

5202

GEOLOGICAL AND GEOCHEMICAL

REPORT

94D/9W

- on the -

ASITKA AND BOB GROUPS OF CLAIMS

OMINECA MINING DIVISION
British Columbia

- for -

NOMAD MINES LTD. (N. P.)
Suite 502-470 Granville Street
VANCOUVER, B. C.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5202 MAP

COVERING: Asitka #1 - #26 inc., Asitka #28 - #70 inc.,
Asitka #1 Fr. - #8 Fr. inc., Bob #1 - Bob #6 inc.

WORK PERFORMED: June 1st. to August 8th., 1974.

LOCATED: (1). $56^{\circ} 36' N, 126^{\circ} 24' W$.
(2). NTS Map 94D/9W.
(3). Near Asitka Peak, 10 miles west
of Johanson Lake Airfield.

Prepared by:
KERR, DAWSON, & ASSOCIATES LTD.,
#1-219 Victoria Street,
KAMLOOPS, B. C.

J. M. Dawson, P. Eng.,
October 15th., 1974.

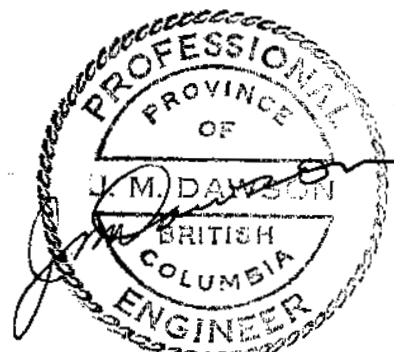


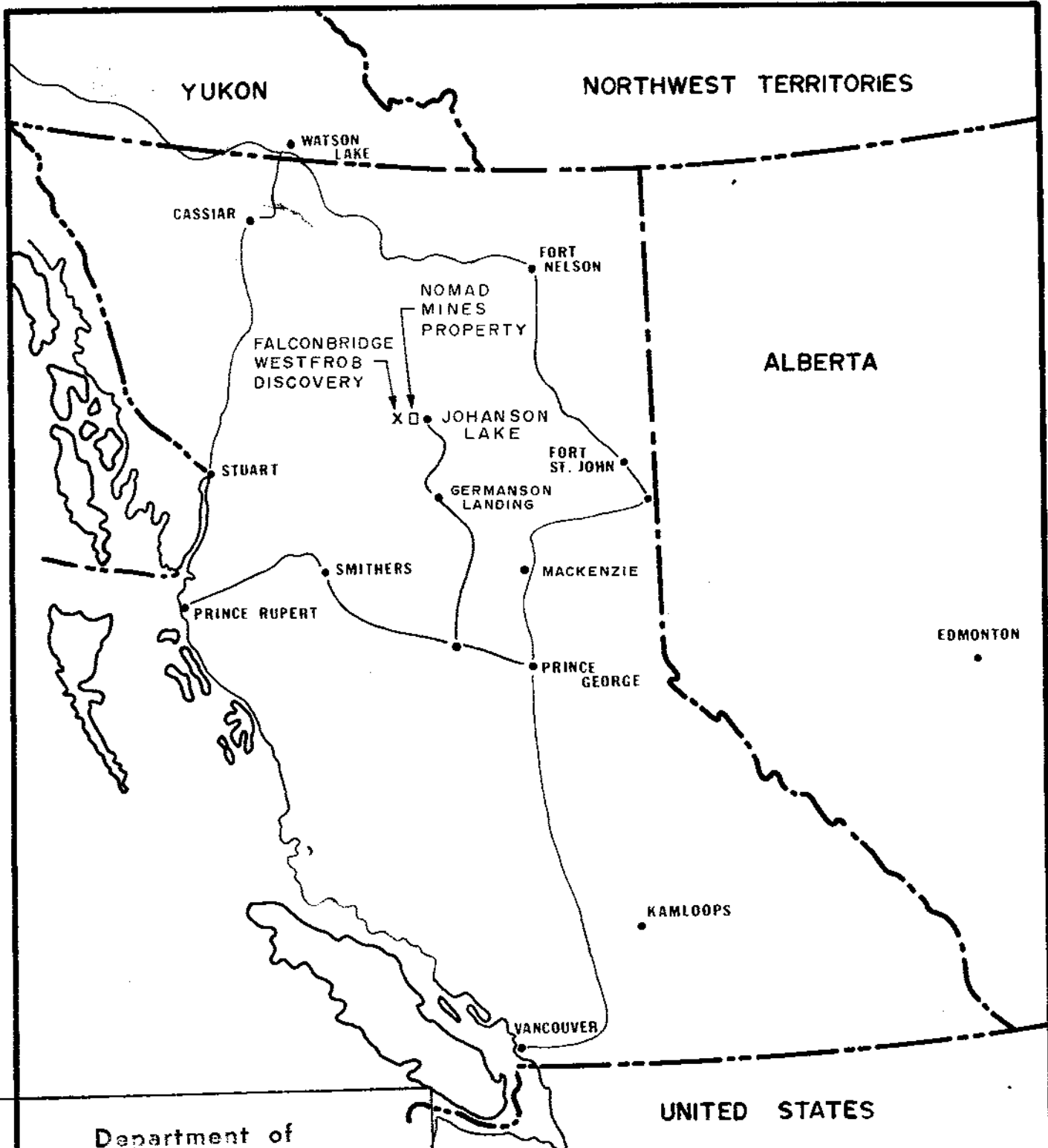
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Department of
 Mines and Petroleum Resources
ASSESSMENT REPORT
 NO. **5200** MAP **#1**

TO ACCOMPANY A REPORT
 BY J.M. DAWSON P. ENG.

NOMAD MINES LTD. (N.P.L.)
LOCATION MAP
 ASITKA & BOB CLAIM GROUPS
 OMINECA MINING DIVISION - B.C.

DATE: SEPTEMBER 1973	SCALE: 1" = 120 MILES
TECH. WORK BY: KERR, DAWSON AND ASSOC.	DWG. NO. 86-1

INTRODUCTION

Preliminary exploration work carried out on the Asitka Peak property of Nomad Mines Ltd. (N.P.L.), in the summer of 1973 revealed the presence of porphyry-type copper occurrences in addition to the high grade vein-type copper mineralization previously known to exist there.

Because of the significance of this discovery, additional claims were staked in the spring of 1974 and the existing grid was expanded to cover the full extent of the mineralized intrusive body. Additional soil samples were collected over the expanded grid and geological mapping was completed over the entire property.

The results of this work were interpreted and plotted on a series of maps prepared from an accurate base map constructed by McElhanney Surveying and Engineering Ltd.

SUMMARY AND CONCLUSIONS

(1). The subject property consists of 85 full sized and fractional, contiguous mineral claims located about 90 miles northwest of Germanson Landing in the Omineca Mining Division, British Columbia. The property is now road accessible and a tri-weekly air service to Johanson Lake is operated during the summer months.

(2). The first recorded exploration work on this property was undertaken by Black Giant Mines Ltd. during 1966. This work consisted primarily of regional prospecting and mapping with emphasis on the fissure vein copper occurrences. In August - September, 1973, a preliminary exploration programme consisting of prospecting, geological mapping, geochemical soil sampling and a limited ground magnetic survey, was carried out by Nomad Mines Ltd. The results of this work gave rise to an expanded and more detailed programme during the 1974 season.

(3). The property is underlain by intermediate flows and fragmental volcanic rocks of the Takla Group intruded by an elongate, northwesterly - trending granodiorite stock which is probably part of the Omineca Intrusions. Minor basic dikes cut the intrusive body, generally in a northeasterly direction.

(4). Widespread copper showings exist on the property and appear to fall into 3 distinct modes of occurrence:

(a). As chalcocite, bornite, chalcopyrite and lesser copper carbonates and oxides in quartz - chalcedony veins and associated shear and/or stock works.

- (b). As chalcopyrite and minor bornite and associated copper carbonates in skarn or associated with skarn - like alteration, usually but not exclusively near an intrusive contact.
- (c). As chalcopyrite and associated minor copper carbonate occurring as fracture coatings or stringers and veinlets within the intrusive body proper.
- (5). Soil geochemistry shows a close association of anomalous copper values with known mineral occurrences. However, the highest copper values seem to be associated with copper mineralization as skarn or contact - related occurrences adjacent to parts of the northeast contact of the intrusive. Molybdenum values in soils correspond in large measure to high copper values but are restricted to coincidence with copper values occurring within the bounds of the intrusive body.
- (6). The present work tends to emphasize the contact zone in the northeasterly part of the property as having most future exploration potential.

PROPERTY

The property consists of 85 full sized and fractional, contiguous mineral claims as follows:

ASITKA GROUP:

<u>Claim Name</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Expiry Date</u>
Asitka #1 - Asitka #10 inc.	99770 - 99779 inc.		June 4th., 1977.
Asitka #11	99780		June 4th., 1976.
Asitka #12 - Asitka #14 inc.	99781 - 99783 inc.		June 4th., 1977.
Asitka #15 - Asitka #24 inc.	102699 - 102708 inc.		August 24th., 1976.
Asitka #25	125781		May 29th., 1978.
Asitka #26	125782		May 29th., 1978.
Asitka #28	127796	434116 M	August 23rd., 1976.
Asitka #29	127797	950893	August 23rd., 1976.
Asitka #30	127798	165016 M	August 23rd., 1976.
Asitka #31	127799	165017 M	August 23rd., 1976.
Asitka #32	127800	165015 M	August 23rd., 1976.
Asitka #33	127801	435399 M	August 23rd., 1976.
Asitka #34	127802	435400 M	August 23rd., 1976.

<u>Claim Name</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Expiry Date</u>
Asitka #1 Fr.	127791	340563 M	August 23rd., 1976.
Asitka #2 Fr.	127792	340564 M	August 23rd., 1976.
Asitka #3 Fr.	127793	340533 M	August 23rd., 1976.
Asitka #4 Fr.	127794	340532 M	August 23rd., 1976.
Asitka #5 Fr.	127795	340531 M	August 23rd., 1976.

BOB GROUP:

Bob #1 -	102693 -		
Bob #6 inc.	102698 inc.		August 24th., 1975.

ASITKA "B" GROUP:

Asitka #35 -	128051 -	340565 M -	
Asitka #40 inc.	128056 inc.	340570 M inc.	September 4th., 1974.
Asitka #41 -	128057 -	343277 M -	
Asitka #44 inc.	128060 inc.	343280 M inc.	September 4th., 1974.
Asitka #45 -	128061 -	343284 M -	
Asitka #54 inc.	128070 inc.	343293 M inc.	September 4th., 1974.
Asitka #6 Fr.	128049	343294 M	September 4th., 1974.
Asitka #7 Fr.	128050	343275 M	September 4th., 1974.
Asitka #8 Fr.	131055	359260 M	August 8th., 1975.

<u>Claim Name</u>	<u>Record No.</u>	<u>Tag No.</u>	<u>Expiry Date</u>	
Asitka #55 - Asitka #58 inc.	130497 - 130500 inc.	223405 M - 223408 M inc.	May 23rd.,	1975.
Asitka #59	130501	343297 M	May 23rd.,	1975.
Asitka #60	130502	343298 M	May 23rd.,	1975.
Asitka #61	130503	223409 M	May 23rd.,	1975.
Asitka #62	130504	223404 M	May 23rd.,	1975.
Asitka #63 - Asitka #66 inc.	130505 - 130508 inc.	454097 M - 454100 M inc.	May 23rd.,	1975.
Asitka #67	130509	453963 M	May 23rd.,	1975.
Asitka #68	130510	453964 M	May 23rd.,	1975.
Asitka #69	130511	359209 M	May 23rd.,	1975.
Asitka #70	130512	359210 M	May 23rd.,	1975.

CLAIMS UNGROUPED:

Asitka #9 Fr.	453810 M	October 10th.,	1975.
Asitka #10 Fr.	454067 M	October 10th.,	1975.

The registered owner of these claims is Nomad Mines Ltd. (N. P. L.), F. M. C. No. 124076.

LOCATION AND ACCESS

The property is located in north - central British Columbia, about 90 air miles northwest of Germanson Landing and about 10 miles west of Johanson Lake. The approximate geographic center of the claims is at 56°34' north latitude and 126°24' west longitude.

Access to the property can be gained by flying from Prince George via Fort St. James to the Johanson Lake airstrip. Northern Thunderbird Airlines operates a thrice-weekly flight to Johanson Lake during the summer months.

It is also possible to drive from Fort St. James, via Germanson Landing to Johanson Lake. About 12 miles west of Johanson Lake, the Nomad Mines access road leaves the Omineca road and climbs up the eastern side of the Asitka Peak range for about 2 1/2 miles to the central part of the subject claim group. Approximately 2 additional miles of jeep road provide easy access to the north central part of the property. The remainder of the claims area is reached only by traversing on foot through terrain which for the most part is not difficult.

PHYSIOGRAPHY AND VEGETATION

The property covers the northern half of a small, isolated, mountainous area near the southern end of the Swannell Range. This small range is dominated by Asitka Peak, a rugged mountain whose summit lies just outside the

southeast boundary of the claim group. The topography is steep to moderate and is dominated by several northerly and easterly - trending ridges which spread like fingers out from the central spine of the range. These ridges can be traversed along their crests although some of the cliffs along their flanks are not passable. Elevations vary from about 6,700 feet a.s.l. on the ridges adjacent to Asitka Peak down to less than 4,500 feet a.s.l. in the main valley containing Johanson Creek.

Tree line in this latitude is roughly at 5,000 feet a.s.l. and areas above this elevation are usually alpine meadows where the topography is moderate, or cliffs and talus where it is steeper. Below tree line, a fairly dense growth of spruce, fir, and pine predominates with varying amounts of deciduous underbrush.

Bedrock is well exposed along ridges and in some cliffs on their flanks; however, below tree line and in the cirque - like valleys below Asitka Peak, outcrop is scarce and overburden is probably fairly thick.

HISTORY

The earliest mining activity in this region was concerned with placer gold in the McConnell Creek area; some minor production was recorded from 1899 to the early 1940's.

In the 1940's, C. S. Lord of the G. S. C. mapped the McConnell Creek sheet and noted numerous copper occurrences

in volcanic and intrusive rocks. His map shows two copper occurrences about 2 miles southeast of Asitka Peak.

On the Nomad Mines property very old claim posts indicate the property was staked in the late 1940's or early 1950's. This was probably done by the Carl Springer group who were active in this area at that time.

In 1965, 185 claims were staked by Black Giant Mines Ltd. covering all of the ground now owned by Nomad as well as the rest of this small mountain range to the southeast of Asitka Peak. A detailed programme of prospecting and mapping as well as limited diamond drilling and blasting of trenches was carried out. This work was concentrated in the area southeast of the current Nomad holdings. However, some blasting was done in the subject area as follows: three trenches on the Bob group, two cuts on the chalcocite vein-showings on the ridge northwest of Asitka Peak and one shallow trench on the skarn showings near the extreme southeast corner of the property.

The Black Giant groundlapsed in 1968 and in 1969 the Chalco claims were staked by W. Sevrens, covering part of the property now owned by Nomad Mines. No work was done as these claims lapsed in 1970. In 1971 part of the current holdings of Nomad Mines Ltd. was staked; however, cash in lieu of assessment work was paid in 1972 and the first exploration by Nomad was carried out during the 1973 field season.

In August and September, 1973, a preliminary exploration programme consisting of geological mapping, prospecting, line cutting, geochemical soil sampling and a magnetometer survey was carried out.

This programme resulted in the location of widespread copper mineralization in several environments - - - most importantly in a typical "porphyry copper" environment. As a result of this discovery, a further programme was recommended for the 1974 field season.

SCOPE OF THE PRESENT EXPLORATION PROGRAMME

The present programme was initiated to delineate fully the areas of surface mineralization occurring on the subject property and to test these areas by preliminary trenching and diamond drilling.

The current programme was initiated during the last week in June and up to August 8th. approximately 20 miles of line had been cut and chained. A total of 407 soil samples were collected and analysed for copper and molybdenum.

Seventeen additional claims were staked and this area as well as that covered by the extended grid was geologically mapped at a scale of 500 feet equals one inch.

A bridge was constructed across Johanson Creek and approximately 3 miles of road were constructed from the Omineca Road to the subject property.

PROPERTY GEOLOGY

The Asitka property is underlain by intermediate flows and fragmental volcanic rocks with minor intercalated epeclastic sediments of the Takla Group, intruded by an elongate, northwesterly - trending stock which is probably part of the Omineca Intrusions. Minor, basic dikes cut the intrusive body, generally in a northeasterly direction.

The Takla rocks consist mainly of porphyritic flows. These vary from gray - green to red - brown andesites with pale green, rounded phenocrysts of augite; through dense greenish black andesites or basalts with black, euhedral, equigranular pyroxene phenocrysts. Less common varieties similar to those above but having felted, plagioclase laths plainly visible in the groundmass are found intermingled with the more prevalent types.

On the Bob claims and near the north end of the property, on both main ridges, a very distinctive coarse porphyritic andesite was found. This rock type consists of a fine, dense, greenish gray groundmass with elongate, euhedral plagioclase crystals up to one inch in length. This rock has been referred to as bladed feldspar porphyry by workers on adjoining properties and may be intrusive in part.

Pyroclastic rocks vary from red brown to greenish gray in colour and contain sub-rounded to angular fragments up to 1" in diameter; no coarse agglomerates were seen. Fragments are mostly of porphyritic volcanic material as well as red and green argillite or tuff and red chert. Most fragmental rocks have appreciable amounts of epidote as scattered clots and irregular stringers. Several veins or

dikes of epidote - rich material are present along the ridge running northwest from Asitka Peak. Calcite and epidote are also abundant in the interstices between fragments and calcite is probably the dominant cementing medium in some of the coarser tuffs.

Minor, intercalated, volcanoclastic sediments were noted at several localities. These sediments usually consist of interbedded graywackes or volcanic wackes and fine grained, argillaceous beds. Beds are usually 2 to 4 feet thick and the rhythmic alternation of these layers suggests a type of turbidite sequence.

A number of occurrences of skarn and skarn-like rocks are found near the intrusive contacts or near dike or vein contacts with various types of volcanics. The altered rocks vary from bleached, epidote - rich volcanics with scattered magnetite and specular hematite to varieties consisting predominantly of epidote - actinolite - calcite - quartz with lenses of magnetite up to 3-4 feet wide. Minor copper carbonates and scattered chalcopyrite are usually found in such occurrences.

The intrusive stock trends northwesterly across the center of the property and varies from about 2,000 to approximately 4,000 feet in width. A few satellite dikes of similar material are found both northeast and southwest of the main pluton.

This intrusive body is primarily a medium grained granodiorite which grades in places to a quartz diorite with increasing ferromagnesian minerals. The predominant black mineral is hornblende though minor accessory biotite

is usually present. The amount of ferromagnesian varies from 15 - 40% of the rock from place to place but there is no simple zoning or gradation of types. In some places biotite becomes significant and even the predominant ferromagnesian mineral. Biotite usually occurs in coarse, unaltered, euhedral books up to 1/2 inch in diameter.

At several locations, a quasi-porphyrific, feldspathic phase was noted. This rock varies from a buff - coloured type having quartz eyes and rounded feldspar crystals in a dense, feldspathic groundmass, to a grayish rock having scattered irregular, small feldspar phenocrysts as well as ferromagnesian minerals and magnetite blebs in a grayish groundmass. Both types are possibly derived from stoped blocks of volcanics, altered and assimilated to varying degrees.

Near the center of the property, at the summit of the ridge trending north from Asitka Peak, there are two small roof pendants of hornfelsed volcanics enclosed within the main intrusive body. Near the southeast end of the claim block, the intrusive is partly capped by a thin layer of the original "roof" rocks. From the data it is suggested that the intrusive mass plunges gently (10° - 20°) to the southeast and that the extreme top of the stock is exposed near the roof pendants, north of Asitka Peak. Most of the contacts visible indicate that the walls of the intrusive are essentially vertical.

Alteration within the intrusive is not very pronounced and is greatest from the center to the northeast margin of the pluton. It is typically propylitic with minor chlorite - epidote - pyrite almost always present. Minor calcite, siderite and specular hematite were noted in a few localities. Within the area of propylitic alteration, there are zones of extensive pyrite mineralization - pyrite

sometime comprising 5 - 10% of the total rock volume. This is generally in an area of roof pendants or "feldspathic phases" which may be partly resorbed roof pendants.

Some small areas of possible argillic and potassic alteration are present, at the most deeply eroded parts of the intrusive and generally quite near to the northeastern contact.

A number of narrow, northeasterly - trending "basic" dikes were noted in the central part of the intrusive body. They are generally less than 10 feet wide and are typically dark greenish in colour and finely porphyritic with small, indistinct crystals of feldspar.

Most attitudes in the volcanics and related rock types indicate that these rocks are flat lying to gently inclined. However, there are insufficient readings to outline definite structures. Most observed faults trend northwesterly to westerly and essentially parallel the trend of the intrusive proper, the satellite dikes, quartz veins and much of the fracturing. A subsidiary set of joints trends northeasterly, dipping steeply northwest and southeast, and this coincides with the alignment of the later "basic" dikes.

MINERALIZATION

Pyrite mineralization is widely distributed in the intrusive stock as fracture coatings, as streaks and veinlets in silicified shear zones and as disseminated grains. It is particularly prevalent in areas of roof

pendants or partly digested xenoliths. Weathering of contained pyrite has produced widespread gossans, particularly over the northeasterly half of the granodiorite pluton.

Copper mineralization is found in three distinct modes:

- (1). As chalcocite, bornite, chalcopyrite and lesser copper carbonates and oxides in quartz - chalcedony veins and associated shear zones and stockworks.
- (2). As chalcopyrite and minor bornite and associated copper carbonates in skarn or associated with skarn - like alteration usually but not exclusively near an intrusive contact.
- (3). As chalcopyrite and associated minor copper carbonate occurring as fracture coatings or stringers and veinlets within the intrusive body proper.

Copper mineralization associated with quartz and (?) chalcedony veins and stockworks, occurs in a northwesterly-trending zone which extends from the south - central boundary of the property - intermittently to near the far northwest corner.

Within this zone copper occurrences in quartz veins can be found in an area up to 1,000 feet wide (near Asitka Peak) although the quartz veins make up only a small percentage of this total width.

Typically copper mineralization is found as disseminated blebs or stringers of chalcocite and/or lesser chalcopyrite with copper carbonates in veins usually 3" to 9" wide. There may be some minor copper carbonates in the adjoining country rock and some of the zones resemble skarn. In such cases, a heavy, green, epidote - rich rock has disseminated chalcopyrite and copper carbonates and borders a central quartz vein. This rock weathers to a distinctive brown colour. The largest such zone observed was about 15 feet wide and contained scattered chalcopyrite in blebs and disseminated grains as well as more widespread copper carbonates. This zone is located along a ridgetop about 1,300 feet north of Asitka Peak.

About 2,700 feet northwest of Asitka Peak, a quartz stockwork varying from 2 to 15 feet wide can be traced for about 250 feet along strike. In places there are blebs and stringers of chalcocite with lesser copper carbonates; however, the mineralization is erratic and the zone seems to pinch out to the southeast where some previous blasting was carried out. Near the northwest end of the stockwork, a 2 to 5 foot skarn (?) zone can be traced perpendicularly to the main zone for about 35 feet. This subsidiary zone has scattered stringers of chalcocite and chalcopyrite as well as copper carbonates.

Near the northwest boundary of the property, a 9" to 12" quartz vein is exposed on a dip surface and can be traced for about 250 feet along strike. This vein contains scattered blebs and a few high grade lenses of chalcocite and bornite as well as the usual copper carbonates.

The second type of copper occurrence is more widespread, occurring principally near intrusive contacts but also near dikes, quartz veins and pronounced faults or shear zones. Some minor occurrences are found on the Bob group but mineralization there is very sparse. Typically, this mode of occurrence consists of thin stringers or fracture coatings of chalcopyrite with frequent copper carbonate. Disseminated grains of chalcopyrite with associated magnetite and specular hematite were also noted at a few places. All these occurrences are either directly or closely associated with epidote as veins, stringers or isolated blebs. A distinctive type of orange - brown limonite is usually found near such a mineral occurrence in volcanic rocks.

One example of this type of copper occurrence is found in a zone along a ridgetop about 6,000 - 7,000 feet north of Asitka Peak (see figure 86 - 11). Here, chalcopyrite and malachite occurrences can be found along the ridgetop for over 800 feet and three occurrences of the same type were noted in cliffs up to 1,500 feet east - southeast of this ridgetop. Several satellite granodiorite dikes found along the ridgetop within this mineralized zone contain fine grained, disseminated chalcopyrite and abundant malachite along fractures.

Near the southeast boundary of the claim group, copper mineralization was found in two true skarn occurrences. Copper carbonates and minor fine grained, disseminated chalcopyrite was found in an epidote - actinolite - quartz - calcite zone with an associated lense of massive magnetite up to 4 feet wide. This occurrence appears to be about 20 feet wide and has a shallow trench blasted across its width. It can be traced for about 70 feet before it disappears under talus. About 200 feet south of this occurrence, two small, highly oxidized skarn

outcrops protrude from a talus slide. They contain massive lenses of chalcopyrite up to 1 1/2 feet wide. Mineralized float displaying malachite on fine grained intrusive rock was found nearby. The size of the zone containing the massive lenses of chalcopyrite is unknown because of the paucity of outcrop but the type of occurrence and the associated geochemical pattern indicate that it is not extensive.

The third mode of copper occurrence is found exclusively within the granodiorite body and consists primarily of fracture coatings or narrow stringers of chalcopyrite - occasionally with minor malachite if the outcrop is well oxidized. Small amounts of this type of copper mineralization can be found over a considerable area of the central part of the intrusive mass (see figure 86 - 11). It appears to be confined to areas of the pluton more deeply eroded or near the northeast contact. It is found in zones rich in pyrite as well as places where only scattered pyrite is present. Areas in which chalcopyrite has been found in a number of adjacent outcrops do not exhibit extensive alteration; usually only mild to moderate chloritization has taken place. Quartz veining or appreciable silicification is notably absent.

GEOCHEMISTRY

Soil sampling was conducted over the expanded grid at 200 foot intervals on grid lines spaced 500 feet apart. Portions of the main ridge north of Asitka Peak

could not be sampled because of the steepness of the terrain. Sample stations were marked on the ground by orange flagging. B - horizon soils were collected where possible; however, at the higher elevations there is no clear definition of horizons and many of the samples from such areas would have to be classified as talus fines. After collection, samples were stored in waterproof, kraft envelopes.

A total of 407 soil samples were collected over the expanded grid and analysed for copper and molybdenum in the Vancouver laboratories of Bondar - Clegg and Company Ltd. The samples were dried, sieved and an aliquot of the -80 fraction was subjected to hot aqua regia extraction. The aliquot was then analysed for copper and molybdenum by atomic absorption spectrophotometry.

Histograms were plotted for the total populations of copper and molybdenum (1973 & 1974 values) and indicate essentially unimodal distributions. The mean and standard deviations were calculated and the data was classified into the following categories:

Negative	0	-	Mean
Possibly anomalous	Mean	-	(Mean + 1 Std. Dev.)
Probably anomalous	(Mean + 1 Std. Dev.)	-	(Mean + 2 Std. Dev.)
Definitely anomalous	>	(Mean + 2 Std. Dev.)	

The values were plotted on 500 scale base maps of the property and definitely anomalous, probably anomalous and possibly anomalous areas were contoured (see figures 86 - 12 and 86 - 13).

Anomalous copper values in soils generally coincide with areas of known mineral occurrences on surface. Most of the definitely anomalous values are found in areas where significant copper mineralization is present in outcrop. The most important trend that emerges from this expanded survey is that areas of known skarn, roof pendants and contact-related mineralization near the northeasterly edge of the intrusive, give the highest geochemical response.

The largest concentration of anomalous copper values is associated with the contact - related mineralization found near the crest of the ridge north of Asitka Peak (see figure 86 - 11). The area of influence of this mineralization is exaggerated somewhat by mechanical dispersion down the east and west slopes of this ridge; however, there is a definite trend suggesting that the known zone of mineralization extends to the northwest for some 2,000 to 3,000 feet although there are no surface exposures in this area.

The copper geochemistry roughly outlines the northwesterly - trending zone of discontinuously mineralized quartz veins (type 1), but its sporadic nature is exemplified by the discontinuous and spotty occurrence of slightly anomalous values in soils throughout this zone.

On the Bob group, only a few higher copper values are outlined. They reflect areas of known, minor mineralization. This area, together with the extreme southwest edge of the main claim block, appear to be zones of relatively sparse copper mineralization.

There is a general correlation between high molybdenum values in soils and the main, northwest-trending body of anomalous copper values; however, there is one important distinction. Those areas of high copper geochemistry associated with definite skarn - type mineralization within the volcanics are not reflected in the distribution of anomalous molybdenum values. Rather, the anomalous molybdenum values coincide with high copper values found adjacent to but inside the borders of the intrusive body. In particular, this can be seen in the response to known mineralization on the ridge north of Asitka Peak (see figures 86 - 12 and 86 - 13). Whereas copper geochemistry shows anomalous values on both sides of the ridge, anomalous molybdenum values are almost entirely confined to the west side which is entirely within the intrusive. Nevertheless, the significant northwest trend outlined by copper geochemistry in this area is duplicated by the disposition and trend of anomalous molybdenum values.

APPENDIX A

PERSONNEL

PERSONNEL

FIELD:

J. M. Dawson, P. Eng.	- Geologist	June 29th., July 1st., July 14th. - 17th., July 20th., 21st., July 24th., 25th., July 27th., 28th.	- 12 days
J. Binnie	- Prospector	June 29th., July 1st., July 2nd. - 12th., July 24th. - 27th.	- 17 days
W. McKay	- Sr. Asst.	July 2nd. - 12th., July 19th. - 27th.	- 20 days
C. Davies	- Jr. Asst.	July 2nd. - 12th., July 14th. - 15th., July 19th. - 27th.	- 22 days

OFFICE:

J. M. Dawson, P. Eng.	- Geologist	June 18th. - 20th.	- 3 days
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APPENDIX B

STATEMENT OF EXPENDITURES

PROGRAMME COSTS

- on -

Asitka and Bob Claim Groups

(1). Labour

1 Geologist (P. Eng.)		
15 days @ \$125.00 per day	\$1,875.00	
1 Prospector		
17 days @ \$65.00 per day	985.00	
1 Sr. Asst.		
20 days @ \$50.00 per day	1,000.00	
1 Jr. Asst.		
22 days @ \$40.00 per day	<u>880.00</u>	\$ 4,740.00

(2). Expenses and Disbursements

(a). Truck Rental		
1 4 x 4 3/4 ton c/w winch		
41 days @ \$20.00 per day . . . \$820.00		
2,270 miles @ 12¢ per mile. . . <u>272.40</u>	1,092.40	
(b). Camp and Equipment Rental		
1 1/2 months @ \$500.00 per month . . .	750.00	
(c). Base Map Preparation.	2,378.00	
(d). Provisions	539.90	
(e). Helicopter Support		
1 hr. @ \$302.00 per hour	<u>302.00</u>	<u>4,962.30</u>

TOTAL HEREIN \$9,702.30

APPENDIX C

AFFIDAVIT IN SUPPORT OF STATEMENT OF EXPENDITURES

C A N A D A

Province of British Columbia

TO WIT:

) IN THE MATTER OF the Statement
) of Expenditures for Geological
) and Geochemical Exploration of
) the Asitka and Bob claims on
) the Omineca Mining Division.
)

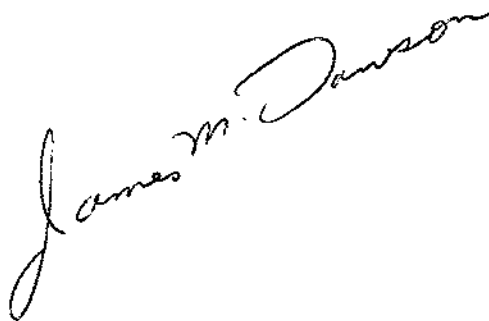
I, JAMES M. DAWSON, geologist of 2753 Sunset Drive,
in the City of Kamloops, in the Province of British Columbia,

DO SOLEMNLY DECLARE:

- (1). THAT the geological and geochemical investigation of the Asitka and Bob claims was carried out under my direction.
- (2). THAT the Statement of Expenditures set out in Appendix B of my report entitled "Geological and Geochemical Report on the Asitka and Bob claim groups" dated June 1st. to August 8th., 1974, truly represents the amounts expended on geological and geochemical surveys of the said claims.

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 the City
of Kamloops, in the Province of
British Columbia, this 9th. day
of October, A. D., 1974.



A COMMISSIONER for taking Affidavits
for British Columbia.

APPENDIX D

REFERENCES

REFERENCES

- Dawson, J. M. (1973): - Geological, Geochemical and Geophysical Report on the Asitka and Bob groups of claims - Report for Nomad Mines Ltd., (N. P. L.) - September, 1973.
- Dawson, J. M. (1973): - Geological and Geochemical Report on on the Asitka Group of claims - Report for Nomad Mines Ltd. - November, 1973.
- Lord, C. S. (1948): - McConnell Creek Map - Area, Cassiar District, British Columbia; G. S. C. Memoir #251.
- Amendologine, E. (1972): - Property Evaluation Report for Nomad Mines Ltd. (N. P. L.) on claims Bob #1 - #6 and Asitka #1 - #24.
- Poliquin, J. D. (1966): - Report on Exploration Programme of Black Giant Mines Ltd. on the Jim and Sil claim blocks, Sustut Lake Area, British Columbia.
- George Cross News Letter: - No. 59 (1973), PP 2 & 4 - March 23rd., 1973.
- Geophysical Map No. 5272 G.

APPENDIX E

WRITER'S CERTIFICATE

**JAMES M. DAWSON, P. ENG.
GEOLOGIST**

9-219 VICTORIA STREET
KAMLOOPS, B.C.

PHONE (604) 374-6427

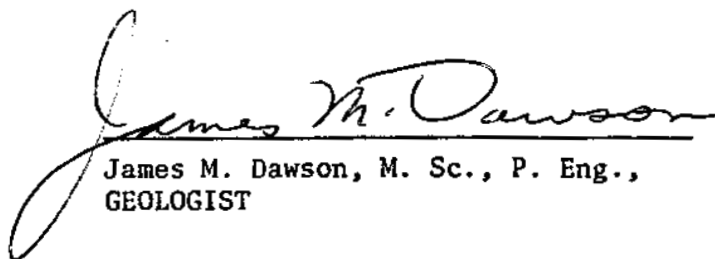
CERTIFICATE

I, JAMES M. DAWSON, OF KAMLOOPS, B. C. DO HEREBY CERTIFY THAT:

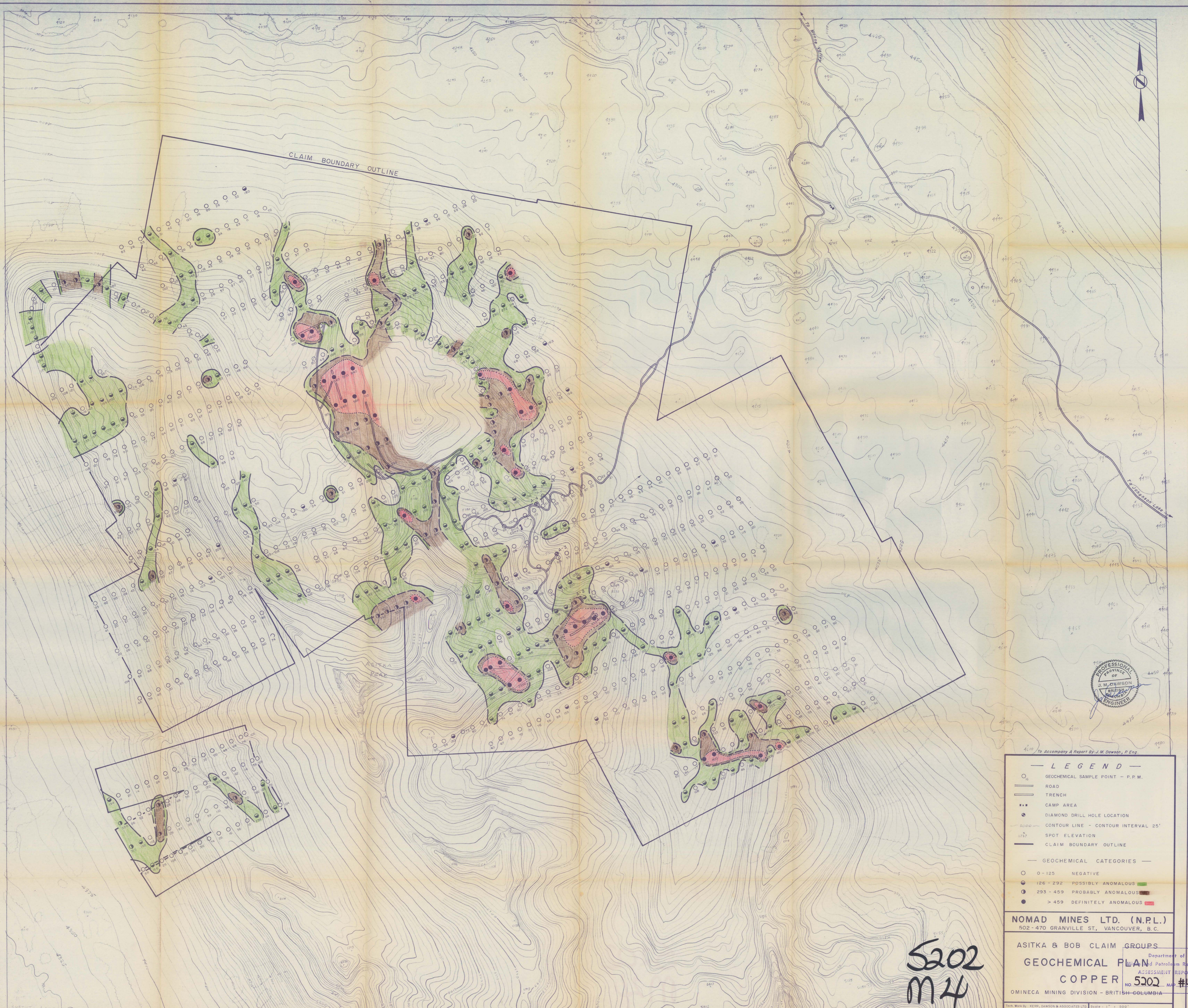
- (1). I am a geologist residing at 2753 Sunset Drive, Kamloops, and employed by Kerr, Dawson and Associates Ltd. of Suite #1 - 219 Victoria Street, Kamloops, B. C.
- (2). I am a graduate of the Memorial University of Newfoundland - B. Sc. (1960), M. Sc. (1963), a fellow of the Geological Association of Canada, and a member of the Association of Professional Engineers of B. C. I have practised my profession for 11 years.
- (3). I am the author of this report which is based on an exploration programme that included geological mapping and geochemical soil sampling carried out on the Asitka and Bob groups of claims.
- (4). I have no beneficial interest in Nomad Mines Ltd. (N. P. L.), or in the property discussed in this report, nor do I expect to receive any.

KERR, DAWSON AND ASSOCIATES LTD.,

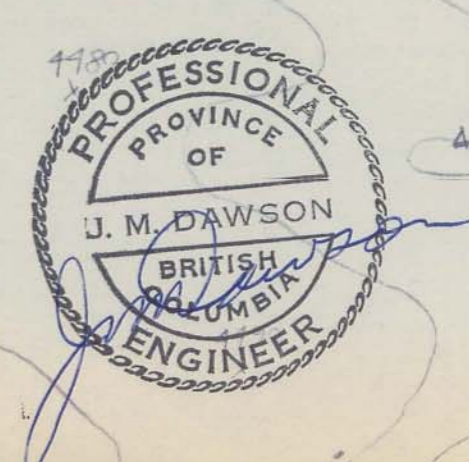



James M. Dawson, M. Sc., P. Eng.,
GEOLOGIST

October 15th., 1974,
KAMLOOPS, B. C.



CLAIM BOUNDARY OUTLINE



To Accompany A Report By J.M. Dawson, P. Eng.

LEGEND

○	GEOCHEMICAL SAMPLE POINT - P.P.M.
—	ROAD
—	TRENCH
■	CAMP AREA
●	DIAMOND DRILL HOLE LOCATION
—	CONTOUR LINE - CONTOUR INTERVAL 25'
127	SPOT ELEVATION
—	CLAIM BOUNDARY OUTLINE
— GEOCHEMICAL CATEGORIES —	
○	0 - 125 NEGATIVE
●	126 - 292 POSSIBLY ANOMALOUS
●	293 - 459 PROBABLY ANOMALOUS
●	> 459 DEFINITELY ANOMALOUS

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ASITKA & BOB CLAIM GROUPS

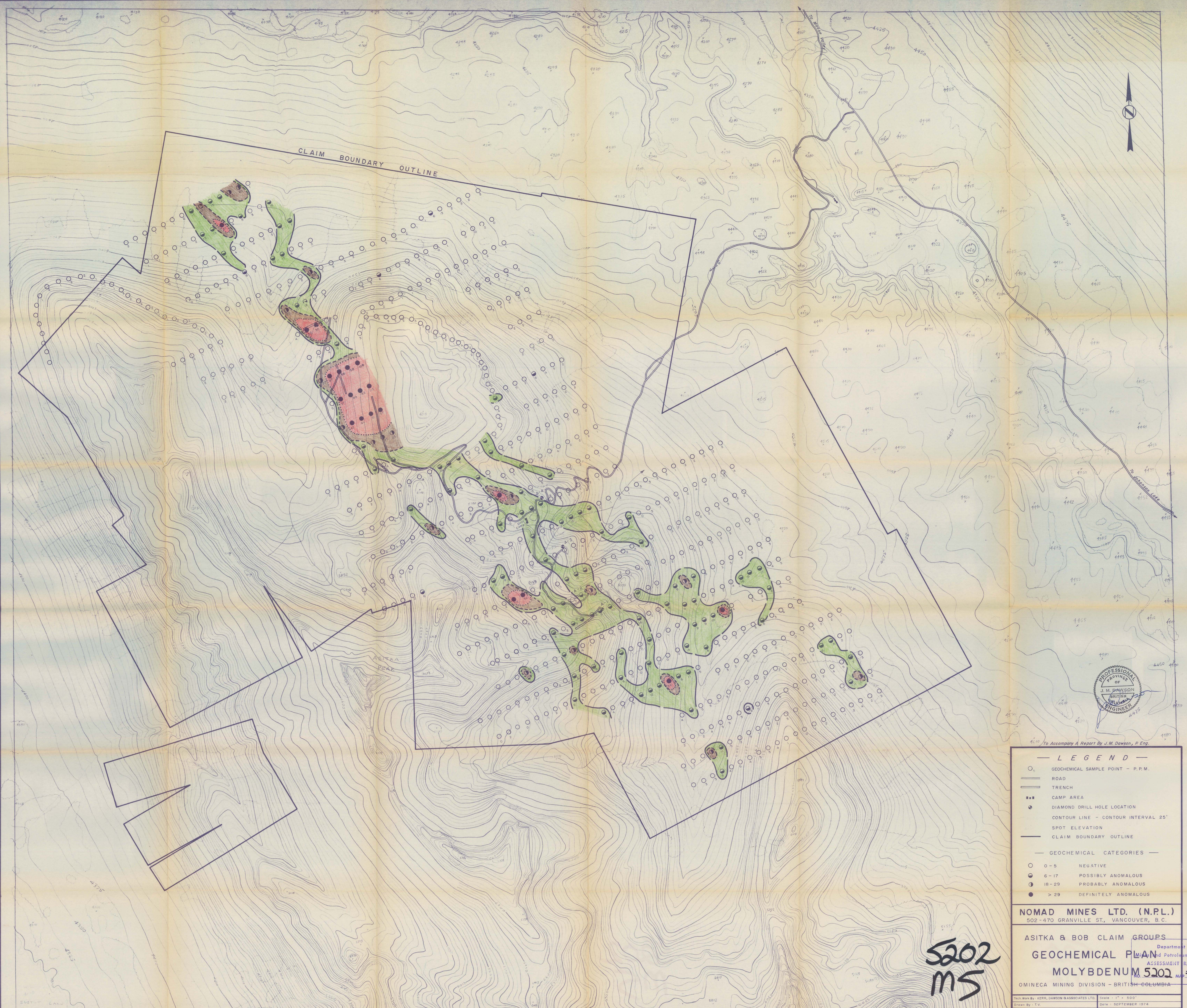
GEOCHEMICAL PLAN

COPPER

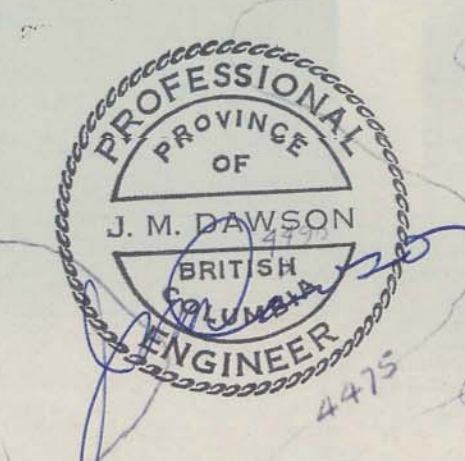
OMINECA MINING DIVISION - BRITISH COLUMBIA

5202
M4

Tech. Work By: HERR, DAWSON & ASSOCIATES LTD. Scale: 1" = 500'
Drawn By: T.V. Date: SEPTEMBER 1974
Approved By: J.M. DAWSON, P. Eng. Drawing No. 86 - 12



CLAIM BOUNDARY OUTLINE



To Accompany A Report By J.M. Dawson, P. Eng.

LEGEND	
○	GEOCHEMICAL SAMPLE POINT - P.P.M.
—	ROAD
—	TRENCH
■ ■ ■	CAMP AREA
●	DIAMOND DRILL HOLE LOCATION
—	CONTOUR LINE - CONTOUR INTERVAL 25'
○	SPOT ELEVATION
—	CLAIM BOUNDARY OUTLINE
GEOCHEMICAL CATEGORIES	
○	0 - 5 NEGATIVE
●	6 - 17 POSSIBLY ANOMALOUS
●	18 - 29 PROBABLY ANOMALOUS
●	> 29 DEFINITELY ANOMALOUS

NOMAD MINES LTD. (N.P.L.)
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ASITKA & BOB CLAIM GROUPS

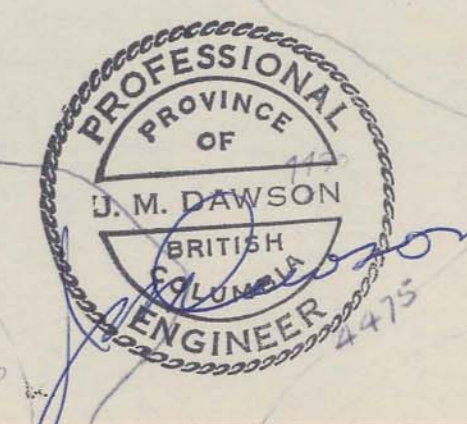
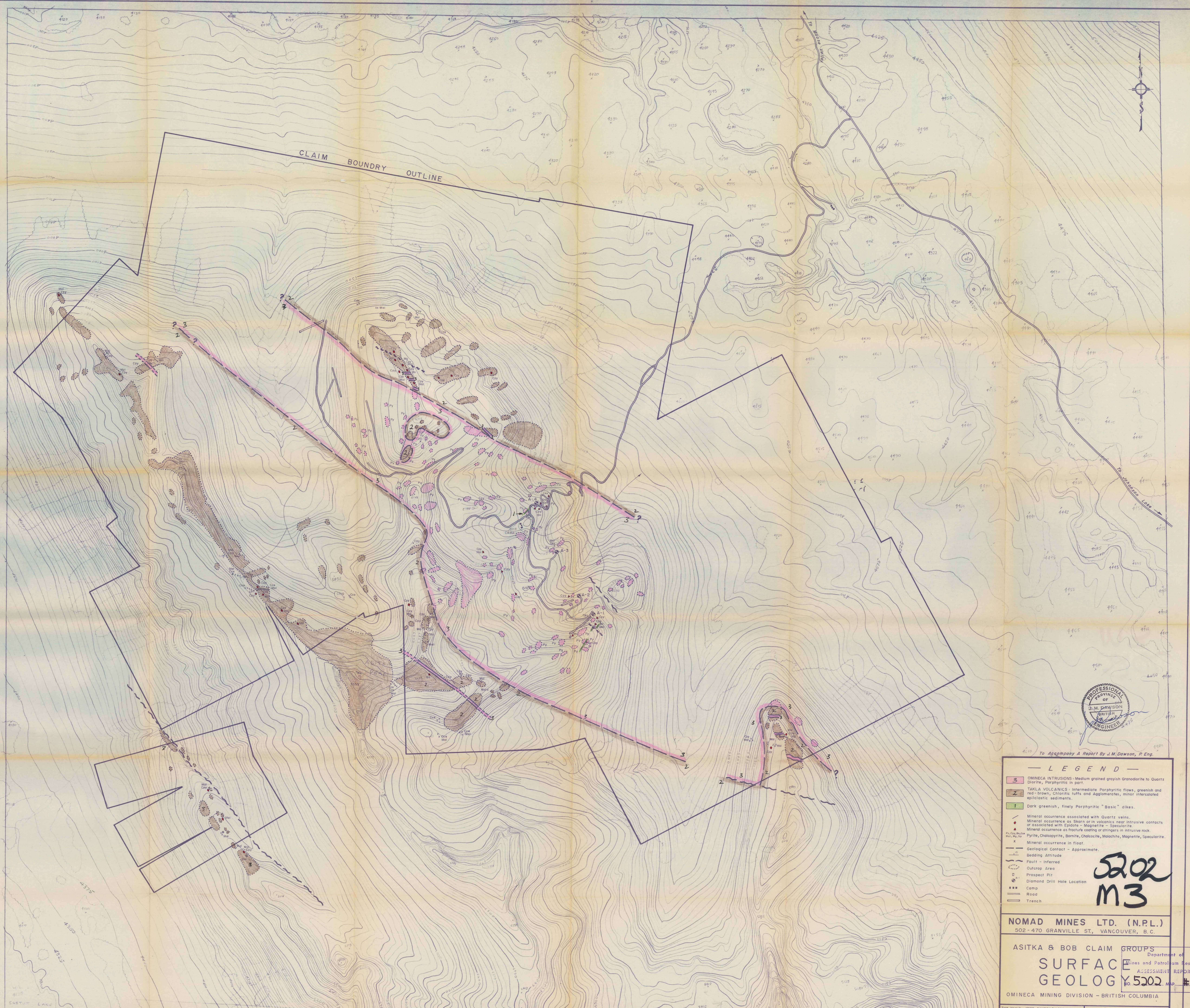
GEOCHEMICAL PLAN

MOLYBDENUM 5202

OMINECA MINING DIVISION - BRITISH COLUMBIA

5202
MS

Tech Work By: KERR, DAWSON & ASSOCIATES LTD. Scale: 1" = 500'
Drawn By: T.V. Date: SEPTEMBER 1974
Approved By: J.M. DAWSON, P. Eng. Drawing No: 86-18



To Accompany A Report By J.M. Dawson, P. Eng.

- LEGEND —**
- 3** OMINECA INTRUSIONS - Medium grained grayish Granodiorite to Quartz Diorite, Porphyritic in part.
 - 2** TAKLA VOLCANICS - Intermediate Porphyritic flows, greenish and red-brown, Chloritic tuffs and Agglomerates, minor intercalated epiclastic sediments.
 - 1** Dark greenish, finely Porphyritic "Basic" dikes.
 - Mineral occurrence associated with Quartz veins.
 - Mineral occurrence as Skarn or in volcanics near intrusive contacts or associated with Epidote - Magnetite - Sphalerite.
 - Mineral occurrence as fracture coating or stringers in intrusive rock.
 - Pyrite, Chalcopyrite, Borite, Chalcocite, Malachite, Magnetite, Sphalerite.
 - Mineral occurrence in float.
 - Geological Contact - Approximate.
 - Bedding Attitude - Approximate.
 - Fault - Inferred.
 - Outcrop Area.
 - Prospect Pit.
 - Diamond Drill Hole Location.
 - Camp.
 - Road.
 - Trench.

5202
M3

NOMAD MINES LTD. (N.P.L.)
502-470 GRANVILLE ST., VANCOUVER, B.C.

ASITKA & BOB CLAIM GROUPS
Department of
Mines and Petroleum Resources
SURFACE GEOLOGY ASSESSMENT REPORT
No. 5202 MAP #3

OMINECA MINING DIVISION - BRITISH COLUMBIA

Scale: 1" = 500'
Date: SEPTEMBER 1974
Drawing No. 86-11



To Accompany A Report By J.M. Dawson, P. Eng.

— L E G E N D —

—	PROPERTY BOUNDARY - NOMAD MINES LTD. (N.P.L.)
- - -	PROPERTY BOUNDARY - J.H. KRUZICK
- - -	PROPERTY BOUNDARY - B.F. MINERALS LTD.
□	CLAIM POST
—	ROAD
—	TRENCH
○	CONTOUR LINE - CONTOUR INTERVAL 25'
⊙	DIAMOND DRILL HOLE
***	CAMP LOCATION

5202
M2

NOMAD MINES LTD. (N.P.L.)
502 - 470 GRANVILLE ST., VANCOUVER, B.C.

ASITKA & BOB CLAIM GROUPS

CLAIM MAP ASSESSMENT REPORT
No. 5202 Map #2

OMINECA MINING DIVISION - BRITISH COLUMBIA

Tech. work by: KERR, DAWSON & ASSOCIATES LTD. Scale: 1" = 500'
 Drawn By: T.V. Date: SEPTEMBER 1974
 Approved by: J.M. DAWSON, P. Eng. Drawing No. 86-10