Box 4

Keecha Lake Area, B. C. NTS 103H/5W
and
Forcedown Lake Area, Banks Island, B. C
NTS 103H/4W, 103G/1E

Vancouver, B. C. John Wilson
April, 1978

KEECHA LAKE AREA, B. C.

N.T.S. 103H/5W

March - April, 1978

AND

FORCEDOWN LAKE AREA, BANKS ISLAND, B. C.

N.T.S. 103H/4W
103G/1E

April, 1978

John Wilson

TABLE OF CONTENTS

INTRODUCTION

From March 29 to April 8, 1978 K. H. Christensen and J. Wilson worked in the Keecha Lake area of Banks Island. A skarn-scheelite occurrence, discovered earlier by FNM personnel, was trenched by blasting and hand excavation. Chip samples were taken and the surrounding terrain was prospected. Two other nearby sedimentary bands were also prospected.

LOCATION AND ACCESS

The scheelite mineralization (Area 1) is at approximately 53°16' N, 129°55'15" W (about 8000 feet south of Keecha Lake). It is near 600 feet in elevation and is at the base (and contact) of a south facing granitic ridge. An old FNM claim line passes nearby and the showing is about 200 feet at 315° from initial post Isle 16 and 17. The limey sediment band here is characterized by tall trees (in contrast to the usual scrub forest).

Other sediment bands are at the east and southwest ends of Keecha Lake (area 2 and 3 respectively).

A T. P. Air Beaver was chartered from Sandspit to take us in and out and the Canova inflatable was used to provide local access.

GENERAL GEOLOGY

Keecha Lake occupies a granodiorite-quartz monzonite region flanked on the east and west by NW trending Paleozoic metasediments (quartzite, limestone, skarn, schist). The scheelite bearing skarn is not recorded on governement maps (GSC paper 70-41).

LOCAL GEOLOGY

Outcrops of metasediments are not extensive (often low and swampy ground) compared with intrusive ridges. Therefore prospecting and mapping of metasediments is hampered.

The scheelite occurrence (Area 1) is in a skarn that lies between a hornblende-biotite granodiorite and a crystalline limestone. Trenching exposed a 30 foot long thin skarn zone centered near the base line at the 45 foot mark. The zone strikes at 110^{o} and is nearly vertical. The western end pinches out and the eastern exposed end is 5 feet wide. The skarn wasn't exposed further east due to a lack of powder. Furthermore, a 20 foot wide creek-gully filled with rubble crosses the zone here and prospecting failed to locate skarn nearby along strike (skarn 250 feet away was barren).

The skarn is greenish coloured with exposed patches of quartz on fractures and in stringers. Most minerals are too

fine grained to identify in hand specimen but some epidote and chlorite appears to be present. Quartz is common and calcite is very weak. Scattered pyrite (overall less than 0.5%) gives an erratic rusty tint to the rock. Minor chalcopyrite and possibly a trace of pyrrhotite occurs but no magnetite was seen. An overall estimate of scheelite is less than 0.5% but it is unevenly distributed. Scheelite occurs in fractures as intermittant 1/8 inch veins, often with quartz. Discrete scheelite crystal outlines up to ¼ inch diameter were observed. Most scheelite (and quartz veining) was in the central 15 ft. of skarn.

The coarse granodiorite contains 25% mafics and is white in colour but when buried has a brownish stain and weathers to a crumbly debris. No veining, alteration, or economic minerals were found in the intrusive. It is never found in contact with the skarn but is separated by a dirt filled zone up to 10 inches wide. The contacts between the three units vary from 75^{o} north dips to vertical.

The limestone is white to grey, crystalline, massive, and fairly pure. No other sediments are interbedded nearby.

Overburden in this area is from one to three feet thick but the fractured blocky bedrock may go much deeper.

The sedimentary band east of Keecha Lake consists of dark argillaceous quartzites (pyritic near the contact) and very thinly bedded limestones. No quartz veining was seen.

West of Keecha Lake we found biotite schists, impure quartzites, and quartz veining. Bedding in both sediment bands is nearly vertical.

Positive evidence of faulting was not seen in the field although the soil filled contacts between the intrusive, skarn, and limestone is Area 1 may be shears. Probably, however, these contacts are simply weathering phenomena.

WORK DONE

Area 1

Skarn was exposed by trenching and was chip sampled along its length and across its width. Seven soil samples along strike to the east were panned and the concentrates sent for geochemical analysis. One panned soil sample and one regular soil sample from the trenched skarn was sent for geochemical analysis. Numerous rocks were tested for scheelite by using the ultraviolet lamp.

Area 2

Two traverses were made through the metasediment band and five panned samples (sediments and soils) were sent for analysis. Two regular soil samples were also taken. The ultraviolet lamp was used in the field to test rocks. Prospecting failed to locate skarns. Limestones are very thinly bedded.

Area 3

Three traverses crossed metasediments without locating skarn but 15 panned sediment samples were taken and submitted for analysis. No skarn or scheelite was found during prospecting and lamping. Limestones are rare and thin.

RESULTS

Assays from the trenched skarn indicates the scheelite is strongest in the well quartz veined parts (to 0.97/0.40% WO_3 over 1.0/3.0 feet). The only sample taken across the full skarn width, in the quartz poor eastern end, was 0.24% WO_3 over 4.0 feet. Adjacent granodiorites assayed 0.032% WO_3 over 11.0 feet. In the skarn, copper up to 0.36% over 4.0 feet was found (mostly chalcopyrite). Gold values were consistently 0.002 ounces and two samples tested for zinc held 0.01%.

Soil samples from along strike were panned and analyzed but didn't reveal a continuation of tungsten (producing values up to 8 ppm W compared to 1000 ppm W in the mineralized zone).

Assays, pannings, and soil samples from areas 2 and 3 didn't provide results warranting follow up (see figures).

CONCLUSIONS

The trenched scheelite bearing skarn is in limestone at the edge of granodiorite. Maximum skarn width (5.0 feet) is at the edge of a creek-gully. 29 feet away on strike (295^{o}) the

unit pinches out. Possibly the gully reflects a weakness (fractures ?) and the improved permeability into limestone could have led to metasomatism. Further away, laterally, from the center of the gully the fractures and permeability would be less intense and therefore the skarn thins out.

Based on form this unit is best termed a diffusion skarn; it's of limited width and lies tightly between limestone and the pluton. This type is seldom productive since the low permeability of country rock results in a small reaction zone and therefore is of limited dimensions. However, along strike a more permeable sediment could localize the more productive exoskarn type.

Park and MacDiarmid make a distinction of skarns based on the character of the invaded rock (since this largely controls the assemblage of alteration products).

Bateman's classification of deposits is based on ore mineralogy. His tungsten skarns have scheelite, molybdenite, and minor sulfides. While scheelite is commonly associated with quartz, higher grades can be expected when pyrrhotite is also present.

On the basis of temperature, scheelite and tin are at the upper end of the scale followed by Cu, Mo, and then magnetite.

Dawson and Dick (CMJ, April, 1978) would call this a Group 1 - W, Cu (Zn, Mo) skarn.

Our skarn could thus be described as a high temperature tungsten-copper diffusion skarn in limestone.

RECOMMENDATIONS

No further work should be undertaken on the skarn showing. The dimensions are too small and the minor amount of sulfides are not encouraging. Furthermore, the better grades of WO_3 seem to be largely controlled by patchy, minor quartz veining. Nearby, along strike, sampling and prospecting didn't reveal extensions.

However, at distance along strike the potential for exoskarn development still remains.

The sediment bands (Area 2 and 3) have no potential for skarn deposits where examined.

From April 19 to 28 Karl Christensen and John Zaikow made prospecting traverses from a fly camp on Forcedown Lake, 3 miles north of Calamity Bay, Banks Island.

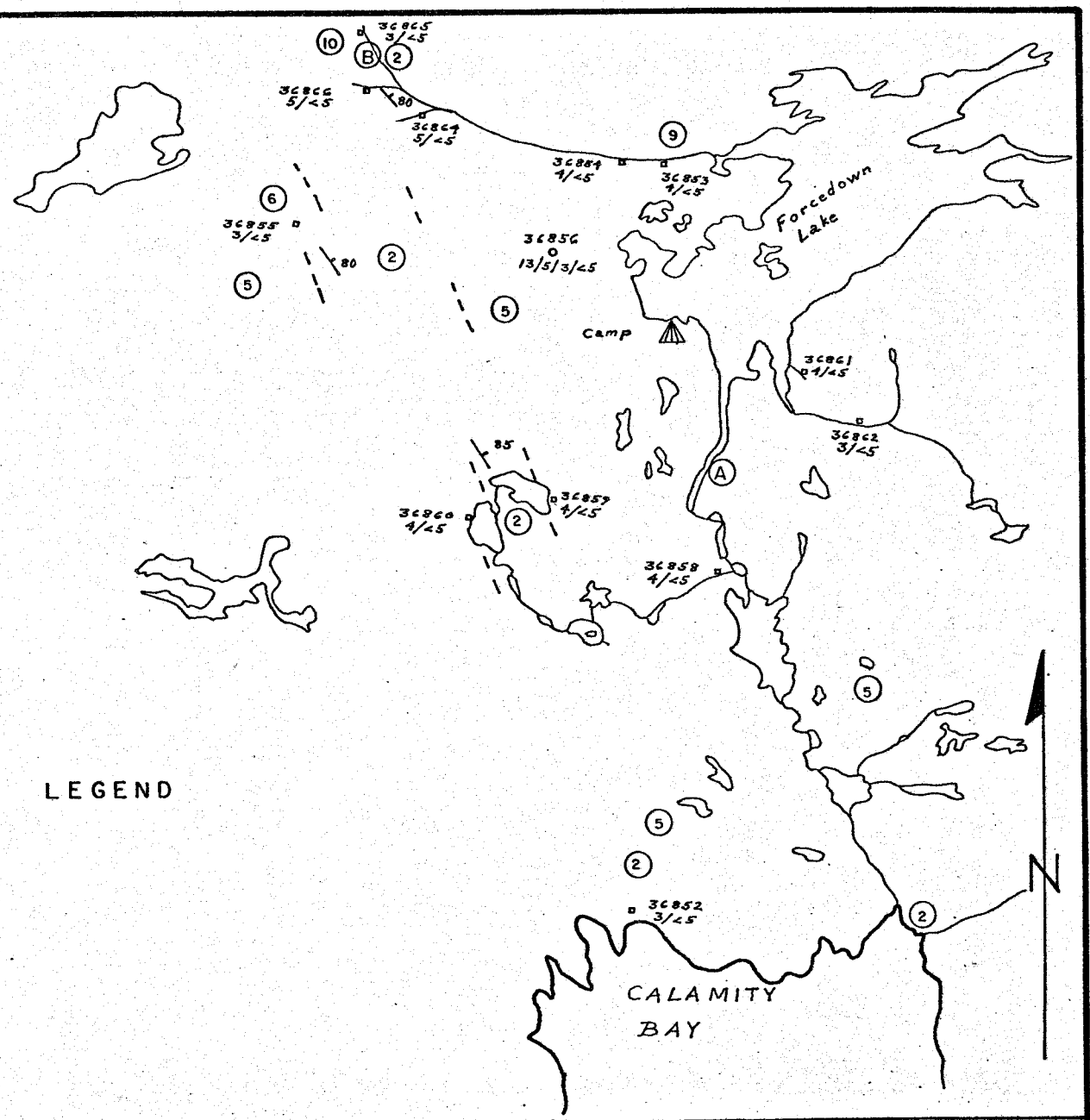
The program was to find and investigate skarns associated with Paleozoic metasediments and granodiorite - quartz monzonites. Follow up of earlier FNM work in the area (where skarns were reported) took the form of rock sampling and panning of sediments nearby.

Twelve panned samples and one silt sample were taken for geochemical analysis.

No new skarns were found but the sediments were better traced and a few panned samples were randomly taken for analysis. None of the samples had encouraging values (maximum W was 5 ppm and Au was all below 5 ppb).

Rock samples from skarn zones were examined with the U-V lamp and one sample with some colour was assayed but ran 0.02% WO_3, 0.03% Cu. The best gold assay was 0.018 oz.

No further work can be suggested for this area.



LEGEND

(2)

(5)

(6)

(9)

(10)

(A) Au 0·018 oz Cu —— Wo_3 —— Rock sample

(B) Au 0·004 oz = Cu 0·03 % = Wo_3 0·02 % Rock sample

o Cu/Mo/W/Au ppm/ppm/ppm/ppb Silt sample

▫ W/Au ppm/ppb Panned sample

FALCONBRIDGE NICKEL MINES LTD.

PROPERTY: Forcedown Lake Prospect

LOCATION: Banks Island

TYPE OF MAP: Geochem

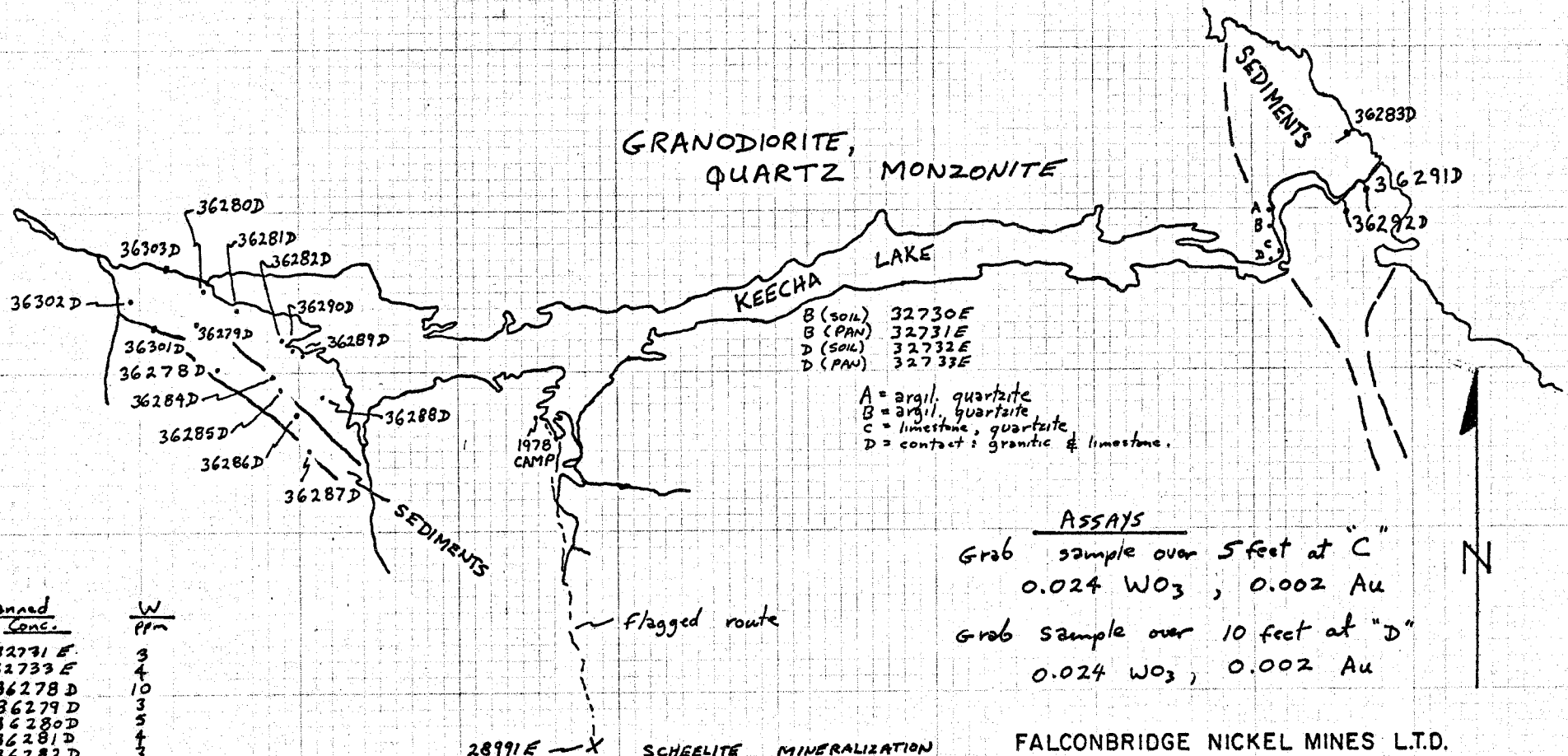
BASED ON: Fieldwork by KHC. JZ.

DATE OF WORK: April 1978

DRAWN BY: G T. June 1978

SCALE: 1:50·000

N.T.S: 103-H-4 MAP REF. NO: 103-78-



ASSAYS

Grab sample over 5 feet at "C"
0.024 WO_3, 0.002 Au

Grab sample over 10 feet at "D"
0.024 WO_3, 0.002 Au

Panned Conc.	W ppm
32731 E	3
32733 E	4
36278 D	10
36279 D	3
36280D	5
36281D	4
36282D	3
36283D	3
36284D	3
36285D	4
36286D	4
36287D	4
36288D	5
36289 D	3
36290 D	3
36291 D	3
36292D	3
36301 D	3
36302D	3
36303D	3

Soils	Cu	Mo	W	ppm
32730 E	25	1	3	
32732 E	17	7	4	
28991 E	235		15	

FALCONBRIDGE NICKEL MINES L.T.D.

PROPERTY: Keecha Lake Prospect

LOCATION: Keecha Lake Banks Island

TYPE OF MAP: Geochem .. Location Map

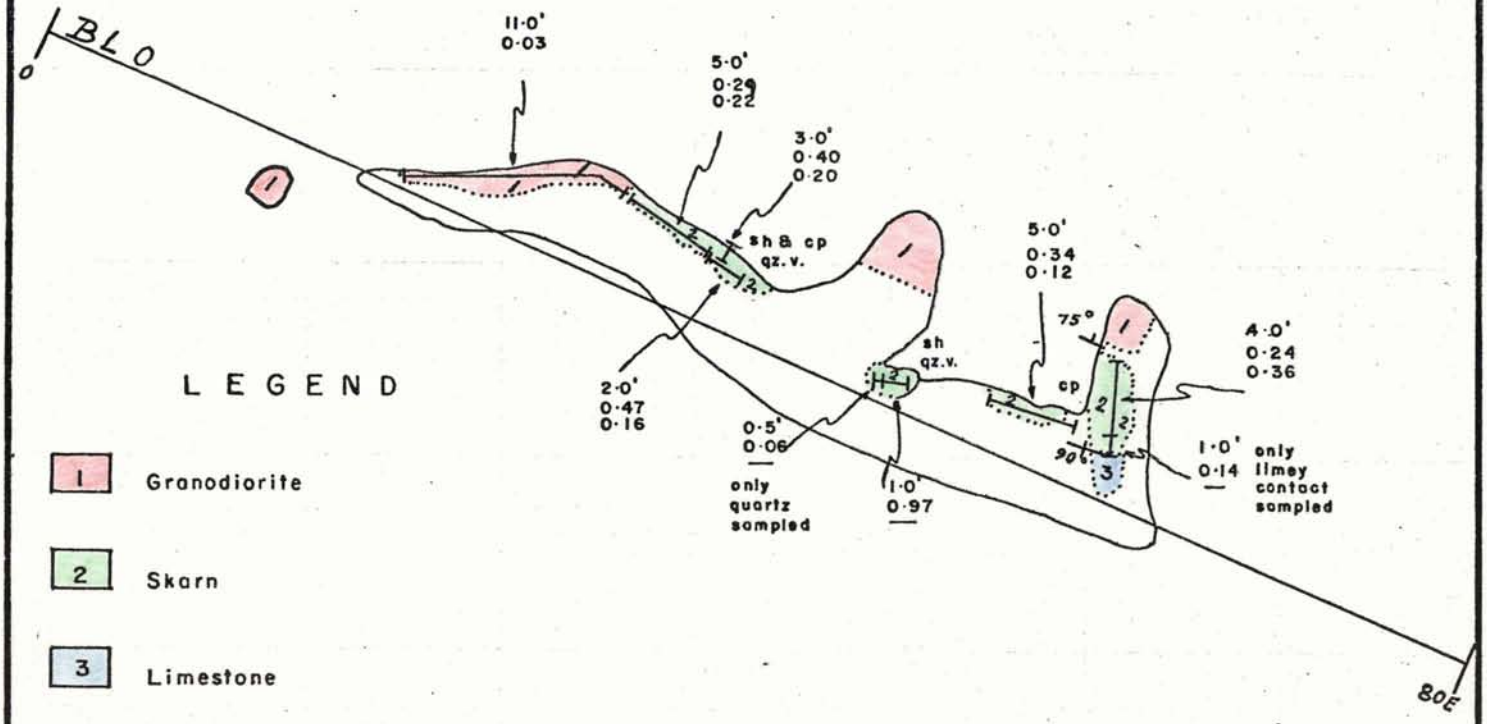
BASED ON: Fieldwork by J.W. K.H.C.

DATE OF WORK: March, April 1978

DRAWN BY: J. Wilson

SCALE: 1:50·000

N.T.S. 103-H-5 W



LEGEND

1	Granodiorite
2	Skarn
3	Limestone
	Trench outline
	Outcrop limit
	Contact and dip, vertical
sh	Scheelite
cp	Chalcopyrite
qz.v.	Quartz veining
	Chip sample location

5·0' Width (ft.)
0·24% WO_3
0·22% Cu

N

FALCONBRIDGE NICKEL MINES L.T.D.

PROPERTY: Keecha Lake Prospect

LOCATION: Keecha Lake Banks Island

TYPE OF MAP: Detailed Geology of Trench

BASED ON: Fieldwork by J. Wilson

DATE OF WORK: April 1978

DRAWN BY: G. Thomassen

SCALE 1 Inch to 10 Feet (Metric 1:120)

N.T.S: 103-H-5W

Base of cliff

Trenched scheelite skorn Zone

Base Line

0

36277D (1000)

qz.v.

qz.v.

Soil sample 28991E (15)

75°

90°

0+50'

1+00'

2+00'

3+00'

36272D (4)

36271D (3)

36270D (4)

36275D (8)

36274D (4)

36273D (5)

36276D (4) In sinkhole

Base of cliff

CREEK

Underground drainage

N

LEGEND

1 Granodiorite

2 Skarn

3 Limestone

Outcrop limit

Contact and dip, vertical

Panned soil
36275D. Sample No.
(4) W. in ppm.

FALCONBRIDGE NICKEL MINES L.T.D.

PROPERTY: Keecho Lake Prospect

LOCATION: Keecho Lake Banks Island

TYPE OF MAP: Geology & Geochem

BASED ON: Fieldwork by J.W. K.H.C.

DATE OF WORK: March 1978

DRAWN BY: G.T.

SCALE: 1 Inch to 20 Feet (Metric 1:240)

N.T.S.: 103-H-5W