RUBICON RESOURCES

BLUEBIRD, MAYFLOWER, HOMESTAKE STRUCTURES

ROSSLAND MINING CAMP

NTS 82F/4 674434 FEBRUARY 1982

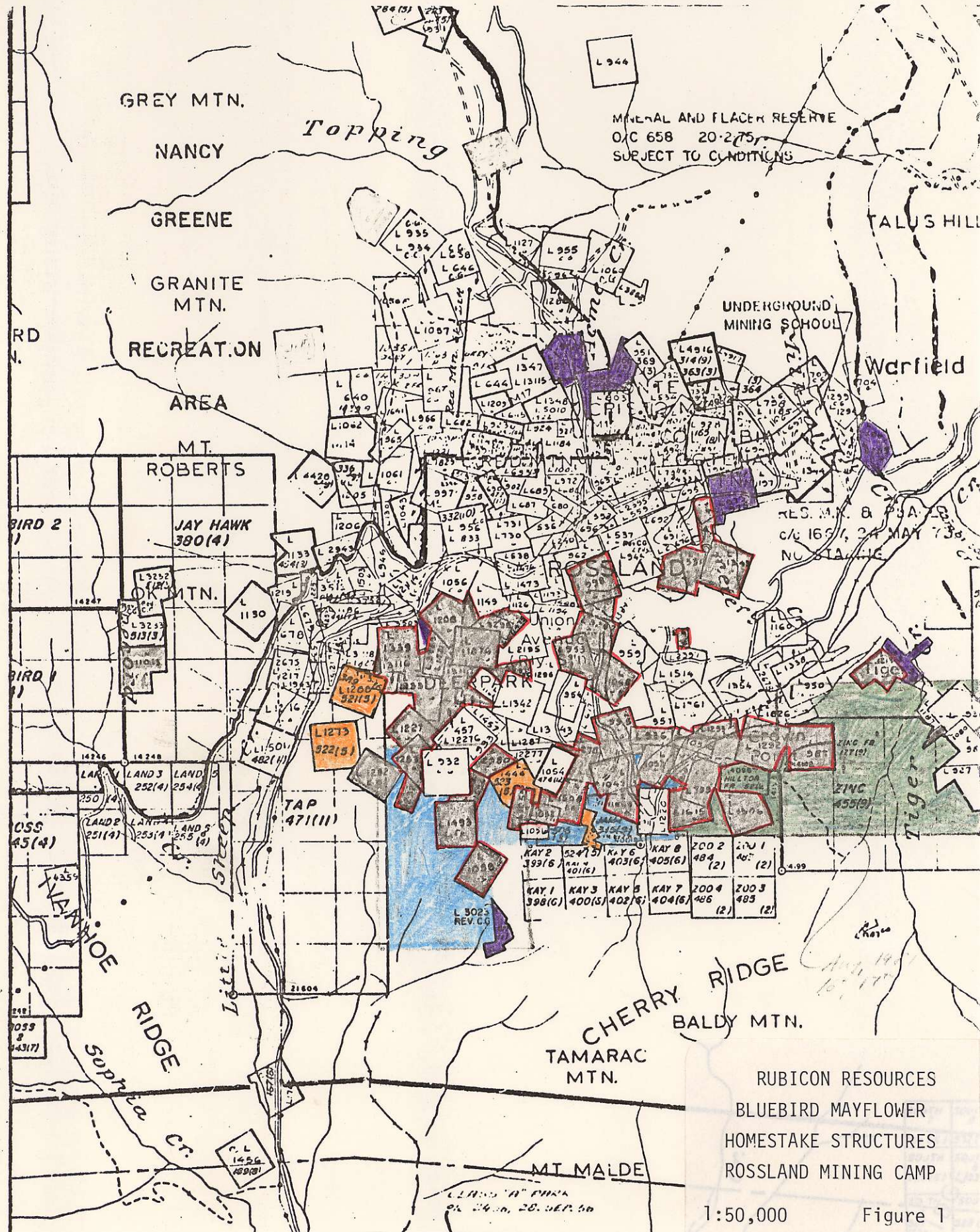
RUBICON RESOURCES

BLUEBIRD MAYFLOWER HOMESTAKE STRUCTURES

ROSSLAND MINING CAMP
82 F/4

Don Bragg
3567 West 27th Ave
Vancouver
733 7260

Claims held by option to purchase from Ross Island Mines Ltd
Claims held by Location
Claims held by Application
Claims to be acquired - under Negotiation.
Claims to be acquired - under negotiation



RUBICON RESOURCES
BLUEBIRD MAYFLOWER
HOMESTAKE STRUCTURES
ROSSLAND MINING CAMP

1:50,000 Figure 1

RUBICON RESOURCES

INTRODUCTION

The following data was supplied by Don K. Bragg, of Rubicon Resources.in hope of assistance in raising financing to unravel company affairs and carry out exploration and development on the Mayfair structure with hope of mining 10,000 tons of ore in 1982.

PROPERTY

The claims outlined in red on Figure 1 are under option from Ross Island Mines Ltd. successor to Rossland Mining.Company.

The claims coloured blue are held by location by Rubicon Resources. Staked January 1981. Assessment work being filed.

The claims coloured purple are held by application by Rubicon Resources.

The claims coloured green are held by Standonray Mines which we understand is controlled by D. Bragg and E.S. Warner. These claims are to be acquired by Rubicon.

The claims coloured orange are to be acquired as part of shareholders agreement.

Total 96 claims.

COMPANIES

From our conversation we understand:-

Standonray Mines is controlled now by E.S. Warner and D. Bragg and was used as the agency mining the Bluebird Mayflower structure 1972 - 1977. They had a 50 ton portable mill in 1972 which was closed by environmental departments of B.C. Government. E.S. Warner of Rossland did the mining.

David Minerals have taken up the Red Mountain Mill, the Bluestar mill at Ainsworth and have the H.B. Mill at Salmo. Ore from Bluebird - Mayflower has previously been put through the H.B. mill and ore from Goldbelt is presently going there.

Rubicon Resources was formed by D.K. Bragg May 27, 1980 to acquire properites at Rossland and conduct mining. Business was put in the hands of a broker (unnamed) who tried to take control. Bragg has been through court to regain control.

Only two subscribing shares have been issued. Raised about $113,000 for which shares have not been issued.

Air survey, used for assessment work, cost about $30,000.00

Broker partner is invoicing company for about $10,000.00

Lawyers fees outstanding $8,000.00

Cannot get minute books of company from lawyer until bill of $1,200. paid.

See "Share Position as of February 1,1982" for distribution of shares under shareholders agreement.

SHARE POSITION AS OF FEBRUARY 1, 1982

D.K. Bragg	Subscriber	2	
	Share holders Agreement	299,000	
	Shares @ 20¢	50,000	
	Shares @ 50¢	114,000	
			463,002
E.S. Warner			
	Share holders Agreement	25,000	
	Shares @ 20¢	20,000	
	Shares @ 50¢	25,000	
			70,000
Tovell	Shareholders Agreement	50,000	
	Shares @ 50¢	10,000	
			60,000
Standonray Mines	Sharehorders Agreement		350,000
C.J.McDonald	Shares @ 50¢	7,000	7,000
A.L. Bragg	Shares @ 50¢	10,000	
	Shareholders Agreement	10,000	
			20,000
D.E. Bragg	Shares @ 50¢	16,000	
	Shareholders Agreement	16,000	
			32,000
			1002,002

CAPITALIZATION 10,000,000 SHARES

$100

ROSS ISLAND MINES LTD. option agreement calls for annual

$ 10,000 payment for 10 years;
$300,000 work on ground to gain 51% interest;
5% net smelter return
$1,000,000 cash buy out of remaining 49%

PROGRAM

As indicated by various maps the claims contain two east west trending structures which contain short vertical shoots of ore grade material. The largest shoot described by Bragg was 150' long by 240' in depth with possibly up to 6' in width.

The Homestake structure is north of the Mayflower and does not have comparable development.

On the Mayflower there are three levels, #1 adit at 3000' elevation; #2 adit at 2900' elevation as the main production level in recent times and a winze shaft to No. 3 level at 2760' elevation.

Although Bragg indicated 10,000 tons were mined between 1972 and 1977 the "Statement of Ore Shipments Bluebird" totals only 2891 tons between 1972 and 1975.

Bragg wishes to raise money in the following amounts: -

120,000 shares @ 50¢	$ 60,000
100,000 shares @ 60¢	60,000
50,000 shares @ 70¢	35,000
270,000 shares	$155,000

With this money he wishes to carry out an S.P. and magnetometer survey on the west end of the Bluebird-Mayflower zone where earlier S.P. surveys show an anomaly. The anomaly to be tested by diamond drilling and if successful the zone would be opened up with 150 feet of drifting.

Gross value of material presently available in Mayflower is estimated to be $150.00 per ton. Ore material should run $250.00 per ton. with distribution of main costs estimated to be: -

Mining	$30.00 per ton
Shipping	$12.00
Milling	$30.00
Smelting	$15.00
	$87.00 per ton

Some arsenic is present in the ore.

My impression of these costs is that they are only 50% of what might be expected.

P.J. Santos, P.Eng., whose report follows, is presently with David Minerals.

February 23, 1982

J.C. Stephen

STATISTICS OF ORE SHIPMENTS BLUEBIRD

Lot	Shipping Date	Assays Au	Ag	Pb	Zn	Dry Tons Shipped	Total Gross Value	Total Gross Value per Ton	Smelter Charges & Handling	Source	Smelter Charges per Ton	Freight	Freight & Shipping per Ton	Total Net Value	Net Value Per Ton	Net Value after Royalty	Net Va per ton After Royalt
1	6/13/72	.280	16.50	6.2	10.3	46.48	3021.49	65.01	1424.66	2-19	30.65	147.51	3.11	1449.32	31.18	1304.39	28.06
2	5/11/73	.182	18.40	4.7	7.5	61.33	5422.15	88.41	1678.04		27.36	179.37	2.91	3564.74	58.12	3208.27	52.31
3	6/20/73	.173	13.60	4.4	6.2	76.69	5802.21	75.66	2224.76	2-18	31.62	210.07	2.72	3367.38	43.91	3030.64	39.59
4	8/02/73	.150	14.00	4.1	5.4	166.77	11100.29	66.58	4694.52	2-18	28.15	434.90	2.60	5970.87	35.80	6373.78	32.22
5	10/13/73	.270	18.90	6.0	8.8	35.32	3903.82	110.53	1290.01	Hand sort 2-19½ 2-18	36.53	105.58	2.98	2508.23	71.01	2257.41	63.91
6	12/12/73	.090	15.60	3.5	4.3	147.35	11461.11	77.78	4060.87	2-18,2-18½	27.55	663.58	4.50	6736.66	45.72	6062.99	41.15
7	1/21/74	.055	18.1	4.0	3.6	218.43	23885.71	109.35	6342.55	2-18½	29.04	922.07	4.22	16621.09	76.09	14938.98	66.80
8	4/15/74	.030	10.85	2.1	2.5	199.58	12239.56	61.33	5601.65	1-13 Dump	28.07	1025.53	5.14	5612.38	28.12	5051.14	25.31
9	5/14/74	.045	10.90	2.1	2.9	223.19	13442.53	60.23	7031.07	1-13+Dip	31.50	732.06	3.28	5679.40	25.45	5111.46	22.90
10	6/14/74	.047	17.10	2.7	3.7	219.46	19037.87	86.75	7018.85	1-13	31.98	744.30	3.39	11274.72	51.37	10147.72	46.24
11	12/03/74	.055	22.30	3.5	3.5	303.68	33425.09	110.07	13249.26	1-13	43.63	998.64	3.29	19177.19	63.15	17259.47	56.83
12	1/21/75	.047	26.65	3.8	3.6	223.97	29089.63	129.88	9388.58	1-13	41.92	755.64	3.37	18945.41	84.59	15533.52	69.36
13	3/03/75	.045	13.25	1.8	2.5	225.50	14432.76	64.00	9198.76		40.79	792.45	3.51	4441.88	19.70	3997.69	17.73
14	4/09/75	.035	9.15	1.4	2.1	232.69	10484.17	45.06	9239.23		39.71	821.80	3.53	423.14	1.92	380.83	1.54
15	4/09/75	.037	10.65	1.7	2.2	75.83	4074.63	53.73	3077.25		40.58	280.72	3.70	716.66	9.45	644.99	8.50
16	5/11/75	.040	17.70	1.9	2.6	149.72	12907.43	85.21	6080.83		40.61	505.72	3.37	6320.88	42.22	5688.79	38.00
17	6/07/75	.032	15.35	1.9	2.3	99.74	7656.62	75.75	3951.01		39.61	351.86	3.53	3353.75	33.62	3018.37	30.26
18	7/12/75	.032	16.60	1.9	2.5	125.49	10893.36	85.81	5742.78		45.76	438.86	3.50	4711.72	37.55	4240.55	33.79
19	9/06/75	.03	13.95	1.6	2.2	60.18	3808.86	63.29	2684.06		44.60	374.43	6.22	750.37	12.47	675.33	11.22
						2891.40	$236089.29	$81.652	$103978.74		$35.961	$10485.09	$3.636	$121625.79	$42.06	$107945.85	$37.333

BLUEBIRD 1972 - 75 CALCULATION OF AVERAGE GRADE AND GROSS VALUE AT CURRENT PRICES FEB. 1982

DATE	DRY TONS	AU GRADES	GROSS OUNCES	AG GRADE	GROSS OUNCES	Pb GRADE %	GROSS POUNDS	Zn GRADE %	GROSS POUNDS
6/13/72	46.48	.280	13.014	16.50	766.92	6.2	288.17	10.3	478.74
5/11/73	61.33	.182	11.162	18.40	1128.47	4.7	288.25	7.5	459.97
6/20/73	76.69	.173	13.267	13.60	1042.98	4.4	337.43	6.2	475.47
8/2/73	166.77	.150	25.015	14.00	2334.78	4.1	683.75	5.4	900.55
10/13/73	35.32	.270	9.536	18.90	667.54	6.0	211.92	8.8	310.81
12/12/73	147.35	.090	13.261	15.60	2298.66	3.5	515.72	4.3	633.60
1/21/74	218.43	0.055	12.013	18.1	3953.58	4.0	873.72	3.6	786.34
4/15/74	199.58	0.030	5.987	10.85	2165.44	2.1	419.11	2.5	498.95
5/14/74	223.19	0.045	10.043	10.90	2432.77	2.1	468.70	2.9	647.25
6/14/74	219.46	.047	10.314	17.10	3752.76	2.7	592.54	3.7	812.00
12/ 3/74	303.68	.055	16.702	22.30	6772.06	3.5	1062.88	3.5	1062.88
1/21/75	223.97	0.047	10.526	26.65	5968.80	3.8	851.08	3.6	806.29
3/03/75	225.50	.045	10.147	13.25	2987.87	1.8	405.90	2.5	563.75
4/07/75	232.69	.035	8.144	9.15	2129.11	1.4	325.76	2.1	488.65
4/09/75	75.83	.037	2.805	10.65	807.59	1.7	128.91	2.2	166.82
5/11/75	149.72	.040	5.988	17.70	2650.04	1.9	284.46	2.6	389.27
6/07/75	99.74	.032	3.191	15.35	1531.00	1.9	189.50	2.3	229.40
7/12/75	125.49	.032	4.015	16.60	2083.13	1.9	238.43	2.5	313.72
9/06/75	60.18	.03	1.805	13.95	839.51	1.6	96.28	2.2	132.39
	2891.4	0.064	186.935	16.017	46313.01	2.85	8262.51	3.51	10156.85
		@ $350 U.S.+17%		@$9.00 U.S.+17%					
Assumed Metal Price		$409.50 C		$10.53 C		.30¢		.40¢	
Av. Value/Ton		$26.14/ton		$168.66/ton		$17.10/ton		$28.08/ton	$ 239.88
Gross Current Value			$76,549.88		$487,676.00		$2,478.75	$4,062.72	$570.767.35

ROSSLAND CAMP SUMMARY

D. BARR C.I.M.M. 1980

Rossland Camp

Rossland lies 4 miles west of Trail and 5 miles north of the international boundary in southeastern British Columbia (Fig. 1). The gold-copper deposits of the Rossland Camp lie on Red Mountain, which is now better known as the ski-hill made famous by Nancy Greene than as one of the principal lode gold-producing areas in Western Canada, from which Cominco originated initially as a copper producer relying solely on the ores from the Rossland mines.

The first claims in the area were staked in 1887 and production commenced in 1894. Almost all of the ore mined at Rossland came from four interconnected mines, Le Roi (39 per cent), Centre Star (25 per cent), War Eagle (24 per cent) and Josie (10 per cent), in an area of 2000 by 4000 feet (Gilbert, 1948). Total output until production ceased in 1941 was 2.7 million ounces of gold from 6,200,000 tons milled, with a recovered grade of 0.47 oz gold per ton, 0.6 oz silver per ton and 1 per cent copper.

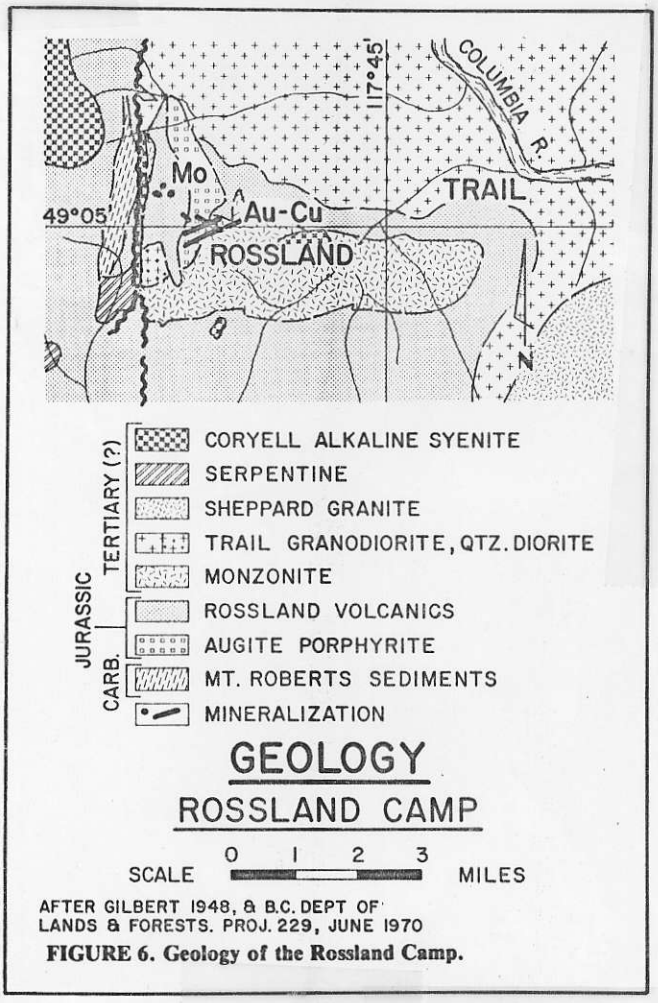


FIGURE 6. Geology of the Rossland Camp.

The Rossland Camp lies within an area in which plutons and dykes intrude a sequence of Late Paleozoic and Lower jurassic volcanic and sedimentary rocks which strike northerly and dip to the west (Fig. 6). The Jurassic Rossland Group comprises mainly intercalated andesitic volcanic breccia, lapilli tuff, augite porphyrite, volcanic sandstones and conglomerate, and lenses of siltstone. The Carboniferous Mount Roberts Formation consists of several hundred feet of siltstone, sandstone, conglomerate and minor limestone. These rocks are metamorphosed to a variable degree and intruded by three principal plutons: the Rossland stock, the Trail batholith and the Coryell stocks, and by a large number of diorite, lamprophyre and syenite dykes, as shown in the more detailed geologic plan of the mine area (Fig. 7).

The Rossland monzonite forms an irregular easterly elongated stock 5 miles long and up to 1.5 miles wide. Tongues of the stock bound the ore deposits on all but the west side. The Rossland stock has an average K-Ar date of 47.3 ± 1.5 m.y., but is considered older because of the altered nature of typical rock on which dating was determined. The Trail granodiorite batholith which lies to the north is slightly younger, and is believed to be the source of a small irregular body of quartz diorite (Rainy Day Stock) which lies immediately west of the mine area (Fig. 6). The latter is important in terms of ore control, as the gold-copper mineralization is considered to be genetically related to this pluton and veins and ore shoots are often localized along its contacts. A mined-out molybdenum orebody also occurred in and near these quartz diorite bodies and associated zones of feldspathization (Fyles *et al.*, 1973). The Trail batholith dips south and occurs at depth in the mine workings. More distant Coryell alkaline syenite and Sheppard granite bodies occur to the northwest and southeast respectively of the Rossland Camp. Northeasterly trending lamprophyre dykes of Tertiary age (Fig. 7), which are up to 50 feet wide, cut all the earlier rocks, but are considered to be pre-ore (Fyles *et al.*, 1973).

The main fracture systems affecting ore deposition are a regional north-south set occupied by dykes and more local east-northeast and southeast sets occupied by veins which dip 60-80 degrees north. The northerly trending fractures dip

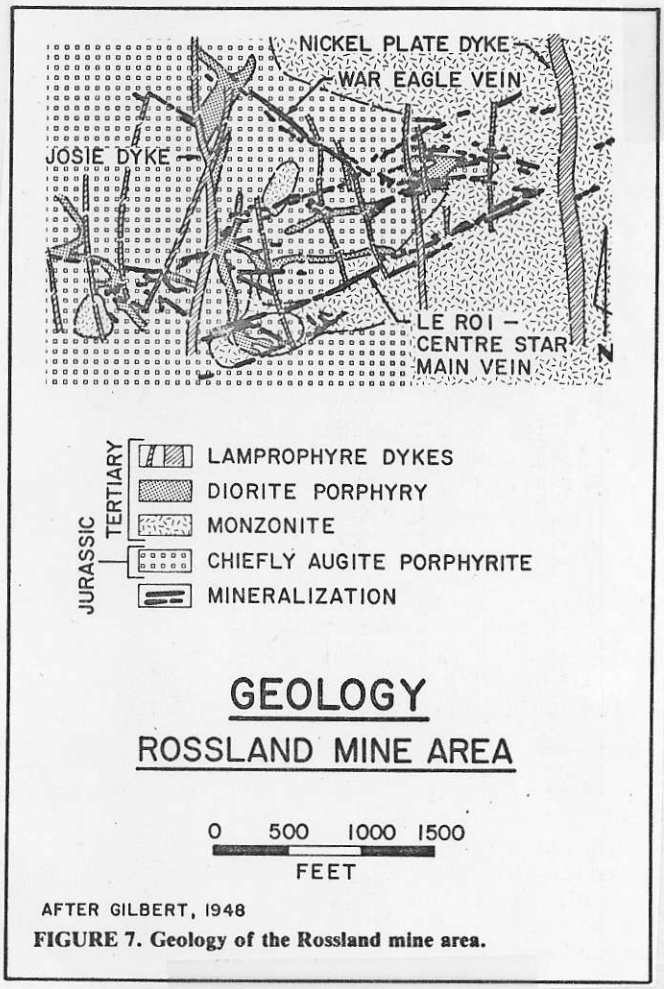


FIGURE 7. Geology of the Rossland mine area.

steeply east. Ore shoots in the veins commonly terminated abruptly against the northerly trending dykes or sent off minor branches along them. The two largest dykes in the mine area, named the Josie and Nickel Plate, are about 2800 feet apart. Each is about 100 feet wide and together they form the approximate west and east boundaries of the main ore-bearing zone.

The veins vary from a few inches to over 130 feet in width and extend for 4000 feet or more in length. Individual ore shoots tended to be short and narrow, the greatest dimension being down-dip. Most of the shoots were *en echelon* in both strike and dip and they raked steeply both to east and west. The deepest workings are 2400 feet below surface.

Ore minerals consist of native gold, pyrrhotite, chalcopyrite, minor pyrite and other sulphides which total 50-70 per cent by volume in a gangue composed of quartz, calcite and altered wall-rock.

There is no evidence of a stratabound volcanogenic origin for the ore deposits at Rossland Camp based on available literature references, the only concordant relations being the association of some ore shoots with the contact of the augite porphyrite. Studies by Fyles *et al.* (1973) showed that the copper-gold mineralization had an average age of 48.2 m.y. based on a K-Ar dating. They concluded that mineralization at the Rossland Camp is of Tertiary age and appears to be genetically related to nearby quartz diorite and granodiorite bodies.

ROSSLAND SOUTH BELT

B.C. MINISTER OF MINES 1949

South Belt.* The basin-shaped area immediately south of Rossland, rimmed by hills rising some 2,000 feet above the valley of Trail Creek, is referred to as the South Belt. It was in this area in 1897 that the first discovery of the Rossland camp was staked as the Lilly May. Some 2 miles northward, gossans along the base of Red Mountain attracted attention, and in 1890 the Le Roi, Centre Star, and War Eagle claims were staked, and the Josie, together with many others, was located the following year. In subsequent years this area became the heart of the Rossland mining camp. The South Belt has received attention from time to time, but production has been small. The most recent activity centred about the Mayflower and began in 1946. Exploration has been hindered by much drift, which is deeper and more continuous in the lower parts of the basin.

The geology of the South Belt is shown on Map No. 1004, which accompanies Memoir 77,† and is described in that publication and elsewhere.‡ The elongated mass of monzonite extending easterly across the northern part of the area intrudes a rock complex referred to as augite porphyrite and remnants of slaty rock of the still older Mount Roberts formation. The contacts of the monzonite mass are irregular, and the southern boundary curves distinctly to the north so that, in the part of the area directly south of Rossland, the other rocks occupy a marked embayment in the monzonite.

The deposits of greater relative importance in the South Belt are in the older rocks in this embayment. Northerly striking lamprophyre dykes dipping moderately eastward, distinctive not only of the South Belt but of the Rossland camp as a whole, appear to be more numerous in the embayment than in areas on either side. From near the centre of the embayment eastward for at least 2 miles innumerable light-coloured dykes of granite porphyry are a distinctive feature. For the most part these dykes strike a few degrees east of north and dip moderately eastward. Several granite porphyry dykes, identical in megascopic and microscopic features to those just mentioned, occur to the north and west of the area and in the Le Roi and Centre Star mines north of Rossland. However, these dykes have an easterly rather than northerly trend and dip almost vertically.

A moderate amount of development work has been done on mineral deposits of the South Belt, most of it many years ago. Data concerning properties, gleaned from published and unpublished sources and from examination of the old dumps and the few workings still partly accessible, are summarized below. In describing the ores the terms "Rossland type," "South Belt type," and "Transitional type" are used for brevity. The Rossland type is heavy sulphide ore, predominantly pyrite and pyrrhotite with a little chalcopyrite, and yields gold and copper. The South Belt type contains pyrite, pyrrhotite, arsenopyrite, sphalerite, galena, and, locally, boulangerite.§ A large part of the value is due to silver, lead, zinc, and gold, but the gold content is low. The Transitional type is gradational in mineralogy and metal content between the Rossland and South Belt types. Usually it contains abundant sphalerite, little or no galena, and is low in silver.

* By W. H. White.

† Drysdale, C. W. (1915): Geology and ore deposits of Rossland, *Geol. Surv., Canada*, Mem. 77.

‡ Bruce, E. L. (1916): Geology and ore deposits of Rossland, *Minister of Mines, B.C.*, Ann. Rept., pp. 214–244.

§ A soft grey metallic mineral of accicular habit (possibly mistaken in the past for stibnite) has been identified as boulangerite by R. M. Thompson, Department of Geology and Geography, University of British Columbia. The mineral is locally abundant in South Belt ores.

Property.	Location.	Strike of Deposit.	Total Tonnage mined.	Country Rock.	Ore Type.
Phoenix	2,000 ft. southwest of city centre	N. 80° W.	117	Monzonite	Rossland.
Abe Lincoln	1,000 ft. west of Phoenix	W. (?)	Nil	Monzonite	Rossland.
Sunset	1,300 ft. south of Phoenix	(?)	19	Monzonite	Rossland.
Nest Egg	1,500 ft. east of Sunset	(?)	?	Monzonite	Rossland.
Monday	1,200 ft. south of Nest Egg	N. to N.E.	?	Slate	Transitional.
Homestake	1,000 ft. east of Monday	N. 80° W.	377	Porphyrite	Transitional.
Gopher	1,200 ft. east of Homestake	(?)	?	Porphyrite	Transitional.
Maid of Erin	1,800 ft. east of Gopher	W. (?)	12	Porphyrite	Transitional.
Celtic Queen	4,500 ft. east of Maid of Erin	N. to E.	Nil	Slate and porphyrite	Transitional.
Crown Point	2,600 ft. east of Celtic Queen	N. 80° E.	400	Porphyrite, near monzonite	Rossland.
Blue Bird	1,200 ft. south of Homestake	W.	538	Slate	South Belt.
Mayflower	1,000 ft. east of Blue Bird	N. 70° W.	626	Porphyrite	South Belt.
Hattie	3,600 ft. west of Blue Bird	W.	9	Monzonite	Rossland.
Deer Park	2,800 ft. west of Hattie	Irreg. N.	?	Monzonite	Rossland.
Lilly May	1,000 ft. south of Hattie	W. and N.W.	50	Slate	South Belt.

Regarding the distribution of these deposits in the South Belt, the following generalizations can be made:—

(1) Deposits with Rossland type ores occur either in or near the monzonite.

(2) The most common trend of the deposits is westerly, but anomalous trends are found on the outskirts, both east and west of the central part of the area.

(3) Deposits with South Belt type or Transitional type ores are most common in the embayment of older rocks directly south of Rossland.

(4) The total recorded output of the South Belt is 2,100 tons. More than half this ore was mined from the Blue Bird and Mayflower. They appear to be on a structure or on two subparallel structures constituting the most persistent ore-bearing zone so far discovered in the South Belt.

Rossland Mines, Limited (Mayflower, etc.).—Company office, 675 Hastings Street West, Vancouver. W. B. Burnett, president; E. H. Lovitt, manager. In 1946, 1947, 1948, and the early part of 1949 this company carried on exploration in the South Belt of Rossland. Geological and geophysical surveys were made in an area roughly 3 miles long in an east-west direction and 1½ miles wide. Possible westerly extensions of the ore-bearing structure of the Mayflower deposit and some of the geophysical anomalies were tested by seventeen diamond-drill holes, totalling 2,342 feet of drilling. Ore was mined in the Mayflower adit in 1948 and 1949 and trucked to Retallack, where it was milled in the Whitewater mill. The 1948 Annual Report of the Minister of Mines states that the ore milled that year amounted to 250 tons and that 295 tons remained in the stockpile. The 1949 production return indicates that an additional quantity of ore, amounting to 136 tons, was trucked to the Whitewater mill. The total quantity of ore milled in the two years amounted to 681 tons, and the gross contents of the concentrates shipped in the two years amounted to: Gold, 55 oz.; silver, 5,254 oz.; lead, 32,053 lb.; zinc, 86,958 lb.; and cadmium, 297 lb.

The workings usually referred to as the Mayflower are on the Crown-granted Olla Podrida claim, 7,200 feet due south of the centre of Rossland. Located in 1899, the property was developed intermittently until about 1911. The earliest work was done on the South vein, on which old caved workings are east of the railroad, about 300 feet southeasterly from the main adit. The North or Main vein was discovered later and explored at shallow depth by two winzes and other workings both east and west of the railroad. In 1939 the main adit (Figs. 19 and 20) was started from the bottom of the valley of Gopher Creek. This level includes a drift on the Main vein and a crosscut

driven southerly in search of the continuation of the South vein, mined in the old workings about 80 feet above.

The predominant rock near the workings is a variation of the type called "augite porphyrite" in Memoir 77, which here is characterized by prominent dark-green crystals of altered augite and is markedly brecciated. The angular fragments are recognizable only on weathered surfaces and are embedded in a matrix somewhat finer in grain but apparently of the same composition as the fragments. The fragments range from 1 to 12 inches across. The prominent augite crystals are scattered evenly throughout both fragments and matrix, and some crystals of augite extend from a fragment across the boundary into the matrix. Near the southeastern border of the augite porphyrite area the outcrops are mere severely weathered and coloured red and white by oxidation of iron and kaolinization of the feldspars. In one outcrop 950 feet east of the main adit the augite porphyrite breccia grades first into volcanic agglomerate and finally into thin-bedded reddish material resembling tuff, which strikes north 60 degrees east and dips steeply southeastward.

The augite porphyrite breccia gives place southeastward to conglomerate composed of subrounded and rounded pebbles of augite porphyrite, granite, diorite, and quartz in a matrix of very fine-grained dark-coloured silt-like material. The matrix weathers out readily, leaving the pebbles protruding from the surface. Most of the pebbles range in size from 1 to 3 inches, but in places pea-size pebbles and coarse sand occur in stratified lenses that strike about north 40 degrees east and dip about 60 degrees to the southeast. Grain-size gradations in the stratified beds indicate that the beds are right-side up. Preferential replacement of the matrix and of certain of the pebbles by epidote is a common feature. The contact of the augite porphyrite and conglomerate was nowhere observed, but it would appear to be abrupt. Evidently it represents an erosion surface separating the augite porphyrite and the overlying conglomerate.

One thousand feet southwesterly from the Mayflower workings, across the drift-filled valley of Gopher Creek, the contact of augite porphyrite and thin-bedded siliceous slate of the Mount Roberts formation is exposed in a railroad cut. The augite porphyrite near the contact is massive, fine grained, and not porphyritic, and the slate is indurated and pyritic. The contact strikes north 20 degrees east and is vertical. In the railroad cut the bedding of the slate is parallel to the contact, but 850 feet farther north the slate in the Blue Bird workings strikes north 15 degrees west and dips 50 degrees westward.

Intrusive into these older rocks are diorite porphyry, granite porphyry, and both mica lamprophyre and non-mica lamprophyre dykes. The oldest are dykes and irregular masses and tongues of fine-grained diorite porphyry with distinctive accicular hornblende crystals. The zone of granite porphyry dykes begins near the eastern edge of the area mapped. The granite porphyry is easily distinguished by its subspheroidal crystals of clear quartz about 1 millimetre in diameter, in a fine-grained feldspathic groundmass. The dykes strike north 15 degrees east and dip regularly 50 to 60 degrees eastward. On a railroad cut north of the area a granite porphyry dyke is cut by a lamprophyre dyke.

The lamprophyre dykes of both types are numerous and are a distinctive feature of considerable economic significance. Probably they are more numerous than suggested by Figure 19. Although some of the dykes branch and vary in attitude, the swarm as a whole trends a few degrees west of north and dips moderately to the east. The dykes range in width from 4 to as much as 25 feet. In field mapping, the lamprophyre dykes were divided into mica and non-mica types, depending on whether or not biotite was visible with a hand-lens. These names, based on megascopic characteristics, are retained as a convenient way of distinguishing between the two types of lamprophyre dyke. Microscopic examination shows that both types contain about 15 per cent. biotite, the only difference being one of grain size; both types also contain much horn-

blende, some calcite, and a feldspar near oligoclase in composition. Small white ellipsoidal bodies composed of both plagioclase and calcite are usually, but not always, present in the non-mica lamprophyres.

The cuts and old caved workings, shown on Figure 19, mark the positions of thoroughly weathered and oxidized mineralized zones. The exposures suggest one main zone and several subsidiary zones, all trending westerly and dipping steeply to the north. The main zone, marked by a series of cuts and an old shaft east of the road, narrows eastward and appears to die out a short distance beyond the conglomerate contact. Diamond-drill holes, numbered 15 and 16, intersected only a few inches of sparsely mineralized material. The continuation of the main zone to the west may be represented by the old shaft 70 feet south of the main adit portal and by a shallow winze 170 feet farther to the west across Gopher Creek. A channel sample across 18 inches of disseminated sulphides in this winze assayed: Gold, 0.01 oz. per ton; silver, 1.6 oz. per ton; lead, 0.5 per cent.; zinc, trace. These surface workings may represent the mineralized zone developed in the main adit, but neither the surface position nor the attitude correlate satisfactorily with the workings. The subsidiary zones appear to be narrow and discontinuous.

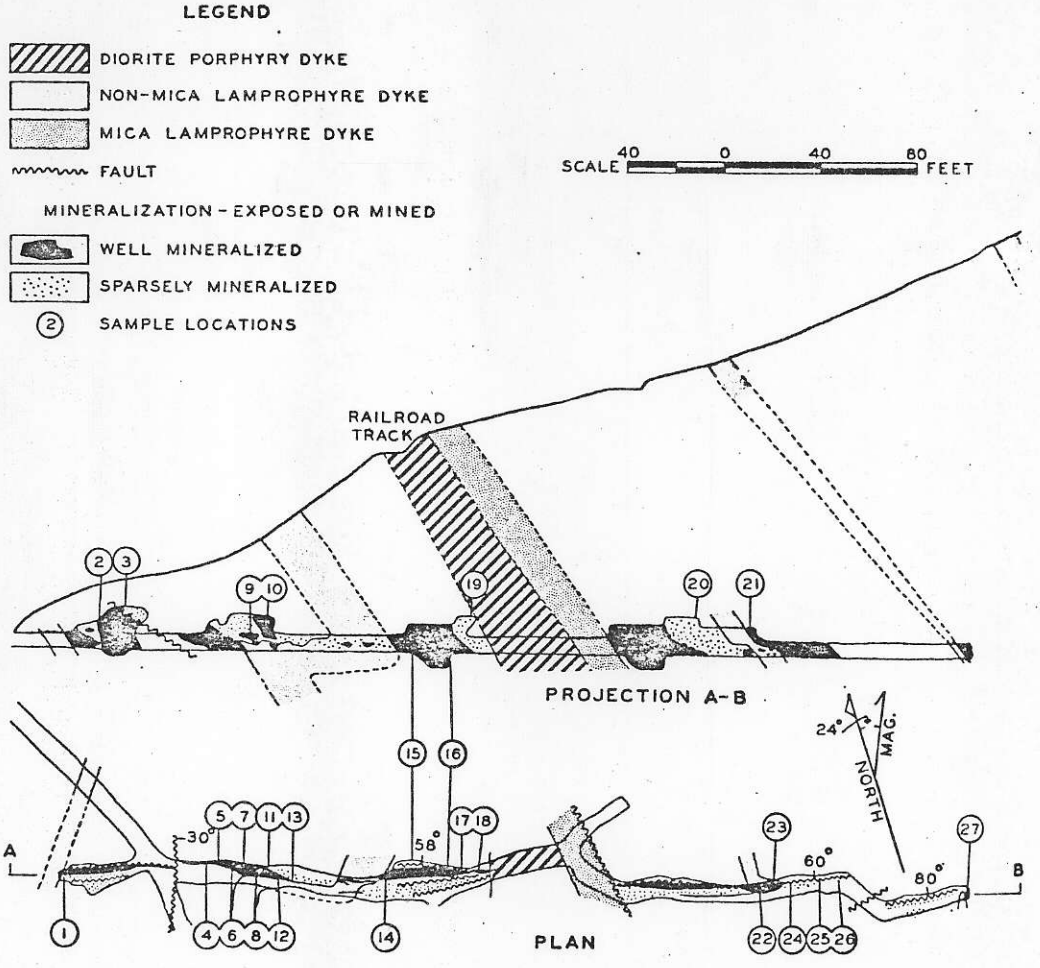


Fig. 20. Mayflower workings—main adit.

The main level (Fig. 20) was driven 90 feet southeasterly from the portal, to the point where it cut the main zone. From this point, drifts follow the shear zone westerly for 40 feet and easterly for 335 feet. From the same point a crosscut was driven 230 feet southerly in search of the South vein, mined in old workings 80 feet higher, but the South vein was not found in this working.

The rock in the main adit is augite porphyrite breccia cut by one dyke of diorite porphyry and five lamprophyre dykes. The projection shows the correlation of underground and surface exposures. The drift follows a shear zone with poorly defined walls. Discontinuous fault planes occur along tho zone in subparallel, en echelon, and branching patterns. The augite porphyrite along this zone and for several feet laterally is altered to a matted aggregate of fine-grained biotite and sericite containing abundant ragged particles of pyrrhotite. The diorite porphyry is altered to a lesser degree, but the lamprophyre dykes appear to be unaffected. Figure 20 illustrates the manner in which the lamprophyre dykes cross the shear zone. Some extend across without deflection, but others turn along the shear zone as irregularly constricted sheets that finally cross to the opposite side. The lamprophyre dykes have been intruded subsequent to the formation of the shear zone and probably subsequent also to the period of alteration of the other rocks.

Sample No.	Description.	Width.	Gold.	Silver.	Lead.	Zinc.
		Inches.	Oz. per Ton.	Oz. per Ton.	Per Cent.	Per Cent.
1	Massive sulphide ore	12	0.19	19.1	5.1	8.2
2	Sheared rock—small masses of sulphide	22	0.07	9.5	3.0	5.4
3	Sheared rock—small masses of sulphide	22	0.08	10.0	2.8	8.6
4	Massive sulphides	5	0.08	11.4	4.1	8.8
5	Massive sulphides	8	0.18	7.6	2.8	8.9
6	Siliceous rock with disseminated sulphide	10	0.17	16.6	6.0	8.2
7	Massive sulphides	11	0.22	10.4	3.6	7.0
8	Massive sulphides	10	0.08	3.7	1.2	8.4
9	Specimen from dyke contact—massive sulphide ore	....	0.35	3.1	0.6	18.0
10	Massive pyritic ore	15	0.42	6.8	2.0	8.3
11	With fairly abundant galena	9	0.22	22.7	7.4	8.4
12	Massive sulphides	9	0.26	5.4	1.6	8.7
13	Sheared rock with sulphide stringers	14	0.08	1.1	0.2	1.7
14	Massive pyritic ore	12	0.18	1.1	0.2	8.4
15	Massive ore with some galena	38	0.18	19.6	6.3	9.6
16	Siliceous rock with sulphide masses	9	0.13	8.1	3.0	2.9
17	Massive sulphides with much sphalerite	16	0.14	5.8	2.3	13.0
18	Massive sulphide ore	12	0.22	25.1	7.9	7.9
19	Disseminated sulphides	12	0.01	Trace	1.9	4.4
20	Sheared rock slightly mineralized	12	0.01	0.7	0.2	Trace
21	Massive pyritic ore	16	0.12	2.8	0.8	4.6
22	Galena and sphalerite fairly abundant	20	0.21	17.7	5.1	10.4
23	Patchy sulphide mineralization	14	0.18	13.3	3.0	7.0
24	Disseminated sulphides	10	0.02	1.8	0.9	1.4
25	Disseminated sulphides in patches	7	0.06	7.7	4.0	5.6
26	Pyrite with stringers of sphalerite	12	0.36	1.0	0.9	13.6
27	Patches of sulphides	12	0.23	2.3	0.7	5.2

In the drift length of 375 feet there are five oreshoots having an aggregate length of 185 feet. In 1948 and 1949 ore was mined from stopes extending short distances above the roof of the drift, and downward under three of these stopes to a depth of a few feet below the floor of tbe drift. The width in present exposures at the tops of stopes and in the roof of unstoped parts of the drift averages about 15 inches. In detail the oreshoots are irregular, with bulges and vein-like masses extending into the walls.

Widths indicated in the drift before the stopes were mined are reported to have been 4 feet and more. At some points the drift is as much as 10 feet wide. The oreshoots are distributed along the main shear zone immediately adjacent to the hangingwall sides of dykes. They rake to the east, parallel to the dip of the dykes. In mining these shoots the greatest widths and the best ore were found close to the dyke contacts. In some places, dykes in contact with ore are found to be fractured and mineralized, and small stringers of ore minerals may be observed extending through dykes. Limited replacement of the dyke material by ore minerals is apparent in thin sections. The lamprophyre dykes are older than the ore minerals, with the possible exception of pyrrhotite, and consequently played an important part in localizing deposition of ore minerals within the still older shear zone.

The ore is composed of fine-grained, disseminated, or rudely banded, massive sulphides in a gangue consisting of thoroughly sericitized rock, a little carbonate, and some quartz. The metallic minerals in their general order of relative abundance include pyrite, pyrrhotite, sphalerite, arsenopyrite, galena, and boulangerite. Locally the relative proportions may vary a good deal. Microscopic examination of polished sections suggests that pyrrhotite was the earliest mineral to form, followed and partly replaced by pyrite and arsenopyrite. The numbered locations of samples taken are shown in Figure 20. All but one are channel samples. Assay data relating to these samples appear opposite corresponding numbers in the table on page 161.

Rossland Mines, Limited, carried out extensive geophysical surveys, employing both magnetic and self-potential methods. The latter proved the more satisfactory. Self-potential contour maps showed broad, irregular, and apparently meaningless areas of high self-potential, also sharply defined ridges and elongated domes, many of which correspond in position and direction to known mineral deposits. The Mayflower anomaly, for example, with self-potential ranging from 100 to 350 millivolts, may be traced for 3,000 feet westerly from the Mayflower workings. The Blue Bird and Monday workings are on this part of the anomaly. It does not, however, extend far easterly from the Mayflower workings. A test-pit on the anomaly about 2,900 feet westerly from the Mayflower workings exposed nearly 10 feet of sparingly mineralized material containing some sphalerite. Some of the diamond-drill holes put down to test the anomaly are plotted on Figure 19. Data concerning the mineralized intersections in those drill holes based on examination of cores are summarized below:—

Hole No.	Core Length of Intersections.	Mineralization.
8	30 inches, and 7 feet	Irregular areas of massive sulphides, mainly pyrite and pyrrhotite.
13	4 feet, and 18 inches	Sparsely mineralized; some sphalerite.
17	5 inches, and 15 inches	Massive sulphides with galena and sphalerite.
14	12 inches, 10 inches, and 6 inches	Massive sulphides with galena, sphalerite, and boulangerite.
7	3 feet and 4 feet	Massive sulphides with galena, sphalerite, and boulangerite.
11*	No intersections.	
6†	2 feet	Massive sulphides.

* Directly below Hole No. 7. † Three hundred and seventy feet westerly from Hole No. 7.

The frequent occurrence of lamprophyre in the drill cores indicates that these important dykes may be as numerous in the drift-covered valley bottom west of Gopher Creek as they are in the Mayflower area. The drill intersections suggest, but do not prove, that the general ore-bearing structure of the Mayflower may continue westerly for 1,500 feet or more. Probably these intersections are in several sub-

parallel zones. Holes spaced so far apart might well miss oreshoots similar in size to those in the Mayflower workings.

NELSON.*

KOKANEE CREEK (49° 117° N.E.).

Silver-Lead.

Molly Gibson. This mine is at the head of Kokanee Creek and is owned by The Consolidated Mining and Smelting Company of Canada, Limited. In 1949 R. J. Johnstone made a shipment of dump material. Production: Ore shipped, 10 tons. Gross contents: Silver, 297 oz.; lead, 2,064 lb.; zinc, 895 lb.

EAGLE CREEK (49° 117° S.E.).

Gold.

Granite-Poorman (Kenville Gold Mines, Limited). British Columbia office, Royal Bank Building, 675 Hastings Street West, Vancouver; mine office, Box 390, Nelson. G. H. Rainville, president; W. B. Montgomery, manager. Capital: 3,500,000 shares, $1 par value. This company is controlled by Quebec Gold Mining Corporation and Noranda Mines. Production was maintained during the first half of the year, with the Midway vein producing 75 per cent. of the ore and the Flat, Hardscrabble, and Yule veins following in that order.

On August 12th the company ceased operating the mine but gave leases on parts of it. Six groups of lessees leased sections of the mine, as follows:—

(1) Kootenay Hard Rock Mining & Development Co. (H. Maxwell, H. Peters, S. Hill, plus one employee): Hardscrabble and 220 Yule, 2570 level.

(2) H. Cooper and A. Jmaeff, plus one employee: Midway vein above 2750 level.

(3) H. Henry, J. Logan, and H. R. Sage: Poorman, 2750 level.

(4) C. Johnson, A. Johnson, and W. Johnson: 219 and 220 Yule, 2750 level.

(5) M. Arishenko: Flat vein, 2570 level.

(6) H. R. Smith plus two employees: Granite.

Operation of the mill was continued to treat ore mined by the lessees and ore from the Arlington, owned by the same company. Ore was purchased from the Venango, and ore from the Van Roi was milled on a custom basis. To treat the Van Roi ore, it was necessary to install a flotation circuit; the change-over was completed in July. Before August the crew averaged seventy-five, but was reduced to twenty-five after that date.

Production: From the Granite-Poorman, mined by the company, 24,004 tons; mined by lessees, 1,815 tons; total, 25,819 tons; from the Arlington (p. 167), 124 tons; from the Venango, 247 tons; total ore milled for the company, 26,190 tons. The lessees shipped 5.3 tons of crude ore to the smelter. Metals recovered: Gold, 6,409 oz.; silver, 4,027 oz.; lead, 15,191 lb.; zinc, 14,315 lb.

Venango. This mine adjoins the Kenville property to the west. A. G. and D. H. Norcross obtained a lease from Venango Gold Mines, Limited, and shipped 247 tons of ore to the Kenville mill. A road 200 yards long was made to improve trucking facilities. Air for mining was purchased from the Kenville Gold Mines, Limited.

* By J. W. Peck.

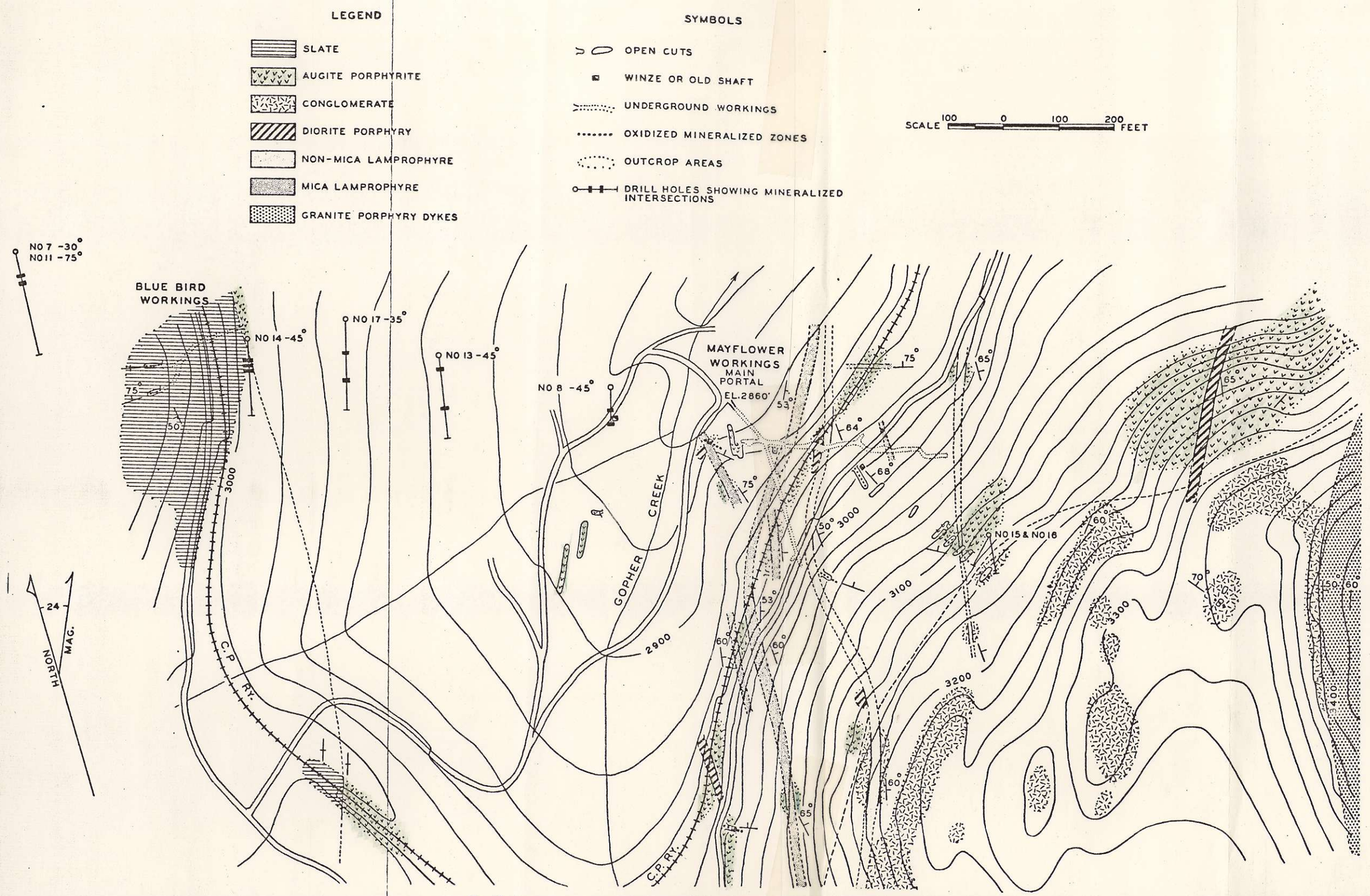


FIG. 19. SURFACE GEOLOGY NEAR MAYFLOWER WORKINGS.

ROSSLAND MINING COMPANY

DR. A.C. SKERL

MAY 1967

Confidential

TELEPHONE 224-6257

1758 WESTERN PARKWAY
VANCOUVER 8, B.C.

5th May 1967

DR. A. C. SKERL
A.R.S.M., PH.D., P.ENG.
CONSULTING MINING GEOLOGIST

ROSSLAND MINING COMPANY
EXPLORATION POSSIBILITIES

INTRODUCTION

At the request of the directors of the Rosslamd Mining Company I have reviewed the exploration possibilities on the company's property. My findings are given in the following notes :

1. WEST END

The recent development of molybdenite deposits immediately northwest of Rossland (including the outlying Novelty claim of Rossland Mines) prompts the suggestion that the south belt may also contain such deposits.

The only reference to molybdenite in Drysdale's report of 1915 (Memoir 77) in the south area is in the Deer Park workings where it is associated with gold and chalcopyrite in quartz veins that cut through massive pyrrhotite that is 47 ft wide at 60 feet below the surface. Massive magnetite over a width of 46 feet was also reported. The deposit is in volcanic rock 600 feet south of the monzonite contact.

In 1898 a shaft was 305 feet deep with drifts of 97 ft on the 100 ft level, 20 ft on the 150 ft level and 173 ft on the 200 ft level. There does not appear to be any record of further work here. Apparently four drill holes were put down from the surface at a much later date.

Much of the west half of the South Belt is underlain by a mass of monzonite that is 10,000 feet long and 2000 to 4000 feet wide. There is a possibility that a disseminated copper-molybdenum deposit exists in part of this mass. Approximately two thirds of the ground is held by C. M. & S. and most of the rest by Rossland Mining.

2. KERR ADDISON - GEOCHEMICAL SURVEY

Much of the South Belt was explored by Kerr Addison with an E-M survey on lines 400 feet apart. Numerous but probably minor conductors were found which I have indicated on the accompanying map. No further follow up was attempted except in one small section at the west end, south of the monzonite in the area of the Camp Bird claim and immediately west of the Deer Park claim. Here soil samples were taken on five lines over lengths of about 1000 feet and assayed for copper only. The results ranged from 20 to 100 ppm and three narrow bands of mild anomalies were suggested that seem to correspond to the E-M results and some old workings in 2 cases.

3. KERR ADDISON - E - M SURVEY

It is seen on the maps that in several cases a known deposit as plotted on the Kerr Addison map does not correspond to an anomaly although there is one near by. I suspect that this is due to survey errors since most of the E - M lines were run by compass and pacing whereas the positions of roads, old workings etc were taken directly from the original map (1" to 300') by Rossland Mines.

An example is the Gopher-Homestake adit where the anomaly is 150 feet south and parallel to the adit. Again at Deer Park the workings are shown 100 feet too far south of the anomaly. In the case of the Blue Bird - Mayflower ore-zone there is no positive anomaly but a low with a double peak.

In several cases paired anomalies are shown although it is realized that only one conductor need be present. However the E - M survey has picked up a number of small conductors that are not shown by the original self potential survey. This is probably because of the greater depth penetration of the E - M method finding small lenses of sulphides that do not reach up to bedrock. In a number of cases the contact between two rock types has given an E - M anomaly.

4. WEST HALF - PROPOSED GEOCHEMICAL SURVEY

It is now proposed that a geochemical soil survey is made over the western half of the Rossland - C M & S ground using the lines of the E M survey and assaying for both copper and molybdenum. The lines are 400 feet apart and the samples should be taken every 200 feet along them.

This survey should be extended to the north into the Rainy Day, Black Rock, Mayflower and St. Paul claims to cover the so-called Nelson granite intrusion.

There will be about 400 samples and the cost, including assaying, should not be more than $1000.

5. EAST HALF - PROPOSED GEOCHEMICAL SURVEY

In 1964 L. Telfer investigated the self potential anomaly about 300 feet south of the Gopher - R E Lee zone. A trench about 50 feet east of Gopher Creek gave 40 inches of 0.14 oz Au, 1.42 oz Ag on the west wall and 40 inches of 0.40 oz Au, 1.85 oz Ag on the east wall. A second trench at 80 feet further east gave 42 inches of 0.10 oz Au and 0.25% MoS_2 on west wall and 12 inches 0.24 oz Au, 0.40% MoS_2 on the east wall. A third trench, at another 80 feet to the east was reported as 'rusty only'. Mr. Telfer pointed out that the anomaly was 1000 feet long and similar to the ones on the Homestake and Blue Bird. He recommended some exploration drilling but it was not done.

This showing encourages the idea that the monzonite that lies only 1000 feet to the north and east should also be investigated for disseminated copper-molybdenum from line 20 to line 76 east by means of soil samples. A total of 200 samples would be gathered. This area is largely devoid of outcrops but the overburden is probably quite shallow in most places.

6. VOLCANIC AREAS - PROPOSED GEOCHEMICAL SURVEY

I recently visited the Red Mountain Mine where the molybdenite is in a volcanic rock. This type of deposit could also occur in the volcanic rocks of the south belt so the soil sampling should be extended into the volcanic areas of the south claims.

This would probably involve another 200 samples.

Thus a soil sampling campaign as the first step in the search for a large low grade copper-molybdenum deposit in the South Belt would cost about $2000.

7. INCREASING ORE RESERVE

At the Blue Bird mine the reserve of 34,600 tons averaging 0.07 oz Au, 13.2 oz Ag, 2.8% Pb and 4.0% Zn at present prices has a gross value of $41.00 per ton and a probable net smelter value of $30.00 per ton or a total net value of $1,000,000.

The lower grade at the Mayflower has a net smelter value of $17.00 per ton or a total net value for the 18,000 tons of $300,000.

In both cases additional values of about $1.50 per ton for the cadmium content and perhaps $3.00 per ton for the pyrite are also present.

However to warrant putting this mine into production at least twice as much ore needs to be developed. At present the best places to look are :

1. The downward extension of the Blue Bird and Mayflower ore. Because of the monzonite dyke that dips at 35° to the east beneath the known ore there may be only a limited amount of additional ore below the present workings. A campaign of deep drilling to find the ore structure beneath the dyke and in the favourable volcanics that should be beneath the west dipping sediments would be needed.
2. The parallel Homestake - Gopher - R. E. Lee zone about 1200 feet north of the Blue Bird. This would require a drilling campaign of say 2500 feet in ten holes at 200 feet apart along the Gopher - R. E. Lee section of the zone followed by shaft development if results were favourable. The drilling would cost about $20,000.

R E C O M M E N D A T I O N S

1. Obtain an option on the C M & S claims in the South Belt.
2. Conduct a soil sampling campaign in the various areas as described above.
3. Test the R. E. Lee - Gopher structure with ten diamond drill holes at 200 feet apart and averaging 250 feet deep.

A. C. Skerl

REPORT ON THE MAYFLOWER

SOUTH VEIN AND THE ZINC CLAIMS

P.J. SANTOS P.ENG

JUNE 1979

REPORT ON THE MAYFLOWER, SOUTH VEIN AND THE ZINC CLAIMS, ROSSLAND MINING CAMP, TRAIL CREEK MINING DISTRICT, BRITISH COLUMBIA, CANADA

BY

P. J. SANTOS, P.Eng.
Geologist

June, 1979

TABLE OF CONTENTS

ILLUSTRATIONS

I. INTRODUCTION

The Rossland Mining Camp in south central British Columbia, Canada was a significant mining area during the early part of this century. It was here that Cominco Ltd., then called The Consolidated Mining and Smelting Company Ltd. had its beginnings.

This report was written upon written request of Ray Spinks of Salmo, B.C. to conduct a property investigation on the Mayflower and Zinc claims located in an area known as the South Belt in Rossland, B.C. The properties are located 8 kilometers (5 miles) from the smelter in Trail. Access to the property is via Highway No. 3 and Spokane Street through the City of Rossland.

Ross Island Mines (fornerly Rossland Mines) of Vancouver owns 42 claims in the Rossland Mining Camp and explored and developed two groups of orebodies, the Bluebird Mine and the Mayflower Mine. Ray Spinks has a lease on the Mayflower with no lease payments except a straight 10% of net smelter return (NSR). He also owns with Ernie Warner a group of claims called the Zinc Claims (17 units and fractions) located adjacent to the Mayflower on the east.

Ray Spinks, one of the founders of Standonray Mines leased and operated successfully the Bluebird Mine from 1972-1978. Ore was produced from the Bluebird Mine and shipped directly to the smelter in Trail from 1972-1976. Later a portable mill located at the mine site was used used to treat milling ore and the concentrates sold to the smelter in Trail. Due to the B.C. government regulations, milling on site was discontinued and the milling was done at Cominco's H.B. Mine at Salmo. Despite the

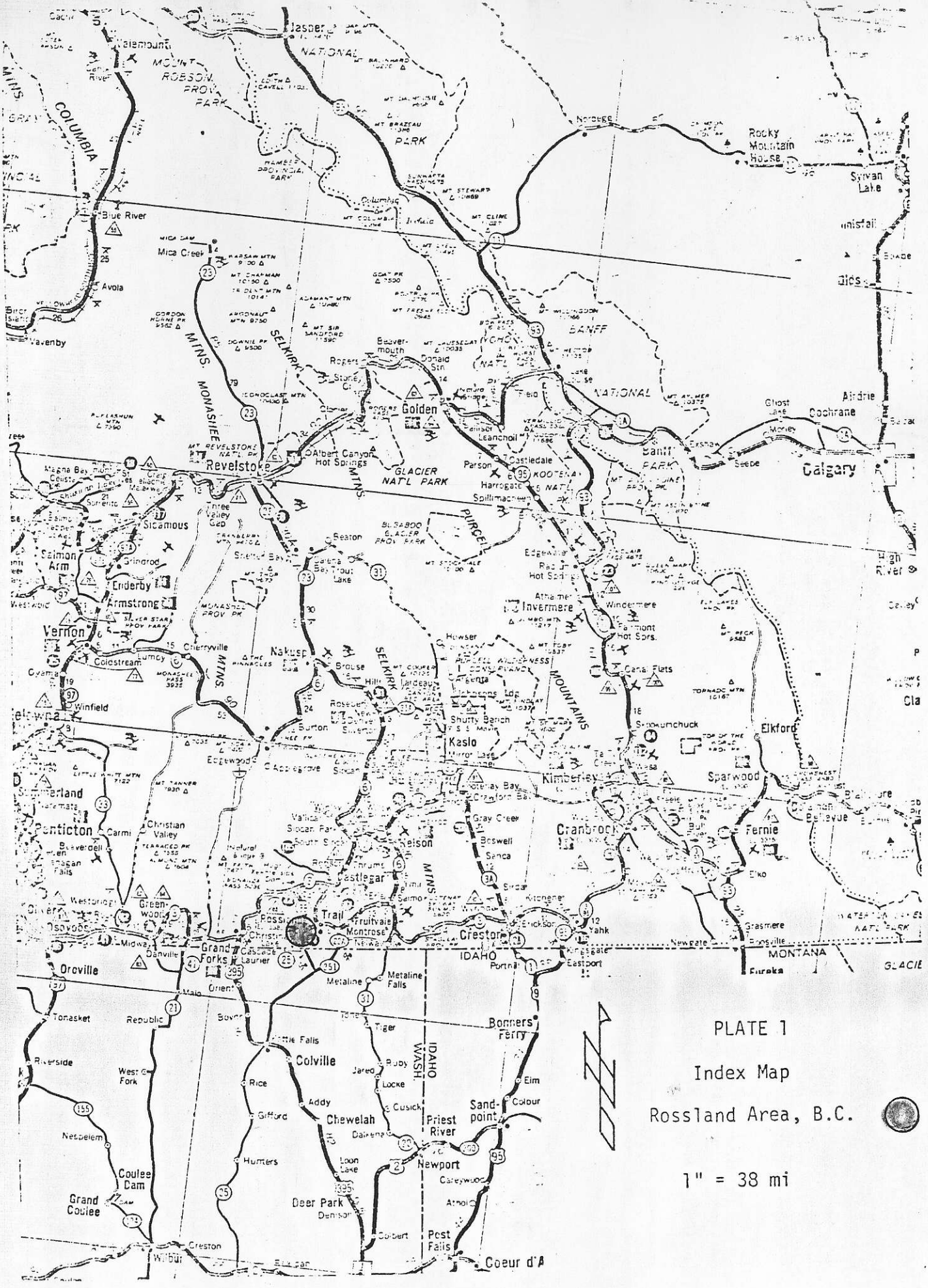


PLATE 1

Index Map

Rossland Area, B.C.

1" = 38 mi

additional distance involved this proved to be a profitable arrangement and production from the Bluebird continued until the H. B. Mine closed down in September, 1978.

Ray Spinks proposes to mine certain small rich ore shoots that were partially developed which now require minimal preparation for production and ship the ore directly to the smelter in Trail, in particular the Mayflower South Vein. As is usually the case in small operations like this, there is never enough funds available to conduct properly an exploration program to allow an efficient and orderly development of the deposits.

These properties have been offered to Cominco Ltd. before but were turned down since the potential size of the operation is not in the scale which now interest them. This does not however mean that these deposits can not be mined at a profit.The necessary infra-structure now exist in the area and ore can be shipped directly to the smelter in Trail a short distance away. Power, water, and timber are available in the property and there are no problems with the surface owner. Since the proposed operation does not require any milling, no environmental-related problems like tailings disposal exists.

Ray Spinks also proposes, at a later date, to explore the Zinc Claims and in particular develop the vein at Zinc No.1.

In May, 1979, an exploration class sponsored by the B. C. Dept. of Energy, Mines and Resources and the Selkirk College conducted an E.M.-VLF and soil sampling survey on the Mayflower on lines 100 meters apart.

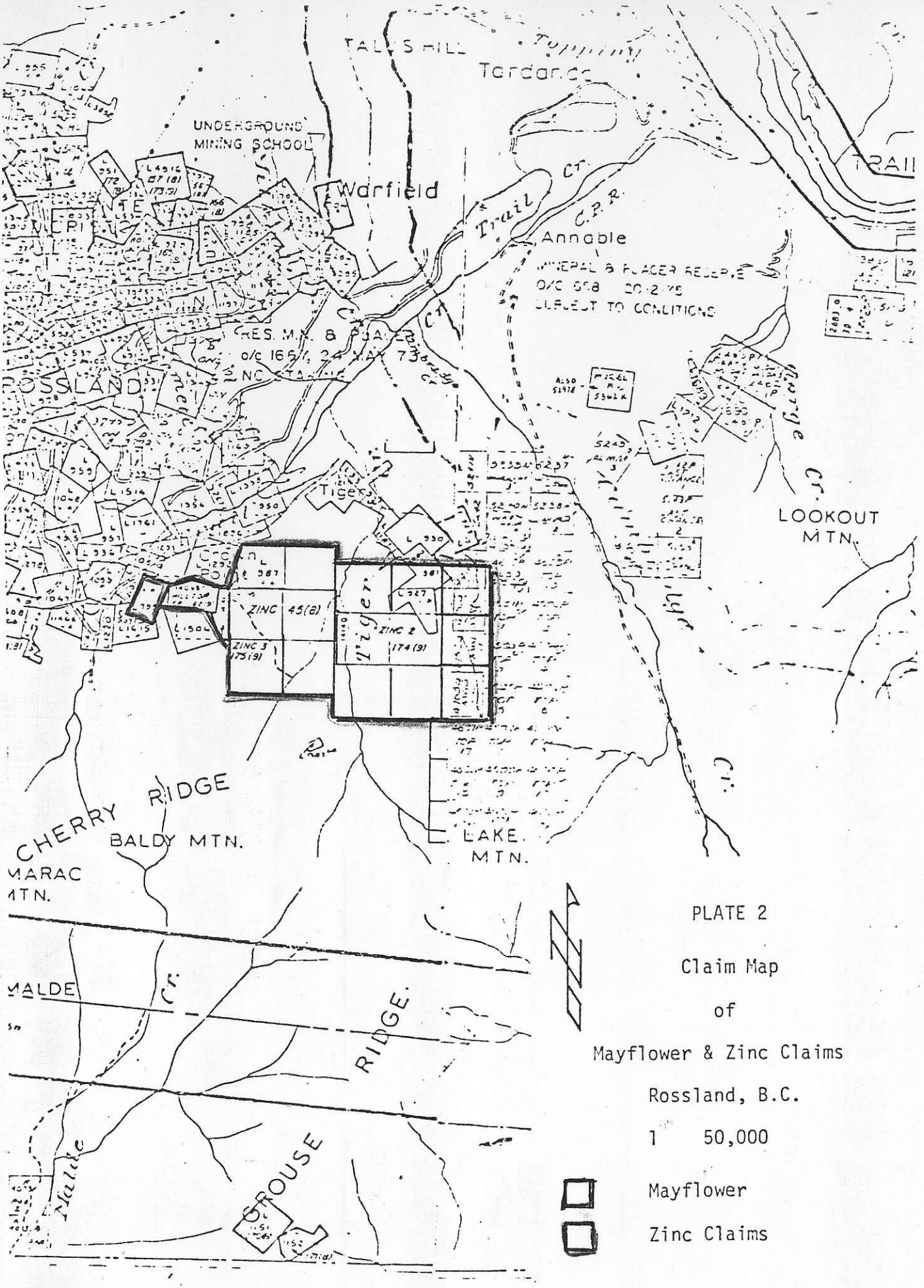


PLATE 2

Claim Map

of

Mayflower & Zinc Claims

Rossland, B.C.

1 50,000

Mayflower

Zinc Claims

A report on the results of these surveys are in the process of being prepared at the time of this writing.

II. GEOLOGY

(a) General

The Rossland area is underlain by sedimentary and igneous rocks ranging in age from the Pennsylvanian to Tertiary as shown on Plate 3 taken from GSC Memoir 308 by L.W. Little.

The oldest formation, the Mount Roberts Formation (Pennsylvanian) consisting of slates, limestone , quartzite, and greenstone is overlain by volcanic units of the Rossland Formation (Jurassic). The Rossland and the Mount Roberts are in turn intruded by acid and ultrabasic plutonic rocks of the Nelson Plutonics during the Cretaceous and by the Coryell and Sheppard Plutonics during the Tertiary.

According to W.H. White (1949) ores in the Rossland Mining Camp consist of three basic 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 TRANSITIONAL TYPE is gradational between the Rossland type and the South Belt type, with usually abundant sphalerite. On the basis of regional mineralization, C. W. Drysdale (1915) divided the Rossland area into two mineralized belts, The NORTH BELT and the

PLATE 3

Geologic Map

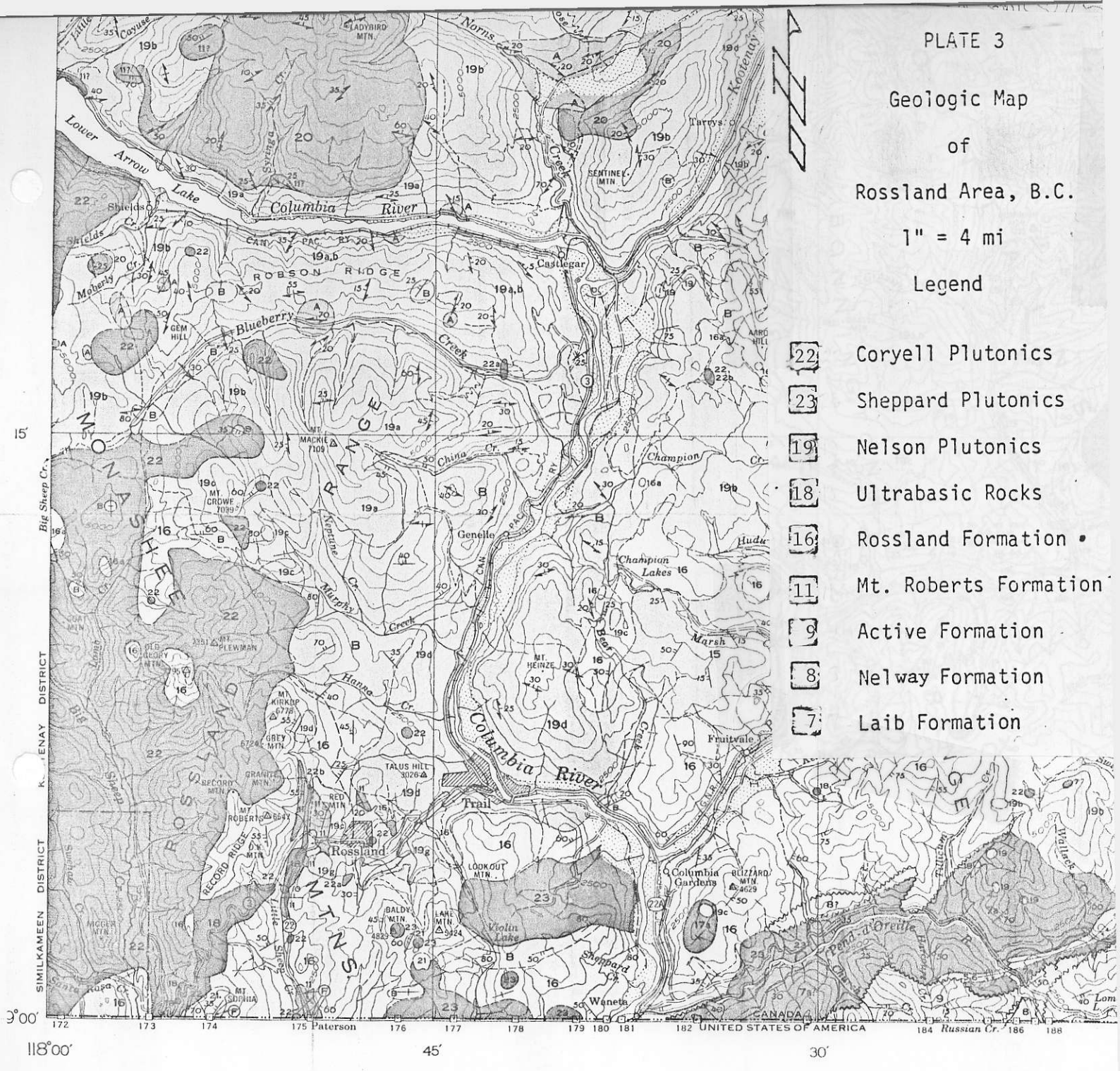
of

Rossland Area, B.C.

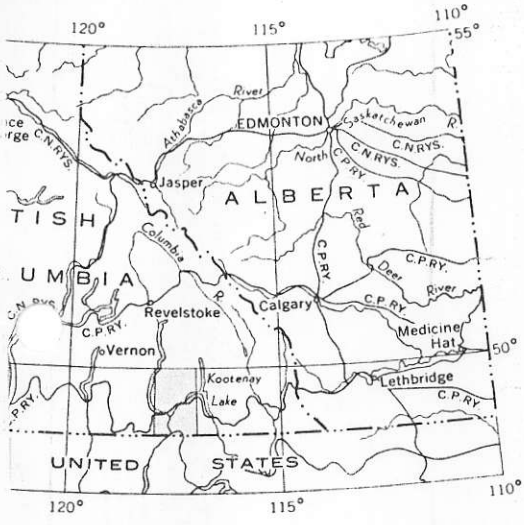
1" = 4 mi

Legend

- 22 Coryell Plutonics
- 23 Sheppard Plutonics
- 19 Nelson Plutonics
- 18 Ultrabasic Rocks
- 16 Rossland Formation •
- 11 Mt. Roberts Formation
- 9 Active Formation
- 8 Nelway Formation
- 7 Laib Formation



ISHED, 1960



INDEX MAP

MAP 1090A

GEOLOGY

NELSON

(West Half)

KOOTENAY AND SIMILKAMEEN DISTRICTS

BRITISH COLUMBIA

Scale: One Inch to Four Miles = $\frac{1}{253,440}$

Miles

4 2 0 4 8 12

COPIES OF THIS MAP MAY BE OBTAINED FROM THE DIRECTOR, GEOLOGICAL SURVEY OF CANADA, OTTAWA

SOUTH BELT. Studies made by R.I. Thorpe (1967) more or less confirms White's classification. In the district he defined three zones, The CENTRAL ZONE, the INTERMEDIATE ZONE, and the OUTER ZONE as shown on Plate 8 using mineralogy as a basis. The North Belt more or less coincides with the Central Zone and the northern part of the Intermediate Zone while the South Belt coincides more or less with the Outer Zone and the southern part of the Intermediate zone. The location of the Mayflower and the Zinc Claims are shown on Plate 8 in relation to these zones and belts.

The South Belt is underlain by augite porphyrite (andesite porphyry) tuffs, meta-sediments (cherts, quartzite, conglomerate) of the Rossland Formation which is intruded by diorite porphyry, granite porphyry, and lamprophyre dykes of the Nelson Plutonics. According to A. C. Skerl dioritic types were produced by the metamorphism of the original flows and tuffs by the various intrusives. This area is traversed by E-W trending, steeply dipping (85°N) joints and fracture systems (shears) broken into segments by NE-NW crossfaults dipping 60°E to 80°E. The E-W shears are mineralized with sulfides while the NE-NW crossfaults became the locale of intruding lamprophyre dykes.

On Plate 6 are shown potentiometric anomalies found by an SP survey conducted by Rossland Mines Ltd. on their properties on the South Belt. These anomalies more or less reflect sulfide conductors trending generally E-W broken up into segments.

(b) Mayflower South Vein

On Plate 4 is shown the surface geology at the Mayflower workings done by W.H. White (1949). The area is generally overlain by volcanics (andesite porphyry, greenstones) of the Rossland Formation intruded by lamprophyre dykes of the Nelson Plutonics. Further to the south are conglomerates of the Rossland Formation.

The ore type in this area is predominantly of the South Belt Type (Outer Zone) consisting of pyrite, pyrrhotite, arsenopyrite, sphalerite, galena, boulangerite, and gold. The ore generally occurs as veins trending E-W dipping steeply (85°) to the north in volcanics (andesite) cut by N-S trending vertical lamprophyre dykes.

The Mayflower was located in 1890 and the South Vein was worked first after it was exposed during the construction of the railroad tract. According to C.W.Drysdale (GSC Memoir 77), a tunnel (drift) was advanced to 100 feet in length in 1896. The vein varies in width from a few inches to 3 feet, strikes N60°E and dips steeply to the north. Ore reportedly ran 30 to 200 oz/ton Ag and one oz/ton Au. A winze was sunk vertically near the portal of the tunnel and past 15 feet, the vein was 3 feet wide. At the time W.H. White visited the property (1949) this shaft and tunnel had caved. In 1977, Ray Spinks re-opened the tunnel and partly excavated the shaft and found the vein to be 22 inches wide and extends along the length of the tunnel (drift) down 15 feet of the shaft. At 85 feet from the portal the vein narrows to 12 inches. It appears that the development of the shaft had been discontinued but the ore has been mined out above the floor of the tunnel. A sample collected by Ray Spinks from the shaft

LEGEND

- SLATE
- AUGITE PORPHYRITE
- CONGLOMERATE
- DIORITE PORPHYRY
- NON-MICA LAMPROPHYRE
- MICA LAMPROPHYRE
- GRANITE PORPHYRY DYKES

SYMBOLS

- OPEN CUTS
- WINZE OR OLD SHAFT
- UNDERGROUND WORKINGS
- OXIDIZED MINERALIZED ZONES
- OUTCROP AREAS
- DRILL HOLES SHOWING MINERALIZED INTERSECTIONS

PLATE 4

SCALE 100 0 100 200 FEET

(From 1949 B.C. Minister of Mines Report, PP 157-163 by W.H. White)

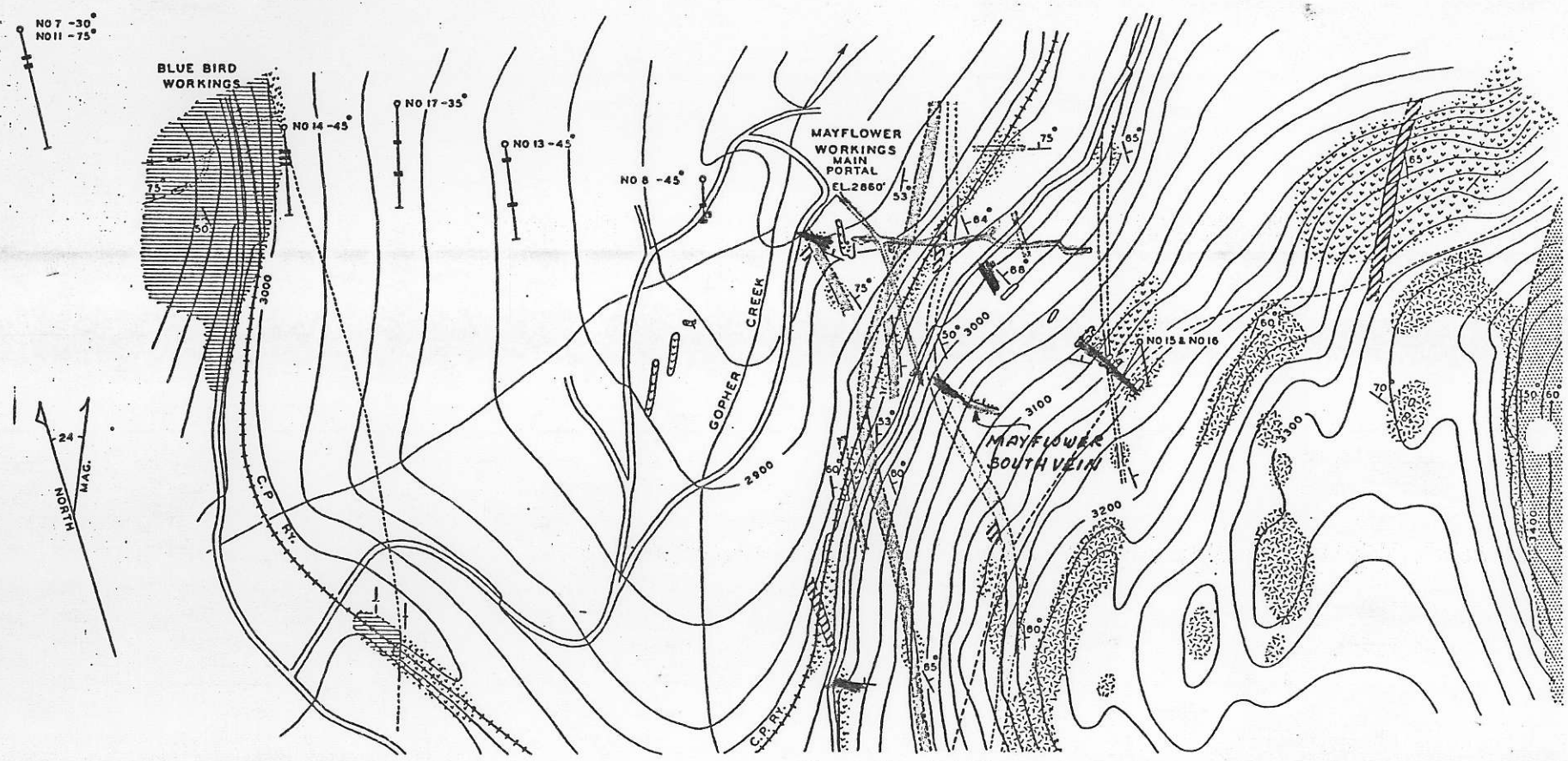


FIG. 19. SURFACE GEOLOGY NEAR MAYFLOWER WORKINGS.

assayed .24% Cu, 11.8% Pb, 14.0% Zn, .604 oz/ton Au, 63.46oz/ton Ag and .26% Sb .

With the subsequent discovery of the North Mayflower Vein, the main Mayflower drift was driven from the valley of Gopher Creek and a crosscut was driven southerly in search of the continuation of the South Vein 80 feet above. This crosscut was discontinued when it reached the lamprophyre dyke to the west of the South Vein. Based on the presently available information there is a potential for a block of high grade ore ranging in size from 80' X 80' X 2.5' to 100' X 100' X 2' representing 1700 tons to 2000 tons (or 1800 tons average) that can be mined out using the Mayflower Main Adit Portal and the Mayflower South Vein crosscut (see Plate 4).

At the time that the author made the property investigation in May 20, 1979, the portal of the Mayflower South vein tunnel had caved in again. The Mayflower main adit and crosscut were open however.

In view of the lack of a more satisfactory data on the grade of the remaining Mayflower South Vein, diamond drilling is recommended as a first priority before any further development work is made. The proposed diamond drilling is shown on Plate 7, the holes to be collared on surface and both can be drilled from the same set-up. The first hole should be drilled at an azimuth of 225° dipping -60° to a depth of 90 feet. The second hole should be drilled at an azimuth of 135° dipping -60° to a depth of 90 feet. To augment the drill hole data, the portal of the Mayflower South Vein adit should be re-opened to allow the sampling of the vein along its strike. This drilling and sampling

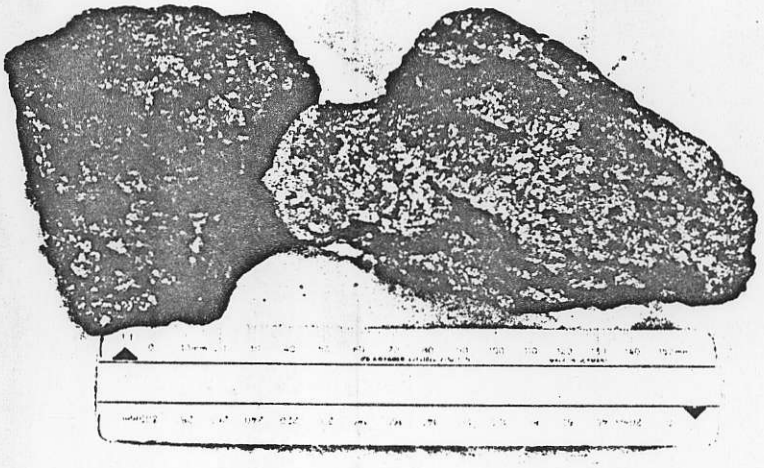
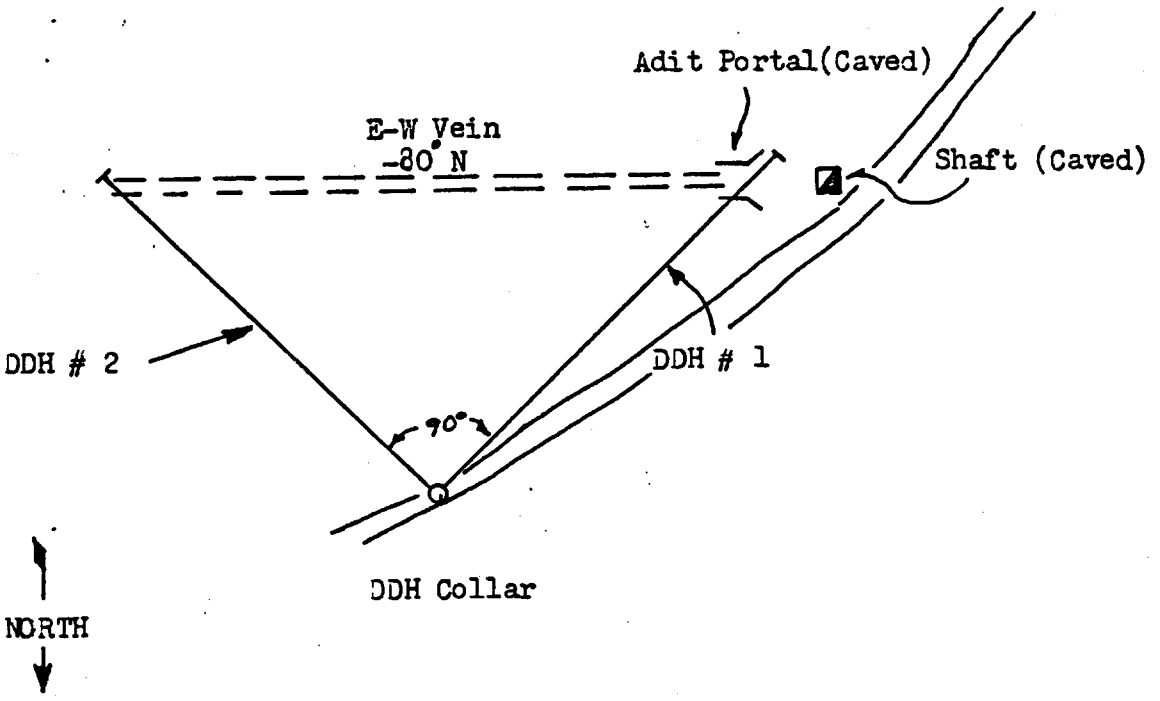


Fig. 1 Ore from the Mayflower South Vein. The ore consists of pyrite, pyrrhotite, arsenopyrite, galena, sphalerite, boulangerite, and chalcopyrite. Gold-bearing native silver heals fractures in the arsenopyrite.



Scale

0 10 20 feet

DDH #	AZIMUTH	DIP	DEPTH
1	225°	-60°	90 feet
2	135°	-60°	90 feet
			180 feet
	Add for possible ore extension		20 "
			200 feet

Plate 7

Proposed diamond drilling on Mayflower South Vein.

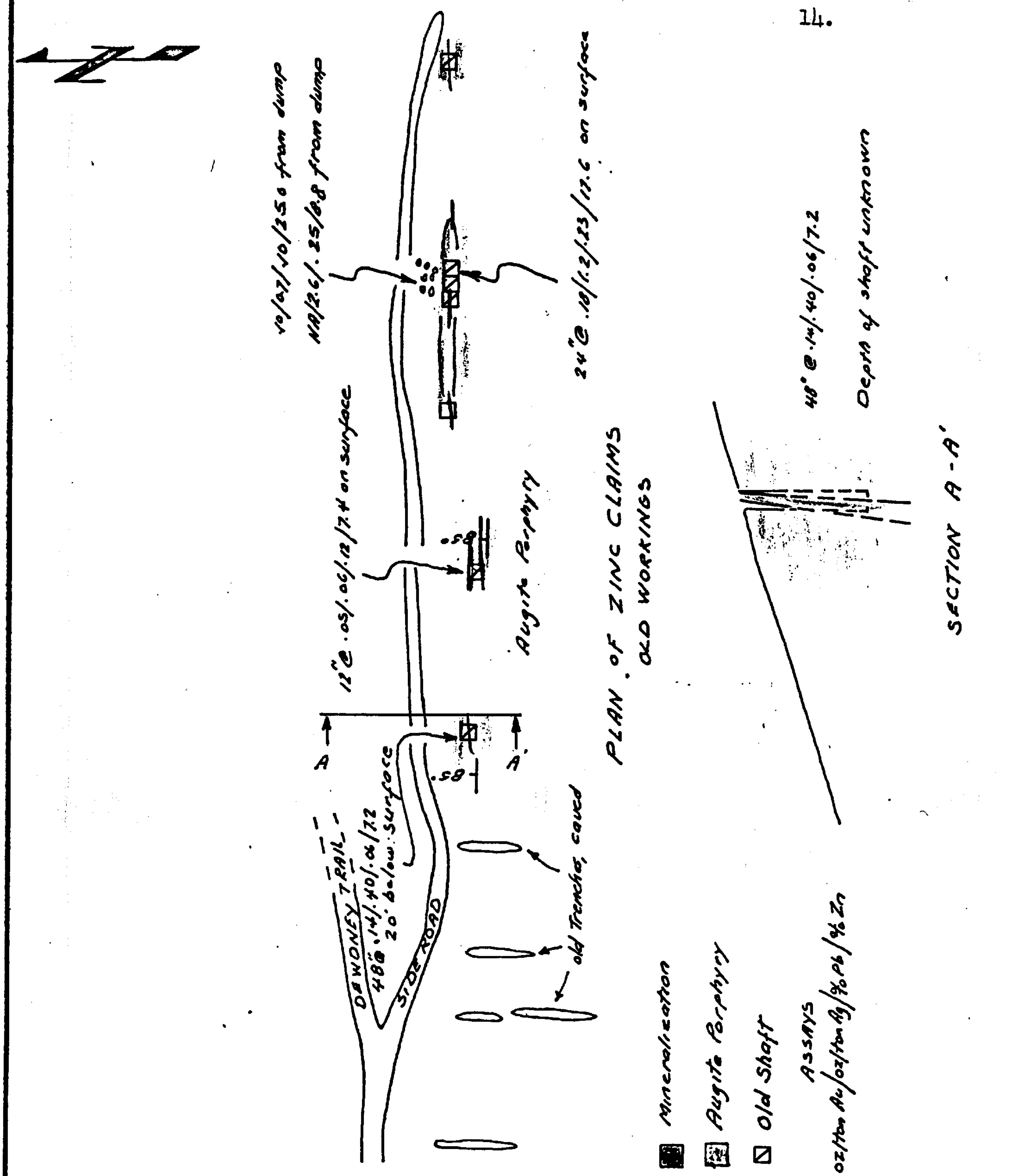
will confirm the grade and tonnage of a block of ore 100' X 100' X 2'.

(c) The Zinc Claims

Ray Spinks and Ernie Warner own the zinc claims comprised of 15 units and two fractions (see Plate 2) adjacent to the Mayflower on the east. The property is in an area 3400 feet above sea level. This part of the South Belt is on the north slope of Baldy Mountain. Access to the property is by way of the Dewdney Trail, an all weather road that connects with the Mayflower or directly to Trail.

The area is for the most part covered with overburden. It is underlain by volcanics (andesite porphyry) of the Rossland Formation and by lamprophyre dykes of the Nelson Plutonics.

There are old workings on Zinc No. 1 consisting of trenches and shallow shafts, mainly caved in. The main trench follows a vein for 200 feet and at every 40 feet a shaft was sunk into the vein (see Plate 4). The vein trends E-W and dips 45°N. Several trenches were dug across the projected strike of the vein but are now all caved and heavily overgrown. It appears that these workings were done at the turn of the century and no records exist regarding the work done here. The sulfide vein is narrow, about a foot wide on surface but at one shaft the vein has a thickness of 4 feet at a depth 20 feet below surface. Samples were taken from this vein as shown on Plate 5. The samples averaged 0.13 oz/ton Au, o.50 oz/ton Ag, .17%.Pb, 10.1% Zn. The sulfides consist of pyrite, pyrrhotite, arsenopyrite, sphalerite, and minor galena in a gangue of quartz. This would classify this ore as the Intermediate type in



ZINC CLAIMS

SAMPLING MAP
OF
OLD WORKINGS

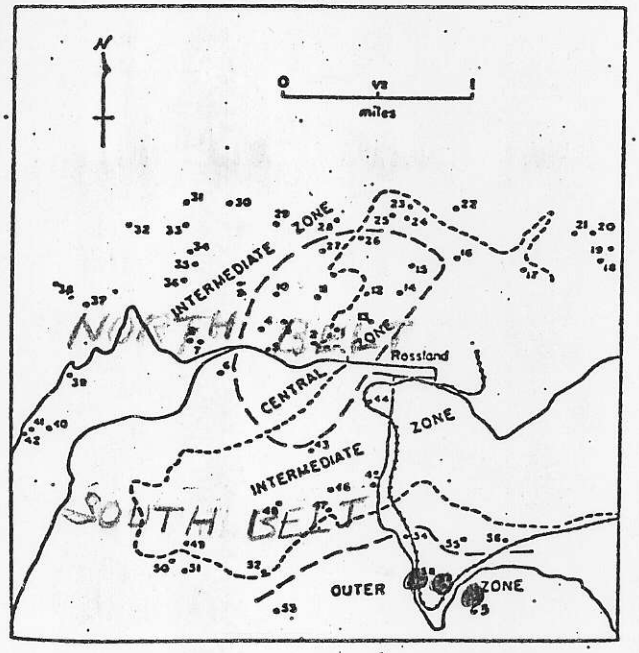
Drawn by: PJS	Scale: 1"=40'	Date: May, 1979	Plate: 5

the South Belt. Gold-bearing native silver (Electrum) occurs as fracture fillings in the arsenopyrite.

A pyrite-magnetite vein of the same dip and strike as the above vein occurs to the east that appears to be an extension. This material is said to have assayed .17 oz/ton Au . A sample has been sent for assay at the time of this writing.

There are no records available regarding production if any from these working and if there was any production it could not have been much since the workings are not extensive.

A potentiometer survey was conducted by Rossland Mines in this part of the South Belt. On Plate 6 is shown the result of this survey which indicate the Bluebird and Mayflower anomalies and possible extension of the Mayflower anomaly to the east where the Zinc Claims are now located. The Bluebird and Mayflower anomalies were drilled but the eastern extension was not drilled. This line of anomalies connect with the Crown Point anomaly and could well represent the continuation of the Outer Zone to the east.



Property locations and zone boundaries in the Rossland district. The zone boundaries are indicated by long dashes. The short dash line gives the approximate location of the monzonite contact. R.I. THORPE (1967)

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

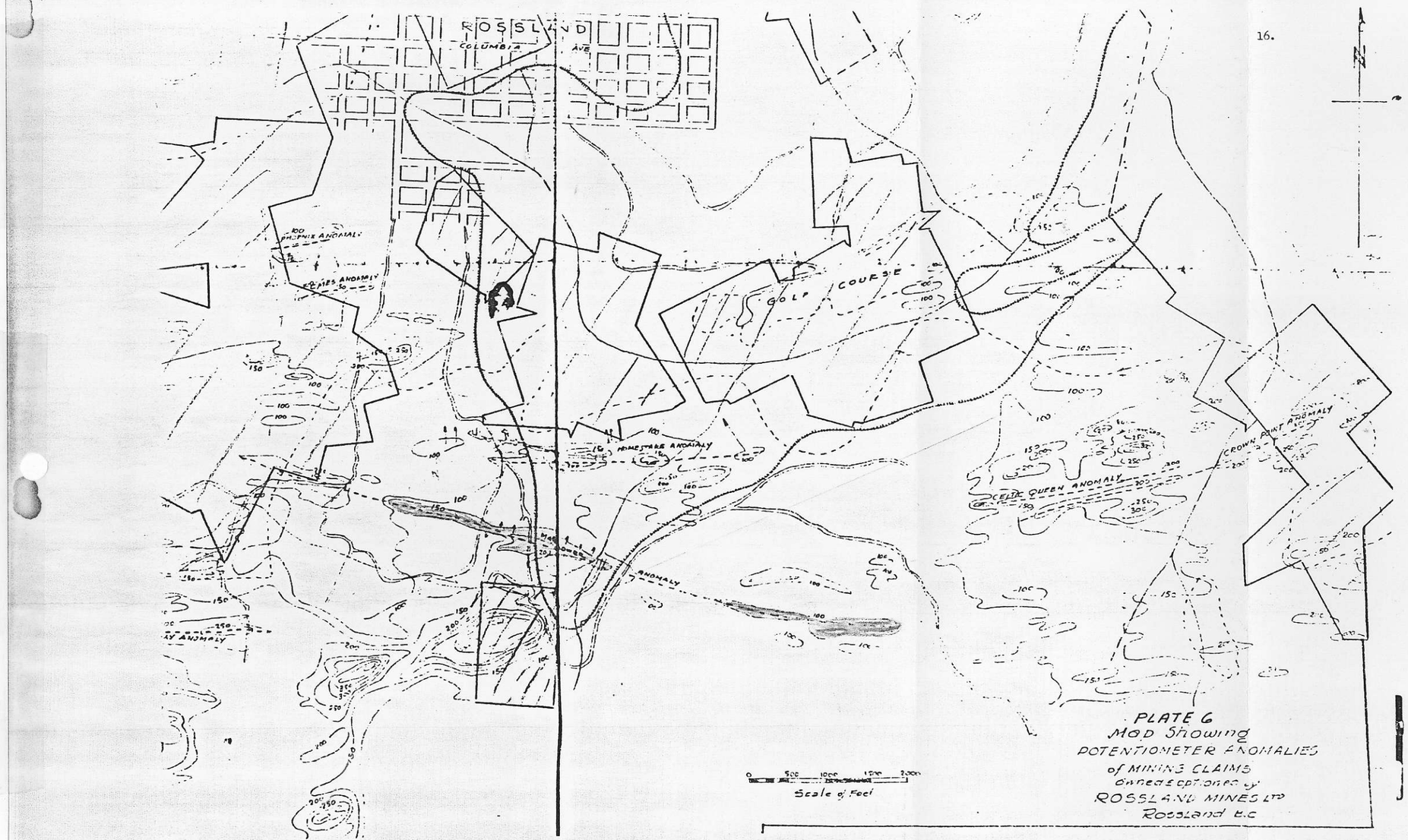


PLATE 6
MAP Showing
POTENTIOMETER ANOMALIES
of MINING CLAIMS
owned & optioned by
ROSSLAND MINES LTD
Rossland B.C

III. Economic Considerations

(a) Mayflower South Vein

There is a potential 1800 tons of high grade ore that can be mined using the existing Mayflower main adit and the South Vein crosscut as shown in Plate 4. An indication of the grade of this block of ore can be surmised from the assays of a sample submitted by Ray Spinks which was taken from the shaft at the portal of the South Vein adit. This material assayed .24% Cu, 11.8% Pb, 14.0% Zn, .604 oz/ton Au, 63.46 oz/ton Ag, and .26% Sb. Assuming that this is a representative sample of the ore , the potential value per ton using Cominco Ltd.'s May 11, 1979 prices are as follows:

Assays	Prices	Value/ton	%	Paid for by Smelter NSR
.24% Cu	-----	No Credit	----	----
11.8% Pb	@ $.55/lb	$129.80	64.8	$ 84.11
14.0% Zn	@ $.45/lb	126.00	58.86	74.16
.604 oz/ton Au	@ $291.58/oz	176.29	51.5o	90.78
63.46 oz/ton Ag	@$9.65/oz	612.38	92.66	567.43
.26% Sb	-----	No Credit	-----	----
				816.48
	Deduct $60.00 /ton for smelter charges & freight			-60.00
	Net smelter return (NSR)/ton			$756.48 say $750.00/ton

Therefore the potential value of an ore block of 1800 tons is:

1800 X 750.00 = $1,350,000

To arrive at the above potential value, Ray Spinks and Ernie Warner's production history through Standonray Mines on the Bluebird was used. The calculations for the % credited metals are shown on Table 1. During the period 1972-1976 ore was mined and shipped from the nearby Bluebird Mine directly to the Trail Smelter, an operation that Ray Spinks envisage to do on the Mayflower South Vein. Dilution will be negligible if the wall rocks are volcanics but can be as high as 15% if the wall rocks are diorite.

Due to the absence of a systematic sampling of this ore block at this time, perhaps a more realistic estimate of the potential value of the above block of ore is to apply a 50% correction factor which will still leave a figure of $675,000.

To bring the Mayflower South Vein into production, the following exploration and development must be done in the following sequence.

(a) Diamond drilling to prove up fully the tonnage and grade of the orebody. If the results are favorable, then,

(b) Survey the end of the South Vein Crosscut in relation to the attitude of the vein on surface in order that the crosscut can be extended to intersect the vein,

(c) Construct a wooden bridge across Gopher Creek, repair the portal of the Main Adit, rehabilitate and extend the South Vein crosscut, and construct an ore dump at the portal.

Needless to say that if the diamond drilling results are unfavorable, the project should be terminated.

The following expenditures for exploration and development are required to bring the Mayflower South Vein into production which will take about two months to accomplish. Operating expenses for the following six months to mine and ship the ore after the above preparatory work is completed is not included since cash will then be generated. Also, the 10% NSR royalty payment and taxes are not included.

1. Exploration		
(a) Diamond drilling, 2 holes, 200 feet @ $14.00 / foot	$2400.00	
(b) Core logging and assays	500.00	
(c) Mine surveying	500.00	
		$ 3400.00
2. Equipment Rental Purchase		
(a) Front End Loader	4000.00	
(b) Buldozer, 40 hours @ $32.00/ hr, rental only	1280.00	
(c) Air compressor	4000.00	
(d) Mucking machine and cars	3000.00	
		12280.00
3. Supplies		
(a) Mine tracks, 20 lb rails, $15 00/ ton, plus bolts and fish plates, 8 tons	1200.00	
(b) Air pipe, 2" dia., 600'	600.00	
(c) Timber		
(i) For portal and ties	1500.00	
(ii) Gopher Creek bridge plus labor	700.00	

(d) Explosives (for first 300 tons of ore)	1300.00	
(e) Drill steel, bits, and hoses	300.00	
		6600.00
4. Freight charges, Vancouver-Rossland	1400.00	1400.00
5. Wages and salaries, 2 months		
(a) Mining, etc.	6000.00	
(b) Accounting, book keeping	700.00	
		6700.00
TOTAL		30330.00
Add 10% for inflation		3000.00
FINAL TOTAL		$33330.00 say
		$34,000.00

(b) Zinc Claims

No immediate development is contemplated on the Zinc claims due to the lack of exploration data on this property. An E.M. survey complimented by a soil sampling program starting on the Zinc No. 1 vein is recommended. The exploration lines should run N-S, 200 feet apart, 500 feet long on both sides of the base line. The base line should be parallel to the strike of the vein (E-W) and samples and readings taken every 100 feet. If the results of the above are reasonably good then this should be followed by diamond drilling. An estimate of this exploration program is shown below.

E. M. Survey (Instrument rental and operator)	$ 2000.00
Soil Sampling, (labor and assays)	1000.00

Diamond drilling, 6 holes, 1200 ft.	16800.00
Total	$19800.00 say $20,000.00

The risk capital that Ray Spinks is seeking is summarized below:

(a)	Mayflower South Vein	
	Exploration and dvevelopment	$ 34, 000.00
(b)	Zinc Claims	
	Exploration	20, 000.00
	Total	$ 54, 000.00

IV. Summary and Conclusion

The Mayflower South Vein is a small but rich orebody. It has a potential tonnage of about 1800 short tons with a potential value of about $ 375 to $ 750 per ton ($675,00 to $1,300,000). The infra-structure and major development work required to exploit this orebody are already in place and only relatively minor additional exploration and development work are required to produce and shipped ore directly to the smelter in Trail. A two-man operation with an expenditure of about $34,000 is needed to bring this orebody into production..

The Zinc Claims have good exploration potential in an area close to a modern smelter with the necessary infra-structure already in place. A combined E.M., soil sampling, and diamond drilling program to explore the Zinc No. 1 vein is estimated to cost $20,000.

As in any mining venture there is a certain amount of speculation and risk due to variables that can not be determined for certain. For the Mayflower South Vein success of this venture is critically dependent on the result of the proposed diamond drilling.

P. J. Santos, P. Eng.
Geologist

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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 I have over 18 years experience in the practice of my profession.

P. J. Santos, P. Eng.

June 4, 1979

TABLE I

STANDONRAY'S DIRECT ORE SHIPMENTS TO TRAIL SMELTER

Date	Tons	Au Oz /Ton	Ag Oz /Ton	Pb	Zn	Metal Contents Au Oz	Metal Contents Ag Oz	Metal Contents Pb Lb	Metal Contents Zn Lb	Contents Paid For Au Oz	Contents Paid For Ag Oz	Contents Paid For Pb Lb	Contents Paid For Zn Lb	Smelter Charges & Freight ($)	NSR $
06/13/72	46.48	.28	16.5	6.2	10.3	13.01	766.94	5,764	9,575	11.62	720.46	4,834	5,313	1,596.83	1,449.32
05/11/73	61.33	.18	18.4	4.7	7.5	11.16	1,128.51	5,767	9,200	9.32	1,060.80	4,538	5,318	1,857.41	3,564.74
06/20/73	76.68	.17	13.6	4.4	6.2	13.26	1,042.98	6,749	9,509	10.96	966.29	5,215	4,900	2,434.83	3,367.38
08/02/73	166.76	.15	14.0	4.1	5.4	25.01	2,334.75	13,675	18,011	20.01	2,167.98	10,340	8,505	5,129.42	5,970.87
10/13/73	35.32	.27	18.9	6.0	8.0	9.53	667.61	4,239	6,217	8.47	627.55	3,533	3,222	1,395.59	2,508.23
12/12/73	147.34	.09	15.6	3.5	4.3	13.26	2,298.61	10,314	12,672	8.84	2,151.26	7,367	4,538	4,724.45	6,736.66
01/21/74	218.42	.05	18.1	4.0	3.6	12.03	3,953.52	17,474	15,727	5.46	3,676.77	13,105	11,009	7,264.62	16,621.09
04/15/74	199.57	.03	10.85	2.1	2.5	5.98	2,165.41	8,382	9,979	-	1,965.83	4,390	5,987	6,627.18	5,612.38
05/17/74	223.19	.04	10.90	2.1	2.9	10.04	2,432.78	9,374	12,945	3.34	2,209.59	4,910	8,481	7,763.13	5,679.40
06/14/74	219.46	.04	17.10	2.7	3.7	10.31	3,752.82	11,851	16,240	3.73	3,490.12	7,462	11,368	7,763.15	11,274.72
12/03/74	303.67	.05	22.30	3.5	3.5	16.70	6,771.97	21,257	21,257	7.59	6,297.93	15,183	14,880	14,247.90	19,177.19
02/21/75	223.97	.04	26.65	3.8	3.6	10.52	5,968.85	17,022	16,126	3.80	5,551.03	12,543	9,676	10,144.22	18,945.41
04/07/75	232.69	.03	9.15	1.4	2.1	8.14	2,129.13	6,515	9,773	1.16	1,896.44	1,861	5,119	10,061.03	0.28
04/09/75	75.83	.03	10.65	1.7	2.2	2.80	807.59	2,578	3,337	0.53	731.76	1,061	1,820	3,357.97	554.87
03/03/75	225.50	.04	13.25	1.8	2.5	10.14	2,987.91	8,118	11,275	3.38	2,762.41	3,608	6,765	9,990.88	4,441.88
06/07/75	99.73	.03	15.35	1.9	2.3	3.19	1,530.96	3,790	4,588	0.20	1,423.79	1,795	2,593	4,302.87	3,032.08
05/11/75	149.71	.04	17.70	1.9	2.6	5.98	2,649.99	5,689	7,785	1.49	2,464.49	2,675	4,671	6,586.55	6,320.88
07/11/75	125.48	.03	16.60	1.9	2.5	4.01	2,083.05	4,768	6,274	0.25	1,937.24	2,258	3,764	6,181.64	4,711.72
09/06/75	60.17	.03	13.95	1.6	2.2	-	839.48	1,926	2,648	-	779.30	722	1,444	3,058.49	750.37
01/24/76	293.86	.04	21.80	3.4	3.9	13.22	6,406.29	19,983	22,922	4.40	5,957.85	14,106	13,753	15,187.29	13,647.94
06/09/76	228.74	.04	14.55	2.0	2.4	9.15	3,328.20	9,150	10,980	2.28	3,095.23	4,575	6,405	11,509.06	4,779.00
	3,413.90	.06	16.41	2.84	3.47	207.44	56,047.35	194,385	237,040	106.83	51,934.12	126,081	139,531	138,184.51	139,146.41
								97.19	118.52			63.04	69.76	40.47/ton	40.75/ton
								% Recovery		51.5	92.66	64.8	58.86		

PROSPECTING REPORT

S.D.R. AND HILLSIDE CLAIMS

D.K. BRAGG

NOVEMBER 1981

PROSPECTING REPORT

S D R AND HILLSIDE CLAIMS

TRAIL CREEK MINING DIVISION

82 F / 4

49 ^{o} 3 ' N 117 ^{o} 47 ' W

Claims recorded in the name of D.K. Bragg
Held in trust for Standonray Mines Ltd. (NPL)

Operator D.K. Bragg

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TABLE OF CONTENTS

Illustrations

INTRODUCTION

Historically the Rossland camp has been a significant mining area from the mid 1890 's to the late 1920 's, during which time some five million tons of ore were mined, which at todays metal prices would approach a gross value exceeding two billion dollars. Much of this production centered around the War Eagle, Le Roi and the Centre Star crown granted claims which gave the Consolidated Mining and Smelting Company its beginning and the springboard into its position today.

Although these claims were the centre of the activity and the locus of the camp being one of the major gold producers in B.C. there were numerous other satellite properties that contributed to the total production.

Some of these satellite properties continued activity well after the cessation of operations in the Rossland camp by the Consolidated Mining and Smelting Company. During the 1930 's many leasers worked the properties and activity has continued on a sporadic basis since then.

This writer has been involved in mining on the Blue Bird crown grant claim from 1972 to 1976, and has spent much time reviewing the data on the camp as well as prospecting much of the area.

The S D R claim was staked in August of 1980 and the Hillside claim was staked in October of 1980. They are held in the name of D. K. Bragg who in turn holds the claims in trust for Standonray Mines Ltd. (NPL). See Figure 1.

It was recognized at the time of staking that these claims had overstaked some existing crown grants.

The intent of this investigation was to try to find the boundaries of these crown granted claims, to map some of the known mineral showings and old workings. It was also designed to test on a preliminary basis the validity of the magnetometer and soil geochemestry as prospecting tools.

PROPERTY LOCATION AND ACCESSIBILITY

The S D R and Hillside claims, centered about three kilometers south east of the city centre of Rossland, lie on the northern slopes of Baldy and Lake mountains to Gopher creek. Elevations range from 2600 feet to 4000 feet. Access to the north western portion of the claims is by good all weather roads from Rossland or by means of the abandoned rail grade. Much of the rest of the area is only accessable by four wheel drive on old logging roads many of which have become impassable by washouts and secondary growth. However the terrain is for the most part fairly gentle and easily acceasable by foot.

Forest cover is mainly second growth hemlock, larch, fir, cedar and both white pine and jack pine. The undergrowth is fairly open and nowhere is it impassable.

GEOLOGY

The Rossland area is underlain by sedimentary and volcanic rocks which have been intruded and metamorphosed by igneous rocks(see GSCMemoir 308 by L.W. Little).

The oldest formation is the Mount Roberts Formation (Pennsylvanian) which are sediments consisting of slates, limestones, quartzites and greenstones (andesites and banded tuffs).

This in turn is overlain by the Rossland formation (Lower Jurassic) which consists mainly of lava flows of andesitic to basaltic composition, augite porphyry, and bodies of tuff and argillite.

The above rocks have been intruded by a number of different intrusions in the following sequence:

Ultrabasic intrusions	(Lower Cretaceous)	serpentinized peridotite
Rossland Monzonite	(Lower Cretaceous)	monzonite
Nelson Plutonic rocks	(Lower Cretaceous)	granite and other phases
Coryell Plutonic rocks	(Tertiary)	alkali granite and syenite
Sheppard Intrusions	(Tertiary)	alkali granite and syenite

Most of all these formations have been subjected to faulting and the intrusion of numerous dykes of various composition from monzonites to basalts. In general these dykes are steeply dipping and trend to the north.

In the area to the south and south east of Rossland there are east west fractures or faults along which mineralized stopes are formed. These stopes seem to be well developed vertically but are limited horizontally. One such stope on the Blue Bird crown grant measures about a hundred feet herizontally and has been drilled vertically to a depth of two hundred and forty feet and is still open downward.

There are two known mineralized fractures of considerable length in what is known as the south belt. The Blue Bird - Mayflower vein system has been traced over a distance of 1200 metres from the eastern portion of the Hattie Brown crown grant through the Blue Bird, Copper Queen, Olla Podrida and on to the Alfi crown grant and still may be open on both ends. The seeond vein system is called the Homestake vein, and although it is not known for certain that this is a continuous system, mineralization has been found along strike over a distance of 2200 metres. This system runs through the Monday, Homestake, Gopher, Maid of Erin, Robert E. Lee, Celtic Queen crown grants and on to the S D R claim.

There are numerous other short fractures in the area along which mineralization has been found, but since information is scarce and it is not known whether these mineralized occurances are aligned along continuous fracture systeme.

FIELD WORK

Between Oct. 6, 1980 and Aug. 29, 1981 twenty man days were spent on the property. The division of this work was as follows:

Prospecting and looking for the crown grant claim boundary survey pins.	7 man days
Cutting and measuring grid lines	5 man days
Magnetometer survey	4 man days
Geochem sampling	1 man day
Geology and mapping	3 man days

When the S D R and Hillside claims were staked it was recognized that some existing surveyed crown granted claims had been overstaked. It was imperative that we try to deliniate these boundaries on the ground by finding the survey pins. To the west on the Ross Island Mines claim holdings we had been able to find many of these survey pins and by means of carefull mapping were able to delineate the claim boundaries. While searching for these pins we prospected the area for old workings and new showings.

Four kilometers of line were run in by compass and topochain for controll of the preliminary magnetometer survey, geochemical sampling and mapping. These lines were partially cut out and measured on a five metre spacing. The grid was set up in a south east quadrant system (see Figure 2 in the pocket).

Magnetometer readings were taken over these lines on two different occasions. These readings were on a five metre spacing. The instrument used was a McPhar M700 vertical field magnetometer employing the fluxgate principle. Base stations were set up and the instrument was calibrated at these stations so that the lowest range scales would be used in the survey. As the survey progressed these stations were checked back to on a regular basis. The data was then corrected for diurnal change and the carrected data plotted on the profiles.

Forty four geochem soil samples were taken over some of the lines in the vicinity of both the new and old showings. Wherever possible care was exercised to assure that the samples were taken from the 'B' horizon.The depths from which the samples were taken varied from 5 to 10 inches depending on the proximity of the bed rock and the availability of soil.

Soil sample data sheets were employed and data on vegetation, soil type, texture and color, sample depth, topography and estimated depth of overburden were recorded in the field. The samples were placed in high wet strength Kraft water proof bags. The samples were partially dried in the air in preparation for shipment to a custom laboratory.

The samples were analysed by Chemex Labs Ltd., 212 Brooksbank Ave., North Vancouver, B.C. The procedure for handling and analysis of the samples were as follows:

1) Geochem samples were air dried at 150 ^{o} F.
2) Samples were sieved through -80 mesh nylon and stainless steel sieve.
3) 0.5 grams of -80 mesh material was weighed into a test tube and digested in hot 70% $HClO_4$ and HNO_3. Digestion time 2 hours.
4) Sample volume was adjusted to 25 mls. and sample was mixed thoroughly.
5) Analysis of lead, zinc and silver was completed by atomic absorption methods.

The results are given in parts per million (ppm) and plotted on a map included in this report (Figure 4, in pocket).

Topographical features and geology was mapped using the lines for controll. Other areas were mapped using air photo controll and this information was then transfered to a 1 - 5000 scale map (see Figure 2 in pocket). Much of this work was done in conjunction with the prospecting.

Four rock samples were taken for assaying.

RESULTS

We were unable to find any of the survey pins and therefore were unable to delineate any of the boundaries of the crown granted mineral claim in the field. Drysdale reports on a property called the Trilby which was developed by three shafts (Drysdale, C. W. 1915 GSC Memoir 77, page 172) It was thought that the shafts in the vicinity of coordinates 66+75 E and 51+90'S are these mentioned in Dryesdale's report as no other shafts that would fit the description could be found in the immediate area where it is thought that the Trilby claim had existed.

In prospecting the area we found considerable evidence of old workings. These were quite numerous and their exact location could not be plotted on the 1 - 5000 scale map with any degree of accuracy.Field notes have been kept of all these workings and a rough plot has been made on air photo overlays in preparation for follow up work.More lines will have to be run in for controll for mapping and follow up surveys.

Float of vein type mineralization was found at three new sites. These showings were found at grid coordinates 59+30 E 52+15 S, 63+95 E 54+05 S and 63+25 E 53+40 S.

A sample of the float found at 63+95 E 54+05 S was taken for assay. The assay result was Cu. 0.68 %, Ag. 0.50 oz and Au $<$ 0.003 oz. per ton. As this sample was similar in mineralogy to some of the pyrrhotite copper veins elsewhere in the Rossland camp it was thought that it might carry good gold values. The other two sample sites mentioned above were not assayed as they were similar to the Blue Bird ores in both mineralogy and visual percentage content of galena and sphalerite.

A contact metamorphic zone about 150 metres by 150 metres is centered about the coordinates 73+00 E 48+50 S. The rocks are believed to be of the Rossland Formation and are highly altered with irregular bodies of magnetite and epidote throughout. A grab sample of this material assayed Cu. 0.16%, Pb 0.01%, Zn $<$ 0.01%, Ag 0,03 oz. per ton and Au. 0.03 oz. per ton. Associated with this altered zone are other small veins of highly siliceous gangue with good chalcopyrite and arsenopyrite. These were not sampled.

Throughout this zone are dykes and irregular shaped bodies of granitic rocks. It is thought that this zone is a thin remnant of the volcanics overlying the Nelson intrusives.

A sample of vein material was taken from the old dump at 78+00 E 48+25 S. This assayed Cu 0.54%, Pb 0.0I %, Zn 0.0I%,Ag 0.I2 oz.per ton and Au 0.542 oz. per ton. This material was very similar to the silicified pyrrhotite chalcopyrite veins of the main copper gold producers of the Rossland camp. In a visit of the underground workings it would appear that the mineralization is irregular and in pods within the fine grained to medium grained granitic rocks.

Some time was spent in the Tigre creek valley between coordinates of 50+00 S and 60+00 S and on both the east and west slopes for about 500 metres on either side. There are a number of old workings on either side of the creek, mainly on small pyrrhotite-chalco pyrite veins and on very rusty fracture zones. The rocks in this area are for the most part fine grained granites, slightly altered and subjected to an infusion of silica and fine grained pyrite and pyrrhotite. In places some good chalco pyrite was seen. A grab sample of about I0 lbs of rock over an area of about I000 metres by I000 metres was taken. This assayed Cu o.03 %, Ag 0.I0 oz per ton and Au. 0.003 oz per ton. Although the over all grab sample was low there are probably some zones that would return much better results when sampled on a more selective basis.

The magnetometer readings were taken at two different times. The work done in Oct. of I980 has been included in this report. However a problem arose with the readings taken on Aug. 24th and 25th of I98I that was not immediately aparrent in the field when closing with the base stations that had been established. The problem presented itself only on plotting and closely comparing the results with what had been done previously. On checking with the Victoria Magnetic Observatory it was found that a major magnetic storm had occured on Aug. 23, I98I, and that the two following days when the readings were taken were a period of settling down with odd smaller disturbences through out each day. Since the work of these two days can not be relied upon with any confidence, the results of this work is not included in this report especially since the gamma range that we are looking at can be as low as 200 gammas.

The results of the magnetometer readings are plotted on figures 5 through I0.

In the plot of the test readings along line 59+25 E between stations 5I+30 S and 52+40 S the profile suggest a vein dipping to the south with the apex of the vein at about station 5I+70 S. This is 30 metres north

and down slope from where the mineralized float was found along the road On examining the area no outcroppings of mineralization could be found due to the overburden cover. There is strong evidence that the mineralized float had been dragged up slope by the equipment when the road was built.

In figure 6 the profile indicates a vein dipping to the north which is consistant with the information known of this vein.

In figures 7 and 8 along line 50+00 S the interpretation is more difficult since the trending structures are almost parallel to the direction of this line and cross the line at a low angle. The strong peak at 50+00 S 56+50 E is in the vicinity of where it is thought that the Homestake vein crosses the line. For further interpretation more magnetometer readings are necessary along with more detailed mapping of the rock exposures.

In figures 9 and 10 the two anomalous conditions coincide with known mineral occurances or fault traces at 54+00 E 50+50 S to 50+75 S and at 54+00 E 54+60 S. On line 54+00 E between station51+60 S to 53+40 S there is a broad above background situation that may be anomalous, however proper interpretation can only be made with more magnetometer readings on parallel lines and with detailed prospecting and geological mapping.

CONCLUSIONS

Even with the limited testing of the magnetometer and geochemical sampling it has been established that both these methods would be good prospecting tools. On a review of the results of the magnetometer testing it would appear that the spacing of the readings should be five metres since it would be possible to miss some of the smaller anomalies if a wider spacing were used. As only 44 soil samples have been taken little can be said of the results other than some of the high values do reflect known zones of mineralization.

A complete grid should be established over the areas of interest to facilitate controll in mapping and prospecting, and for the continuation of a magnetometer survey and soil sampling.

D. K. Bragg

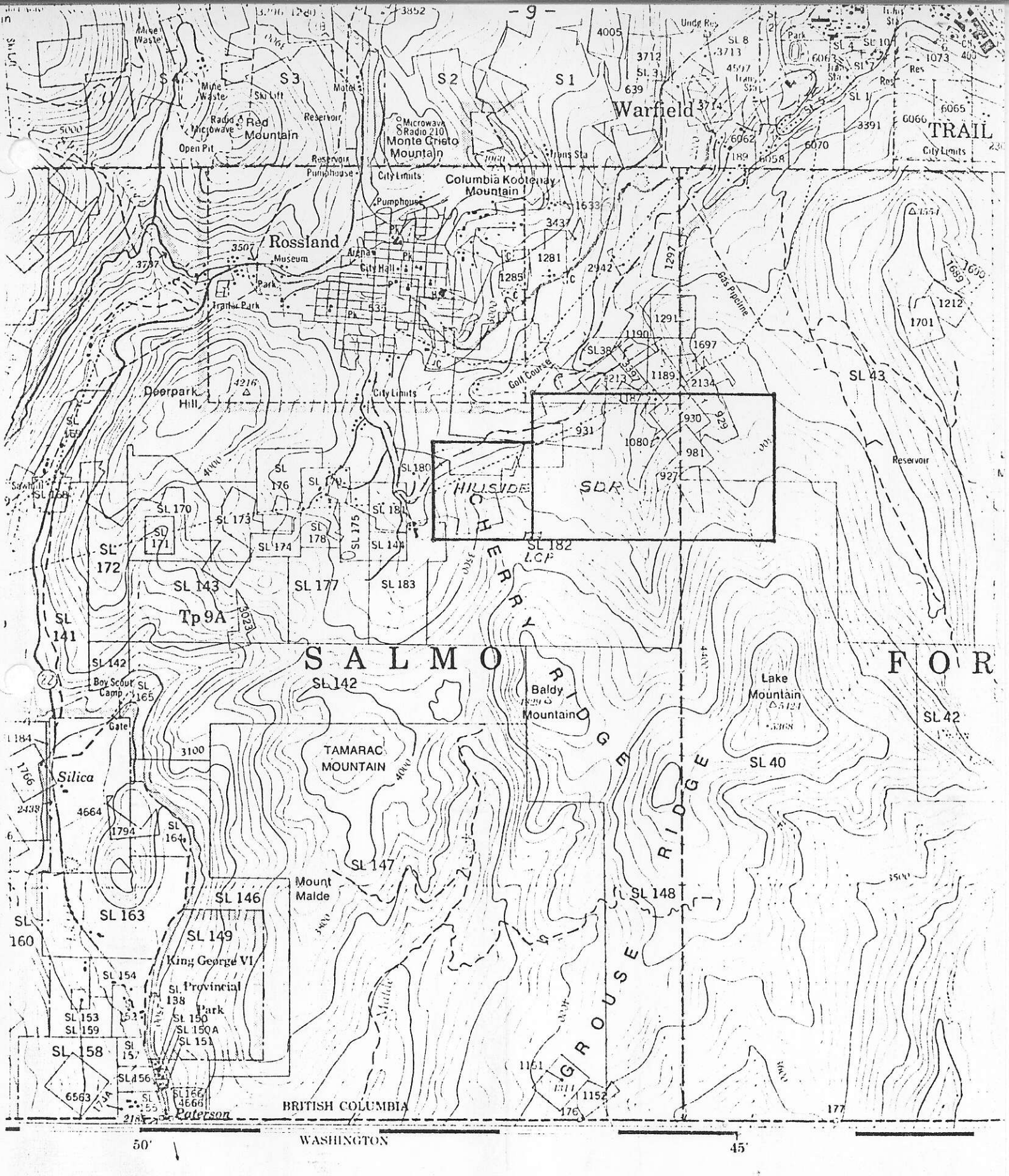


FIG 1

Location of SDR & HILLSIDE Claims

ROSSLAND-TRAIL 82 F/4

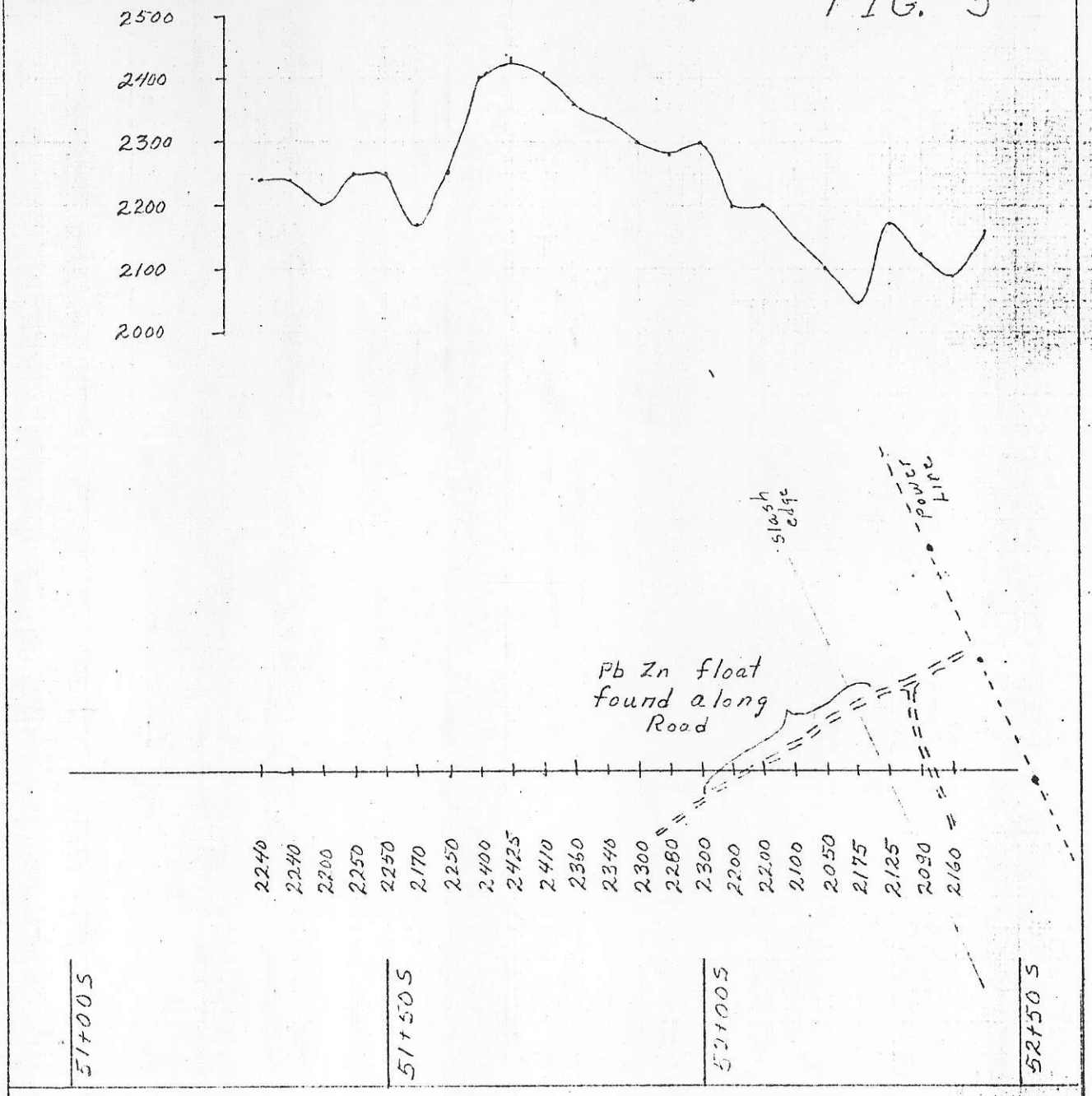
BRITISH COLUMBIA

Scale 1 50 000 Échelle

Miles 1 0 1 2

Metres 1000 0 1000 2000 3000 4000

FIG. 5



MAGNETOMETER PROFILE

LINE 59+25E STATION 51+30S to 52+40S

Readings 5 metre Interval.

Scale 1 - 1000

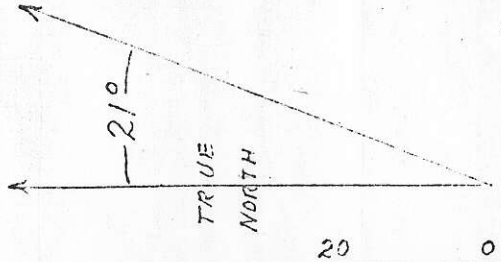
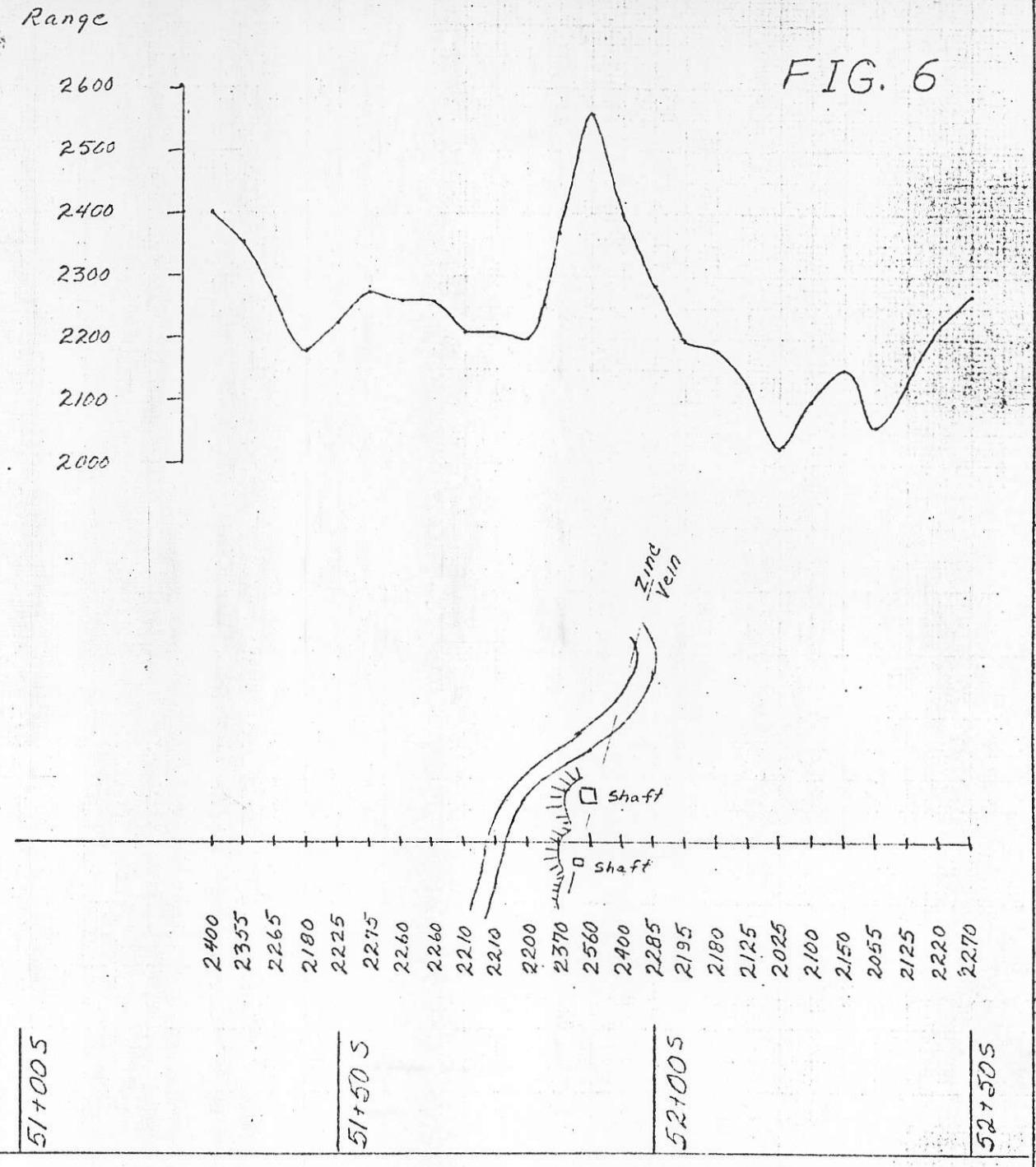


FIG. 6

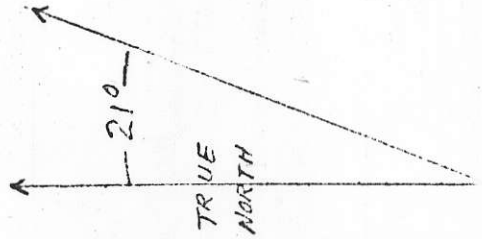


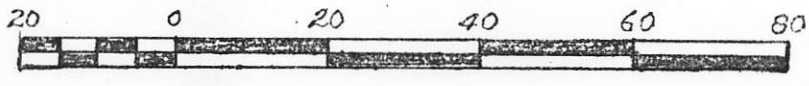
MAGNETOMETER PROFILE

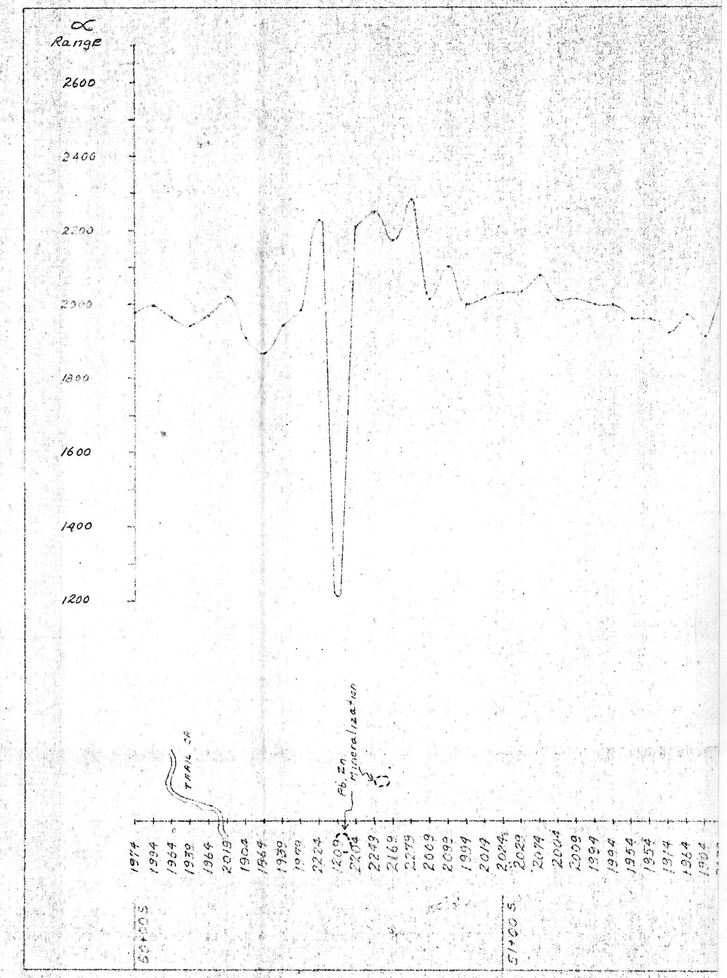
LINE 66+75E STATION 51+30S to 52+50S

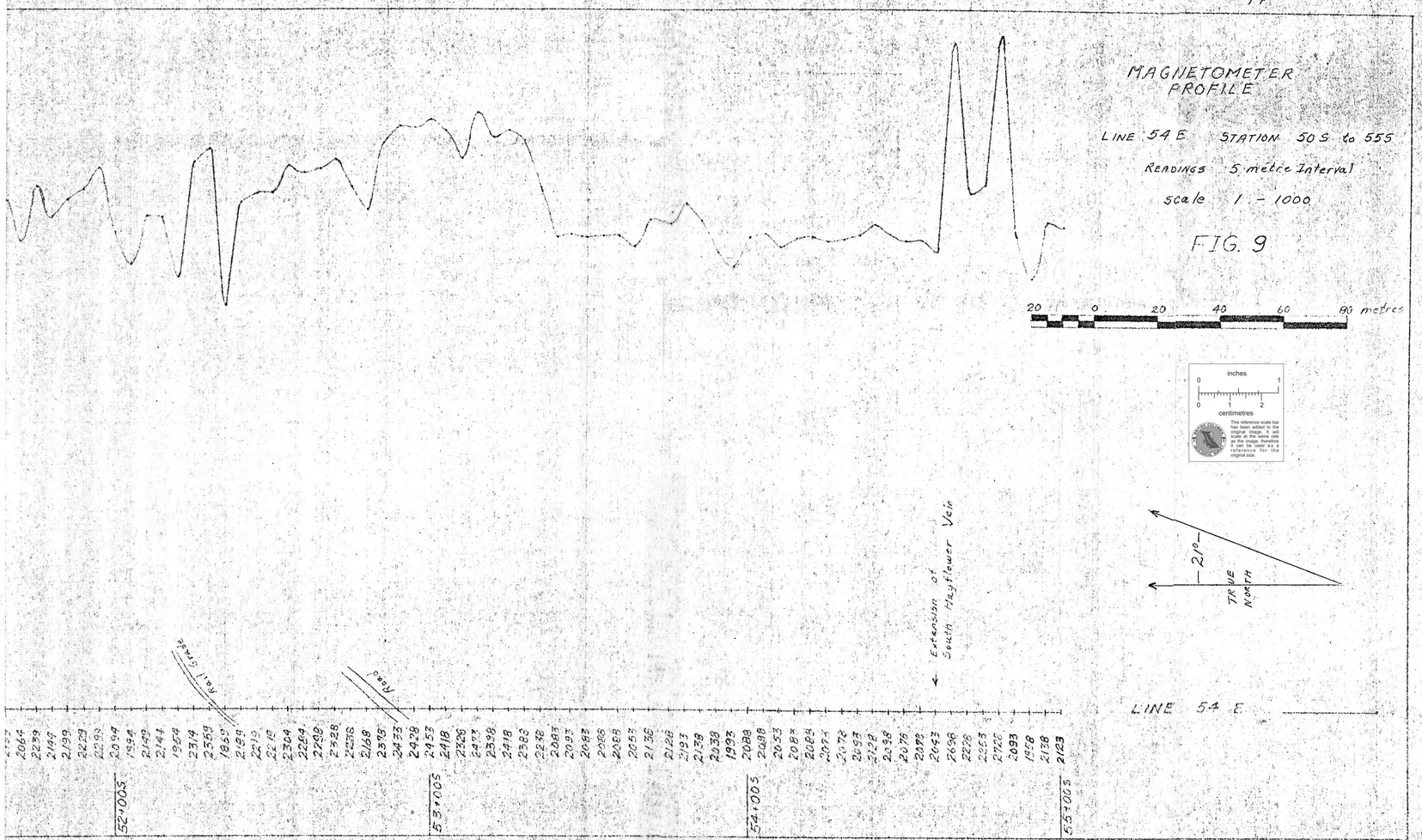
Readings 5 metre Interval

Scale 1 - 1000






∝ Range
2600
2400
2200
2000
1800
1600
1400
1200
TRAIL SR
Pb, Zn Mineralization
S1+00S
S2+00S


MAGNETOMETER PROFILE
LINE 54 E STATION 50 S to 555
READINGS 5 metre Interval
scale 1 - 1000
FIG. 9
20 0 20 40 60 80 metres
inches
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore can be used as a reference for the original size.
21°
TRUE NORTH
Fault (Trace)
Road
Extension of South Mayflower Vein
LINE 54 E
S2+00S
S3+00S
S4+00S
S5+00S