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Northwind Ventures Ltd.

Calgary, Alberta

Report  
on the  
ERICKSEN-ASHBY PROPERTY  
Taku River, B.C.

June 30, 1987

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## SUMMARY

The Ericksen-Ashby property, comprising 14 claims (225 units), is a polymetallic (Ag, Zn, Pb) prospect situated astride the Taku River in the Tulsequah district of northwestern British Columbia. From 1939 to 1957 three mines in the district (the Polaris Taku, Tulsequah Chief, and Big Bull) produced zinc, lead, copper, silver, and gold ore. It was shipped to tidewater in Alaska by barge down the Taku River. In 1963, an adit located 475 metres above the river on the Ericksen-Ashby property was driven 150 metres to provide a site for exploring, by underground drilling, a small section of a somewhat arcuate belt of massive sulphide deposits. In 1981, eleven holes were drilled from surface to test three of thirteen known mineralized zones in the mine area.

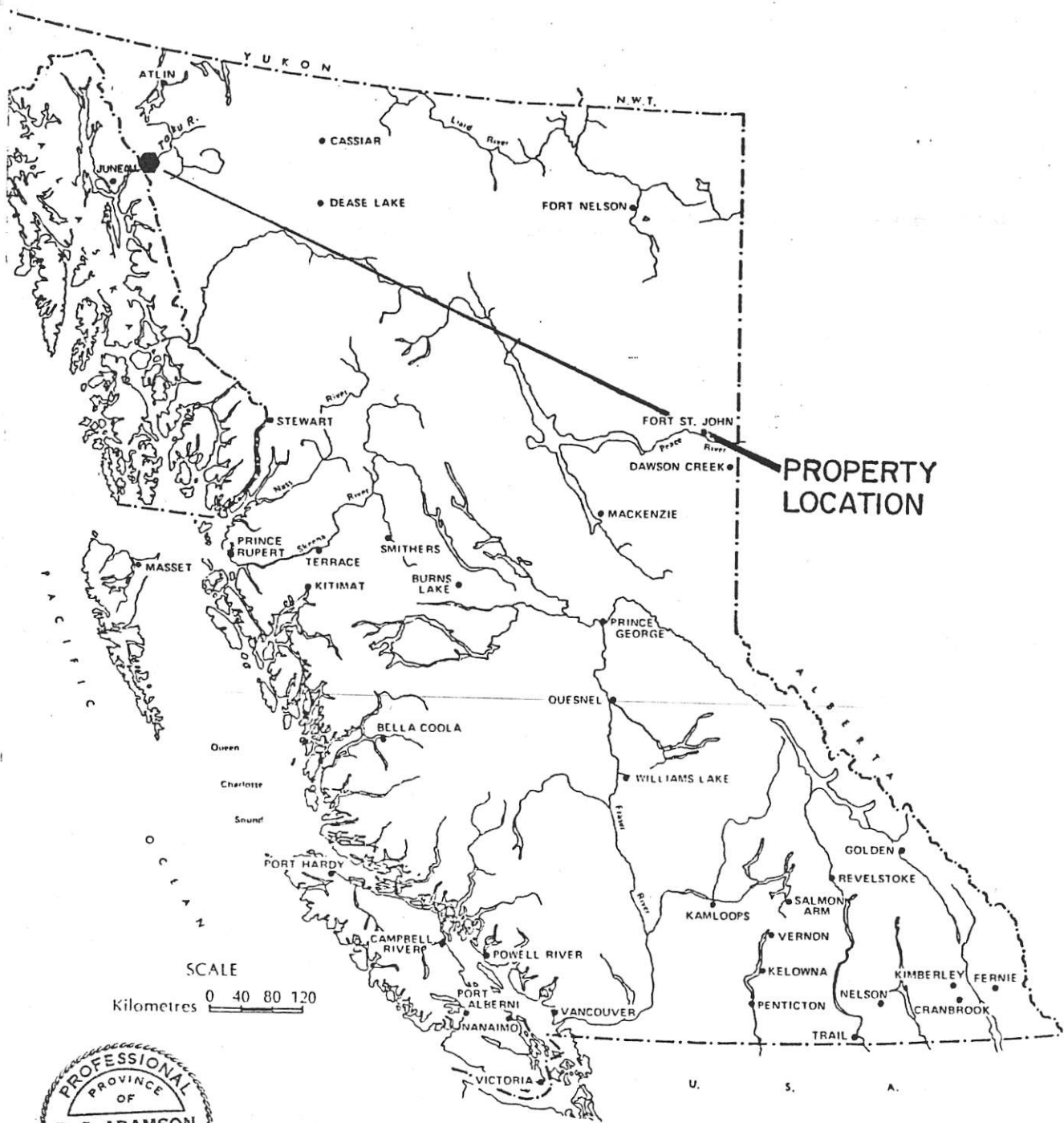
The geological setting in the Tulsequah district consists of a succession of four volcanic and sedimentary formations that are essentially separated by unconformities and locally intruded by granitic stocks. Of late Paleozoic age, the oldest sequence in the district, comprising five interbedded volcanic and sedimentary rock units, hosts all the historically productive mineral deposits. On the Ericksen-Ashby property, this oldest sequence, which has been steeply folded along northwesterly trending axes, occupies the southwestern half of the property. In the heart of the property, it has been intruded by a northerly striking feldspar porphyry stock. The northeastern half of the property is underlain by Mesozoic age volcanic rocks of the Stuhini Group.

Twelve sulphide zones, each comprising lenses and pods of pyrite with sphalerite and galena, occur in one of two northwesterly to northerly striking, southwesterly dipping, predominantly sedimentary units that outcrop on the steep northwestern flank of Mount Ericksen. A thirteenth zone occurs in the parallel, but narrower, sedimentary unit. The average grade from all zones is in the order of 10 percent zinc, 3 percent lead, and 6 ounces silver per ton. Six zones, apparently with higher grades than this average and with more indicated continuity, occur in the southern half of the

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belt, above the adit and for some distance to the southeast. The other six zones in the belt occur in the northern half (or block). Because of the severe topography, the south block is, however, much more difficult to explore than the northern block.

The Number 2 Zone, situated high up on the southern block, exhibits the best grade and probably the best continuity of all zones identified in the belt to date. Because of its difficult accessibility, it has not been drilled and there is, as yet, insufficient encouragement from surface sampling and mapping to extend the adit for some distance southeastward to a point beneath the zone. There is, however, sufficient grade and tonnage potential in the overall belt of deposits to warrant further exploration on the property. A two pronged (north and south blocks), two stage exploration program is therefore proposed with its primary objective being to prepare the north and/or south blocks for underground exploration. The cost of the initial stage is estimated to be \$240,000. The estimated cost of a contingent second stage is \$500,000.



SCALE  
Kilometres 0 40 80 120



*R. S. Adamson*



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ERICKSEN ASHBY PROPERTY

**LOCATION MAP**

TULSEQUAH, TAKU RIVER, B.C.

SCALE AS SHOWN

JUNE 1987

FIG. 1

## INTRODUCTION

Northwind Ventures Ltd. has asked Orcan Mineral Associates Ltd. to examine the available technical data and to report on its recently acquired Ericksen-Ashby property, a polymetallic (Ag, Zn, Pb) prospect situated on the Taku River in northwestern British Columbia. The writer visited the property by helicopter from Atlin, B.C. on June 17, 1987.

### Location and Access (58°36'N. Lat.; 133°30'W. Long.)

The property lies in the Tulsequah district astride the Taku River, approximately 64 kilometres due east of Juneau, Alaska (Figure 1). The common centre of communication and supply is Atlin, 130 kilometres to the north.

For exploration purposes, access to the heart of the property (the portal of the Ericksen-Ashby adit) is initially by fixed wing aircraft from Atlin to a gravel airstrip on the west bank of the Tulsequah River, thence by helicopter to various points on the property. For eventual production purposes, the Taku River is navigable by tug and barge from tidewater in Alaska to the property.

### Property

The property comprises 14 located mineral claims totalling 225 units (Figure 3). The claims with the appropriate record numbers are enumerated as follows:

<u>Claim Name</u>	<u>Record No.</u>
E-A 1	561
E-A 2	671
BC 1	2825
BC 2	2826
BC 3	2827
Bear 1	2854
Bear 2	2855

<u>Claim Name</u>	<u>Record No.</u>
Bear 3	2856
Bear 4	2857
Bear 5	2858
Bear 6	2859
Bear 7	2860
Bear 8	2861
Bear 9	2862

The most prominent topographic feature on the property is the wide valley of the Taku River, a wide braided stream that occupies much of its valley (Figure 2). The flat valley, flanked by precipitous slopes, averages two kilometres in width. From the valley floor to the highest point on the property, Mt. Ericksen, elevations range from 120 metres (400 feet) to 1,900 metres (6,500 feet). Except for the valley floor, the property is moderately to sharply precipitous; at higher elevations, parts are virtually inaccessible.

Outcrop exposures are plentiful above timberline at approximately 3,500 feet. Below timberline, thick vegetation comprises coniferous forest and a local undergrowth of willow, tag alders, and devil's club.

### History

The history of economic activities in the Tulsequah district has been described by J.G. Souther in G.S.C. Memoir 362 as follows:

The early history of mining and prospecting in Taku River area was reviewed by Kerr (1948), who mentioned a record of gold discovery along Taku River as early as 1875. During the Klondike Rush of 1897 and 1898 the Taku was used as a route of entry to the interior and this led to extensive prospecting of the country accessible from Taku Valley. In 1923 the Tulsequah Chief property was discovered on the east side of Tulsequah River, and active development of the property in 1929 attracted prospectors who staked claims. Those which were later to become the Big Bull and Polaris Taku mines were both discovered in 1929, as were the Ericksen-Ashby and several other smaller properties situated in the lower part of Taku Valley.



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Early attempts at development were abandoned and it was not until 1937 that the Whitewater property was brought into production as the Polaris Taku mine. It continued to operate until 1951, during which time a total of 719,336 tons of ore was milled, yielding gold valued at more than \$8,000,000. Following closure of the Polaris Taku mine in 1951 the mill and camp were leased to the Consolidated Mining and Smelting Company of Canada Limited (now Cominco Ltd.) which started production from the Big Bull (Manville) and Tulsequah Chief mines that same summer. Ore from both mines was trucked to the Polaris Taku mill and concentrates shipped by barge down Taku River to tidewater. From 1951 until production ceased in 1957 due to low metal prices, combined production from the Big Bull and Tulsequah Chief mines amounted to 1,029,089 tons of ore milled, yielding 94,254 ounces of gold, 3,400,773 ounces of silver, 13,603 tons of copper, 13,463 tons of lead, 62,346 tons of zinc and 227 tons of cadmium.

With the advent of sharply increased precious metal prices, exploration was reactivated in the early 1980's. Much of the activity during this period took place in the general drainage basin of the Tulsequah River surrounding the three former producing mines.

The history of the Ericksen-Ashby property parallels that of exploration activities in the Tulsequah district in general. In 1929, claims were staked by prospectors Ericksen and Ashby after discovering several massive sulphide occurrences on the northwestern flank of Ericksen Mountain. Until 1950, mineral exploration work sufficient only to maintain annual assessment requirements was undertaken.

In 1951, the property was optioned to Cominco Ltd. who, at the time, was operating the Big Bull and Tulsequah Chief mines. Cominco initially carried out surface geological mapping, hand trenching and surface sampling of sulphide showings. In 1952, the company attempted to explore the uppermost mineralized zones on the property by drilling a long hole from Ericksen Creek. However, this was unsuccessful as a rock avalanche destroyed the drill platform and equipment before the hole was completed.

Little further work was done in subsequent years until in 1963 a new company, Ericksen-Ashby Mining Co. Ltd., was formed to carry out more definitive exploration work on the property. In 1963, the new company implemented more surface exploration, largely on Zone 8. In 1964, an adit was driven southeasterly beneath two zones (3 and 13) that were exposed on the surface. Nine underground diamond drill

holes were drilled from a station cut at the end of the adit. In 1965, a self potential survey was undertaken over the small, local plateau that lies north of the adit; further surface trenching was also carried out in the area covered by the self potential survey. No further work was done by the company, and in 1975 the property was allowed to revert to the crown.

In 1976, the property was restaked by Mr. G. H. Rayner who subsequently optioned it to Anglo Canadian Mining Corporation. In 1979, J. G. Payne of Stokes Exploration Management Company Ltd. geologically mapped the surface and underground workings in detail. In 1980, Anglo Canadian attempted to diamond drill Zone 1, situated on the relatively steep mountainside above the underground workings. This was not successful due, that summer, to a loss of surface water for drilling. In 1981, the property was optioned to Island Mining and Exploration Co. Ltd. This company successfully drilled six holes beneath Zone 1 from a single setup, and also drilled five other diamond drill holes to test two other zones (3 and 8). Two of the six holes returned encouraging results from Zone 1; no promising sulphide intersections were cut in the other two zones tested.

In 1987, the property (E-A claims) was optioned to Northwind Ventures Ltd. The company also purchased a large block (Bear and B.C. claims) surrounding the E-A claims at the same time. Exploration interest has been renewed in the Tulsequah district in recent months, due primarily to the increased price of silver and gold. Cominco Ltd. has recently cleared the Tulsequah airstrip, with a view to reactivating exploration within the Tulsequah Chief mine and on its large surrounding property.

### References

In preparing this report, the following technical publications were reviewed:

1. "Taku River Map Area, B.C."; 1949 by F.A. Kerr, Geological Survey of Canada, Memoir 284
2. "Tulsequah Area"; 1948 by Alexander Smith in Structural Geology of Canadian Ore Deposits, Jubilee Volume

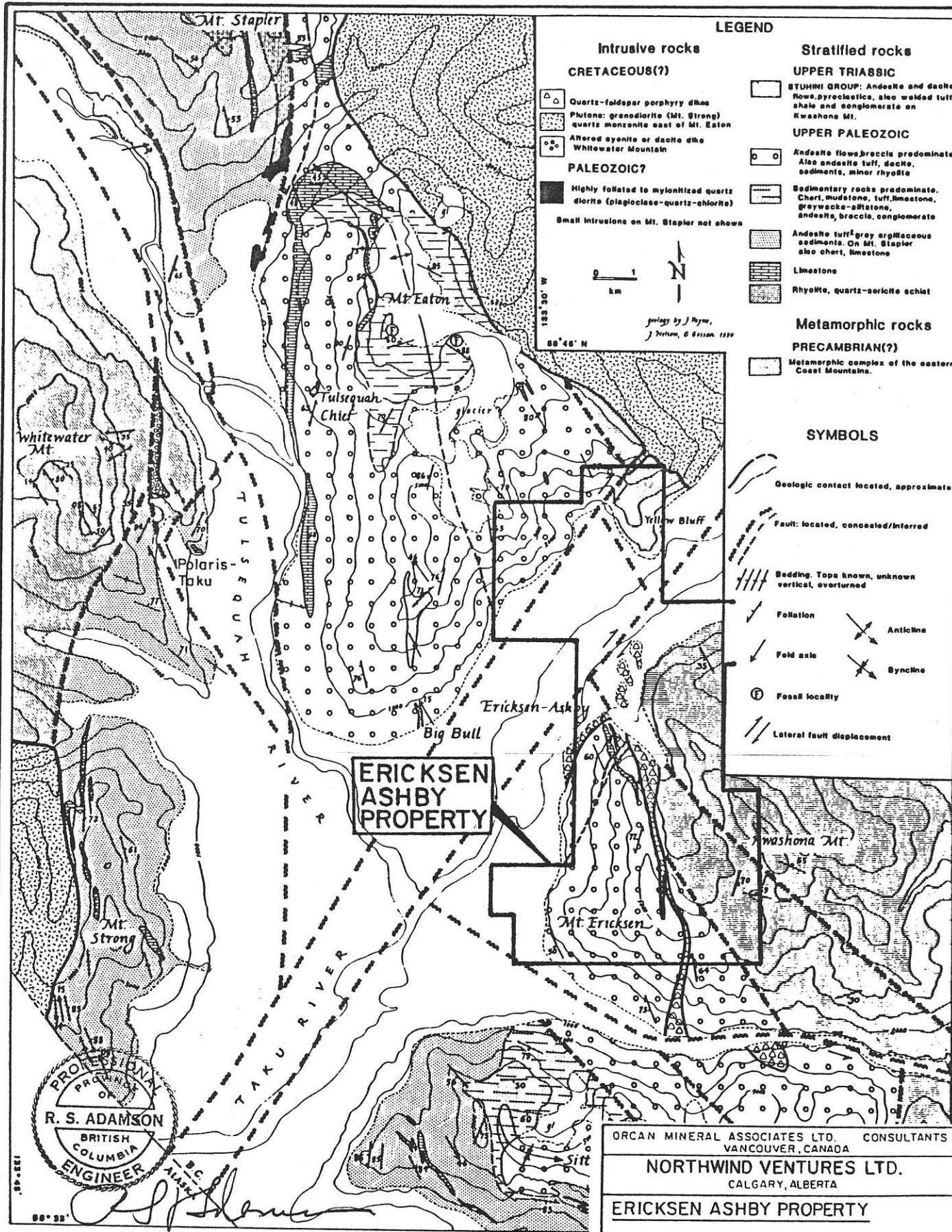
3. "Geology and Mineral Deposits of Tulsequah Map-Area, B.C."; 1971 by J.G. Souther, Geological Survey of Canada, Memoir 362
4. "Paleozoic volcanic assemblages and volcanogenic massive sulphide deposits near Tulsequah, British Columbia"; 1983 by JoAnne Nelson and John G. Payne for Anglo-Canadian Mining Corporation in Canadian Journal of Earth Sciences, Volume 21
5. "Geological Report on the Ericksen-Ashby Claims, Taku River Area, Atlin Mining Division"; September 1979 by John G. Payne, Stokes Exploration Mgmt. for Semco Mining Corporation.
6. "Assessment Report, Diamond Drilling on the Ericksen-Ashby Claims, Taku River Area, Atlin Mining Division"; February 12, 1982 by B. Hemingway and T.M. Elliot for Island Mining & Exploration Ltd.
7. "Interpretative Progress Report, Ericksen-Ashby Property, Atlin Mining Division"; March, 1982 by John G. Payne, Anglo Canadian Mining Corporation.
8. "Report on the Tulsequah Properties, Taku River, B.C."; April 15, 1987 by R.S. Adamson, P.Eng., for Georgia Pacific Resources Inc.

## GEOLOGICAL SETTING

### Regional Geology

The Tulsequah district is bounded on the west, near the international boundary, by Precambrian age metamorphic rocks, the oldest rocks in the region, and granitic plutons of the Coast Plutonic Complex. Predominantly andesitic assemblages of late Paleozoic age underlie the district, particularly in the general vicinity of the confluence of the Tulsequah and Taku rivers. Unconformably overlying, but in the district essentially in fault contact with the Paleozoic sequence, are volcanic rocks of the Upper Triassic Stuhini Group. Stuhini units consist of andesitic and basaltic flows, pillow lava, volcanic breccia and agglomerate, lapilli tuff, volcanic sandstone and minor greywacke and siltstone. Sedimentary rocks of the Takwahoni Formation, Lower to Middle Jurassic in age, unconformably overlie the Stuhini Group. Eocene age volcanic rocks of the Sloko Group unconformably overlie all older rock sequences in the district. Intrusive bodies in the area, ranging in age from mid Cretaceous to early Tertiary, consist predominantly of quartz monzonite and quartz feldspar porphyry.

Structurally, the Paleozoic units occur as distinct fault bounded blocks (Figure 3). Internally, volcanic and sedimentary units are tightly folded, generally along north



**LEGEND**

<b>Intrusive rocks</b>	<b>Stratified rocks</b>
<b>CRETACEOUS(?)</b>	<b>UPPER TRIASSIC</b>
<ul style="list-style-type: none"> <li> Quartz-feldspar porphyry dikes</li> <li> Plutons: granodiorite (Mt. Strong) quartz monzonite east of Mt. Eaton</li> <li> Altered syenite or dacite dike Whitewater Mountain</li> </ul>	<ul style="list-style-type: none"> <li> STUHM GROUP: Andesite and dacite flows, pyroclastics, also welded tuff, shale and conglomerate on Kwashona Mt.</li> </ul>
<b>PALEOZOIC?</b>	<b>UPPER PALEOZOIC</b>
<ul style="list-style-type: none"> <li> Highly foliated to mylonitized quartz diorite (plagioclase-quartz-chlorite)</li> </ul>	<ul style="list-style-type: none"> <li> Andesite flows, breccia predominate. Also andesite tuff, dacite, sediments, minor rhyolite</li> <li> Sedimentary rocks predominate. Chert, mudstone, tuff, limestone, greywacke-siltstone, andesite, breccia, conglomerate</li> <li> Andesite tuff, gray argillaceous sediments. On Mt. Stapler also chert, limestone</li> <li> Limestone</li> <li> Rhyolite, quartz-sericite schist</li> </ul>
<p>Small intrusions on Mt. Stapler not shown</p> <p>132° 30' W</p> <p>60° 45' N</p> <p>Scale: 0 1 km</p> <p>Geology by J. Hyer, J. Nelson, G. Gosselin, 1980</p>	<p><b>Metamorphic rocks</b></p> <p><b>PRECAMBRIAN(?)</b></p> <ul style="list-style-type: none"> <li> Metamorphic complex of the eastern Coast Mountains.</li> </ul>

**SYMBOLS**

Geologic contact located, approximate	
Fault: located, concealed/Inferred	
Bedding. Tops known, unknown vertical, overturned	
Foliation	Anticline
Fold axis	Syncline
Fossil locality	
Lateral fault displacement	

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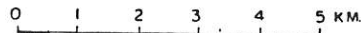
**ERICKSEN ASHBY PROPERTY**

**REGIONAL GEOLOGY**

TULSEQUAH, TAKU RIVER, B.C.

SCALE AS SHOWN      JUNE 1987      FIG. 3

AFTER CAN. J. EARTH SCI. VOL. 21, 1984



northwest trending, northerly plunging axes. Both Stuhini Group and Takwahoni Formation rocks are deformed into broad symmetrical folds which generally trend northwesterly to westerly. Sloko Group strata, bounded by high angle normal faults, tend to be preserved in graben-like blocks. These units are generally partly folded along northwest striking axes.

### Mineral Deposits

The most important mineral deposits in the district occur in the late Paleozoic, predominantly volcanic assemblage. These are the Tulsequah Chief, Big Bull, Ericksen-Ashby massive sulphide replacement deposits, and also the Polaris Taku vein deposits. The assemblage contains five mappable units (J. Nelson and J.G. Payne, 1983). Unit one consists of andesitic flows and breccia with lesser tuff, dacite, sediments and minor rhyolite. Unit two consists primarily of sedimentary rocks (chert, mudstone, tuff, limestone, greywacke-siltstone) with lesser andesite, breccia and conglomerate. Unit three consists of andesitic tuff with minor argillaceous sediments, chert and limestone. Unit four is limestone. Unit five comprises rhyolite and quartz-sericite schist.

The Tulsequah Chief mine produced from 1951 until 1957. The massive sulphide deposits occupy a shear zone in altered volcanic rocks (Unit 1) adjoining a small felsite intrusion. The zone strikes northwesterly and, on the west limb of an anticlinal feature, dips steeply southwest. Mineralization consists of pyrite, chalcopyrite, galena, and sphalerite with significant precious metal values. Associated gangue minerals are quartz, calcite and barite.

The Big Bull mine contains mineralization similar in character to that in the Tulsequah Chief. Host rocks are sheared and altered volcanics (Unit 1) associated with another small felsite intrusion (Unit 5). Deposits in the mineralized zone strike northwesterly and dip moderately to steeply southwest.

The above deposits tend to be conformable in the host rocks (stratabound), and exhibit similar mineralogy and alteration characteristics. In the Polaris Taku mine, however, veins tend to crosscut andesitic tuff (Unit 3) strata. Also, the style of

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mineralization differs, consisting essentially of arsenopyrite, pyrite, and stibnite in a gangue of quartz and carbonate. Unlike most other deposits in this environment, which are polymetallic and massive, the Polaris Taku can be viewed as a network of gold-bearing quartz veins. Polaris Taku veins are probably younger in age, perhaps related to the late Cretaceous to early Tertiary or Eocene periods of intrusive activity. The massive sulphide deposits on the other hand were likely deposited contemporaneously with the late Paleozoic volcanism and, in particular, are directly related to the coeval rhyolitic intrusions that occur in the volcanic assemblage.

The Ericksen-Ashby deposits are massive sulphide replacements of chert, and occasionally, limestone. Mineralization consists of pyrite, sphalerite, galena and freibergite.

#### Property Geology

The Ericksen-Ashby property is underlain on the southwest by late Paleozoic andesitic volcanic rocks with minor sediments and acidic volcanics; the northeastern half, partially in fault contact with the older assemblage, is underlain by Stuhini Group volcanic rocks. The older rocks generally strike northwesterly and dip steeply to the southwest; the younger sequence is evidently more complexly folded (Figure 3). A Cretaceous (?) age, north northwest trending, feldspar-porphyry dyke-like intrusion cuts across the late Paleozoic rocks from Stuhini Creek on the south to the confluence of Ericksen Creek and the Taku River on the north.

The Taku River valley as it crosses the property evidently is fault controlled with both strike and dip movement indicated. Faults on the property generally strike deeply northwest and northeast, sympathetic to the regional structures.

On the northeast sector of the property (Yellow Bluffs area), Stuhini Group rocks are ubiquitously pyritized and limonite stained. These predominant yellow bluffs on the Taku River were geophysically surveyed in 1982 with a helicopter-borne Input system by Questor Surveys. A six channel Input anomaly signifying strong conductivity was recorded near the top of a fragmented, pyritic zone that lies in the Bear 2 claim. The cause of this anomaly, which may reflect a concentration of massive sulphides, has not been recorded.

### MINE AREA

The Ericksen-Ashby mine consists of an adit, collared at the 975 metre elevation, that was driven southeastward for 150 metres. To date, 20 core holes (excluding the abortive 1952 Cominco hole) have been drilled on the property, nine from a single site underground and eleven from three sites on surface (Figure 4).

#### Local Geology

Mapping by J.G. Payne in 1979 over a strike length of 1,650 metres identified a stratigraphic section that strikes northwest to northerly and dips 55 to 80 degrees to the southwest. Two sedimentary units occur in the section, each bounded by massive, andesitic volcanic units. The younger (?) eastern unit comprises thin to medium banded cherts with some thin limestone beds. The older (?) western unit consists predominantly of limestone, but with abundant andesite flows and pyroclastics, thick wedges of chert and chert breccia, and discontinuous rhyolite flows, tuffs, and breccias. This western unit, which ranges from 100 to 200 metres in thickness, hosts most of the economically interesting, massive lenses in the mine area.

A strong northeasterly striking fault divides the area into two distinct structural blocks. From an operational standpoint, in exploration terms, each block is also best viewed distinctly. Northwest of the fault the local topography is relatively moderate, where a small upland plateau would allow for more easy exploration. Helicopters can land here with relative ease, drilling water can be entrapped, and drill sites can be established with less difficulty. Southeast of the structure, the terrain becomes more precipitous; diamond drill exploration is consequently much more difficult to execute from surface.

#### Sulphide Zones

Thirteen sulphide zones have been identified to date in the mine area on the Ericksen-Ashby property (Figure 4). One (zone 7) occurs in the eastern sedimentary unit; six (zones 4, 5, 8, 10, 11, 12) occur in the northern structural block of the western

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sedimentary unit; and six (zones 1, 2, 3, 6, 9, 13) occur in the southern block. Each zone usually comprises several lenses or pods of various sizes.

Sulphide mineralization (pyrite with sphalerite and galena) tends to occur in two modes: as a skarn with rhodonite, pyrrhotite and/or magnetite in limey rocks and as a more stratiform replacement in cherty rocks in very close proximity to rhyolite. In general, skarn type deposits appear to be more common in the northern structural block than in the southern block where rhyolite appears to be more plentiful. However, the internal stratigraphy of the lower half of the northern block is relatively unknown, probably because outcrop exposures are not nearly as common as in the southern block.

The overall average grade of many representative surface samples, collected by a number of companies over the years from all known zones, is in the order of 10 percent zinc, 3 percent lead, and 6 ounces per ton silver. On the basis of the evidence to date, the grade of deposits in the southern block appears to be somewhat higher than this average. Also, because of their implied proximity to felsic centres indicated by the prevalence of rhyolite and brecciated exhalative chert, the sulphide deposits here may exhibit more continuity and lateral extent than those in the northern block. The most significant mineralization encountered in drilling to date was intersected in two of six holes drilled beneath Zone 1 from a single setup on the southern block. Hole 86-3 cut 20.2 metres of sulphide mineralization, with the best intercept within this section assaying 4.94 percent lead, 4.22 percent zinc, and 16.5 ounces per ton silver over 9.2 metres. Hole 86-4 cut 5.1 metres of sulphide mineralization that included an intercept that assayed 6.42 percent lead, 6.2 percent zinc, and 18.3 ounces per ton silver over 3.0 metres. Gold assays were negligible.

### CONCLUSIONS

The Ericksen-Ashby massive sulphide deposits occur as numerous lenses and pods in a belt that ranges in width from 100 to 200 metres. These deposits have been traced along strike by mapping and surface sampling for approximately 1,650 metres and vertically for approximately 640 metres. Within the belt, twelve zones comprising multiple deposits of variable grades have been defined to date.



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Because of the severe topography, particularly south of the cross-fault, previous exploration by a number of operators has been very difficult. However, on the basis of the presently available surface sampling and mapping, it is evident that the zone with the best indicated grade and continuity lies higher up on the mountainside (Zone 2). Because the zone has not been tested by diamond drilling, due to a lack of a suitable drill site and the need to pump drill water under pressure from a source near the portal, there is as yet insufficient encouragement to drive the adit further, to a point beneath the zone where it can be more easily explored at depth by underground drilling. It should be possible, however, to build an adequate drill station, suitable for a light drill, on surface near the zone by a combination of rock excavation and timber cribbing.

In view of the number of sulphide deposits and their relatively large areal extent in the belt, it is evident that a mining operation can be envisaged (possibly with aerial tram access), provided that one higher grade, large deposit or group of deposits can be proven. The identification of such a core deposit will be required before undertaking such an operation. Other smaller, lower grade zones could then become economic, once the initial development is essentially underwritten by the core deposit. Zone 2 may be such a deposit. Otherwise, the core deposit would have to be sought north of the cross-fault, in the immediate vicinity of the local plateau where drill sites and underground development can take place with relative ease. The geological setting indicates this may be possible. There is some rhyolite present, implying good grade and better continuity than is presently known on surface, and much of the favourable belt here remains relatively unexplored.

A two stage surface exploration program that, when completed, could justify definitive underground exploration is warranted, particularly in view of the recent strength in the silver price. Exploration on both north and south blocks should be pursued with equal intensity, at least initially.

In addition, preliminary exploration of the other favourable geological environments on the property should be undertaken concurrently.

## Recommendations

A two stage exploration program is proposed. The implementation of the second stage is contingent on obtaining favourable results from the initial stage. Specific activities within each stage are recommended as follows:

### Stage I

The initial stage should comprise two parts: a preliminary exploration phase and a diamond drilling phase.

#### **Preliminary Exploration Phase**

a) Visually prospect and geologically map the Mesozoic Stuhini Group rocks in the Yellow Bluff area and the Paleozoic rocks on the northwest side of the Taku River. Identify the cause of the airborne conductor if practical. Support these activities with geochemical soil sampling along contours where and as practical.

b) Geologically map the local plateau area that extends between the portal and the bluff above the Taku River. Prepare an outcrop map (scale 1:1,250) of the western sedimentary unit as it occurs on the plateau. Initiate a combined magnetometer and electromagnetic (horizontal loop) survey over the mapped area and into the flanking andesites as topography permits. Collect soil samples for geochemical analyses (Pb, Zn, Ag) along geophysical lines over overburden covered areas. Examine the Zone 2 area for a suitable diamond drill station. Visually prospect, map, and contour soil sample the area southwest of Mount Ericksen.

#### **Drilling Phase**

Implement a diamond drill program (500 metres) in the general mine area. The specific choice of sites should be governed by the detailed surveys on the north block and by the availability of a satisfactory drill site at Zone 2 on the south block.

**Stage II (Contingent)**

Providing that the diamond drill program is successful in either block, further drilling should be undertaken before proceeding with underground exploration and development.

With regard to the Zone 2 area, it is likely that additional favourable drill results will be required to justify extending the adit 450 metres to the southeast, since the zone outcrops approximately 425 metres above the adit level. However, the decision to proceed with additional drilling or driving the adit to drill the zone from underground will be dependent upon establishing undoubtedly difficult drill sites on surface, the availability of a continuous supply of drill water, and the nature of the first stage drill results.

Nonetheless, 1,100 metres of diamond drilling should be allocated for the second stage drill program. This could provide sufficient encouragement to proceed with underground programs on either of the two areas.

**Estimated Cost**

The cost of the two stage program is estimated to be as follows:

**Stage I**

**A. Preliminary Exploration Phase**

Transportation- helicopter	\$ 15,000
- fixed wing	4,000
Camp maintenance	12,000
Labour (Prospectors/Geological Assistant)	15,000
Geology and Supervision	16,000
Geophysics	14,500

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Assaying - rock	5,000
- geochemical	6,500
Project Mgmt. and Consulting (report, etc.)	11,000
Field support (travel, comm., freight, sundries)	6,000
Contingencies (approximately 15%)	<u>15,000</u>
Total	\$ 120,000

Approximately \$30,000 should be allocated to exploration on the north side of the river; the remaining \$90,000 should be expended on the south side, mostly on the north block area.

**B. Drilling Phase**

Diamond drilling (500 metres @ \$100/m)	\$ 50,000
Transportation- helicopter	55,000
- fixed wing	7,000
Support	<u>8,000</u>
Total	<u>\$ 120,000</u>

**GRAND TOTAL** \$ 240,000

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Stage II

The cost of completing an additional 1,100 metres of diamond drilling in the mine area is estimated to be \$374,000. Should followup surveys be required on other mineralized zones indicated from the prospecting component of the preliminary exploration phase, this portion of the second stage program is estimated to cost \$126,000. The overall cost of the contingent second stage is therefore estimated to be \$500,000.



Respectfully submitted,  
ORCAN MINERAL ASSOCIATES LTD.

A handwritten signature in cursive script, appearing to read "R. S. Adamson".

Robert S. Adamson, P.Eng.

ORCAN MINERAL ASSOCIATES LTD.  
CONSULTING ENGINEERS

SUITE 1417 - 409 GRANVILLE STREET  
VANCOUVER, CANADA V6C 1T2  
TELEPHONE (604) 682-3722

CERTIFICATE

I, Robert S. Adamson, with business and residential addresses in Vancouver, British Columbia, do hereby certify that:

1. I am a consulting geological engineer.
2. I am a graduate of the University of British Columbia, (B.A. Sc. in Geological Engineering, 1957).
3. I am a registered Professional Engineer of the Province of British Columbia.
4. From 1957 until 1967, I was engaged in mineral exploration in Canada for a number of companies. Positions included Senior Geologist, Chief Geologist, and Vice-President, Exploration. Since 1967 I have been practising as a consulting geological engineer and, in this capacity, have examined and reported on numerous mineral properties in Africa, Europe, and North and South America.
5. I examined the Ericksen-Ashby property on June 17, 1987.
6. I have not received, directly or indirectly, nor do I expect to receive any interest, direct or indirect, in the property of Northwind Ventures Ltd. or any affiliate thereof, nor do I beneficially own, directly or indirectly, any securities of Northwind Ventures Ltd. or any affiliate thereof.



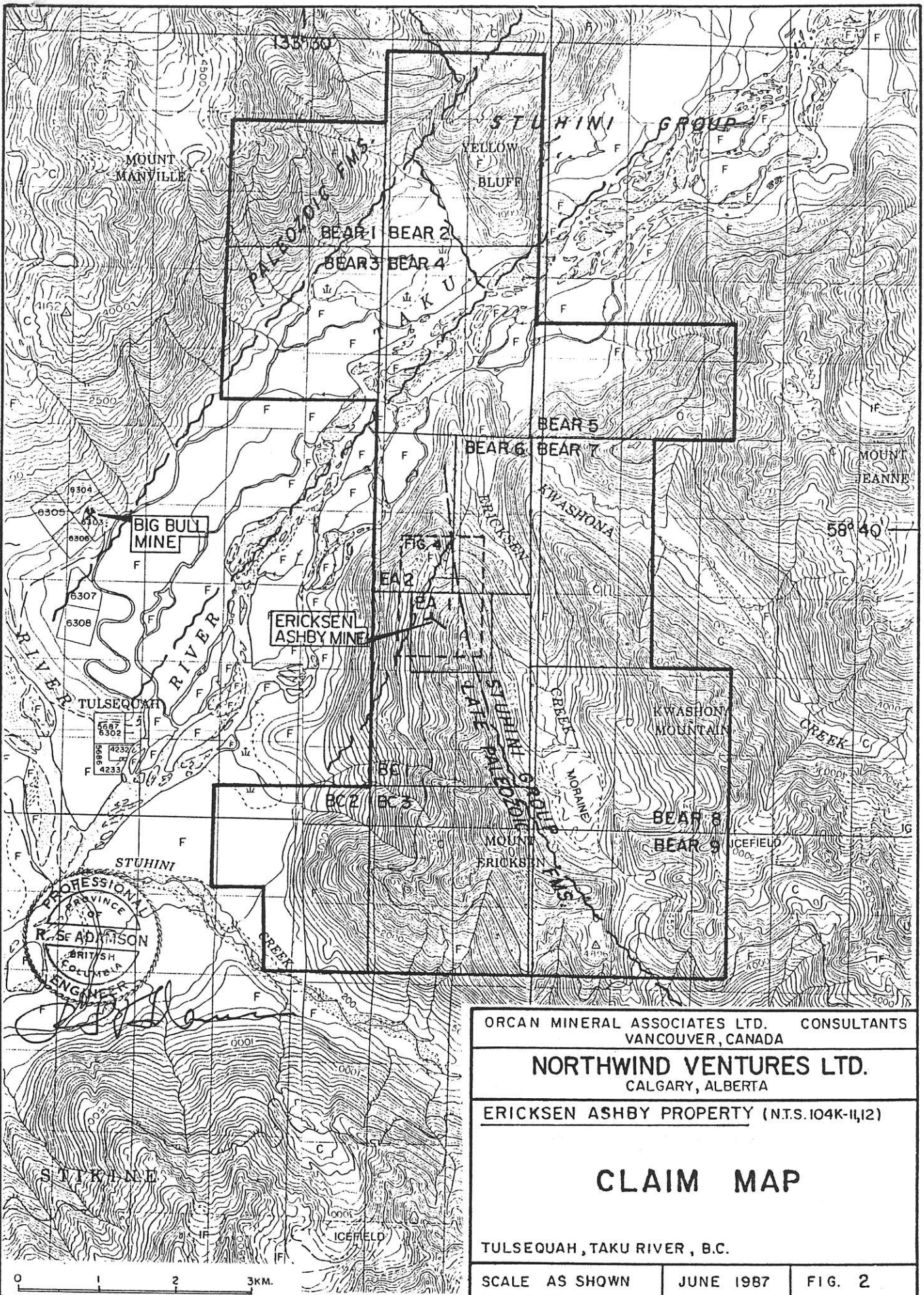
Vancouver, Canada

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "R. S. Adamson".

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Robert S. Adamson, B.A.Sc., P.Eng.



PROFESSIONAL  
 PROVINCE OF  
 R. SEADAMSON  
 BRITISH COLUMBIA  
 ENGINEER

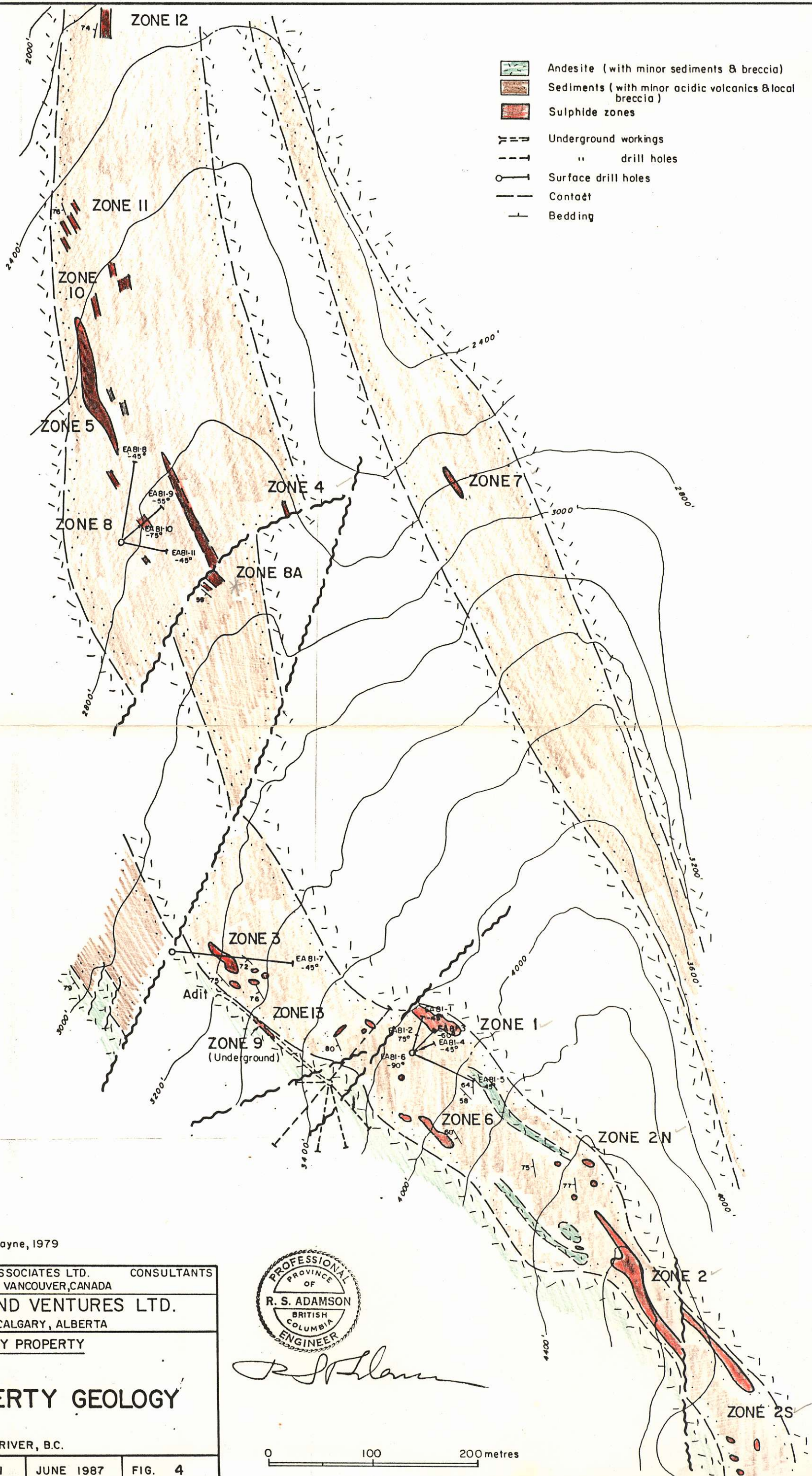
ORCAN MINERAL ASSOCIATES LTD. CONSULTANTS  
 VANCOUVER, CANADA

**NORTHWIND VENTURES LTD.**  
 CALGARY, ALBERTA

ERICKSEN ASHBY PROPERTY (N.T.S. 104K-11,12)

**CLAIM MAP**  
 TULSEQUAH, TAKU RIVER, B.C.

SCALE AS SHOWN	JUNE 1987	FIG. 2
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Geology after J.G. Payne, 1979

ORCAN MINERAL ASSOCIATES LTD. CONSULTANTS  
VANCOUVER, CANADA

NORTHWIND VENTURES LTD.  
CALGARY, ALBERTA

ERICKSEN ASHBY PROPERTY

**PROPERTY GEOLOGY**

TULSEQUAH, TAKU RIVER, B.C.

SCALE: AS SHOWN | JUNE 1987 | FIG. 4

