

4753

GEOLOGICAL & GEOCHEMICAL REPORT

- on the -

ASITKA GROUP OF CLAIMS
OMINECA MINING DIVISION
British Columbia

Mining Recorder's Office RECORDED DEC 6 1973 AT..... SMITHERS, B.C.

- for -

94D/9W

NOMAD MINES LTD. (N. P. L.), Department of
502-470 Granville St., Mines and Petroleum Resources
VANCOUVER, B. C. ASSESSMENT REPORT

NO. 4753 MAP

COVERING: Asitka #1 - Asitka #26 inc., Asitka #28 to Asitka #34 inc., and Asitka #1 Fr. to #5 Fr. inc.

WORK

PERFORMED: September 20th. to November 30th., 1973.

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.,
#6-219 Victoria Street,
KAMLOOPS, B.C.

J. M. Dawson, P. Eng.,
November 30th., 1973.

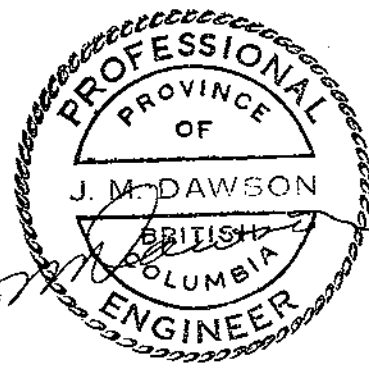


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Department of
 Mines and Petroleum Resources
 ADDRESS REPORT
 NO. **4753** #1

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: DWG. NO. 86-1
 KEIR DAWSON AND ASSOC.

INTRODUCTION

A preliminary exploration programme was carried out under the writer's supervision on the Asitka Peak property of Nomad Mines Ltd. (N. P. L.), during August, 1973. The results of this work were summarized by the writer in a previous report and indicate that the subject claims cover a porphyry - type copper occurrence in addition to the high grade vein type copper occurrences previously known to exist on the property.

Because of the significance of this discovery, it was felt by the management of Nomad that additional prospecting, geochemistry and bulldozer trenching should be carried out as soon as possible to try and assess in a preliminary way the size and grade of the surface mineralization.

To this end, a two man party spent approximately 6 days (September 21st - 26th.) on the property carrying out close prospecting and planning a road route from Johanson Creek road to the subject property. Unfortunately, an early fall of snow precluded bringing a bulldozer to the property. However, detailed prospecting succeeded in outlining a fairly large area of copper mineralization. Samples previously analysed for copper were analysed for molybdenum to see if there was any coincidence in values.

The up-dated results of this work are appended on a series of maps with this report.

PROPERTY

The property consists of 66 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 -	99770 -		
Asitka #10 inc.	99779 inc.		June 4th., 1976
Asitka #11 -	99780 -		
Asitka #14 inc.	99783 inc.		June 4th., 1976
Asitka #15 -	102699 -		
Asitka #24 inc.	102708 inc.		August 24th., 1975
Asitka #25	125781		June 4th., 1976
Asitka #26	125782		June 4th., 1976
Asitka #28	127796	434116M	August 23rd., 1974
Asitka #29	127797	950893	August 23rd., 1974
Asitka #30	127798	165016M	August 23rd., 1974
Asitka #31	127799	165017M	August 23rd., 1974
Asitka #32	127800	165015M	August 23rd., 1974
Asitka #33	127801	435399M	August 23rd., 1974
Asitka #34	127802	435400M	August 23rd., 1974
Asitka # 1 Fr.	127791	340563M	August 23rd., 1974
Asitka # 2 Fr.	127792	340564M	August 23rd., 1974
Asitka # 3 Fr.	127793	340533M	August 23rd., 1974
Asitka # 4 Fr.	127794	340532M	August 23rd., 1974
Asitka # 5 Fr.	127795	340531M	August 23rd., 1974

BOB GROUP

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

CLAIMS UNGROUPED

Asitka #35 -	128051 -	340565M -	
Asitka # 40 inc.	128056 inc.	340570M inc.	September 4th., 1974
Asitka #41 -	128057 -	343277M	
Asitka #44 inc.	128060 inc.	343280M inc.	September 4th., 1974
Asitka #45 -	128061 -	343284M -	
Asitka #54 inc.	128070 inc.	343293M inc.	September 4th., 1974
Asitka #6 Fr.	128049	343294M	September 4th., 1974
Asitka #7 Fr.	128050	343295M	September 4th., 1974

The registered owner of these claims is
Nomad Mines Ltd. (N. P. L.), F. M. C. No. 117029.

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 $56^{\circ} 34'$ north latitude and $126^{\circ} 24'$ west longitude.

Access to the property can be gained by flying from Prince George via Mackenzie to the Johanson Lake airstrip and thence 10 miles west to the property by helicopter. It is also possible to drive from Fort St. James, via Germanson Landing to Johanson Lake. The road is currently being extended from Johanson Lake to the Moose Valley airstrip which is about 14 miles northwest of the subject property. The primary right-of-way has already been laid out and passes along the northern boundary of the claims. It is anticipated that the road will be passable to the Nomad property in the early summer of 1974.

Access to various parts of the property is sometimes difficult because of the steep hillsides, but there are only a few places which are actually inaccessible.

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 southern boundary of the subject claims. The topography is steep to moderate and is dominated by two north to northwesterly - trending ridges which extend north from Asitka Peak. These ridges can be traversed along their crests although some of the cliffs along their flanks are not passable. Elevation varies 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 treeline, a fairly dense growth of spruce and fir predominates with varying amounts of deciduous underbrush.

Bedrock is well exposed along ridges and in some cliffs on their flanks; however, below treeline 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 near McConnel Creek; 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 McConnel Creek area 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 tags indicate the property was probably staked in the late 1940's and early 1950's.

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; three trenches on the Bob group and two cuts on chalcocite, vein showings on the ridge northwest of Asitka Peak.

The Black Giant ground lapsed in 1968 and in 1969 the Chalco claims were staked covering part of the property now owned by Nomad Mines. No work was done so these claims lapsed in 1970. In 1971, the original Asitka claims were 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, 1973, a three man field party headed by the writer spent approximately two weeks on the property carrying out a programme of geological mapping, geochemical soil sampling and a limited magnetometer survey.

This programme outlined an area of potential, porphyry-type mineralization and consequently the management of Nomad decided that a further programme to better expose and evaluate the new discovery, should be undertaken. Because of an early snowfall only a limited portion of this programme could be completed; however, the results necessitated an up-dating of the writer's previous report.

GENERAL GEOLOGY

The property is underlain by intermediate to basic flows, tuffs and minor, intercalated epiclastic sediments of the Takla Group, intruded by an elongate, northwesterly-trending stock which is probably part of the Omineca Intrusions.

The Takla rocks consist mainly of porphyritic flows. These vary from gray-green to red-brown andesites with pale green, rounded phenocrysts of pyroxene (?) or epidote, through dense, greenish-black 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 ends of both main ridges, a very distinctive, coarse, andesite porphyry was found. This rock consists of a fine, dense, greenish groundmass with elongate euhedral, plagioclase crystals up to one inch in length.

Pyroclastic rocks, where positively identified, vary from red-brown to greenish-gray and contain rounded fragments up to 3/4" in diameter; no coarse agglomerates were seen. In several cases, there seemed to be no clear-cut division between flows and fragmentals and some definite porphyritic flows have scattered fragments of fine grained argillite and red, cherty material. It is possible that some rocks tentatively identified as porphyritic flows could, in fact, be crystal tuffs.

Most fragmental rocks have appreciable amounts of epidote as scattered clots and irregular stringers. Several veins or dikes of epidote - rich material were noted along the ridge which runs northwest from Asitka Peak. Calcite was also noted as a cementing medium in some coarse tuffs; fragments enveloped by cockades of calcite, lie in a dominantly calcite groundmass.

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 beds suggests a type of turbidite sequence.

These sediments were the only places where bedding attitudes could be obtained in Takla rocks. The writer attempted to subdivide the various tuffs, flows, etc. but time and extremely complex stratigraphy did not permit this.

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

This intrusive body is predominantly a medium grained granodiorite which grades in places to a quartz diorite with increasing biotite and pyroxene. It is gray weathering on surface except in areas where weathering of contained pyrite has produced extensive limonitic staining. These rocks are equigranular for the most part; however, a semi-porphyrritic phase was noted at several localities. The semi-porphyrritic phase is similar in composition to the main body of intrusive except that feldspars are somewhat larger in size and rounded quartz eyes are present.

Near the center of the property, at the summit of the ridge trending north from Asitka Peak there are two small roof pendants of Takla rocks enclosed within the main intrusive body. This would seem to indicate that the present surface is near the top of the original intrusive body.

STRUCTURAL GEOLOGY

Among the volcanic flows and fragmentals, bedding attitudes are very hard to obtain and the readings that were taken are mostly from intercalated sediments. In general, these attitudes show an east-southeast plunging syncline at the south end of the property and possibly a complimentary anticline whose axis roughly coincides with the southwest boundary of the granodiorite pluton.

Both these postulated folds appear to be fairly simple, low amplitude, gently plunging structures. However, some steep dips and apparently tightly folded tuffs or tuffaceous sediments were seen at one locality. The writer could not determine whether this was due to penecontemporaneous deformation or whether some more intense deformation structures are present. This can only be determined by more detailed examination.

Only two faults were definitely delineated although others undoubtedly are present. Both faults trend northwesterly and this is also the predominant orientation of most fracturing, later dikes and quartz veins.

MINERALIZATION

Pyrite mineralization is widely distributed in the intrusive stock and occurs as fracture coatings,

as streaks and thin veinlets in silicified shear zones and as disseminated grains. The third mode of occurrence accounts for the bulk of the pyrite occurrences. Weathering of the contained pyrite has produced widespread gossans over much of the area underlain by the granodiorite pluton.

Copper mineralization is found in three distinct environments:

(1). As chalcocite, bornite, chalcopyrite and lesser copper carbonates and oxides in quartz-chalcedony veins and associated shear and/or skarn zones.

(2). As chalcopyrite and minor bornite and associated malachite, azurite and magnetite in thin stringers, fracture coatings and disseminated grains in volcanic fragmentals and flows.

(3). As disseminated grains, fracture coatings and minor veinlets of chalcopyrite and occasional bornite and copper carbonates in the granodiorite intrusive.

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 (approximately 45 SE, 5 NE) intermittently to near the northwest boundary (approximately 55 NW, 25 SW).

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 only make up 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 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 ridge top about 1,300 feet north of Asitka Peak.

About 2,700 feet northwest of Asitka Peak at approximately 16 SW, 2 SE, 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 values are erratic and the zone seems to pinch out to the southeast where some blasting was previously carried out. Near the northwest end of the vein-stockwork, a 2 to 5 foot skarn (?) zone can be traced at right angles to the main zone for about 35 feet. This zone has scattered stringers of chalcocite and chalcopyrite.

Near the northwest boundary of the property at 55 NW, 25 SW a 9" to 2' quartz vein is exposed on a dip surface and can be traced for about 250 feet. 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 found primarily in volcanic rocks to the northeast of the intrusive stock. Some minor occurrences were found on the Bob Group but they do not appear to be very extensive. Typically this type of occurrence consists of thin stringers or fracture coatings of chalcopyrite with frequent copper carbonates. Disseminated grains of chalcopyrite with magnetite were also noted. Disseminated chalcopyrite and malachite was also found in nearly, narrow granodiorite dikes.

This type of copper occurrence is found along a ridgetop about 6,000 to 7,000 feet north of Asitka Peak (approximately 27 NW, 28 NE). Here chalcopyrite 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. Similar occurrences were found at 68 NW, 27 NE just outside the northwest boundary of the Nomad property.

The third type of copper occurrence is found within the granodiorite intrusive and consists primarily of disseminated grains of chalcopyrite as well as lesser fracture coatings and occasional small veinlets. Copper carbonates sometimes accompany the chalcopyrite and minor bornite was noted in several places. This copper mineralization occurs within a much larger area, containing appreciable pyrite and limonite, and unless malachite is present, chalcopyrite can be overlooked if the rock is not examined carefully.

Copper mineralization of this type was seen at several places in the intrusive but was noted in two closely adjacent areas in the southeast corner of the property. (See figure 86 - 3). Here copper mineralization is found in several outcrops and in considerable float. In some places there appears to have been extensive leaching and only minor chalcopyrite and copper carbonates are now present in a soft, primarily limonitic rock. In other occurrences, chalcopyrite is found as fracture coatings and/or veinlets in fairly massive rock exhibiting typical pink potash feldspar alteration. There are of course all gradations between these two types of occurrences and seemingly considerable variation in rock composition and intensity of alteration over short distances.

The two areas where copper mineralization is most prevalent in the intrusive coincide with areas of high copper values in soils (see figures 86 - 3 and 86 - 4). An area of similar high soil values was outlined by geochemistry in the northwest - central part of the property, but unfortunately time did not permit any detailed prospecting in that area.

GEOCHEMISTRY

Soil sampling was conducted at 200 foot intervals on grid lines spaced 500 feet apart. Steep terrain prohibited soil sampling in some areas of the grid. Contour traverses were run in two such areas where outcrops indicated the presence of copper mineralization. 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 these areas would have to be classified as talus fines. After collection, samples were stored in waterproof, kraft envelopes.

A total of 479 soil samples were collected and analysed for copper in the Vancouver laboratories of Bondar - Clegg and Company Ltd. As a result of the second programme on the property, all samples which were in or bordering the intrusive stock, were analysed for molybdenum.. A total of 299 samples were analysed for molybdenum. 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 copper and molybdenum 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 outlined. (See figures 86 - 4 and 86 - 6).

Copper values are unusually high and show a definite relationship between the intrusive stock and copper mineralization in general. Almost all the definitely anomalous values fall within the boundaries of the intrusive. A number of high values were encountered in the contour traverse in the extreme northern part of the mapped area and reflect the widespread chalcopyrite mineralization in volcanics (Second type) to the northeast of the granodiorite pluton.

The copper geochemistry roughly outlines the northwesterly - trending zones of discontinuous, mineralized quartz veins (Frist type), but its sporadic nature is exemplified by the discontinuous nature of higher copper values in soils in these zones.

On the Bob group only a few higher copper values were delineated and this area together with the side of the property paralleling Sustut Lake seem to be zones of relatively sparse copper mineralization.

There is a definite correlation between high copper and high molybdenum values in soils (see figure 86 - 6). There is a clustering of higher values in 2 distinct areas as with the copper and the confinement of higher values to areas underlain by intrusive rock is even more pronounced. A possible third area of interest seems to be located just at the southeast boundary of the property where a small area of coincident high molybdenum and copper values occur. The extent of this area is not known, but the anomalous zone is open to the southeast, off the Nomad claims.

ECONOMIC POTENTIAL

From the limited exploration work done to date a large number of copper occurrences in three separate environments have been outlined on the Nomad Mines property.

The mineralization associated with quartz veins and stockworks occurs in a northwesterly - trending zone which is as much as 1,000 feet wide and can be traced intermittently through the property. Although many such occurrences were found and some of them are locally high grade, this type of mineralization of itself is not considered to have good ore - making potential. If a large number of well mineralized veins could be found over appreciable widths (such as occurs on the ridge immediately north of Asitka Peak), then a potentially economic situation might be developed. It is possible that some of the individual vein-zones could widen and become richer with depth; however, the sporadic nature of mineralization noted in surface exposures does not indicate that there is a high probability of this occurring. Similar type mineralization south of the Nomad property was drilled by Black Giant Mines Ltd. in 1966 and found to be spotty and low grade at depth.

The copper mineralization occurring as thin veinlets and fracture coatings in volcanics is interesting in that it occurs over a considerable area in one place and was found in limited occurrences to the northwest and southeast of the main occurrence. Both these latter areas were only prospected in a cursory manner since they were

outside the original claim block. It is quite possible that large areas of volcanics carrying similar widespread copper mineralization could be present in areas currently masked by overburden to the northwest, northeast and southeast.

The third type of mineralization encountered - i.e. that found as disseminations, fracture coatings and veinlets within the intrusive stock, is considered most significant by the writer. It has been noted at several places within the intrusive and a considerable number of mineralized occurrences were found in outcrop and in float in two adjacent areas in the southeast corner of the property (see figure 86 - 3). These two mineralized areas were outlined by soil geochemistry, but it was only after detailed prospecting that the extent of copper mineralization on surface was realized. A similar area of high copper values in soils in the north central portion of the property has not yet been closely examined.

The geochemistry indicates that the granodiorite pluton is the focus and (?) source of the mineralization occurring on the subject property. It is the writer's belief that both the other types of mineralization are related (at least secondarily) or remobilized by hydrothermal activity accompanying the emplacement of the intrusive stock. There are several factors - i.e. types of rock alteration, mode of mineralization, pervasive pyrite mineralization, regional metal zoning, coincidence of copper and molybdenum geochemistry which indicate the presence of a typical porphyry copper environment. This occurrence is a new discovery which has the potential of becoming a low grade, large tonnage mining operation. The mineralization

is widespread on surface and if sufficient volumes of mineralized material of economic grade are encountered at depth, the location of this property near the main access in the region and its relatively moderate topography gives it many advantages towards becoming a viable mining operation.

The writer has not examined the new Falconbridge - Westfrob discovery in the Sustut region; however, it is understood to be a stratabound type of copper occurrence. While no mineralization of this type was encountered on the Nomad property, the fact that Falconbridge has optioned the New Wellington property to the north of Nomad and that several major companies have reportedly staked ground to the north and east of the subject property, indicates that a similar type of environment could exist on the Nomad property. This potential will be better understood once the Falconbridge - Westfrob discovery is documented and the detailed geological work now being done in the area by the provincial Department of Mines is published.

In summary, the Nomad Mines property has excellent potential for the discovery of an economically viable copper deposit and continued exploration of this property is strongly recommended.

SUMMARY AND CONCLUSIONS

(1). The Nomad Mines Ltd. property consists of 66 full sized and fractional claims located about 90 miles northwest of Germanson Landing in the Omineca Mining Division, British Columbia. With the extension of the road to Moose Valley from Johanson Lake, the property will be road accessible for the 1974 field season.

(2). The first recorded exploration work in the immediate area was that done by Black Giant Mines Ltd. during 1966. This work consisted mostly of regional prospecting and mapping with the emphasis on the fissure vein copper occurrences. During August, 1973, a preliminary exploration programme including geological mapping, prospecting, geochemical soil sampling and a limited ground magnetic survey was carried out under the writer's supervision.

(3). The property is underlain by intermediate to basic volcanic flows and pyroclastics as well as intercalated, epiclastic sediments of the Takla Group. These rocks are intruded by an elongate, northwest - trending granodiorite stock, which is part of the Omineca Intrusions.

(4). Widespread copper occurrences were encountered on the property and can be classified into three separate modes of occurrence:

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

- (b). As chalcopyrite and minor bornite and associated malachite, azurite and magnetite in thin stringers, fracture coatings, and disseminated grains in volcanic flows and fragmentals.
- (c). As chalcopyrite disseminations, fracture coatings and veinlets in areas of the granodiorite intrusive.

(5). Soil geochemistry indicates that the intrusive body is the focus of copper mineralization since all the highest values occur in or adjoining this pluton. Molybdenite values correlate well with copper values in soils. Most known areas of mineralization are well outlined and additional anomalous zones in predominantly overbuden - covered areas indicate the possibility of considerably more mineralization than that currently exposed.

(6). Ground magnetics indicate that the mineralized intrusive extends to the northwest across the main drift covered valley on the property. Good contrast in magnetic background occurs between intrusive and volcanics and the pluton can be easily traced by magnetometer traverses.

(7). Field evidence indicates that the Nomad Mines property has excellent potential for the discovery of a large tonnage-low grade copper deposit and a detailed follow-up programme is strongly recommended.


RECOMMENDATIONS

- (1). Additional claims should be staked to the southeast of the currently held ground, along the strike of the intrusive stock.
- (2). A spur road should be built from the existing road to the main cirque on the property.
- (3). More detailed geological and geochemical surveys should be carried out to further delineate specific areas of interest.
- (4). Bulldozer trenching of accessible mineralized zones and geochemical anomalies should be carried out.
- (5). Selected targets should be diamond drilled to test mineralization at depth.

Respectfully Submitted:

KERR, DAWSON AND ASSOCIATES LTD.,




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

November 30th., 1973,
KAMLOOPS, B. C.

APPENDIX A

ESTIMATED COST OF RECOMMENDED PROGRAMME

ESTIMATED COST OF RECOMMENDED PROGRAMME

- on -

ASITKA AND BOB CLAIM GROUPS

PHASE I: - 3 Month Programme

(1). Personnel		
1 Geologist - Supervisor		
3 months @ \$1,500 per month	\$4,500.00	
3 Field Assistants		
3 months @ \$900 per month each	8,100.00	
Overhead on salaries @ 15%	1,890.00	\$14,490.00
(2). Transportation		
1 - 4 x 4, 3/4 ton truck		
3 months @ \$500 per month	1,500.00	
Helicopter - casual charter		
5 hrs. @ \$160 per hour	800.00	2,300.00
(3). Supplies and Disbursements		
Food - 360 man days @ \$6/day	2,160.00	
Camp Rental	400.00	
Geochemical Analyses	800.00	
Assays	1,000.00	
Magnetometer Rental - 1 mo. @ \$300	300.00	
Freight, fuel, etc.	500.00	
Travel Expenses	850.00	
Plugger Rental - 3 months @ \$250/mo.	750.00	
Powder, caps and fuse	300.00	
Supplies, Secretarial, Drafting, and report preparation	1,000.00	8,060.00
CARRIED FORWARD		\$24,850.00

Estimated Cost of Recommended Programme on Asitka and Bob Claim Group - page 2

BROUGHT FORWARD \$24,850.00

(4). Consulting and Supervision

10 days @ \$125.00 per day 1,250.00

(5). Stripping and Road Construction

D-8 Cat c/w hydraulic blade and rippers
400 hrs. @ \$45 per hour 18,000.00

(6). Diamond Drilling

3,000 feet B. Q. wireline @ \$12 per foot 36,000.00

TOTAL \$80,100.00

Contingency @ 10% 8,010.00

Total estimated cost of recommended programme \$88,110.00

ROUNDED \$88,000.00

APPENDIX C

STATEMENT OF EXPENDITURES

PROGRAMME COSTS

- on the -

ASITKA CLAIM GROUP

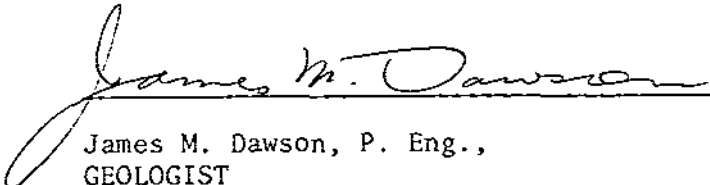
(1). Labour

1 Geologist (P. Eng.) 12 days @ \$125.00 per day	\$1,500.00	
1 Prospector 8 days @ \$75.00 per day	<u>600.00</u>	\$2,100.00

(2). Expenses and Disbursements:

(a). Truck Rental 5 days @ \$15.00 per day . . . 75.00 1,160 miles @ 15¢/mile. . . <u>174.00</u>	349.00	
(b). Helicopter Support	303.40	
(c). Travel, board and Lodging and provisions	423.07	
(d). Air freight, Kamloops-Johanson. .	154.29	
(e). Camp and Equipment Rental	62.25	
(f). Telephone, typing, Xerox, and blueprints	64.20	
(g). Geochemical Analyses	<u>299.00</u>	<u>1,655.21</u>
TOTAL HEREIN		<u><u>\$3,755.21</u></u>

CERTIFIED CORRECT:


James M. Dawson, P. Eng.,
GEOLOGIST

APPENDIX E

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.)
- Lord, C. S. (1948): McConnel Creek Map - Area, Cassiar District, British Columbia
- 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 F

WRITER'S CERTIFICATE

JAMES M. DAWSON, P.ENG.
GEOLOGIST

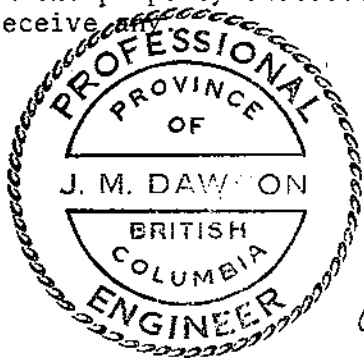
9-219 VICTORIA STREET
KAMLOOPS, B.C.

PHONE (604) 374-6427

WRITER'S CERTIFICATE

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

- (1). I am a geologist residing at 383 West Columbia Street, Kamloops, and employed by Kerr, Dawson and Associates Ltd., of Suite #6, 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 10 years.
- (3). I am the author of this report which is based on two exploration programmes that included prospecting geological mapping, and geochemical soil sampling 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



KERR, DAWSON, AND ASSOCIATES LTD.,

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

November, 1973,
KAMLOOPS, B. C.

APPENDIX G

MAPS

APPENDIX D

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 claims in the
) Omineca Mining Division.
)
)

I, JAMES M. DAWSON, Geologist of 383 West Columbia Street, in the City of Kamloops, in the Province of British Columbia,

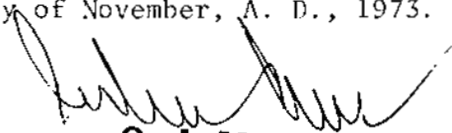
DO SOLEMNLY DECLARE:

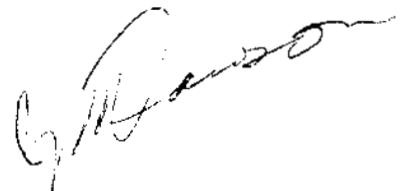
- (1). THAT the geological and geochemical investigation of the Asitka claims was carried out under my direction.

- (2). THAT the Statement of Expenditures set out in Appendix C of my report entitled "Geological and Geochemical Report on the Asitka Claim Group" dated September 20th. to November 30th., 1973, 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 30th. day of November, A. D., 1973.


G. J. McARTHUR



A Commissioner for taking Affidavits for British Columbia

11

APPENDIX B

PERSONNEL

PERSONNEL

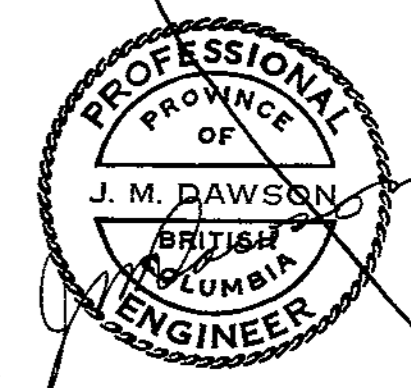
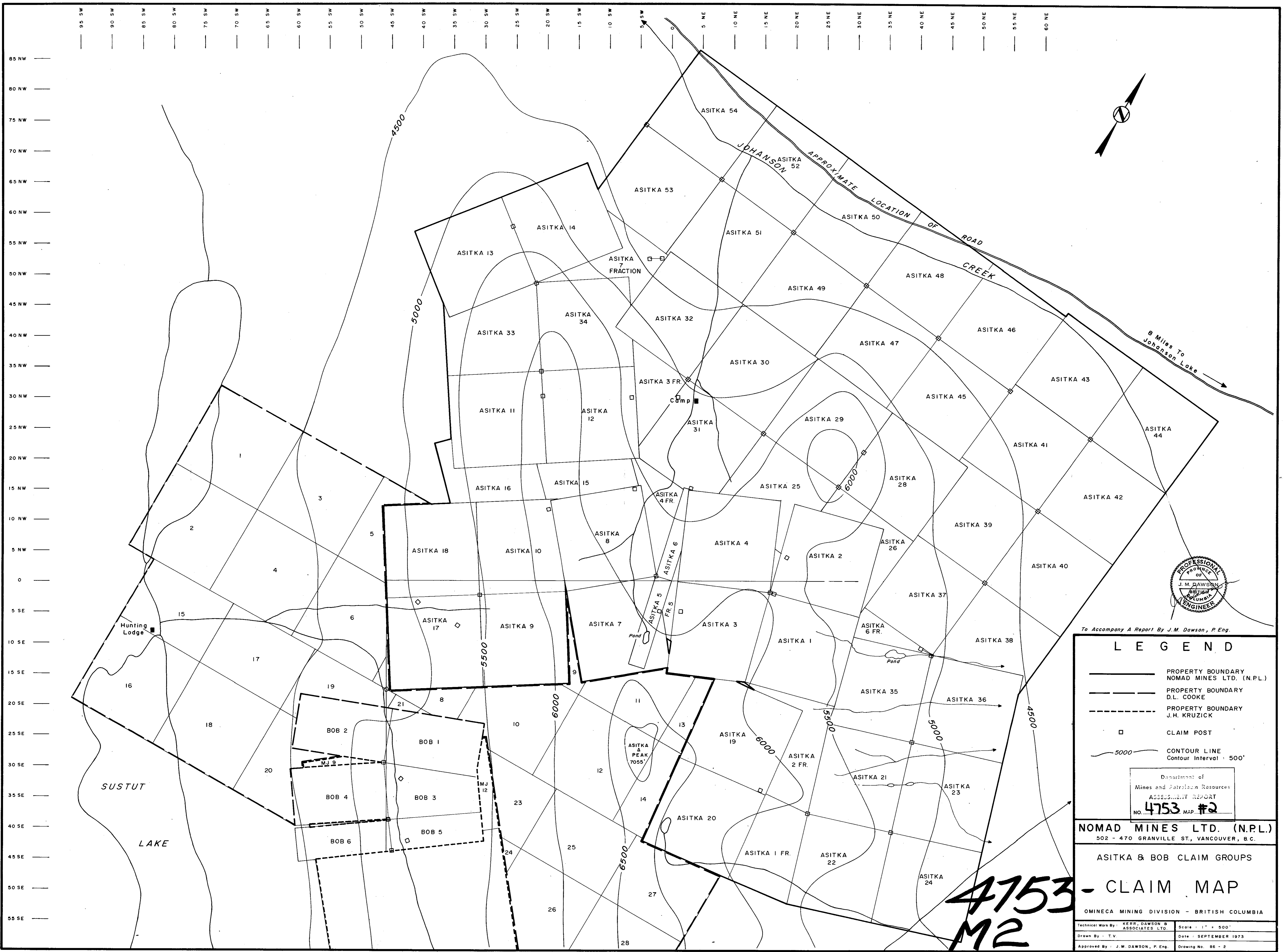
FIELD:

J. M. Dawson, P. Eng. Geologist September 21st.-September 28th.,
1973 - 8 days

H. Buhr Prospector September 21st. - September 28th.,
1973 - 8 days

OFFICE:

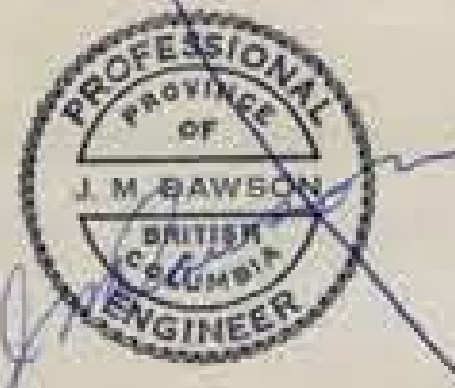
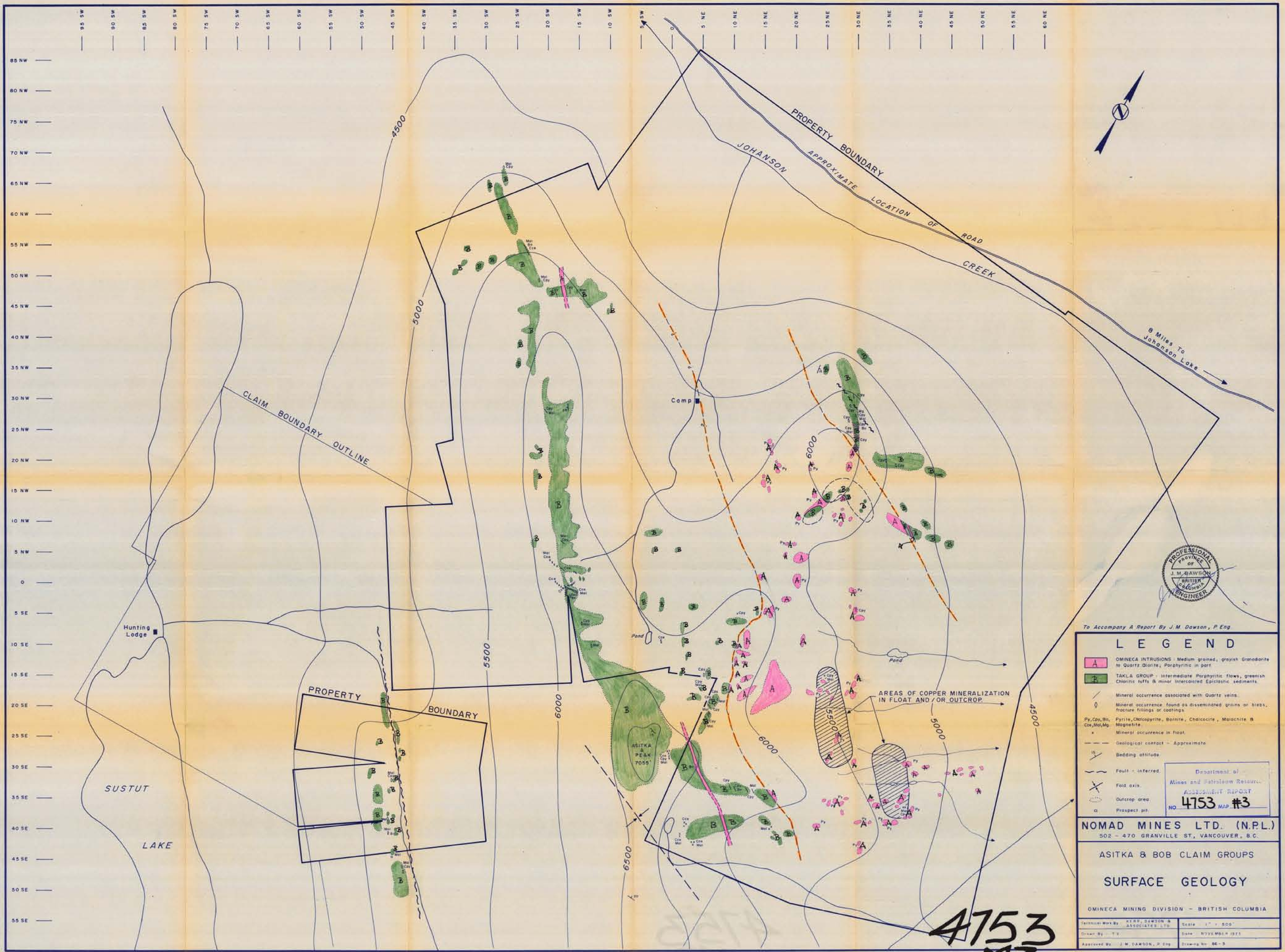
J. M. Dawson, P. Eng. Geologist October 31st. and November
November 27 - 29, 1973
4 days



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

LEGEND	
	PROPERTY BOUNDARY NOMAD MINES LTD. (N.P.L.)
	PROPERTY BOUNDARY D.L. COOKE
	PROPERTY BOUNDARY J.H. KRUZICK
	CLAIM POST
	CONTOUR LINE Contour Interval: 500'
Department of Mines and Petroleum Resources ASSESSMENT REPORT No. 4753 MAP. #2	
NOMAD MINES LTD. (N.P.L.) 502 - 470 GRANVILLE ST., VANCOUVER, B.C.	
ASITKA & BOB CLAIM GROUPS	
4753 - CLAIM MAP	
OMINECA MINING DIVISION - BRITISH COLUMBIA	
Technical Work By: KERR, DAWSON & ASSOCIATES LTD.	Scale: 1" = 500'
Drawn By: T.V.	Date: SEPTEMBER 1973
Approved By: J.M. DAWSON, P. Eng.	Drawing No. 86 - 2

4753
M2



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

LEGEND	
A	OMINECA INTRUSIONS - Medium grained, grayish Granodiorite to Quartz Diorite, Porphyritic in part
B	TAKLA GROUP - Intermediate Porphyritic flows, greenish Chloritic tuffs & minor intercalated Epiclastic sediments
	Mineral occurrence associated with Quartz veins
	Mineral occurrence found as disseminated grains or blebs, fracture fillings or coatings
Py, Cpy, Bc, Coe, Mal, Mg	Pyrite, Chalcopyrite, Bornite, Chalcocite, Malachite & Magnetite
*	Mineral occurrence in float
	Geological contact - Approximate
	Bedding attitude
	Fault - inferred
	Fold axis
	Outcrop area
	Prospect pit

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO **4753** MAP #3

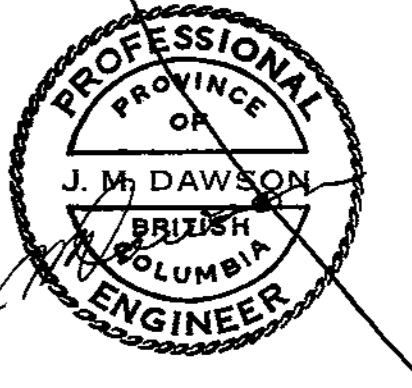
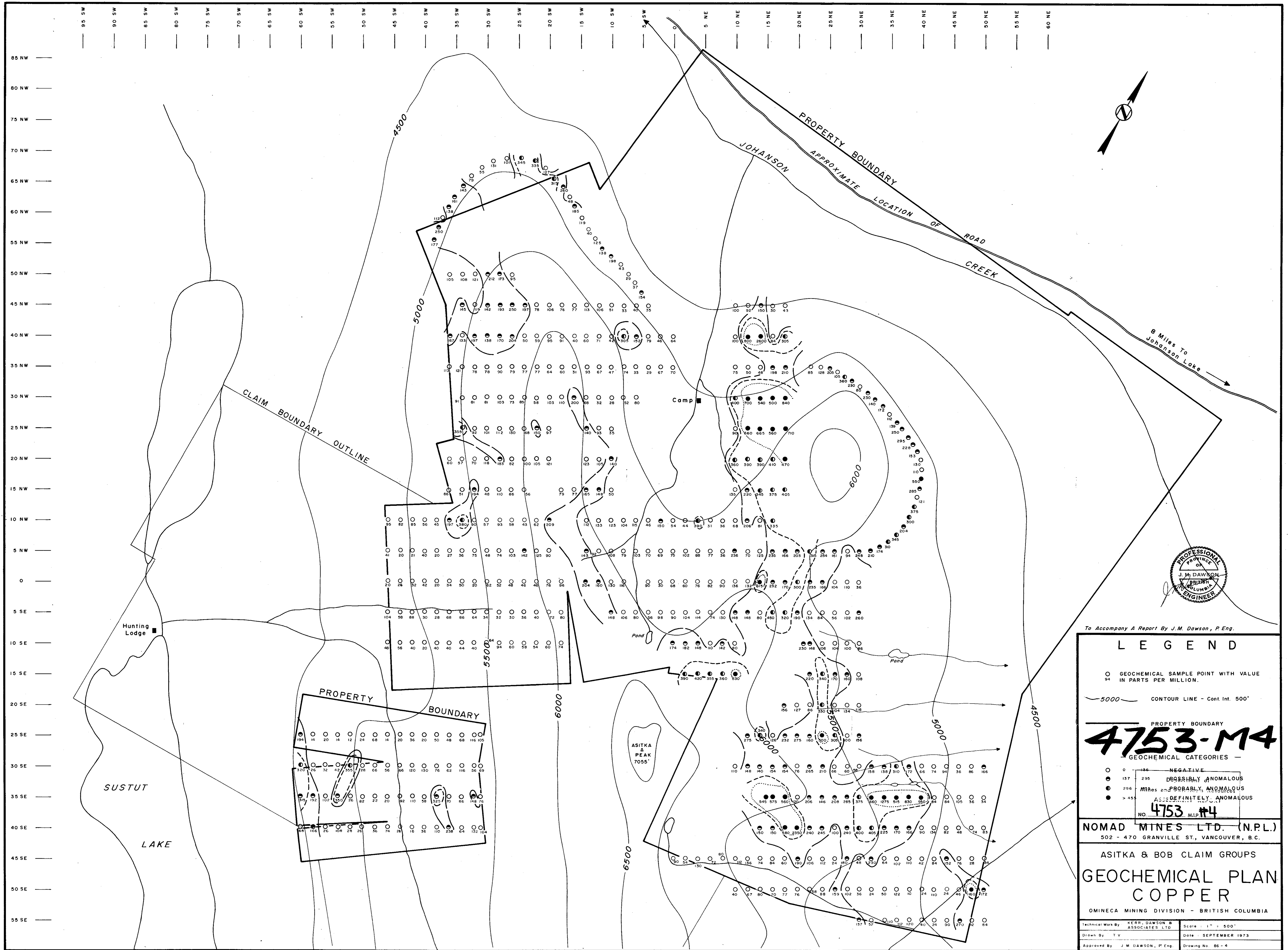
NOMAD MINES LTD. (N.P.L.)
502 - 470 GRANVILLE ST., VANCOUVER, B.C.

ASITKA & BOB CLAIM GROUPS
SURFACE GEOLOGY

OMINECA MINING DIVISION - BRITISH COLUMBIA

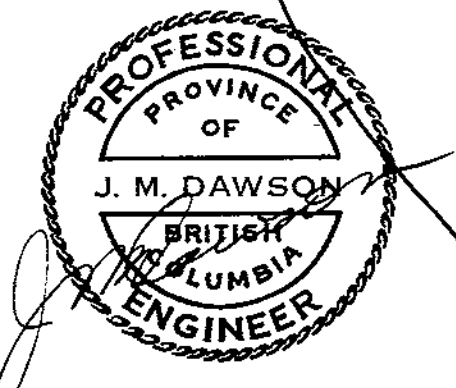
Technical Work By: JERRY DAWSON & ASSOCIATES L.T.O.	Scale: 1" = 500'
Drawn By: T.V.	Date: NOV 26 1971
Approved By: J. M. DAWSON, P. Eng	Drawing No: 86-3

4753
M3



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

LEGEND	
○	GEOCHEMICAL SAMPLE POINT WITH VALUE IN PARTS PER MILLION.
— 5000 —	CONTOUR LINE - Cont. Int. 500'
PROPERTY BOUNDARY 4753-M4 GEOCHEMICAL CATEGORIES —	
○	NEGATIVE
●	137 - 295 POSSIBLY ANOMALOUS
●	296 - 455 PROBABLY ANOMALOUS
●	> 455 DEFINITELY ANOMALOUS
ASITKA & BOB CLAIM GROUPS NO. 4753 M.P. #4	
NOMAD MINES LTD. (N.P.L.) 502 - 470 GRANVILLE ST., VANCOUVER, B.C.	
ASITKA & BOB CLAIM GROUPS GEOCHEMICAL PLAN COPPER	
OMINECA MINING DIVISION - BRITISH COLUMBIA	
Technical Work By: KERR, DAWSON & ASSOCIATES, LTD.	Scale: 1" = 500'
Drawn By: T.V.	Date: SEPTEMBER 1973
Approved By: J. M. DAWSON, P. Eng.	Drawing No. 86-4



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

LEGEND

○ GEOCHEMICAL SAMPLE POINT WITH VALUE IN PARTS PER MILLION.

— 5000 — CONTOUR LINE - Cont. Int. 500'

4753-M5

PROPERTY BOUNDARY

— GEOCHEMICAL CATEGORIES —

○	0 - 8	NEGATIVE
○	9 - 24	POSSIBLY ANOMALOUS
○	25 - 40	PROBABLY ANOMALOUS
○	> 40	DEFINITELY ANOMALOUS

NO. **4753** MAP #5

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

ASITKA & BOB CLAIM GROUPS

GEOCHEMICAL PLAN
MOLYBDENUM

OMINECA MINING DIVISION - BRITISH COLUMBIA

Technical Work By	KERR, DAWSON & ASSOCIATES LTD.	Scale	1" = 500'
Drawn By	T.V.	Date	NOVEMBER 1973
Approved By	J.M. DAWSON, P. Eng.	Drawing No.	86-6