REPORT ON
BOG GROUP OF MINERAL CLAIMS

KAMLOOPS M.D.

LAT. 51°36'N, LONG. 120°30' W.

WORK DONE BETWEEN
JUNE 18 AND AUGUST 26, 1972.

BY 92P/9W,10E

A.J. SINCLAIR, Ph.D., P.ENG.

AUGUST 10, 1972.

3900

REPORT ON WORK DONE ON

BOG GROUP OF CLAIMS

Kamloops Mining Division

(Lat. 51° 36' N.; Long. 120° 30' W.)

for

PRISM RESOURCES LTD. (N.P.L.)

by

A.J. Sinclair, P.Eng.

August 10, 1972

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TABLES

FIGURES

INTRODUCTION

Bog claims group is in Kamloops Mining Division in the southern part of the Cariboo district of British Columbia (Figure 1). Approximate coordinates of the centre of the property are: 51° 36' N. Lat. and 120° 30' W. Long.

The eastern part of the property is easily accessible from Provincial Highway 24, by a gravel road that extends northerly from a point on the highway about 7 miles east of Bridge Lake. This road is passable with difficulty by standard 2-wheel drive vehicles but provides easy access for 4-wheel drive vehicles. The road branches at the southeast corner of the property, the western branch traverses the northern part of the Bog group and itself branches to provide access to the western part of the group.

The claims group is shown in Figure 2. It includes Bog 3-72 inclusive, Bog 73 fraction and Bog 74-90 inclusive. During staking the names Bog 49, Bog 50 and Bog 75 were inadvertently used twice. Consequently, the group contains 90 full size and one fractional mineral claims.

Bog claims are held by Prism Resources Ltd. under terms of an option agreement with Mr. G.H. Rayner of West Vancouver, B.C. Locations of claims shown in Figure 2 are based largely on ground examination of location lines and claim posts by the writer, but in part on information supplied by Mr. Rayner.

The area is characterized by moderate relief and fairly thick forest cover. Much of the low ground between ridges and hills is swampy. Property elevations range from about 4500 to 5500 feet a.m.s.l. and slopes are generally moderate to low, except perhaps locally.

This report is based largely on field work conducted by Mr. G.H. Rayner, P.Eng., Mr. J.F. Orr, Geologist, and the writer. Work consisted of geological mapping carried out at a scale of 1 inch equals 400 feet. The base map used was a topographic map produced in Assessment Reports by Anaconda. Mapping methods used varied from place to place on the property and included direct mapping on the topographic base map, pace and compass tie-ins to a grid established on the property, the grid in turn being tied in to the topographic base map, and direct mapping on the grid. A stereographic analysis of aerial photographs that cover the area was also done as a means of evaluating the extent and nature of faulting. Results were transferred from an airphoto base to the topographic base using both topographic control and the resection method.

A pre-existing grid on the property was cleared to some extent, and rechained as many original markings had become obliterated. A N-S baseline exists at 378 East, and E-W crosslines are for the most part spaced at intervals of 800 feet. This grid covers a large proportion of the property. Figure 3 shows the extent of grid that was refurbished.

GENERAL GEOLOGY

The area has been mapped on a reconnaissance scale by Campbell and Tipper (1971). They recognize a single major rock group in the area encompassed by Bog group: Nicola volcanic rocks of Upper Triassic age. A somewhat more detailed study by Preto (1970) shows the presence of considerable quantities of a second major unit--intrusive rocks ranging in composition from leucogranite to leucosyenite, and of probable Upper Triassic or Lower Jurassic age. Preto (ibid.) considers that these intrusions are probably the same age as the Thuya batholith to the south, perhaps being satellites of the batholith. Little emphasis has yet been placed on analysis of faults in the area despite the obvious abundance of pronounced lineaments by simple stereo viewing of aerial photographs.

Bog group is extensively drift-covered and outcrops form a small percentage of the total area. Small knolls and hills commonly have a centrally located area of outcrop. Large hills, however, have gentle flanks as a rule and do not expose much bedrock. Even where flanks steepen locally outcrops are not assured.

Despite the scarcity of outcrop, the drift cover is not everywhere particularly thick. The road branches in the northern and western parts of the property have considerable outcroppings along them resulting from relatively minor bulldozer cuts made when the road was constructed.

On the basis of field work during the summer of 1972 for Prism Resources Ltd. a geological map was prepared (in pocket) and the relative sequence of events shown in Table I established.

NICOLA VOLCANIC ROCKS

Rocks of the Nicola Group found on Bog claims are essentially those described by Preto (1970). A variety of flow rocks have been recognized including massive andesite, augite porphyry and plagioclase porphyry. These are relatively unaltered in most places and readily recognizable. Volume-wise they are not an abundant proportion of the exposed rocks on the claims. They occur at scattered localities throughout the property associated with other rock types and appear to represent intermittent lava flows in what was predominantly a subaerial or submarine environment of pyroclastic deposition.

TABLE I Rock Units and Sequence of Events--Bog Claims Group

Age	Unit or Event	Abbreviated Description
	Chalcedony	Commonly resinous in thin veinlets and vugs.
	Quartz-carbonate veinlets with holes	Thin veinlets with predominantly quartz surrounded by relatively large brownish haloes rich in carbonate. Weathers a rich orange-brown colour. Some py, cpy, gn.
Probably Upper Triassic or Lower Jurassic	(Coarse-grained white calcite	Large white calcite veinlets, commonly a few feet thick, cut by but spatially associated with quartz-carbonate veinlets. Has minor associated py, cpy, gn. Common interstitially and as a core to pyroxenite dykes. Has associated very minor sulphides--py, cpy, gn.
	(Coarse-grained K-feldspar and true granite	Common associate of pyroxenite as core material.
	(Pyroxenite	Coarse-grained dark-green pyroxene with pegmatitic texture in larger dykes. Pyroxene probably hedenbergite (Preto, 1970).
	(Leucomonzonite	A fine to medium-grained even-grained feldspathic rock. Commonly pale greyish-white on fresh surfaces.
	(Leucosyenite	A medium-grained subporphyritic rock with somewhat small but variable quartz content. Commonly pink on fresh surfaces due to pink K-feldspar phenocrysts.
Upper Triassic	Nicola Volcanic rocks	Coarse fragmentals and agglomerates, augite porphyry and plagioclase porphyry flows, thin bedded sediments probably of marine tuffaceous origin with variable carbonate content, and tuffs and lapilli tuffs. Relative ages of these units could not be ascertained.

Volcanic breccia and/or agglomerate is a fairly common rock type present on the property. Fragments form a high proportion of the rock and are mostly massive, green andesite with matrix being fine-grained tuffaceous material. Proportions of fragments and tuffs varies but are commonly about equal. Fragments range in size up to several inches in longest dimension and in shape from rounded to angular. These coarse pyroclastic rocks appear to predominate in the eastern part of the property although outcrops of any kind are relatively scarce there, and the rock does occur in several localities to the west.

The most abundant type of Nicola rocks on the property is an aphanitc, thinly-bedded, light-green rock that appears identical with Preto's subunit 2b, and which is interpreted as being a marine tuff. The rock is the predominant type on the western part of the property where outcrops are relatively abundant and also occurs in the eastern part.

Relative ages of subunits within Nicola Group are not known. It seems likely that intercalated lava flows occurred at several times during deposition of coarse and fine pyroclastic material.

The rocks are generally non-magnetic but here and there specimens are slightly attracted to a magnet indicating a small, variable magnetite content. Pyrite is ubiquitous but in small amounts rarely exceeding 0.5% by volume. Pyrite occurs both in disseminated form in which case it is commonly present as small, more-or-less evenly distributed cubes, and as massive filling of small irregular to regular fractures. Small amounts of chalcopyrite and galena are also noted locally and will be discussed in a later section. Most of the sulphides appear to have been superimposed on Nicola rocks during an episode of hydrothermal mineralization with the exception of a small proportion of disseminated pyrite that might reflect an earlier low-grade metamorphic event. There is in general little megascopic evidence of regional metamorphism and further discussion should be based on petrographic and thin section study.

At one locality in a trench cutting L540N at 429E a large mass of augite porphyry occurs with augite phenocrysts in the range of 1/4 to 1/2 inch and a matrix containing smaller but readily visible, abundant white plagioclase laths. This trench cuts a mound about 100 feet in diameter, presumed to be underlain predominantly by similar augite porphyry that perhaps represents a small volcanic neck or feeder to augite porphyry lavas intercalated with other Nicola volcanic rocks. This presumed feeder is cut by pyroxenite dykes and later K-feldspar seams. The rock is extensively sheared and weathered with extreme weathering effects noted to a depth of about 10 feet below the surface.

LEUCOSYENITE

The term leucosyenite (after Preto, 1970) is applied to a group of plutonic rocks predominant through the southern part of the claims group, with somewhat variable textures and proportions of essential minerals. All samples taken from this unit are not necessarily syenitic in composition but include granitic and monzonitic varieties. The complete gradation in mineralogy to provide the arbitrary varieties combined with the textural similarities regardless of rock name indicate that they are part of a single unit and preclude the mapping of different varieties in the field.

The rock is typically medium-grained and subporphyritic with 20 to 50 percent pink K-feldspar phenocrysts about 1 cm. long scattered evenly in a medium-grained matrix of white feldspar. The matrix commonly contains important variable percentages of quartz and pink K-feldspar and less commonly minor amounts of hornblende as either stubby or acicular crystals.

In many places leucosyenite is cut by abundant white or grey quartz veins. Grey veins are generally thin and here and there contain minor amounts of specularite and rarely pyrite. White veins are commonly thicker, about 1 to 2 inches in width. The majority of veins appear to have a fairly uniform orientation in any one outcrop area although the orientation is impossible to measure in many places because much so-called outcrop is actually rubble that has been shifted somewhat by frost action.

In the southwest part of the property, white quartz veins are preceded by thin seams of coarse-grained, pin to bluish K-feldspar. Such seams are not abundant. Fairly abundant pyrite occurs mainly along thin seams of quartz. Rarely pyrite is observed within the leucosyenite near quartz veins. Total percentage of pyrite does not exceed 0.5 to 1.0%. Minute quantities of purple fluorite are found here and there in the leucosyenite.

Weathering has produced distinctive effects on this rock unit. The exposed weathered surface is commonly bleached white and the upper 1 to 2 inches are extensively weathered and replaced by limonite and/or earthy hematite. Limonite predominates but a small amount of hematite is commonly present to provide characteristic red-hued surface. The extent of limitization is greater where pyrite is relatively abundant.

The rocks are characteristically well-jointed commonly with 2 or 3 well-developed sets, one of which commonly predominates. The predominant joint set invariably is parallel to (1) major gullies in areas underlain by syenite and (2) readily recognizable air photo lineaments.

Age of the leucosyenite is reasonably well established in a relative sense. The intrusions have produced contact effects on Nicola rocks including local feldspathization and recrystallization (e.g. southwestern part of Bog group). On the other hand, angular inclusions of leucosyenite are contained in monzonite outcrops in the northwestern part of the property along the road just east of the High Grade showing.

MONZONITE

The monzonite unit is texturally and apparently mineralogically different from the leucosyenite. Colour is normally a pale greyish white to white and the rock is fine-grained with only minor amounts of pink K-feldspar evident in some outcrops. In places it contains small angular inclusions of what appears to be leucosyenite as well as some small mafic inclusions that probably represent Nicola volcanic rocks assimilated to various degrees. A few specimens were seen to contain minor quantities of hornblende. No thin sections have been studied and details of the mineralogy are unknown. The rock is presumed to be a monzonite although more elaborate studies might show this to be incorrect.

A small mass of monzonite occurs along the main road across the northern part of the property. A second occurrence of considerable importance is the High Grade showing where a monzonite dyke or dykes about 10 feet wide contain abundant chalcopyrite, both disseminated and along fractures.

Relative age of the monzonite is fairly well-established. Evidence for an age younger than the leucosyenite has been given. The monzonite is cut in numerous localities by pyroxenite dykes that in general are too small to show on the geological map.

PYROXENITE

Pyroxenite on Bog group is essentially a monomineralic rock made up commonly of 90 to 99 percent coarse to very coarse-grained dark-green pyroxene (presumably augiste) with numerous lustrous cleavage surfaces on a freshly broken surface. The surface weathers to a pale green or pale brown "knobby" appearance. Trace amounts of fine-grained interstitial pyrite are not uncommon and chalcopyrite is present here and there.

In the field, pyroxenite most commonly occurs as dykes or seams that range from a fraction of an inch up to 10 feet or more in width. Most commonly dykes are from 1 inch to 1 foot wide and are steeply to vertically dipping. These small dykes or seams vary in composition from about 60 to virtually 100 percent pyroxene, the remainder being medium to coarse-grained K-feldspar and/or coarse-grained or interstitial white calcite with minor amounts of sulphides (pyrite, galena, chalcopyrite). As a generalization, the smaller the dyke, the lower its pyroxene content. Typically these small dykes or seams contain thin margins of medium to coarse-grained K-feldspar in which cores are bluish and rims are pinkish. This is succeeded by the bulk of the dyke which is coarse-grained pyroxene. A central irregular core is commonly coarse-grained white calcite and/or K-feldspar similar to that along the margins. If K-feldspar is present in the core, calcite is normally present in small amounts interstitially. An idealized cross-section of such a dyke is shown in Figure 4. All these features rarely are obvious in a single hand specimen.

Pyroxenite occurs most commonly associated with monzonite but is also present cutting Nicola rocks generally near monzonite intrusions. This field association is interpreted as indicative of a genetic link between the two. Furthermore, the presence of minor amounts of sulphides associated with calcite in the pyroxenites suggests a genetic link between some sulphides and the pyroxenite-monzonite assemblage. This will be discussed further in a later section.

At several localities on the property, pyroxenite and/or K-feldspar form the matrix of a breccia containing large angular fragments of Nicola volcanic rocks and lesser amounts of monzonite. The fragments are commonly in the range 1 to 2 inches in diameter. These are igneous breccias that appear to be explosion features related to injection of pyroxenite. The best exposed example is about midway along the main road across the northern part of the property. Another example is at the east end of the Junction trench and the third on the road entering the property at the southeast corner, about halfway to the Junction trench. These explosion breccias appear to be of considerable interest in mineral exploration on the property.

WHITE CALCITE VEINS

Veins of coarse-grained white calcite are fairly abundant in the western part of the property, and appear to be intimately associated with younger quartz-carbonate veinlets. The veins are normally steeply dipping and range from thin seams to as much as 10 feet wide. Widths of a few inches to 2 feet are common. These veins are known only in Nicola volcanic rocks. In places, very small amounts of pyroxenite have been found in areas with abundant veins.

Age of the veins is uncertain. They are interpreted as relatively late features because of their spatial association with later quartz-carbonate veinlets and associated carbonate alteration. The possibility exists that these white calcite veins are genetically the same as calcite associated with pyroxenites. This is supported by identical sulphide mineralogies (pyrite, chalcopyrite and galena) in both categories of calcite and is the writer's preferred interpretation. A possibility exists, however, that the two calcites are unrelated.

Everywhere they are observed these white calcite veinlets are cut by later quartz veins with minor carbonate content.

QUARTZ-CARBONATE VEINS AND ALTERATION

A variety of Nicola volcanic rocks and lesser amounts of leucosyenite and monzonite are cut by thin quartz veins with minor carbonate content that rarely exceed one inch in width. Despite the small width these veinlets have, surrounding them symmetrically, a relatively wide halo in which the greenish Nicola rocks have become pale brownish and which contain greater amounts of calcite than do surrounding unaltered rocks. This halo and the veins themselves weather a bright orange-brown colour that is distinctive and makes field identification relatively straightforward.

This type of hydrothermal alteration can be found locally throughout the property but is most extensive over the western quarter of the group.

Age of the alteration is not completely defined by observed crosscutting relations. It definitely cuts large white calcite veinlets and rocks as young as pyroxenite (and associated later K-feldspar). Despite the intensity of associated metasomatism in the development of altered halos about the veins, it appears to be a relatively late stage effect. In fact, the only material observed to crosscut such altered rocks is resinous chalcedony veinlets.

Large areas of quartz-carbonate alteration are coincident with areas of abundant white calcite veins and the two would appear to represent successive stages in a single mineralizing episode.

Pyrite is a common associate of these quartz-carbonate veins, mostly in irregular blebs and to some extent along thin seams. In places pyrite content approaches or exceeds 1 percent by volume which is more than twice the amount normally present in unaltered rocks. Similarly, chalcopyrite is more abundant in altered as opposed to unaltered rocks but appears sporadic in distribution and is very much less abundant than pyrite.

CHALCEDONY VEINLETS AND VUGS

Small amounts of resinous chalcedony are found cutting features as young as quartz-carbonate veins here and there throughout the property. Normally chalcedony is in thin seams that represent joint fillings that break in places along the seams to expose botryoidal surfaces. In a few places the chalcedony occurs as infilling between angular breccia fragments.

At one locality near the east end of the Junction trench a blue chert or chalcedony is associated with white quartz, white calcite and resinous chalcedony. Both the blue and the resinous chalcedony cut quartz and calcite but age of the blue relative to resinous chalcedony could not be determined.

SULPHIDE MINERALS

Pyrite Pyrite is a ubiquitous mineral on Bog Group. It occurs in Nicola volcanic rocks both disseminated and in regular to irregular veinlets. It is nowhere massive. It is also found in quartz-carbonate veinlets, in quartz veins restricted to leucosyenite terrain and less abundantly associated with white calcite both in pyroxenites and in veins.

In Nicola rocks the disseminated pyrite content rarely approaches 0.5% and is thought to represent a product of low grade regional metamorphism. The amount of disseminated pyrite appears appreciably higher in fragments in breccias with pyroxenite and/or K-feldspar matrix, and in hornfelsed zones adjacent to leucosyenite and monzonite bodies. This is attributed to contact metamorphism.

Pyrite associated with white calcite both in pyroxenite and in veins is present in very minor amounts. It is important, however, in that common associates are chalcopyrite and galena.

In areas of leucosyenite, small amounts of pyrite are the only sulphide recognized. Here pyrite is related to otherwise barren white quartz veins.

<u>Chalcopyrite</u> Chalcopyrite is the sulphide of most potential interest on Bog Group. It is found in very minor quantities sporadically throughout the property either in association with white calcite or quartz-carbonate alteration zones. The most impressive occurrence is the High Grade showing which will be described in more detail in a later section. There is a noticeable increase in chalcopyrite content of areas affected by quartz-carbonate alteration relative to other areas. The copper content of these alteration areas is, however, extremely low.

At the High Grade showing chalcopyrite is associated with abundant pyrite and minor amounts of bornite and chalcocite.

Galena Galena is distributed sporadically and in small amounts throughout the property. It has been found interstitial to breccia fragments in Junction trench, and at several localities along and near Line 524N. In all known occurrences, it is associated with white calcite. At one locality along L524N, galena was found in white calcite centrally located within a pyroxenite dyke.

HIGH GRADE SHOWING

The High Grade copper showing is a few hundred feet north of the junction of the North and South roads. It is exposed along the east wall of a bulldozer cut that parallels and is immediately adjacent to the east side of the road. A former drill site with casing indicating a northerly directed hole at -60° is collared about 40 feet south of the south end of the showing. There is a possibility that between the hole collar and the showing is a fault that dips less than the diamond drill hole. Consequently, it is possible the hole did not intersect or adequately test the showing!

The showing consits of an exposed length of 20 feet of outcrop along the bulldozer cut with about 10 feet of mineralized monzonite on the north and 10 feet of mineralized Nicola volcanic rock on the south. Abundant chalcopyrite and less abundance chalcocite occur as dissemination and veins in the monzonite, and abundant chalcopyrite with lesser amounts of pyrite and bornite occur in Nicola rocks in irregular white calcite veinlets.

Disseminated pyrite occurs locally in the monzonite, being most prevalent adjacent to chalcopyrite-bearing carbonate-K-feldspar veinlets. The K-feldspar is identical to that which is found abundantly in association with pyroxenite. In fact, several early pyroxenite seams occur at the High Grade showing cutting monzonite. These contain a core of K-feldspar with interstitial calcite and chalcopyrite. These relations show the close association, genetic and spatial, of the chalcopyrite, calcite, K-feldspar, pyroxenite sequence and emphasize the importance of pyroxenite in mineral exploration in the area. It is important to note that this same sequence is recognized throughout the property, and, in fact, was deduced from field relations elsewhere before it was recognized at the High Grade showing.

A further comment on disseminated chalcopyrite is warranted. The monzonite contains local areas of abundant disseminated sulphides. Close examination reveals that these are concentrated about chalcopyrite-bearing veinlets. Furthermore, testing with dilute HCl shows that zones of disseminated sulphides are characterized by the presence of abundant calcite, much more than in unmineralized parts of the same monzonite body. This further establishes the association of copper sulphides and calcite in the area. The relation of disseminated chalcopyrite zones to veins further negates the possibility of the disseminated chalcopyrite being a direct magmatic effect. Rather it is a superimposed metasomatic effect related to formation of chalcopyrite-calcite-K-feldspar veins.

Mineralization in adjoining Nicola rocks south of the monzonite is strikingly different. Chalcopyrite is in very irregular white calcite veinlets, seams and masses that contain variable amounts of K-feldspar. This contrasts with clean-cut mineralized fractures and local disseminations in the monzonite. Pyrite is an important constituent of the veins in Nicola rocks whereas it is absent in the monzonite host. The differences in nature of mineralization in the 2 rock types probably reflects different competencies during fracturing and their different compositions.

The foregoing discussion indicates that the mineralization sequence at the High Grade showing is entirely consistent with that established for the area as a whole. In the case of the High Grade showing, greater quantities of copper have been locallized than have yet been noted elsewhere on the property.

Nicola rocks exposed about 20 feet north of the High Grade showing along the east bank of the road contain somewhat more pyrite in fractures than in general on the property. Higher than normal amounts of chalcopyrite are also associated with this "pyrite zone". This zone probably represents a fringe zone of low grade mineralization about the High Grade showing. Extent of this fring zone is not known. About 200 feet northwest of the High Grade showing is a small knoll with abundant rubble having the same general characteristics as the High Grade deposit. Much of the intervening area is low and swampy. It obviously warrants further detailed examination.

EXPLORATION CONSIDERATIONS

A sequence of geological events has been worked out from field relations that is consistent throughout Bog Group. Copper sulphides occur at two intervals within this sequence, (1) associated with K-feldspar and calcite that either immediately postdates or is an integral part of development of pyroxenite bodies, and (2) related to white calcite veins and crosscutting, pyrite-bearing quartz-carbonate veins and alteration haloes.

It appears likely that these two modes of occurrence form part of a single, related pneumatolytic and hydrothermal interval. Whether this is true or not, the relationship of the High Grade showing to the pyroxenite-K-feldspar-white calcite sequence indicates the importance of areas containing injections of pyroxenite. Of considerable interest in this regard are the areas of igneous breccia with pyroxenite and/or K-feldspar matrix. These centres, indicated on the accompanying map, and surrounding fractured or crackle areas, are potential sites of relatively large size copper deposits and should be examined in some detail, initially by trenching and as warranted by more sophisticated methods including geophysical surveys and diamond drilling. It should be noted that known igneous breccia sites are poorly exposed!

The later phase of pyrite-chalcopyrite mineralization associated with quartz-carbonate veins and alteration halos perhaps offers some consideration for mineral potential. Grades observed to date, while not known precisely, are obviously much too low to be of direct economic interest. Mineralization of this type, however, is widespread, and is particularly abundant in the western quarter of the property. It is possible that local structural conditions might be such that ore grade material has resulted. Because of the observed association of chalcopyrite and pyrite, it is presumed that high pyrite content of such mineralization would relate to high copper content.

AIR PHOTO ANALYSIS

A stereo analysis of aerial photographs that cover the area encompassed by Bog Group was done. Lineaments are abundant, some of which are regional features extending for considerable distances beyond the boundaries of the property. Several pronounced trends exist. These are shown on the accompanying geological map.

In areas underlain by leucosyenite, it has been possible to correlate lineaments with prominent joint directions. This is not true in areas of Nicola volcanic rock.

The profusion of extensive lineaments suggests the area has been subjected to extensive faulting. This is not so apparent during ground examination because of the limited outcrop.

REFERENCES

Campbell, R.B. and H.W. Tipper, 1971,
Geology of Bonaparte Lake map-area, British Columbia;
Geological Survey of Canada, Memoir 363

Preto, V.A.G., 1970,
Geology of the area between Eakin Creek and Windy Mountain;
in Geology, Exploration and Mining in British Columbia, 1970,
B.C. Dept. of Mines and Petroleum Resources, pp. 307-312
(plus map)

CERTIFICATE

I, Alastair J. Sinclair, of 5869 Dunbar St., Vancouver 13, B.C., certify the following:

I am a graduate of the University of Toronto with the following degrees:

B.A.Sc.	Geological Engineering	1957
M.A.Sc.	Geology	1958

and a graduate of the University of British Columbia with the degree of Ph.D. in Geology in 1964.

I am a member of the Association of Professional Engineers in the provinces of British Columbia and Ontario.

I have practiced my profession for the past 14 years.

I hold no interest in the properties or securities of Prism Resources Ltd. nor do I expect to receive any interest directly or indirectly.

My report dated August 10, 1972 is based on field work conducted during two visits to the property in 1972, the work of Mr. J.F. Orr and Mr. G.H. Rayner, P.Eng. who assisted me in the field work and published reports listed in the references.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA A. J. SINCLAIR

A.J. Sinclair, P.Eng.
August 10, 1972

APPENDIX I

PERSONNEL AND DAYS WORKED

Name	Capacity	Days Worked
D. Ramsey	Linecutter	June 18-29 incl.
G.H. Rayner	Geologist	June 18-30 incl. July 1-3 incl.
J.F. Orr	Geologist	July 17-26 incl. Aug. 1-11, 18-24
S. Orr	Field Assistant	Aug. 1-9 incl.
A.J. Sinclair	Geological Engineer	A[illegible] 5, 6, 7, 11

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. J. SINCLAIR

Declared before me at the City of Vancouver, in the Province of British Columbia, this 27 day of September, 1972, A.D.

L. Gervotte

~~A Commissioner for taking Affidavits within British Columbia or~~
~~A Notary Public in and for the Province of British Columbia.~~

Sub-mining Recorder

APPENDIX II

CHARGES PRIOR TO JULY 26, 1972 APPLIED TO BOG CLAIMS 3 TO 20 INCLUSIVE

D. Ramsay	1 day at $30.00	$ 30.00
	1 day camp costs at $10.00	10.00
G.H. Rayner	6 days at $85.00	510.00
	6 days camp costs at $10.00	60.00
J.F. Orr	9 days at $50.00	450.00
	8 days camp costs at $10.00	80.00
A.J. Sinclair	2 days at $100.00	200.00
	8 days at $150.00	1,200.00
	8 days camp costs at $10.00	80.00
Vehicle Rental		
Orr and Sinclair		
	8 days at $17.00	136.00
	plus gas (est.)	14.00
Rayner		
	6 days at $17.00	102.00
	plus gas (est.)	10.00
Camp gear rental		50.00
10% of salaries ($2390.00) for administration and benefits		239.00
		$3,171.00
Further costs Orr		65.00
	TOTAL VALUE OF WORK DONE ON BOG 3-20 INCLUSIVE PRIOR TO JULY 26, 1972	$3,236.00

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. J. SINCLAIR

Declared before me at the *City*

of *Vancouver* , in the

Province of British Columbia, this *27*

day of *September, 1972* , A.D.

[signature]

L. Gearwotte

~~A Commissioner for taking Affidavits within British Columbia or~~
~~A Notary Public in and for the Province of British Columbia.~~

Sub - mining Recorder

APPENDIX III

CHARGES IN ADDITION TO THOSE LISTED IN APPENDIX II

D. Ramsay	11 days at $30.00	$ 330.00
	11 days camp costs at $10.00	110.00
G.H. Rayner	10 days at $85.00	850.00
	10 days camp costs at $10.00	100.00
J.F. Orr	9 days at $50.00	450.00
	9 days camp costs at $10.00	90.00
S. Orr	9 days at $20.00	180.00
	9 days camp costs at $10.00	90.00
A.J. Sinclair	7 days at $100.00	700.00
Vehicle rental		
19 days at $17.00		323.00
Gas (est.)		15.00
Camp gear rental		100.00
10% of salaries for administration and benefits (i.e. 10% of $2330.00)		233.00
		$3,571.00
Further costs - August 10-24		
J.F. Orr	9 days at $40.00	360.00
	Expenses, Gas, etc.	168.14
	Vehicle Rental- 6 days at $17.00	102.00
10% of salaries		36.00
Drafting Costs, Bog Gp. Geology Map		160.00
TOTAL CHARGES FOR ASSESSMENT WORK		$4,377.14

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
A. J. SINCLAIR

Declared before me at the City

of Vancouver, in the

Province of British Columbia, this 27

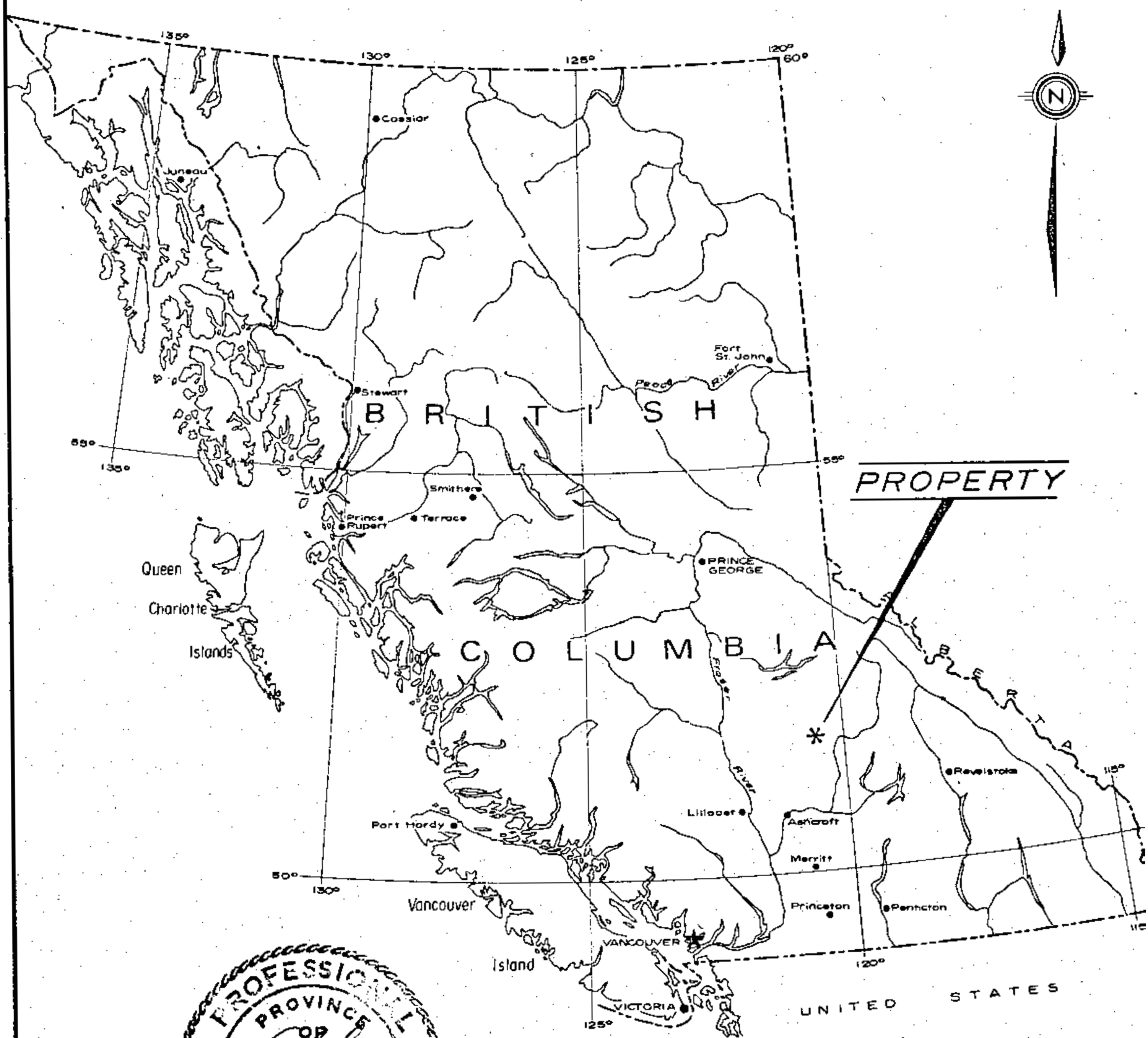
day of September, 1972, A.D.

L. Jeannotte

A ~~Commissioner for taking Affidavits within British Columbia or~~

~~A Notary Public in and for the Province of British Columbia.~~

Sub mining Recorder



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3900 M-1

BOG GROUP CLAIMS

LOCATION MAP

KAMLOOPS M.D.

SCALE

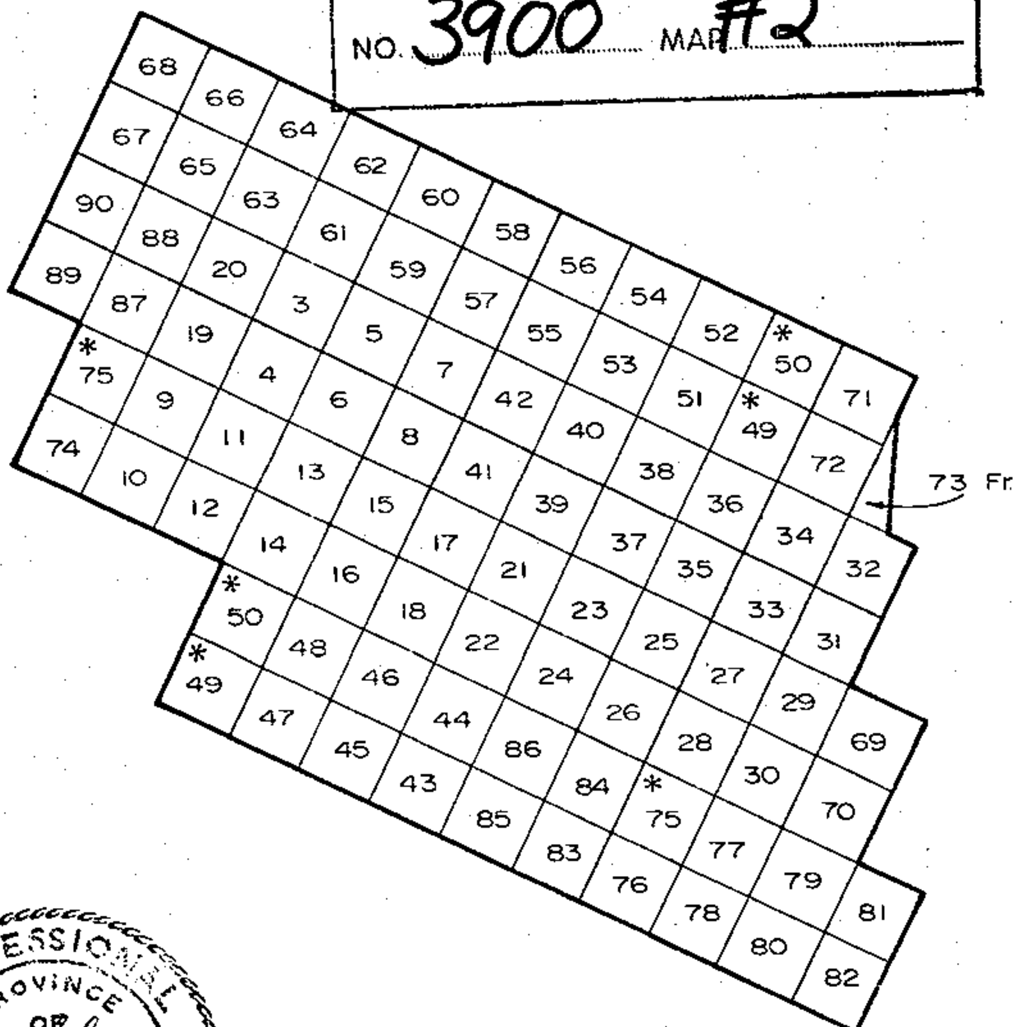
1" = 136 Miles

To accompany report by A. J. Sinclair, P. Eng., June 9, 1972

ALTAIR drafting services ltd.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3900 MAP #1

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3900 MAP #2



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* indicates number repeated twice in naming.

BOG GROUP CLAIMS

KAMLOOPS M.D.

SCALE

Feet 3000 0 3000 Feet

To accompany report by A. J. Sinclair, P. Eng., June 9, 1972

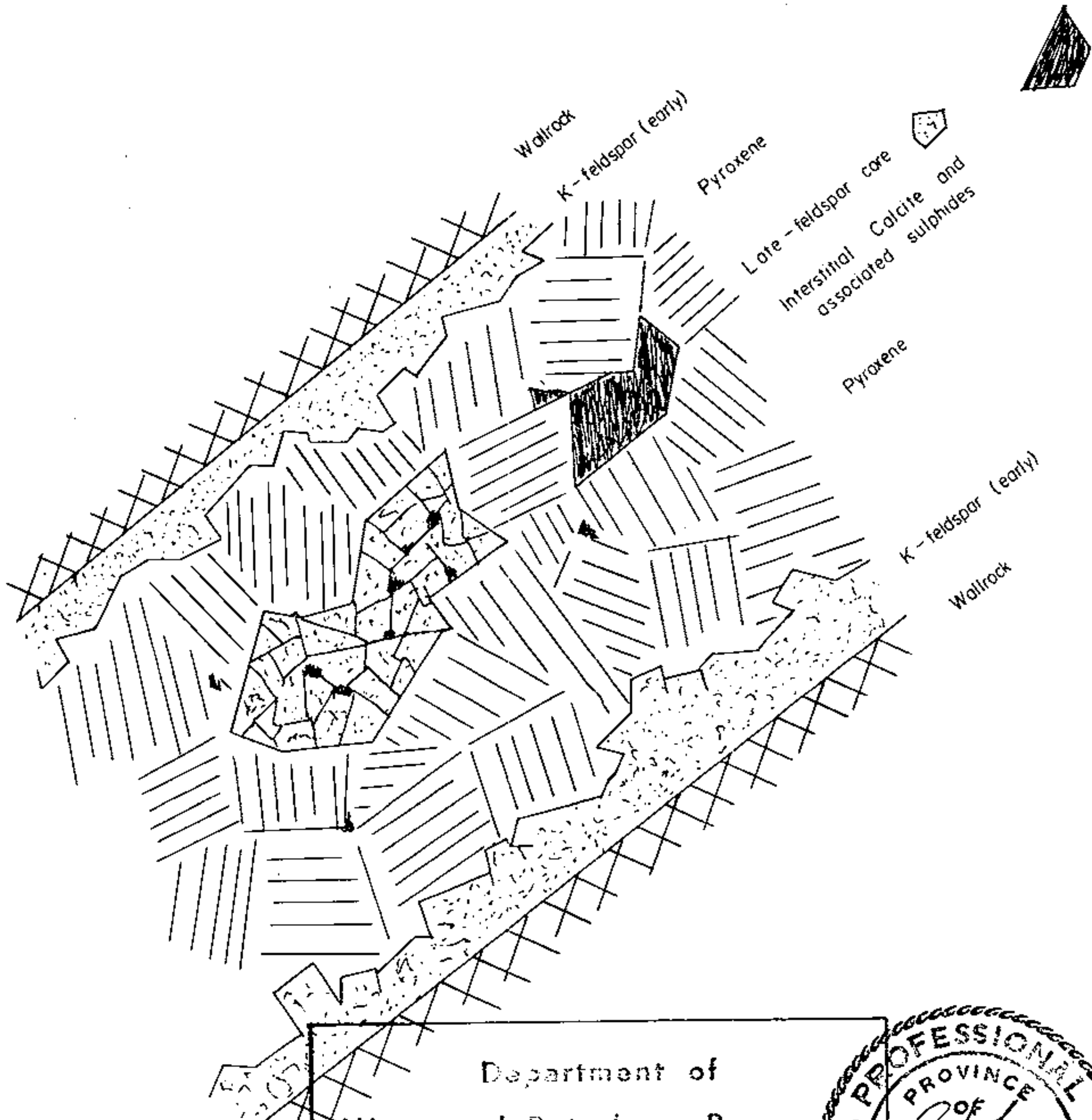
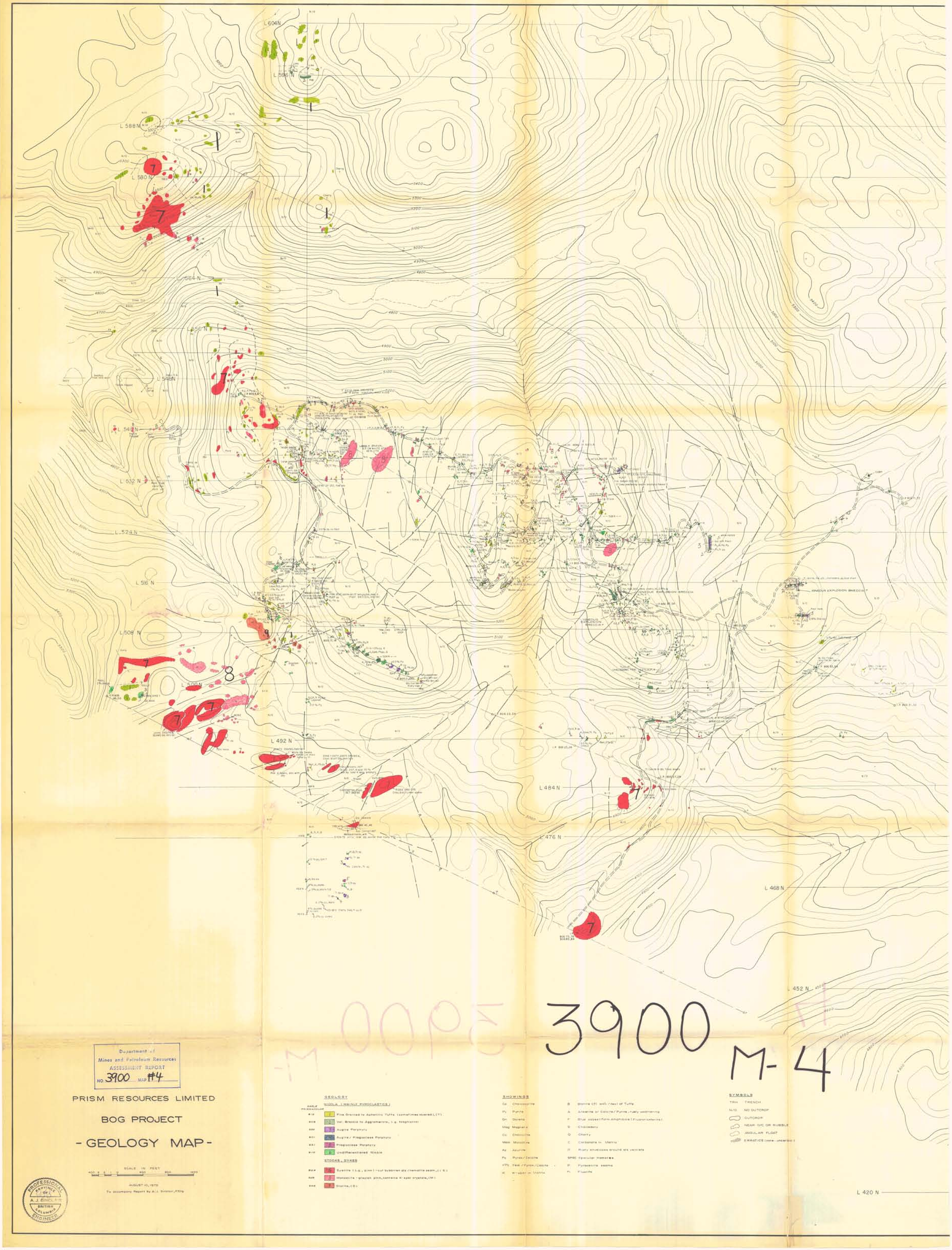


FIG. 4

IDEALIZED ARRANGEMENT IN SOME PYROXENITE DYKES

To accompany report by A. J. Sinclair, P. Eng.


L 604N
L 596 N
L 588N
L 580 N
L 564 N
L 556 N
L 548N
L 540 N
L 532 N
L 524 N
L 516 N
L 508 N
L 500 N
L 492 N
L 484 N
L 476 N
L 468 N
L 452 N
L 420 N
AMIGOUS EXPLOSION BRECCIA
3900
M-4
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3900 MAP #4
PRISM RESOURCES LIMITED
BOG PROJECT
- GEOLOGY MAP -
SCALE IN FEET
AUGUST 10, 1972
To accompany Report by A. J. Sinclair, P.Eng.
PROFESSIONAL
PROVINCE OF
A. J. SINCLAIR
BRITISH COLUMBIA
ENGINEER
GEOLOGY
NICOLA (MAINLY PYROCLASTICS)
1 Fine Grained to Aphanitic Tuffs (sometimes layered), (T)
2 Vol. Breccia to Agglomerate, i.e. fragmental
3 Augite Porphyry
4 Augite / Plagioclase Porphyry
5 Plagioclase Porphyry
6 Undifferentiated Nicola
STOCKS, DYKES
7 Syenite
8 Monzonite - greyish pink, contains K-spar crystals, (M)
9 Diorite, (D)
SHOWINGS
Cp Chalcopyrite
Py Pyrite
Gn Galena
Mag Magnetite
Cc Chalcocite
Mal Malachite
Az Azurite
Pc Pyrite / Calcite
K K-spar in Matrix
B Biotite (?) with / feel of Tuffs
A Ankerite or Calcite / Pyrite, rusty weathering
F Blue asbestiform Amphibole
S Chalcedony
Q Cherty
C Carbonate in Matrix
R Rusty envelopes around qtz veinlets
SPEC Specular Hematite
P Pyroxenite seams
Fl Fluorite
SYMBOLS
TRH TRENCH
N/O NO OUTCROP
OUTCROP
NEAR O/C OR RUBBLE
ANGULAR FLOAT
ERRATICS