

3580

GEOLOGICAL AND GEOCHEMICAL REPORT

AL CLAIM GROUP

located at Cogburn Creek

at

**18 air-miles north of Harrison Hot Springs, B.C.
Lat. 49° - 33.5' N, Long. 121° - 42.6' W.**

NEW WESTMINSTER MINING DIVISION

92 H / 12 E

by

W. M. SHARP, P. ENG., B.C.

FOR

**WESTERN STANDARD SILVER MINES LTD. (N.P.L.)
KELOWNA, B.C.**

between

JULY 6th and JULY 9th, 1971.

WILLIAM M. SHARP, P. ENG.
CONSULTING GEOLOGICAL ENGINEER

171 WEST ESPLANADE
NORTH VANCOUVER, B.C.

August 6, 1971

President & Directors,
Western Standard Silver Mines Ltd. (N.P.L.),
c/o P.O. Box 462,
Kilowna, B.C.

Gentlemen:

The accompanying "GEOLOGICAL AND GEOCHEMICAL REPORT, AL CLAIM GROUP, NEW WESTMINSTER MINING DIVISION" results from my preliminary surveys of the property on July 7th and 8th, 1971 and subsequent office compilations of the resulting geological and geochemical data. The foregoing constitutes acceptable assessment work; hence the report may be submitted (in duplicate, with 'Form B, Mineral Act') to the Mining Recorder of the New Westminster Mining Division as evidence that work to the extent of at least \$100. per claim has been done on the Company's AL Group.

The reconnaissance geochemical coverage effectively reflects the known exposures of nickel-copper sulphide mineralization. In addition, it indicates that similar mineralization occurs within other drift-covered areas touched by the traverse. From this the writer concludes that a wider and more detailed geological-geochemical survey, with supplementary geophysical delineation, will comprise the most effective and least costly procedure for selecting the optimum areas for trench or drill exploration.

W. M. Sharp
W. M. Sharp, P. Eng.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 3580 MAP.....

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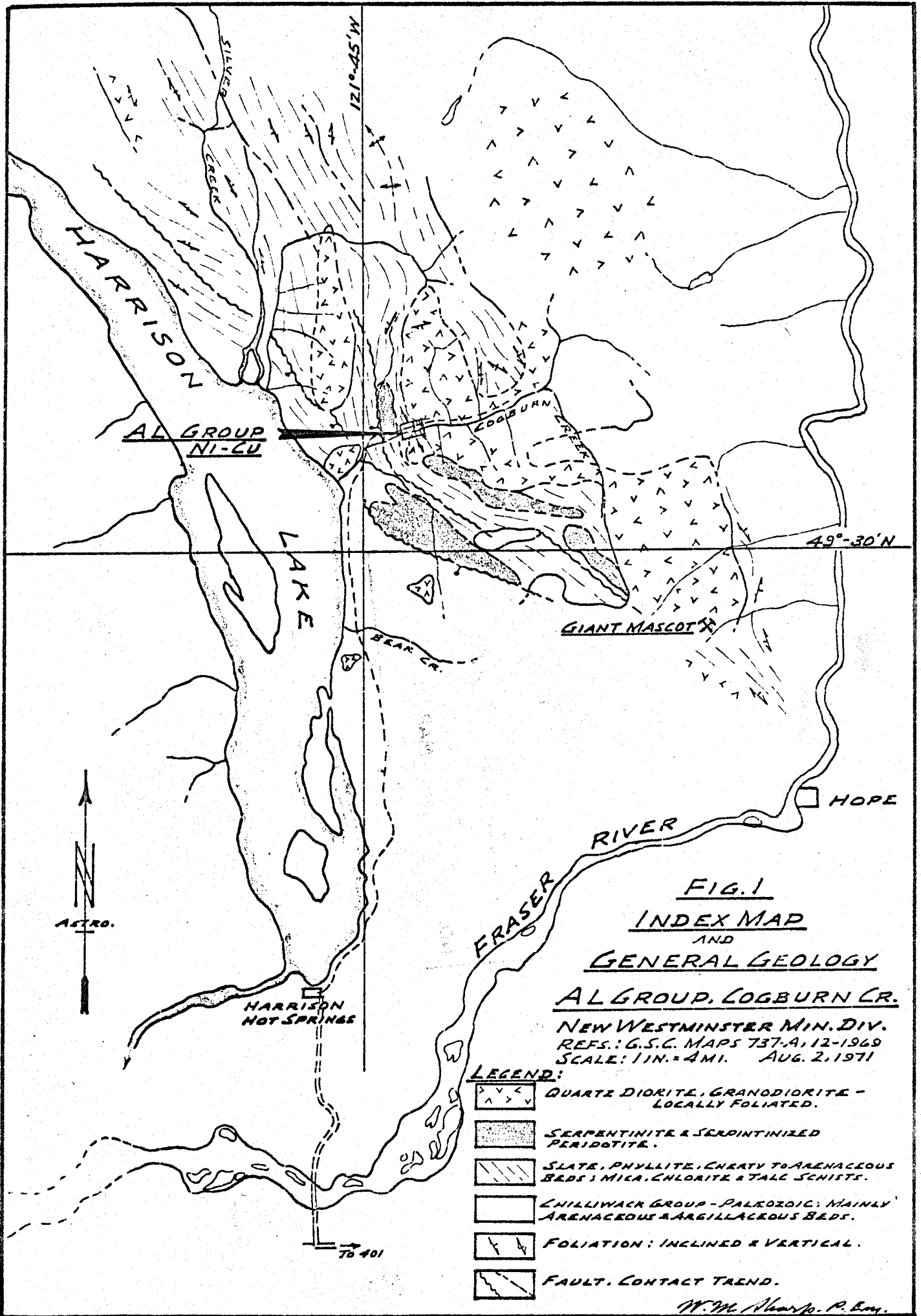
STATUTORY DECLARATION

GEOCHEMICAL LAB. REPORTS

CERTIFICATE OF ASSAY

ILLUSTRATIONS

- 1 Fig. 1 - INDEX MAP & GENERAL GEOLOGY @ 1 in. = 4 mi.
- bound with text.
- 2 Dwg. No. 1 - PRELIMINARY GEOLOGY: Scale, 1 in. = 200 ft.
- in map pocket.
- 3 Dwg. No. 2 - PRELIMINARY GEOCHEMISTRY: Scale, 1 in. = 200 ft.
- in map pocket.



INTRODUCTION

Prior to undertaking actual field work, the writer secured prints of the relevant claim maps and planimetric maps, prepared field-mapping sheets, and researched specific geological and exploration reports pertaining to the Cogburn Creek locality.

The writer and his assistant carried out the geological-geochemical survey of the AL Group during July 7-8, 1971. Soil and mineral samples were submitted to Bondar-Clegg & Company, North Vancouver, B.C. on July 9th. The writer accomplished the subsequent office work pertaining to this report between July 28th and August 6th.

Prospecting of the claims, prior to their acquisition by Western Standard Silver Mines Ltd., resulted in the discovery of massive to disseminated iron sulphides containing significant Ni-Cu mineralization within at least two areas situating closely north of the Cogburn Creek access road. As the Company's principal objectives comprise the fuller delineation of these occurrences and the search for others within the same favourable geological setting, it authorized the writer to examine the property and carry out one years assessment work on the group. On these general terms of reference the writer decided that a reconnaissance geological-geochemical investigation of the three relatively more accessible claims - these lying north Cogburn Creek - would be the most effective way of carrying out this assignment.

The AL Group consists of AL 1-6, inclusive; corresponding record numbers are 23565-23570. B.C. Dept. of Mines records indicate that all claims are in good standing until April 22, 1972 - prior to filing the current geological-geophysical work for one additional year's credit.

Road access from Harrison Hot Springs is via some 25 miles of secondary (logging) northward along the east side of Harrison Lake to Bear Creek Logging Camp; thence via 3-4 miles of road crossing, and leading eastward along the north side of Cogburn Creek.

Continued.....

The claim block straddles Cogburn Creek and over-lies the adjacent steep, heavily-timbered valley slopes. The current area of interest, as regards the known showings and their up-slope and down-slope projections, is within a logged-off section of the north slope of the valley. Foot-travel is less difficult, and ground surveys more effective in this area than in adjacent steeper and more densely forested areas of the group.

Bedrock outcrops over about 10-15 per cent of the area mapped. The local overburden varies considerably in both composition and thickness. Generally, at higher elevations and over the steeper slopes, it consists of 1-10 feet of a relatively loose mixture of sand, clay, and fragments of dislodged bedrock; at lower elevations, in both the main valley and tributary creek channels or draws, it consists of up to 100 feet of compact, unsorted to stratified glacial and fluvioglacial deposits. A layer of well oxidized mineral soil, containing more-or-less organic material, and ranging from a few inches to about 2 feet in thickness, exists over most of the area. The soil layer normally includes a well developed B-zone; therefore soil-sampling, for the detection of Cu and Ni in the underlying bedrock, is adaptable to all but the more heavily drift-covered areas of the group.

FIELD, OFFICE & LABORATORY WORK

A Brunton-tape traverse provided adequate survey control for the limited extent of detailed geological mapping and soil-sampling which could be accomplished within two field days. Vertical-angle readings were taken between stations. Claim posts adjacent to sta's. A2 and A20 were tied into the long, or road-leg of the traverse. Also, all creeks traversed by the survey were mapped. Distances to Cogburn Creek were visually estimated, as were the locations of two visible,

but inaccessible outcrops to the south of it. The lithology of the latter was inferred from float evidence.

The geological-geochemical traverse data were plotted at 1" = 200' on standard squared field-mapping sheets.

Soil samples were taken at, or close to each traverse station, except those situating in areas of deep glacial overburden. Sampling was done with a standard soil-sampling mattock. The brown or yellow-brown soil horizon (B-zone, or its closest equivalent) was sampled by means of a clear plastic spoon - this layer locally occurring within a general range of 4" - 18" below the relatively more organic top layer of soil. The resulting samples were packaged in standard high wet-strength kraft paper bags, and the corresponding traverse station number marked on each bag.

All soil samples were sent to the North Vancouver laboratory of Bondar-Clegg & Company Ltd. for preparation and analysis for total soil-copper and nickel. For this, the samples were dried in "infra-red" ovens on contamination-free aluminum shells, and then screened through an 80-mesh stainless steel sieve - with only the natural-under-size fraction being reserved for analysis. Next, standard (weight) portions of each sample were digested in hot HNO_3 -HCl acid. The resulting solution was then bulked to 20 per cent total acid, and analyzed by atomic absorption - the latter being controlled by comparison with 'matrix' and synthetic standards. The results were reported as parts per million (p.p.m.) of total copper and nickel. The laboratory results are plotted on Dwg. No. 2; all determinations in the currently-inferred anomalous range of 100-plus p.p.m. Ni or Cu are marked in orange pencil. Generally-anomalous areas are outlined in orange, with trends inferred from the local topographic and geologic detail.

Geological mapping comprized the approximate delineation of outcrops, with detailing of the local structural features, lithology, alteration, and mineralization - where visible.

The principal Fe-Ni-Cu sulphide showings were sampled via a series of evenly-spaced chips. The Ni and Cu content of the resulting samples was determined by Bondar-Clegg, using standard wet-analytical procedures.

GENERAL GEOLOGY

Fig. 1 supplements the following text.

This part of the Hope map area is underlain by rocks of the Pennsylvanian-Permian Chilliwack Group. These comprise a mixed assemblage of argillaceous, arenaceous, and limy sediments and generally basic pyroclastic volcanics. Within belts or zones of intense deformation these are represented by slate, phyllite, feldspathic quartzites, recrystallized limestone, and mica, chlorite, or talc schists. Bedding and foliation trends are northwesterly-to northerly-to northwesterly; dips are near-vertical to the northeast and southwest. The general section includes much faulting - mainly on the above-noted trends; it is also extensively intruded by masses of granodiorite and quartz diorite.

Structurally and economically, the most significant geologic feature is the northwesterly zone of shearing, fracturing, and basic-ultrabasic intrusion which traverses the Giant Mascot nickel-copper property and extends northwestward through lower Cogburn Creek, at which point it swings to a more northerly trend. The Cogburn Creek Fe-Ni-Cu sulphide mineralization occurs in this general zone.

LOCAL GEOLOGY

Within the AL group the principal lithologic units (Dwg. No. 1) are, going southwesterly and westerly: even-grained to gneissic quartz diorite, foliated quartz diorite or granodiorite containing

pyroxene and amphibole-rich layers, and a mixed assemblage of chlorite, talc, biotite, and muscovite schist with less altered argillaceous, arenaceous and tuffaceous beds. The average strike and dip of bedding and foliation are about N30°W and 75° N.E., respectively.

The currently-exposed Fe-Cu-(Ni) sulphide mineralization occurs within the foliated quartz diorite panel, within and adjacent to fractured silicified mafic-rich layers. In the sampled exposures chalcopyrite (and minor associated pentlandite) occurs as dispersed grains or clots in relatively massive pyrrhotite and pyrite. Minor occurrences of chalcopyrite were noted within a fractured, silicified 'granitic' dyke or sill. The two chip-samples taken near sta. A0 assayed:

No. 24303 - Cu, 0.28%; Ni, 0.01%
No. 24304 - Cu, 1.10%; Ni, 0.01%

GEOCHEMISTRY RESULTS

In view of the preliminary (reconnaissance) nature of the soil sample survey, and the relatively few samples resulting from it, a statistical analyses of the geochemical data would not be appropriate. However, on the basis of a visual appraisal of the range of soil Cu-Ni concentrations, it appears that 'background' would be in the range of 0-40 p.p.m. total Ni or Cu; similarly, anomalous Ni and Cu values would range upward from 150 and 100 p.p.m., respectively.

Using the above levels three broad, but northerly-converging (Dwg. No. 2) Ni-Cu anomalies are delineated. The center and westerly anomaly appear to be the more significant of the three. In the center anomaly the maximum value for Ni is 560 p.p.m.; Cu concentrations are considerably lower. The currently known Cu-(Ni) mineralization within the east anomaly is reflected by soil-Cu values of 960, 100, 130, and 65 p.p.m.; the corresponding Ni values are 185, 85, 80, and 315 p.p.m.

CONCLUSIONS

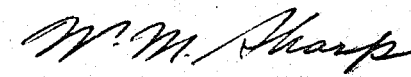
Geochemical soil-sampling appears to be a most effective method for detecting bedrock occurrences of Cu-Ni mineralization within areas of shallow to moderately thick overburden, as evidenced by the positive response obtained in the vicinity of the known exposures.

The easterly anomaly, which includes the exposed sulphides has a road-width of 500 feet; however, it narrows to less than 100 feet within an up-slope distance of 100 feet. Insufficient exploration has been accomplished to determine whether this relates to an decrease in the width of mineralization or is simply due to vagaries of the down-slope drainage and/or dispersion.

Two broad anomalies lying closely west of that described above indicate that similar Fe-Cu-Ni sulphide mineralization occurs within the underlying bedrock or up-slope of the upper leg of the traverse.

The results obtained from the reconnaissance geological-geochemical survey are encouraging. However, the writer would recommend that a significantly larger area be explored via an extended exploration grid before selecting specific areas for trench or drill exploration. The detailed delineation of possible bedrock mineral zones indicated by the expanded survey would be expedited by follow-up magnetic surveys - based on the probably strong response which would result from the predominantly pyrrhotitic matrix of the Cu-Ni mineralization.

Respectfully submitted,



W. M. Sharp, P. Eng.

North Vancouver, B.C.
August 6, 1971

APPENDIX

DATED _____ 19 _____

IN THE MATTER OF

R.C.L. FORM NO. 63

Statutory Declaration



BONDAR-CLEGG & COMPANY LTD.

geologists • geochemists • analysts

1500 PEMBERTON AVENUE, NORTH VANCOUVER, B.C.

PHONE 988-5315

Date Rec'd.- July 9, 1971

GEOCHEMICAL LAB REPORT

No. 21-346

Extraction Cu, Ni, Hot Aqua Regia

From Consulting Geological Engineer

Method Atomic Absorption

Date July 13 19 71

Fraction Used -80 Mesh

Analyst K. B.

SAMPLE NO.	Cu ppm	Ni ppm					REMARKS
A - 0	960	185					
A-0-100-E	130	80					
A-0-100-W	65	315					
A - 1	47	155					
A - 1½	55	155					
A - 2	37	120					
A - 2½	67	80					
A - 3	56	85					
4	91	225					
4½	47	130					
9	65	115					
9½	40	85					
10	68	100					
11	91	195					
12	129	120					
13	108	190					
14	80	195					
15	112	135					
16	93	160					
17	48	90					
18	82	230					
19	86	125					
20	110	70					
B - 1	100	85					
		100					
		100					
		125					
		125					
		60					
		55					
		60					



BONDAR-CLEGG & COMPANY LTD.

geochemists • assayers • analytical chemists

1500 PEMBERTON AVENUE, NORTH VANCOUVER, B.C.

PHONE: 988-5315

TELEX: 04-54554

CERTIFICATE OF ASSAY

TO Mr. W. M. Sharp

Report Number **A 21-359**

171 W. Esplanade

Samples Received **July 9, 1971**

North Vancouver, B. C.

Results Completed **July 15, 1971**

I hereby certify that the following are the results of assays made by us upon the herein described **Ore** samples.

MARKED	GOLD		SILVER	Copper	Nickel						TOTAL VALUE PER TON (2000 LBS.)
	Ounces per Ton	Value per Ton	Ounces per Ton	Percent	Percent	Percent	Percent	Percent	Percent		
Ore											
24303				0.28	0.01						
24304				1.10	0.01						

NOTE:
Rejects retained two weeks
Pulps retained three months
unless otherwise arranged.

Gold & Silver values reported on these sheets
have not been adjusted to compensate losses and
gains inherent in fire assay methods.

Gold calculated at \$.....per ounce

Registered Assayer, Province of British Columbia

CANADA
 PROVINCE OF
 BRITISH COLUMBIA

TO WIT:

In the Matter of Geological and geochemical field exploration done on the AL claim group (rec. no's. 23565D-23570D incl., New Westminster Mining Division for Western Standard Silver Mines Ltd. (N.P.L.) between July 6th and July 9th, 1971 and subsequent map and report preparation to August 6, 1971.

J. William M. Sharp, P. Eng., B.C.
 of 171 West Esplanade Avenue, North Vancouver

in the Province of British Columbia

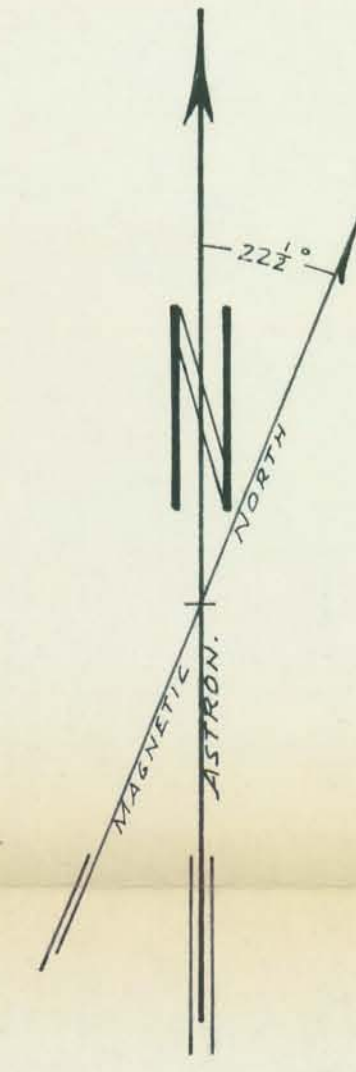
do solemnly declare that the following is an accurate estimate of time and costs involved in the above field exploration and relevant office engineering work:

Consultant Fees, W. M. Sharp, P. Eng.:			
Field, 2 days @ \$125.00.....	\$250.00		
Office, 4 days @ \$ 75.00.....	\$300.00		\$550.00
			<u> </u>
Direct Expense, W. M. Sharp, P. Eng.:			
Geochemical Analyses, Inv. #1011/1085....	\$ 74.80		
Ore Analyses, Inv. #1032.....	\$ 15.00		
Pretty Timber Co. Ltd., accom. July 8....	\$ 15.00		
Car rental, July 7-8.....	\$ 34.60		
Map prints, 4 sets of 3 tracings.....	\$ 4.00		\$143.40
			<u> </u>
Wages:			
S. Fegan, Vancouver, B.C.			
Field Assistant July 7-8, 1971			
2-10 hour days @ \$40.00.....		\$ 80.00	
			<u> </u>
	TOTAL.....		<u>\$773.40</u>

AND I make this solemn declaration, conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath, and by virtue of the CANADA EVIDENCE ACT.

DECLARED before me at
North Vancouver in the
 Province of British Columbia, this
 7th day of August
 A. D., 1971.

W. M. Sharp



LEGEND:

- 1 [Symbol] MASSIVE QUARTZ DIORITE AND GRANODIORITE
- 2 [Symbol] FOLIATED QUARTZ DIORITE AND GRANODIORITE. Loc. QUARTZ/FELDSPAR/HORNBLende GNEISS.
- 3 [Symbol] MIXED SCHIST AND ALTERED SED. VOLC. ROCKS.
- 4 [Symbol] SCHIST AND PHYLITE
- 5 [Symbol] ALTERED (INCL. TALC OR SERICITE) PYROXENITE OR AMPHIBOLITE.
- 6 [Symbol] SILICEOUS-FELDSPATHIC INTRUSIVES OR ALTERATION
- 7 [Symbol] DENSE PYRRHOTITE-PYRITE WITH CU-NI SULPHIDE REPLACEMENTS.
- 8 [Symbol] STRIKE AND DIP OR FOLIATION, SCHISTOSITY (AND, LOCALLY, BEDDING?).
- 9 [Symbol] UNSORTED & STRATIFIED DRIFT; 50' HEIGHT OF ROAD-CUT IN DRIFT.
- 10 [Symbol] SURVEY STATION (BRUNTON-TAPE).
- 11 [Symbol] OUTCROP LINE OR EDGE.

3580 M-2

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 3580 MAP #2

MAP TO ACCOMPANY GEOLOGICAL AND GEOCHEMICAL REPORT ON THE AL GROUP ON COGBURN CREEK, NEW WESTMINSTER MINING DIVISION, DATED AUG. 6, 1971.

W. M. SHARP, P.Eng.	CONSULTING GEOLOGICAL ENGINEER NORTH VANCOUVER, B.C.
WESTERN STANDARD SILVER MINES LTD. (N.P.L.)	
COGBURN CREEK NICKEL-COPPER PROSPECT NEW WESTMINSTER MINING DIVISION, B.C.	
PRELIMINARY GEOLOGY	
FIELD WORK: JULY 7-8, 1971.	
Scale: 1 in. = 200 ft.	Dwn. by: W. M. Sharp Date: Aug. 2, 1971
Revision:	Dwg. No. 1