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**Report for
Ministry of Attorney General
Province of British Columbia**

on

**Sherwood Mines Limited's
Sherwood Gold Mine Property**

**Drinkwater Creek Area,
Alberni Mining Division
British Columbia**

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SUMMARY

The Ministry of Attorney General for the Province of British Columbia has commissioned the writer and Wright Engineers Limited ("Wright Engineers") to provide a geological assessment and valuation report with a break-even analysis for the Sherwood Mines property located in the Bedwell River area in the southern part of Strathcona Provincial Park, following expropriation of the mineral claims by the Crown in November, 1989¹⁹⁸⁸.

The circumstances leading to this request are unusual, the history of the Sherwood Mine claims and other mining properties within the Park having been influenced at times since the formation of the Park in 1911 and establishment of park boundaries between 1911-13. Until the most recent closure of the Park to exploration and mining in 1989, there have been frequent interruptions in permitted exploration and mining activity summarized as follows:

1911-1918	No legal prospecting, although claims staked in and prior to this period.
1918-1956	Prospecting, development and mining in progress.
April 1957	Reclassification of Park to Class "A" - prospecting prohibited.
1965	Reclassification of Park to Class "B" - prospecting permitted.
1973	Moratorium affecting exploration and development without the authority of the Lieut. Governor in Council.
March 1987	Reclassification of lands within Provincial parks within mineral claims contains in "Recreation Areas".
May 1988	Moratorium on mineral exploration and development.
Nov. 1988	Prohibition of issuance of resource use permits.
June 1989	Recreation Areas reclassified to Class "A" Park status.

Within the boundaries of Strathcona Park occur a variety of mineral deposits, typical of those found in other parts of British Columbia. These include gold-silver bearing quartz veins, porphyry coppers and volcanogenic massive sulphide base-metal deposits. Several mineral properties pre-date the establishment of Strathcona Park whereas the majority bear later recording dates. Westmin's Buttle Lake operation is Vancouver Island's largest copper-lead-zinc producer with the current operation lying within the Strathcona Park boundaries. The Big Interior porphyry copper deposit lies several miles west of the Sherwood Mine with original claims staked in 1899.

The quartz vein deposits on Vancouver Island share common characteristics, generally not exceeding three feet in width and commonly containing appreciable amounts of pyrite, chalcopyrite, galena, and sphalerite. Host rocks are diverse and most commonly include Paleozoic Sicker Group rocks, late Triassic Karmutsen volcanic rocks, and granitic rocks of Jurassic and Tertiary age. Important structural controls are fractures, faults, sheeted zones, and fissure zones.

The only important gold production to date from these types of deposits on Vancouver Island was derived from several mines in the Zeballos Camp about 70 miles northwest of the Sherwood Mine. These mines produced 276,067 ounces of gold and 120,140 ounces of silver from 718,475 tons milled for average grades of 0.38 ounces gold/ton and 0.16 ounces silver/ton. They were profitable in their time with a record of \$2,247,183 in dividends paid between 1939-1959 of which 85% was paid by the Privateer Mine.

The Bedwell River area contains 16 properties with gold-bearing quartz veins of which the Buccaneer, Musketeer, and Sherwood have the best combinations of mineralized widths and grades. Of 15 properties reviewed, including the Buccaneer, Musketeer and Sherwood, 12 were staked between 1938-1940 during which period much of the significant work recorded to date was completed. In 1941-1942, the Buccaneer and Musketeer produced a total of 6,908 ounces gold and 2,994 ounces silver from 11,500 tons milled for average grades of 0.60 ounces gold/ton and 0.28 ounces silver/ton. Operations were suspended at both mines because of the inability to generate an operating profit from the narrow ore bodies outlined at the Buccaneer and due to labour shortages at the Musketeer. *

The Sherwood property is known to contain only one gold-bearing vein structure, albeit a strongly established feature with good strike and depth continuity. Several other deposits in the Bedwell River district contain more than one vein and the presence of an additional vein or veins on the Sherwood property is a possibility and has been suggested by others interested in the potential of the property. "OPEN" *

The shear-controlled Sherwood Vein has been demonstrated by very limited exploration to have an overall strike length of about 1,200 feet in an easterly direction on surface and an additional strike length of about 650 feet westerly within underground workings on the No. 7 level, for an overall strike length of 1,850 feet, considered open. It has been explored through a vertical depth of 820 feet from surface to the No. 7 level and remains open at depth. Within this area, it is known to contain a gold-silver bearing shoot, based on significant values obtained over narrow widths on two levels, 210 feet apart vertically (No. 1 and No. 3 levels), and for an average strike length of 219 feet. *

Conservative estimates of the probable and possible reserves in the shoot based on evaluations by three individuals working independently and using at least two different sources of basic assay data range from 30,500 - 46,500 tons at average grades of 0.65 - 0.41 oz gold/ton and 1.13 - 0.72 oz silver/ton containing 19,000 - 22,000 oz gold and 35,000 - 49,600 oz silver. Most other estimates, principally by another group of individuals, which include one individual who produced one of the conservative estimates described above, are 2.5 - 3.5 times higher in contained ounces of gold and 2.2 - 2.8 times higher in contained ounces of

silver. The higher estimates can be attributed to a combination of not providing for dilution with zero grade material to average mining widths stated and projections of values from the No. 3 level to the No. 7, the latter of which contains no values of commercial interest based on previous sampling.

In retrospect, the property should have been subjected to a more conventional exploration program, having been almost totally dependent on an underground exploration program within one year of its discovery, with no known detailed geological mapping, geophysical or geochemical surveys or diamond drilling to provide guidance to the presence of other potential ore-bearing structures.

Economic parameters developed by Wright Engineers for a viable gold-silver bearing narrow vein deposit indicate that none of these types of deposits, even those in the Zeballos Camp that were viable in the 1930's and 1940's, would be viable in today's economic climate. Consequently, the writer concludes that it is highly unlikely that the Sherwood property contains a gold-bearing vein type deposit that would be viable and that further exploration, were it permitted, would not be recommended or proposed by a prudent investor based on this review.

INTRODUCTION

At the request of the Ministry of Attorney General for the Province of British Columbia, the writer was retained by letter August 9, 1990 to provide a geological assessment and valuation report with respect to the Sherwood Mines Ltd. mineral claims situated near the head of Drinkwater Creek in the southern part of Strathcona Park, following expropriation of the mineral claims by the Crown. Subsequently, it was agreed that the writer's report would be accompanied by a separate study requested from Wright Engineers Limited as to the market value of the mineral claims and the reserves and grades required based on a break-even analysis.

Information used in preparing this evaluation is extensive as documented in the reference section, and it includes consideration of all readily available information concerning the history of the development of Strathcona Park and gold-silver bearing vein-type mineral deposits in the Bedwell River area in the southern part of the park wherein are situated the mineral claims comprising the Sherwood Gold Mine ("Sherwood Mine") property. In addition, consideration has been given to the relative viability of similar, narrow gold-silver bearing veins on Vancouver Island, particularly those recording profitability in the Zeballos mining camp, in their production period, for comparison purposes with those in the Bedwell River area.

In considering the Bedwell River area, the writer ranks the Sherwood Mine property as having the highest potential for gold-silver type vein-hosted mineralization, including non-economic deposits mined in 1940-41 at the Musketeer and Buccaneer properties, based on tonnage and grade criteria. Geological and reserve criteria for 16 properties are tabulated in support of this assessment.

The writer has completed a brief examination of the property which included an examination of one of the underground workings and has evaluated and tabulated nine separate ore reserve estimates on the Sherwood property, including his own. Conclusions derived on present reserves at the property are based on three estimates considered conservative.

The writer's final conclusions as to the potential viability of the Sherwood property are influenced by the results of the accompanying study completed by Wright Engineers Limited, which he has reviewed and with which he concurs.

LOCATION, ACCESSIBILITY, AND PHYSIOGRAPHY

The property is located about 28 miles west-northwest of the town of Port Alberni and lies about 3 miles due north of the south boundary of Strathcona Provincial Park on the headwaters of Drinkwater Creek which flows southeasterly into the west end of Great Central Lake (Fig. 1). Geographic coordinates are 49°28' north latitude and 125°31' west longitude.

The most convenient current access is by helicopter from Campbell River or Port Alberni, landing at either of two pads on the property which were reported as serviceable in 1986 and which were presumably serviceable in 1987 when the most recent program was completed. The pads lie at elevations of 4,495 ft. near the No. 1 portal and at 3,675 ft. near the No. 7 portal.

Access by foot is best realized by a hiking trail, maintained by the Parks Service, which provides access from the west end of Great Central Lake, up the north side of Drinkwater Creek to Della Falls, lying southwest of the property on the south side of Drinkwater Creek. About 10.5 miles from the west end of Great Central Lake, the trail to the property follows the Moant Septimus trail from this junction up to Love Lake and west about 2,900 ft. to the upper camp site.

Portal access is difficult for the No. 1 and No. 7 levels as described in a report by Access Geological Services (1986). The report states that *"originally some form of wooden walkway had been constructed to cross the steep side of the Sherwood vein into these portals. The number three level is easily accessed from the south side of the Sherwood vein. At this time, access to the number seven level is by a cable and pulley system."*

The current condition of the various underground workings on the Sherwood Mine for access purposes has not been investigated and adequate precautions within the established guidelines provided in the Health, Safety and Reclamation Code for Mines in British Columbia would be required before any entry to the workings is attempted.

The area is rugged and mountainous with maximum relief on the property in excess of 3,300 ft. from 1,900 ft. at Drinkwater Creek to 5,250 ft. west of Love Lake. Slopes are very steep. The portals for the mine levels are located in a talus slide with a slope averaging about 45° from the No. 1 portal area to Drinkwater Creek.

Precipitation is heavy, being in excess of 100 inches per year, with heavy snows in the winter months. The climate is temperate, from 0°F (-18°C) in winter to 80°F (+25°C) in summer. (Heard et al, 1989)

Timber on the lower slopes is mature and commercially valuable. Red cedar, hemlock, balsam, fir, spruce, Douglas fir, and yellow cedar grow in the area. Trees large enough for mining purposes are found locally to the 4,100 ft. elevation. (Heard et al, 1989)

OWNERSHIP

The Sherwood Gold Mine property consists of 19 contiguous Crown-granted mineral claims, listed in the following table and shown in Figure 3.

<u>Lot No.</u>	<u>Claim Name</u>	<u>Acres</u>
1823	Black Bear No. 2	34.47
1824	Black Bear No. 4	43.51
1825	Black Bear No. 5	48.16
1826	Black Bear No. 6	50.19
1827	P.M. No. 4 Fraction	47.83
1828	P.M. No. 4 Fraction	21.24
1829	Pluto No. 1	43.86
1830	Patullo No. 1	48.03
1831	P.M. No. 3 Fraction	51.21
1833	Black Bear No. 8	39.83
1834	Patullo Fraction	26.02
1835	Hamber No. 1	21.83
1837	Hart	5.99
1841	Pluto No. 3	31.38
1842	Patullo No. 3	45.57
1843	Patullo No. 4	48.61
1844	Patullo No. 2	51.03
1845	Hamber No. 2	<u>13.44</u>
	Total Acreage	715.95

All claims are shown on National Topographic Series Sheet 92F/5, Bedwell River, Alberni Mining Division, British Columbia.

A 69% controlling interest in Sherwood Mines Ltd. ("Sherwood") was reportedly obtained by Mrs. Merna Tattersall in July, 1984 through Cinta Resource Corporation ("Cinta") which is wholly owned by Mrs. Tattersall and which was incorporated for that purpose. The controlling interest was reportedly earned through the acquisition of 186,000 shares of Sherwood from Lilian Hart, widow of Mr. Sherwood by an Agreement dated July 12, 1984, at a cost of \$186,400. *~1984*

Casamiro Resources Corporation ("Casamiro") reportedly controls ownership under terms of a "Letter of Intent" dated November 19, 1984, and Cinta's interest is currently reported as a 25% net profits interest.

The legal status of the property is beyond the scope of this report and the writer does not assume responsibility for the above information.

Ownership considerations have been affected by changes in the status of exploration and development permitted on mineral claims in Strathcona Park, as summarized in the following section.

STRATHCONA PROVINCIAL PARK

The location of the Sherwood property, within the boundaries of Strathcona Provincial Park (Fig. 2), has within a relatively short period of recent time impacted negatively on its future. A brief summary of the history of the Park follows, which is derived principally from three sources: Pearce (1990), Strachan (1987), Friends of Strathcona Park (1987).

Strathcona Park was created on March 1, 1911 under the Strathcona Park Act, the Park boundary being established between 1911 and 1913. There were no valid mineral claims in the Park at this time and prospecting was prohibited.

On April 15, 1918, the park was opened to prospecting (Friends of Strathcona Park, 1987). [The above appears to be in conflict with references contained in Sargent (1941) which describe several mineral properties in the Bedwell River area within the current boundaries of Strathcona Park which had been staked and/or recorded prior to April 15, 1918, e.g. Big Interior Mountain (1899), Big I (pre-1906). - author's comment.]

On April 5, 1957, the Strathcona Park Act was repealed and Strathcona became a Class "A" Provincial Park. Prospecting and mining activities were prohibited.

On May 13, 1965, Strathcona Park was reclassified from Class "A" to Class "B", except for the "Nature Conservancy" areas. (The principal difference in the status of Class "A" and Class "B" parks in respect to exploration for and exploitation of mineral resources is that no interest in a Class "A" or Class "C" park shall be alienated except as authorized by a valid and subsisting park use permit, which shall not be issued unless in the opinion of the Minister issuance is necessary to the preservation or maintenance of the recreation values of the park involved. This would appear to eliminate exploration and exploitation of minerals

in all but the most unusual circumstances. With respect to Class "B" parks, a park use permit, or a resource use permit, may be issued permitting exploration and exploitation of mineral resources providing such activity is not detrimental to the recreational values of the park concerned. -author's comment.)

In 1966, Cream Silver Mines Ltd. was incorporated under a B.C. Charter and in the same year it acquired 66 mineral claims by staking in the Buttle Lake area south of the Westmin Resources Limited ("Westmin") property and lease area, and north of the Sherwood claims, the object being exploration for similar massive sulphide base metal deposits with significant precious metal values, similar to those mined by Westmin.

On March 1, 1973, a moratorium was put into effect which provided that further exploration and development of mineral claims within any Provincial Park could not occur without the authority of the Lieutenant Governor-in-Council. Westmin, which had also staked a large number of additional claims in the park in the 1960's was permitted to continue.

In 1979, Cream Silver Mines Limited ("Cream Silver"), prevented from developing their claims by the 1973 moratorium, sued the B.C. Government.

In 1985, the Tener case, involving crown granted mineral claims already in place in Wells Grey Park before the park was formed, was decided in the Supreme Court of Canada. The Tener decision was essentially that the provincial government would have to pay compensation if they continued to prevent Mr. Tener from developing his claims.

On April 30, 1986, the B.C. Supreme Court ruled that the ruling in the Tener case could not be extended to the Cream Silver case. Cream Silver filed an appeal, which was indefinitely adjourned.

On March 14, 1987, the Government made a policy decision to reclassify lands within Provincial parks where mineral claims were located to "Recreation Areas" with a view to letting mineral claim holders explore for the minerals within their claims under stringent conditions with the expectations that most of the claims would not "prove out" and would be considered worthless. For those claims that did "prove out", it was anticipated that a decision would be made in the future to either allow the mine to proceed or to reclassify the subject area from "Recreation Area" to "Park", depending upon the sensitivity of the proposed mine to the recreational values in the Recreation Area and to the environmental impact. *

A public statement issued by the Hon. Bruce Strachan on March 11, 1987 discussed the government's intentions concerning the future direction and management of Strathcona Park. The new policy provided the following principal requirements and guidelines for Strathcona Park.

- "1) *Negotiations toward reasonable quit-claim settlement will be attempted for all existing claims.*
- 2) *When any of the existing claims lapse they will automatically become Class A Park.*

- 3) *The Recreation Area surrounding the present claims will only allow development deemed necessary to access and service the existing mineral claims. There will be no new claim staking in this area.*
- 4) *In managing the mineral exploration process, the government will pursue all legal avenues to ensure that both direct surface impacts at the claim site, and the long term effects on recreation throughout the park are minimized."*

In the above guidelines, no limit was specified as to the length of time provided for mineral claim owners to further explore their properties. The statement also noted that:

"While the basic decision on park boundaries and status has been made, the government remains committed to undertaking a further public consultation process to prepare the management plan for the park.

To this end:

- *Public consultation will begin in May and meetings will be held in several communities on Vancouver Island and in Vancouver.*
- *Initially, the public will be presented with an analysis of the park resources and issues and invited to express opinions on the management options.*
- *Based upon the preliminary public input, a draft plan will be prepared and presented for further public review prior to finalization."*

As previously noted, Cream Silver Mines had mineral claims located within Strathcona Park and obtained a resource use permit to do some exploratory drilling. This gave rise to a public protest resulting in the appointment of the Strathcona Advisory Committee in April, 1988. At that point, the Crown notified Sherwood Mines Ltd. that no resource use permits relating to mineral exploration would be issued while the Strathcona Advisory Committee was reviewing the future plans for the management of the Strathcona Recreation Area. In June 1988, the Advisory Committee, in a report to the Crown, recommended that no future mineral exploration or mineral development be permitted in the Park beyond the existing Westmin Resources Ltd. Lease zone. An Order-in-Council was passed on May 19, 1988, placing a moratorium on mineral exploration and development within the Strathcona Recreation Area which was later extended in August 1988 to allow the Crown sufficient time to decide what it would do with Strathcona Recreation Area. The Government finally resolved the issue by passing an Order-in-Council on November 25, 1988, which prohibited the issuance of resource permits for mineral exploration in the Strathcona Recreation Area and in June 1989 the Recreation Area was reclassified to Class "A" Park.

HISTORY

Reports of the Minister of Mines, British Columbia for 1898 and 1899 contain brief references to placer mining in the 1860's and to Chinese placer miners abandoning the area in the late 1880's. No information is provided on the extent of the operations or the amount of gold recovered.

Gold-bearing veins and copper-bearing replacement deposits were discovered and developed in the area in the late 1890's (Fig. 4). Initial claims on the You group covering a gold-bearing vein situated on the western slope of Big Interior Mountain about 5 km west of the Sherwood Mine were recorded in 1912 and sporadic activity was reported on the property until 1933 or 1934. In 1938, prospecting in the Bedwell River area led to the discovery of several gold-bearing veins including the Musketoeer and Buccaneer properties which were in production in 1941-42 (see 'Mineral Deposits - Bedwell River Area').

W. J. Sherwood is reported to have discovered the Sherwood Vein in 1938 and the initial claims on the property were staked by him in 1938 and in July, 1939 (Fig. 3). Apart from prospecting, several cuts were made on the vein and the surface exposures were examined by Pioneer Gold Mines of B.C. Limited ("Pioneer") in November, 1939. Pioneer then optioned the claims and in 1940 completed 1,830 lineal feet of underground work on three levels: No. 1 (4,400 ft. elev.), No. 3 (4,190 ft. elev.), and No. 7 (3,700 ft. elev.). The workings were sampled as drifting advanced. In 1940, Pioneer also staked adjoining claims to the east on the PDQ property (see 'Mineral Deposits - Bedwell River Area').

In 1941, between March 1 and November 15 when operations were indefinitely suspended, Pioneer completed 760 ft. of drifting, 90 ft. of cross-cutting, and 270 ft. of raising on the Sherwood property which included raising from the No. 7 level to the No. 5 level (3,940 ft. elev.) and minor headings established on the No. 6 level (3,818 ft.). A total of 736 ft. of drifting and cross-cutting were also completed on the PDQ property.

In 1942, between June 1 and October 1, a total of 22 tons of ore, averaging 3.25 oz Au/t and 5.75 oz Ag/t was reportedly shipped to the smelter at Tacoma (BCDM Rept., 1941).

In 1945, Cangold Mining and Exploration Co. Ltd. optioned the property and between May 25 and October 30, completed a program of camp rehabilitation, surface stripping, surveys, prospecting, and underground rehabilitation, surveys and sampling. A pre-existing railway grade 5.5 miles in length was converted to a truck road and a 3.5 mile location line was surveyed from the end of the grade to the mine-site area. Although Cangold announced plans for a 50-ton per day mill and surface plant at year-end, no further work was done.

The 19 Sherwood Mines Ltd. mineral claims were crown-granted in 1946 and 1947. Sherwood Mines Limited (N.P.L.) ("Sherwood") was incorporated on June 7, 1950 and became the registered owner of the 19 crown-granted claims on August 6, 1951. There are no records of further work having been completed at the property until 1982, although Mr. Sherwood is reported to have made further shipments of ore from the property in the 1950's.

In 1982, a total of 14 samples were collected by W.C.R. Construction on the No. 3 level of the Sherwood Mine. In the report by Heard et al (1989), these sample results are referred to as 'Casamiro Sampling'. The samples were assayed in October, 1982. W.C.R. Construction subsequently took a partial interest in Cinta Resource Corporation, which is wholly owned by Mrs. Tattersall and which has a 25% net profit interest in the Sherwood Mine property. On July 12, 1984, Mrs. Merna Tattersall became the president and a director of Sherwood having purchased a 69% controlling interest (see 'Ownership').

In the 1985 and 1986 summer seasons, Casamiro Resource Corporation, which had reportedly obtained control of the property under terms of a Letter of Intent dated November 19, 1984 reopened the No. 3 and No. 7 levels (Heard, 1986). In 1986, Access Geological Services mapped and sampled the No. 7 Level and the raise between the No. 5 and No. 7 levels (Access Geological Services, 1986). Following an examination and additional sampling of the underground workings in late 1986, R. T. Heard, P.Eng., recommended a program of underground rehabilitation and development to further assess the potential of the property at an estimated cost of \$600,000 for Phase I.

Funding for the proposed program was provided in early 1987 by First Exploration Fund 1987 - a flow-through share fund. The required permits for the work program were applied for through the various responsible agencies of the provincial Government. These included an application for a Resource Use Permit from the then Ministry of Environment and Parks which was necessary because of the property's location in a newly-created Recreation Area in Strathcona Provincial Park. The Resource Use permit was never issued. A Notice of Work was not approved by the Ministry of Energy, Mines and Petroleum Resources until early October, 1987. Because of the delays in issuance of permits, the proposed program was modified to provide for initiation of a preliminary environmental study including water quality and hydrology measurements which was undertaken by Norecol Environmental Consultants Limited. Some of the leased mining and camp equipment was transported to the property in early November, just prior to a heavy snowfall. In addition to the permit granting delays, lack of water coupled with travel and communication problems inherent with the usual inclement weather conditions in the area resulted in a decision to defer the underground program. A contingency plan involving diamond drilling of the Sherwood Vein/shear zone several hundred metres below the underground workings proposed for completion by late February, 1988 was also deferred. In summary, none of the proposed objectives of the 1987 program were met, with the exception of partial establishment of survey control. (Carter, 1987)

* On March 14, 1987, the Provincial Government made a policy decision to reclassify lands within Provincial Parks where mineral claims were located to "Recreation Areas" whereby exploration could be carried out with a view to determining the viability of the properties within a five-year time frame. Following public protest to exploratory drilling in Strathcona Park, the Strathcona Advisory Committee was appointed in April, 1988 at which time Sherwood was notified that no resource use permits relating to exploration would be issued pending completion of a report by the Advisory Committee which was provided in June, 1988 recommending no further exploration within the Park. An Order-in-Council was passed on November 25, 1988 prohibiting the issuance of resource-use permits for mineral exploration

in the Strathcona Recreation Area and in June, 1989 the Recreation Area was reclassified to Class "A" Park.

The Court has ruled that the November 25, 1988 Order-in-Council constituted an expropriation of the Sherwood claims.

REGIONAL GEOLOGY

The regional geology of the Bedwell River area is shown on Geological Survey Map 17-1968 which accompanies GSC Paper 68-50 by Muller and Carson (1969). The map is based in part on earlier mapping by Sargent (1941) shown in Figure 4 which covers a portion of the southern part of Strathcona Park on a scale of 1" = 1 mile and which shows the location of various mineral deposits in the area described under 'Mineral Deposits - Bedwell River Area'. The Bedwell River area is principally underlain by a centrally located northerly trending folded series of Pennsylvanian and older volcanic rocks, overlain in part to the east by a relatively thin series of limestones and chert of the Buttle Lake Formation of Lower Permian age and locally and further east by volcanic rocks with minor sedimentary rocks of the Karmutsen Formation of Upper Triassic and older age. Collectively, the Pennsylvanian and Lower Permian rocks and a Middle Pennsylvanian series of greywacke, argillite, and minor conglomerate are designated the Sicker Group, which are the oldest rocks known on Vancouver Island, aggregating 2,000 - 3,000 metres in thickness. These rocks have been subdivided by Muller (1980) into three principal formations which from oldest to youngest are the basal Nitinat Formation of pre-Devonian age consisting of basaltic flows and flow breccias, the Myra Formation of similar age comprising felsic volcanoclastic and lesser sedimentary rocks, and the Buttle Lake Formation. A similar sequence of rocks occur in the western part of the Bedwell River area and as small pendants or marginal phases within the northwesterly trending Bedwell River batholith of mid-Jurassic age, which is part of the Island Intrusions and with which mineral deposits occur both within the batholith and in nearby intruded phases and which may also be related to small intrusions of Tertiary Age (Muller and Carson, 1969).

The oldest structures recognized are north-northwesterly trending uplifts of which the Buttle Lake Uplift is regionally dominant. Folding appears to be restricted to the vicinity of fault zones. Within the Bedwell River area, several west-northwesterly trending major faults are reflected by river valleys. One of these which passes through Bedwell Lake in the northern part of the map area has produced a left lateral displacement of about one km to the eastern margin of the Bedwell batholith.

Mapping by Muller and Carson (1969) shows a northeast-trending fault extending from You Creek for about 3 miles through Della Lake and its outlet which forms Della Falls and to Drinkwater Creek immediately below and to the southwest of the Sherwood Mine workings.

LOCAL GEOLOGY

The Sherwood Mine property does not appear to have been mapped in any greater detail than that shown at a scale of 1" - 1 mile in Sargent's (1941) bulletin. However, the bulletin contains considerable detailed data on local geology in addition to descriptions of the precious metal bearing veins and their enclosing structures on the Sherwood Mine property and other mineral occurrences in the southern part of Strathcona Park.

Figure 5 is a composite location and geological map which the writer has prepared using as a base topography and a claim map prepared by Heard, Carter and Heard (1989), on which have been superimposed gross geological features from Figure 1 of Sargent's (1941) report (Fig. 4); geological contacts from GSC Map 17-1968 accompanying GSC Paper 68-50 by Muller and Carson (1969); and location of the Sherwood Mine workings as shown in Figure 3 from a report by Norecol Environmental Consultants (1987).

In describing the geology in the area of the Sherwood Mine property, Sargent (1941) initially makes reference to the northwesterly trending fault extending from the eastern part of the property at Love Lake to Bedwell Lake (Figs. 4, 5). He also notes two prominent mountain spurs (ridges) trending southerly, which are partly entrenched by the fault on either side of Love Lake to produce remnant knobs on the south side of the fault. He refers to these features as the "Sherwood Spur" and "Sherwood Knob" on the west side of the lake and the "PDQ Spur" on the east side of the lake.

Part of Sargent's description of the geology is abstracted in the following paragraphs from pages 88 and 89 of his report.

"To the south-west of the fault south-westerly the ground included in the properties is mapped as 'Paleozoic and Mesozoic complex'. It includes fine-grained volcanic and sedimentary rocks believed to be of Palaeozoic age, older than Permian limestone which is found at the north-eastern side of the fault on 'Sherwood Spur' and at several other points north-east of the fault. The complex also includes a good deal of dark, generally fine-grained rock, in intrusive relationship. This rock is believed to be related to basaltic and andesitic volcanics younger than the limestone. The complex also includes many dykes and less regular masses of quartz-diorite and related rocks, associated with the Bedwell River batholith. At the nearest point the eastern contact of the batholith is about 2 miles from the top of 'Sherwood Knob'. Dykes of quartz-diorite, related to the batholith, are found along the course of the fault, in the complex to the south-west, and in the upper slopes of Mount Septimus, north-easterly from the fault, where they contrast conspicuously with the thick series of dark volcanic rocks extending upward to the jagged summits.

The relationships of the rocks in the complex are involved, a large part of the rock consists of intrusives, related to the volcanics and related to the batholith, in irregular masses which in general are small. Hybrid types resulting from absorption of older rocks by the granitic rocks are

often difficult to identify. There is also evidence that some of the rocks have been modified by granitization, particularly in the section from the summit of 'Sherwood Knob' to the area of lower relief south-westerly from Love Lake. In the same section There are many open fractures from a few inches to two feet wide. Pieces of rock dropped into some of the wider fractures could be heard hitting the walls at distances estimated at 50 to 60 feet below the surface."

As discussed under Regional Geology, mapping by Muller and Carson (1969) shows a fault extending from You Creek (Fig. 5) for about 5 km northeast through Della Lake and its outlet to Drinkwater Creek, immediately below and southwest of the Sherwood Mine workings. As discussed under Mineral Deposits, the Sherwood shear and its contained gold-silver bearing mineralization has been traced partly by surface cuts and drifts for about 1,200 feet easterly from a canyon above a talus fan on the north side of Drinkwater Creek. No specific reference is made to a possible western extension of the shear zone by Sargent (1969). However, in his report McDougall (1944) speculates on page 17 that in respect to the Sherwood shear itself, the known ore body may well represent the uneroded remnant of what was once a much larger shoot, i.e. assuming erosion of part of the upper portion of the shoot and possibly its western extension. As shown in Figure 5, should the northeastern extension of the fault through Della Lake extend beyond Drinkwater Creek, it could pass close to the most westerly part of the Sherwood Vein workings.

MINERAL DEPOSITS - REGIONAL

Vancouver Island contains a variety of metallic mineral deposits including gold-silver bearing quartz veins. Districts, such as the Bedwell River area, may contain precious metal deposits of several different geological types in near proximity to each.

Open File 1988-22, Gold Production and Reserves in British Columbia, by Schroeter et al (1989) lists 92 properties having had gold production in the period 1894 - 1987 and/or containing gold-bearing reserves as at 1987. A comparison between producers and both developed and undeveloped properties containing reserves, reflects the shift in contained ounces of gold as to geologic type following successful exploration, as shown in Tables 1 and 2. Also shown for comparison purposes are the same statistics for Vancouver Island deposits.

Through 1987 mesothermal and epithermal vein deposits accounted for 65 per cent of British Columbia's gold production (13.4 million ounces). A total of four camps each producing in excess of one million ounces and all situated on the mainland (Bridge River, Rossland, Premier, and Cariboo-Barkerville) accounted for 10 million ounces or 75 per cent of vein-type production. On Vancouver Island, the Zeballos Camp, ranked 16th overall in gold production and its Privateer Mine accounted for 60% of the camp's production.

In 1987, mesothermal and epithermal gold vein inventory accounted for 30 per cent of British Columbia's total inventory, whereas porphyry and massive sulphide deposits were estimated to contain 58 per cent of total gold inventory representing a significant shift from historical production statistics. However, the Vancouver Island gold inventory remained little changed from historical production statistics as to type of deposits.

The gold quartz vein deposits on Vancouver Island show common characteristics, generally not exceeding one metre in width and commonly containing appreciable amounts of pyrite, chalcopryite, galena and sphalerite. Host rocks are diverse and most commonly include Paleozoic Sicker Group rocks, late Triassic Karmutsen volcanic rocks and granitic rocks of Jurassic and Tertiary age. Important structural controls are fractures, faults, sheeted zones and fissure zones. Associated alteration products are silica, sericite, carbonate, and chlorite with gouge commonly present in shear zones (Muller and Carson, 1969).

MINERAL DEPOSITS - BEDWELL RIVER AREA

Figure 4 from Sargent (1941) shows the location of the principal deposits in the Bedwell River area. These include the following deposits, as classified by Muller (1980). It should be noted that Muller lists only one additional property in his references, following a 40 year span - i.e. Dry Gulch, a molybdenite deposit near the Musketeer and Buccaneer mines. Muller also excludes the Casino deposit, a gold-silver bearing quartz vein west of Big Interior Mountain.

<u>Location No.</u>	<u>Property</u>	<u>Deposit Type</u>
1	Prosper	Au quartz vein or fissure zone
2	Seattle	Au quartz vein or fissure zone
3	Avon	Au quartz vein or fissure zone
4	Galena	Au quartz vein or fissure zone
5	Noble and Noble 8	Au quartz vein or fissure zone
6	O.K.	Au quartz vein or fissure zone
7	Joker	Au quartz vein or fissure zone
8	Musketeer Mines	Au quartz vein or fissure zone
9	Buccaneer Mines	Au quartz vein or fissure zone
10	You	Au quartz vein or fissure zone
11	Casino	Au quartz vein or fissure zone
12	Ptarmigan	Porphyry copper
13	Big I	Porphyry copper
14	Trophy	Au quartz vein a fissure zone
15	Thunderbird	Au quartz vein a fissure zone
16	Della	Au quartz vein a fissure zone
17	Sherwood	Au quartz vein a fissure zone
18	PDQ	Au quartz vein a fissure zone
	Dry Gulch	Mo - quartz stockwork or vein

Of the 19 deposits listed, it will be noted that 16 are gold quartz veins or fissure zones which commonly contain associated low silver values. The principal characteristics of the deposits have been summarized in the previous section on 'Mineral Deposits - Regional'.

Of the 16 gold-silver quartz veins or fissure zones documented in the Bedwell River area only the Buccaneer and Musketeer have seen limited production. However, several other similar deposits on Vancouver Island have produced as shown below and based on data contained in Schroeter et al 1989.

**Production from narrow gold-silver quartz veins
or fissure zones - Vancouver Island**

<u>Property</u>	<u>Distance from Sherwood Property</u>	<u>Prod'n Period</u>	<u>Tons Milled</u>	<u>Production</u>		<u>Recovered Grade (oz/t)</u>	
				<u>Au oz</u>	<u>Ag oz</u>	<u>Au</u>	<u>Ag</u>
Fandora	27K SSW	1960-64	900	1,468	269	1.62	0.30
Musketeer	12K WSW	1942-75	5,000	3,052	1,736	0.61	0.35
Buccaneer	11K WSW	1941-59	6,500	3,908	1,258	0.60	0.19
Zeballos Camp	115K NW	1933-53, 1975	718,475	276,067	120,140	0.38	0.16

As shown from the above, the Fandora was a high-grade gold producer which however produced only 1,468 oz gold. The Zeballos camp deposits, although of overall lower recovered grade than the Musketeer and Buccaneer produced 40 times the amount of gold. They were significant in their time and profitable, being the only deposits of the above recording dividends paid, based on B.C. Minister of Mines reports, which show the following amounts paid through 1959, although 97.4% of dividends paid by the Privateer Mine were based on 1939-43 performance.

<u>Property</u>	<u>Years Dividends Paid</u>	<u>Amount</u>
Privateer	1939 - 1959	\$1,914,183
Spud Valley	1940 - 1941	168,000
Mt. Zeballos Gold Mines	1940 - 1941	<u>165,000</u>
	Total	<u>\$2,247,183</u>

Table 3, based on data contained in reports by Sargent (1940, 1941), provides a comparative summary of the dimensions and grades of the various gold-silver bearing systems in the Bedwell River area. The writer has calculated weighted average assays, where possible, based on diagrammatic and descriptive data. It should be noted that the data apply to examinations and sampling completed by Sargent in 1939 and 1940, whereas some production data (Musketeer and Buccaneer) includes later development work.

As noted in Table 3, the gold-silver properties of 16 listed which contain the best combinations of dimensions and grade based on exploration and development results, were the Buccaneer, Musketeer and Sherwood. The Buccaneer and Musketeer, lying within similar geological environments both had overall average grades of 2.41 oz gold/ton, with a higher silver content at the Musketeer. The average widths were 6.2 inches for the Musketeer and 8.8 inches for the Buccaneer, based on sampling by Sargent in the workings as of 1940. (Figs. 9, 10 and Table 3)

As previously noted in this section, the Musketeer and Buccaneer each produced less than 4,000 oz gold and 2,000 oz silver at an average grade of 0.61 oz Au/ton and 0.35 oz Ag/ton (Musketeer) and 0.60 oz Au/ton and 0.19 oz Ag/ton (Buccaneer). The recovered grades are about 25% of the sampled grades, suggesting an overall average mining width of about 25 inches for the Musketeer and 35 inches for the Buccaneer based on these very preliminary and incomplete data which assume 100% recoveries, zero dilution grade in mining, and no additional reserves.

Normal
widths?

The Buccaneer and Musketeer operations were relatively short-lived and as no dividends were paid it is highly unlikely that the original investment was returned - particularly since virtually all of the production reported can be accounted for in the 1941-42 period. With respect to the Buccaneer operation, the Financial Post Survey of Mines (1944) states on page 68 "*all equipment removed and property closed permanently, when even lessees unable to win operating profit from narrow ore bodies outlined*". The Musketeer entry for the same issue states "*a 30-ton mill placed in operating January, 1942 but all operations suspended July 27, 1942, due to labour shortages.*" Another source of information on the Bedwell River deposit, Guppy (1988) notes on page 96 of his book *Wet Coast Ventures - Mine Finding on Vancouver Island*, "*The Buccaneer mill was dismantled in 1943. The Musketeer's plant was 'mothballed' but, during the war years, the buildings were collapsed by snow and, although an attempt was made to rehabilitate it at a later period, it was never again to go into operation on a sustained basis.*"

The Musketeer exploration and development operation included Pioneer Gold Mines as a participant and the Buccaneer operation included Bralorne Gold Mines as operator. Pioneer was also involved during part of the same period in evaluating the Sherwood property. The Bralorne-Pioneer operation in the Bridge River camp still ranks as the No. 1 gold producing operation in British Columbia with 4,154,641 oz Au and 950,993 oz Ag produced from 7,931,100 tons mined for an average recovered grade of 0.524 oz gold/ton and 0.12 oz silver/ton over the period 1900 - 1978. (The Bralorne and Pioneer operations were merged in March 1959 and by December 31, 1978 the new company and its predecessors had paid \$32,972,278 in dividends.) There can be little doubt that the personnel involved were competent operators, as evidenced not only by the Bridge River operation, but by the work completed by these companies in the Bedwell River area.

SHERWOOD VEIN AREA

The Sherwood property contains one known gold-silver bearing vein described in past references as the 'Sherwood Vein'. The vein and its mineralization are well described in two principal references, namely Sargent (1941) and McDougall (1944). Of the two references that by McDougall has the benefit of (1) previous observations by Sargent, (2) complete results of sampling and assaying by Pioneer on the No. 1 and No. 1 levels, (3) and speculation on the possibility of other mineral deposits to those described on the Sherwood vein on the extensions of the controlling shear. For these reasons, the writer has elected to quote below the pages of McDougall's description of the mine workings, guided for reference as required by a plan, generalized longitudinal section and a cross section (Figs. 6 to 8, respectively), and several comments where considered appropriate.

The Sherwood Vein has been explored relatively unsuccessfully by several surface cuts trending easterly for about 1,000 feet from above the portal of the No. 1 adit at 4,402 ft. elevation. Two additional adits - No. 3 at 4,190 ft. and No. 7 at 3,698 ft. elevations - provide drifts on the vein. A raise from the No. 7 level driven for about 300 ft. provides access to the No. 5 sub-level at an elevation of about 4,000 ft. with headings also established on the No. 6 level.

"The top of No. 1 adit is at an altitude of 4,402 feet. It is driven on the vein which outcrops in the almost vertical V-notch of the gulch. Access to the portal is by a short pathway cut in the wall rock of the gorge. The length is about 380 feet. The vein and shear structure is exposed continuously throughout and, with the exception of one small fault offset about 100 feet back from the face, there is no break in the continuity of the structure. Vertical backs over this adit increase from about 30 feet a few feet back from the portal to about 90 feet at the face.

Ore values are continuous from the portal inwards for a distance of 185 feet. Sampled widths, and presumably ore widths, vary from 1.3 to 4.3 feet. Over the remainder of the distance, the lode structure carries only low values over narrow widths and the quartz widths are narrow or lacking entirely. Much of the drift back is lagged over and continuous sampling cannot be done without removing this. I took some 5 samples at convenient points. Details of the assay results are given elsewhere in this report. The assays are as close a check on previously available information as could be expected under the conditions. According to the information available from sampling and assaying while the work was under way the details of the ore exposure in this adit are as follows:

<i>Continuous ore length</i>	<i>185 feet</i>
<i>Average width sampled</i>	<i>2.44 feet</i>
<i>Average gold content</i>	<i>1.09 ounces per ton</i>

The No. 3 adit is at an altitude of 4,190 feet or some 212 feet vertically below the No. 1. Here, too, the actual vein outcrop is in the notch of the gulch and entry is obtained by a crosscut driven from the south side of the gulch. This breaks through into the south wall of the canyon some 160 feet from the portal. A run-around crosscut from here,

to avoid the canyon wall, continues for another 100 feet to the vein. A drift is extended on the vein a distance of about 20 feet to a breakthrough into the canyon. Inwards it extends on the shear for a distance of about 530 feet. Due to the outward slope of the mountain side which is at an angle of about 45° between the Nos. 1 and 3 portals the lode extends about 150 feet farther to the west on the No. 3 than on the No. 1 level. The adit exposes continuous shear structure for the full length of the drift but the average width of quartz exposed is less than half that of the No. 1 adit. From the records available the ore, though narrow in places, definitely terminates at about the 260-foot point. From this point on the face there is but little quartz and this little is in the form of narrow disconnected stringers and assay values are low. In both adits the greatest ore widths are at the portals and these widths gradually diminish inwards. Values cut off abruptly in both levels in such manner as to strongly suggest an ore shoot raking westerly at an angle of about 70°. It is also plainly indicated that a considerable and perhaps the main portion of this ore shoot has been removed by the erosion of Drinkwater valley. The back of the No. 3 adit drift is also lagged over for considerable distances making continuous sampling impossible without removing it. I took 5 samples for checking against available records and the assay results of these indicate good checks. According to the available assay information I have computed the ore as exposed in the No. 3 adit level as follows:

Continuous ore length	260 feet
Average width sampled	1.12 feet
Average gold content	1.00 ounce per ton

The Number 7 adit at the 3,698-foot horizon or some 492 feet vertically below the No. 3 level begins as a crosscut since the topography prevents direct access to the vein. This working, like the No. 3, breaks through to the canyon wall in two places. The shear is drifted on for a distance of about 800 feet, more or less. No ore of apparent commercial consequence is indicated on this level. The quartz exposed is narrow and disconnected and entirely lacking over considerable distances. Oxidation appears to have been quite as intense at this horizon as on the upper levels. An upraise has been extended for a distance, measured on the slope, of 300 feet above level and a short 'blind' or sub-level has been driven out on the plan of the shear from the top of the raise. Commercial values are said to obtain in this sub-level. The raise is, however, blocked by a small cave and we were unable to effect entry to this part of the workings."

Results of sampling by Access Geological Services on the No. 7 level and in the raise which was completed in 1986, are shown in Figure 6. These results indicate that the vein shear sampled on the No. 7 level carries no significant values, as independently noted by McDougall (1944) based on Pioneer's earlier sampling. Within the raise one significant sample was collected about 20 feet above level 6 which assayed 1.65 oz Au/ton across a width of 1 foot

(0.3 m). The location is reportedly about 20 feet above a high-grade cross vein described by Mr. Sherwood, which was reportedly not anomalous based on the Access sampling results.

"On the surface, efforts have been made to trace the shear over a distance of more than 1,000 feet. However, except for a short distance back from the No. 1 adit portal, it has been impossible to follow it with assurance because of deep oxidation and rock disintegration.

In their report for the fiscal year ending March, 1941, Pioneer Gold Mines Ltd. state that the first 185 feet on the No. 1 level averages 1.26 ounces to the ton over an average width of 30 inches and that on the No. 3 level the first 254 feet of drift was in ore which averages 1.36 ounces over a width of 15 inches."

There is a paucity of data available on the extent of the No. 5 workings and their gold-silver contents. In his December (1986) report, Heard notes that *"the No. 5 level is caved about 15 feet east and 30 feet west from the raise."* There is no mention of any mineralization which may occur. Heard notes also that *"there is a dip change to the shear zone from 80 degrees north between No. 7 and No. 6 (levels) to 70-75 degrees (north) between the No. 6 and No. 5 levels."* Heard also comments that the vein occurring on the No. 7 levels *"appears to have a different character from that seen in the No. 5 and No. 3 levels, and may in fact be a separate parallel vein."* The writer independently considered this possibility although a roll or fault could account for the apparent offset (Fig. 8). However, assuming that the raise was driven in the vein shear between the No. 7 and No. 5 levels, it would appear that the vein shear is probably continuous throughout the workings. Furthermore, if a parallel vein exists, its trace should be evident on the rock face in the area of the adits as the deviation in dip trend does not exceed 30 metres (100 feet) horizontally in the apparent area of the "roll" as shown in Figure 8.

RESERVE ESTIMATES

The Sherwood Vein has generated a total of nine reserve estimates known to the writer between 1941 and 1990, which are discussed in chronological order in the following section. For reference purposes, the writer has also tabulated these estimates in Table 4. As noted in Table 4, two of the references cited essentially duplicate previous estimates.

It should be emphasized that the only source of data considered reliable or adequate for reserve estimates by the writer is the original sampling and assaying carried out on the No. 1 and No. 3 levels by Pioneer in 1940, and the sampling program completed in 1986 by Access Geological Services in 1986 on the No. 7 level and the raise extending from the No. 7 to the No. 5 level. The report by McDougall (1944) corroborates the results of the Access sampling on No. 7 level stating that *"no ore of apparent commercial consequences is indicated on this level."*

As noted in the preceding section, no assay results are available from any sampling completed in the past on the No. 5 level with the exception of a grab sample by Mr. Sherwood and ore

reportedly shipped to a smelter from the level. McDougall (1944) states that "*commercial values are said to obtain in this sub-level*", however no details are provided. Heard (1986) in describing work done in 1945 by Cangold states that "*the raise from the No. 7 level to the No. 5 level and the sub-level off No. 5 level . . . were also surveyed and sampled.*"

Pioneer Gold Mines Ltd. (March, 1941)

In its report for the fiscal year ending March, 1941, Pioneer Gold Mines estimated that the No. 1 level averaged 1.26 oz Au/ton across an average width of 30 inches for a length of 185 feet and that the No. 3 level averaged 1.36 oz Au/ton across an average width of 15 inches for a length of 254 feet. No details are provided from available sources or cut factors which may have been used or reserve estimates that may have been completed. McDougall (1944) refers to sampling and assaying having been completed "*while the work was under way.*" The writer has used these averaged results in his own reserve estimates (q.v.).

B.W.W. McDougall (October, 1944)

Mr. McDougall used assay data obtained from Pioneer and check sampling assay results by two other engineers in addition to five samples collected by himself on each of the No. 1 and No. 3 levels in calculating a reserve. He also examined the assay results cited by Sargent (1941). In his report, McDougall calculated that the No. 1 level contained an average gold content of 1.09 oz Au/ton across an average width of 2.44 feet for a length of 185 feet - essentially the same width and length as the Pioneer data but 86.5% of the average gold content. Similarly, his estimate for the No. 3 level was an average gold content of 1.00 oz Au/ton across an average width of 1.12 feet for a length of 260 feet. The dimensions are similar but the average gold content used is 73.5% of the average gold content calculated by Pioneer. Other parameters assumed by McDougall was that the probable and possible ore reserve extended from surface to the No. 5 sub-level through a maximum altitude interval of 475 feet and from the slope of the mountain easterly to the eastern side of the ore shoot having a 70° westerly rake. He calculated a possible and probable reserve of 27,830 tons at an average recovered grade of 0.50 oz Au/ton yielding 13,915 ounces of gold.

R. T. Heard (December, 1986)

Part of the terms of reference for Heard's (1986) examination of the Sherwood property on behalf of Casamiro Resource Corp. was "*to examine and sample the vein with enough samples to authenticate assay reliability from samples collected by Sargent (1941), 'Casamiro (1982)' and Access Geological Services (1986).*" As discussed under 'History', the Casamiro (1982) samples were actually collected by W.C.R. Construction on No. 3 level and were assayed in October, 1982.

In discussing 'Assay Data' in his report, Heard notes that the Pioneer and Cangold sample and assay plans have been lost. He provides results of sampling by Sargent on No. 1 and No. 3 levels, 'Casamiro' sampling results from No. 3 level, Access sampling results from No. 7 level

and the raise to No. 5 level, and his own sampling on No. 3 level and the raise to No. 5 level. As noted in the introductory comments these data are not representative of the total mineralized portions of the Sherwood Vein as sampled in the No. 1 and No. 3 levels by Pioneer.

No reserve calculation is discussed and Mr. Heard notes the following under "Discussion of Results":

"Reserves have not been addressed due to a paucity of data points. Using the published data in Minister of Mines reports, which, is at this time unsubstantiated, one can generate 50,000 tons of possible reserves having an average grade in excess of 1.5 ounces gold per ton."

It would appear that this estimate was used by the B.C. Ministry of Mines in the reserve estimate it provided on Preliminary Map 65, 1988 for the Sherwood property, i.e. 45,000 metric tons averaging 51 grams gold/ton. [See also comments on reserve estimate by N.C. Carter and R.T. Heard (March, 1989).]

N.C. Carter, R.T. Heard (March, 1989)

An unsigned and undated report (three pages), being document No. P346 dated March, 1989 in a list of documents provided to the Ministry of Attorney General by Ferguson Gifford on behalf of Casamiro provides a brief summary of the geology and mineral deposits on the Sherwood and PDQ properties.

In evaluating the reserve, the writers note that better average grade (29.5 -71.0 g/t gold; 44.2 - 106.6 g/t silver) occur over average widths of 0.51 - 0.63 metres, a strike length of 55 metres and a vertical range of 184 metres near the exposed southwestern limits of the shear zone. Average widths have been diluted over a 1.5 metre width, assuming nil gold and silver grades in wallrock to arrive at a conservative estimate of geological reserves within the Sherwood Vein (totalling) 42,300 metric tons grading 14.0 g/t gold, 24.7 g/t silver or 46,630 tons grading 0.409 oz/t gold and 0.72 oz/t silver.

The writers conclude that:

"The geological reserves calculated for the Sherwood Vein are considered to be a much more realistic estimate than the 45,000 tonnes grading 51 grams/tonne gold reported for the property by the Ministry of Energy, Mines and Petroleum Resources on Preliminary Map 65, 1988."

As noted under R.T. Heard (December, 1986 above), the estimate reported by the Ministry would appear to have been based on Heard's December, 1986 estimate.

N.C. Carter, R.T. Heard (March 10, 1989)

Document No. P348 dated March 10, 1989 in the list of documents provided to the Ministry of Attorney General by Ferguson Gifford, on behalf of Casamiro is similar to the above, and it is used to estimate the value of the reserve of 45,000 tonnes grading 51 grams gold/tonne referred to by the Ministry on Preliminary Map 65 (1988), based on March 9, 1989 gold prices.

N.C. Carter, R.T. Heard (March 19, 1989)

Document No. 349 dated March 19, 1989 is similar to the document dated March, 1989; however it derives an additional reserve assuming an average width of 1 metre, average grades on No. 1 level based on Sargent's sampling stated to be 71.0 g Au/t and 106.6 g Ag/t (note that these are the upper levels of the "better average grades" described by the writers in their March 1989 document). For No. 3 level weighted average grades of 23.7 g gold/tonne and 50.7 g silver/tonne are used in calculations based on samples collected by Sargent (1941), Heard and "Casamiro". The vertical range used is extended by 56 metres to provide a total vertical range of 250 metres which extends from surface to No. 7 level.

The modified reserve is classified as inferred and totals 43,291 tonnes at an average grade of 35.0 g gold/tonne and 64.1 grams silver/tonne, or 47,620 tons grading 1.015 oz Au/ton and 1.86 oz Ag/ton.

As will be evident, the reduction in diluted width from 1.5 to 1.0 metres combined with the extension of the reserve at depth combines to produce a significantly higher grade reserve, i.e. more than doubled, while maintaining a similar reserve tonnage. However, the average grades are quite evidently not the averages on Sargent's sampling on the No. 1 level. ?

Furthermore, unless strong evidence can be presented for the No. 7 level not being driven on the depth extension of the Sherwood Vein, there is no support for assuming that the values obtained on the No. 3 level extend to the No. 7 level which had no commercial values indicated based on sampling completed by Access and reportedly by Pioneer.

N.C. Carter, R.T. Heard (April, 1989)

A report on the 'Evaluation of the Sherwood Mine' contains similar assumptions to those in the report by Carter and Heard (March 19, 1989) reported above. These are summarized as follows:

Vertical range:	247 metres, from surface to the No. 7 level
Strike length:	No. 1 level = 60 metres; No. 3 level = 80 metres
Average width:	1 metre

Average weighted grade: No. 1 level gold 68.91 g/tonne
 silver 104.92 g/tonne
 No. 3 level gold 41.16 g/tonne
 silver 73.95 g/tonne

Calculated reserve: No. 1 level, surface to "No. 2" level, 11,088 tonnes
 No. 3 level, "No. 2" level to No. 7 level, 46,544 tonnes

Total inferred reserve: 51,632 tonnes @ gold 47.12 g/tonne
 @ silver 80.60 g/tonne, or
 56,914 tons @ gold 1.374 oz/t = 78,200 Au
 @ 2.351 oz/t 133,800 Ag
 Silver

The same comments noted by the writer in the discussion of the reserve quoted in the March 19, 1989 report by Carter and Heard apply to the above assumptions.

N.C. Carter (October 9, 1989)

A memorandum by N.C. Carter forwarded to G. Heard on October 9, 1989 (Document No. P383) indicates potential reserves of 51,632 tonnes grading 47.12 g Au/t and 80.60 g Ag/t for the Sherwood Vein and indicates potential for a second shoot of similar size and grade within the untested portion of the shear zone, i.e. 50,000 tonnes averaging 40 g Au/t and 70 g Ag/t.

The memorandum makes reference to the PDQ vein structures situated 1.5 km east of the Sherwood Vein, noting that these may be off the ground currently held by Casamiro.

The writer has noted assays of samples collected by Sargent (Table 3) and reported by him in Bulletin 13. Although the memorandum discusses potential tonnages based on the assay results obtained from two samples, the veins are definitely off the Sherwood claims and no further reference is warranted.

T.G. Schroeter, C. Lund, G. Carter (November, 1989)

B.C. Mineral Resources Division, Geological Survey Branch Open File 1989-22 on Gold Production and Reserves in British Columbia records a reserve of 50,000 tons grading 0.2 oz Au/t, which is inconsistent with all other reserve estimates unless a minimum mining width of 6-7 feet has been selected to account for the diluted grade. Mr. Schroeter has no available information on the source of this estimate (pers. comm.).

R.T. Heard, N.C. Carter, G.W. Heard (November, 1989)

An 'Evaluation Report on the Sherwood Gold Mine Area' contains the same assumptions as to dimensions and minor differences in average grades to those in the report by Carter and Heard (April, 1989) reported above. These are summarized as follows:

Vertical range: 247 metres, from surface to the No. 7 level
 Strike length: No. 1 level = 60 metres; No. 3 level = 80 metres
 Average width: 1 metre

Average weighted grade: No. 1 level gold 70.45 g/tonne
 silver 104.92 g/tonne
 No. 3 level gold 32.91 g/tonne
 silver 63.02 g/tonne

Calculated reserve: No. 1 level, surface to "No. 2" level, 11,088 tonnes
 No. 3 level, "No. 2" level to No. 7 level, 46,544 tonnes

Total inferred reserve: 51,632 tonnes @ gold 40.97 g/tonne
 @ silver 72.02 g/tonne, or
 56,914 tons @ gold 1.19 oz/t
 @ 2.1 oz/t

67,020 oz Au

The same general comments noted by the writer in the discussion of the reserve quoted in the March 19, 1989 report by Carter and Heard apply to the above assumptions.

G. McLaren (December, 1989)

The November, 1989 'Evaluation Report on the Sherwood Gold Mine Area' by Heard, Carter and Heard was reviewed by G. McLaren, Senior Land Use Geologist for the B.C. Geological Survey Branch of the Ministry of Energy, Mines and Petroleum Resources.

McLaren noted the extrapolation by the authors of Sargent's and other assay data, both in strike for double the sampled length, the questionable projection of the reserve estimate calculated for the No. 3 level to the No. 7 level and the lack of dilution of the assay obtained on the No. 1 and No. 3 levels to produce averages for a 1 metre width. In general, the writer agrees with these observations and for the reasons stated at the outset of this section of the report has elected to use only the published information by Pioneer in its 1941 annual report on calculating a reserve. Heard, Carter and Heard's average grades calculated for the No. 1 and No. 3 levels appear to be based on earlier calculations in which some dilution was applied.

As part of his review, McLaren completed an independent reserve estimate based on the data in the Heard, Carter and Heard report with values diluted to 1 metre. He also reduced the strike lengths and vertical ranges employed. He derived a total inferred reserve of 41,700 tonnes at an average weighted grade of 16.67 oz Au/ton and 37.14 g Ag/ton or 45,966 tons averaging 0.48 oz Au/t and 1.08 oz Ag/t. The reserve contains 22,064 ounces gold and 49,643 ounces silver. Considering the different source of assay data employed, it is quite similar to the writer's (D.A. Barr) in overall gold content.

D.A. Barr (September, 1990)

For this report, the writer has independently calculated a reserve estimate based on sampling and assaying reported by Pioneer in its 1981 Annual Report for No. 1 and No. 3 levels. The reserves are classified as probable from surface to the "No. 4" level and as possible from the "No. 4" to the No. 5 level.

Assumptions made are as follows:

Probable Ore:

Vertical Range: Surface to No. 4 level - 120 m (393.7 ft.) *136m?*
 Dip Range: Surface to No. 4 level - 129.5 m (425.0 ft.) *- +8%*
 Strike lengths: No. 1 level - 56.4 m (185.0 ft.)
 "No. 2" level - 66.9 m (219.5 ft.)
 No. 3 level - 77.4 m (254.0 ft.)
 "No. 4" level - 60.0 m (197.0 ft.)
 Average width: 1 metre (3.28 ft.)
 Average gold grade: (diluted to 1 metre)
 No. 1 level to surface 0.96 oz Au/t
 No. 1 level to "No. 2" level 0.96 oz Au/t
 "No. 2" level to No. 3 level 0.518 oz Au/t
 No. 3 level to "No. 4" level 0.518 oz Au/t

Possible Ore:

Vertical Range: "No. 4" level to No. 5 level - 38.7 m (127.0 ft.)
 Dip Range: "No. 4" level to No. 5 level - 53.3 m (175.0 ft.) *42m. (+8%)**
 Strike length: "No. 4" level - 60.0 m (197.0 ft.)
 No. 5 level - 28.0 m (85.0 ft.)
 Average width: 1 metre (3.28 ft.)
 Average gold grade: (diluted to 1 metre)
 "No. 4" level to No. 5 level - 0.518 oz Au/t

Reserves:

	<u>Class</u>	<u>Tons</u>	<u>Au</u> <u>oz/t</u>	<u>Au</u> <u>ozs</u>	<u>tonnes</u>	<u>Au</u> <u>g/t</u>	<u>Au</u> <u>gms</u>
	Probable	24,035	0.690	16,584	21,804	23.66	515,812
	Possible	6,475	0.518	3,354	5,874	17.75	104,319
	Total	30,510	0.653	19,938	27,678	22.40	620,131

+1923 tons
+ 518 tons
+ 2441 tons

No data appear to be available on the average silver contents for the equivalent portions of the No. 1 and No. 3 levels for which average gold grades are reported by Pioneer. McDougall (1944) provides no average silver assay data in his report. Based on average silver values obtained by Sargent (1941), which the writer has calculated and shown in Table 3, the following diluted averages are estimated based on ratios for gold and silver from Sargent's sampling.

Sargent (1941) Average Assays:

<u>Level</u>	<u>Au oz/t</u>	<u>Ag oz/t</u>	<u>Width inches</u>	<u>Au:Ag</u>
1	2.16	2.95	22.75	1:1.36
2	1.17	2.4	19.7	1:2.05

Pioneer Diluted Averages:

<u>Level</u>	<u>Au oz/t</u>	<u>Ag oz/t (calc.)</u>
1	0.96	1.30
2	0.518	1.06

Weighted averages are based on reserve calculations for gold by the writer show the following averages for silver:

Reserves:

<u>Class</u>	<u>Tons</u>	<u>Ag oz/t</u>	<u>Ag ozs</u>
Probable	24,035	1.153	27,723
Possible	<u>6,475</u>	<u>1.06</u>	<u>6,863</u>
Total	30,510	1.15	34,586

As noted in Table 4 and shown below, the writer's calculations are remarkably similar to those by Carter, Heard (1989) in respect to the estimate of contained ounces of gold and silver in the reserve, although the source data for calculations was totally different.

<u>Estimate</u>	<u>Tons</u>	<u>Au oz/t</u>	<u>Ag oz/t</u>	<u>Au oz</u>	<u>Ag oz</u>
Barr	30,510	0.653	1.15	19,938	34,586
Carter, Heard	46,630	0.409	0.72	19,070	33,574

→ = 27,678 tonnes

EVALUATION OF PROPERTY

The writer has relied on the breakeven analysis study completed by Wright Engineers Limited in respect to all estimates provided on capital costs, operating costs and the selection of base prices for gold, discount factors and recoveries. He has commented on the apparent lack of any historic vein-gold deposits in British Columbia which would be viable on the more stringent breakeven scenario of U.S. \$350 gold, 15% discount and 80% recovery, and these considerations have been addressed.

From a geological and economic assessment, based on historic and current data, there are only three known vein deposits on Vancouver Island which have been viable. All three deposits (Privateer, Spud Valley and Mt. Zeballos Gold Mines), which are in the Zeballos Camp, paid dividends in the 1939 - 1959 period totalling \$2,247,183, the Privateer Mine accounting for

85% of dividends paid. Although the payment of dividends is not in itself a necessity in demonstrating profitability, no other Vancouver Island gold-vein deposits have shown evidence of viability, and certainly none of the 15 mineral deposits studied and referenced by the writer in the Bedwell River area.

Of significance, however, is the assessment by the writer that of all the gold deposits in the Bedwell River area, the Sherwood Vein has demonstrated the greatest average width, combined with estimated ounces of contained gold within probable and possible reserves, which include the only two operating properties (Musketeer and Buccaneer).

The Sherwood property is known to contain only one gold-bearing vein structure, albeit a strongly established feature with good strike and depth continuity. Several other deposits in the Bedwell River district contain more than one vein (e.g. Musketeer and Buccaneer) and the presence of an additional vein or veins on the Sherwood property is a possibility and has been suggested by others interested in the potential of the property.

In retrospect, the property should have been subjected to a more conventional exploration program, having been almost totally dependent on an underground exploration program within one year of its discovery with no known detailed geological mapping, geophysical or geochemical surveys or diamond drilling to provide guidance to the presence of other potential ore-bearing structures or additional shoots within the Sherwood Vein.

One can hypothesize that there may be other shoots, similar to the known shoot on the Sherwood Vein, or other ore-bearing structures within the confines of the property. However, there is no supportive evidence of such occurrences and no defined targets other than exploration on the extension of the Sherwood Vein, on strike and at depth.

Based on the results of exploration completed to date in the Bedwell River area, and the economic parameters for a viable gold-silver bearing narrow vein deposit developed by Wright Engineers, the writer concludes that it is highly unlikely that additional exploration on the Sherwood property would lead to the development of the necessary reserves to produce a viable operation.

CONCLUSIONS

- (1) The Sherwood property, containing the shear-controlled Sherwood Vein, has been demonstrated by very limited exploration to have an overall strike length of about 1,200 feet in an easterly direction on surface and an additional strike length of about 650 feet westerly on underground workings on the No. 7 level, for an overall strike length of 1,850 feet, considered open. It has been explored through a vertical depth of 820 feet from surface to the No. 7 level and is open at depth. Within this area, it is known to contain a gold-silver bearing shoot, based on significant values obtained over narrow widths on two levels, 210 feet apart vertically (No. 1 and No. 3 levels) and for an average strike length of 219 feet.

- (2) Conservative estimates of the probable and possible reserves in the shoot based on evaluations by three individuals working independently and using at least two different sources of basic assay data range from 30,500 - 46,500 tons at average grades of 0.65 - 0.41 oz gold/ton and 1.13 - 0.72 oz silver/ton containing 19,000 - 22,000 oz gold and 35,000 - 49,600 oz silver. Most other estimates, principally by another group of individuals, which include one individual who produced one of the conservative estimates described above, are 2.5 - 3.5 times higher in contained ounces of gold and 2.2 - 2.8 times higher in contained ounces of silver. The higher estimates can be attributed to a combination of not providing for dilution with zero grade material to average mining widths stated and projections of values from the No. 3 level to the No. 7 level, the latter of which contains no values of commercial interest based on previous sampling.
- (3) Of 16 documented vein-type gold deposits in the Bedwell River area, the Sherwood Vein has demonstrated the greatest average width and estimated ounces of contained gold within probable and possible reserves, which include the former short-lived mining operations on the Musketeer and Buccaneer properties in 1941-42. Neither of these two operations were viable at that time, the Buccaneer announcing reasons for closing "*when even lessees unable to win operating profit from narrow ore bodies outlined.*"
- (4) Economic parameters developed by Wright Engineers for a viable gold-silver bearing narrow vein deposit indicate that none of these types of deposits, even those of the Zeballos camp that were viable in the 1930's and 1940's would be viable in today's economic climate. Consequently, the writer concludes that it is highly unlikely that the Sherwood property contains a gold-bearing vein type deposit that would be viable under present economic conditions, given the results of past exploration and production of these types of deposits in the Bedwell River area. Accordingly, a prudent investor would be expected to seek a more promising area in which to anticipate an acceptable return for the risk involved in participating in an exploration venture based on gold-silver bearing vein deposits.

RECOMMENDATIONS

- (1) Although the writer was among those that supported funding of the proposed 1987 exploration and development program by First Exploration Fund 1987 that was never completed, he was not at that time privy to today's economic parameters as developed by Wright Engineers for a viable gold-silver bearing narrow vein deposit on Vancouver Island. Under the circumstances, there is no reason to comment on alternatives to the proposed exploration program, as based on economic parameters, any further exploration of the property would not appear to be warranted, and on expropriation proceedings in force, would not be permitted.

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(*) [Pearce, W.A. (1990): Letter to D.A. Barr dated July 30, 1990.]

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Wright Engineers Limited: Market Value of the Sherwood Mining Claims, Alberni Mining Division, Vancouver Island, British Columbia, October 17, 1990.

CERTIFICATE

I, David A. Barr, do hereby certify:

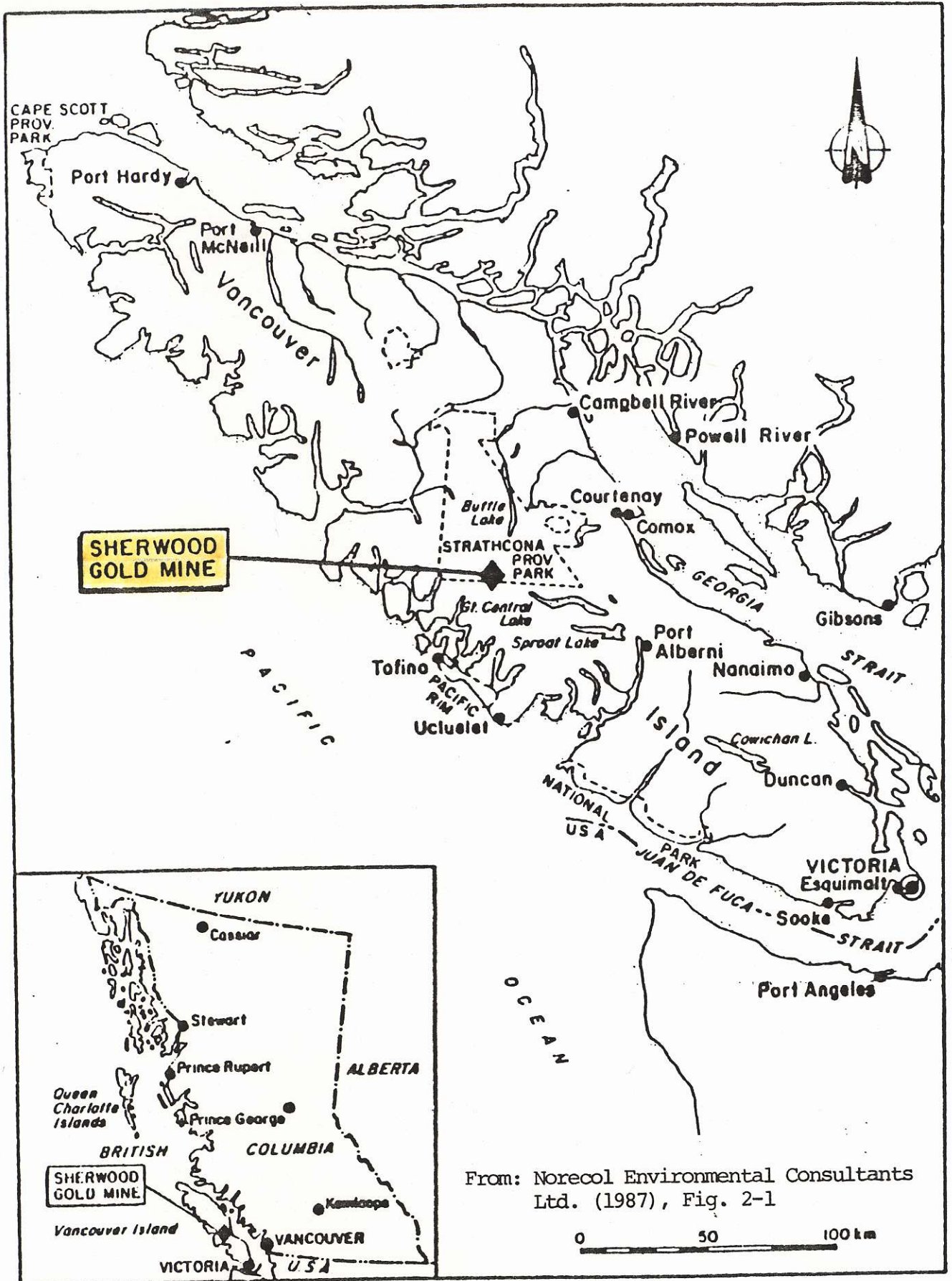
1. I am a Consulting Geological Engineer with offices at 1334 Cambridge Place, West Vancouver, British Columbia.
2. That I graduated in Mining Geology from the University of Toronto in 1950 with a Bachelor of Applied Science degree.
3. That I am a registered Professional Engineer in the Association of Professional Engineers of British Columbia.
4. That I have practised my profession for over 40 years.
5. That I have no direct, indirect or contingent interest in the mineral claims in the Sherwood Mines Limited's properties, nor in the securities of Casamiro Resources Corporation, Sherwood Mines Limited (N.P.L.), and Cinta Resources Corp., or any of their affiliates, nor do I expect to receive any such interest.
6. That this report dated October 17, 1990 is based on a study of reference material provided by the British Columbia Ministry of Attorney General and other reports and publications as referenced. An on site examination was made of the property on October 2, 1990.
7. That I consent to the use of this report dated October 17, 1990 as required by the British Columbia Ministry of Attorney General.

Vancouver, British Columbia
October 17, 1990



D.A. Barr, P.Eng.

PLATES



From: Norecol Environmental Consultants Ltd. (1987), Fig. 2-1

Figure 1. Location Map, Sherwood Gold Mine Property

From: Norecol Environmental Consultants
Ltd. (1987), Fig. 2-2

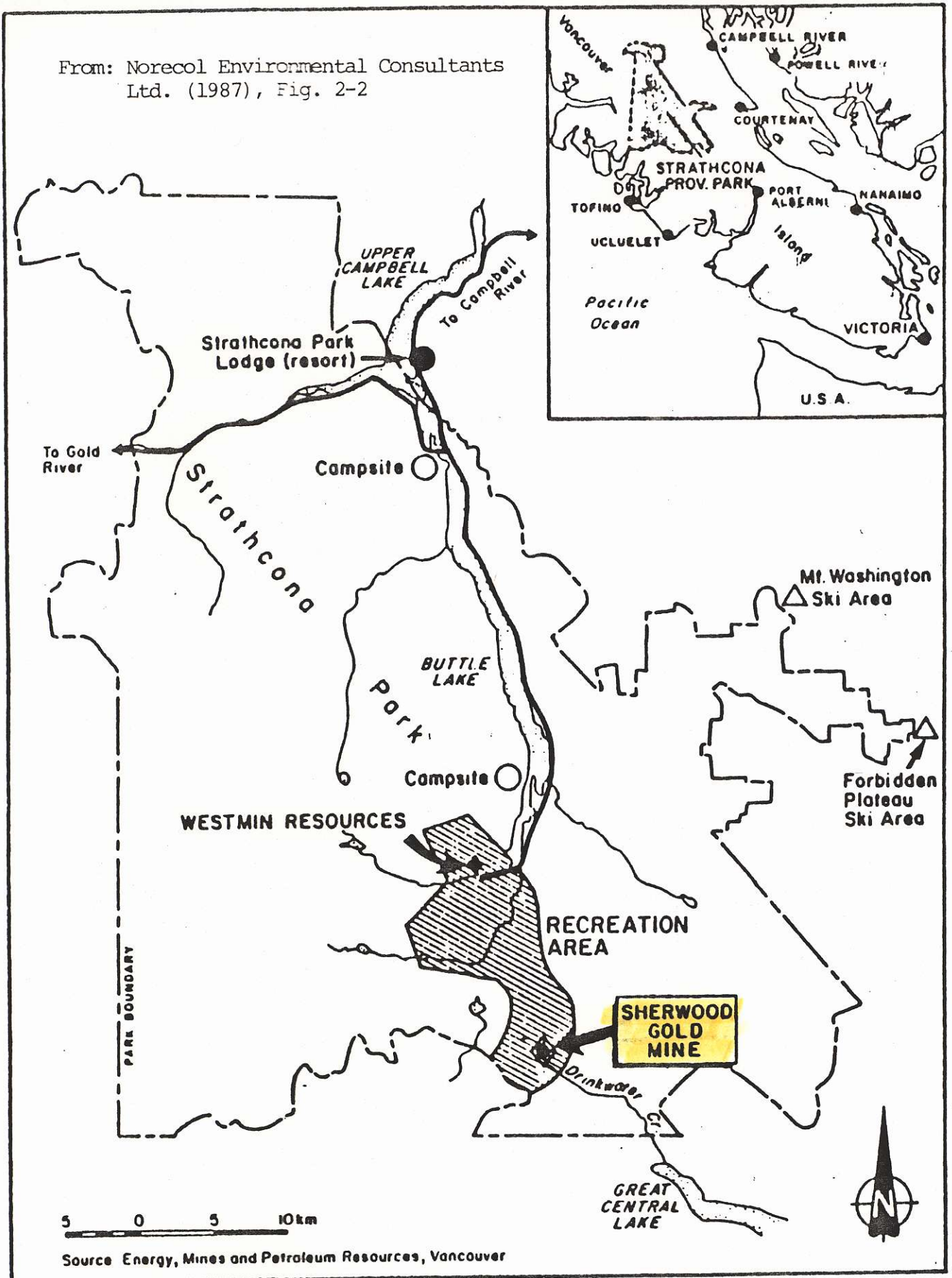


Figure 2. Proximity of Sherwood Gold Mine Property to Strathcona Park Boundary.

From: Norecol Environmental Consultants
Ltd. (1987), Fig. 2-3

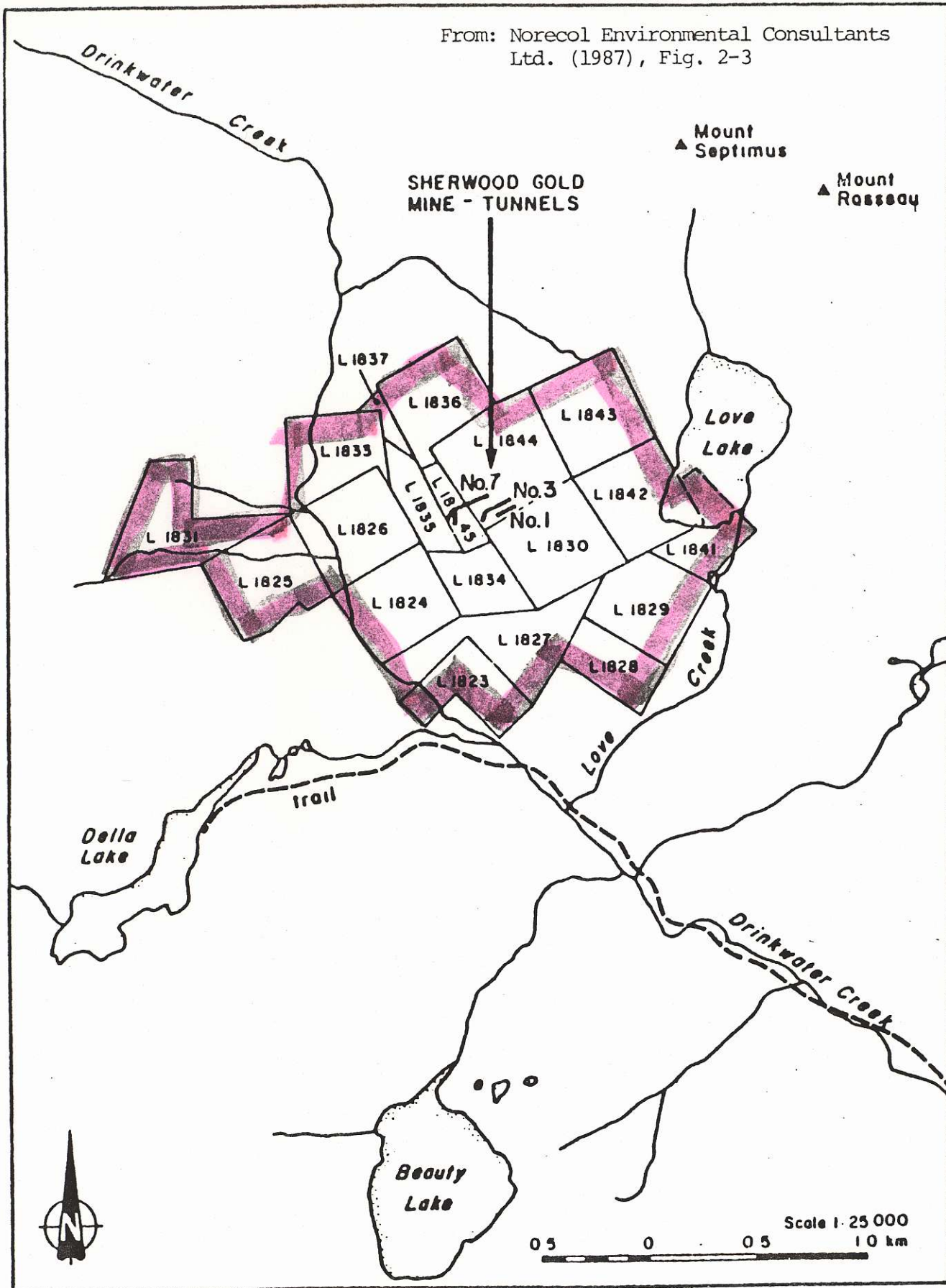
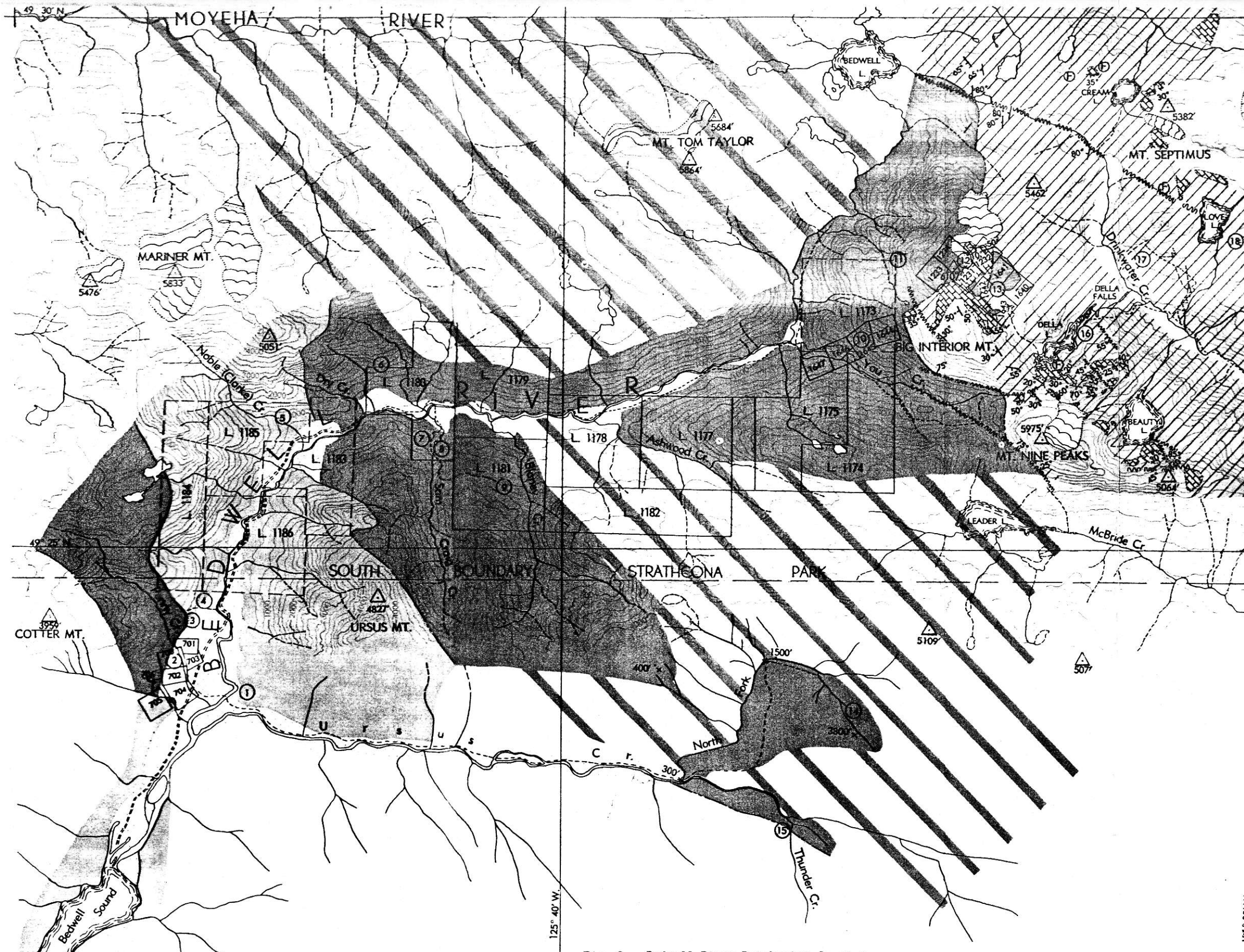


Figure 3. Claim Map, Sherwood Gold Mine Property



LEGEND

Recent.
 [Symbol] Unconsolidated material.

Mesozoic.
 [Symbol] Jurassic and, or, Cretaceous (Coast Range)—granitic rocks, chiefly quartz-diorite.
 Note.—Sections indicated by the pattern were not traversed closely and are probably underlain by Coast Range granitic rocks, which may contain roof-pendants.

Palaeozoic and Mesozoic.
 [Symbol] Chiefly Lower Mesozoic (Vancouver Group)—andesite, basalt, fine-grained, impure tuffs, limestone.
 [Symbol] Permian—limestone, in part recrystallized, also includes at some points overlying thin-bedded siliceous and tuffaceous (?) argillites.
 [Symbol] Complex stratigraphically below the Permian limestone; volcanics tuffaceous and argillaceous sediments, generally of fine-grained cherty appearance, of Palaeozoic age; basic intrusives, related to Lower Mesozoic volcanics; and granitic intrusives (Coast Range).

Note.—The Palaeozoic and Lower Mesozoic rocks are invaded by dykes and other small bodies of granitic rock, not mapped, which are related to the larger masses of granitic rock. Dykes are numerous near the contacts of the larger granitic masses.

--- Geological boundary defined.
 - - - Geological boundary approximate.
 [Symbol] Fault with dip.
 [Symbol] Bedding or foliation.
 (F) Fossil locality.
 [Symbol] Triangulation station, with elevation in feet.
 [Symbol] Spot elevation in feet.
 [Symbol] Road.
 [Symbol] Trail.
 [Symbol] Glacier.

PROPERTIES

*1. Prosper.	*10. You.
*2. Seattle.	*11. Casino.
*3. Avon.	*12. Ptarmigan.
*4. Galena.	*13. Big I.
*5. Noble and Noble B.	*14. Trophy.
*6. O.K.	*15. Thunderbird.
*7. Joker.	*16. Della.
*8. Musketeer Mines, Limited.	*17. Sherwood.
*9. Buccaneer Mines, Limited.	*18. P.D.Q.

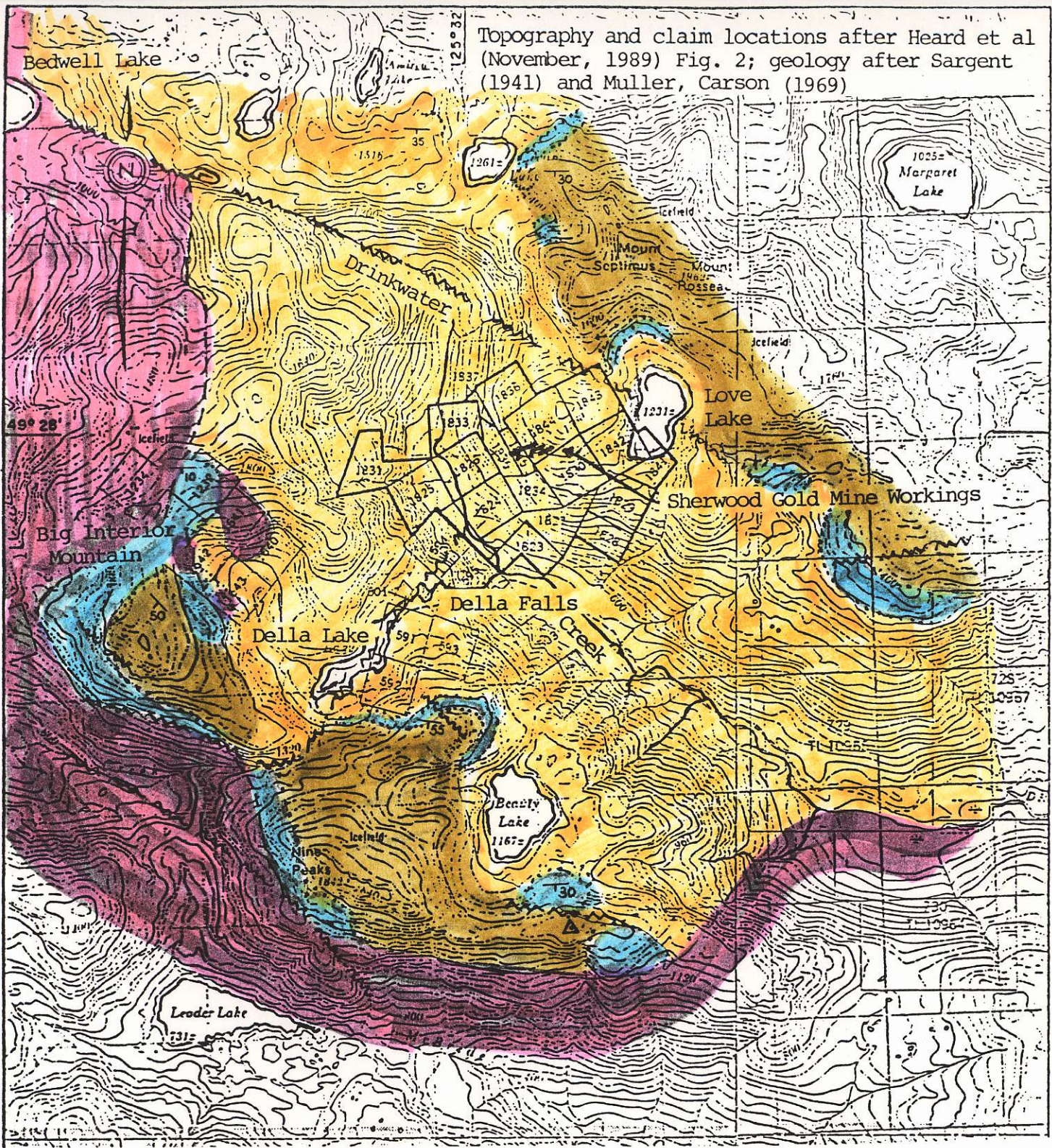
* Described in Bulletin No. 8, 1940—Bedwell River Area.

Scale 1 0 Miles

Fig. 4. Bedwell River-Drinkwater Creek Area.
 (contour interval 200 feet)

Topography from British Columbia Department of Lands
 Map 92 F/5.

Topography and claim locations after Heard et al (November, 1989) Fig. 2; geology after Sargent (1941) and Muller, Carson (1969)



LEGEND

- Middle to Upper Jurassic: Island Intrusions
- Upper Triassic: Kamutsen Formation
- Lower Permian: Buttle Lake Formation
- Pennsylvanian & Older: Volcanic breccia, tuff, argillite; greenstones, schists; local Lower Mesozoic Volcanic rocks
- 30 Bedding or foliation
- Fault

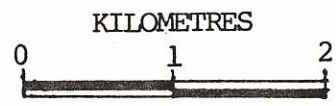


Figure 5. Geological Map, Sherwood Gold Mine Area

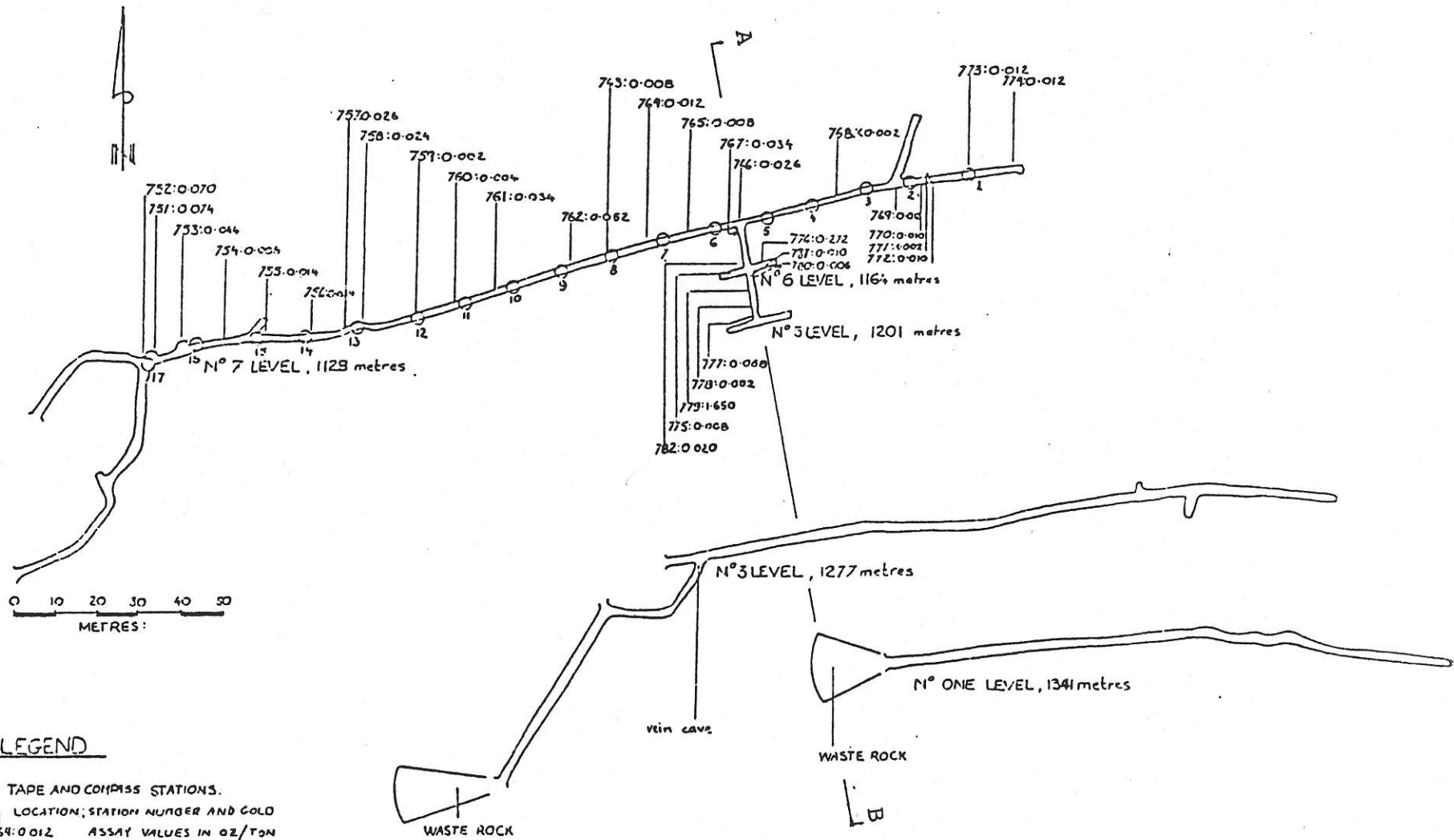
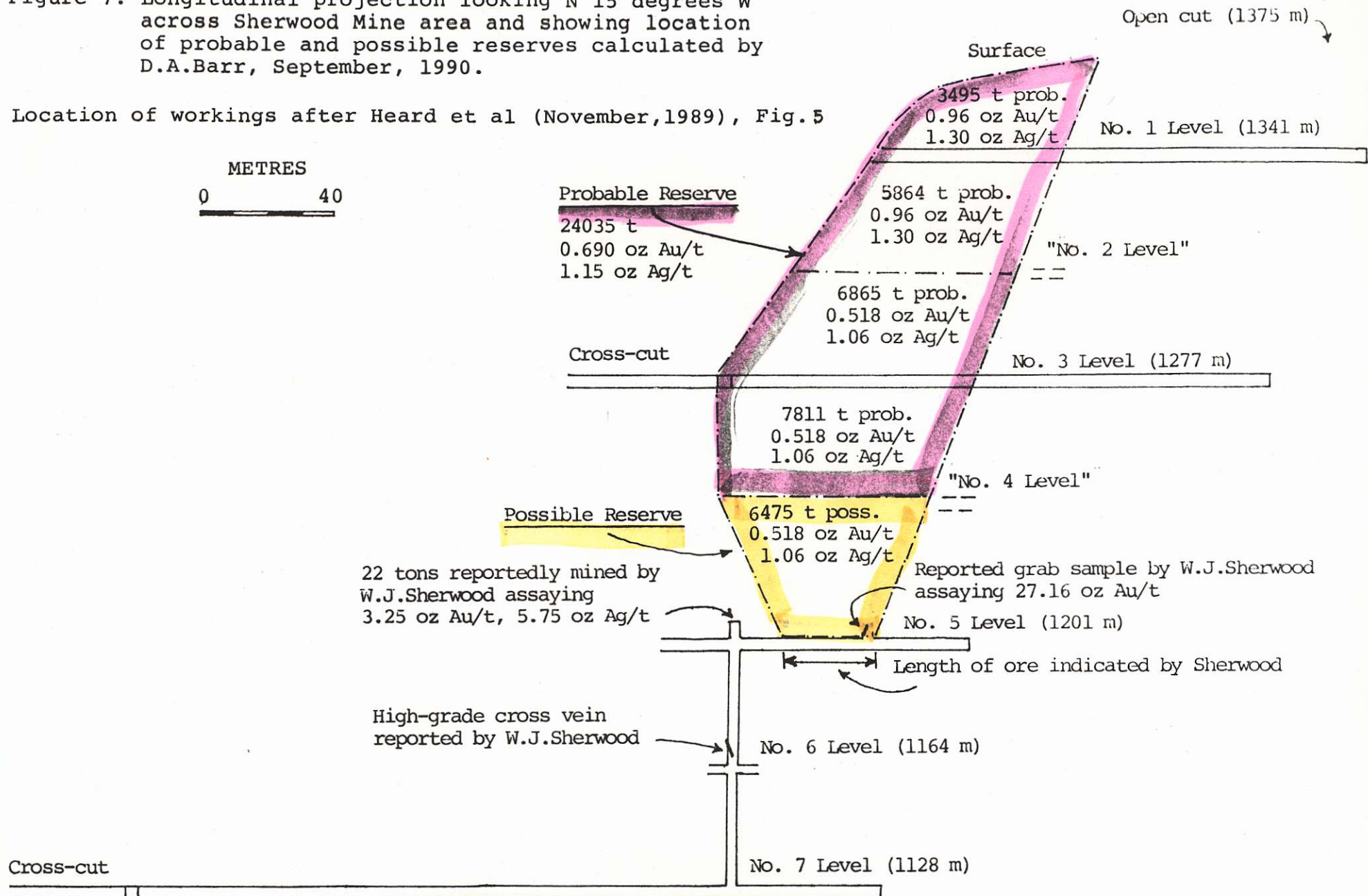


Figure 6. Plan of workings, Sherwood Mine area showing location of cross-section A-B and Access Geological Services (1986) sample locations and assay results.

Figure 7. Longitudinal projection looking N 15 degrees W across Sherwood Mine area and showing location of probable and possible reserves calculated by D.A.Barr, September, 1990.

Location of workings after Heard et al (November, 1989), Fig. 5



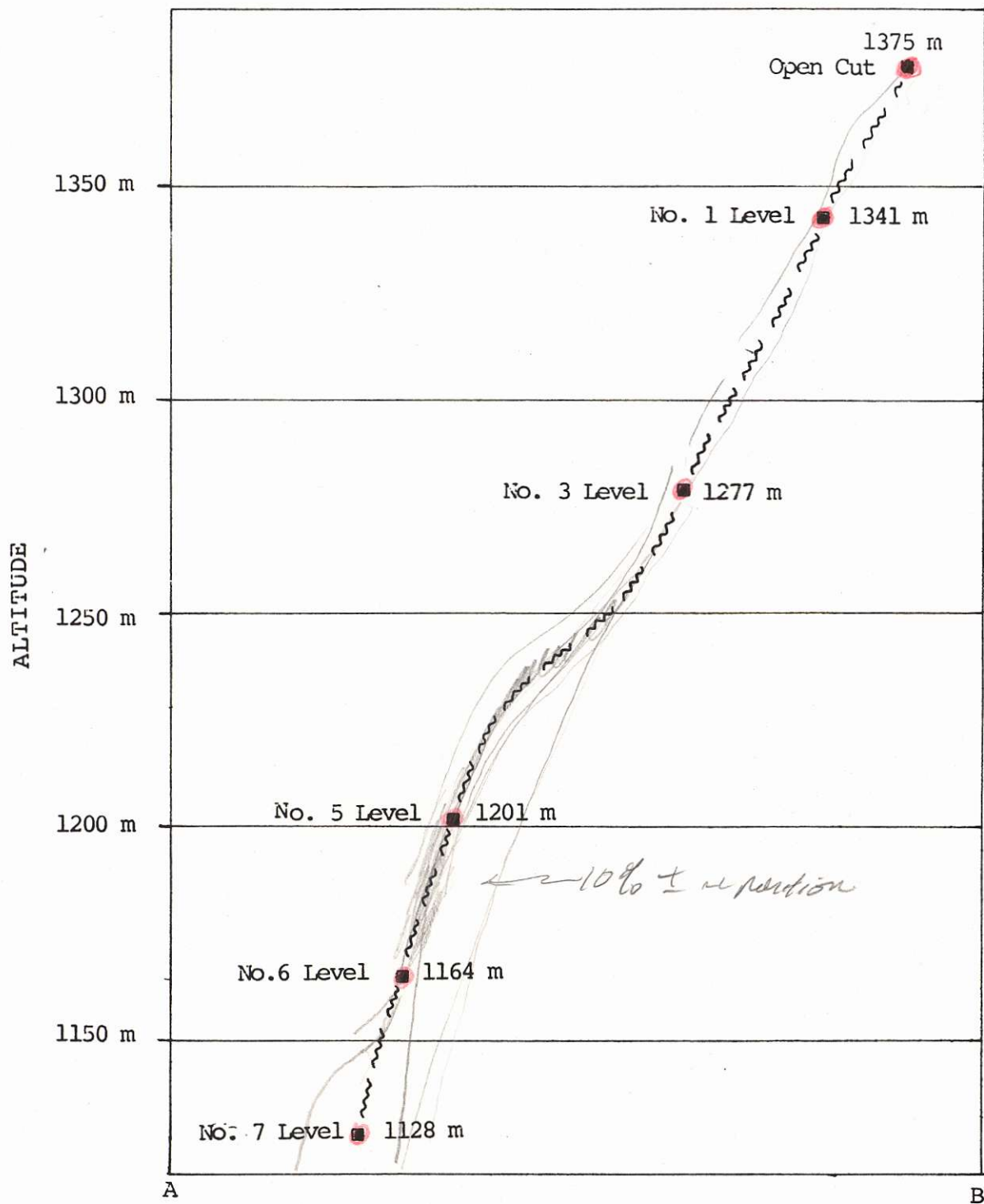
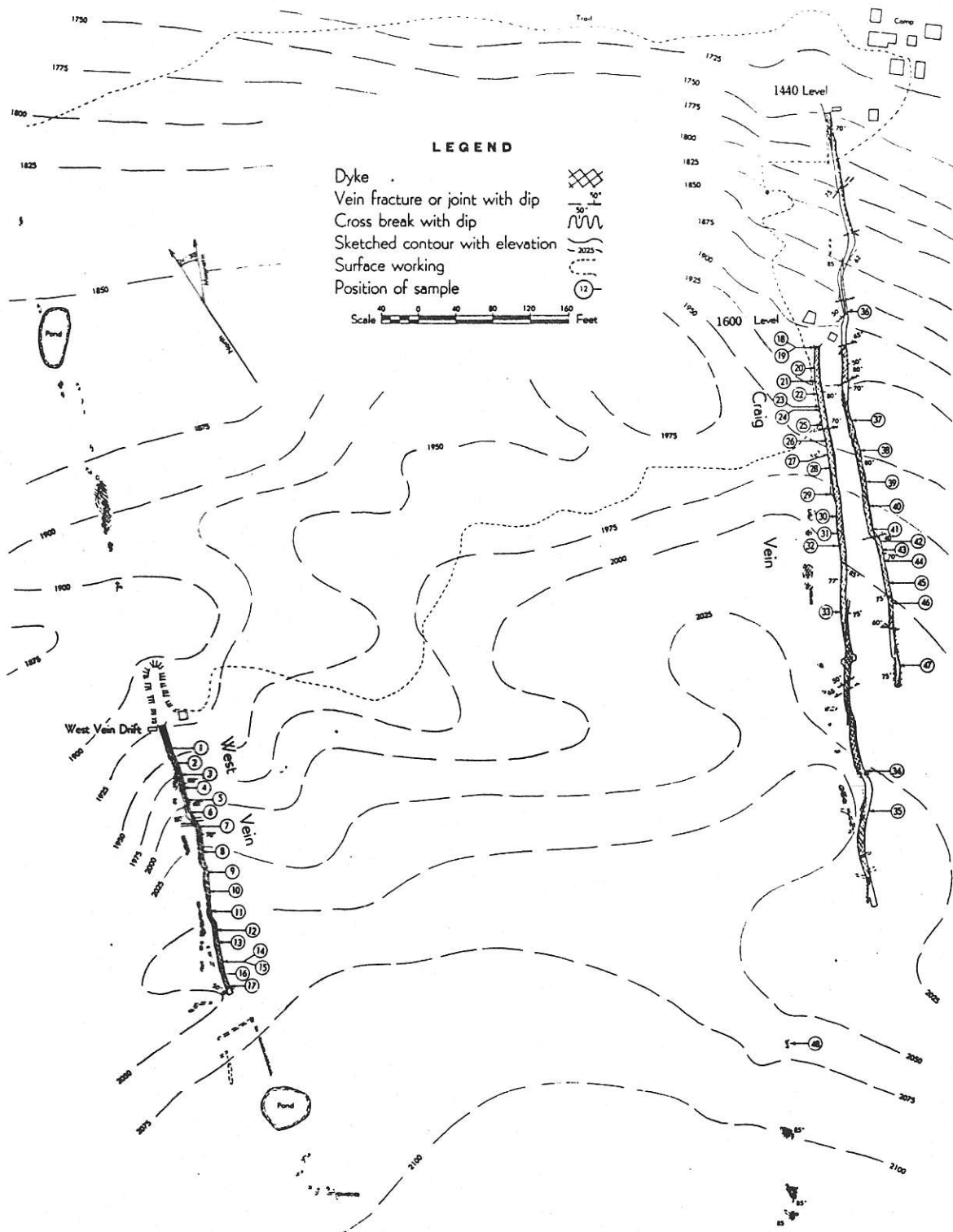


Figure 8. Cross-section A-B looking easterly across Sherwood Mine area.



From Sargent (1941)

Figure 9. Plan of workings, Buccaneer Mines Limited

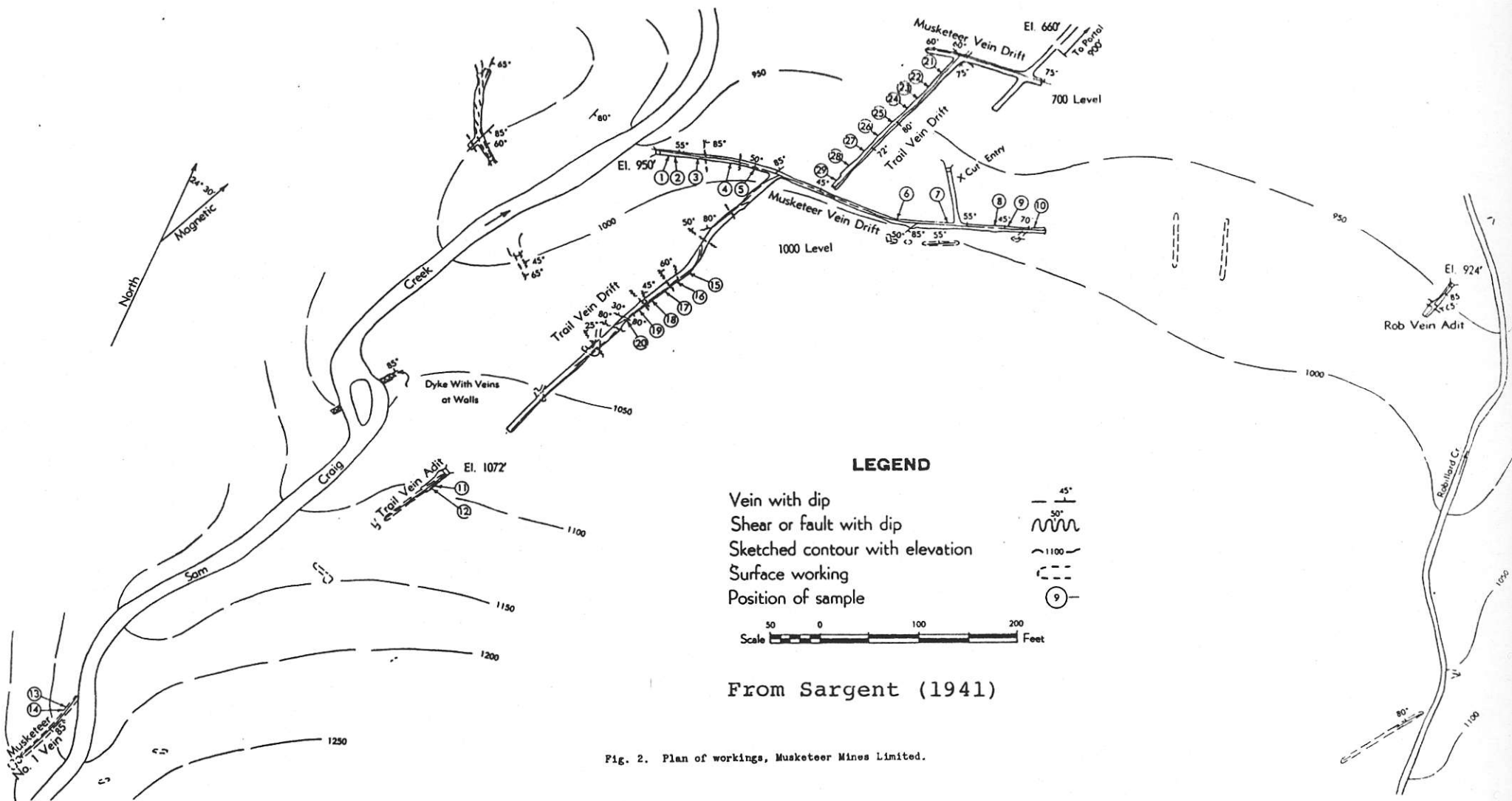


Fig. 2. Plan of workings, Musketeer Mines Limited.

Figure 10. Plan of workings, Musketeer Mines Limited

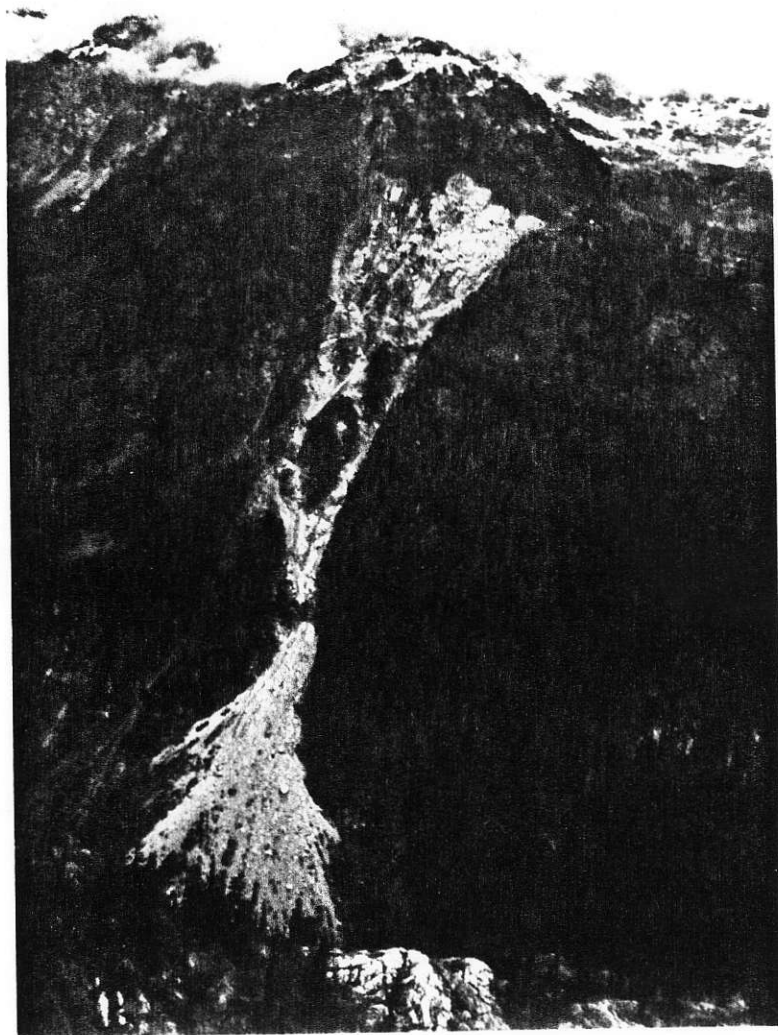


Photo Plate 1. Looking northeasterly from Della Falls toward Sherwood Property at slide in which Sherwood Vein outcrops on the south side.

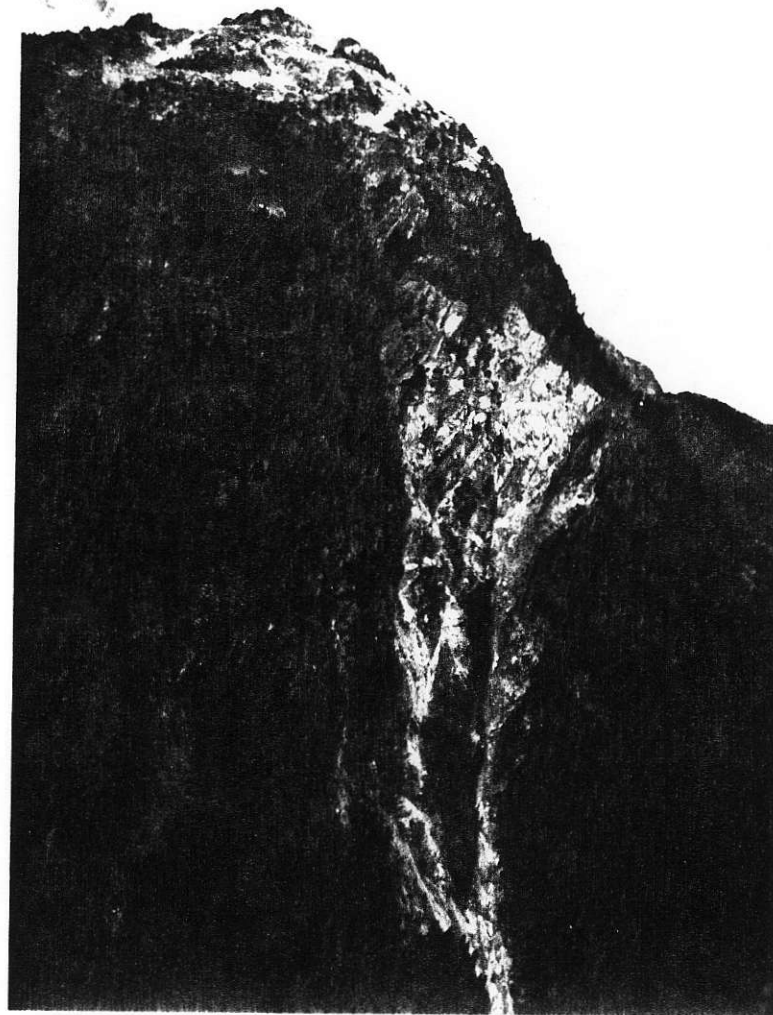


Photo Plate 2. Detail of upper portion of slide shown in Photo Plate 1, looking easterly. Upper outcropping portion of Sherwood Vein in the vicinity of No. 1 Level is visible as rusty, steep, northerly dipping structure.

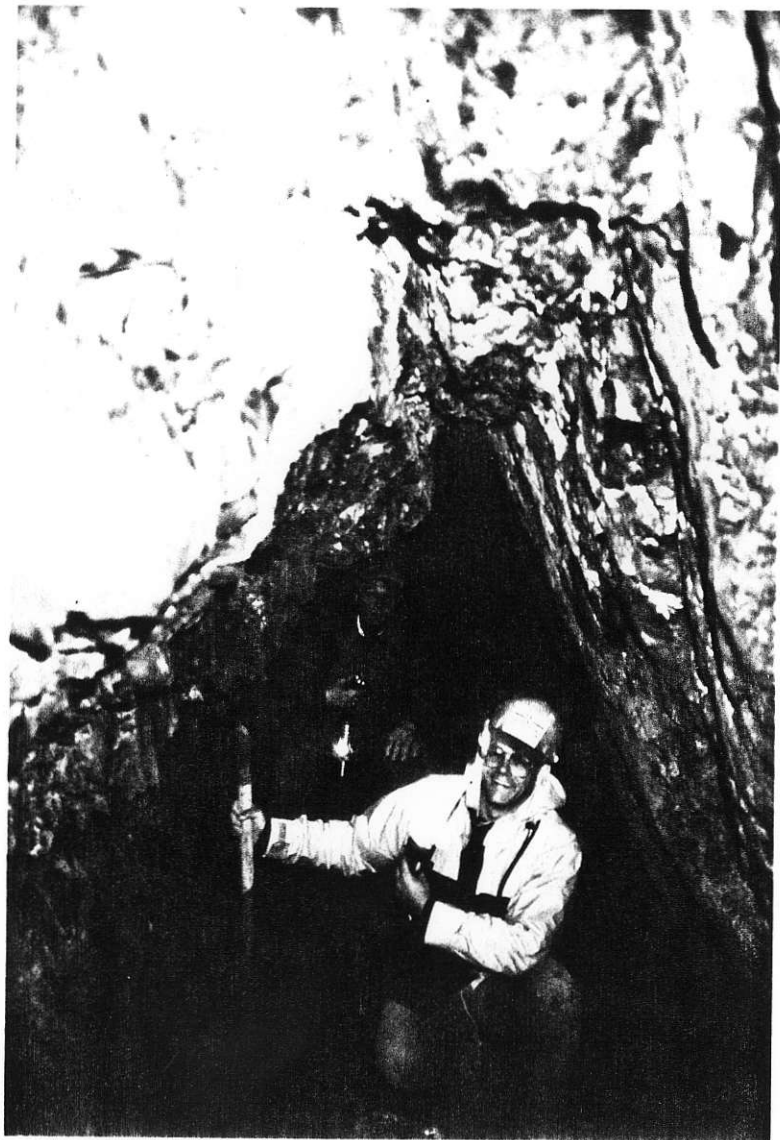


Photo Plate 3. View westerly along drift in No. 3 Level showing 8-10 inch wide quartz -bearing vein lying against north dipping footwall on right.

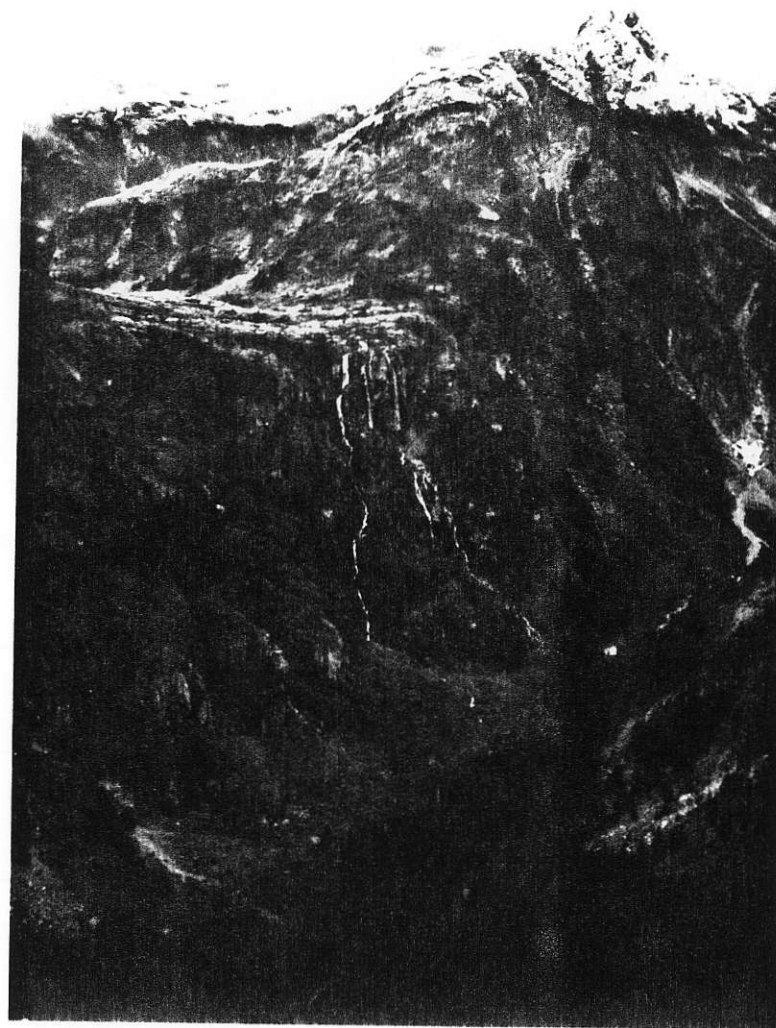


Photo Plate 4. View southwesterly across Drinkwater Creek to Della Falls.

TABLES

TABLE 1

Type	B.C. Lode Gold Production (1894 - 1987) By Type			Vancouver Island Gold Production (1894-1987) By Type		
	# of Deposits	Production oz	% By Type	# of Deposits	Production oz	% By Type
Porphyry (alkaline)	3	975,776	4.7	-	-	-
Porphyry (calc-alkaline)	7	1,356,215	6.6	1	797,008	45.2
Massive sulphide	12	1,326,422	6.4	4	543,455	30.9
Skarn	14	3,277,395	15.9	3	131,974	7.5
Vein (epithermal)	8	1,960,793	9.5	1	4,204	0.2
Vein (mesothermal)	88	11,456,118	55.7	4	284,495 (1)	16.2
Transitional	2	216,351	1.1	-	-	-
Total	134	20,569,070	99.9	13	1,761,136	100.0

(1) Includes Zeballos Camp as one deposit.

TABLE 2

Type	B.C. Lode Gold Inventory (1987) By Deposit Type			Vancouver Is. Gold Inventory (1987) By Deposit Type		
	# of Deposits	Inventory oz	% By Type	# of Deposits	Inventory oz	% By Type
Porphyry (alkaline)	11	8,899,108	22.2	-	-	-
Porphyry (calc-alkaline)	14	11,405,272	28.5	2	935,000	35.2
Massive sulphide	13	2,944,485	7.4	2	995,463	37.4
Skarn	7	1,812,161	4.5	1	10,000	0.4
Vein (epithermal)	12	3,714,456	9.2	2	131,304	4.9
Vein (mesothermal)	68	8,374,379	20.9	3	505,363	19.0
Transitional	5	2,805,261	7.0	1	82,080	3.1
Tailings	3	117,989	0.3	-	-	-
Total	133	40,073,311	100.0	11	2,659,210	100.0

TABLE 3:

**COMPARATIVE SUMMARY OF DIMENSIONS AND GRADES OF GOLD-SILVER BEARING VEIN SYSTEMS
IN THE BEDWELL RIVER AREA, BASED ON DESCRIPTIONS AND SAMPLING BY SARGENT (1940, 1941)
AND INCLUDING COMPARATIVE DATA FOR SHERWOOD MINES BY PIONEER MINES (1941) AND MCDUGALL (1944)**

Property	Staking/ Record Date	Host Rocks	Vein-Shear Strike/Dip Trend	No. Samples	Overall Strike Length (ft.)	Width Sampled (inches)	Weighted Avg. Assays (2)		Width (inches)	Length (feet)
							Gold (oz/t)	Silver (oz/t)		
Prosper	1938-39	Vancouver Gp. volca.	N70E/65-70N	9	145	6-20	0.62	1.44	10	185
Seattle	1896-98	Vancouver Gp. volca.	NNE/N	2	9	3-4	0.18	Tr.	4	30
Avon (Castle)	1898-1900, 1939	Volc.	E/45N	4	50	6-15	0.40	Tr.	10	60
1. Vein A		Is.	N15E/45W	1	125	5-12	0.50	Tr.	13	80
2. Vein B		Qtz. dio.	NW/45SW	4	110	5-12	0.50	Tr.	13	80
3. Vein C										
Galena	1899-1916, 1938	Vancouver Gp. volca.	N25E/75W	-	40	2-15(3)	-	-	-	-
Noble and Noble 8	1938	Volca.	N25-40W/70SE	2	150'	3	0.80	0.3	3	150
		N25-40E/70SE		1	?	1.5	2.05	1.2	1.5	?
		N-N20E/60-70E		1	150	19	0.30	0.2	19	150
		N-N20E/60-70E		2	.50	7-10	0.70	0.1	8	.50
		N-N20E/60-70E		1	?	4.5	0.90	0.7	4.5	1
O.K.	1939	Qtz. diorite	N75°W/50N	-	200	2.5-10	1.15	5.4	1	20
Joker (1)										
Musketeer	1938	Qtz. diorite								
1. Musketeer Vein - 700 ft. level			N75°E/60-75°N	-	>122					
Musketeer Vein - 1,000 ft. level			N75°E/45-70°N	5	407	1.5-7	2.40	1.49	4.0	110
Musketeer Vein - 1,000 ft. level				5			1.53	1.37	6.2	170
2. Trail Vein - 700 ft. level (5)			N15-20E/80E	9	178	3-17	1.59	0.91	10.8	178
Trail Vein - 1,000 level (4)				6	375	3.5-9	5.31	2.80	5.0	104
Trail Vein - 1,072 ft. Adit				2	33	1.5-12	10.56	6.22	7.8	20
3. Rob Vein			N15E/85E	-	25	3-8	"High"			25
4. Musketeer #1			N15E/85E	-	>50	3-8	2.61	1.64	6.2	10
Buccaneer										
1. Craig Vein - 1,440 ft. level			N20E/70-80E	12	610	1-21	1.10	0.15	7.8	250
Craig Vein - 1,600 ft. level			N20E/70-80E	15	590	3-18	3.64	0.79	9.1	230
Craig Vein - south offset (5)				1	590	3-18	3.64	0.79	9.1	230
2. West Vein			N15E/65-70E	7	475	6-14	1.90	0.52	7.0	94
You	1912	Qtz. diorite								
1. Creek Vein			N60E/90							
2. Upper adit - 60 ft.-170 ft.			N60E/90	2	295	7-8	2.04	2.8	7.5	10
Upper adit - 170 ft.-260 ft.			N60E/90	7	340	5.5-6.5	0.21	Tr.	6.5	110
				8		8-11.5	2.07	2.05	9.5	90
Casino	1938	Qtz. diorite								
1. Cuts in vein - 3,250 ft.			N80W/NE	3	55	4-30	0.86	0.2	30	1
2. Cuts in vein - 4,200 ft.			N35W/35NE	1	400	10	4.06	Tr.	10	5
3. Cuts in vein - 4,700 ft.			N70E/35-55N	2	175	3-10	0.06	Tr.	7.5	5

Property	Staking/ Record Date	Host Rocks	Vein-Shear Strike/Dip Trend	No. Samples	Overall Strike Length (ft.)	Width Sampled (inches)	Weighted Avg. Assays (2)		Width (inches)	Length (feet)
							Gold (oz/t)	Silver (oz/t)		
Trophy	1939	Qtz. diorite	N70E/180SE	3	175	6-16	0.34	0.25	13.0	51
Thunderbird	1939	Qtz. diorite	NW, E/90	4	>100	1.5-12.5	<0.1	Tr.	5	?
Della	1900-1917	Volca.								
1. Shaft - 25 ft.-50 ft. N			N10E/55W	2	25	14	0.33	0.13	14	25
Shaft - 0 ft.-25 ft. N				2	25	34	0.65	0.17	34	25
2. Shaft			N10E/50W	1	5	16	0.36	Tr.	16	5
3. Trench			N30E/70NW	4	40	29	<0.1	Nil	29	5
Sherwood	1939									
1. No. 1 level - 4,402 ft. (87-160 ft.) (6)			N70-85E/60N	7	420	9-43	2.16	2.95	22.75	73
No. 1 level - 4,402 ft. (0-185 ft.) (7)				N/A		N/A	1.09	N/A	29.53	185
No. 1 level - 4,402 ft. (0-185 ft.) (8)				N/A		N/A	1.26	N/A	30.0	185
2. No. 3 level - 4,190 ft. (0-100 ft.) (9)			N70-85E/60N	10	530	9-37	1.17	2.4	19.7	100
No. 3 level - 4,190 ft. (0-260 ft.) (10)				N/A		N/A	1.00	N/A	13.44	260
No. 3 level - 4,190 ft. (0.254 ft.) (11)				N/A		N/A	1.36	N/A	15.0	254
PDQ	1940	Volca. qtz. dio.								
1. No. 1 vein			N20E/70-85W	1	2,300	4-20	1.84	2.6	18	?
2. No. 2 vein			N20-30E/60-70NW	2	325	8-24	1.17	4.5	9	10

Notes:

- (1) No reference located - although location of property shown on Figure 4.
- (2) Trace amounts assigned 0.005 oz/t.
- (3) Chalcopyrite - magnetite rich.
- (4) Sampling completed for 87 ft. in central part of drift in wider and better mineralized portion of adit.
- (5) Overall mineralization in cuts described as sub-marginal width, and widths are less than in the workings on the 1,440 ft. and 1,600 ft. levels.
- (6) Writer (D.A. Barr) has allowed 5 ft. to west and 5 ft. to east of sampling in drift from that reported by Sargent for actual No. 1 and No. 7 sample locations.
- (7) Based on sampling and assaying completed by Pioneer Mines during development work. McDougall (1944) calculated an average gold content of 1.09 oz/ton across an average width of 2.44 feet for a continuous length of 185 feet from the portal on No. 1 level suggesting that the section from the portal to the end of the timbered section at about 87 feet is considerably narrower and/or a lower grade than the section sampled by Sargent. However, this partly conflicts with a statement by McDougall (1944) on page 15 of his report where he states "in both adits (i.e. No. 1 and No. 3 - writer's comment) the greatest ore widths are at the portals and these widths gradually diminish inwards." No information is available on whether high values were cut, i.e. the writer (D.A. Barr) has not cut any of the values reported by Sargent in Bulletins 8 and 11.
- (8) Pioneer Gold Mines Ltd. report for fiscal year ending March 31, 1941, quoted in McDougall (1944). Sargent (1941) states that the average width of Pioneer sampling was 39 inches.
- (9) Writer (D.A. Barr) has allowed 5 ft. to west and 5 ft. to east of sampling in drift from that reported by Sargent for actual No. 8 and No. 16 sample locations.
- (10) Based on sampling and assaying completed by Pioneer Mines as calculated by McDougall (1944).
- (11) Based on Pioneer Gold Mines report for fiscal year ending March 31, 1941 quoted in McDougall (1944).

TABLE 4

**SHERWOOD MINE VEIN
SUMMARY OF RESERVE ESTIMATES**

Date	Authors	Source of Assay Data	Source of Dimensions	Vert. Depth (ft.)	Avg. Width (ft.)	Avg. Length ⁽²⁾ (ft.)	Tons	Grade oz/t		Contained Ounces ⁽²⁾	
								Au	Ag	Au	Ag
March, 1941	Pioneer Gold Mines	McDougall	McDougall	-	2.5	185 (No. 1 lev.)		1.26	-	-	-
		McDougall	McDougall	-	1.25	254 (No. 3 lev.)		1.36	-	-	-
October, 1944	McDougall	Pioneer, et al	Pioneer, et al	475	-	-	27,830	0.50	-	13,915	-
December, 1986	Heard	Sargent, W.C.R., Access, Heard	Sargent, W.C.R., Access, Heard	-	-	-	50,000	1.5	-	75,000	-
<i>Feb</i> March, 1989	Carter, Heard	As above	As above	604	4.57 4.92	180	46,630	0.409	0.72	19,070	33,574
March 10, 1989 (1)	Carter, Heard	As above	As above	-	-	-	49,500	1.479	-	-	-
March 19, 1989	Carter, Heard	As above	As above	820	3.28	221	47,620	1.015	1.86	48,334	88,573
April, 1989	Carter, Heard	As above	As above	810	3.28	2.67	56,914	1.374	2.351	78,200	133,805
October 9, 1989	Carter	As above	As above				56,914	1.374	2,351	78,200	133,805
November, 1989	Schroeter et al						50,000	0.2		10,000	
November, 1989	Heard et al	Sargent, W.C.R., Access, Heard	Sargent, W.C.R., Access, Heard	810	3.28	268	56,914	1.19	2.10	67,728	119,519
November, 1989	McLaren	As above	As above	754	3.28	232	45,966	0.48	1.08	22,064	49,643
September, 1990	Barr	Pioneer	Pioneer (3)	521	3.28	194	30,510	0.653	1.13	19,938	34,999

Notes:

- (1) Refers to estimate of Ministry of Mines on Prelim. Map 65(1988) which appears to be based on Heard (Dec., 1986).
- (2) Mostly derived by the writer from other discussions quoted in deriving tonnages, grades.
- (3) In addition to the dimensions used by Pioneer on No. 1 and No. 3 levels, the writer derived a possible reserve based on reported mineralization of ore grade on the No. 5 level as delineated by W.J. Sherwood, using the average values on No. 3 level as projections. The reserves also considered average dips of the vein between surface and the No. 5 level. (Figure 7)