800844

PROPERTY EXAMINATION

OF THE

MINERAL HILL CLAIM GROUP

MOLYBDENUM PROSPECT

Omineca Mining Division

93 L 10

Vancouver Office

November 1966

H.W. Sellmer

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ILLUSTRATIONS

SUMMARY AND CONCLUSIONS

The Mineral Hill molybdenite prospect owned by Molymine Exploration Limited is located eight miles north of Houston, B.C. In October of 1966 the writer examined outcrops, drill core, and trenches as well as a number of reports and maps for the purpose of evaluating the exploration potential of this property.

The property is underlain by a hornfelsed volcanic-pyroclastic-sedimentary sequence intruded by two igneous bodies--one of porphyritic granite and the other alaskite--which are probably off-shoots from the same parent body. The alaskite, which is the smaller, more highly irregular of the two has approximate dimensions of 400 by 1000 feet and has considerable MoS_2 and chalcopyrite within it and in the hornfelsed volcanics near its contacts. The granitic intrusion measures 1200 by 2400 feet, has an aplitic-pegmatitic border phase, and is locally porphyritic with bipyramids of quartz and euhedral laths of feldspar. Little molybdenite is associated with the granite at the contacts and even less is found within it. A breccia zone is located 3000 feet north of the alaskite. Exposed dimensions of this zone are 400 by 1500 feet with no defined limits to the north, west, and south. It appears to be the crackled roof of an underlying intrusion. Quartz (and siderite) cement highly sericite-carbonate altered volcanic fragments in the breccia. Quartz-feldspar pegmatite veins and sporadic molybdenite-chalcopyrite mineralization are associated with it.

The alaskite, the porphyritic granite, and the surrounding hornfelsed volcanics have been thoroughly tested by previous exploration work. The breccia zone, however, has been only partially defined by bulldozer trenching and is open to the south, west, and north.

A working hypothesis which appears to be applicable to this property is that the alaskite, the porphyritic granite, and the breccia zone represent different stages of denudation of mineralized upward projections of a larger granitic intrusion.

RECOMMENDATIONS

1) The alaskite and porphyritic granite as well as the surrounding hornfels have been explored extensively and no further work is recommended in that area. For our own benefit all core should be re-logged and all known geology reviewed.

2) The breccia zone should be outlined as fully as possible and indications of similar structures should be looked for in this area by magnetometer or I.P. Survey.

3) Hammer seismic work or a truck-mounted auger should be used to test the depth of overburden. Trenching could then be carried out in areas of shallow overburden to expose the breccia zone more fully. Presently exisiting bulldozer trenches should be cleaned out and blasted for better exposure.

4) An area which seems most suitable for drilling (ie.

vertically closest to the underlying intrusive) should be selected on the basis of information gained by geophysical and geological interpretations of steps 2 and 3. Mag work largely nullified by interference from concen of [illegible] in the [illegible].

5) Drilling should be done either as one or a number of short (500') vertical holes in the most promising area or areas of the breccia zone.

The two crucial points on which economic success of this venture is hinged (Namely: (i) at what depth is the igneous source? and (ii) does it have economic concentrations of MoS_2 associated with it?) are a matter of speculation. As a result the writer feels that the preparatory work only, mentioned in #2 and #3 should form the basis of any commitment towards securing an option on the Mineral Hill Claim Group.

INTRODUCTION

The Mineral Hill group molybdenite prospect owned by William Yorke-Hardy and P. Huber of Smithers, B.C. was examined to assess its exploration potential. From October 13th to October 17th, trenches, drill-core, and outcrops were examined as well as a number of maps and core logs.

HISTORY

The Mineral Hill property was examined twice previously for this company. Once by J.W. Hoadley (Report on P.J. Huber Molybdenite Prospect, Telkwa, 93 N.W., July 27th, 1960), and a second time by R.E. Anderson (Property Examination Mineral Hill Favourable (W.Y-H) Group Molybdenum Prospect, 93 N.W., Smithers, B.C., May 28th, 1963). Both Molymine Explorations Ltd. --a company formed for the purpose of developing the Mineral Hill claim group--and Cominco, who held the property under option earlier in 1966, have done extensive trenching and drilling in the alaskite, the hornfels, and at the contacts of the porphyritic granite as well as within it. Recent trenching 3000 feet north of the alaskite body has partly exposed what appears to be a large breccia zone with molybdenite-chalcopyrite mineralization.

LOCATION AND ACCESS

The Mineral Hill claim group is located (see Figure 1) about 8 miles north of Houston, B.C. one-half mile west of Highway #16 to which it is connected by a good dirt road. Elevations on the property range from a low of 2500 feet to a high of 3500 feet making it relatively free of snow and therefore readily accessible from mid-May to about mid-October.

GENERAL GEOLOGY

The general geology of the property is shown on a 1" = 1000' scale map by D. Cook of Cominco (Figure 2). Volcanic flows and pyroclastics as well as a lesser amount of sediments, thought to be of the Hazelton or Bowser Group (A. Sutherland-Brown, p.75, Lode Metals in British Columbia, 1965), are intruded by three types of intrusive bodies on the property. The largest of these exposed over an area of about 1200 by 2400 feet is a coarse-grained locally porphyritic granite. A second, probably genetically related to the first, is composed of medium-grained alaskite and forms an irregular, elongate intrusion which branches into many small dykes. It has an approximate length of 1000 feet and a width of 400 to 500 feet. A third intrusive rock-type is syenodiorite which occurs as a series of post-mineral dykes. These rock-types are described by Sutherland-Brown in the above reference.

A newly discovered area of interest is a zone of brecciation with quartz-siderite cement and sporadic molybdenite-chalcopyrite mineralization about 3,000 feet north of the alaskite. (See Figure #3, in pocket). This breccia zone is exposed discontinuously in trenches over an area of 400 by 1500 feet and is

LOCATION MAP 93 L 10 FIG. 1

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Alaskite

The alaskite, a medium-to fine-grained quartz-rich rock, contains molybdenite mainly in quartz veins. Of secondary importance is molybdenite disseminated throughout the rock at a distance of one or two inches from quartz veins. Molybdenite also occurs in the alaskite as fine dusty coatings in relatively unaltered fractures.

Alteration within the alaskite is not intense. Where quartz veining is at a maximum near contacts with hornfels some silicification and sericite-clay alteration are noted.

A true stockwork of quartz veins does not exist in the alaskite. Veins with a northeasterly strike and steep dips predominate but distribution of MoS_2 is more closely controlled by the proximity of the alaskite-hornfels contact or occurs within the alaskite.

On the basis of results from diamond drill holes 1 to 6 and 11 to 13 two areas of .10% MoS_2 have been outlined. The total of these zones give 6,250 tons of .10% MoS_2 per vertical foot.

Trenching and drilling of the alaskite plug appear to have exhaustively explored the mineralization of the alaskite body to an approximate depth of 200 feet (Figure 3 and Figure 4, in pocket).

<u>Porphyritic Granite</u>

The porphyritic granite is a medium-to coarse-grained phaneritic rock. Euhedral bipyramids of quartz and up to one-inch long crystals of feldspars form the phenocrysts. At or near the contact with hornfels an aplitic-pegmatitic phase is commonly found in irregular lenses and veins with indistinct contacts.

Molybdenite occurs in this rock-type with pyrite and chalcopyrite in quartz veins associated with sericite and K-feldspar alteration, or with pyrite in dry fractures. It also occurs to a very minor extent as flakes and isolated rosettes in the aplitic border-phase with scattered garnets and pyrite. Generally molybdenite mineralization is low grade with little continuity along the contact of the intrusion and is even weaker within it.

Quartz veins appear to strike mainly to the north-east with steep dips to the north-west but veining is not sufficiently intense to form well defined zones or definite stockworks where it was noted.

On the basis of trenching and core from four drill holes (DDH #7 to #10) at the contacts and within the granite body little molybdenite mineralization appears to be associated with the present exposure. It does not appear to be a favorable target for further exploration work (see Figure #5).

Hornfels

The hornfels is usually green or purple in color and has the characteristic sugary appearance and sub-conchoidal fracture. Near the north east contact of the porphyritic granite, biotite is formed in the hornfels giving rise to a foliation sub-parallel to the contact.

Molybdenite mineralization is found almost solely within quartz veins, therefore the grade of MoS_2 is dependent on the number of quartz veins in the hornfels. Intensity of quartz veining increases markedly towards the alaskite contact, thus the hornfels may have grades of MoS_2 comparable to those of the alaskite itself near the hornfels-alaskite contact. MoS_2 - chalcopyrite mineralization is low grade and sporadic in hornfels at a distance from the alaskite. Chalcopyrite and pyrrhotite are found in quartz veins near the contact and in limy pockets in hornfels associated with garnet-amphibole skarn near the alaskite. Molybdenite-chalcopyrite mineralization is found in hornfels exposed between the alaskite and granite bodies, but grade is low and mineralization very discontinuous.

Quartz Breccia Zone

A zone of brecciation has been exposed about 3,000 feet to the north of the alaskite zone. Exposure is limited to a number of trenches which cover an area of about 400 by 1500 feet. It is likely that this breccia zone is much larger than the quoted dimensions since unbrecciated volcanics were noted only on the east and north-east edge of the zone, leaving the breccia zone open to the south, west, and north.

Present exposure does not allow an outline to be made of the breccia zone nor are zones of more intense brecciation or major attitudes of fracturing apparent though they probably exist.

Except where brecciation is intense little transport of fragments is noted--commonly fragments ranging from several feet to less than an inch in average diameter are surrounded partially or completely by quartz and separated from adjoining fragments by a distance of 1/8 inch up to a foot or more. Fragments are almost exclusively angular and show no evidence of having been sheared. Locally, as at the "quartz plug", very few fragments are seen in as much as five square feet of massive milky quartz. To the east and north-east the breccia zone appears to die out rapidly leaving only occasional quartz veins and somewhat altered volcanics.

Fragments of the breccia, where recognizable are almost exclusively volcanics. The cementing material is quartz, usually milky-white and massive though it can also be vuggy. Siderite is found in vugs in the quartz. Emplacement of the quartz-siderite cement was associated with carbonate-sericite alteration of such intensity that small fragments are reduced to a mixture of sericite and fine brownish carbonate though with little loss of angularity or sharpness of outline.

Sulphides which occur in the breccia are pyrite, chalcopyrite, pyrrhotite, molybdenite, and galena in order of decreasing abundance. Hematite is found in association with chalcopyrite or alone. Manganese and iron oxides, malachite, and azurite are common in the zone of oxidized bedrock. Molybdenite as well as the other sulphides occur in randomly distributed blebs throughout the quartz. Molybdenite also is found surrounding or within intensely altered fragments. Because of the random, irregular distribution of sulphides in the breccia zone an estimate of grade is difficult. It is not expected to be higher than .04% MoS_2 and .07% Cu over any property sampled 50 foot interval. An interesting, though not well defined feature was noted in connection with the general distribution of sulphides. Molybdenite, chalcopyrite, and pyrrhotite are found in the central area of the north-west trenches. Chalcopyrite and hematite with no molybdenite are found at the north and north-west extremities of the north-west trenches. Galena was noted in the relatively unbrecciated and less altered volcanics to the south-east. It was also noted that the central zone of the north-west trenches was much richer in manganese oxides which appear to have formed as a result of weathering of Mn-rich siderites and that siderite generally is more abundant in the north-eastern part of the exposed zone.

Besides the large volume of quartz and siderite, hydrothermal alteration, mineralization, and shattered rather than sheared appearance of the breccia, other features exist which indicate the presence of a granitic intrusive body below. Two pegmatitic quartz-K-feldspar veins were noted in the central area of the north-west trenched zone (see Figure 3, in pocket). This occurrence is similar in appearance to the pegmatitic apophyses of the porphyritic granite border phase. Secondly, a pocket of high-grade MoS_2 mineralization in the north-west central area was noted to contain a granitic-textured, igneous-looking, mixture of quartz, sericite and feldspars. (It should be noted that feldspar is lacking in the breccia zone save for the three occurrences mentioned above.) These features may indicate the presence of an igneous intrusive of granitic composition and with some sulphide mineralization below the breccia zone.

<u>GEOLOGIC INTERPRETATION</u>

The following is suggested as a working hypothesis in considering the potential of this property:

1) The alaskite and porphyritic granite are ~~similar~~ phases of a common parent intrusive body below.

2) They represent domes or cupolas which acted as traps for upward diffusing residual fluids and are now seen at different

stages of denudation, as is shown in a diagram on page 13 (Figure 5).

3) The breccia zone represents a similar cupola which has as yet not been exposed but is near the present surface.

4) The underlying intrusive, a poss other concealed stocks etc. if it is part of the same intrusive mass as the alaskite and porphyritic granite, has considerable potential for economic mineralization at its upper contact with the overlying volcanics.

Vancouver Office
November 1966

H.W. Sellmer

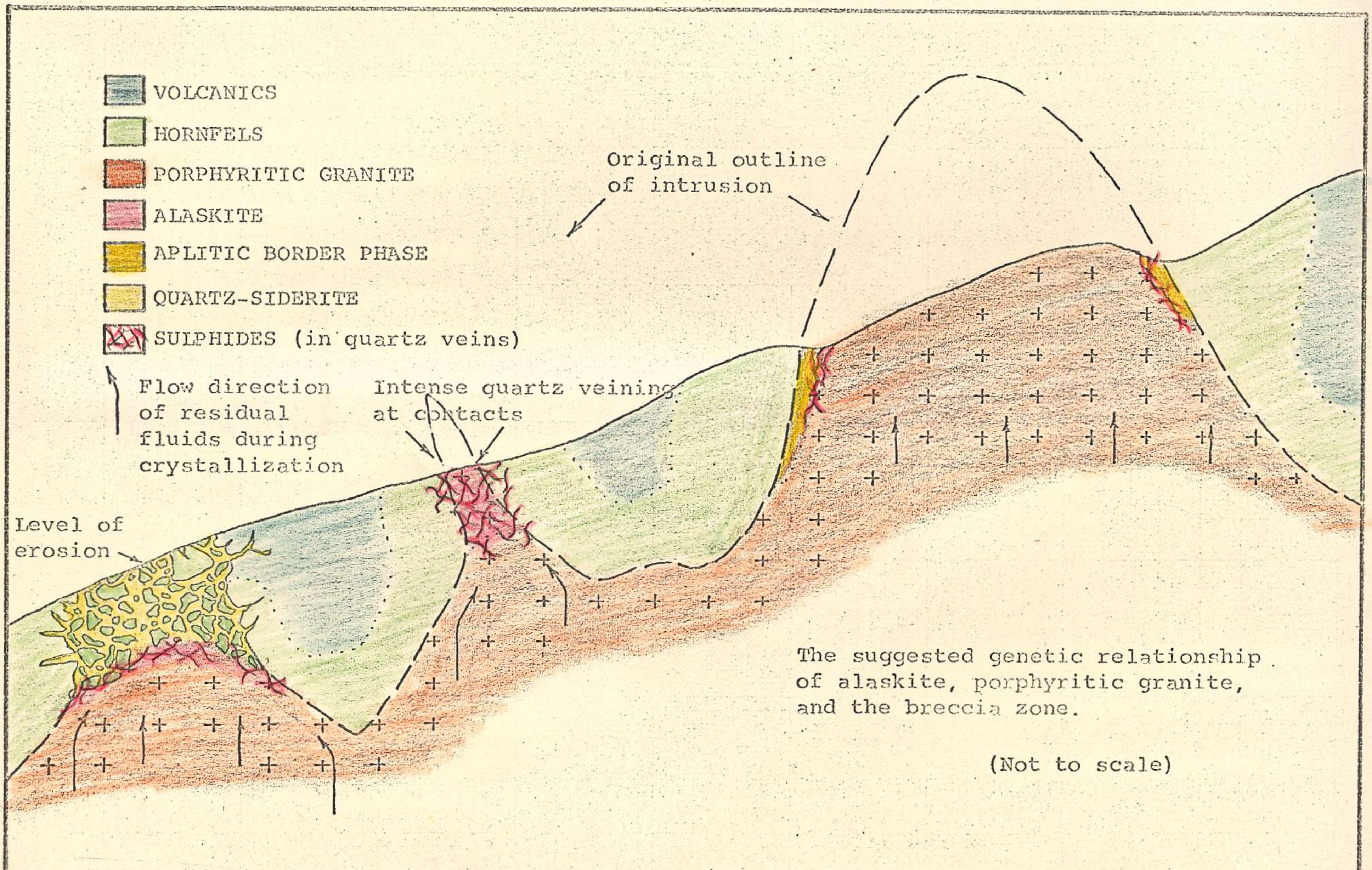


Figure 5 To accompany Mineral Hill Claim Group - 1966 H.W. Sellmer

Confirm: Grade of alaskite
True by on short x-section
vic 1-3-3A

Re covered & non-outcropping intrusive (stocks) :-

Re. Gravity survey: (prelim. or recon? / subsequent - detailed loci)
(recon)

Fig. 2
3
4

- Specimen of QF porph.
" " alaskite (barren & pyrites)
" " quartz
" " quartz-kx.
" " unalt. sed.-tuffs.
above to be selected from core, (kept @ room temp for several days) lacquered, & submitted for density tests. (Specific Gravity)

Note: Meeke has some special geophys. training

Gravity survey does not preclude detailed exp of Qz-kp etc.

L E G E N D

ROCK TYPES

- Quartz Feldspar Porphyry; Porphyritic Granite.
- Aplitic Border Phase.
- Alaskite.
- Syenodiorite.
- Hornfels. (Breccia in Breccia Zone).
- Quartz.

SYMBOLS

- Zone of .10% MoS.
- Limit of Bedrock Exposure.
- Geological Contact, Known.
- Geological Contact, Assumed.
- Geological Contact, Gradational.
- Bulldozer Trench.
- Rock Sample Location.
- Drill Hole Collar.
- Surface Projection of Drill Hole Geology.
- Creek.

AMAX EXPLORATION INC.

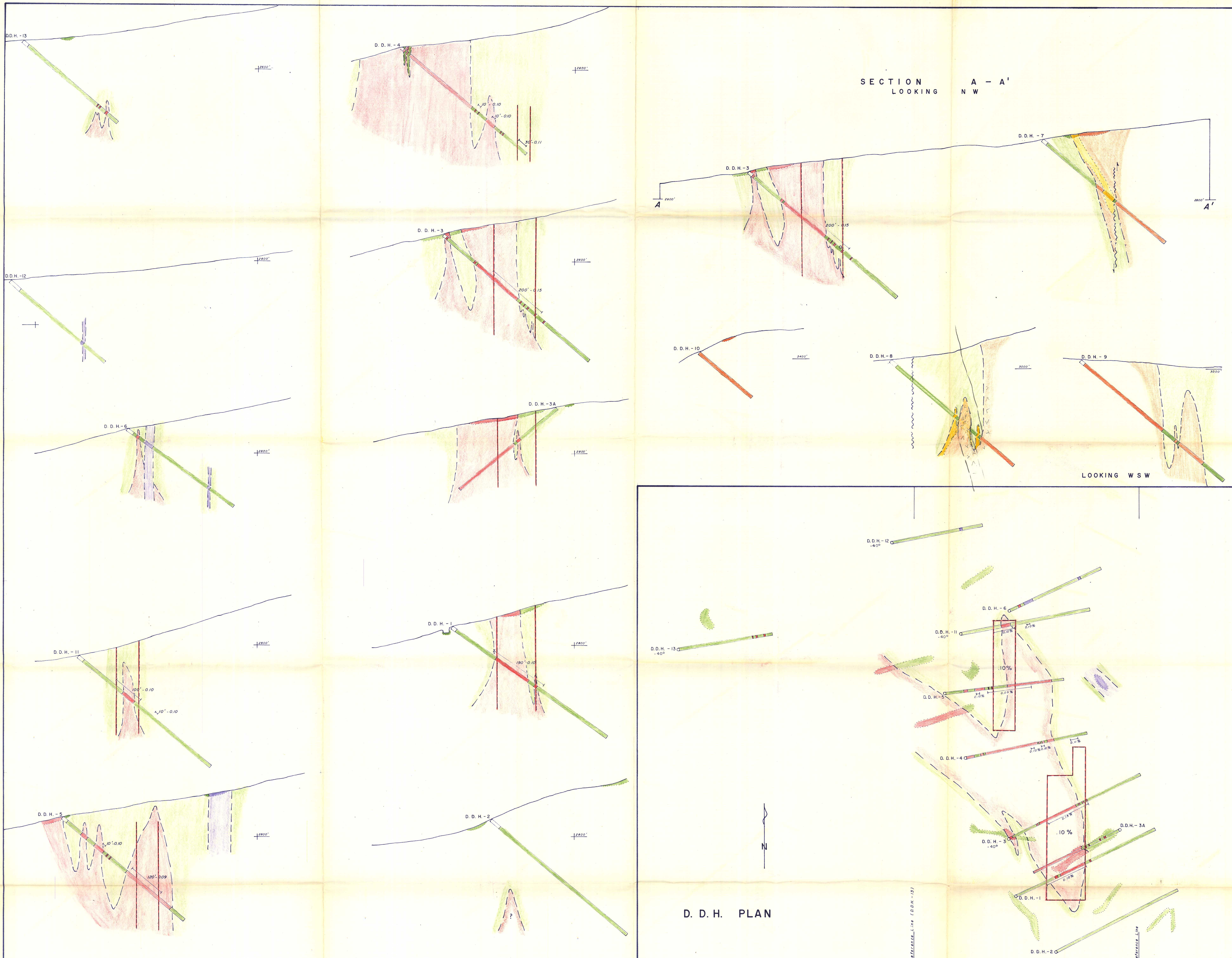
MINERAL HILL CLAIM GROUP
OMINECA MINING DIVISION — BRITISH COLUMBIA

GEOLOGICAL MAP

SCALE 1" = 100'
100 50 0 100 200 300

DATE REVISED	DATE PRINTED	Drawn by	FIG. 3
		Date	
		N.T.S. File 93 L 10	

To accompany report "MINERAL HILL CLAIM GROUP – 1966"
by: H.W. Sellmer Date



LEGEND

ROCK TYPES

- Quartz Feldspar Porphyry; Porphyritic Granite.
- Aplitic Border Phase of Granite.
- Alaskite.
- Syenodiorite.
- Hornfels.

SYMBOLS

- Limit of Bedrock Exposure.
- Geological Contact; Known.
- Geological Contact; Assumed.
- Geological Contact; Gradational.
- Fault.
- Inferred Direction of Fault Movement.
- 2800' Section Reference Point and Elevation.
- Drill Collar Location.
- Piercing Point.
- Plan or Section of Drill Hole Showing Geology.
- Zone of .10% MoS_2 Mineralization

SECTIONS LOOKING NW

inches 0 1 2
0 1 2 3 4 5 centimetres

BRITISH COLUMBIA GEOLOGICAL SURVEY

This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.

AMAX EXPLORATION INC.

MINERAL HILL CLAIM GROUP

OMINECA MINING DIVISION — BRITISH COLUMBIA

VERTICAL SECTIONS

SCALE 1" = 100'

100 50 0 100 200 300

DATE REVISED		DATE PRINTED		
				Drawn by
				Date
				N.T.S. File 93 L 10

FIG. 4

To accompany report " MINERAL HILL CLAIM GROUP - 1966 "
by: H.W. Sellmer Date

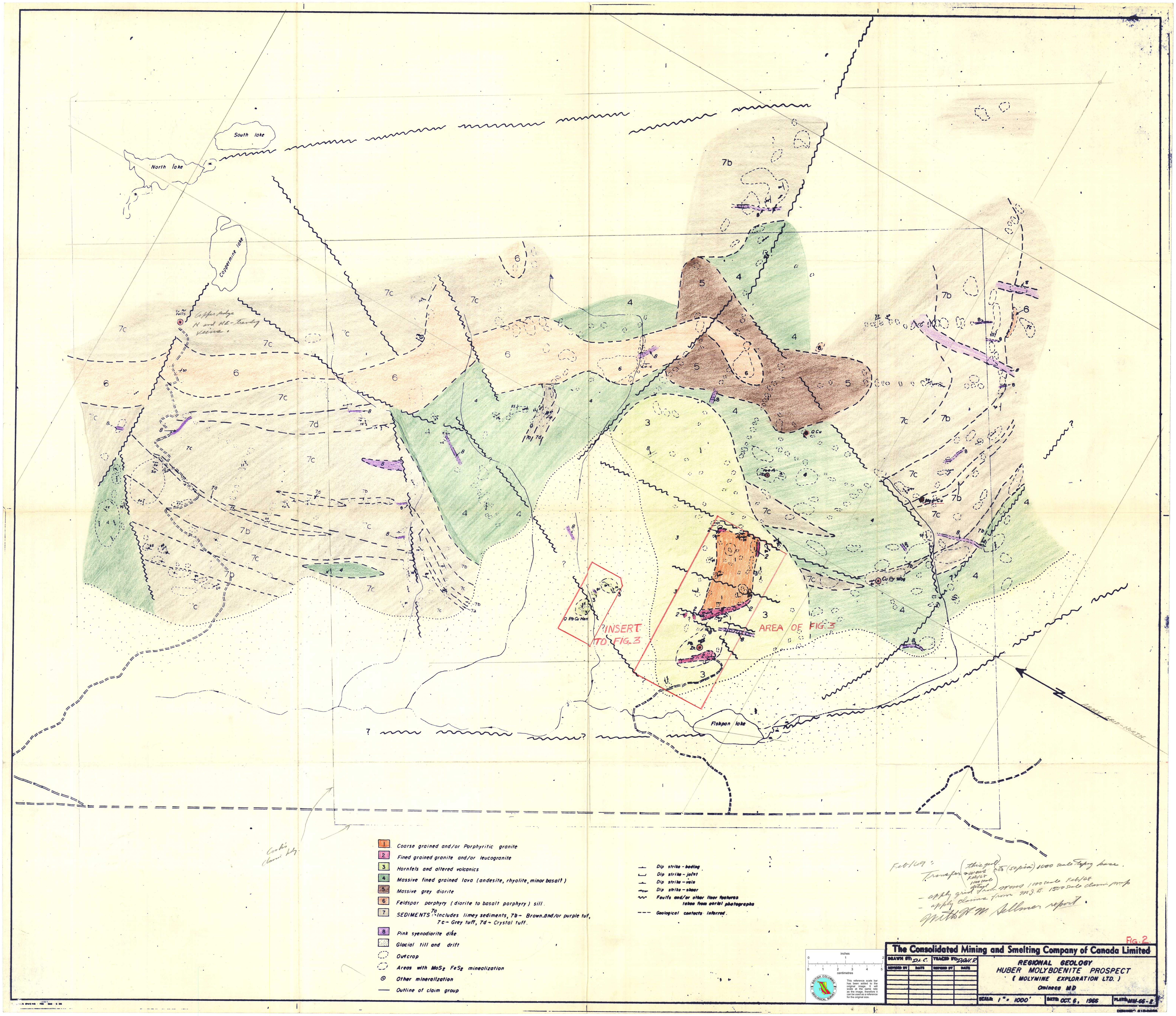

South lake
North lake
Coppermine lake
Fishpan lake
INSERT TO FIG. 3
AREA OF FIG. 3
1 Coarse grained and/or Porphyritic granite
2 Fined grained granite and/or leucogranite
3 Hornfels and altered volcanics
4 Massive fined grained lava (andesite, rhyolite, minor basalt)
5 Massive grey diorite
6 Feldspar porphyry (diorite to basalt porphyry) sill.
7 SEDIMENTS: 7a - Includes limey sediments, 7b - Brown and/or purple tuf, 7c - Grey tuff, 7d - Crystal tuff.
8 Pink syenodiorite dike
Glacial till and drift
Outcrop
Areas with MoS_2 FeS_2 minealization
Other mineralization
Outline of claim group
Dip strike - beding
Dip strike - joint
Dip strike - vein
Dip strike - shear
Faults and/or other liner features taken from aerial photographs
Geological contacts inferred.
inches
0 1 2
0 1 2 3 4 5
centimetres
BRITISH COLUMBIA GEOLOGICAL SURVEY
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
The Consolidated Mining and Smelting Company of Canada Limited
DRAWN BY: D.A.C.
TRACED BY: DAV. R.
REVISED BY
DATE
REVISED BY
DATE
REGIONAL GEOLOGY
HUBER MOLYBDENITE PROSPECT
(MOLYMINE EXPLORATION LTD.)
Omineca MD
SCALE: 1" = 1000'
DATE: OCT. 6, 1966
PLATE: MM-66-2

FIG. 2.