

MAP NO. ASSESSMENT REPORT X DOCUMENT NO.: 092085
PROSPECTUS MINING DISTRICT: WHITEHORSE
CONFIDENTIAL X TYPE OF WORK: Prospecting, Geochemical
115 G 2 OPEN FILE

REPORT FILED UNDER: Rockridge Mining Corporation

DATE PERFORMED: July 31 - September 22, 1987 DATE FILED: February 3, 1988

LOCATION: LAT.: 61°12'N AREA: Duke River

LONG.: 138°56'W VALUE \$: 11,000.00

CLAIM NAME & NO.: DUKE 1-44 YB06331-YB06927

WORK DONE BY: W.D. Eaton

WORK DONE FOR: Rockridge Mining Corporation

DATE TO GOOD STANDING	REMARKS:
	#9 DUKE

ARCHER, CATHRO

& ASSOCIATES (1981) LIMITED

CONSULTING GEOLOGICAL ENGINEERS

1016-510 WEST HASTINGS STREET
VANCOUVER, B. C. V6B 1L8



Report On

PROSPECTING AND GEOCHEMICAL PROGRAM

DUKE 1-16 CLAIMS (YB06331-YB06346)

DUKE 17-24 CLAIMS (YB06904-YB06911)

DUKE 25-28 CLAIMS (YB06347-YB06350)

DUKE 29-44 CLAIMS (YB06912-YB06927)

NTS 115G/2

Latitude 61°12'N; Longitude 138°56'W

W.D. Eaton, B.A., B.Sc.

December, 1987

Work done between July 31 and September 22, 1987



092085

This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mining Act and is allowed as
representation work in the amount
of \$ 11 000.00.

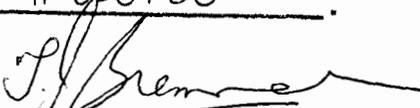

Regional Manager, Exploration and
Geological Services for Commission
of Yukon

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INTRODUCTION

Twenty Duke claims were staked on July 22, 1987 by Kluane Joint Venture (Chevron Minerals Limited and All-North Resources Ltd.) following release of Geological Survey of Canada (GSC) Reconnaissance Stream Sediment Sampling Open File 1362 to cover a drainage from which a sample returned strongly anomalous nickel (791 ppm), copper (254 ppm), and cobalt (74 ppm) values. The nickel and cobalt values are higher and copper just slightly lower than those obtained by the GSC from a sample taken directly downstream from the main zone at the former Wellgreen nickel-copper-cobalt-platinum group element (PGE) Mine, 28 km to the northwest (see Figure 1 on the following page). The property was optioned to Rockridge Mining Corporation which subsequently added another twenty-four claims.

The 1987 exploration program was funded by Rockridge under the author's supervision and consisted of prospecting and soil geochemistry done during the second phase of staking and on two days in September. Further attempts to explore the property were terminated by snow. The Author's Statement of Qualifications is in Appendix I, while a list of personnel who worked on the property appears in Appendix II.

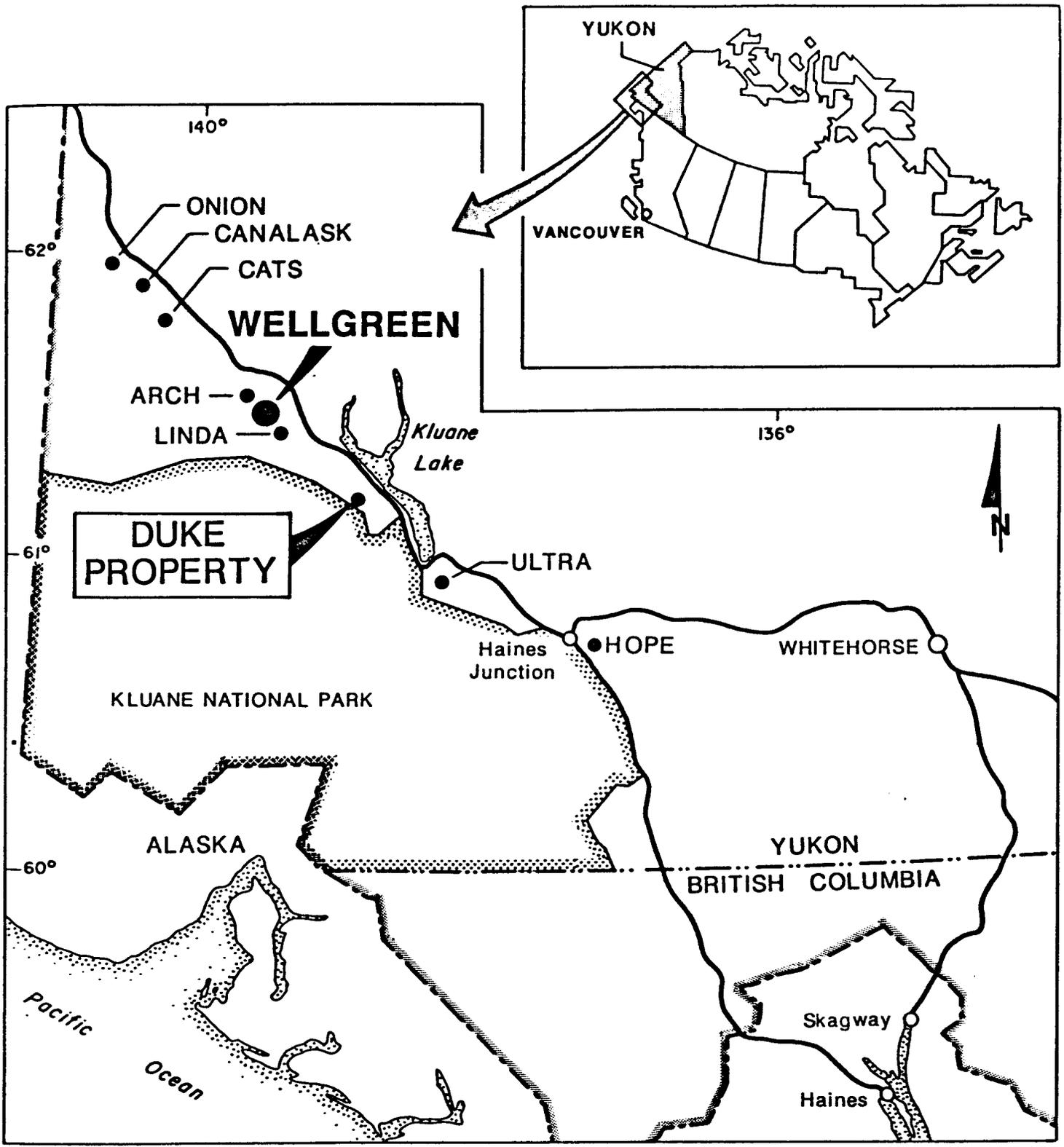
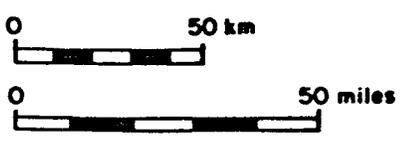


Figure 1
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED
LOCATION MAP
DUKE PROPERTY
 ROCKRIDGE MINING CORPORATION
 KLUANE JOINT VENTURE



PROPERTY, LOCATION AND ACCESS

The Duke property consists of forty-four contiguous claims registered with the Whitehorse Mining Recorder as follows:

<u>Claim Name</u>	<u>Grant Numbers</u>	<u>Expiry Date</u>
Duke 1-16	YB06331-YB06346	July 28, 1988
Duke 17-24	YB06904-YB06911	August 6, 1988
Duke 25-28	YB06347-YB06350	July 28, 1988
Duke 29-44	YB06912-YB06927	August 6, 1988

The claims are located at latitude 61°12'N and longitude 138°56'W on NTS map sheet 115G/2, as shown on Figure 2 in the pocket. The southern and western property boundaries adjoin Kluane National Park and an Indian Land Claim, respectively, both of which are closed to mineral exploration at the present time.

The closest road access lies 9 km to the northeast at Destruction Bay, a small community on the paved Alaska Highway, 261 km by road from Whitehorse and 354 km from the year-round, deep-sea port at Haines, Alaska. Access in 1987 was by Bell 206B helicopter operating from a seasonal base at Burwash Landing, 13 km north of the property.

GEOLOGY

The property is located in the front range of the Kluane Mountains and covers most of two, south-facing drainages that flow into the Duke River. Both drainages were occupied by glaciers until recently and have near vertical cirques at their heads, steep talus slopes on their flanks, and thick deposits of glacial till on their floors. Outcrop is limited to the cirque faces, ridge tops and actively eroding creek cuts. Local elevations range from 1700 m in the creek bottoms to 2250 m on the ridge tops. Vegetation is restricted to scattered clumps of slide alder in the creek bottoms plus grasses, moss and lichen on glacial terraces and lower slopes.

Regional mapping by the GSC (Open File 829) indicates that the property lies within the Wrangellia Terrane and covers a package of sedimentary and volcanic rocks, the lower part of which is intruded by mafic and ultramafic sills, as shown on Figure 2. The oldest rocks belong to the Late Pennsylvanian to Lower Permian Hasen Creek Formation and include thin-bedded argillite and basalt flows (Unit Ps) and buff limestones (Unit Pc). These units are unconformably overlain to the north and east by dark green and maroon amygdaloidal basaltic and andesitic flows of the Upper Triassic Nikolai Greenstone (Unit U~~T~~N) and to the south by a Tertiary sequence that is floored by Amphitheatre Formation, light coloured sandstones and conglomerates (Unit Os) and capped by Wrangell Lava, red brown basaltic to andesitic flows with minor white to yellow acid pyroclastic horizons (Unit NW).

The Hasen Creek Formation rocks are intruded by a complex, Permian to Upper Triassic sill consisting of a basal ultramafic unit and overlying mafic unit. The ultramafic (Unit P~~T~~ub) is principally comprised of dark green to

black, partially serpentinized peridotite with minor dunite, pyroxenite and gabbro phases. It is about 270 m thick, strikes northwesterly and dips 60°NE away from the park boundary. Sedimentary rocks adjacent to the ultramafics commonly exhibit moderate to intense quartz-carbonate alteration. The mafic part of the sill (Unit P~~R~~b) is more homogeneous and is primarily medium grey to green, equigranular, medium-grained gabbro. It appears to be about 500 metres thick and parallels the ultramafic unit. To the east the intrusive units extend beneath the younger volcanic and sedimentary cap while to the west (in the Indian Land Claim area) the sill continues with the ultramafic portion becoming thicker and the mafic portion pinching out.

MINERALIZATION

Six types of mineralization have been identified on the property with the limited work done to date. Five occur within or adjacent to the ultramafic sill while the other is hosted by Unit P_Rb gabbro, as shown on Figure 2 and described below.

1. The most abundant mineralization is minor (1 to 2%) pyrrhotite with rare chalcopyrite and malachite which are finely disseminated throughout the peridotite and pyroxenite phases of the ultramafic.
2. Malachite, chalcopyrite (4%) and pyrrhotite (2%) were found in two Unit P_Rubgabbro float boulders along the recessive weathering, footwall contact of the sill.
3. A lens of massive pyrrhotite, up to 1 m wide, is partially exposed at the base of a creek cut within intensely quartz-carbonate altered sedimentary rocks, 50 m below the footwall contact of the sill.
4. Disseminated arsenopyrite forms up to 5% of some quartz-carbonate altered rocks lying between the massive pyrrhotite lens and the sill.
5. Scattered malachite is found on fractures cutting weakly skarnified Unit P_s sedimentary and volcanic rocks in the footwall of the sill.
6. Malachite and chalcopyrite occur on fractures and as disseminations in a few widely scattered, Unit P_Rb gabbro float boulders.

GEOCHEMISTRY

A total of 25 soil, 10 stream sediment and 42 rock samples were collected during the prospecting traverses. Three rock samples taken in late August were sent to Chemex Labs in North Vancouver where they were assayed for copper, nickel, cobalt, gold, platinum and palladium and geochemically analyzed for 33 metals by the Induced Coupled Plasma technique. All other samples were submitted to Bondar-Clegg & Company Ltd., North Vancouver, where they were geochemically analyzed for copper and nickel using a hot HNO₃-HCl extraction with an atomic absorption finish and platinum, palladium and gold by fire assay.

Figures 3 and 4 in the pocket illustrate copper and nickel, and platinum, palladium and gold values, respectively. The strongest soil and stream sediment responses (up to 1400 ppm nickel, 865 ppm copper, 50 ppb platinum and 60 ppb palladium) were obtained from samples taken directly over the ultramafic unit. Only a few samples were taken in areas underlain by Unit P₁b gabbro and these samples also returned encouraging results, including up to 590 ppm nickel, 240 ppm copper, 50 ppb platinum, and 20 ppm palladium. Although the absolute values for most metals are lower in soils and stream sediments derived from the mafic rocks than those from the ultramafic phase, the ratios of platinum to the other metals are slightly higher for copper and much higher for nickel and palladium.

At least one rock specimen representing each type of mineralization and phase of the ultramafic unit was submitted for analysis. As expected, the pyrrhotite-bearing ultramafics returned high nickel values (usually in the range of 1000 to 2000 ppm) with weak copper (up to 220 ppm), however, platinum, palladium and gold values were generally low. Similarly, most malachite-

and/or chalcopyrite-bearing rocks produced moderate to high copper assays (up to 2.6%) but only background to weakly anomalous values for the other metals. The only sample that returned potentially economic grade assays (2.04% copper, 0.74% nickel, 420 ppb platinum and 1380 ppb palladium) was taken from one of the malachite-, chalcopyrite- and pyrrhotite-bearing, Unit P_{sub} gabbro float boulders found along the recessive weathering footwall contact. Surprisingly, a chip sample across the massive pyrrhotite lens on specimens of the arsenopyrite-bearing quartz-carbonate yielded near background values for all metals.

DISCUSSION AND CONCLUSIONS

Preliminary prospecting and geochemical results are encouraging, having located several previously unreported mineral occurrences associated with mafic and ultramafic rocks similar to those that host nickel-copper-cobalt-PGE mineralization at the former Wellgreen Mine. The results are further enhanced by the presence of moderate to strong soil geochemical anomalies.

Based on initial prospecting, the most favourable target appears to be the recessive weathering footwall contact, but it should be remembered that only a tiny fraction of the area of interest has been explored and that almost no work has been done on the Unit P7b gabbro where soil geochemistry suggests platinum is concentrated relative to other metals.

The total thickness of the sill on the Duke property, including mafic and ultramafic units, is about 750 m, which makes it one of the thickest in the Wellgreen district. Although the strike extension to the northwest cannot be explored because of an Indian Land Claim, the sill is open to the southeast where it projects beneath younger cover rocks. The main obstacles to future exploration are the lack of direct access, the proximity to the park boundary and the glacial till that obscures most of the ultramafic rocks.

This property covers one of the prime targets in the Wellgreen area and should be aggressively explored. The next stage of exploration should include air photos and preparation of orthophotos plus geological mapping and prospecting over the entire property and grid soil geochemical, VLF, magnetic and gradiometer surveys where topography permits. The work is estimated to cost \$134,500 as detailed on the following page.

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<u>Labour</u> - Senior supervisor 300 hours, geologist 45 days, 3 fieldmen and cook 30 days each and surveyor for 5 days	\$ 46,000
<u>Helicopter</u> - 25 hrs @ \$600/hr	15,000
<u>Analyses and Assays</u> - 500 soils and rocks geochemically analyzed for Pt, Pd, Cu, Ni, Au @ \$23/sample, plus 20 assays for Pt, Pd, Cu, Ni, Au @ \$80/sample and 5 minor PGE assays @ \$100/sample	13,500
<u>Room & Board</u> - 200 mandays @ \$65 day	13,000
<u>Geophysical Surveys</u> - 40 km of VLF, Mag and Gradiometer @ \$150/km, plus travel and report costs	12,000
<u>Transportation and Shipping</u>	10,000
<u>Airphotos and Orthophotos</u>	10,000
<u>Office, Drafting and Printing</u>	8,000
<u>Assessment Filing</u>	2,000
<u>Management</u>	5,000
TOTAL -	<u>\$134,500</u>

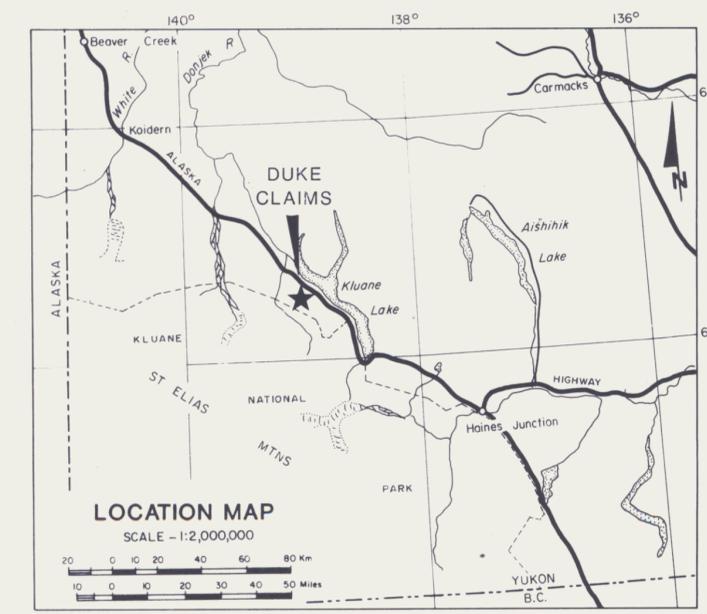
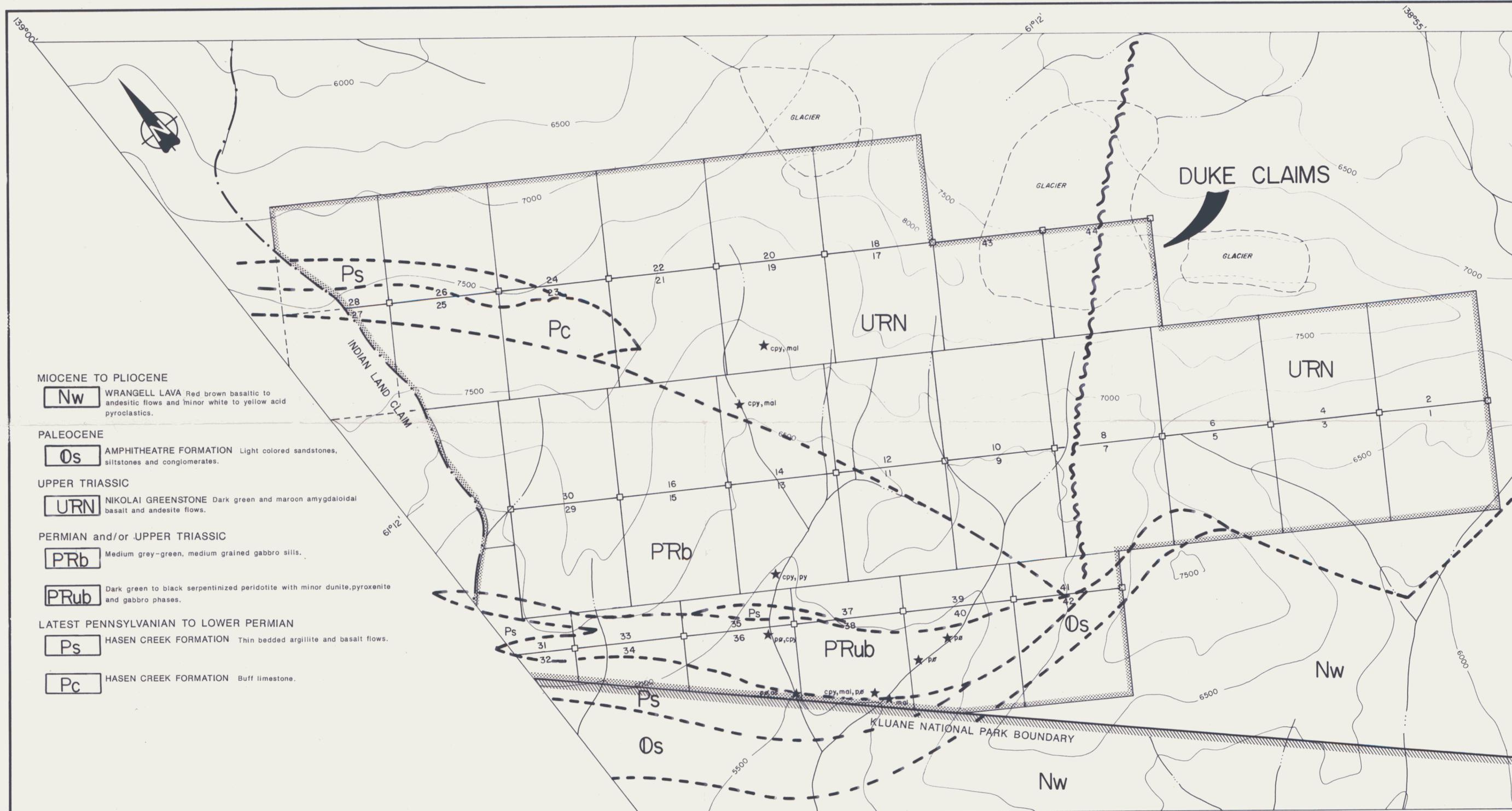
Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED



W.D. Eaton, B.A., B.Sc.

/mc



- Claim post
- ▭ Claim boundary
- - - Approximate geological contact
- ~ Fault
- ★ Mineralization
- cpy chalcopyrite
- po pyrrhotite
- py pyrite
- mal malachite
- as arsenopyrite

Work of D. W. 15, 1987

Figure 2

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

GEOLOGY, MINERALIZATION AND CLAIM DATA

DUKE PROPERTY

ROCKRIDGE MINING CORPORATION
 ALL-NORTH RESOURCES LTD. & CHEVRON MINERALS LTD.

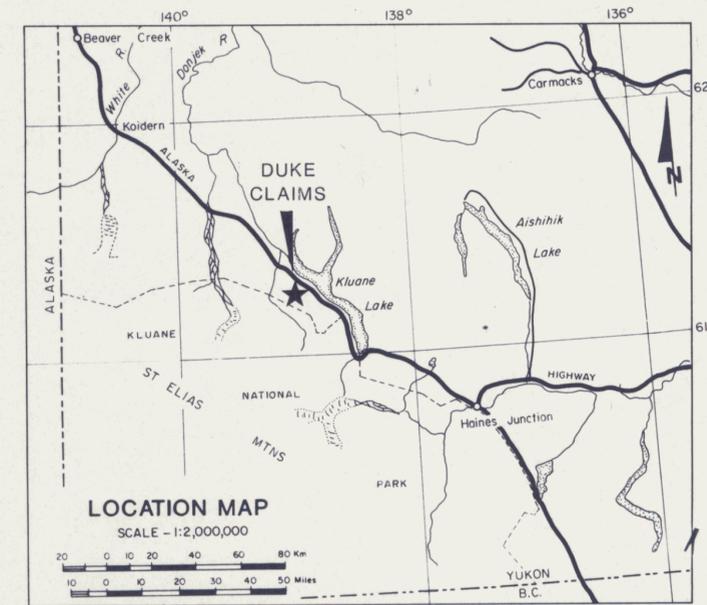
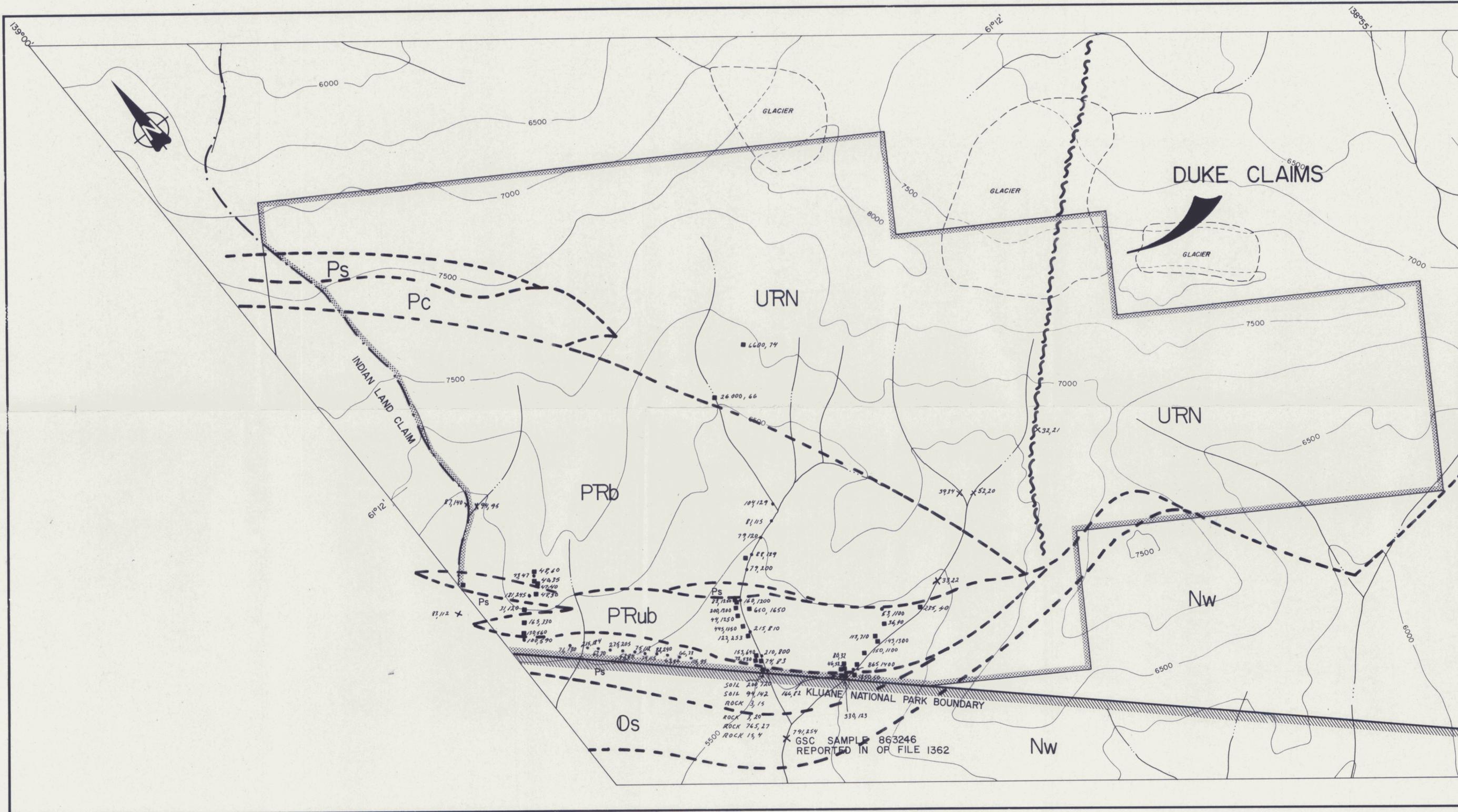
SCALE 1:10,000

0 100 200 300 400 500 1000 Metres

0 500 1000 2000 3000 Feet

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To accompany report dated December, 1987



■ 44,120 Rock sample location and values Cu(ppm), Ni(ppm)
 ● 104,129 Soil sample location and values Cu(ppm), Ni(ppm)
 X 83,112 Silt sample location and values Cu(ppm), Ni(ppm)
 NOTE: For unit description see Figure 2

Figure 3

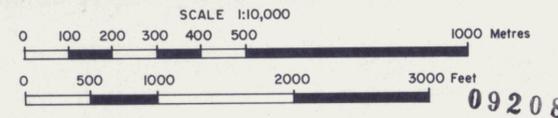
WJG
DL 15, 1987

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

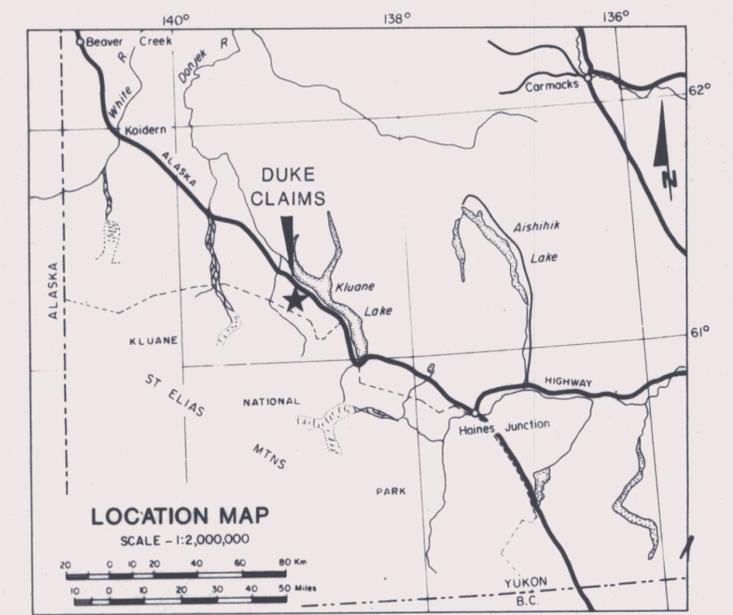
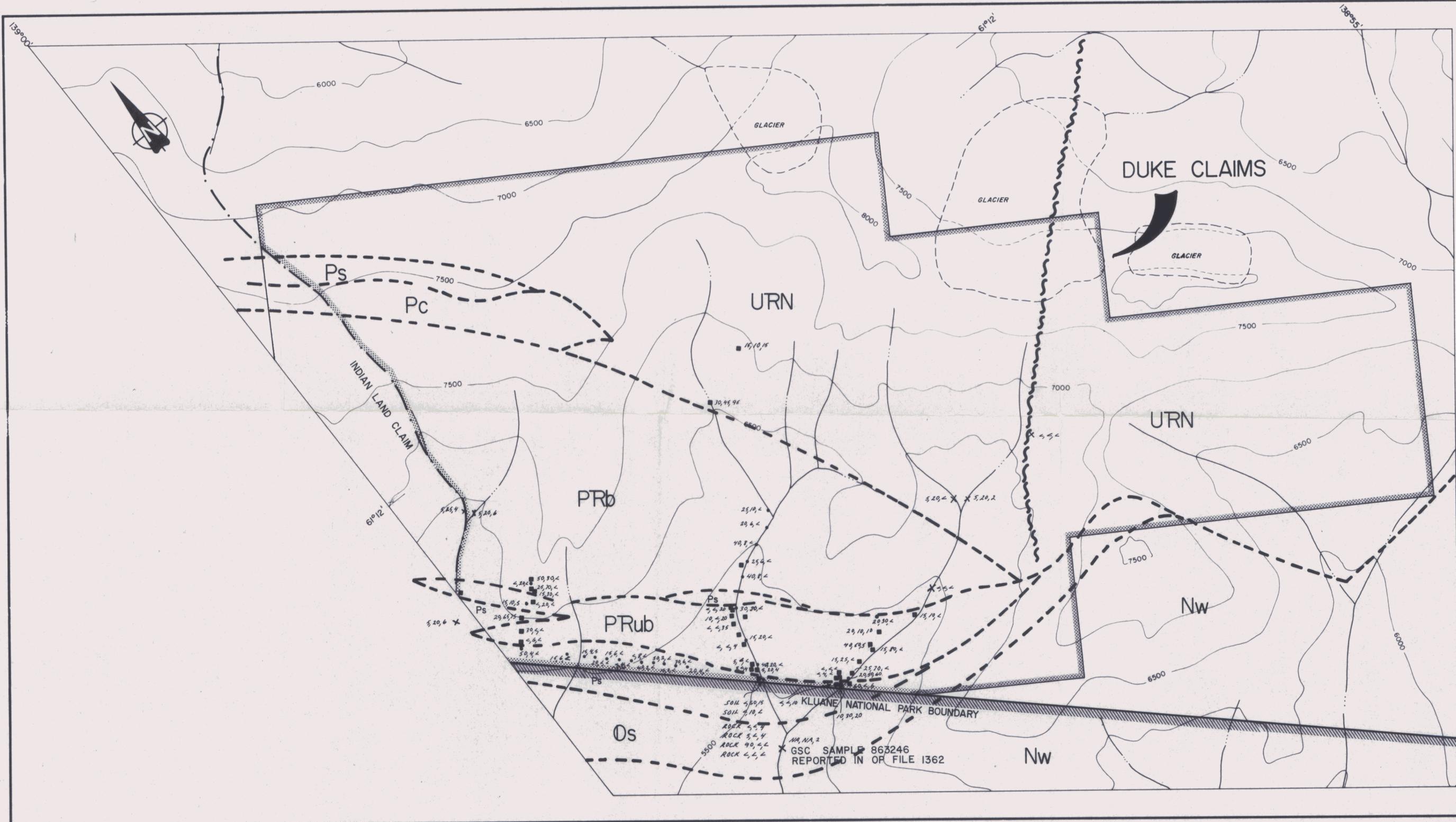
Cu AND Ni GEOCHEMISTRY

DUKE PROPERTY

ROCKRIDGE MINING CORPORATION
ALL-NORTH RESOURCES LTD. & CHEVRON MINERALS LTD.



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- 30, 45, 95 Rock sample location and Pt, Pd, & Au values in ppb.
- 20, 39, < Soil sample location and Pt, Pd, & Au values in ppb.
- × 5, 20, 6 Silt sample location and Pt, Pd, & Au values in ppb.
- < Below detection limit
- NA Not analyzed

NOTE: For unit description see Figure 2

*W.P.F. &
J.C. 15/87*

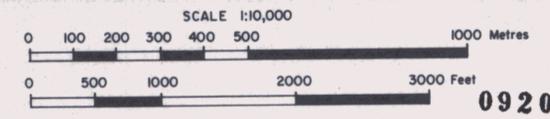
Figure 4

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

Pt Pd AND Au GEOCHEMISTRY

DUKE PROPERTY

ROCKRIDGE MINING CORPORATION
ALL-NORTH RESOURCES LTD. & CHEVRON MINERALS LTD.



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APPENDIX I
AUTHOR'S STATEMENT OF QUALIFICATIONS

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STATEMENT OF QUALIFICATIONS

I, W. Douglas Eaton, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia, and residential address in Burnaby, British Columbia, do hereby declare:

1. I graduated from the University of British Columbia in 1980 with a B.Sc.
2. From 1971 to the present, I have been actively engaged in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981, became a partner in Archer, Cathro & Associates (1981) Limited.
3. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.



W. Douglas Eaton, B.A., B.Sc.

APPENDIX II
PERSONNEL

<u>NAME</u>	<u>POSITION</u>	<u>DATES ON PROPERTY</u>
D. Eaton	Geologist	July 31, September 9
I. Talbot	Geologist	July 31
D. Parry	Fieldman	July 31
T. Becker	Fieldman	September 9
L. Cymbalisky	Fieldman	September 9
B. Wengzynowski	Fieldman	September 22
R. McGinn	Fieldman	September 22
S. Miller	Geologist	September 22