83-#625 - 11505

# GEOLOGY & GEOCHEMISTRY

of the

ROD #2 MINERAL CLAIM

RECORD NO. 2966

SLOCAN MINING DIVISION

NTS. 82K/4W

for

SUTHERLAND RESOURCES LTD.
1440 - 625 Howe Street
Vancouver, B.C.

By: Coastal Mountain Engineering Ltd.
3626 West 1st Avenue
Vancouver, B.C.

D. Copeland, P.Eng.

August 1983

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## I. INTRODUCTION

This report, prepared at the request of Sutherland Resources Ltd., describes the geology and exploration techniques used on the subject property.

A review of all data on hand, and at the Geological Survey of Canada library was carried out.

Property mapping and geochemical sampling were carried out by the writer and by Herb Wahl,P.Eng.

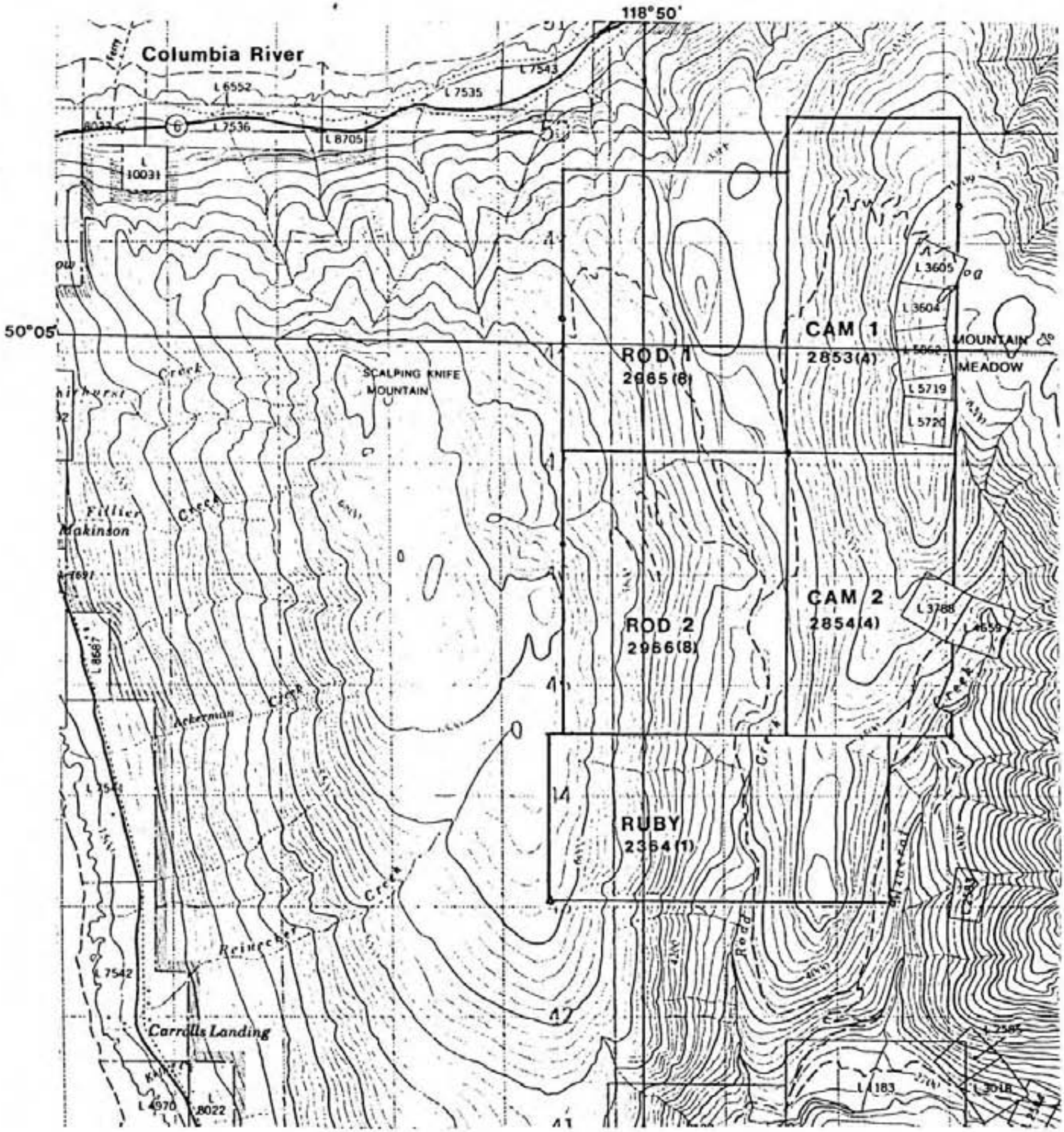
## II. PROPERTY

Sutherland Resources Ltd. holds a mineral claim, (Rod 2) record no. 2966, consisting of 20 units totalling 500 hectares in the Slocan Mining Division, Kootenay Land District, of British Columbia.

The claim was originally staked by Zenco Resources Inc., title then passed to S.P. Claridge and thence to Sutherland Resources Ltd.

## III. Location and Access

The property is located approximately 5 km. northeast of Carrolls Landing on Arrow Lake, map no. 82K/4W, (see Figure 1). Access is readily possible via Highway No. 6 to Carrolls Landing from Nakusp and thence 4.3 km. south to Burton. From Burton one proceeds up the Caribou Creek logging road and thence up the Rodd Creek logging road to the southern boundary of the property, a distance of some 14 km. from Burton.




**SUTHERLAND RESOURCES LTD.**
**KOOTENAY LAND DISTRICT**
**SLOCAN MINING DIVISION**
**BRITISH COLUMBIA**

**Scale 1:50,000**

**Figure 1**

**NAKUSP**
**82K/4**

## IV. PHYSIOGRAPHY

The property is located regionally within the Selkirk Mountains group, which is a subdivision of the Columbia Mountains. The property area occupies the southeast slope of Scalping Knife Mountain. Elevations on the property range from 1,250 m. along the eastern edge to 2,030 m. on the western edge.

The climate is moderate. Temperatures extend from a mean of -7 °C in January to 18°C in July with daily ranges of 6° to 17°. The annual rainfall is about 63.5 cm; the maximum rainfall is in December (10 cm) with another peak in June, and minimums are in April and late July (3 cm). Rainfall is appreciably higher in the mountains and temperatures are lower.

The area is forested with spruce, red cedar, balsam and minor fir and hemlock. In the lower portions of the drainages, aspen, cottonwood and birch can be found.

Most of the claim area has been logged, resulting in good access via old logging roads.

## V. HISTORY

The existing property has had no recorded work done on it prior to this time. However, the nearby surrounding area saw prospecting efforts begin in the late 1890's and continue sporadically until 1929. Numerous small ore shipments were made to Rossland, however, there is little on record of significant work since that time.

The following is a brief summary of properties in the immediate area, (see Figure 3 ):

Poorman: Located west side of Bluegrouse Creek, 1 mile north of "Dusty's Ranch" (??). Small lenses of lead and zinc sulphides in graphitic shear zone. Assays (grab) Au 0.44 oz/t, Ag 16.6 oz/t, Pb 3%, Zn 11%.

Silver Queen: Development 400 to 500 feet tracing quartz veins in slates. Sample from dumps Au 0.04 oz/t, Ag 28.5 oz/t, Pb 2.7%, Zn 2.6%. Second showing, quartz veins 8 to 10 feet wide in quartzites.

Sample #1, dump: Au 0.08 oz/t, Ag 11 oz/t, Pb 1.30%, Zn 1.5%

Sample #2, dump: Au 0.06 oz/t, Ag 22.7 oz/t, Pb 2.10%, Zn 4.2%

Eureka: Three adits driven on graphitic shear zone, no assays reported.

Millie Mack: Extensive development and minor ore shipments. Broken quartz vein in graphitic shear at contact (thrust fault) of graphitic slates and andesite. Slates cut by syenite porphyry dikes. Quoted average of shipments prior to 1918: Au 1.55 oz/t, Ag 110 oz/t, Pb 11.7%, Zn 8.0%.

Chieftan Group: Located opposite Millie Mack Mine. Quartz vein in slates and quartzites. Assays: Grab of sorted ore - Au 1.32 oz/t, Ag 8.6 oz/t.

Cuts Across Vein:

Sample #1 13": Au 0.24 oz/t, Ag 5 oz/t, Zn 1%

Sample #2 14": Au Tr, Ag 296 oz/t, Pb 0.5%, Zn 2%

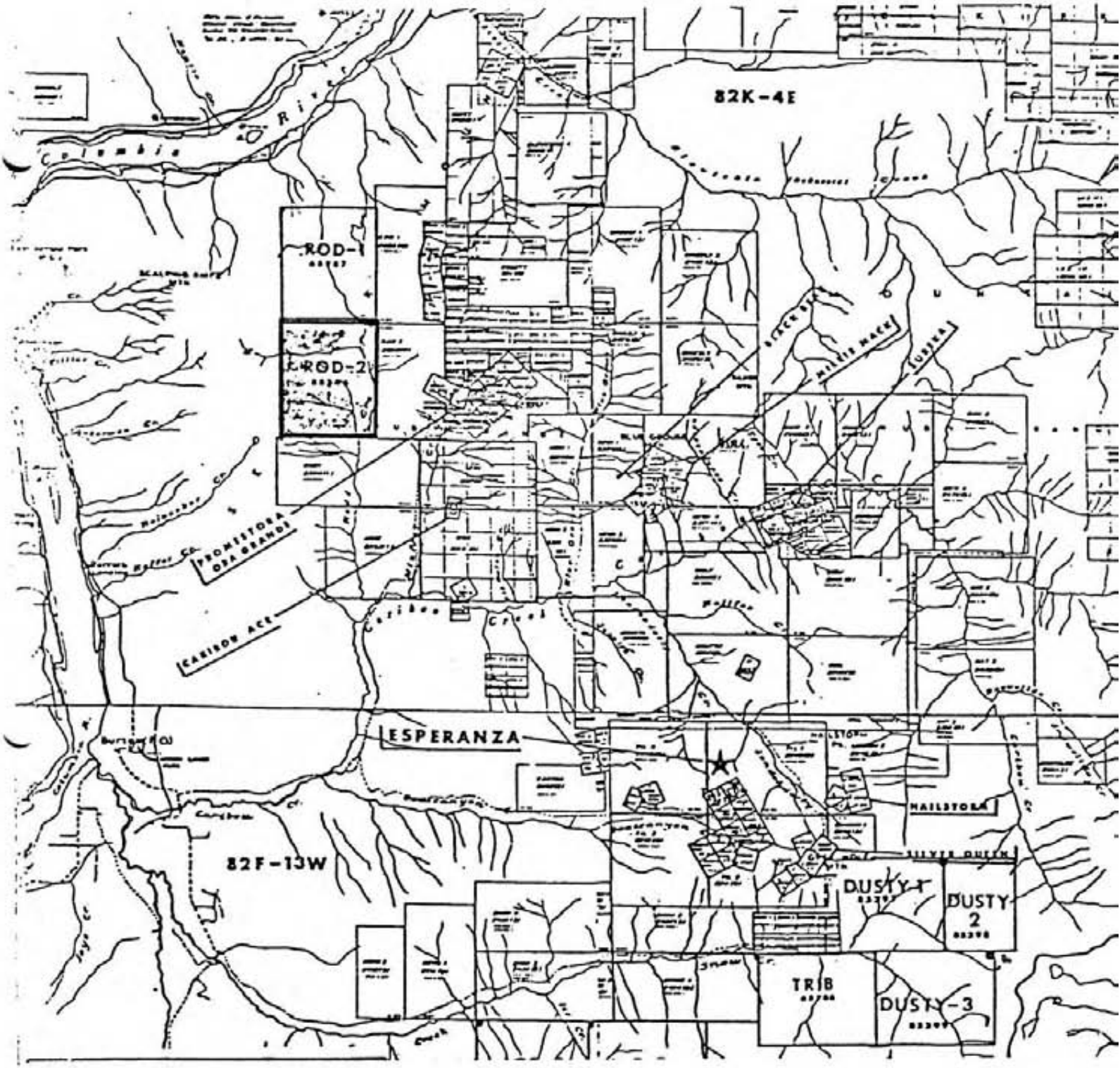



FIGURE 2

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Scale
0 4000
Meters

Promestora: Quartz vein. Assays: Grab of small dump - Au 0.30 oz/t, Ag 0.40 oz/t.

Hailstorm: Underground development by Cominco in 1929. Argentiferous calcite showing? Assays: Surface cut across 25 feet - Avg. 20 oz/t Ag.

Little geological data is available for the above prospects, but it appears that most are of the quartz-vein shear zone type. It is interesting to note that most of these properties are in volcano-sediments with nearby volcanic flows.

La Teko - Esperanza, Tillicum Mountain Property: This property, originally located by Mr. and Mrs. Gustafson, is actively being drilled by La Teko - Esperanza. A drill indicated reserve of 40,000 tons grading 0.6 oz. gold in a strata-bound setting has been outlined.

The mineralization is located in a metavolcanic sequence of Kaslo rocks in contact with metasedimentary rocks of the Milford Group.

The host rocks in the "Money Pit" consist of calc-silicates and biotite-garnet-amphibolite schists.

Rocks within the vicinity of the "Money Pit" consist of argillites, amphibolites and metamorphosed porphyrites.

The rocks as seen by this writer definitely exhibit pre-metamorphic textures and compositions indicating that they were andesites, tuffs, porphyries and sediments.

Mineralization consists of native gold, sphalerite, phyrrhotite, galena, pyrite and minor arsenopyrite. The sulfides are generally concordant to bedding and foliation, but also occur in cross cutting fractures and discordant silica bands.

This writer favors a mode of occurrence for the mineralization that suggests an exhalitive volcanogenic origin.

## VI. PURPOSE OF WORK

The Rod No. 2 claim is located in a similar geologic environment as the Tillicum Mountain gold property.

Sutherland Resources Ltd. requested that Coastal Mountain Engineering Ltd. carry out prospecting, geological mapping and geochemical sampling in an area of the claim block that would offer the most potential.

Based on available regional geology, area access, and knowledge of the Tillicum Mountain area it was felt that the northern portion of the claim block would be a target.

## VII. GENERAL GEOLOGY

The Rod 2 claim is located in the contact zone between the high grade metamorphic rocks belonging to the Milford group and Kaslo group.

The northern and western portion of the claim area cover Kaslo group rocks with the Slocan group and intrusive stocks being covered on the east.

The various rock "Groups" are represented by the following; (after D.W. Hyndman, G.S.C. Bulletin 161).

Milford Group (Pennsylvanian to Triassic)

These are fine-grained pelitic schists, with widespread occurences of calc-silicate rich rocks. The Amphibolite band west of Rodd Creek is bordered on the north by fine-grained, thin-bedded, calc-silicate bearing metasediments designated Unit 6B by Hyndman followed by fine-grained pelitic schists designated Unit 6A by Hindman and in turn, by a thinner layer of Unit 6B.

Kaslo Group (Triassic)

Kaslo Group rocks are somewhat finer grained and lower in metamorphic grade. The rocks are made up of generally schistose, green, altered volcanic flows, pyroclastic deposits, and tuffaceous sediments associated with sheets, dykes, plugs and laccolithic masses of related intrusives. West of lower Mineral Creek, to the ridge crest west of Rodd Creek, is a 600 to 700 - meter- thick band of amphibolite, which is tentatively correlated with the Kaslo Group. (Caines, 1934).

Slocan Group (Triassic and Lower Jurassic)

The Slocan Group in this area has quite a different lithology from the phyllites of the Slocan Lake - Kootenay Lake areas.

The rocks north of Caribou Creek, and along the east side of Rodd Creek, consist of, in upward succession, phyllite and slates, designated as Unit 10A, argillites, shales and siltstones designated as Unit 10B, and a series of grey-green volcanic rocks consisting of tuffs that are designated as Unit 11 by Hyndman.

Intrusives

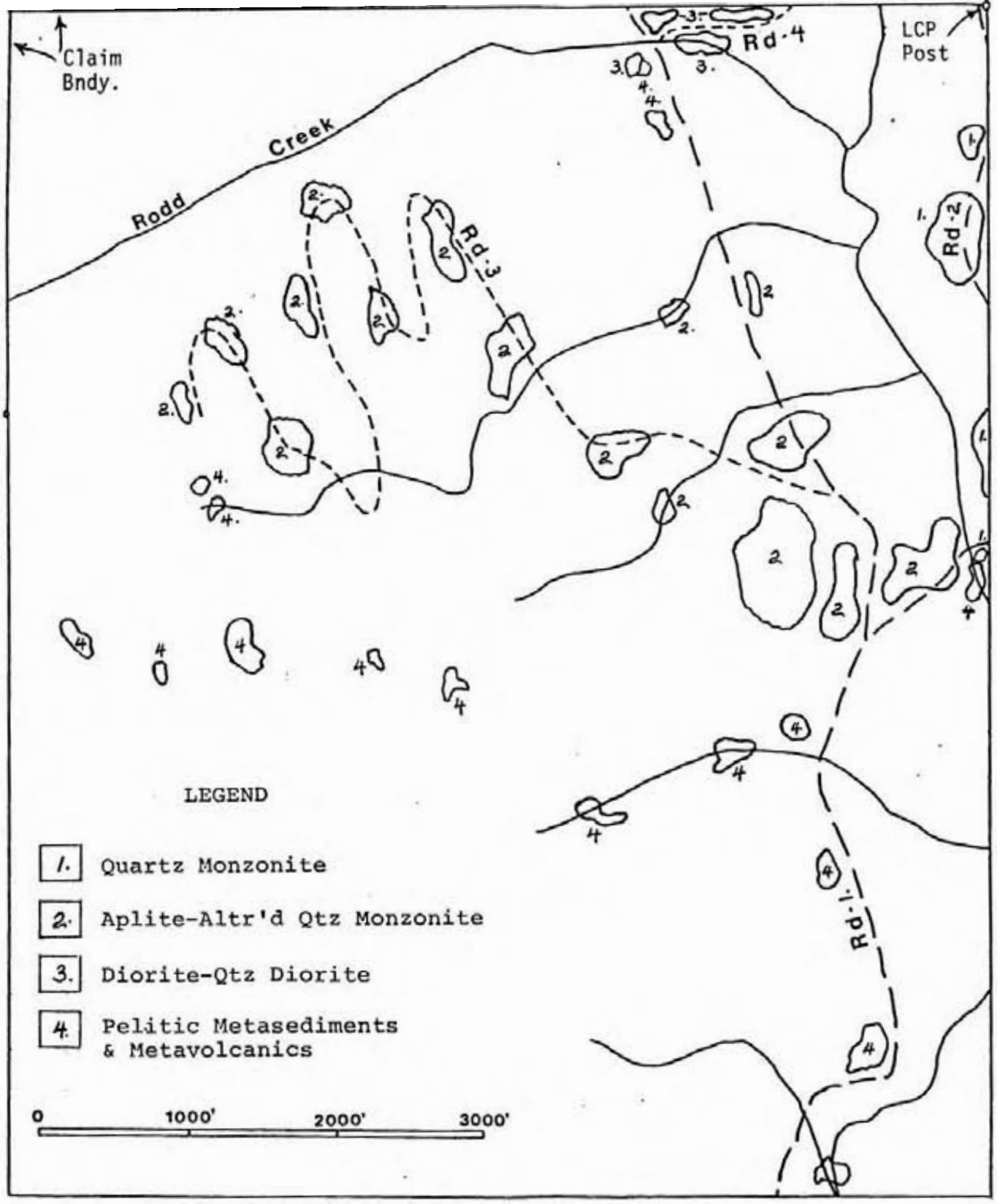
The Ruby Range Stock is found to border on the eastern boundary of the claim group. On a regional basis the intrusive varies from a quartz monzonite to a quartz diorite.

PROPERTY GEOLOGY

The property was mapped on a scale of 1:12000 by traversing north-south along logging roads and east-west along secondary logging roads.

Positioning was done with the use of air photos and by tape and compass from the first left hand tributary of Rodd Creek above the logging bridge crossing Rodd Creek.

Rock out crop is good, exposure being as much as 55% in the north east section bounded by Road 2 and Rodd Creek.

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Scale 1:12,000

Legend

— — loose surface road

- - - cart track

creek

Figure 3

The rocks in this area vary from quartz-diorite to quartz-monzonite within a distance of 300 meters moving north to south.

As one moves westward down into Rodd Creek the rocks become monzonitic. Texturally as one moves westward the rocks are porphyritic with a hypidiomorphic-granular groundmass. Potassium feldspar forms the porphyries where present and where observed, were half inch by on inch. Fine grains of yellowish-green epidote were seen in some localities as was chlorite alteration.

The only contact observed was with an argillite sequence of the Slocan Group. The contact is concordant and sharp with a minor chilled appearance.

Continuing along the eastern edge but south of Road No. 2, in Rodd Creek the rocks become pelitic schists.

Quartz seems to dominate, although muscovite and biotite are visible. The rocks tend to be colored reddish brown to black and have good schistosity. No contacts with other rock types were observed.

The most dominate rock type seen in the area was Aplite. This occupies the central portion of the claim group from the junction of Road 1 and 2 in the south, north to the claim boundary. Eastward it is observed in Rodd Creek and westward, 1000 metres up Road No. 3., (see map).

Several locations were seen where the quartz-monzonite grades into an Aplite. The Aplite tends to be very altered with limonite, goethite and K-feldspar turning to clay- Pyrite is very frequent, occuring in fractures and as disseminations. The rock tends to be leucocratic, contains a high proportion of quartz and is strongly foliated.

The foliation direction matches that of the schistosity seen in the pelitic schists.

This area, as mapped differs from the regional designation as given on Hyndman's map. It would appear that this area is the last stage crystallization and mainly silicates were left. Or, if the porphyries are flows, this zone could represent the leading edge of a tongue.

A third alternative is that, this rock type is the same as Hyndman's Unit 13, leucocratic quartz monzonite, that is found on the north face of Scalping Knife mountain. Time did not permit an examination; however, the age of the enclosing Monashee rocks would seem to preclude this.

North of this area, near the claim boundary and along Road No. 4, course grained diorite was encountered. The diorite can be quartz rich and is grey to dark brown in color. Mafic minerals vary from 15% - 20%. The outcrops are generally massive and coarse-grained, the mafics tend to exhibit weak foliation.

Contact margins between the diorite and aplite were not found, although the two are close at hand. At one location along Road No. 1, near the left tributary of Rodd

creek the quartz diorite was seen to be in contact with fine grained silicious pelitic schist.

At another location, on Road No. 4, the quartz-diorite contains a series of pyrite rich quartz-veins. The veins are 7 - 10 cm wide, and form discontinuous networks. Extensive limonite staining and weathered-out pyrite was observed.

In the central north-west quarter of the claim block rock outcrops of meta-volcanics, and metasediments were observed. Close examination enabled the writer to determine the pelitic schists of the Milford Group but the location and rock types would not permit distinguishing weather the Kaslo metavolcanics were observed or rather volcanics of the upper Milford Group were seen.

The Pelitic schists are light-grey to black in color, have variable thicknesses of banding, several centimeters up to 30 centimeters, and schistosity is generally inclined $70^{\circ}$ - $90^{\circ}$ to the north-east. In places the outcrops weather to a very rusty red color and pyrite can be seen in fractures.

## VIII. GEOCHEMISTRY

All the drainages were silt sampled as water run-off can be considered high. In some cases, the slightly organic material was sampled along with the silt fraction to see if there was any significant difference or pattern.

All samples collected in the field were dried, sorted and sent to Bondar-Clegg & Co. Ltd. for analysis.

Bondar-Clegg dried the material again, sieved it to minus 80 mesh and tested the samples for the following elements in the following manner:

| ELEMENT | EXTRACTION | METHOD |
|---|---|---|
| Cu | HNO3-HCL hot extract. | atomic absorption |
| Pb | HNO3-HCL hot extract. | atomic absorption |
| Zn | HNO3-HCL hot extract. | atomic absorption |
| Ag | HNO3-HCL hot extract. | atomic absorption |
| As | nitric perchloric digestion | colourimetric |
| Au | aqua regia | fire assay AA |
| Sb | | x-ray fluorescence |

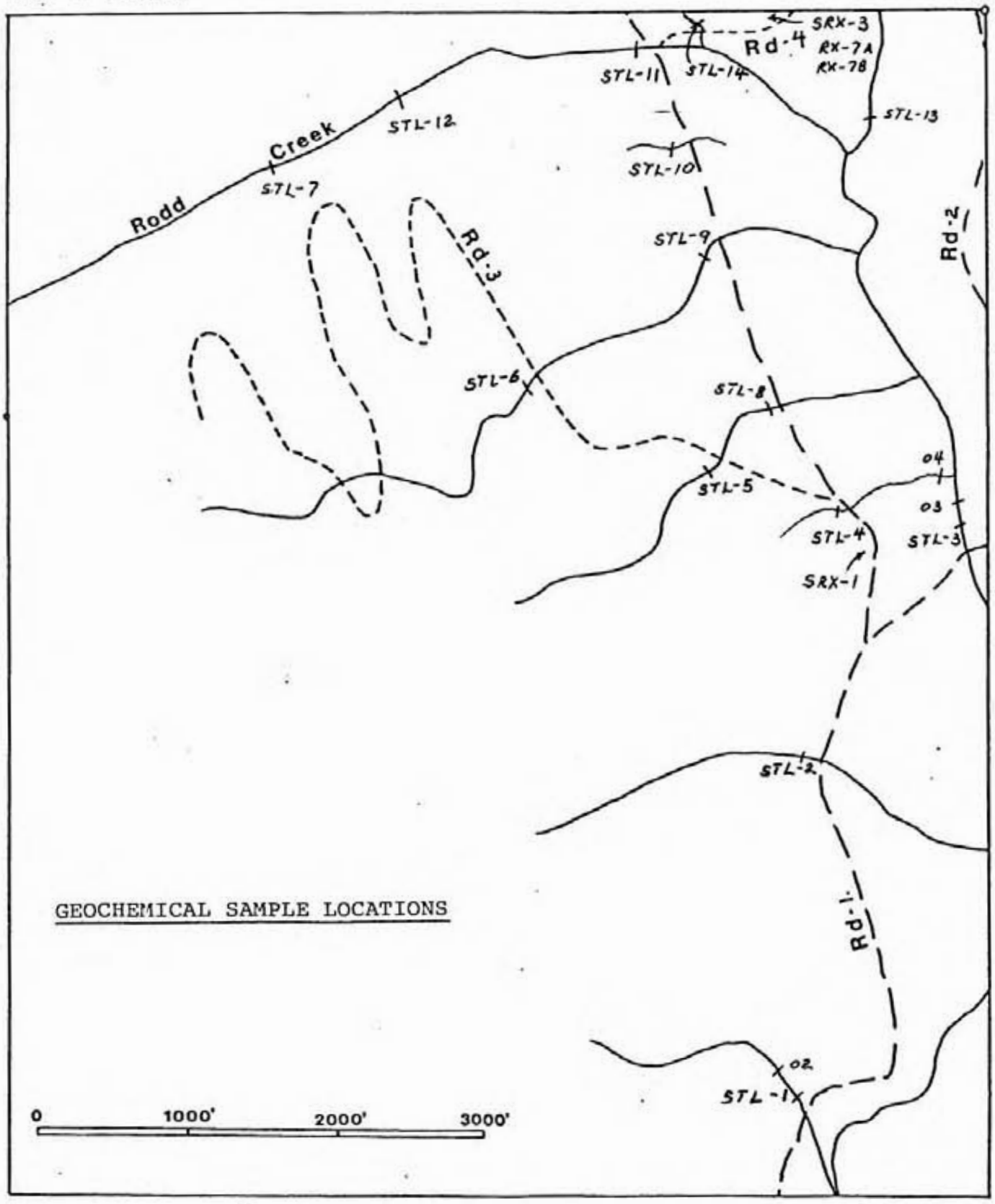
The results are tabulated below and the locations are plotted on the map.

Table 1: GEOCHEMISTRY RESULTS

| SAMPLE NUMBER | ELEMENT UNITS | Cu PPM | Pb PPM | Zn PPM | Ag PPM | As PPM | Au PPB | Sb PPM |
|---|---|---|---|---|---|---|---|---|
| T STL-1 | | 17 | 18 | 103 | 0.4 | 3 | 10 | 4 |
| T STL-2 | | 28 | 19 | 171 | 0.7 | 2 | <5 | <2 |
| T STL-3 | | 16 | 7 | 104 | 0.2 | <2 | 10 | <2 |
| T STL-4 | | 43 | 15 | 161 | 0.7 | <2 | <5 | <2 |
| T STL-5 | | 31 | 22 | 120 | 0.8 | <2 | <5 | <2 |
| T STL-6 | | 21 | 12 | 83 | 0.3 | <2 | <5 | <2 |
| T STL-7 | | 21 | 15 | 120 | 0.4 | <2 | <5 | 6 |
| T STL-8 | | 19 | 10 | 72 | 0.2 | 2 | <5 | 5 |
| T STL-9 | | 21 | 10 | 74 | 0.2 | <2 | <5 | <2 |
| T STL-10 | | 26 | 7 | 61 | <0.2 | 2 | <5 | 4 |
| T STL-11 | | 21 | 7 | 115 | 0.7 | <2 | <5 | <2 |
| T STL-12 | | 27 | 16 | 156 | 0.6 | 2 | <5 | <2 |
| T STL-13 | | 30 | 15 | 162 | 0.6 | 2 | <5 | 3 |
| T STL-14 | | 30 | 10 | 150 | 0.6 | <2 | <5 | 2 |
| R SRX-#1 | | | | | 0.3 | 26 | 5 | 6 |
| R SRX-#2 | | | | | 7.4 | 60 | 15 | 7 |
| R SRX-#3 | | | | | 0.6 | 25 | <5 | 12 |

The results that are of interest are STL-1; STL-3 and SRX-#2. Follow-up sampling by collecting further stream sediments and rock samples failed to duplicate the initial results. The second set of samples were sent to Chemex Labs Ltd.

ROD 2 2966‹8›

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BRITISH COLUMBIA

Scale 1:12,000

Legend

— — loose surface road

– – – cart track

creek

Figure 4

## IX. CONCLUSIONS

The property would appear to be geologically located too close to the main intrusive stocks of the area and the rock types that resemble those found in the Tillicum Mountain area lie further to the west.

The geochemical results also support the above in that there are no significant results or dispersion patterns.

It is recommended that a few short traverses be undertaken in the south-west section of the claim block to determine if there is anything of significance in that area.

If further geochemistry is undertaken it is recommended that the samples not be screened to minus 80 mesh but rather pulverized as in rock samples.

CERTIFICATION

I, David J. Copeland of 3626 West 1st Avenue, Vancouver, British Columbia, do hereby certify that:

1. I am a graduate of the University of British Columbia with a Bachelor of Science degree in Geology, 1970.

2. Since graduation I have been engaged in mineral exploration, mine development and mineral production in Canada, United States of America, Mexico, South America, Australia, New Guinea and South East Asia.

3. I am a registered member, in good standing, of the Association of Professional Engineers in British Columbia.

4. I am a Consulting Geological Engineer.

5. I carried out work on the subject property in August 1983 and this report is based upon that work.

6. I have not received nor do I expect to receive any interest directly or indirectly in the securities or properties of Sutherland Resources Ltd.


David J. Copeland, P.Eng.

November 10, 1983

# APPENDIX 1

## Rock Sample Identification

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 1

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: QUARTZ DIORITE

DESCRIPTION: Coarse crystalline, equigranular, hypidiomorphic

Slightly rusty weathering

Modal %

20% quartz

45% plagioclase

20% K-feldspar

9% hornblende - dark green

5% biotite

1% epidote - pistachio green

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 2 CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY DATE: Sept. 22, 1983

FIELD NAME: QUARTZ MONZONITE?

DESCRIPTION: Light pink gray weathering porphyritic fine-ground (≈0.1mm) quartz monzonite?

30% Phenocrysts

10% biotite - replaced by dark green chlorite, 1 - 2mm

20% hornblende - dark green, largely replaced by chlorite, subhedral, 1mm to 0.5 x 7 mm

50% plagioclase - anhedral, gray-white, 1 - 2mm, zoned

20% K-feldspar - subhedral, gray-white 1 - 2 mm

70% Groundmass - light pink, equigranular - leucocratic quartz monzonite (?) composition.

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 3

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: QUARTZ VEIN

DESCRIPTION: Gray blacky, weathering, fine-grained gray-white quartz vein containing ≈70% silicified brecciated fragments. Fragments, subrounded 1mm, to angular and at least 10cm across, silicified calc-silicate or calcareous quartzite - composition: quartz - diopside - minor calcite. Quartz vein has minor small vugs with calcite, and/or oxidized pyrite cubes (to 5mm)

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 4

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: QUARTZ MONZONITE/APLITE

DESCRIPTION: (a) Jointed, foliated, leucocratic fine-grained, quartz monzonite/aplite? with ≈0.2% very fine disseminated pyrite (oxidized to earthy limonite). Most joints are limonitic orange weathering.

(b) Leucocratic white fine-grained aplite with ≈15% cloudy (clay altered?) K-feldspar phenocrysts to > 1 cm. Limonitic, goethite stained joints with up to 10% pyrite cubes to 1mm, also traces of epidote.

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX 5

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: APLITE?

DESCRIPTION: Orange limonitic, hard to get fresh surface. Leucocratic aplite? fractured, ≈1% disseminated fine pyrite, is largely altered to limonite, goethite.

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 6 CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY DATE: Sept. 22, 1983

FIELD NAME: APLITE/QUARTZ MONZONITE(?)

DESCRIPTION: Strong joint set with weak lineation. Subconcordant leucocratic aplite as 1 to 5 cm bands in strongly foliated, weakly hematite - stained, medium-grained quartz monzonite(?) with ≈5% black hornblende and traces of limonite after pyrite.

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 7A

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: QUARTZ DIORITE

DESCRIPTION: Very rusty weathering, coarse-grained (1 - 2mm) equigranular, hypidiomorphic hornblende - biotite quartz diorite (as in RX - 1). Rusty weathering due to Fe oxides and traces of fine pyrite on joints (although there are also traces of very fine pyrite in the quartz diorite).

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 7B

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: QUARTZ DIORITE

DESCRIPTION: Coarse-grained quartz diorite with clay-sericite (?) altered feldspar. Dark rusty weathering. 5cm wide glassy gray-white quartz vein with ≈10% fine vugs with clay, very fine marcasite(?).

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 8 Labels not on bags CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY DATE: Sept. 22, 1983

FIELD NAME: DIORITE

DESCRIPTION: Coarse-grained diorite, weakly foliated

60% plagioclase, slightly porphytitic, weakly altered.

10% quartz

15% K-spar

10% biotite

5% black hornblende

traces very fine pyrite

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 9

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: QUARTZ MONZONITE

DESCRIPTION: Leucocratic, medium grained, equigranular quartz monzonite (20% quartz, 50% K-spar, 30% plagioclase) with segregations (irregular veins?) of glassy gray quartz with ≈15% white euhedral K-spar (1 - 10mm) and erratically distributed anhedral pyrite (in one sample seen surrounding a K-spar phenocrysts).

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 11

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: APLITE

DESCRIPTION: White foliated leucocratic aplite with traces of fine red garnet and fine limonite spots (oxidized very fine pyrite). One piece with bit of wallrock (?) of quartz diorite.

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX 20 + 30 very similar specimens

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: APLITE

DESCRIPTION: Chalky white to tan weathering fine-grained leucocratic aplite. ≈40% quartz 60% altered feldspar. 1 - 5mm quartz veins along one set of subparallel joints. All joints weak to moderate limonitic weathering with some diffusion into wallrock. Traces of fine pyrite, very fine ilmenite(?) in aplite. Feldspars are altered to sericite - clay.

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 31

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: QUARTZITIC METASEDIMENT

DESCRIPTION: (a) Blacky gray fine-grained banded quartzitic metasediment quartz - sericite - biotite - diopside - K-spar - sillimanite?

(b) Non-foliated, fine-grained quartz - K-spar - plagioclase biotite. Possibly metasedimentary but texture and composition suggests intrusive. Weakly bleached weathering rim with hematite band marking fresh core with traces of very fine pyrite. Surfaces have dark hematite - goethite coating.

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 32

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: PELITIC METASEMIMENT

DESCRIPTION: Pelitic metasediment. Inter-layered (gneissic or bedding?): Fine-grained quartz - K-spar and micaceous coarse muscovite - biotite - quartz - feldspar - sillmonite(?) layers. Weak crenulation. Moderately rusty weathering, traces of pyrite on joints.

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 33

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: TUFFACEOUS METAVOLCANIC?

DESCRIPTION: Blacky gray tuffaceous metavolcanic? Sparse angular fragments to 2 cm of coarse-grained quartz - feldspar - chlorite (pseudomorphing mafic) - calcite, and very sparse feldspar phenocrysts in a fine-grained groundmass of feldspar - chlorite - biotite - hornblende - quartz.

J.C. STEPHEN EXPLORATIONS LTD.

## HAND SPECIMEN EXAMINATION

SAMPLE NUMBER: RX - 35

CLAIMS: ROD 1, 2

SUBMITTED BY: D. Copeland

NTS MAP: 82K/4

EXAMINATION BY: A. HEAGY

DATE: Sept. 22, 1983

FIELD NAME: PEGMATITIC QUARTZ-FELDSPAR SEGREGATIONS

DESCRIPTION: Pegmatitic concordant quartz - feldspar segregations in fine-grained plagioclase - quartz biotite/chlorite - sericite schist. Joints are moderately rusty.

# APPENDIX 2

## Geochemical Lab Results

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2R5
Phone: (604) 985-0681
Telex: 04-352667

BONDAR-CLEGG

# Geochemical Lab Report

REPORT: 123-1434

FROM: MR. HERB WAHL
SUBMITTED BY: H WAHL
DATE: 20-JUL-83 PROJECT: BURTON

| ELEMENT | LOWER DETECTION LIMIT | EXTRACTION | METHOD | SIZE FRACTION | SAMPLE TYPE | SAMPLE PREPARATIONS |
|---|---|---|---|---|---|---|
| Cu | 1 PPM | HNO3-HCL HOT EXTR | Atomic Absorption | -80 | OTHER | CRUSH,PULVERIZE -100 |
| Pb | 2 PPM | HNO3-HCL HOT EXTR | Atomic Absorption | -80 | | RETENTION OF REJECTS |
| Zn | 1 PPM | HNO3-HCL HOT EXTR | Atomic Absorption | -80 | | DRY, SEIVE -80 |
| Ag | .2 PPM | HNO3-HCL HOT EXTR | Atomic Absorption | -80 | | RETENTION OF REJECTS |
| As | 2 PPM | NITRIC PERCHLOR DIG | Colourimetric | -80 | | |
| Au | 5 PPB | AQUA REGIA | Fire Assay AA | -80 | | |
| Sb | 2 PPM | | X-RAY Fluorescence | -80 | | |

REPORT COPIES TO: MR. H. WAHL

INVOICE TO: MR. H. WAHL

REMARKS:

Bondar-Clegg & Company Ltd.
130 Pemberton Ave.
North Vancouver, B.C.
Canada V7P 2R5
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BONDAR-CLEGG

Geochemical Lab Report

REPORT: 123-1434 PROJECT: BURTON



| SAMPLE NUMBER | ELEMENT UNITS | Cu PPM | Pb PPM | Zn PPM | Ag PPM | As PPM | Au PPB | Sb PPM | NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T AV3-1 | | 34 | 18 | 106 | 0.4 | 10 | <5 | 3 | |
| T AV3-2 | | 31 | 13 | 115 | 0.9 | 6 | 10 | <2 | |
| T OLB-1 | | 38 | 12 | 109 | 0.4 | 25 | 20 | <2 | |
| T STL-1 | | 17 | 18 | 103 | 0.4 | 3 | 10 | 4 | |
| T STL-2 | | 28 | 19 | 171 | 0.7 | 2 | <5 | <2 | |
| T STL-3 | | 16 | 7 | 104 | 0.2 | 2 | 10 | <2 | |
| T STL-4 | | 43 | 15 | 161 | 0.7 | <2 | <5 | <2 | |
| T STL-5 | | 31 | 22 | 120 | 0.8 | <2 | <5 | <2 | |
| T STL-6 | | 21 | 12 | 83 | 0.3 | <2 | <5 | <2 | |
| T STL-7 | | 21 | 15 | 120 | 0.4 | <2 | <5 | 6 | |
| T STL-8 | | 19 | 10 | 72 | 0.2 | 2 | <5 | 5 | |
| T STL-9 | | 21 | 10 | 74 | 0.2 | <2 | <5 | <2 | |
| T STL-10 | | 26 | 7 | 61 | <0.2 | 2 | <5 | 4 | |
| T STL-11 | | 21 | 7 | 115 | 0.7 | <2 | <5 | <2 | |
| T STL-12 | | 27 | 16 | 156 | 0.6 | 2 | <5 | <2 | |
| T [illegible] 13 | | 30 | 15 | 162 | 0.6 | 2 | <5 | 3 | |
| T STL-14 | | 30 | 10 | 150 | 0.6 | <2 | <5 | 2 | |
| R SRX-81 | | | | | 0.3 | 26 | 5 | 6 | |
| R SRX-82 | | | | | 7.4 | 80 | 15 | 7 | |
| R SRX-83 | | | | | 0.6 | 25 | <5 | 12 | |

# CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1

TELEPHONE: (604) 984-0221
TELEX: 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS


## CERTIFICATE OF ASSAY

TO : COASTAL MOUNTAIN ENGINEERING LTD.

3626 WEST 1st AVENUE,
VANCOUVER, B.C.
V6R 1H2

** CERT. # : A8314282-CO1-A
INVOICE # : I8314282
DATE : 9-SEP-83
P.O. # : NONE

| Sample description | Prep code | As NAA % | Ag FA oz/T | Au FA oz/T | | | |
|---|---|---|---|---|---|---|---|
| 02 | 207 | DELAYED | 0.01 | <0.003 | -- | -- | -- |
| 03 | 207 | DELAYED | 0.01 | <0.003 | -- | -- | -- |
| 04 | 207 | DELAYED | 0.01 | <0.003 | -- | -- | -- |
| RX 07A | 207 | DELAYED | 0.01 | <0.003 | -- | -- | -- |
| RX 07B | 207 | DELAYED | 0.01 | <0.003 | -- | -- | -- |

R. Thwaites

Registered Assayer, Province of British Columbia

# APPENDIX 3

## Cost Statement

COASTAL MOUNTAIN ENGINEERING LTD.
3626 West 1st Avenue
Vancouver, B.C. Canada
V6R 1H2

Mr. R.G. Hunter, C.L.U.
Sutherland Resources Ltd.
1440 - 625 Howe Street
Vancouver, B.C.

August 13, 1983

INVOICE NO. 0813

Dear Sir:

Re: Assessment Work on Rod No. 2 Claim, Burton, B.C.
For services provided from August 8 to August 13, 1983

| | |
|---|---|
| Geological mapping, geochemical analysis ... 3.5 days | $1,050.00 |
| Field assistant... 3.5 days | 350.00 |
| Truck and equipment (fuel) | 268.45 |
| Food and accommodation (as per Federal Gov't. rates) | 302.40 |
| Sub-total | $1,970.85 |
| Filing of assessment work | 100.00 |
| Total due and payable | $2,070.85 |

Report and maps to follow.

D.J. Copeland, P.Eng.

/hec

**Herb Wahl**
R.R. #4, Gower Point Road
Gibsons, B.C. VON 1V0

August 2, 1983

To: Sutherland Resources Inc.

Re: Rod - 2 Mineral Claim, Burton, B.C.
Preliminary Geochemical Sampling

| | |
|---|---|
| $ 300.00 | Professional time, 1 day (July 10, 1983). Silt sampling and preliminary geological inspection (includes equipment, supplies and 4x4). |
| 100.00 | Helper, 1 day. |
| 245.00 | Assays, 14 silts and 3 rocks for Cu, Pb, Zn, Ag and Au. |
| $ 645.00 | Total Due |

Per:

Herb Wahl, P.Eng., B.C.