.

A new grid (N) was established to the north of the 1979 grid. This second baseline trends east-west and extends west from Gavin Creek for 4 kilometres and east for 3.2 kilometres. North-south lines were run at 200 metre intervals along and perpendicular to this baseline.

Later on on the year, a mini-grid extending from 5 + 00N to 23 + 00N and E to 14 + 00E was established over the B & B, Skylab and Fergito-Allendo 1 claims.

All lines were flagged and measured with a compass and topofil, being tagged at 50 or 100 metre stations for relevant surveys.

b) Geological Survey

The 1980 grid areas were mapped during the month of June, 1980. The mini-grid, established in September, was also mapped during that month. Some pertinent geological facts have subsequently been obtained from a drilling program. The observed lithologies have been drafted on a map on the scale of 1:7500 (Fig. 3). This map is a revision of the 1979 geological map of the Siwash Silver mineral property. The

1980 map has been somewhat expanded to allow for the greater field coverage accomplished during the 1980 season.

The Otter Intrusives of the "Siwash Creek Body" are comprised of: 1) coarse grained granite in the southern half of the map sheet and as a wedge in the northeast corner; 2) quartz-eye porphyry and quartz-feldspar porphyry in the central map area.

Most of the "Siwash Creek Body" is composed of a pinkish red, coarse grained, light coloured granite. The principle visible minerals are pink & white orthoclase or microcline, generally intergrown with quartz and small flecks of black biotite. Weak to strong alteration types of propylitic, argillic and silver often occur throughout this lithology along structurally weak zones.

More central, and thought to be in gradational contact with this granite, is a large body of quartz-eye porphyry, exhibiting pervasive, argillic alteration of a bleached white colour and several zones of light green phyllic alteration. Much of this unit contains a significant amount of pyrite, occurring as disseminations, veinlets and veins. Several masses and dyke-like bodies of quartz-feldspar porphyry are in gradational contact with the quartz-eye porphyry unit. This unit has a fairly fine grained groundmass with feldspar phenocrysts greater than 0.5 cm and less than 5 cm. Quartz-eyes are also predominant in this unit and biotite flecks may or may not be present.

Gradational contacts between the quartz-feldspar porphyry and granite units have been noted.

Pebble dykes are also noted throughout the granite and quartz-eye porphyry units in several places. They consist of granite and/or quartz-eye porphyry pebbles set in a fine grained matrix. Pebble sizes may range from 1 cm up to 30 cm in size, but are generally within the 5 cm range. It is thought that these "dykes" represent a type of local, passive brecciation.

A younger quartz-feldspar-biotite porphyry forms definite cross-cutting relationships through the granite and quartz-eye porphyry units. The groundmass of this unit is generally mauve or pale green in colour. Quartz, feldspar and biotite phenocrysts are predominant. Unlike the quartz-feldspar porphyry unit, feldspar phenocrysts are generally less than 2 cm in size and biotite flecks are larger and more obvious.

Small, often mineralized, andesite to rhyolite dykes are noted cross-cutting the Otter Intrusives in several places throughout the property.

Surrounding, and older than the rocks of the Otter Intrusions are granodiorites of the Coast Intrusions (Rice, 1960). This unit is generally medium to fine grained, containing visible quartz, plagioclase, biotite and amphiboles with minor orthoclase. Locally, the unit may be of dioritic composition. It has been noted that the granodiorite

often exhibits mafic foliation near its contact with younger intrusions. Alteration of this unit is generally confined to areas of close proximity to the quartz-eye porphyry unit. Weak to strong propylitic, argillic, phyllic and silicic alteration types have been documented within this unit.

To the northwest of the "Siwash Creek Body" lies the oldest unit within the presently mapped area. The Nicola volcanic rocks consist generally of medium to dark green basaltic andesite. This unit is often porphyritic, containing pyroxene and/or amphibole phenocrysts.

c) 1. Magnetometer Survey

In September of 1980, a magnetometer survey was run over 21 kilometres of a recently established mini-grid on the Siwash Silver property. This survey extends from line 5 + 00N to line 21 + 00N and from line 0 + 00E to line 14 + 00E. The instrument used was a McPhar GP-70 Proton magnetometer.

The magnetic data has been corrected for diurnal variation and is presented in plan form on a horizontal scale of 1:7500. Values are contoured at 100 gamma intervals (Fig. 4).

c) 2. Discussion of Results

Magnetic anomalies are considered to be those generally greater than 400 gammas. All anomalies occur within the quartz-eye porphyry unit and often close to its contact with other intrusive units. One such anomaly occurs near

the contact between granodiorite and quartz-eye porphyry and trends north from 11 + 00N - 3 + 00E to 16 + 00N - 7 + 00E. Three anomalous areas occur close to quartz-feldspar porphyry intrusive units and one anomaly is adjacent to a large body of quartz-feldspar-biotite porphyry.

The granodiorite unit appears to exhibit low magnetic values of less than 200 gammas.

d) Conclusions

The reconnaissance geological phase, including minor detailed geological studies has been accomplished to date on the Siwash Silver mineral property. Much more detailed mapping could be applied to establish exact contact relationships between the various intrusive units and to better pin-point areas congenial to further mineral exploration ventures.

A complete magnetic survey is required over the entire Siwash Silver property before any magnetic data can be considered as useful, or indicative of magnetic mineralization.

e) Road Building

During the 1980 field season, a total of 3.7 kilometres of new roads were established over the Siwash Silver mineral property. All new roads were constructed over the central area of the property where access was virtually non-existent. In addition to this, a total of 11.15 kilometres of existing road were upgraded to allow

for easier 4 wheel-drive access throughout the property.  
The location of new roads and upgraded roads is presented  
in Fig. 5 accompanying this report.

REFERENCES

Ferguson, D.W. (1980) - Geology Report (1979) on the Siwash  
Silver Mineral Property.

Government Assessment Report.

Rice, H.M.A. (1960) - Geology and Mineral Deposits of the  
Princeton Map Area, B.C. G.S.C.  
Memoir 243.

APPENDICIES



Itemized Cost Statement for Geological Survey

1) Labour		
1 Geologist - 45 days @ \$90/day		\$4,050.00
1 Assistant - 45 days @ \$60/day		2,700.00
1 Cook - 1.5 months x \$1,000/month		1,500.00
2) Transportation		
a) Truck rental - one 4 x 4 @ \$497/month x 1.5 months		745.50
b) Fuel & vehicle maintenance - \$10/day x 45 days		450.00
3) Food - \$9/man/day x 45 days x 2 men		810.00
4) Field Camp Expenses		
a) Propane		142.50
b) Other		412.50
5) Report Preparation, Drafting & Typing		<u>500.00</u>
	Total	\$11,310.50

Itemized Cost Statement for Magnetometer Survey

1) Labour - 1 Field Assistant - 5 days @ \$60/day		300.00
2) Transportation		
a) Truck rental - one 4 x 4 @ \$16.57/day x 5 days		82.85
b) Fuel & vehicle maintenance @ \$10/day x 5 days		50.00
3) Food - \$9/man/day x 4 man days		45.00
4) Report Preparation & Typing		<u>230.00</u>
	Total	\$707.85

Geological Survey Cost Breakdown

SS 2 Mineral Group - 5% of Survey = 5% of money =	\$565.52
SS 3 Mineral Group - 19% of Survey = 19% of money =	2,149.00
SS 4 Mineral Group - 39% of Survey = 39% of money =	4,411.09
SS 5 Mineral Group - 19% of Survey = 19% of money =	2,149.00
ARP Claims - 18% of Survey = 18% of money =	<u>2,035.89</u>
Total	\$11,310.50

Magnetometer Survey Cost Breakdown

2 km were accomplished over the SS 3 Mineral Group = 9.5% of total line km = 9.5% of money =	67.25
19 km were accomplished over the SS 4 Mineral Group = 90.5% of total line km = 90.5% of money =	<u>640.60</u>
Total	\$707.85

Itemized Cost Statement for Road Building

New Roads - 3.7 km	
D6 Cat - 12 - 10 hr/days @ \$51.25/hr	\$6,150.00
Faller - 37 hrs @ \$10/hr	370.00
- Chain saw & fuel	75.00
10% of 120 hrs Supervisory time	1,080.00
Road Upgrading - 11.15 km	
D6 Cat - 160 hrs @ \$51.25/hr	8,200.00
10% of 160 hrs Supervisory time	<u>1,440.00</u>
Total	\$17,315.00

Cost Breakdown

1) 0.4 km of road upgrading over SS 1 Mineral Group = 3.6% of upgraded km = 3.6% of \$9,640.00 =	347.04
2) 4.25 km of road upgrading over SS 2 Mineral Group = 38.1% of upgraded km = 38.1% of \$9,640.00 0.45 km of new road over SS 2 Mineral Group = 12.2% of new road km = 12.2% of \$7,230.00	3,672.84
	<u>882.06</u>
Total	\$4,554.90
3) 1.0 km of road upgrading over SS 3 Mineral Group = 9% of upgraded km = 9% of \$9,640.00 =	876.60
4) 3.1 km of road upgrading over SS 4 Mineral Group = 27.8% of upgraded km = 27.8% of \$9,640.00 = 2.95 km of new road over SS 4 Mineral Group = 79.7% of new road km = 79.7% of \$7,230.00 = 100% of falling costs over SS 4 Mineral Group =	2,679.92
	5,762.31
	<u>445.00</u>
Total money applied to SS 4 Mineral Group	\$8,887.23
5) 2.4 km of road upgrading over SS 5 Mineral Group = 21.5% of upgraded km = 21.5% of \$9,640.00 = 0.3 km of new road over SS 5 Mineral Group = 8.1% of new road km = 8.1% of \$7,230.00 =	2,072.60
	<u>585.63</u>
Total money applied to SS 5 Mineral Group	<u>\$2,658.23</u>
Total money applied to Mineral Property	<u>\$17,315.00</u>