

R. H. SERAPHIM ENGINEERING LIMITED
GEOLOGICAL ENGINEERING

3239

Telephone: Office 685-2914
Res. 224-7309

316 470 GRANVILLE STREET
VANCOUVER 2, B.C.

GEOLOGICAL REPORT

on

AL CLAIM GROUP

QUASH CREEK

LIARD M.D.

held by

SILVER STANDARD MINES LTD.

808-602 WEST HASTINGS ST.

VANCOUVER, B.C.

by

R.H. SERAPHIM, Ph.D. P.Eng.

Sept. 14, 1971.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 5299 MAP

104 G / 9W
16W

CLAIMS

Al 1 to 12 inc.
Bud 1 to 11 inc.
Neet 59 to 62 inc.
Rex #3 Fr.

RECORD NO's

49720 to 49731
51060 to 51070
51294 to 51297
53023

LOCATION

On tributaries of Quash Creek and Kakiddi Creek,
three miles northeast of Nuttlude Lake and at 57°130' N.E.

Dates - June 6 to September 6, 1971.

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SUMMARY AND CONCLUSIONS

The geological survey has shown that the several occurrences of low grade copper mineralization are in an east to northeast trending zone. They are co-incident with and probably associated with a belt of faulting, folding, and small intrusives. A set of northwest striking shear zones may provide a secondary control which locates the position of the copper mineralized bodies within the belt. Some of these northwest striking shear zones would meet the major structure in overburdened areas in the floor of cirques. These overburdened areas could be tested initially by induced polarization surveys.

INTRODUCTION

The A1 group was located during 1970 and 1971 to cover a number of copper occurrences located by visual prospecting. Some of the claims in the eastern part of the group are known to be in conflict with claims recorded by others.

Both regional and detailed geology were completed to determine the environment and nature of the mineralization and a large number of chip samples were cut to determine the grade. The location of the samples and their grade is shown on the detailed geology map. The author has personally inspected most of the mineralized outcrops, as well as reconnoitering the area in general with the project geologist, and has also studied the aerial photographs.

LOCATION, ACCESS, AND TOPOGRAPHY

The attached map shows the location of the claim group, relative to the Stewart-Cassiar Highway. The claims lie three miles northeast of Nuttlude Lake. Current access is by foot, horseback, or helicopter. The area is moderately rugged, but almost all of the valley bottoms are easily traversable. A few cliffs and glaciers make local access difficult, but the abundant float derived from these makes prospecting and mapping practicable.

SURVEY METHOD

The regional geology is based primarily on aerial photographs blown up to approximately 750 feet to the inch. The relief in the area, approximately 3000 feet, gives considerable distortion. A claim location line survey by McElhanney Associates, B.C. Land Surveyors, was completed, and is also used for geological control. The detailed map (40 ft to 1 inch) was based on a chain and compass survey.



10mi = 1in. 57° 130'

REGIONAL GEOLOGY

The region has been mapped by the Geological Survey and shown on Map 9, 1957 "Stikine River Area" at 4" = 1 mile. It was also mapped at two miles to 1 inch by J. Souther and is the subject of a recent open-file release.

The rock types on the claim group are volcanics with minor sediments, and dioritic intrusives with several phases. The volcanics range from rhyolitic to basaltic, and are predominantly andesites typical of the Triassic 'Takla' Group. The volcanics include coarse-grained crystal tuffs, aphanitic andesites, augite porphyry, and pyroclastic or flow breccias. The pyroclastic and flow breccias show no determinable bedding, but some outcrops which are probably water-lain tuffs show excellent bedding.

Most of the intrusives have been mapped as hornblende diorite, hornblende monzonite porphyry, quartz porphyry, and quartz monzonite. Minor intrusives include basalt dykes and feldspar porphyry basalt dykes. The larger bodies of hornblende diorite are relatively fresh, grey colored, with abundant hornblende and minor biotite. The quartz monzonite is slightly pink, medium-grained, and contains hornblende and biotite in approximately equal proportions. The hornblende diorite and quartz monzonite appear to grade into each other in some areas.

The volcanics which lie on the north valley wall of Potter Creek strike in general east-west and dip steeply north. Near the head of Potter Creek, and further easterly

on Henry Creek the bedding is strongly disrupted by the intrusives and by a number of fault zones. A major zone of faulting trends easterly, and appears to provide the major control to the mineralization. A number of minor north-westerly trending faults are locally strongly pyritized, and in places carry chalcopyrite and sphalerite. These minor faults might provide the secondary control which localizes the individual areas of mineralization.

LOCAL GEOLOGY AND MINERALIZATION

The intrusives and volcanics near the mineralized areas are strongly altered. The hornblende and biotite are strongly chloritized, the feldspars are saussuritized, silicification and quartz veining is locally strong, and pyrite is widespread, both as veinlets and as disseminations.

Chalcopyrite is most abundant in the hornblende diorite, particularly in the areas of strong silicification and quartz veining. The chalcopyrite in the volcanic rocks is less abundant and, in the basin of Henry Creek cirque and on the ridge east of Henry Creek, may be related more to the individual fault zones.


The showing which is mapped and sampled in detail (see 40 scale map) contains several very irregular hornblende diorite dykes which strike easterly. The dykes are offset by faults striking N 60 deg E. The exposures are intensely shattered and altered with up to 10% quartz. Chalcopyrite occurs in both the altered hornblende diorite and in the

silicified andesitic volcanics. More than one hundred chip samples assayed from 0.02% to 0.54% Cu, and one sample assayed 1.06% Cu. Most of the samples assayed in the range of 0.1% to 0.2% Cu.

The mineralized rocks are oxidized and malachite stained, and some of the sulfides have undoubtedly been leached. However, the amount of leaching is not, in the writer's opinion, sufficient to expect a substantial upgrading in fresher rock.

The most attractive area for further exploration on the prospect appears to be in the basin of Henry Creek cirque. The group of mineralized northwest trending minor fault zones should intersect the east-west trending major structure in this cirque basin. The area near these intersections could be tested initially by an induced polarization survey.

September 14, 1971.


R.H. Seraphim, Ph.D. P.Eng.

APPENDIX A

STATEMENT OF COSTS

Salaries (see Appendix B)	\$ 4,541.00
Helicopter Support - 20 trips @ 45 min @ \$130/hr.	1,950.00
Assays	556.50
Camp and Equipment	
Total	<u>\$ 7,047.50</u>

R. H. Gray, Jr.

APPENDIX B

FEES, SALARIES, AND WAGES

<u>Personnel</u>	<u>Position</u>	<u>Rate/day</u>	<u>Days</u>	<u>Total</u>
K. Buchanan	geologist	\$ 46.66	June 7-29 = 23 Aug. 18-29 = 12 July 1-8 = 8 <u>43 @ \$46.66 = \$2,006.00</u>	
H. Quack	sampler & assistant	\$ 30.00	June 12-27 = 16 July 1-15 = 15 <u>31 @ \$30.00 = \$ 930.00</u>	
R. Quack	sampler & assistant	\$ 30.00	June 18-27 = 10 July 1-2 = 2 <u>12 @ \$30.00 = \$ 360.00</u>	
B. Mills	sampler	\$ 25.00	June 15-22 = 8 @ \$25.00 = \$ 200.00	
A. Potter	assistant	\$ 30.00	June 12-13 = 2 @ \$30.00 = \$ 60.00	
J. McAusland	supervisor	\$ 55.00	June 6, 8, 14, 16, 17, 20, 23, 24, July 3, 9, & 10 (part days only) <u>Total 7 @ \$55.00 = \$ 385.00</u>	
R.H. Seraphim	consulting geological engineer	\$100.00	July 13-16 Sept. 5 & 6 = 6 @ \$100.00 = \$ 600.00	
			Total	<u>\$4,541.00</u>

R.H. Seraphim

APPENDIX C

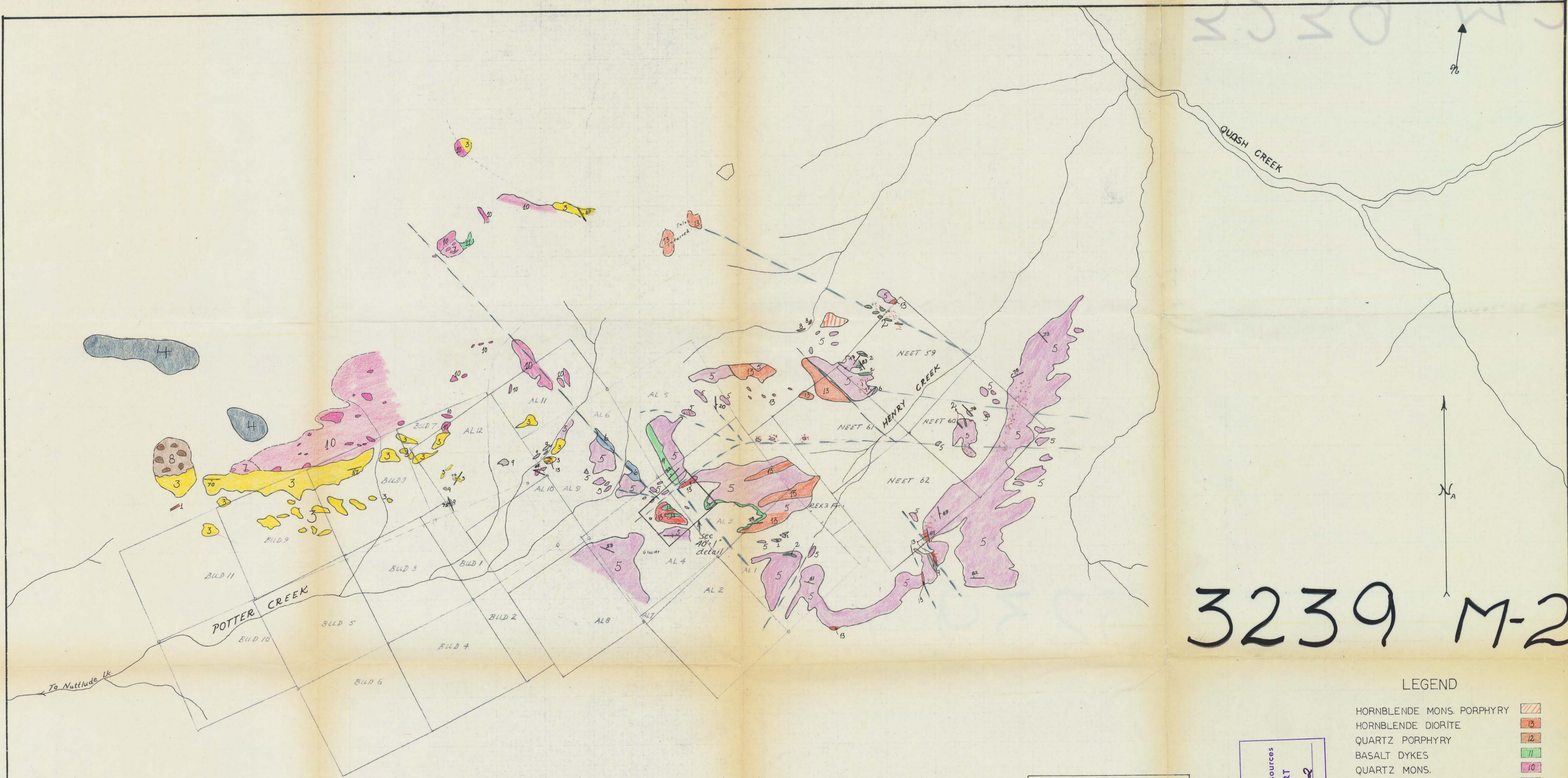
OPERATORS QUALIFICATIONS

Mr. Kelvin J. Buchanan, a geologist for the subject geological survey, is a graduate of the University of British Columbia with a Bachelor of Science degree in geology. He attended that University from 1961 to 1964, and again in 1970-71.

He was assistant geologist at Canada Tungsten Mining Co., N.W.T. from May to September in 1966; at Eldorado Nuclear Ltd., Eldorado, N.W.T. from October 1966 to December, 1967; and at Indusmin Ltd., Nepton, Ontario from January 1968 to September 1968.

He was geologist and party chief in oil surveys for Overland Exploration Ltd., in Northern Alberta from September 1968 to May 1970. Subsequently, he worked as an exploration geologist for Hecla Mining Co., at the Schaft Creek project in the Stikine Area in the 1969 and 1970 seasons. He spent the 1971 field season working for Silver Standard in the Stikine Area.





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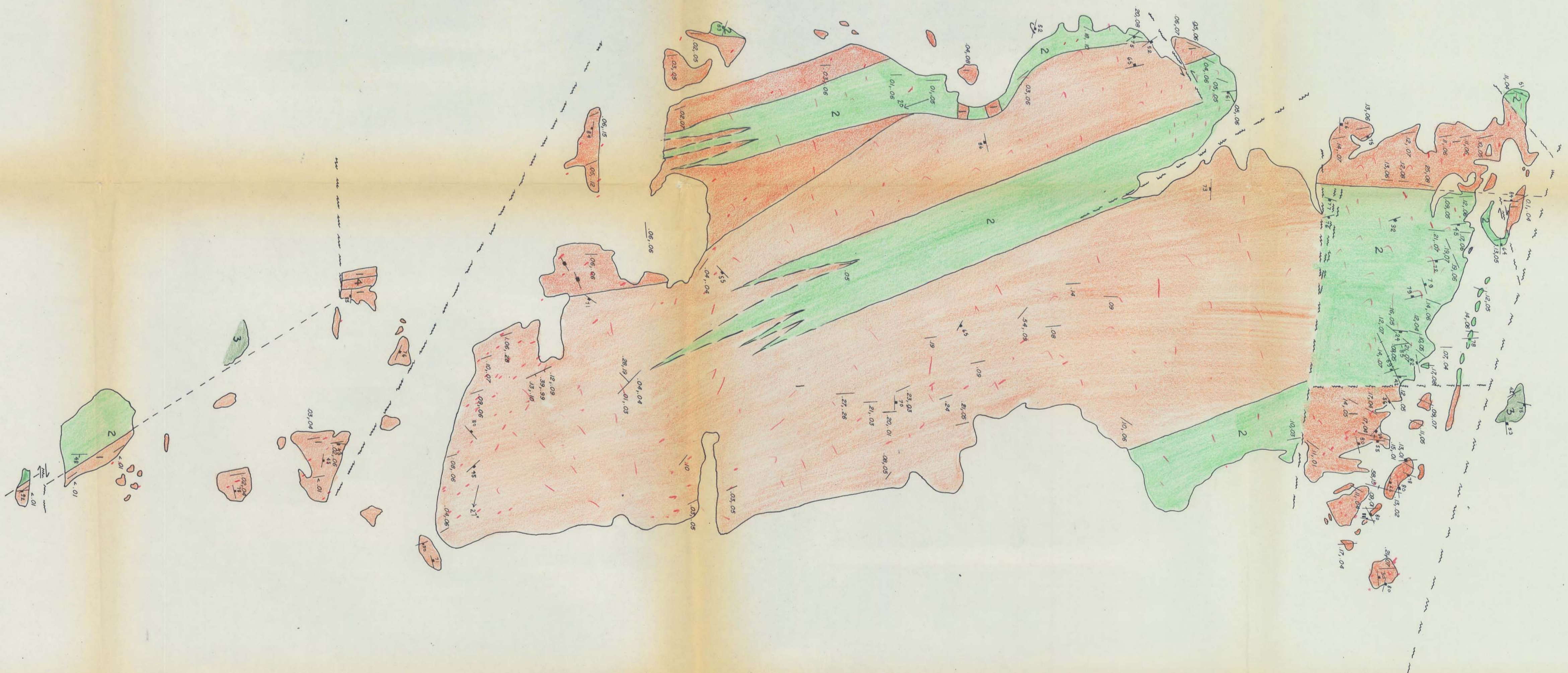
REGIONAL GEOLOGY	
SARC PROJECT	AL GROUP
SCALE: 1" = 750'	AUG. 22/71
DRAWN BY	KJ. BUCHANAN
APPROVED	R.H. SERAPHIM

To accompany geological report
 by R.H. Seraphim P.Eng. on
 the Al group on Quash Crk.
 Laird M.D. dated Sept 14, 1971
R.H. Seraphim

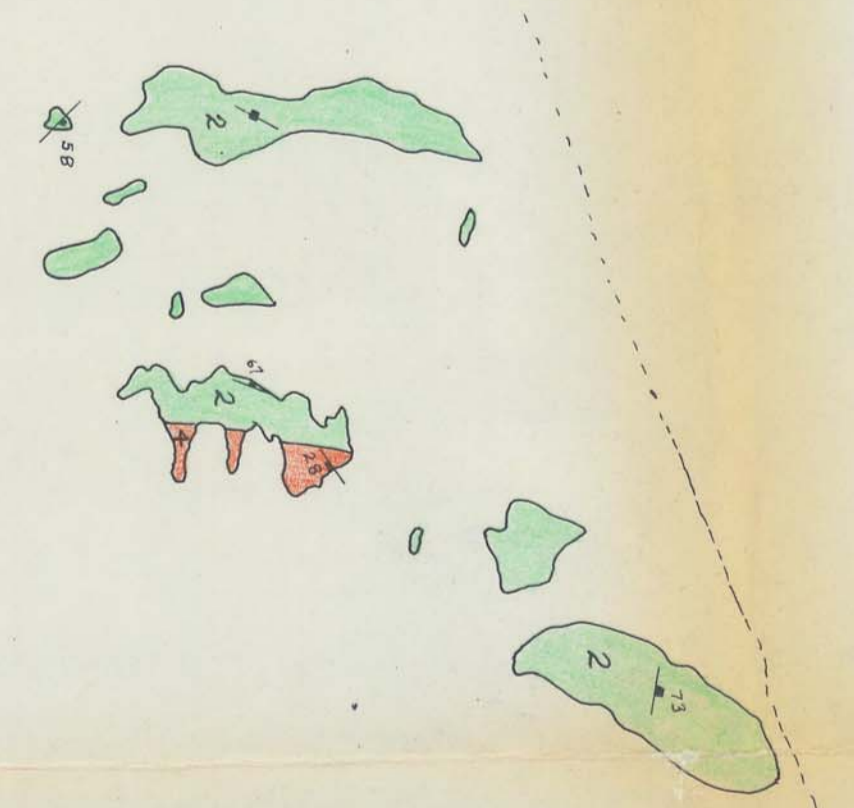
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 3239
 MAP #2
 NO. 72

LEGEND

- HORNBLLENDE MONS. PORPHYRY [15]
- HORNBLLENDE DIORITE [13]
- QUARTZ PORPHYRY [12]
- BASALT DYKES [11]
- QUARTZ MONS. [10]
- ANDESITE [9]
- FELDSPAR PORPHYRY BASALT [8]
- CRYSTAL TUFF [7]
- FRAGMENTAL TUFF [6]
- LITHIC TUFF [5]
- LIMESTONE [4]
- VOLCANIC SANDSTONE [3]
- CHERT, SILTSTONE [2]
- INTRUSIVE DYKES [1]
- GOSSAN [10]
- AUGITE PORPHYRY [11]
- COPPER MINERALIZATION [12]



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 Map 2239

LEGEND

- 1-1 HORNBLENDE DIORITE
- 2-2 CHERT SLTSTONE
- 3-3 PYROCLASTICS
- 4-4 INTRUSIVE DIKES
- 5-5 COPPER MINERALIZATION

SILVER STANDARD
 SARC IAL GROUP
 GEOLOGY (date)
 SCALE 1:40
 PREPARED BY K.L. BUCHANAN
 APPROVED BY R.H. SERAPHIM

To accompany geological
 report by K.L. Seraphim along
 on the 21 group on Quach
 Co. land M.B. Sept 14, 1971