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Report for Blue Star Mines Ltd. (N.P.L.)
GEOLOGY & EXPLORATION
SCRANTON MINES PROPERTY
SLOCAN MINING DIVISION, B.C.

by

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May 26, 1967

Mr. Edward Borup,
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Suite 606 - 626 West Pender Street,
Vancouver 2, B.C.

Dear Sir:

The accompanying report "GEOLOGY & EXPLORATION, SCRANTON MINES PROPERTY, SLOCAN MINING DIVISION, B.C." is presented in response to your recent request and authorization.

Your comprehensive file of reference material, including several of my earlier maps which were directed to Scranton Mines Limited, mill and smelter settlements, general correspondence, and miscellaneous mill and sample data, has provided much of the background data for this report. This has been supplemented by my own records.

The foregoing technical data, along with your current information concerning property details and facilities, are hereby thankfully acknowledged.

With regard to the probable quotation of information contained in this report, the writer makes the usual request that all such verbal or printed releases be first submitted to him for his technical inspection and approval. This of course does not apply to publications of the complete report, or of the complete "Summary & Recommendations."

Respectfully submitted,



W.M. Sharp, P. Eng.

Encls.

Report

GEOLOGY & EXPLORATION

of the

SCRANTON MINES PROPERTY

Woodbury-Pontiac Creek Section

of the

Slocan Mining Division, B.C.

for

Mr. Edward Borup,
Vancouver, B.C.

by

W.M. Sharp, P. Eng.,
Consulting Geological Engineer,
Vancouver, B. C.

May, 1967

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References

Certificate

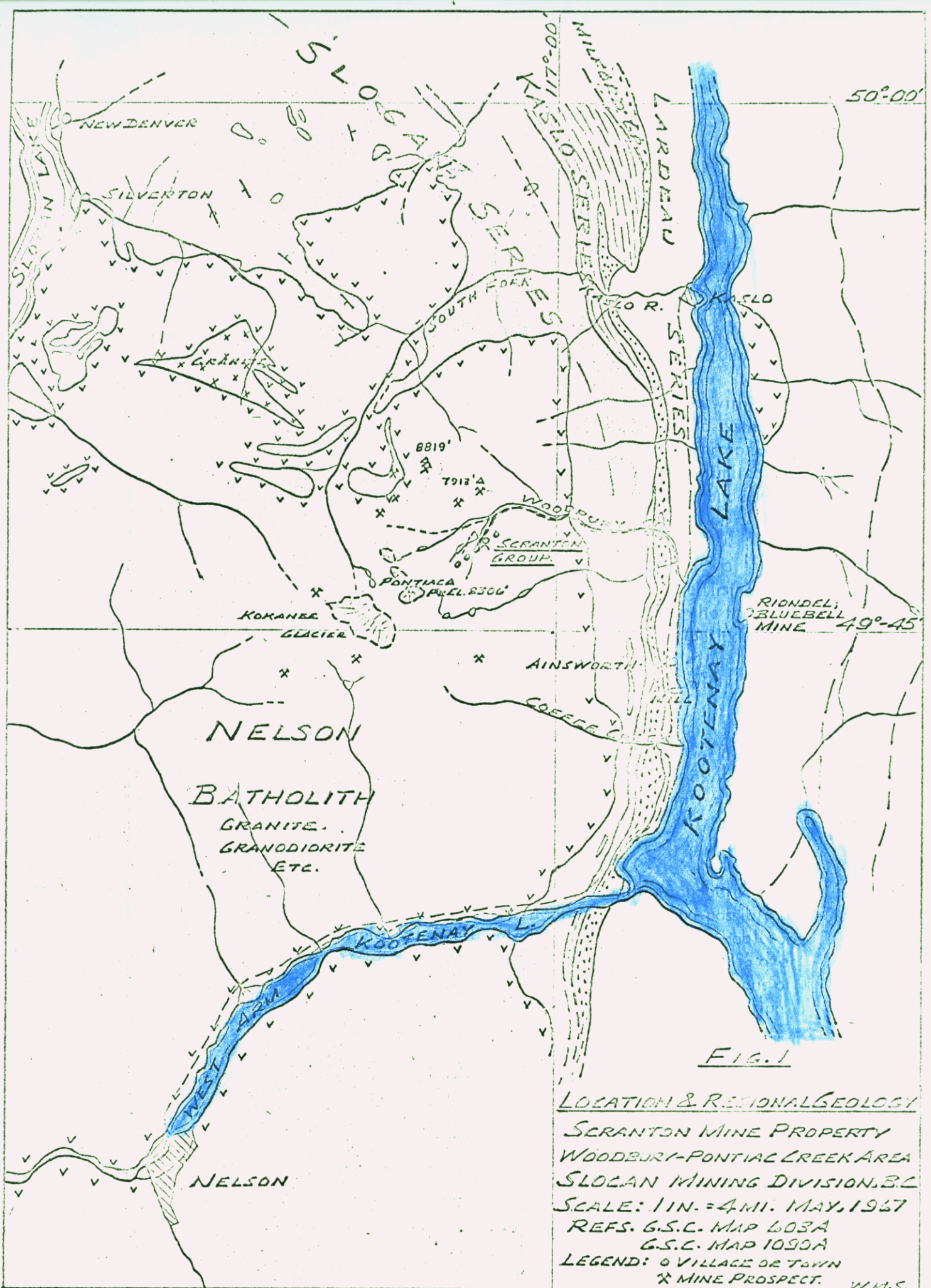


FIG. 1

LOCATION & REGIONAL GEOLOGY
 SCRANTON MINE PROPERTY
 WOODBURY-PONTIAC CREEK AREA
 SLOCAN MINING DIVISION, B.C.
 SCALE: 1 IN. = 4 MI. MAY, 1967
 REFS. G.S.C. MAP 603A
 G.S.C. MAP 1090A
 LEGEND: ○ VILLAGE OR TOWN
 ✕ MINE PROSPECT. W.M.S.

SUMMARY & RECOMMENDATIONS

The Scranton gold-silver-lead-zinc property consists of a northeasterly-trending group of eight claims, including six Crown grants, and is situated within and adjacent to the east boundary of the Provincial Kokanee Glacier Park, and in the Slocan Mining Division at 11 miles southwest of Kaslo, B.C.

Gold-silver-lead-zinc (cadmium) mineralization occurs within a northeasterly-trending, generally steeply-dipping regional vein-lode system. This has a strike extent of about 8200 feet within the claim group; prospecting, exploration, and a series of small mining developments have delimited a 7200-foot length with definite productive potential. The property is underlain by "Nelson" granitic rocks.

Ore production commenced during the late 1890's, the first comprising small lots of hand-mined and sorted shipping ore consigned to the former smelter at Northport, Washington. During 1948-53, the most recent period of production, 5600 tons of direct shipping and milling ore resulted from localized development-mining operations. The substantial revenue accruing from this was expended in a costly search for additional ore reserves closely within these locally-productive sections of the lode; the net result being that the Scranton Company's financial resources were too far depleted for a significant attempt to maintain ore reserves via adequate amounts of new exploration and development. Since 1953 exploration has consisted of intermittent short-range drilling and tunnelling projects.

Surface diamond drilling and underground sampling conducted in the west Grandview-Sunrise section of the lode indicated two, and possibly three ore sections. The total of these is estimated at 27,000 tons of probable ore containing Au, 0.04 oz/ton; Ag, 4.9 oz/ton; Pb, 6.8%; Zn, 3.8% over widths ranging from 2 to 7 feet. The writer also infers that 50,000 tons of this, or higher grade milling ore will result from the proposed exploration programme within the general Sunset-Sunrise interval of the lode.

To date, small-scale mining operations, at rather widely-separate sections of the lode, have produced a recorded total of 7,063 tons of ore of an average grade estimated at Au, 0.216 oz/ton; Ag, 11.1 oz/ton;

Pb, 10.7%; Zn, 9.1% - the latter containing significant amounts of cadmium. The writer estimates the current gross value of this, plus an additional 10 percent allowance for early unrecorded production, at \$700,000; the corresponding net smelter value of this being very close to \$500,000. - or about \$64.50 net smelter value per ton mined.

Ore sections appear to have been localized by similar structural conditions as those operative within the productive lodes of the main Slocan mining camp, in spite of essential differences in the respective wall rocks. Such favourable structural situations have localized ore within previously-mined parts of the lode. Extensions of these and others not yet investigated provide potential for the occurrence of additional ore within the Lower and Upper Pontiac lode sections.

The Sunset-Sunrise section of the lode contains the major evident ore potential of the property. With a gross strike-length of 4000 feet, and an average dip-range of 600-800 feet above the contemplated development horizon, there is "room" for several new ore shoots, in addition to those presently indicated. The writer bases this inference on the substantial indications of mineralization noted within the 6040 adit, the Grandview, Sunrise basin, and Sunrise adit sections of the lode. The writer further infers that this general lode interval has a potential for 50,000 tons of milling ore of a grade between that produced during the 1948-53 period and the newly-indicated reserves within westerly parts of the lode. The net smelter value of the expected ore grade is \$46.90 per ton. With general production costs estimated at \$24.00 per ton, the indicated profit margin is a substantial \$22.90 per ton.

With the existing mining and milling facilities available to the present group, it is estimated that an adequate mine plant can be provided by a minor capital expenditure. The profit potential is calculated as follows:

Indicated net profit, 50,000 X \$22.90		\$1,145,000.
Estimated preliminary development costs	\$250,000.	
Provision, stope development	<u>50,000.</u>	<u>300,000.</u>
Indicated, undiscounted cash-flow:-		<u>\$ 845,000.</u>

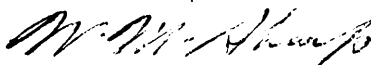
The above cash flow estimate is based on an estimate of 50,000 tons of probable and inferred ore for the Sunset-Sunrise section of the lode only, and on which the minimum exploration-development program has been formulated. However, there is a good possibility that ore reserves may be substantially increased by subsequently extending work southwestward into the Granite section of the structure, by exploration from a still lower level, and/or by instituting a parallel exploration-development program within the major lode segment to the northeast of the Sunset workings.

To achieve the above objectives, the writer recommends that exploration of the lode between the 6040 adit and Sunset working areas be conducted, in order to locate an advantageous starting point for an exploratory drift to investigate the westerly course of the lode for 2000 feet. The underground development project includes a provision for 500 ft. of exploratory raising.

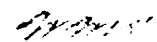
ESTIMATED COSTS

Mine plant rehabilitation - construction	\$ 75,000.
Drift, raises, minor crosscuts, 2500' @ \$60/l.f.	150,000.
General provision	<u>25,000.</u>
Total, preliminary exploration-development:-	<u>\$250,000.</u>

Respectfully submitted,



W.M. Sharp, P.Eng.



INTRODUCTION

During April, 1967, Mr. E. Borup conferred with the writer on current mining activities of his mining group, and of their intent to proceed with the exploration and development of certain mining prospects within the general Kaslo-Ainsworth mining area to ensure a continuing supply of ore for their mill at Ainsworth, B.C. From these discussions it was agreed that the Scranton Mines' property possesses more geological potential for the development of adequate tonnages of milling ore of the requisite type and grade for this purpose than do other properties currently held, or under consideration by the group.

The writer further agreed to prepare the necessary engineering report of the Scranton Mines' property, with his recommendations and cost estimates, to facilitate the organization and adequate financing of the contemplated exploration-development project.

To expedite the writer's report, Mr. Borup provided his file containing most of the writer's earlier reports on the property, custom mill and smelter returns deriving from the 1950-53 production period, miscellaneous sample reports, and general correspondence pertaining to the Scranton properties. The foregoing have been supplemented by a set of the writer's original geological maps prepared during the 1952-54 exploration period, and provided by Mr. C. Lind, Kaslo, B.C.

Maps accompanying this report are derived from the above and the writer's own notes with some minor revisions and appropriate changes of scale.

The writer thankfully acknowledges the above sources of information and also Mr. C. Lind's cooperation and assistance during the writer's most recent field work in 1960.

This report includes a fairly comprehensive section dealing with the general history of exploration-development and production from the Company's present group, and is provided as a general synopsis, in view of the six or more

years that have elapsed since the last exploration was accomplished.

PROPERTY

The constituent claims are shown on Dwg. 1. The extent, relative location, names, status, and lot record numbers, respectively, of Crown-granted and located mineral claims were examined by the writer on May 25, 1967, via official maps and records on file at the B.C. Dept. of Mines Vancouver office. The following is a schedule of claims comprising the Scranton Mines group - all in the Slocan Mining Division:

Name	C.G. Lot No.	Location Record No.	C.G. Tax Due	Last Cert. of Work Rec. Date	Registered Owner
Tecumsie	L. 2261		c-1; d-1		Scranton Mines Ltd., Kaslo, B.C.
Pontiac	L. 2265		c-1; d-1		"
Sunrise	L. 5991		c-1; d-1		"
Granite	L. 6278		c-1; d-1		"
Grandview	L. 6279		c-1; d-1		"
Scranton	L. 7452		c-1; d-1		"
Big Ed		10096 M		Sept. 20, 1966	"
Scranton Fr.		1011 M		Sept. 16, 1966	"

c = current year
d = delinquent year

The entire claim group lies within Kokanee Glacier Park, therefore development of the property is subject to B.C. Government regulations pertaining to operations within Class A and/or Class B. Park Areas.

The Claim group fully covers most of the known mineralized exposures and workings on the Scranton vein-lode, extending from the Granite on the southwest, to the Tecumsie claim on the northeast. The currently-indicated strike of the main ore structure is about 7200 feet, with both ends "open" for probable S.W. and N.E. extensions. To the southwest of the Granite workings the vein most probably continues for an additional 1000 feet to the west boundary of the property, with no apparent diminution in strength. The northeasterly projection of the vein beyond the easterly boundary of the claim group does not at present constitute a prime exploration target.

LOCATION, ACCESS, AND WORKINGS

These are shown on report Fig. 1 and Dwgs. No's. 1 and 2.

The Scranton Mines property lies within and adjacent to the east boundary of the Provincial Kootenay Glacier Park, and astride Pontiac Creek, a north-easterly-flowing tributary of Woodbury Creek. All of the claims are believed to have been staked and recorded prior to the creation of the park area.

Along the course of the vein surface elevations range, approximately, between 5600 and 7000 feet.

The mine camp, centrally located within the claim group, is situated 3 1/2 miles due west of Kootenay Lake, and 11 map-miles southwest of Kaslo, B.C. The camp, at an elevation of 5600 feet, is reached by about 10 miles of mine road departing from the Nelson-Kaslo highway at about 4 miles north of the custom mill at Ainsworth.

The principal mine workings, from southwest to northeast, comprise the Granite, Sunrise, Grandview, Sunset, Lower Pontiac, and Upper Pontiac (or Pontiac Peak). Of these the Grandview and Upper Pontiac underground workings are generally inaccessible, and the Sunset and Lower Pontiac winzes and sub-levels are accessible when de-watered.

In more recent years Au-Ag-Pb-Zn ore has been derived from the contiguous Sunset and Lower Pontiac segments of the Scranton lode.

MINE PLANT AND PRODUCTION FACILITIES

The present on-site plant consists of the various development and exploratory workings, local access roads to the Sunset and Lower and Upper Pontiac workings, and the former office-bunkhouse-cookhouse building. The latter plant item could be rehabilitated to provide considerable general storage space.

Most of the existing mine mechanical equipment would require extensive repairs prior to resuming underground operations; however, the present development group has serviceable plant and equipment at other properties which could be placed on the Scranton property to expedite the initial phases of the recommended development program.

Most important, the above group owns a modern flotation concentrator of about 150 tons-per-day capacity at Ainsworth, or only 15 miles by road from the mine property. This mill is in good operating condition, and is currently producing marketable lead and zinc concentrates, on a custom basis. Concentrates are presently trucked to the Cominco smelter via 84 miles of paved highway between Ainsworth and Trail, B.C.

HISTORY AND PRODUCTION

The first recorded production was from the Pontiac and Tecumseh claims (Upper Pontiac section) in 1898. This amounted to 20 tons grading 50 oz/ton silver; 30% lead; 0.7 oz/ton gold. The total recorded production, 1898-1906 is given as 1368 tons at an average grade of 0.2 oz/ton gold; 15 oz/ton silver; 6% lead; zinc-cadmium not recovered or recorded.

C.E. Cairnes (visit June, 1927) notes that the above workings "were generally inaccessible because of caving and the then-prevailing snow cover, but that these consisted of three adits on a sheared and fractured zone (lode) in the granitic rocks. This zone, striking N25°E to N.E. (dip S.E.) contains a number of quartz veins and stringers mineralized with galena, zinc blende, pyrite, and high-grade silver minerals. The one vein that received most attention carried disseminated sulphides as well as shoots of higher-grade material. ---the appreciable gold content forms an attractive feature, and that only the better grade material could be expected to yield a profit in view of the high transportation costs." This ore was horse-packed to Kootenay Lake, for lake and river shipment to the Northport, Washington smelter.

The productive vein section mined during the above period is reported to have had a gross strike and dip extent, respectively, of 400 and 190 feet.

The various Crown-granted claims were purchased by Scranton Consolidated Mines Limited in late 1929 or 1930, following preliminary investigations and recommendations by Carl J. Bailer and associates. His name appears in connection with sampling performed during 1929. Mr. Bailer was chiefly instrumental in this group's efforts to develop and bring the property into production from this time until his death in 1960.

The writer, originally acting for Kootenay Mining Services, Ainsworth, B.C., was engaged as the reorganized Scranton Mines Limited's geological consultant in 1952 - functioning in this capacity until 1960, but only during intermittent periods when finances were available to carry out certain modest exploration projects.

The original Sunset vein (Grandview workings) was discovered about 1892. Small hand-mining operations resulted in a reported production of approximately 60 tons of shipping (horse transport) ore of unspecified grade. The several short adits and small near-surface stopes were caved at the time of C.E. Cairnes 1927 visit. However Cairnes states, ---"it appears that this property, together with the Scranton claim and Pontiac-Tecumsie group to the northeast, are traversed by the same lode system in which a series of quartz veins with a general north-easterly course cut across coarse-grained porphyritic Nelson granite.---operations have been handicapped by difficulties in transportation, necessitating shipments of only the higher-grade material, whereas much of the ore developed is of a concentrating character. They (veins) occur in shattered and sheared mineralized zones 30 feet or more in width, each zone carrying, probably, several quartz veins and more irregular quartz deposits."

Prospecting, sampling, and near-surface exploration were conducted on the Scranton (Lower Pontiac) vein section prior to 1927. According to Mr. Richmond, who conducted engineering examinations of the early work; "Several open cuts, a shallow winze, and a short crosscut tunnel have opened up a length of 150 feet of well-mineralized vein which varies from a few inches to as much as 6 1/2 feet in width. One section --65' x 4.68' -- is well mineralized with pyrite, galena, and zinc blende, with which are contained gold and silver values, -- five channel samples were found to average: gold, 0.72 oz/ton; silver, 8.1 oz/ton; lead, 7.4%; zinc 1.4% ---."

Within the Lower Pontiac section, the Scranton company performed underground exploration-development during 1939-40. Operations were suspended (World War II) until 1945. The original 12-mile private mine access road was constructed, without concurrent government assistance, at a cost of \$95,000. - thus markedly decreasing the Company's financial reserves for actual mine development.

Following the completion of road construction in 1948, the Company developed the Lower Pontiac and Sunset orebodies, and through 1948-1953 produced over 5600 tons of ore with an average recorded grade of gold, 0.22 oz/ton; silver, 10 oz/ton; lead 11.9%; zinc, 10.6%, with a very significant amount of cadmium associated with the latter metal. This production was derived from stopes on the Lower Pontiac and Sunset vein sections, each mined to apparent "assay-limits" on strike and dip. With, and following this the major part of the current exploration effort was diverted to an expensive and unrewarding search for possible fault-displaced ore segments and parallel veins, rather than on more localized exploration of direct vein extensions.

More recent exploratory work, accomplished since 1952, is summarized:

1952: Geological mapping of the Sunset and Lower Pontiac workings was carried out.

1953: Surface diamond-drilling of the possible depth extension of the Grandview vein segment was attempted. The soft, highly-broken and oxidized vein material intersected precluded definitive core recoveries, and thus a realistic evaluation of this section. The balance of the allotted drill footage was directed to the exploration of the inferred S.W. extension of the vein across Sunrise basin between known, mineralized sections of the structure within the Grandview area and the Sunrise adit to the southwest. This program delineated a near-surface block of about 10,000-15,000 tons of apparently low-grade milling ore. Poor E-size core recoveries within the much-broken, variably-oxidized, vuggy, quartz vein material allowed only a very approximate estimate of the average grade of this mineralization; however, it appears fairly certain that an appreciable tonnage of low, to medium-grade milling ore occurs within the west Grandview - Sunrise Basin section of the Scranton lode.

The Sunrise drift mineralization was also channel-sampled. This disclosed a larger inner shoot of medium-grade Au-Ag-Pb-Zn (Cd) milling ore. The currently-inferred block was estimated to contain 8600 tons, with additional ore being quite possible on dip extensions. This mineralization is generally similar to that mined from the Lower Pontiac-Sunset zones.

Other sampling within the Sunrise drift disclosed a short, significantly mineralized section closer to the portal- this also providing attractive exploration possibilities on the untested depth extensions.

In the course of extending survey control from the mine camp to the Sunrise basin, the writer located the old vein cut - presently termed the 6040 adit - uphill and southwest of the Sunset workings. This was cleaned out and a 25-foot prospect adit was hand-driven on an appreciably mineralized, strong quartz vein, or lode structure, and which is also assumed to be the principal through-going vein.

1954: An electromagnetic survey was performed during the fall months, and partly handicapped by cold, stormy weather, over the 6040 Upper Pontiac lode interval. The then-available ground-line equipment, with relatively shallow depth capabilities, did not prove suitable for accurately defining the location of the vein under the general blanket of overburden. The more significant anomalies were received within the Upper Pontiac section. These could have resulted from vein sulphides or pyritic, altered sedimentary inclusions within the general granitic country rock. Certain anomalous and potential sulphide-bearing vein intervals should be checked eventually by modern E.M. equipment and/or trenching and diamond drilling.

Two holes were drilled within the Lower Pontiac trenches; one of these on the vein, and the other on an E.M. anomaly. The first intersected a weakly-mineralized vein section; the second cored younger quartz-feldspar porphyry and pyritized sediments.

1955-59: Operations were generally suspended. The 6040 adit portal and open cut were cleaned out for the writer's and other's inspection. The discovery of a new 5-foot vein 200' west of the 6040 was reported.

1960: A mile of tote-road to the Upper Pontiac S.W. portal area was built. Additional trenching was done on the Lower Pontiac lode segment, and resulting mineral exposures further explored by a 93-foot adit at 5730 elevation. This work revealed a highly sinuous, braided lode with minor segments of high-grade galena.

Two short holes drilled into the north wall of the Sunset adit to investigate a previously reported vein intersection disclosed nothing of interest.

1961: An attempt to open the main Upper Pontiac adit was unsuccessful. The southwesterly vein extension was explored by trenching, and also by 100 feet of timbered drift 50 feet below the main adit horizon. This opened a wide, sparsely mineralized quartz vein segment which was faulted off at the face.

1964: Blue Star Mines Ltd. obtained a lease on the property. This company rehabilitated and partly reconstructed the 10-mile mine road. In addition, they constructed a useable road to the Upper Pontiac lower adit, excavated a portal bench, and installed an exploration plant. This was followed by the 260 foot N.E. extension of the new drift. No mineable sections of ore were discovered. Work ceased in October.

The summer's work consisted of an E.M. survey, followed by 687 feet of diamond drilling to prospect the Lower Pontiac-Sunset interval of the lode. All holes intersected significant mineralization.

1965: The mine road was improved and numerous culverts installed - TD 9 and TD 14 dozers being hired for this work. Also, a preliminary access road, from the camp area to about 100 feet below the 6040 adit level, was constructed. As much of this was through heavy granite talus, its construction necessitated much expensive drilling and blasting. With this, the northeasterly extension of the lode below the 6040 adit was explored by cross-strips and trenches.

The company's records indicate that direct and overhead expenses incurred on the 1964-65 work totalled close to \$100,000.

1966: To the writer's knowledge, no significant physical exploration was carried out.

The recorded production from the Scranton lode is summarized:

Upper Pontiac, 1898-1906: 1368 tons @ 0.2 oz/ton gold; 15.0 oz/ton silver;
6.0% lead; 3.0% zinc

Grandview, (1900): 60 tons @ 0.13 oz/ton gold; 4.2 oz/ton silver;
6.3% lead; 5.0% zinc

Lower Pontiac-Sunset, 1948-53: 5635 tons @ 0.22 oz/ton gold; 10.0 oz/ton silver;
11.9% lead; 10.6% zinc

The above production, derived from small-scale, local vein development, totals:

7063 tons, averaging Au, 0.216 oz/ton; Ag, 11.1 oz/ton; Pb, 10.7%; Zn, 9.1%.

At current metal prices this ore has a gross value of \$90.00 per ton; hence the present gross value of recorded production is approximately \$635,000.; the net is \$444,000.

The writer estimates a further \$100,000. of unrecorded early shipments and rejected gold-bearing zinc-iron material left in old stopes and dumps; much of this rejected material is strongly oxidized (gossan and/or carbonates), and would require special metallurgical treatment to effect an economically satisfactory recovery of the contained ore minerals.

GENERAL GEOLOGY AND MINERALIZATION

The Scranton lode is contained within the main mass of the Nelson batholith, and in which it has been traced from 2 to 3 1/2 miles from the easterly contact of this body with the older Slocan and Kaslo sedimentary rocks.

The vein-lode system has a general northeasterly trend, but locally swings to more northerly or easterly strikes and, at intervals along its strike, is sharply deflected along and/or offset by northwesterly-striking faults. The typical right-hand deflections and/or offsets are similar to those which characterize the productive lodes of the general Slocan mining camp. These interruptions have created four structurally distinctive intervals within the through-going structure, and upon which the separate principal mining developments have occurred. These comprise the "Sunrise-6040", the "Sunset", the "Lower Pontiac" (or Scranton), and the "Upper Pontiac" (or Pontiac-Tecumsie) lode segments.

The lode exhibits near-vertical, to steep southeasterly dips within the general Sunrise-6040 interval. On its northeasterly continuation through the Sunset and Lower and Upper Pontiac ground the average dip decreases and, locally, is characterized by near-horizontal, flat-rolling intervals. This latter feature, prominent in the Lower Pontiac workings, is caused by lode dip-deflections at

flatly-lying, flatly-bedded inclusions of argillaceous and/or quartzitic rocks engulfed within the intrusive. Locally, these warps effect marked variations in the width of the vein, with wider, relatively "open" sections being preferentially mineralized. Individually, these ore shoots tend to be small, but may occur with sufficient frequency to justify thorough exploration of any such structural interval. The warped section of the Lower Pontiac vein lying closely above, and to some extent within the flatly-dipping sedimentary inclusion occurring within these workings apparently forms the locally predominant ore control'.

The Scranton vein-lode varies from a single quartz-filled fissure to a filled, multiple-fracture zone - the latter frequently including much siliceous granitic breccia. The quartz filling is fractured and mineralized with pyrite, galena, sphalerite and, in places, with minor amounts of the silver-bearing sulfo-salts. At the surface these minerals are weathered to iron-gossans and/or "carbonates". A gold content of about 2/10 oz/ton of vein sulphides is rather general; occasional ore samples have assayed in excess of 2 oz/ton. However there is no correspondence in silver content, which varies proportionately with the galena content, or with erratic occurrences of high-grade silver minerals. Also, it appears that above-average proportions of cadmium occur in the Scranton ore, typically associated with sphalerite. Minor amounts of tin (stannite) are also associated with this mineral. In addition, the 1954 sampling by the Dept. of Mines engineer indicated a significant tungsten content within at least one vein segment exposed in the Lower Pontiac section of the structure.

The average vein width is about 18 inches, with productive sections ranging from 2-6 feet wide, or to greater than 10 feet within intervals of multiple vein, or lode development. The indicated strike-extent of the structure is about 7200 feet. The lode extends beyond the northeasterly and southwesterly ends of the Scranton claim group.

MINE GEOLOGY AND EXPLORATION:

The following descriptions are based on Dwgs. 1 and 2, and Fig. 2 with this report.

(A) LOWER PONTIAC SECTION

Significantly mineralized sections of the vein, as exposed in the outer part of the workings, are conspicuously sinuous and flatly-southeasterly-dipping—the general range being 20° - 30° . The mined-out, flatly-dipping ore section occurred within granite country rock, closely above the upper side of a large, flatly southwest-dipping inclusion, or panel of limy argillaceous sediments. To the northeast, where the vein intersects and enters this panel, it weakens and flattens into general conformity with the flatly-crumpled structure of the sediments. The normal steep (60° - 70°) dips reappear in the vein section above this bedded panel, as exhibited by surface exposures in the over-lying granite. The writer believes that ore sections of quite limited vertical extent may occur closely above the upper surface of this panel, and within the general 150' vertical interval between it and the surface. There is also a possibility that a southwesterly-raking vein section below, or flanking this panel on the southwest may constitute a favourable structural situation for deeper ore occurrences. It is noted that significant amounts of ore may occur in small vertical ranges on a flatly-dipping vein. These possibilities may be tested, eventually by controlled drifting and short-hole diamond drilling. Factors of vein-dip, complexity, and topography preclude definitive drill-hole investigation from the surface. However, surface exposures of the Lower Pontiac vein exposed within the upper, more northeasterly open cuts, and adjacent to a pronounced cross-fault, require further investigation. A 14-inch cut across the vein in No. 8 open cut assayed Au, 0.18 oz/ton; Ag, 17.4 oz/ton; Pb, 25.8%; Zn, 0.2%. The faulted N.E. extension of the vein contains 1-2.5' of quartz with minor, but significant pyrite-galena-sphalerite mineralization. The dip-extensions of the above segments may deflect on the argillite septum, if this persists eastward of the above-noted cross fault. In any case, this significant section is yet to be closely tested - by short-hole drilling from the surface and/or longer holes from the inner end of the mine workings.

Analysis of the extensive and costly program of underground drilling within the Lower Pontiac-Sunset sections, carried out during the 1951-53 operational period, reveals that these generally flat, to slightly-inclined holes drilled remained entirely within either hanging wall or footwall sections; hence, these could not possibly intersect possible dip, or faulted extensions of the respective Lower

Pontiac and Sunset vein segments. There was, however, a possibility that this drilling was hopefully directed to the search for possible parallel veins.

UPPER PONTIAC SECTION

With the exception of the outer 50 feet of the main adit, short trench sections on the ridge crest over the old stoped section of the vein, and the few trenches on the "blanket" vein structure lying well north of the principal mined section, the workings were not accessible for examination. Hence the following descriptions are based on the limited amount of surface mapping and sampling done by the writer, supplemented by meagre accounts of the geology and operations contained in old government reports. Also, as the writer has not yet inspected surface and underground exploratory work accomplished since his last visit, this new work remains to be mapped and correlated with existing data.

The Upper Pontiac vein is obviously the faulted northeasterly extension of the Lower Pontiac structure. Available evidence also indicates that former mining was carried out on a notably straight, northeasterly-striking vein segment over an apparent gross length of about 400 feet, and reported maximum depth range of roughly 200 feet. This section evidently terminates, or offsets on a steep, E-W striking cross-fault at the N.E. end of the claim group. Available evidence also indicates that the vein dipped steeply southeast throughout the upper and westerly mined sections. The nature of the lower, northeasterly sections are not known, although the relative location and elevation of the N.E. adit suggests that the strong lode flattens, with a typical easterly warp, as it approaches the above-noted cross-fault.

The productive section of the vein evidently consisted of a wide zone of crushing and shearing within the granite country rock. Cairnes notes (1927) that "this contains a number of quartz veins and stringers, most of which carry more or less sulphide minerals including galena, zinc blende, pyrite, and high-grade silver minerals. One vein has received most attention. It carries disseminated sulphides as well as pockets or small shoots of higher grade material. The appreciable gold forms an attractive feature."

Dumps, consisting of development muck and rejected stoped material from the early, highly selective mining operations, were systematically sampled by the writer. The following estimates are based on muck samples of near-surface material, measured widths on consecutive sample lines, inferred thicknesses, and volume-tonnage factor of 20 c.f.t.:

2000 tons at Au, 0.07 oz/ton; Ag, 3.25 oz/ton; Pb, 1.7%; Zn, 1.6%.

This consists of highly weathered material which would probably require preliminary gravity concentration prior to flotation concentration.

The results of Pontiac dump sampling performed in 1931, on presumably less weathered, higher grade material is reported as:-

Au, 0.04 oz/ton; Ag, 7.6 oz/ton; Pb, 12.5%, Zn, 25.1% (Tons?)

This indicates that the distribution of sulphides was such that hand-sorting was extremely difficult and inefficient. However, both sets of assays, or the average of them, suggest that the dumps may be picked up and milled at a profit - if the provision of road access is not unduly expensive.

(C) SUNSET-GRANDVIEW INTERVAL

This interval of the vein-lode system has a strike-length of 2000 feet, and extends from Pontiac Creek to the crest of the Grandview ridge. It includes the formerly-productive Sunset vein segment, the 6040 exploration section, and the easterly Grandview drift. With the exception of a partly-explored 500 foot section within the Sunset workings, this interval of the structure is practically unexplored by either trenching or tunnelling. Within this interval, and between the bottom Sunset drift at 5555 feet and the easterly Grandview drift at 6625 feet, the presently-defined vertical range of the lode is 1070 feet.

The vein within the Sunset adit drift strikes southwesterly, with an average dip of 62 degrees, and average width of 3 1/2 feet. The 200-foot productive section is characterized by a marked warp, accompanied by a southerly divergence of

vein-strike and southwesterly flattening of dip. Mineralization consists of banded and/or lensey Fe-Pb-Zn sulphides in quartz and fractured, silicified granite. Locally the vein exceeds 7 feet in width.

The 1500 foot-long faulted extension of the Sunset vein segment strikes southwesterly throughout the higher 6040 and east Grandview sections. This interval, where opened, shows near-vertical dips to the northwest and southeast. The vein, as very locally exposed in the 6040 open cut and adit and east Grandview drift, contains minor, but encouraging amounts of typical sulphide mineralization in fractured quartz and silicified granitic host rocks.

Three back-channel samples taken by the writer on the 6040 adit vein assayed as follows:

3.0'	true width	@ Au, 0.04 oz/ton;	Ag, 1.10 oz/ton;	Pb, 0.2%;	Zn, tr.
2.0'	"	@ " , 0.04 "	; Ag, 1.85 "	; Pb, 0.2%;	Zn, nil.
5.0'	"	@ " , 0.18 "	; Ag, 1.85 "	; Pb, 0.2%;	Zn, 0.15%

Within the 6040 locality, the vein ranges from 1 to 6 feet in width. Vein-splitting, with the localized development of lode structures, is evident. Between vein strands the granitic rocks are variably silicified and pyritized - the pyrite itself containing an appreciable proportion of the gross gold content in the Fe-Pb-Zn sulphide assemblage - as determined by selective sampling and assaying.

Within the easterly Grandview adit-drift, situated 720 feet southwest of, and 600 higher than the 6040 drift, the vein consists of a 3-foot wide zone of crushed porphyritic granite with visibly minor quartz-pyrite mineralization. Locally, the vein strikes east-northeasterly, rather than north-northeasterly as in the better-mineralized 6040 section.

During 1951-52 a number of long diamond drill holes failed to locate the faulted, southwesterly extension of the vein beyond the Sunset workings. From the inferred position of the vein with respect to the inner part of the upper drift, the writer believes that none of the drill holes were long enough, or so directed as to test the probable off-set extension. The writer suggests that this

drilling should have been preceded by general surface exploration to at least determine the approximate trace of the lode outcrop, and hence its probable dip projection.

(D) GRANDVIEW GRANITE INTERVAL

This general vein-lode section has been delimited over a 1700-foot strike length between the crest of Grandview ridge to the westerly S.W. Sunrise surface cuts. The 1000-foot southwesterly extension, within the more inaccessible west end of the property, is generally unexplored.

The lode maintains a rather consistent southwesterly strike through the westerly Grandview workings, across Sunrise basin, and for two-thirds of the length of the S.W. Sunrise adit. Within the inner one-third the vein swings to a more southerly trend. Corresponding dip changes are from near-vertical to northwesterly, to moderately steep southeasterly. To date, the best section of Fe-Pb-Zn sulphide mineralization is exposed in the inner section of the S.W. Sunrise adit-drift, although the width of the vein section is considerably less than that of the Sunrise basin quartz vein-lode segment. The comparative widths of these sections were defined by the 1953 diamond drilling program and drift sampling.

The Grandview vein segment, outcropping on the west slope of this ridge, and selectively mined on a small scale during the late 1800's - early 1900's, apparently contained some high-grade shipping ore. However, severe weathering has largely reduced the pyrite-rich near-surface vein fillings to soft oxidized rubble or gossan. During 1953, attempts to drill the apparent depth extensions of this mineralization were largely obviated by the persistence of this soft material to the drilled depth, and by the inadequate, E-size drilling equipment. Consequently drilling was re-directed after completing two holes, to an investigation of the easterly part of the Sunrise basin segment. Of nine holes subsequently drilled six, outlining a generally continuous vein-lode section, intersected mineralization of the low grade millfeed type.

Drill-hole intersections consisted of veins and gobs of Fe-Pb-Zn sulphides in fractured quartz and silicified granite. The more important drill-hole intersections are listed:

D.D.H. NO.	Indicated Width, ft.	Oz/ton Gold	Oz/ton Silver	% Pb	% Zn	Notes
3	6.0	0.039	4.9	4.0	1.1	multiple veining
5	10.0	0.035	8.1	5.5	0.9	"
6	2.3	0.030	7.0	5.1	0.6	one vein
(7	5.0	0.030	6.5	4.5	0.85	")
9	10.5	0.020	10.3	7.0	4.2	multiple veining
11	<u>4.2</u>	<u>0.020</u>	<u>4.2</u>	<u>2.8</u>	<u>3.1</u>	F.W. vein only.
Indic., excl. #7 = <u>6.6'</u> @		<u>0.029</u>	<u>6.9</u>	<u>4.9</u>	<u>2.0</u>	Arith. average.

With a strike length of 180', depth of 150', and tonnage factor of 12 c.f. per ton, the block is estimated to contain approximately 15,000 tons of the above grade of vein material. The above estimates of mineral content are considered as only approximate, by reason of the erratic recoveries of broken vein matter; also gold assays are sub-average for Scranton ore.

Alteration of the granitic wall rocks consists of bleaching and silicification with local mild chloritization.

Drill hole No. 1 intersected cave-rubble and oxidized vein matter only. DDH No. 2, reaching farther under the Grandview stoped section, contained a 7-foot section of oxidized, pyritized granite, pyrite, and sparse residual galena. In the deeper hole (No. 2) consecutive 5 ft. and 2 ft. sections gave an average assay of Au, 0.18 oz/ton; Ag, 4.0 oz/ton. This intersection indicated a fair possibility that mineable grades of fresher vein material could be expected to occur at greater depths, and to the north-east, under the old Grandview workings.

DDH Holes 7 and 11, respectively southwest of, and below the currently-delimited Sunrise ore block, contained significant mineralization, and suggested possible lateral and depth extensions of mineralization.

The S.W. Sunrise principal ore segment contains moderate to heavy Fe-Pb-Zn sulphide vein material over widths of 1.0' - 2.5'. Assays of sill channel samples taken, where possible, at 5-foot strike-intervals, and expanded to a 2.5' minimum, or diluted mining width averaged 2.5' x 190' @ Au, 0.057 oz/ton; Ag, 2.32 oz/ton; Pb, 9.1%, Zn, 5.1%; cadmium in zinc not assayed.

Similar widths and grades of mineralization, less continuously exposed in surface trenches, indicate that mineralization is continuous for 200 feet up-dip to the surface. The above estimates of grade, strike-length and dip length of mineralization indicate the following ore blocks:

Probable ore; 8,600 tons @ Au, 0.057 oz/ton; Ag, 2.32 oz/ton; Pb, 9.1%; Zn, 5.1%
Possible ore; 3,400 tons of similar grade

Total

S.W. Sunrise; 12,000 tons probable and possible ore to a conservative 100 depth below the drift sill.

In addition to the above, an 80-foot long, appreciably-mineralized vein section inward of the portal may strengthen with depth and constitute an additional ore section.

METALLURGY

Separate bulk samples of representative run-of-mine ore from the Lower Pontiac and Sunset stope sections were sent to Denver Equipment Company's ore-testing division for laboratory concentration tests in 1952. The results of their investigations were generally confirmed by concurrent and subsequent full-scale mill runs of mine ore at both the Western Mines and Kenville Gold Mines custom concentrators. However, certain metallurgical features of the Scranton ore, and which are not specifically illustrated by full-scale mill runs, are presented:

(a) Lower Pontiac Ore Test:

Metallurgical data pertaining to a "lead" (PbS) concentrate produced by laboratory selective flotation are as follows:

<u>Grade</u>	<u>% Recovery</u>
73.90% Pb	94.9
1.98% Zn	3.0
1.54 oz/ton Au	44.9
71.66 oz/ton Ag	85.9

The corresponding data pertaining to the "zinc" (ZnS) concentrate are:

<u>Grade</u>	<u>% Recovery</u>
59.60% Zn	88.6
0.70% Pb	0.8
0.64 oz/ton Au	18.1
4.70 oz/ton Ag	5.4
0.67% Cd	-
0.52% SiO ₂	-

The above lead and zinc concentrates effect a 63.0% gross recovery of gold, and a 91.3% recovery of the silver.

(b) The flotation tailing from an uncleaned bulk PbS - ZnS concentrate was passed over a gravity-concentrating table. The table concentrate, consisting mainly of pyrite, was accumulated for separate analysis. The assay data pertaining to this test is as follows:

<u>Product</u>	<u>Grade</u>	<u>% Recovery</u>
Bulk flotation concentrate	0.72 oz/ton Au	45.61
Table concentrate (pyrite)	3.14 oz/ton Au	<u>50.88</u>
Total, gold -		<u>96.49</u>

The above laboratory work indicated that high-grade lead and zinc concentrates could be expected to result from selective flotation-concentration, as was confirmed by subsequent custom mill runs. However, the tests also reveal that the part of the total gold content of the ore which is associated with pyrite must be recovered by concentration following lead-zinc flotation. The factor involving the variations in the degree of association of the gold content with pyrite in general is not discussed. In this connection the writer would recommend that selective sampling of the pyrite at all working faces be done prior to specifying its recovery or rejection during the corresponding mill run. This preliminary check is important, in view of the fact that predominantly pyritic vein material often carries 0.25-0.5 oz/ton Au, and occasionally amounts to 3 or 4 oz. per ton.

ORE ESTIMATES

Probable Ore (West end only)

Sunrise Basin, (diamond drill-indicated)

15,000 tons @ Au, 0.029 oz/ton; Ag, 6.9 oz/ton; Pb, 4.9%; Zn, 2.0%

S.W. Sunrise (drift-surface vein sampling)

12,000 tons @ Au, 0.057 oz/ton; Ag, 2.32 oz/ton; Pb, 9.1%; Zn, 5.1%

Total:-

27,000 tons @ Au, 0.04 oz/ton; Ag, 4.9 oz/ton; Pb, 6.8%; Zn, 3.4%

Possible Ore

Sunrise Basin, per diamond drilling

7,500 tons @ Au, 0.029 oz/tons; Ag, 6.9 oz/ton; Pb, 4.9%; Zn, 2.0%.

Geologically Inferred

Other ore shoots very possibly occur on the Lower Pontiac N.E and S.W. vein extensions, at depth below N.E. Upper Pontiac and the latter's S.W. extension and, very possibly, within the general Sunset-Sunrise interval. Although the very minor amount of exploration thus far accomplished on these geologically-favourable vein and lode intervals currently precludes reliable ore estimates, the writer believes that they have considerable ore potential. Of the above exploration targets, the writer believes that the 4200-foot Sunset-Sunrise interval of the Scranton lode contains the major ore potential. The writer further considers that a minimum of 50,000 tons of ore, with a grade at least equivalent to that mined on the Sunset vein segment, forms a conservative estimate of Sunset-Sunrise ore potential. The Sunset ore is conservatively estimated at 0.2 oz/ton Au; 10 oz/ton Ag; 8% Pb; 6% Zn, with an appreciable Cd content.

PRELIMINARY ECONOMICS

The following estimates are based on the computed grade of the presently indicated 27,000 ton ore reserve. The work points out that this grade is substantially below the average of that mine in the Lower Pecos-Sunset during the most recent production period.

100 tons ore @ Au, 0.04 oz/ton; Ag, 0.40 oz/ton; Pb, 6.6%; Zn, 3.4%

yields:-

Pb Concentrate, 8.5 tons with a gross recovered content of

Au, 2oz; Ag, 420 oz; Pb, 12,800 lbs; Zn, 140 lbs.

for a net smelter value of \$2,022.74

Zn Concentrate, 5.5 tons with a gross recovered content of

Au, 0.5 oz; Ag, 30 oz; Pb, 140 lbs; Zn, 6120 lbs.; Cd, 130 lbs.

for a net smelter value of \$ 748.58

Total net smelter value, 100 tons ore = \$2,771.32

Net smelter value per ton at above ore grade = \$27.71 Can.

-Ratio of concentration 7.15: 1, and without allowances for recoveries of the fraction of the total gold locked in pyrite tailings.

Computed net smelter values applicable to gross metal in ore:

Au, gross oz. x 67.5% x \$36.62	, May, 1967
Ag, " " x 89.6% x \$ 1.385	, May, 1967
Pb, " " 10.3¢/lb.	, May, 1967
Zn (+Cd) " " 10.9¢/lb.	, May, 1967

Computed net smelter value, minimum expected grade:

Au; @ 0.2 oz = $0.2 \times 67.5\% \times \$36.62 -$	\$ 4.94
Ag; @ 10 oz = $10.0 \times 89.6\% \times \$ 1.385 -$	\$12.40
Pb; @ 8% = $160\# \times 10.3\text{¢} -$	\$16.48
Zn; (+Cd) @ 6%= $120\# \times 10.9\text{¢} -$	<u>\$13.08</u>

Net smelter value per ton, probable ore grade - \$46.90
(also without provision for selective recovery of gold-bearing pyrite tails)

ESTIMATED COSTS:

Mining, incl. normal development	\$16.00
Ore haul, 15 mi. @ 10¢/ton-mile (70% off-highway)	1.50
Milling, direct cost @ group's custom mill	3.00
Administration and General	3.50
<u>Gross mine cost per ton ore:-</u>	<u>\$24.00</u>
 <u>Indicated net profit per ton -</u>	 <u>\$22.90 Can.</u>

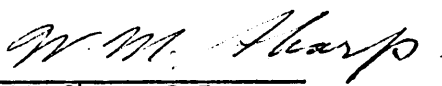
Indicated net profit, 50,000 tons - \$1,145,000.00

ESTIMATED PRE-PRODUCTION COSTS:

Mine plant and road	\$ 75,000.
Cross cuts, drifts, raises 2500' @ 60./l.f.	150,000.
General provision	25,000.
<u>Total -</u>	<u>\$250,000.</u>
 <u>Indicated, undiscounted cash-flow -</u>	 <u>\$895,000.</u>

The above does not provide for actual stope preparation and the installation of detailed mining facilities - which are obviously contingent upon the success of the recommended general exploration-development program.

Respectfully submitted,


W.M. Sharp, P.Eng.,

Vancouver, B.C.

References:

Cairnes, C.E., G.S.C. Mem. 184; "Description of Properties, Slocan Mining Camp."

Little, H.W., G.S.C. Mem. 308; "Nelson Map Area, West Half."

Sharp, W.M.-Consultant to Scranton Mines Limited:

- | | | |
|-------|--------------------------------------|--------------------|
| 1. | Progress Report No. 1 | October 18, 1953 |
| 2. | Interim Report | December 17, 1953 |
| 3. | Progress Report No. 4 | November 26, 1954 |
| 4.(a) | Proposed Development Program 1960-61 | June 2, 1960 |
| (b) | Addendum to (a) | September 18, 1960 |

Minister of Mines Reports, 1949-1961; principally 1954 pp. A134-A137

CERTIFICATE

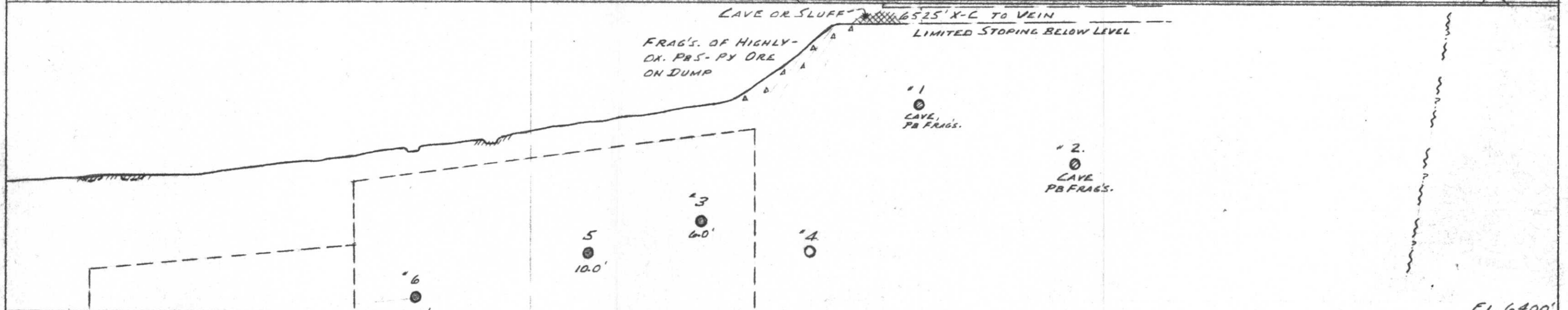
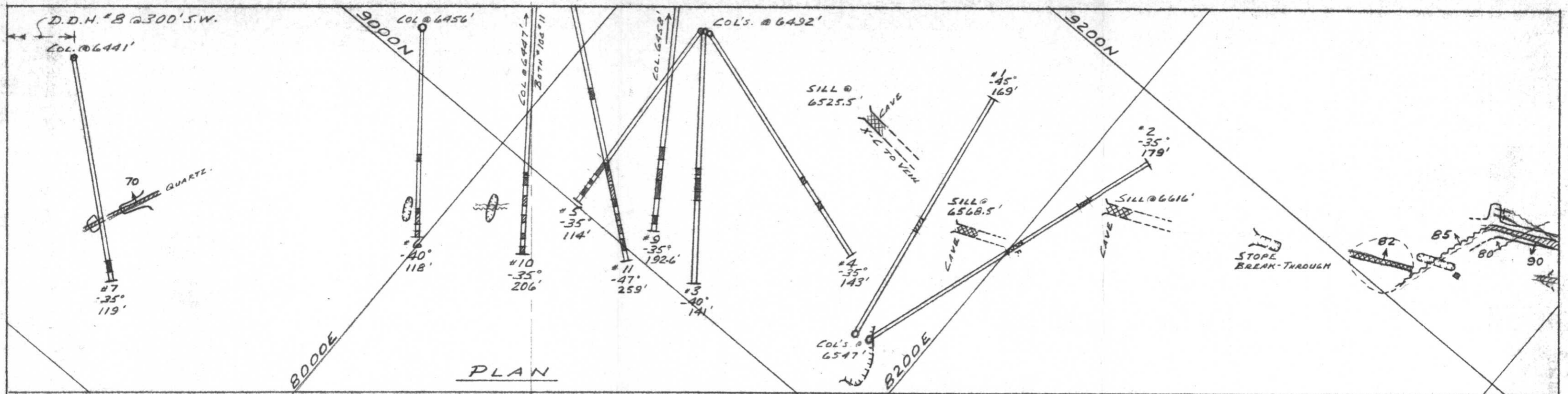
I, William M. Sharp, with business address in Vancouver, British Columbia, and residential address in North Vancouver, British Columbia, DO HEREBY CERTIFY THAT:

1. I am a consulting geological engineer.
2. I am a graduate of the University of British Columbia with B.A.Sc. (1945) and M.A.Sc. (1950) degrees in Geological Engineering.
3. I am a registered Professional Engineer in the Province of British Columbia.
4. I have practiced my profession since 1946, in both geological and managerial capacities with Canadian mining companies until 1964, when I established my own consulting practice.
5. I have personally examined, mapped and directed exploratory work on the Scranton Mines Ltd. Pontiac Creek property, Slocan Mining Division during 1952-54, and geologically examined exploratory work during 1958-60. I have also obtained and examined my clients technical records of previous exploration and production, and have referred to the B.C. and Dominion Government reports and records pertaining to the property and general mining area.
6. I have no interest, direct or indirect, in the properties or securities of Scranton Mines Ltd., or the proposed development organization, nor do I expect to acquire any such interest.
7. I have personally examined most of the Crown-grant claim survey posts and established their map position by surveys in 1953. I have also examined both Crown-grant and location records at the Vancouver office of the B.C. Dept. of Mines. From these inspections, the writer believes that all claims are valid.

Respectfully submitted,


W.M. Sharp, P.Eng.

Vancouver, Canada.



D.D.H. No.	INDICATED WIDTH'	Oz/Ton ALL	Oz/Ton AG	% PB	% ZN	NOTES
3	6.0	0.039	4.90	4.00	1.10	INCL. WASTE
5	10.0	0.035	8.10	5.50	0.90	" "
6	2.3	0.030	7.00	5.10	0.60	
7	5.0	0.030	6.50	4.50	0.85	
9	10.5	0.020	10.30	7.0	4.2	" "
11	4.2	0.020	4.20	2.8	3.1	F.W. VEIN
7	6.0	0.03	6.50	4.50	0.85	
8	3.5	MINOR PB-ZN-FE --- NOT SAMPLED.				

FIG. 2
DIAMOND DRILLING & ASSAYS
SUNRISE BASIN PROGRAM
SCRANTON MINES PROPERTY
SLOCAN MINING DIVISION, B.C.
 SCALE: 1"=40' MAY, 1967
 REF. 40-SCALE PLANS & SECTIONS PER DRILLING OCT.-NOV., 1953

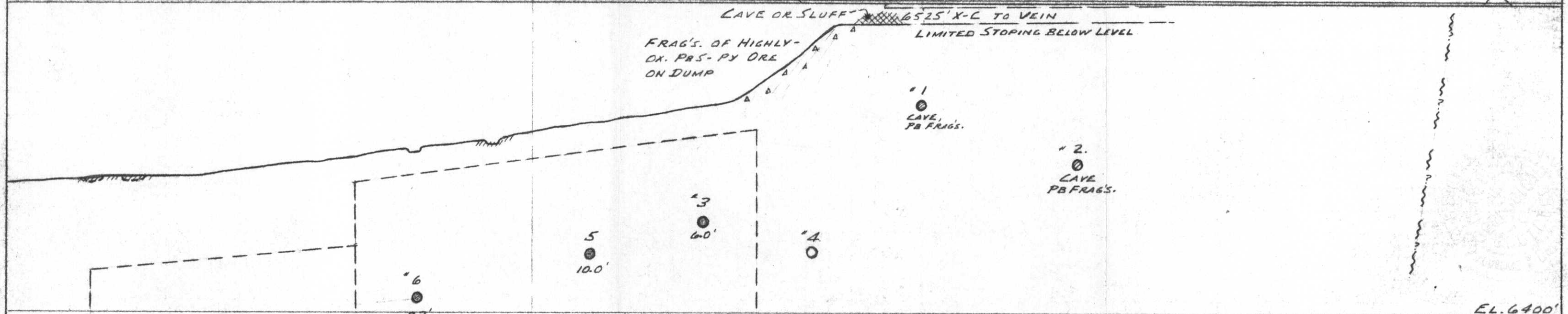
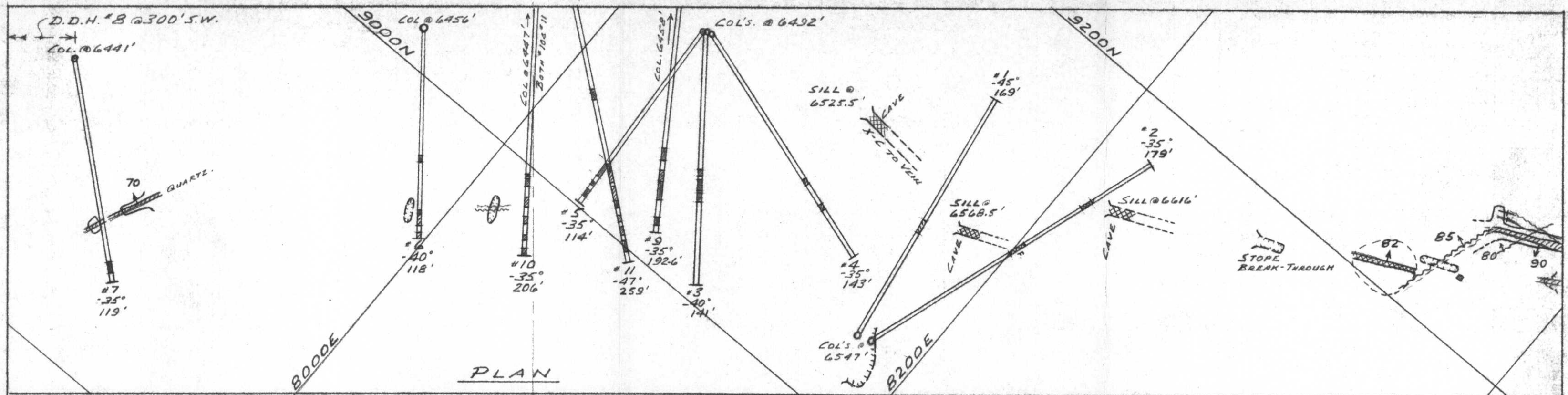
LEGEND

- WELL MINERALIZED, POSSIBLE ORE
- APPRECIABLY MINERALIZED
- SPARSELY MIN. - MAINLY QUARTZ.

NOTE: GRANITIC COUNTRY ROCK THROUGHOUT

LONG. VERTICAL PROJECTION

EL. 6400'

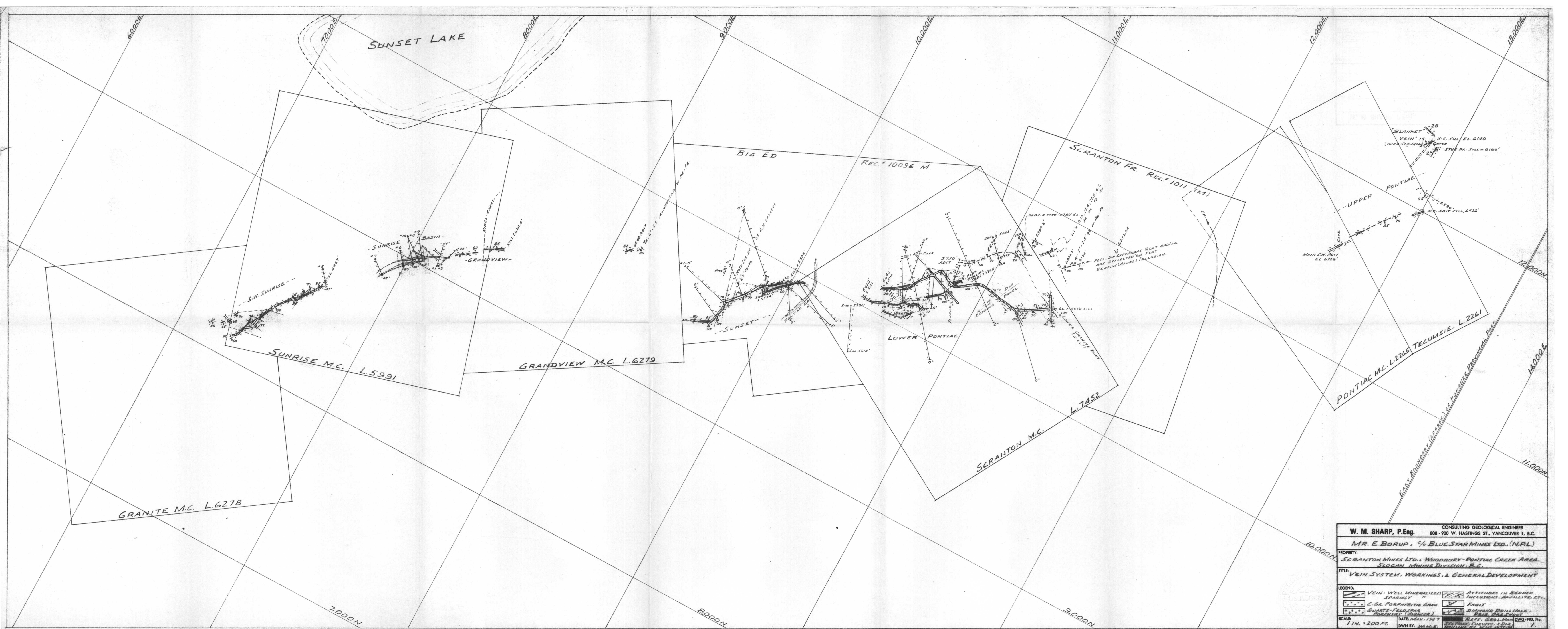


D.D.H. No.	INDICATED WIDTH'	Oz/Ton ALL	Oz/Ton. AG	% PB	% ZN	NOTES
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5	10.0	0.035	8.10	5.50	0.90	" "
6	2.3	0.030	7.00	5.10	0.60	
7	5.0	0.030	6.50	4.50	0.85	
9	10.5	0.020	10.30	7.0	4.2	" "
11	4.2	0.020	4.20	2.8	3.1	F.W. VEIN
7	6.0	0.03	6.50	4.50	0.85	
8	3.5	MINOR PB-ZN-FE - NOT SAMPLED.				

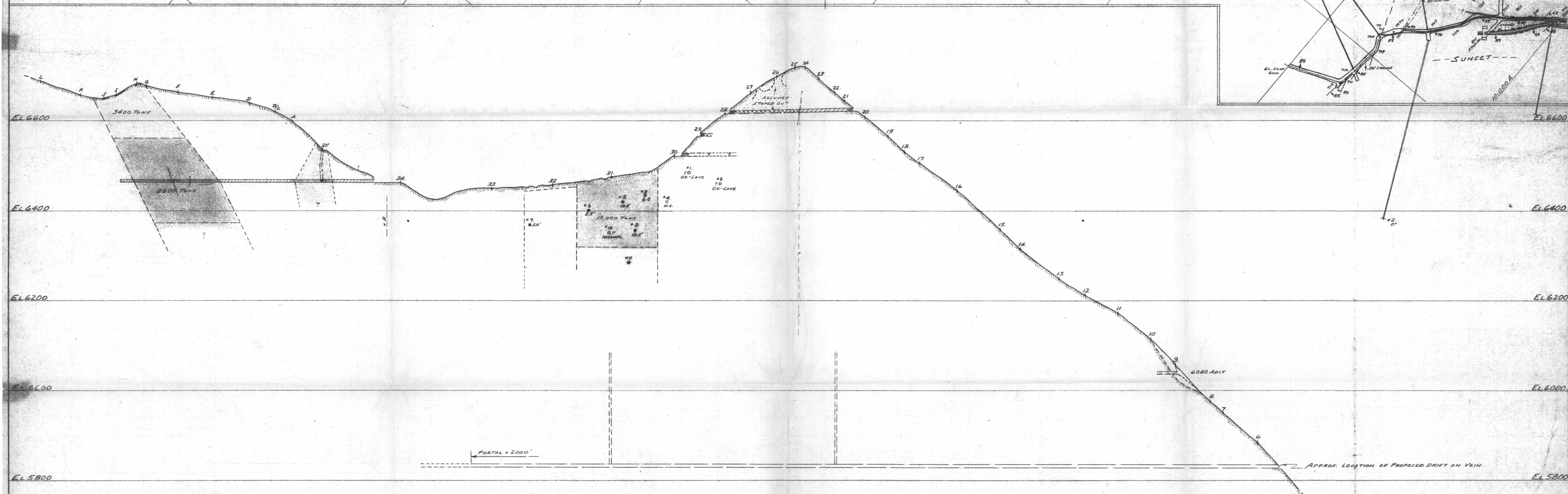
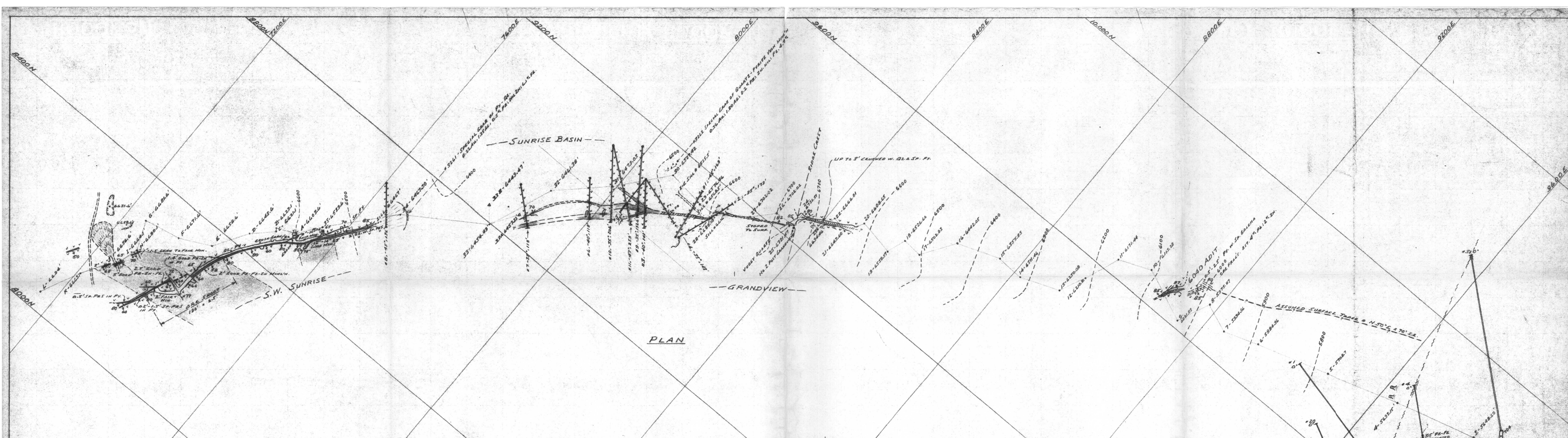
FIG. 2
DIAMOND DRILLING & ASSAYS
SUNRISE BASIN PROGRAM
SCRANTON MINES PROPERTY
SLOCAN MINING DIVISION, B.C.
 SCALE: 1"=40' MAY, 1967
 REF. 40-SCALE PLANS & SECTIONS PER DRILLING OCT.-NOV., 1953
LEGEND
 ■ WELL MINERALIZED, POSSIBLE ORE
 ▨ APPRECIABLY MINERALIZED
 ▩ SPARSELY MIN. - MAINLY QUARTZ.
 NOTE: GRANITIC COUNTRY ROCK THRU-OUT

LONG. VERTICAL PROJECTION

EL. 6400'



W. M. SHARP, P.Eng. CONSULTING GEOLOGICAL ENGINEER 808 - 900 W. HASTINGS ST., VANCOUVER 1, B.C.	
MR. E. BORUP, % BLUE STAR MINES LTD. (N.P.L.)	
PROPERTY: SCRANTON MINES LTD., WOODBURY - PONTIAC CREEK AREA, SLOGAN MINING DIVISION, B.C.	
TITLE: VEIN SYSTEM, WORKINGS, & GENERAL DEVELOPMENT	
LEGEND: VEIN: WELL MINERALIZED SPARSELY C.G. PORPHYRYIC GRAN. QUARTZ-FELDSPAR (SILICOFLUORIDE)	ATTITUDES IN BEDDED INCLUSIONS, ARGILLITE, ETC. FAULT DIAMOND DRILL HOLE REEF, GEOL. MAP TELEPHONE SURVEY, & DIST.
SCALE: 1 IN. = 200 FT.	DATE: MAY, 1967 DWN BY: W.M.S.



LONGITUDINAL VERTICAL PROJECTION

W. M. SHARP, P. Eng. CONSULTING GEOLOGICAL ENGINEER
 808 - 900 W. HASTINGS ST., VANCOUVER 1, B.C.

MR. E. BOGUE, 1/6 BLUE STAR MINES LTD. (N.P.L.)

PROPERTY: SCRANTON MINES LTD. - WEST PROSPECT ZONE
 WOODBURY - PONTIAC CR. AREA, SLOAN MINING DIV.

TITLE: PLAN & LONGITUDINAL VERTICAL PROJECTION
 WORKINGS VEIN MINERALIZATION PRELIM. DIA. DRILLING

LEGEND:

DIAMOND DRILL HOLE	QUARTZ VEIN	SHOWN PLAN ENTERED	SHOWN PLAN ENTERED
SHOWN PLAN ENTERED	SHOWN PLAN ENTERED	SHOWN PLAN ENTERED	SHOWN PLAN ENTERED
SHOWN PLAN ENTERED	SHOWN PLAN ENTERED	SHOWN PLAN ENTERED	SHOWN PLAN ENTERED
SHOWN PLAN ENTERED	SHOWN PLAN ENTERED	SHOWN PLAN ENTERED	SHOWN PLAN ENTERED

DATE: MAY, 1957
 DRAWN BY: W. M. SHARP

