

DIAMOND DRILLING REPORT  
CAL, MAR-1 & SKIN-3 CLAIMS

OF

L.G. MORRISON & A.M. WHITE

SOUTHWEST OF ROSSLAND, B.C.

TRAIL CREEK MINING DIVISION

NTS 82F/4W

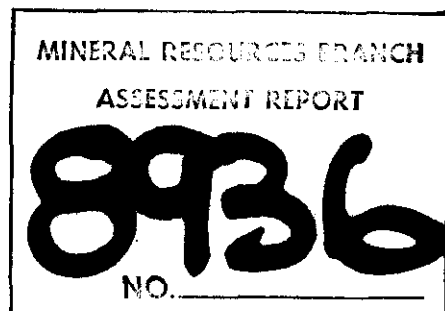
49° 03 N 117° 54 W

FOR

UNITED CANSO OIL & GAS LTD.

by Lee G. Morrison

November, 1980



LOCATION MAP  
MORRISON-WHITE PROPERTY  
ROSSLAND, B.C.



32 55' 34 35 36 37 38 50' 40 WASHINGTON

↑  
N  
5436

FROM ROSSLAND-TRAIL  
1:50,000 SHEET  
82 F/4

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### PLATES (In Pocket)

1:	GEOLOGICAL PLAN (Approx. 1:10,000)
2a:	DRILL HOLE LOCATIONS, ROSS & SKIN CLAIMS (1:2,500)
2b:	DRILL HOLE LOCATIONS, MAR CLAIM (1:2,500)

### ABSTRACT

During the fall of 1980, 516 meters of diamond drilling was done in six inclined holes on the Morrison-White property southwest of Rossland, B.C.

The drilling targets were linear electromagnetic anomalies coincident with soil geochemical anomalies for copper, lead and zinc.

Four conductors were identified as sheared and argillized zones containing about 5 percent pyrite and traces of chalcopyrite, galena and sphalerite. Two of the drilled anomalies were apparently spurious.

### CORE RECOVERY & LOCATION OF CORE

Except as otherwise noted on the logs, core recovery was in the order of 98 percent. Poor recoveries (70 percent or less) were limited to weakly-indurated Rossland sediments in hole R-6, and to a few short, sheared intercepts in other holes.

All core is stored on a rack in the equipment yard of Kootenay Exploration Drilling at Rossland, B.C.

## LOCATION AND MEANS OF ACCESS

The centre of the property is 7 kilometers southwest of the city of Rossland. The southwest corner of the property adjoins a group of crown granted claims which includes a former producing mine, the Velvet. The northeast corner of the property is one mile south of the IXL, OK and Midnight mines.

The property is traversed by a well graded road, the old Rossland-Cascade highway.

## PHYSICAL FEATURES OF THE AREA

Elevations within the claim group vary between 900 and 1700 meters above sea level. Gradients are relatively gentle except along the western and northern margins of the property.

Most of the area has been logged and/or burned and the property is now mainly wooded by scrubby spruce, poplar, cedar and balsam less than 30 centimeters at the butt. A few stands of good cedar survive in ravines near the east boundary. At higher elevations, sterile serpentine-derived soils support only scattered spruce trees and sparse grass.

The many creeks on the property are too small to be potentially useful, but there is ample water in Big Sheep Creek, at an elevation of 700 meters, 2½ kilometers west of the property.

Overburden is thin on the north end and west side of the property, but the eastern slopes are mostly covered by glacial till and unsorted gravel from one or two meters to more than 20 meters thick.

The property is traversed by a power line, a main natural gas line and a telephone line.

PROPERTY AND OWNERSHIP

The property comprises the following claims:

	<u>Record Number</u>	<u>Date of Record</u>	<u>Approximate Net Area (Hectares)</u>	<u>Recorder Owner</u>
CAL	244	Apr. 4/78	375.0	L. Morrison
ROSS	245	Apr. 4/78	236.7	L. Morrison
LAND 1 to 6	250-255	Apr. 4/78	125.4	L. Morrison
SKIN 1 & 2	246,247	Apr. 4/78	41.8	A. White
SKIN 3 & 4	248,249	Apr. 4/78	41.8	L. Morrison
MAR 1	243	May 12/78	483.7	A. White
MAR 2 to 4	260-262	June 2/78	62.7	A. White
Total			1,367.1	

By virtue of an unregistered Agreement dated July 11, 1979, and the fulfillment of work obligations, current beneficial interests in the property are as follows:

United Canso Oil & Gas Ltd. 3700 Scotia Centre, Calgary	66.15%
Lee G. Morrison 1608 - 49 Ave. S.W., Calgary	21.66%
Alan M. White #108, 604-1st Ave. N.W., Calgary	12.19%

## Surface Rights

A 540 hectare block on the west side of the property is public land, The balance, although unfenced and unoccupied, is divided into six privately owned parcels. The original crown grant to the area, issued to the Nelson and Fort Sheppard Railway Company in 1895, reserved mineral rights for the Crown.

## MINING HISTORY OF THE AREA

During the period 1894 to 1928, the Rossland gold-copper-silver mines were among the richest and most productive in Canada. The three main properties which are all within the municipal limits of Rossland are believed to have been mined out.

The area now encompassed by the Morrison-White property has been more or less continuously staked for many years. There are numerous pits and trenches and one 160 meter adit on the property, but there is no record of any serious work ever having been done except at the adjoining Velvet and nearby IXL mines.

The Velvet mine was operated intermittently from 1901 until 1942, mostly by lessees, and from 1954 until 1962. Eight levels were developed within a vertical interval of about 700 feet. The reported metal recovery from 91,084 tons of ore mined was 19,744 ounces gold, 20,195 ounces silver and 1,224 tons copper.

The IXL and adjoining claims have been worked intermittently by individual owners or lessees since 1892. Exact production figures are not available, but at least 6,100 tons have been shipped to yield 26,300 ounces gold and 9,300 ounces silver.

SUMMARY OF WORK ON THE MORRISON-WHITE  
PROPERTY TO DATE

In 1978, the property was geologically mapped at a scale of 1:10,000. Grid lines were blazed at intervals of 100 meters across an area of 460 hectares on the west side of the property. About 1000 soil samples from the grid area were geochemically analysed for Cu, Pb and Zn. Magnetometer surveying and detailed (1:2,500 scale) geological mapping were performed on the same grid.

Work in 1979 was limited to follow-up geochemical sampling and the cutting of small, geologically-oriented picket line grids across the most significant geochemically anomalous areas.

In 1980, Elfast Turam surveys were completed across the geochemically anomalous areas, and 516 meters of diamond drilling, in six inclined holes, was done to test linear conductors located by the survey.

DRILLING RESULTS

Four conductors (holes R-1, R-2, R-3 and R-4) were identified as weakly to moderately sheared and argillized zones containing about 5% pyrite as wispy veinlets and disseminated euhedral crystals. The target anomalies for holes R-5 and R-6 were apparently spurious.

Very few cored intervals contained sufficient mineralization to justify assaying, but geochemical determinations for Cu, Pb, Zn, Ag and Au were made on 48 samples. Results (cf. appended core logs) seem too low to adequately explain the strong soil anomalies recorded in 1978.

Except where otherwise noted on the logs, core recoveries exceeded 98 percent.



## GEOLOGY

The dominant rock suites in the area are the lower Jurassic Rosslund formation, reportedly Cretaceous ultrabasic intrusions and the upper Tertiary Coryell alkaline pluton.

The property is mostly underlain by ultrabasic intrusive rocks, the claims having been located to cover the contacts of these rocks with Rosslund volcanics to the north and east, and Coryell intrusive rocks to the south and west. There are two discrete ultrabasic bodies. The main eastern mass is separated from a smaller western body by a wedge of Rosslund formation and by dykes and tongues from the Coryell pluton.

### ROCK TYPES

#### Rosslund Formation

The Rosslund formation outcrops on the north and east margins of the property and as a thin wedge between the Coryell pluton and the west edge of the ultrabasic mass.

The following units have been mapped:

- a. Agglomerate: A light grey to dark greenish grey very fine grained to aphanitic matrix contains shards and crystals of amphibole, scattered quartz chips and about 50% lithic fragments. The fragments, which are mostly felsic and porphyritic, are angular to sub-angular and have a size range from 2 mm to more than 20 cm.

Some aphanitic lenses within the agglomerate are probably intercalated andesite flow material.

- b. Andesite: Several closely related intermediate volcanic rocks have been mapped as andesite. The two most

abundant and least altered varieties are described below:

1.) Hornblende Andesite

This light to medium grey, slightly porphyritic rock contains scattered 1 mm to 3 mm phenocrysts of hornblende and plagioclase in a very fine grained to aphanitic groundmass. The plagioclase is zoned andesine-labradorite. A few dark ovoid masses up to 2 mm long (visible only on weathered surfaces and in thin section) consist of intergrown biotite, feldspar, actinolite, opaques and apatite. The groundmass is composed mostly of plagioclase laths up to 0.2 mm long with about 15% hornblende and 5% epidote.

2.) Hornblende Porphyry

This facies of andesite contains up to 10% euhedral hornblende needles 1 mm to 1 cm long in a light grey, very fine grained groundmass, and is in other respects almost identical to the hornblende andesite described above. In thin section, the hornblende phenocrysts are seen to be surrounded by reaction rims of similar composition to the ovoid masses in the hornblende andesite.

- c. Tuff: This light grey to black vitric tuff contains a few shards of plagioclase, scattered fragments of fine grained feldspar porphyry and rare felsic lapilli. It is commonly thinly interbedded with fine grained feldspar porphyry.
- d. Fine Grained Feldspar Porphyry: The north end of the property is mostly underlain by light to medium grey, densely porphyritic rock containing from 30% to 40% subhedral to euhedral plagioclase phenocrysts 0.5 mm to 3 mm long. The composition of the plagioclase ranges from calcic andesine to sodic labradorite.

Mafic phenocrysts, visible only in thin section, include up to 10% pale green, subhedral to anhedral 1 mm hornblende and about 5% euhedral 1.5 mm plates of partially chloritized biotite. There are scattered ( $\pm$  2%) quartz phenocrysts, minor Fe-Ti oxides and a trace of apatite. The cryptocrystalline, hematite-dusted groundmass is probably devitrified glass.

In drill holes R-1, R-2 and R-3, units logged as "dark porphyritic andesite" or "microdiorite" are almost certainly less porphyritic facies of this unit.

The fine feldspar porphyry and its "microdiorite" facies display no flow banding and are broadly suggestive of a multi-stage high level intrusion. However, the presence of devitrified glass in the groundmass, shadows of possible lithic fragments (R-2, 74.7 m - 79.9 m), and intercalation with the minor tuff member described above establish that the unit is a series of flows.

- e. Basalt: Basalt outcrops are common along the main road where it traverses the LAND claims on the northeast tip of the property. The rock is dark grey to black, very fine grained to aphanitic, dense and massive. Calcite amygdules are common.
- f. Arkosic Sediments: Sedimentary outcrops are mostly restricted to a wedge of Rosslund formation on the SKIN claims between 20S and 25S. There are three distinct facies:

1) Arkosic Greywacke

This white, pink or grey, poorly sorted sediment consists mostly of angular to subrounded 0.5 mm to 1 mm quartz grains (60%) and plagioclase (20%) in a siliceous matrix. Mafic and opaque minerals are rare. Scattered, subrounded pebbles of feldspar, milky quartz and fine grained arkosic rock commonly have a size range from 1 cm to 3 cm.

## 2) Arkosic Sandstone, Sandstone and Arkose

These rocks are similar to arkosic greywacke but contain no lithic fragments. They are finer grained (less than 0.5 mm), somewhat better sorted, and display a few bedding planes on outcrop. However, in drill core (R-6) they appear quite massive.

## 3) Argillite and Feldspathic Quartzite

A finely bedded quartzite is mostly white, tan or grey, hard, siliceous and aphanitic. It is intercalated with thin beds of black argillite. The unit contains from 1% to 2% disseminations and blebs of pyrite and pyrrhotite, and outcrops are prominently iron-stained. The sulphides have attracted prospectors, and very old trenches and dog holes are common. However, several samples of the most heavily mineralized material which the writer could find contained no significant precious metal values.

## Ultrabasic Rocks

About two thirds of the property is underlain by ultrabasic material which is almost completely serpentinized.

The most abundant variety of serpentinite is black, tan weathering, very fine to medium grained and massive. Large (3 mm - 4 mm) "knobs" on some weathered surfaces are probably serpentinized pyroxene grains. Freshly broken faces are mottled with bright, pearly silver-grey aggregates, blades, rhombs (bastite?) and radiating stars which are probably pseudomorphous after actinolite. Finely divided magnetite is common; disseminated chromite is relatively rare.

Thin seams, stringers and stockworks of yellow to green, soapy serpentine are rare except in the immediate vicinity of some minor chromite lenses near the south end of the property.

### Porphyritic Dacite

A large mass of altered porphyritic dacite which lies north of the Velvet mine, in the southwest corner of the property, is of uncertain age and origin. It is probably a complex assemblage of small, high level intrusions, but it could be a recrystallized flow. It pre-dates at least the later stages of the Coryell intrusion and is traversed by several dykes of coarsely porphyritic monzonite.

The unit consists of a light grey, aphanitic to very fine grained groundmass containing widely variable proportions of plagioclase and quartz phenocrysts. White plagioclase phenocrysts, which constitute from 10% to more than 30% of the rock are mostly subhedral and about 6 mm long within a range of 1 mm to 1 cm. They are intensely saussuritized but have been tentatively identified in thin section as andesine. Subhedral to anhedral, partially resorbed quartz phenocrysts (2% to 8%) vary from 1 mm to more than 1 cm in width.

Complex intergrowths of epidote and chlorite are present as pseudomorphs after biotite and/or amphibole. The same epidote-chlorite assemblage occurs as hairline fracture fillings and as disseminations throughout the groundmass. These alteration products constitute from 10% to 15% of the rock.

In thin section, the groundmass is seen to consist of microcrystalline quartz, alkali feldspar, Fe-Ti oxides, rare apatite prisms, calcite, epidote and chlorite.

### Coryell Intrusions

Both the ultrabasic mass and the Rosslund formation are intruded by the Coryell pluton and by numerous associated porphyritic dykes and apophyses.

The dominant rock type within the pluton is pink

alkali granite or quartz monzonite. A few outcrops, mostly close to the contact with the Rossland formation contain only about 5% quartz and are therefore classified as syenite or monzonite.

There are a multitude of intrusive varieties within the Coryell. For purposes of compiling the 1:2,500 map, these were compressed into four units described as follows:

a. Alkali Granite: This rock is tan to pink, fine to medium grained (1 mm - 5 mm), hypidiomorphic and massive with rare aplitic and microgranitic facies. It is composed mainly of subhedral grains of creamy feldspar (60% - 80%) which is believed to be mostly orthoclase. The feldspar appears fresh to the naked eye, but is so highly altered that most of it cannot be positively identified in thin section. A few scattered grains which exhibit possible albite twinning are probably plagioclase. Quartz (5% - 30%) occurs interstitially and as graphic intergrowths with feldspar.

The mafic mineral content commonly ranges from 5% to 10%, with a maximum of about 15%. The dominant mafics are partially chloritized hornblende and somewhat lesser amounts of fresh, subhedral to euhedral biotite.

b. Syenite: There are no clearly defined contacts between syenite and alkali granite. The two rocks are essentially the same except that the syenite contains less than 10% quartz and, rarely, augite instead of hornblende as the dominant mafic mineral.

c. Grey Diorite and Quartz-Diorite: This minor unit occurs only marginal to or within the ultrabasic mass. It is light grey, fine grained and equigranular to medium grained and porphyritic. It is composed mostly of white

feldspar with from 10% to more than 25% biotite, scattered grains of amphibole and from a trace to more than 20% quartz. The porphyritic variety contains from 2% to 15% 3 mm to 5 mm plagioclase phenocrysts.

At the southeast corner of the mapped grid around 44S, 9W a diorite plug about 200 meters in diameter has been strongly altered. Mafic minerals have been completely chloritized, and some outcrops display the same epidote-chlorite alteration which typifies the large mass of porphyritic dacite immediately to the west.

- d. Porphyritic Monzonite: Abundant coarsely porphyritic monzonite occurs along the eastern margin of the Coryell pluton and as large dykes and apophyses within the Rossland formation, the ultrabasic mass and the dacite porphyry.

A mostly pink to rarely tan or grey, very fine grained to aphanitic groundmass contains from 5% to 20% white to grey, mostly subhedral plagioclase phenocrysts from 2 mm to more than 2 cm long. White rims due to zoning of the larger phenocrysts are clearly visible to the naked eye.

Other phenocrysts are euhedral to anhedral, 1 mm to 2 mm biotite (less than 5% to more than 10%) and minor pyroxene.

A single specimen examined in thin section, although fresh-looking to the naked eye, was too intensely altered to permit identification of the feldspar which is the main constituent of the groundmass. However, on the basis of hand specimen colour, it is believed to be orthoclase.

When logging drill core, this unit (4d on the map) was identified as "biotite-feldspar-porphyry" or "feldspar-biotite porphyry" depending upon the relative abundance of the two types of phenocrysts.

### Minor Units

Rare bands of green to red chert occur within the Rossland formation.

All other rock types on the property are intruded by grey, aphanitic to porphyritic dykes, commonly of andesitic composition.

### Structure

There are two dominant joint sets on the property. The strongest strikes N20°W to N10°E and dips 75°W to 75°E. The second strikes E-W and dips 80°S to 80°N.

Weakly to moderately sheared, chloritized and argillized zones observed in drill cores strike more or less parallel to the strongest (i.e. N-S) joint set and dip 80°W to 80°E.

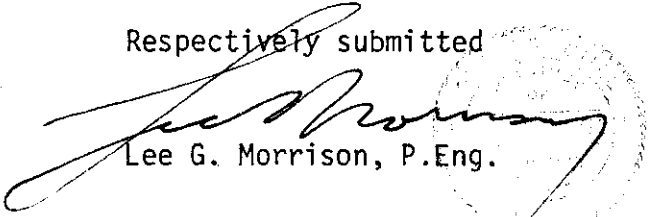
### Mineralization

Finely divided, barren pyrite is common in andesite and impure quartzite of the Rossland formation.

Near the north end of the CAL claim, on the east side of Record Ridge, at what is known as the Constantine prospect, a few weak, discontinuous sheared zones in fine grained feldspar porphyry strike N15°E to N30°W and dip about 75°W. On outcrop, the shears contain a little rusty, vuggy quartz, euhedral crystalline pyrite and specs of chalcopyrite. Malachite and limonite stains and crusts are common. Grab samples from the outcrops contained an average of 0.8% Cu, 0.4% Pb, 0.4% Zn, a trace of Au and from 12 to 80 grams of Ag per tonne.

In an adit, and in drill holes south of the showing (R-2 and R-3), the sheared zones contain abundant argillaceous gouge, quartz + carbonate veinlets, about 5% crystalline pyrite, some slickensided chlorite and traces of chalcopyrite, sphalerite and galena. One 1.5 m sample from the adit contained 0.6% Pb, 0.3% Cu and 0.7% Zn. Base metal assays from drill cores were much lower, and there were no significant precious metals values.

Respectively submitted

  
Lee G. Morrison, P.Eng.



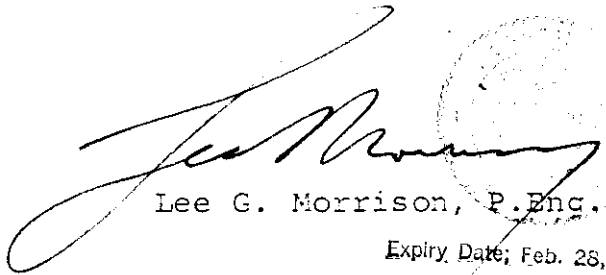
A P P E N D I X

CERTIFICATE OF QUALIFICATIONS

I, LEE G. MORRISON, of the City of Calgary in the  
Province of Alberta

HEREBY CERTIFY:

- (1) THAT, I am a registered Professional Engineer in the Province of Alberta, with a Non-Resident Licence to practice in British Columbia;
- (2) THAT, I am a graduate of the University of Saskatchewan with Bachelor's degrees in Arts (1956) and Geological Engineering (1957);
- (3) THAT, I am a Consulting Mining Geologist residing at 1608 - 49 Avenue S.W., Calgary, Alberta;
- (4) THAT, I have practiced my profession continuously since graduation;
- (5) THAT, the field work on which this report is based was done partly by me, and that the balance was done under my guidance and supervision;
- (6) THAT, I am the recorded owner of mineral claims LAND 1-6 inclusive, ROSS, CAL, SKIN-3 and SKIN-4, and the beneficial owner of a 21.66% interest in the property as a whole.

  
Lee G. Morrison, P. Eng.

Expiry Date: Feb. 28, 1951

STATEMENT OF COSTS

Diamond Drilling

Kootney Exploration Diamond Drilling Co. Ltd.

P.O. Box 519

Rossland, B.C.

Period August 11 - October 20, 1980

1,691 feet @ \$20.00	\$33,820
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Technical Supervision

L.G. Morrison

1608 49 Ave. S.W.

Calgary, Alberta

Hole spotting and core logging

August 8, 14, 15, 16, 23; September 1, 2, 17, 18;

November 6, 7, 8 Total 12 days @ \$300	3,600
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Report preparation in Calgary, 2 days	<u>600</u>
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Total	\$38,020
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CLAIM GROUPING AND COST DISTRIBUTION

The property has been divided into groups as follows:

MAR-SKIN GROUP

MAR-1, MAR-2, MAR-3, MAR-4, SKIN 1-4 comprising 27 units.

CAL-ROSS GROUP

CAL, ROSS, LAND 1-6 comprising 31 units.

Footage on MAR-SKIN GROUP = 581' for  
34.36% of the program cost = \$13,063  
or \$483.82 per unit.

Footage on CAL-ROSS GROUP = 1,110' for  
65.64% of the program cost = \$24,957  
or \$805.06 per unit.

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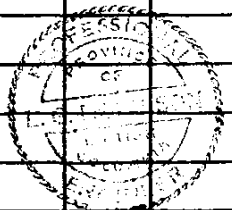
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CORE LOGS

DIAMOND DRILL RECORD

PROPERTY MORRISON-WHITE CLAIM CAL HOLE NO. R-1  
 Latitude 2+0N Grid I Core Size BQ Elev. Collar \_\_\_\_\_  
 Departure 10+90E Datum \_\_\_\_\_  
 Bearing West Date Started Aug. 11, 1980  
 Dip -50° surface Total Depth 74.4 m Completed Aug. 16, 1980  
METERS -50°, 73.5 m Contractor Kootenay Ex. Drilling

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES	
From	To						%	%
0	5.5	CASING						
5.5	16.2	MICROGABBRO: Dk. greenish-grey. Vy. fn. gr. chloritized. Contains abundant ovoid clots (to 2 cm.) of fn. gr. (1 mm) lt. greenish-grey plagioclase. Tr. biotite. Abundant vy. fn. gr. magnetite. Probably a marginal facies of a nearby (50 m to outcrop) ultramafic mass. Faint banding & alignment of felsic clots 50°-80° $\angle$ Dominant fracture attitude 50° $\angle$						
16.2	22.9	META-GABBRO: Dk. greenish grey, mottled facies of 5.5-16.2 m. $\pm 20\%$ lt. greenish grey saussuritized feldspar as 1-5 mm subhedral grains & as fn. gr. clots & discontinuous bands to 3 cm wide. Groundmass vy. fn. gr., massive, chloritized with possible minor serpentine. Abundant fn. gr. magnetite 21.0-23.2; Slightly brecciated. Slipkensided fractures @ 30°-50° $\angle$ (mostly 45°) at mean interval of $\pm 10$ cm coated with 1 mm to 2 cm						



DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-1  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH	ASSAY VALUES	
From	To						%	%
		white → pale purple calcite.						
22.9	27.4	MICROGABBRO: Same as 5.5-16.2						
27.4	36.9	VOLCANIC CHERT BRECCIA: Dk. green to reddish-brown, hematite-rich, aphanitic to vy. fn. gr. Vy. hard & siliceous. Scattered, saussuritized feldspar crystals to > 2mm. Ovoid to irregular autoliths to 3 cm. Streaky banding & calcite-coated hairline fractures @ 45°-60° $\angle$ (mostly 55°). Random hairline fractures filled with bottle-green, vy. finely bladed actinolite.						
36.9	50.9	FINE GRAINED FELDSPAR PORPHYRY: (Map unit 1d) Medium grey. Moderately chloritized. 2-5% biotite; 10-20% 1-2 mm euhedral to subhedral plagioclase in vy. fn. gr. groundmass 36.9-43.9: Scattered, sheltensided, calcite-coated fractures 25° $\angle$ . 43.9-45.7: Fractures & wisps of chert all at 50°-60° $\angle$						
45.7	56.7	FAULTED ZONE: Strongly chloritized. Finely brecciated with calcite matrix						



DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-1  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH (cm)	ASSAY VALUES			Au	Ag
From	To						% Cu	% Pb	Zn		
45.7	56.4	1-5% fine (<1mm) crystalline pyrite locally slickensided.									
		Calcite veinlets @ 60° $\angle$									
		50.9-53.4: Serpentine. (Map unit 2)									
		Dk. greenish grey. Highly fractured, mostly @ 55° $\angle$ . Abundant magnetite. 60% recovery									
		53.4-54.6: Gouge. Abundant calcite	1% Py	R-1-2	54.3-54.6	30	78 ppm	20 ppm	140 ppm	<0.1 ppm	0.8 ppm
54.6	60.1	DARK PORPHYRITIC ANDESITE: Clearly a darker less porphyritic facies of map unit 1d. (F.F.P.) Med to dk grey, fr. gr. equi to porph. Plagioclase phenocrysts mostly 1mm. $\pm$ 50% total feldspar content. Abundant magnetite.									
		54.6-55.6: Highly sil'd. & brecciated. Matrix mostly quartz. Minor calcite	5% finely divided (<1mm) xline Py	R-1-3	54.6-55.7	107	80 ppm	32 ppm	60 ppm	<0.1 ppm	0.5 ppm
		Quartz stringers @ 25° $\angle$									
		58.2-58.4; 58.9-59.0: 1cm calcite veinlets, negligible quartz @ 35° $\angle$	None	R-1-4	58.2-58.4 58.9-59.0	35	14 ppm	13 ppm	56 ppm	<0.1 ppm	1.0 ppm
(m.)	70.7	FINE FELDSPAR PORPHYRY: Unit 1d. $\pm$ 2% biotite, 10-25% 1-2mm plagioclase phenocrysts. Chloritized. Wisps of light grey, aphanitic tuft to 1cm wide									

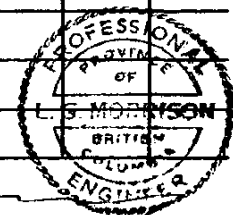


DIAMOND DRILL RECORD

PROPERTY MORRISON-WHITE CLAIM CAL HOLE NO. R-2  
 Latitude 2+0 N GRID I Core Size BQ Elev. Collar \_\_\_\_\_  
 Departure 8+10 E Datum \_\_\_\_\_  
 Bearing East Date Started Aug. 18, 1980  
 Dip -60° Total Depth 91.2 Completed Aug. 22, 1980  
 Contractor Kootenay Ex. Drilling

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES	
From	To						%	%
0	5.0	ANDESITE: Dk. → med. greenish grey, fn → vy fn. gr. mostly equi. Few scattered > 1 mm biotite phenocrysts. Mafics mostly chloritized in groundmass. Massive. Few joints @ 30°-60° & Lower contact 50° &	Tr. diss. Py.					
5.0	14.6	FELDSPAR-BIOTITE PORPHYRY: Facies of map unit Ad. Lt. grey → tan vy fn gr. groundmass contains: 1) 10-20% 1mm → 2cm vy lt. grey, subhedral → anhedral, partially resorbed plagioclase with white albite (?) rims to 1mm wide; 2) 5-10% 1-3mm subhedral → euhedral book-biotite. No quartz noted Locally decomposed & "sandy" 8.5-10.0: Brown, friable, Fe-stained. Appears weathered. 10.0-10.3: Lost CORE. Brown sand reported. Probable fissure to surface 10.3-10.7: Buttons of andrsite only 11.0: Sharp, internal contact 50° &						



*Lee G. Morrison*  
 Lee G. Morrison, P. Eng. Date: Feb. 28, 1981

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-2  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_

**METERS**

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES		
From	To						%	%	%
14.6	15.5	SYENITE: Pinkish-tan, med. gr. mostly equi. (Map unit 4b) ± 5% biotite. Slightly epidotized. Slightly chloritized slickensided fractures @ 50° $\angle$ . Both contacts gradational.							
15.5	22.6	FELDSPAR-BIOTITE PORPHYRY: Grey to pinkish tan. Same as 5.0-14.6. Feldspar phenocrysts partly altered to epidote. Massive. Dominant joints @ 50° $\angle$ . Millimetric calcite veinlets @ 35° $\angle$ $\perp$ to dominant joints. 17.7-18.3: Sharply intruded, dk. grey, related material contains pinkish-tan, subangular autoliths inclusions.							
22.6	24.5	VOLCANIC BRECCIA: Fragments of fine feldspar porphyry to 10 cm in a med. greenish grey, fn. $\rightarrow$ vy. fn. gr. equi. matrix of similar composition, but containing > 5% biotite. Lower contact 35° $\angle$							
24.5	31.1	FELDSPAR-BIOTITE PORPHYRY: As 15.5-22.6 except feldspar phenocrysts							

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-2

Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES	
From	To						%	%
		more highly altered & mostly salmon-pink. Abundant millimetric epidote stringers 20°-60° $\phi$ .	Tr. 2-4mm Py cubes					
		30.5-31.1: Shattered zone. Chloritized shear planes mostly 30° $\phi$ . Lower contact gradational.						
31.1	46.6	ANDESITE: Same as 0-5.0 Chloritized, $\pm$ 5% biotite $\pm$ 5% irregular porphyritic bands (with pink feldspar phenocrysts) to 3cm wide vaguely parallel the dominant 50° $\phi$ fracture system, and have gradational contacts. Epidote, calcite & dark green chlorite on fractures 20°-60° $\phi$ .	Tr. oxidized Cpy in scattered epidote-calcite clots					
46.6	53.4	BIOTITE-FELDSPAR PORPHYRY: Tan to grey, fn. gr. groundmass; > 10% @ 1-3 mm biotite & 1mm $\rightarrow$ 1cm white subhedral, partly saussuritized feldspar. Calcite veins to 5mm @ 30°-60° $\phi$ (approx. 1 vein/m). Lower contact 35° $\phi$ .	Tr. Py					

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-2  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Bearing \_\_\_\_\_ Datum \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Date Started \_\_\_\_\_  
 \_\_\_\_\_ Completed \_\_\_\_\_  
 \_\_\_\_\_ Contractor \_\_\_\_\_

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES			Au	Ag
From	To						% Cu	% Pb	% Zn		
53.4	64.4	ANDESITE OR MICRODIORITE: Med. → dk. greenish grey, vy. fn. → fn. gr. (0.5-1 mm) equi → porph. 3-5% biotite, >5% 1 mm plagioclase phenocrysts in patches. Rare magnetite. Balance vy. fn. gr. feldspar & chlorite. Abundant millimetric calcite seams on fracture planes, mostly @ 50° & 35° & with opposed dips. 62.0: 1 cm calcite 62.0-62.2: >10% calcite 63.0-63.1: calcite veinlets 30° &									
			- Blebs galena	R-2-1	62.0-62.2	15	60 ppm	0.30	600 ppm	<0.1 ppm	8.0 ppm
			- Diss. Py. cubes								
			- 1-2% Py cubes								
64.4	65.8	BRECCIATED ZONE: Sharply defined contacts 25° &. Rock fragments lt. grey, sil'd. >20% quartz + carbonate matrix. >5% total sulphides, diss & 20° &	>5% Py, Ga, Sph. <5% Py, Ga, Sph.	R-2-2 R-2-3	64.4-65.0 65.0-65.8	57 76	120 ppm 84 ppm	846 ppm 0.14	0.18 0.20	<0.1 ppm <0.1 ppm	3.0 ppm 2.0 ppm
65.8	70.1	MICRODIORITE: As 53.4-64.4, but coarser-grained (1 mm average), and more (5-10%) biotite. ± 70% felsic minerals. Clearly a facies of map unit 1d. Minor qtz-carb-sulphide stringers (1-5 mm) all at 20° &	<5% x-line Py, Tr. Ga.	R-2-4	66.9-67.4 68.0-68.3	84	54 ppm	990 ppm	0.11	<0.1 ppm	2.0 ppm
70.1	74.7	FINE FELDSPAR PORPHYRY (Unit 1d.)									

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-2  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_

METERS

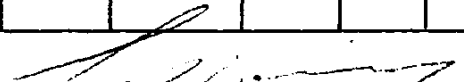
FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES				
From	To						%Cu	%Pb	Zn	Au	Ag
		± 20% 1-2 mm subhedral → euhedral, white feldspar phenocrysts.									
		70.7-72.3: Strongly sheared, chloritized and kaolinized									
		72.3-72.7: Breccia. Quartz-carbonate veinlets and shear-planes 10° & Sulphides slickensided on shear-planes	± 5% Py	R-2-5	723-727	40	10 ppm	60 ppm	154 ppm	< 0.1 ppm	1.2 ppm
		73.8-74.1: Strongly sil'd. & epidotized	± 2% Py	R-2-6	738-74.1	30	54 ppm	30 ppm	180 ppm	< 0.1 ppm	1.0 ppm
74.7	79.9	MICRODIORITE: As 65.8-70.1 except finer grained & >10% biotite. >80% grey feldspar. Joints 50° &. Vague outlines of possible lithic fragments suggest that the "microdiorite" may be recrystallized tuff.									
79.9	91.1	GRANITE: Pink, med. gr., equi ± 25% qtz. 5% biotite Lower contact 60° &									
91.1	91.2	MICRODIORITE: As 74.7-79.9									
		END Minor bottle-green chlorite with biotite on joint planes.									
		84.5-86.6: Badly broken ground									
		86.6-87.8: Fault zone. Gouge, andesite fragments, abundant slickensided calcite									

### DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-2  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 \_\_\_\_\_ Contractor \_\_\_\_\_

METERS \_\_\_\_\_

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES	
From	To						%	%
		87.8-89.0: Numerous random shear planes coated with epidote, calcite & slickensided red hematite.						

  
 Lee G. Morrison, P. Eng.



DIAMOND DRILL RECORD

PROPERTY MORRISON - WHITE CLAIM CAL HOLE NO. R-3  
 Latitude 3+82N Grid I Core Size BQ Elev. Collar \_\_\_\_\_  
 Departure 8+82 E Datum \_\_\_\_\_  
 Bearing N 70° W Date Started Aug. 25, 1980  
 Dip -50° surface Total Depth 89.0 m Completed Sept. 3, 1980  
 METERS -50°, 88.0 m Contractor Koutenay Exploration Drilling

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES			Au	Ag
From	To						% Cu	% Pb	Zn		
0	2.1	CASING									
2.1	9.8	FINE FELDSPAR PORPHYRY: Map unit 1d. Groundmass moderately chloritized & silicified. Highly altered anhedral plagioclase phenocrysts to 3mm impart a mottled appearance. Dominant fractures 60° E 5.8-9.8: Altered Zone. Tan → lt. grey Sil'd. & slightly epidotized. Minor brecciation & numerous slickensided, argillized shears 60° E. Minor calcite as breccia matrix & as veinlets @ 30° E. Finely xline (<0.5 → 1mm) Py is slickensided on shear planes	> 5% Py ± 2% Py + 5% Py	R-3-1 R-3-2 R-3-3	5.8-6.4 6.4-6.9 6.9-8.5	58 54 74	90 24 28	148 112 120	0.8 0.5 0.8	ppm ppm ppm	
9.8	12.8	MICRODIORITE: Lt → med. grey; probably a less porphyritic facies of FINE FELDSPAR PORPHYRY above. Scattered, altered anhedral plagioclase phenocrysts to 3mm, and subhedral → anhedral 1mm plagioclase phenocrysts aggregate >10% of total mass. Groundmass very fn. gr. feldspar & shards of biotite. Moderate chloritization. Minor epidote. Except for lower biotite content, same									



*Lee G. Morrison*  
 Lee G. Morrison, P. Eng. Expiry Date, Feb 28, 1981

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-3

Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 \_\_\_\_\_ Contractor \_\_\_\_\_

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES					
From	To						% Cu	% Pb	Zn	Au	Ag	
		as R-2, 53.4m → 64.4m. Probably contains some pyroclastic intervals.										
12.8	14.3	FELSIC DYKE: Tan, fn. gr. (1mm) equi. Almost pure feldspar. 1-5% rusty Py. Abundant limonite + Mn stain on fractures, mostly @ 60° d	1-5% Py	10476	12.8-14.3	152	68 ppm	42 ppm	220 ppm	<0.1 ppm	0.5 ppm	
14.3	25.3	MICRODIORITE: Same as 9.8-12.8										
25.3	42.4	FINE FELDSPAR PORPHYRY	2% Py	R-3-6	25.1-25.6	45	32 ppm	30 ppm	139 ppm	20.1 ppm	0.5 ppm	
		25.3-27.1: Moderate alteration. Hairline epidote, calcite & chlorite @ 40°-60° d	5-10% Py	10477	{ 27.3-27.8 } { 28.8-28.9 }	60	50 ppm	48 ppm	116 ppm	20.1 ppm	1.0 ppm	
		27.1-31.0. Lrss alt., but Py common as diss. xls & on hairline fractures @ 50° d	± 5% Py	R-3-4	31.0-31.5	54	56 ppm	30 ppm	136 ppm	20.1 ppm	0.5 ppm	
		31.0-33.1: Py diss & as millimetric veinlets @ 30°-40° d	± 5% Py	R-3-5	32.5-33.1	60	60 ppm	28 ppm	114 ppm	<0.1 ppm	1.0 ppm	
		33.1-33.8: Epidotized & sil'd. Weakly brecciated. Wisps felsic dyke material. Hairline Py veinlets @ 30° d	± 5% Py	R-3-7	33.5-33.9	35	112 ppm	68 ppm	167 ppm	20.1 ppm	0.5 ppm	
		38.9-39.0; 39.8-40.2; 40.7-40.9: Lt. grey to tan, fn. gr. felsic dykes. Py as diss cubes & in veinlets @ 30° d	> 5% Py	10478	{ 38.9-39.0 } { 39.8-40.2 } { 40.7-40.9 }	63	65 ppm	36 ppm	128 ppm	<0.1 ppm	0.5 ppm	
42.4	46.6	ANDESITE: Lt. → med. grey, vy. fn. gr. groundmass. 3% 1-2mm biotite & 10% 0.5-2mm										

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-3

Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 \_\_\_\_\_ Contractor \_\_\_\_\_

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH CM	ASSAY VALUES				
From	To						% Cu	% Pb	% Zn	Au	Ag
	46.6	saussuritized plagioclase phenocrysts. Upper contact transitional from fine feldspar porphyry.									
	45.4-46.3	Altered zone. Moderate shearing, brecciation & chloritization. Hairline epidote & stringers of calcite @ 30° $\angle$ . >5% fine to coarse (1-5mm) xline Py	>5% xline Py	10479	45A-46B	92	78 ppm	34 ppm	140 ppm		0.5 ppm
46.6	49.4	FELDSPAR-BIOTITE PORPHYRY: Tan $\rightarrow$ pale greenish grey, vy. fn. gr. groundmass. Massive Phenocrysts: 15-20%, 1-15mm, partly resorbed, saussuritized plagioclase & 5-10% subhedral biotite.									
49.4	51.4	ANDESITE: Same as 42.4-46.6. (Facies of fine feldspar porphyry). Hairline calcite stringers @ 30° $\angle$									
51.4	52.6	FELDSPAR-BIOTITE PORPHYRY: Dyke. Same as 46.6-49.4									
52.6	56.1	ANDESITE: Same as 42.4-46.6 52.6-54.0: Moderate chloritization, epidotization & carbonatization. Faint banding 30° $\angle$ $\pm$ 2% xline Py									

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-3  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES				
From	To						% Cu	% Pb	% Zn	Au	Ag
56.1	65.1	FELDSPAR-BIOTITE PORPHYRY: cf. 46.6-49.4	3% Py, Tr Cpy	10480	56.1-56.6	42	68 ppm	22 ppm	114 ppm	<0.1 ppm	1.0 ppm
		56.1-57.9: Moderately chloritized.	3% Py	10481	56.6-57.9	137	58 ppm	36 ppm	106 ppm	<0.1 ppm	0.5 ppm
		Minor, partially digested andesite inclusions. <5% granular to xline Py, mostly in 1-4 mm veinlets @ 50° ±									
		POSSIBLE CONDUCTOR.									
		57.9-65.1: Joints 60° ± commonly coated by calcite or epidote									
		61.6: Hairline Cpy @ 60° ±	←	10482	61.6-61.7	14	0.09 ppm	NA	NA	0.1 ppm	Tr
		61.6-62.7: Andesite inclusion. Lower contact knife-edged @ 60° ±									
		64.8-65.1: Altered zone. Chlorite @ 30° ±									
		Abundant carbonate veinlets @ 50° ±									
		5% xline Py. Tr. diss Cpy & Sph.									
65.1	70.1	MICRODIORITE: cf. Hole #R-2, 81.1-91.2 m.									
		Lt. → med. grey; 5-10% biotite; fn. gr. equi.									
		Scattered calcite veinlets to 5mm. in two perpendicular sets @ 30° & 50° ±									
		65.1-65.9: Chloritized & carbonatized	5% xline Py, Tr Sph, Tr Cpy	10483	64.8-65.9	106	0.04 ppm	0.06 ppm	0.15 ppm	Tr	4.5 ppm
70.1	72.3	PINK GRANITE: cf. Hole #R-2, 79.9-81.1									
		Fn. gr. equi.; <5% biotite; <10% quartz									
		Calcite-coated fractures.									

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-3

Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES				
From	To						% Cu	% Pb	% Zn	Au	Ag
72.3	81.1	MICRODIORITE: Lt. grey, vy. fn. gr. (0.5 mm) equi Massive. ±10% mafics including 5% fresh biotite. Dominant fractures 60° &									
		75.9-76.5: FAULT		10484	75.9-76.5	61	NA	NA	NA	0.1 ppm	Tr.
		75.9-76.2: Calcite containing fragments of andesite									
		76.2-76.5: Gouge									
		76.5-81.1: Badly broken ground. Abundant clay-coated shear planes. Moderate chloritization		R-3-8	79.0-81.1	Grabs	52 ppm	310 ppm	220 ppm	<0.1 ppm	2.0 ppm
		79.3: Tr. diss. galena & Cpy. ←									
81.1	89.0	FINE FELDSPAR PORPHYRY: Shattered. >5% calcite fracture fillings. Minor diss. Py.		R-3-9	81.1-85.4	Grabs	46 ppm	32 ppm	78 ppm	<0.1 ppm	0.5 ppm
END		76.5-89.0: Recovery = 85%		R-3-10	85.4-89.0	Grabs	25 ppm	66 ppm	168 ppm	<0.1 ppm	0.8 ppm

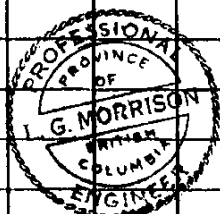
*Lee G. Morrison*  
 Lee G. Morrison, P. Eng.

DIAMOND DRILL RECORD

PROPERTY MORRISON-WHITE CLAIM SKIN-3 HOLE NO. R-4  
 Latitude 3+0N, GRID III Core Size BQ Elev. Collar \_\_\_\_\_  
 Departure 3+44 E Datum \_\_\_\_\_  
 Bearing N85°E Date Started Sept. 21, 1980  
 Dip -40° Total Depth 91.8 m Completed Oct. 3, 1980  
 Contractor Kootenay Exploration Drilling

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH CM	ASSAY VALUES				
From	To						%Cu	%Pb	%Zn	Au	Ag
0	3.0	OVERBURDEN									
3.0	6.0	SYENITE: Pink, med. gr. hypidiomorphic equi, massive, "fresh-looking," <10% chloritized amphibole & biotite. <2% quartz									
6.0	18.3	PORPHYRITIC MONZONITE: (Facies of unit 4-d) Pink, med. gr. felsic groundmass. 10-20% 5mm → >2cm grey, subhedral plagioclase phenocrysts; 5-10% 1-5mm chloritized biotite; Tr → >3% pyroxene. No quartz noted. Much coarser groundmass than typical. 12.2-13.1: Grey dyke. Fin. gr. (1mm) equi. >2/3 plagioclase, balance mostly biotite. Chilled contacts @ 70° ±									
18.3	38.1	SYENITE: As 3.0-6.0. Numerous short sections PORPHYRITIC MONZONITE with gradational contacts. 23.2-25.3: Quartz, chlorite & fractures @ 70° ± 1% Py diss. & in irregular wisps 25.9-27.1: POSSIBLE CONDUCTOR. Mod. chloritized. <5% vy. fin. gr. Py, mostly as 2mm → 5mm veinlets @ 50° ±	±1% Py	R-4-1	23.2-25.3	213	32 ppm	20 PPM	68 PPM	20.1 ppm	0.5 ppm
			<5% Py, Tr. Cpy	R-4-2	25.9-27.1	120	165 ppm	25 ppm	60 ppm	20.1 ppm	0.8 ppm
38.1	42.7	FAULTED ZONE: Moderately to intensely	1-2% Py	R-4-3	38.1-42.7	457	8 ppm	22 ppm	55 ppm	20.1 ppm	0.5 ppm



Expiry Date: Feb. 28, 1984

*Lee G. Morrison*  
 Lee G. Morrison, P. Eng.

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-4  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 METERS \_\_\_\_\_ Contractor \_\_\_\_\_

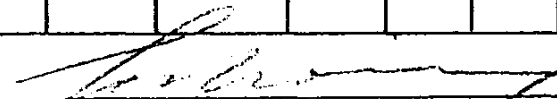
FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES				
From	To						%Cu	%Pb	%Zn	Au	Ag
		Kaolinized. Weakly epidotized. 1-2% 1mm Py xls diss. throughout. Recovery = 55%									
42.7	47.5	SYENITE: Shattered. Moderately epidotized. Locally kaolinized. Recovery = 80%	Tr. Py	R-4-4	42.7-47.5	Grab	8 ppm	18 ppm	44 ppm	<0.1 ppm	0.3 ppm
47.5	58.5	PORPHYRITIC MONZONITE: As 6.0-18.3 54.6-58.5: Weak → strong brecciation, chloritization & shearing. >5% calcite	1% xline Py	R-4-5	56.1-58.5	244	54 ppm	56 ppm	480 ppm	<0.1 ppm	1.0 ppm
58.5	60.1	BIOTITE-FELDSPAR PORPHYRY: Tan → grey, vy. fn. gr. → aphanitic groundmass. <10% 1-3 mm subhedral → euhedral biotite. 5% greenish-grey, <5mm plagioclase.									
60.1	61.3	FELDSPAR-BIOTITE PORPHYRY: Facies of above. Pink → brownish-grey, vy. fn. gr. groundmass. >10% mostly subhedral feldspar to >1cm; <10% <3mm biotite									
61.3	63.7	SYENITE: Pink, med. gr. equi.; ±10% biotite									
63.7	69.2	FELDSPAR-BIOTITE PORPHYRY: As 60.1-61.3 Calcite on millimetric fractures @ 30°-50° 66.8-68.3: Chloritized & brecciated 68.3-69.2: Dark greenish grey. <5% @ biotite & feldspar phenocrysts.	1% Py 5% diss xline Py	R-4-6 R-4-7	66.8-68.3 68.3-69.2	150 90	135 ppm 66 ppm	28 ppm 22 ppm	72 ppm 130 ppm	<0.1 ppm <0.1 ppm	0.5 ppm 0.5 ppm

DIAMOND DRILL RECORD

PROPERTY MORRISON-WHITE CLAIM \_\_\_\_\_ HOLE NO. R-4

Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 METERS \_\_\_\_\_ Contractor \_\_\_\_\_

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH	ASSAY VALUES	
From	To						%	%
69.2	77.4	SYENITE: Pale pink, med. gr. equi. >5% chloritized biotite as anhedral 1-5mm clots						
77.4	86.0	FELDSPAR-BIOTITE PORPHYRY: Salmon pink groundmass except 30cm med. greenish-grey at each contact. >30% grey, subhedral, mostly zoned plagioclase in the 1cm range. 2-4% 1-3mm biotite. Millimetric epidote veinlets @ 60°						
86.0	89.9	SYENITE: As 69.2-77.4 88.7-89.0: Aplite @ 45°						
89.9	91.8	PORPHYRITIC MONZONITE: Same as 60-18.3 & 47.5-58.5. Med. gr. (>3mm) groundmass is not typical of Map Unit 4-a.						
END								

  
 Lee G. Morrison, P. Eng.

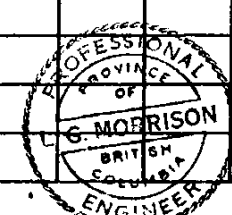


DIAMOND DRILL RECORD

PROPERTY MORRISON - WHITE CLAIM CAL HOLE NO. R-5  
 Latitude 8+47N GRID VIII Core Size BQ Elev. Collar \_\_\_\_\_  
 Departure 4+05E Datum \_\_\_\_\_  
 Bearing S 32° E Date Started Sept. 9, 1980  
 Dip -72° Total Depth 93.3 m Completed Sept. 17, 1980  
 Contractor Kootenay Exploration Drilling

METERS

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES				
From	To						% Cu	% Pb	Zn	Au	Ag
0	3.0	OVERBURDEN									
3.0	7.9	WEATHERED FELSIC DYKE: Tan to grey, fn. gr. argillic material. 15% recovery									
7.9	13.1	FELDSPATHIC SAND: Probably as above but very little clay binder. Mostly tan, white & greenish grey, sub-angular, <0.5 mm feldspar grains. Little biotite & magnetite. 35% recovery									
		8.5-8.8: Buttons of sheared serpentinite & white, fn. gr. felsic material containing clots of biotite.									
			SLUDGE SAMPLES	R-5-2	7.9-9.1	120	32 ppm	58 ppm	85 ppm	<0.1 ppm	0.8 ppm
				R-5-3	9.1-10.7	155	23 ppm	43 ppm	68 ppm	<0.1 ppm	1.0 ppm
				R-5-4	10.7-12.2	155	18 ppm	42 ppm	64 ppm	<0.1 ppm	1.0 ppm
13.1	15.2	ALTERED ZONE: Reddish brown, hematized, sheared serpentinite. Recovery=45%		R-5-1	13.1-15.2	213	10 ppm	14 ppm	18 ppm	<0.1 ppm	0.5 ppm
15.2	93.3	SERPENTINITE: 15.2-18.0: Sheared @ 10° & Apple-green, soapy to brownish grey, fn. gr. massive 18.0-47.3: Mostly v. dk. grey, mottled. Black aphanitic groundmass contains abundant silver-white, bright-pearly, fissile blades, aggregates and radiating stars which are probably									



*Lee G. Morrison*  
 Lee G. Morrison, P. Eng. Expiry Date Feb. 28, 1981

DIAMOND DRILL RECORD

PROPERTY MORRISON-WHITE CLAIM \_\_\_\_\_ HOLE NO. R-5  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_

METERS \_\_\_\_\_

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH cm	ASSAY VALUES				
From	To						% Cu	% Pb	% Zn	Au	Ag
15.2	93.3	<i>pseudomorphous after actinolite.</i>									
	END	<i>Abundant magnetite. No chromite noted</i>									
		<i>Few 5mm → 5cm apple-green, slickensided bands @ 20°-40° ±</i>									
		<i>47.3-93.3: Mostly dk. brownish-grey to black, vy. fn. gr., dense &amp; massive with &lt; 5% pearly pseudomorphs overall, but some sections 1-2 m long as 18.0-47.3.</i>		R-5-5	68-81	Grabs	12 ppm	32 ppm	28 ppm	<0.1 ppm	1.0 ppm
		<i>Abundant finely xline magnetite. Average of one 1-10 mm, apple-green, soapy, sheared seam per meter. Shearing @ 40° ±.</i>									
		<i>Few random, millimetric wisps chrysotile.</i>									


*[Signature]*  
 Lee G. Morrison, P. Eng.

DIAMOND DRILL RECORD

PROPERTY MORRISON-WHITE CLAIM MAR-1 HOLE NO. R-6  
 Latitude 6+0 N GRID VII Core Size BQ Elev. Collar \_\_\_\_\_  
 Departure 5+15 E Datum \_\_\_\_\_  
 Bearing N 65° E Date Started Oct. 8, 1980  
 Dip -45° Total Depth 76.3 m Completed Oct. 20, 1980  
 Contractor Kootenay Exploration Drilling

METERS

FOOTAGE-		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH	ASSAY VALUES	
From	To						%	%
0	3.0	CASING						
3.0	5.5	FELDSPAR-BIOTITE PORPHYRY: Light grey andesite (?) groundmass. 3-5% @ of subhedral biotite plates & thin plagioclase laths to 5 mm long.	Tr. Py					
5.5	16.8	ANDESITE: Lt. → med. greenish-grey, vy. fn. gr. → aphanitic, massive to banded @ 45° &. No phenocrysts. 5.8-6.7: MICRODIORITE (Grain size 1 mm)						
16.8	18.3	CHERT: Tan → purple. Prominent banding @ 40°-50° &						
18.3	24.7	FELDSPAR-BIOTITE PORPHYRY: Not as 3.0-5.5. Greenish grey near contacts, balance tan. Vy coarsely porphyritic with > 30% plagioclase to > 1 cm & 2-5% biotite. Definitely Coryell (cf. R-4, 77.4-86.0 m)						
24.7	25.9	DIORITE: Med. grey, fn. gr., mostly equi. massive. ± 15% mafics (mostly biotite) Scattered 2-5 mm plagioclase phenocrysts						
25.9	26.8	FELDSPAR-BIOTITE PORPHYRY: Grey aphanitic groundmass. ± 10% pink						

  
 Lee G. Morrison, P. Eng  
 Date: Feb. 28, 1981

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-6  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_


METERS

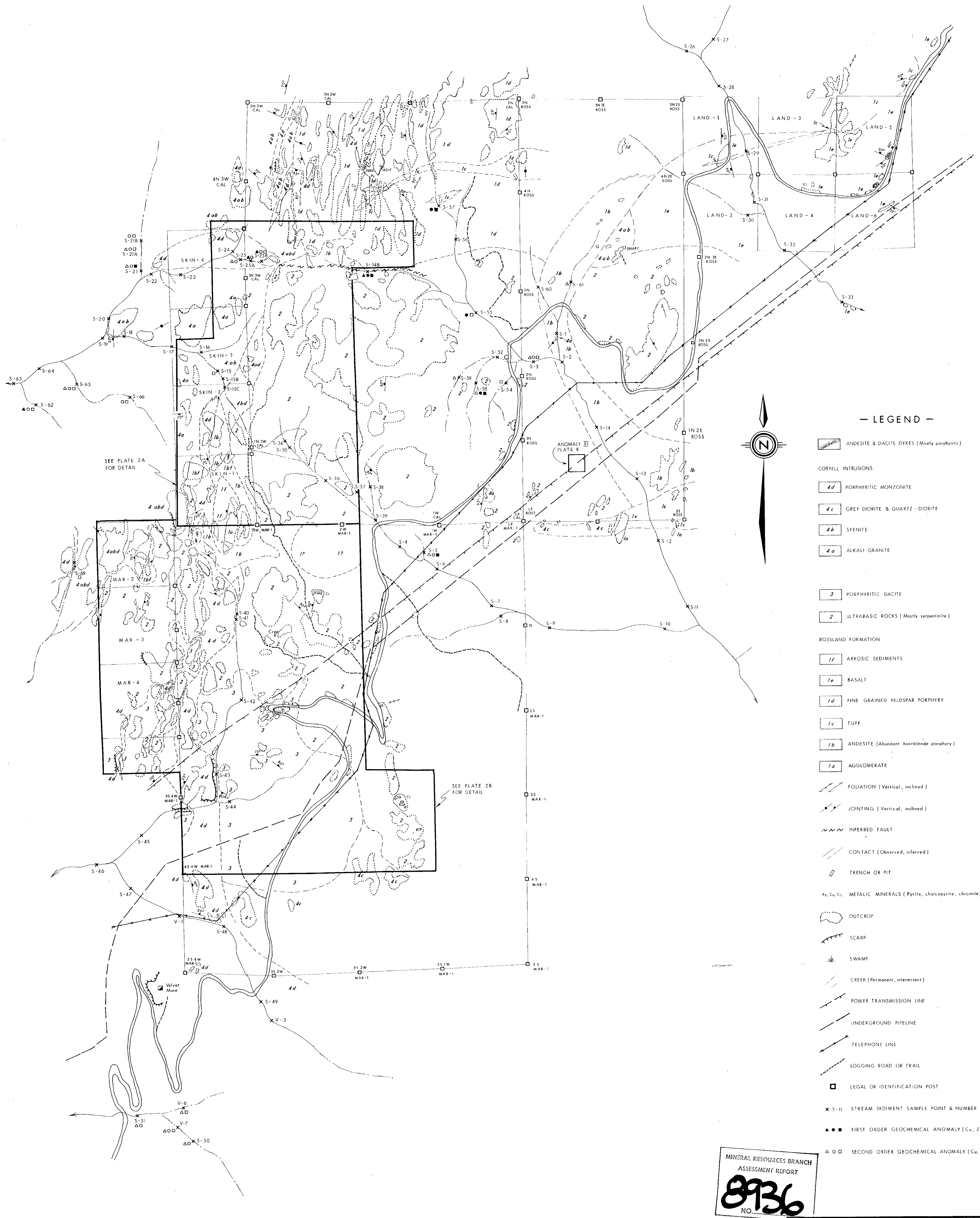
FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH	ASSAY VALUES	
From	To						%	%
		feldspar phenocrysts to 1cm. 5-10% subhedral biotite. Both contacts gradational.						
26.8	32.9	SYENITE: Pink, med. gr. (3mm) equi → porphyritic, massive. ± 5% chlorite. Tr. relict biotite Widely scattered (± 2%) grey, subhedral plagioclase phenocrysts to > 1cm.						
32.9	39.9	SANDSTONE: Tan, fn. gr. (0.5 mm) equi. Argillic with ± 10% clay minerals. Weakly indurated except at base of section. No bedding. 70% Recovery.						
39.9	50.6	FELDSPAR-BIOTITE PORPHYRY: Pink to greenish grey, vy. fn. gr. felsic groundmass with > 30% plagioclase phenocrysts. Some zoned phenocrysts to > 2cm. cf. 18.3-24.7 m.						
50.6	56.1	ARKOSE: 50.6-52.7: Tan, soft, kaolinized & semi-plastic. 35% Recovery 52.7-55.8: Lt. brownish grey, fn. gr. (0.5mm) equi., massive Well-indurated. Joints 50°-60° E						

DIAMOND DRILL RECORD

PROPERTY \_\_\_\_\_ CLAIM \_\_\_\_\_ HOLE NO. R-6  
 Latitude \_\_\_\_\_ Core Size \_\_\_\_\_ Elev. Collar \_\_\_\_\_  
 Departure \_\_\_\_\_ Datum \_\_\_\_\_  
 Bearing \_\_\_\_\_ Date Started \_\_\_\_\_  
 Dip \_\_\_\_\_ Total Depth \_\_\_\_\_ Completed \_\_\_\_\_  
 Contractor \_\_\_\_\_

FOOTAGE		FORMATION	MINERALIZATION	SAMPLE NO.	SAMPLE FOOTAGE	WIDTH	ASSAY VALUES	
From	To						%	%
		55.8-56.1; Same as 50.6-52.7						
56.1	59.5	BIOTITE-FELDSPAR PORPHYRY: Tan. vy. fn. gr. matrix. >5% 1-3mm subhedral biotite. Scattered 5mm subhedral plagioclase. Gradational lower contact.						
59.5	62.2	FELDSPAR-BIOTITE PORPHYRY: Tan vy. fn. gr. matrix. >10% 3mm-1cm subhedral plagioclase. >5% subhedral → euhedral biotite phenocrysts.						
62.2	70.7	ARKOSIC SANDSTONE: Tan, fn. gr. (0.5mm) equigranular, friable to grey, vy. fn. gr. hard & competent. No bedding. Recovery = 65%						
70.7	76.3	IMPURE QUARTZITE: Lt. greenish to brownish grey, vy. fn. gr → aphanitic. Sub-conchoidal fractures. ± 5% finely diss. chlorite. Rare Mn dendrites.	Tr. Py					

  
 Lee G. Morrison, P. Eng.

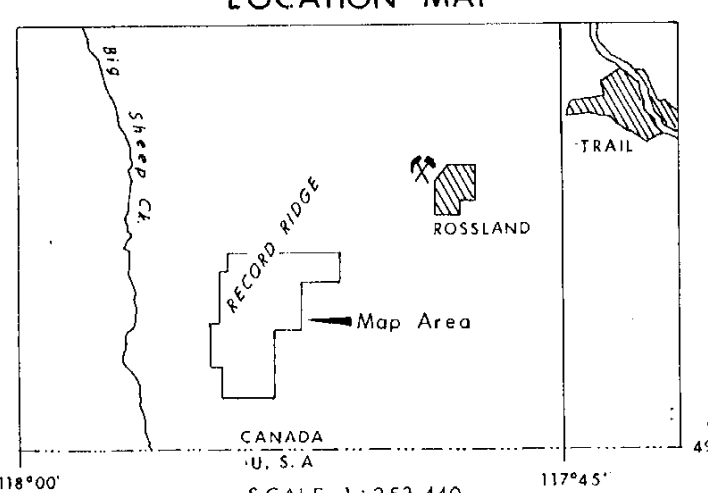


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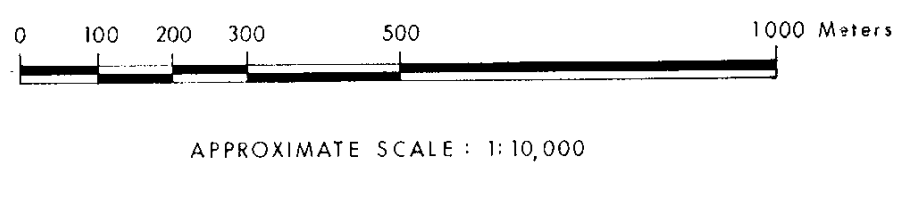
- ANDESITE & DACITE DYKES (Mostly porphyritic)
- CORRYELL INTRUSIONS
- PORPHYRITIC MONZONITE
- GREY DIORITE & QUARTZ-DIORITE
- SYENITE
- ALKALI GRANITE
- PORPHYRITIC DACITE
- ULTRABASIC ROCKS (Mostly serpentinite)
- ROSSLAND FORMATION
- ARKOSIC SEDIMENTS
- BASALT
- FINE GRAINED FELDSPAR PORPHYRY
- TUFF
- ANDESITE (Abundant hornblende porphyry)
- AGGLOMERATE
- FOLIATION (Vertical, inclined)
- JOINTING (Vertical, inclined)
- INFERRED FAULT
- CONTACT (Observed, inferred)
- TRENCH OR PIT
- METALLIC MINERALS (Pyrite, chalcopyrite, chromite)
- OUTCROP
- SCARP
- SWAMP
- CREEK (Permanent, intermittent)
- POWER TRANSMISSION LINE
- UNDERGROUND PIPELINE
- TELEPHONE LINE
- LOGGING ROAD OR TRAIL
- LEGAL OR IDENTIFICATION POST
- S-S-11 STREAM SEDIMENT SAMPLE POINT & NUMBER
- FIRST ORDER GEOCHEMICAL ANOMALY (Cu, Zn, Pb)
- SECOND ORDER GEOCHEMICAL ANOMALY (Cu, Zn, Pb)

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**8936**  
NO.

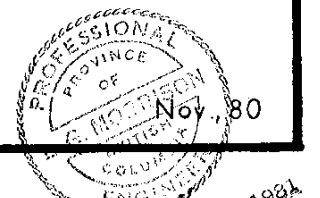
LOCATION MAP



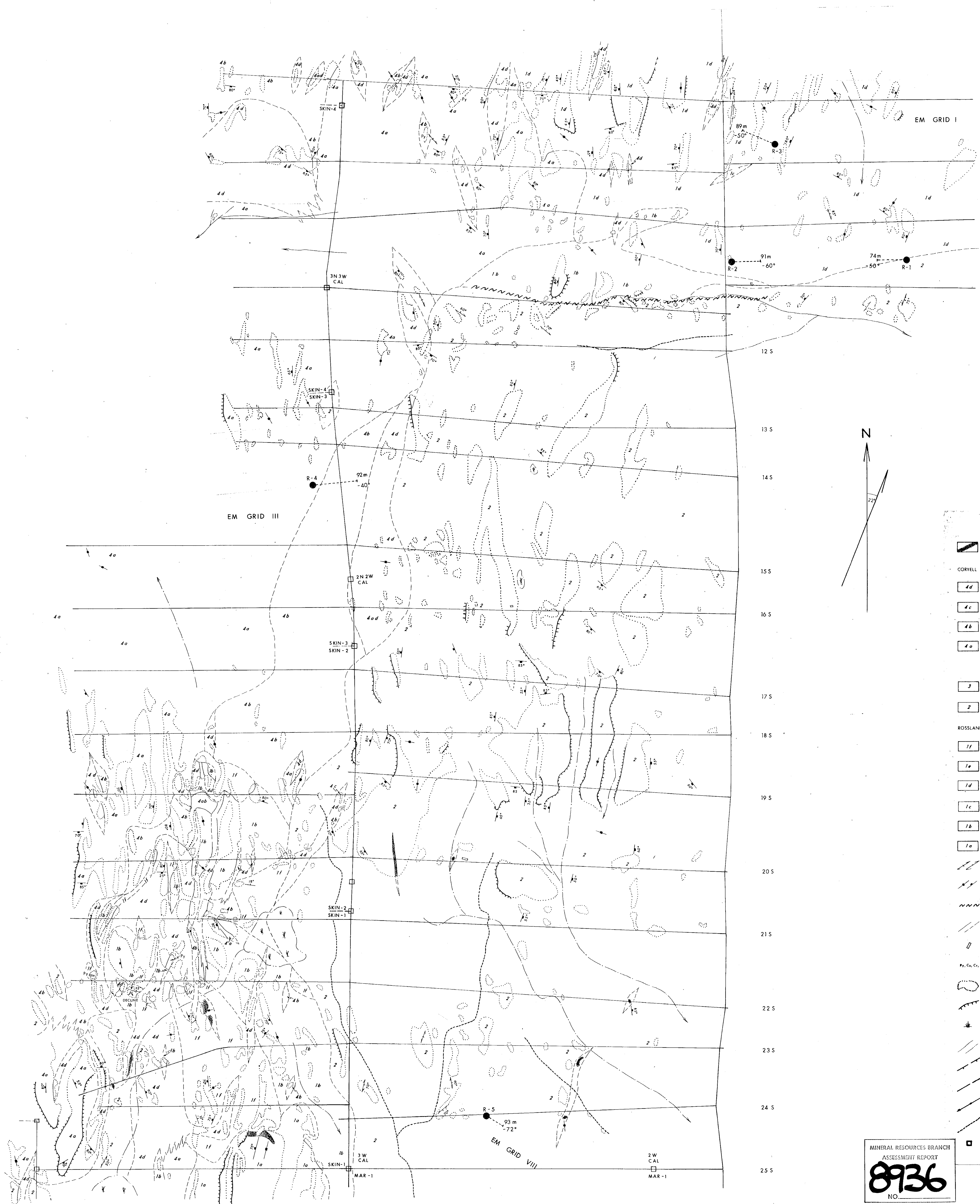
CONTROL FROM ENLARGED AERIAL PHOTOGRAPH A16660-32



**GEOLOGICAL PLAN**  
MORRISON-WHITE PROPERTY  
ROSSLAND, B.C.  
FOR UNITED CANSO OIL & GAS LTD.  
A. White, L. Morrison







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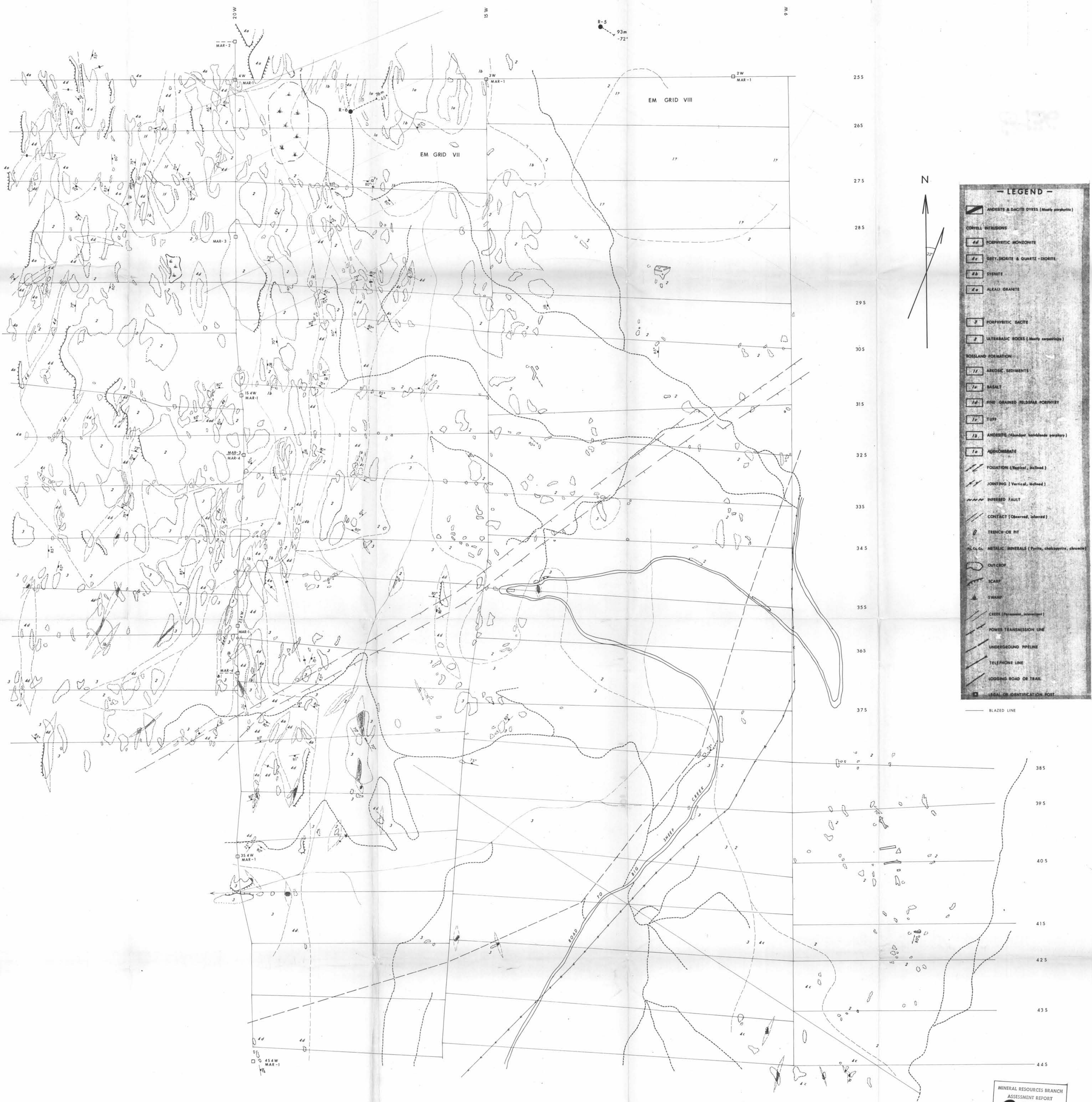
- LEGEND -
- ANDESITE & DACITE DYKES (Mostly porphyritic)
  - CORVELL INTRUSIONS
  - PORPHYRITIC-MONZONITE
  - GREY DIORITE & QUARTZ-DIORITE
  - SYENITE
  - ALKALI GRANITE
  - PORPHYRITIC DACITE
  - ULTRABASIC ROCKS (Mostly serpentinite)
  - ROSSLAND FORMATION
  - ARKOSIC SEDIMENTS
  - BASALT
  - FINE GRAINED FELDSPAR PORPHYRY
  - TUFF
  - ANDESITE (Abundant hornblende porphyry)
  - AGGLOMERATE
  - FOLIATION (Vertical, inclined)
  - JOINTING (Vertical, inclined)
  - INFERRED FAULT
  - CONTACT (Observed, inferred)
  - TRENCH OR PIT
  - Fe, Cu, Cr, METALLIC MINERALS (Pyrite, chalcopyrite, chromite)
  - OUTCROP
  - SCARP
  - SWAMP
  - CREEK (Permanent, intermittent)
  - POWER TRANSMISSION LINE
  - UNDERGROUND PIPELINE
  - TELEPHONE LINE
  - LOGGING ROAD OR TRAIL
  - LEGAL OR IDENTIFICATION POST
  - BLAZED LINE

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT  
**8936**  
NO.

MAIN GRID ESTABLISHED BY COMPASS AND CHAIN  
EM GRIDS ARE PICKET LINES  
SCALE IN METERS

DRILL HOLE LOCATIONS  
CAL & SKIN CLAIMS  
MORRISON - WHITE PROPERTY  
ROSSLAND, B. C.  
FOR UNITED CANSO OIL & GAS LTD.  
L. Morrison





**— LEGEND —**

- ANDESITE & DACITE DYKES (Mainly porphyritic)
- CONTACT INTERSECTIONS**
- PORPHYRITIC MONZONITE
- GREY-DIORITE & QUARTZ-DIORITE
- SYENITE
- ALKALI GRANITE
- PORPHYRITIC GABBRO
- ULTRABASIC ROCKS (Mainly serpentinite)
- ROSSLAND FORMATION**
- ARGILLACEOUS SEDIMENTS
- BASALT
- FINE-GRAINED FELDSPAR PORPHYRY
- TUFF
- ANDESITE (Mainly non-porphyritic)
- AGGLOMERATE
- FAULT (Vertical, Right-lateral)
- FAULT (Vertical, Left-lateral)
- THRUST FAULT
- CONTACT (Observed, Inferred)
- TRENCH OR PIT
- METALLIC MINERALS (Pyrite, Chalcopyrite, etc.)
- OUTCROP
- SCARP
- SWAMP
- CREEK (Perennial, Intermittent)
- POWER TRANSMISSION LINE
- UNDERGROUND PIPELINE
- TELEPHONE LINE
- LOGGING ROAD OR TRAIL
- LEGAL OR IDENTIFICATION POST

— BLAZED LINE

MAIN GRID ESTABLISHED BY COMPASS AND CHAIN  
EM GRIDS ARE PICKET LINES

SCALE IN METERS

MINERAL RESOURCES BRANCH  
ASSESSMENT REPORT

**8936**  
NO.

**DRILL HOLE LOCATIONS  
MAR CLAIM**

MORRISON-WHITE PROPERTY  
ROSSLAND, B. C.

FOR UNITED CANSO OIL & GAS LTD.

L. Morrison, A. White

NOV 15 1980