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GEOCHEMICAL REPORT  
ON  
MARINO GROUP MINERAL CLAIMS  
53° 29' N., 131° 58' W.  
FALCONBRIDGE NICKEL MINES LIMITED  
June 10-16 1969  
J. J. McDougall, P.Eng.

GEOCHEMICAL REPORT

ON

MARINO GROUP MINERAL CLAIMS

SKEENA M. D.

53<sup>0</sup> 20' N.

131<sup>0</sup> 58' W.

N.T.S. 103-G

Vancouver, B. C.

September 19, 1969

J. J. McDougall

## C O N T E N T S

	<u>Page</u>
INTRODUCTION.....	1
LOCATION AND ACCESS.....	2
METHOD OF SURVEY.....	2
LABORATORY TECHNIQUE.....	2
GEOLOGY.....	2
INTERPRETATION AND CONCLUSION.....	3
STATEMENT OF WORK.....	5
STATEMENT OF QUALIFICATION.....	6
LIST OF ILLUSTRATIONS - IN POCKET	
MC 1/69 Map of Soil Grid with relationship to Marino Group	
MC 2/69A Geochemical Map showing Copper values	
MC 2/69B Geochemical Map showing Molybdenum values	

## GEOCHEMICAL REPORT

ON

### MARINO GROUP MINERAL CLAIMS

#### INTRODUCTION

During April and May of 1969 several geochemical survey grids were established at certain select areas on southern Graham Island in the Queen Charlotte Group. This work was a follow up to discovery by Mr. E. Specogna and others of copper-molybdenum mineralization both as float and in place in several of the better incised streams cutting the poorly drained and largely overburdened area. Earlier silt sampling, based largely on molybdenum values, suggested a northerly trend and later soil grids were oriented accordingly. Copper-molybdenum values are plotted on maps MC 2/69 A and MC 2/69 B enclosed.

#### LOCATION AND ACCESS

The geochemical soil survey ( Miller Grid) described in this report was carried out as shown on accompanying map MC 1/69. The following mineral claims were involved:

MINO #1, 11, 11, 1V, XV, XVI, 49, 50, 51, 51.

These claims are located along and north of the lower portion of Miller (Chinukundl) Creek. They are approximately 4 miles north of Skidegate Mission on southeastern Graham Island and approximately 1 mile west of a paved highway connecting Skidegate Mission with Port Clements. Elevations range from 100 to 600 feet. The property is accessible by constructed trail but because of the thick and swampy nature of much of the ground a helicopter was utilized to affect efficiency.

#### METHOD OF SURVEY

A grid 8,600 feet long North-South and 3,000 feet wide East-West was laid out with chain and compass and soil samples totaling 700 collected with grubhoes at 100 foot intervals along 200 foot spaced E. W. lines.

All samples were placed in water resistant paper packets on which the following information was marked: line and sample number, date, depth, horizon, colour, and moisture content. The samples were shipped to the Falconbridge Laboratory in Vancouver for analysis.

#### LABORATORY TECHNIQUES

The samples were dried in a gas fired hot air drier and hand screened through 80 mesh standard nylon screens.

The minus 80 mesh portion of the dried sample was analyzed for copper and molybdenum by standard geochemical methods.

The copper analyses were done by standard Atomic Absorption techniques. Molybdenum was determined by fusing 250 m.g. of sample with alkaline flux to render the molybdenum soluble. The fusion was leached with demineralized water and an aliquot of the leach liquor treated with 2.5 percent solution, of hydroxylamine hydrochloride in hydrochloric acid and 1 percent zinc dithiol solution. After shaking to develop the coloured molybdenum complex, the samples were compared with previously prepared standards to obtain the molybdenum concentration.

#### GEOLOGY

Geologically the area under discussion, as described by Brown (Bull. 54, B. C. Dept. of Mines), consists of a several mile long north-south oriented post-tectonic (Tertiary?) granodiorite to diorite

pluton which is in contact to the west and south with sediments and volcanics of the Yakoun (Jurassic) Formation. Strong north to north-west trending faults are common and have resulted in wedges of Yakoun occurring well within the southern part of the intrusive. A strong regional fault near the contact with Tertiary sediments and volcanics bounds the pluton to the north and east. Mineralization consisting of chalcopyrite, sphalerite, molybdenite, and minor galena is found both within unfaulted wedges of sheared Yakoun and within the intrusive where north-south fault zones are favoured.

INTERPRETATION AND CONCLUSION

Concentration Levels in Soils:

<u>Grid</u>	<u>Regional Bkd.</u>	<u>Local Bkd.</u>	<u>Anom.</u>	<u>Range</u>	<u>Mode</u>
Miller Cu.	< 20	21-25	>25	0-65	11-20
Miller Mo.	< 2	3-5	> 5	0-30	< 2

This large grid was laid out to cover the assumed contact zone between the intrusive and volcanics as indicated by aeromagnetic survey and Sutherland Brown's mapping. At its southern end, in Miller Creek, weak mineralization carrying molybdenite and chalcopyrite gives rise to a very weak soil anomaly detected in previous work (1968). Sampling conditions are generally not very good but are better than on the Tiell grid since there is more relief given by the plateau slope towards the sea. Both Mo., and Cu., values occur scattered all over the area mostly related to the several drainage channels cutting the grid from west to east. A north trending low order concentration of molybdenum values which, near the northern margin of the grid swing to the west, may represent the volcanic/intrusive contact zone. This

weak feature is even less discernable in the copper values.

Several blast holes were made in the more promising looking anomalies and the resulting pits were sampled. Generally metal values decreased with depth indicating that the metal is being transported in the overburden and that the anomalies are not closely related to their source. Conversely on rare occasions blasting did reveal mineralized bedrock.

The Tlell grid extends on either side of the Tlell River in boggy terrain of low relief. Overburden is believed to be quite thick. Only two molybdenum values were recorded and these occur very close to the only outcrop observed. Copper (again) shows a close relationship to marshy ground and seepage areas adjacent to the rivers. None of the copper values justifies any further investigation.

Vancouver, B. C.

J. J. McDougall

September, 1969

DOMINION OF CANADA:  
 PROVINCE OF BRITISH COLUMBIA.  
 To Wit:

**In the Matter of**

GEOCHEMICAL REPORT ON  
 MARINO GROUP MINERAL CLAIMS.

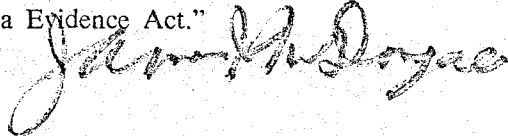
I, J. J. McDougall

of Vancouver, B. C.

in the Province of British Columbia, do solemnly declare that the following work was done:

Bacon, D.	- Sampler June 10 - June 16 7 days @ \$ 22.50 /day.....	\$ 157.50
McMullen, J.	- Party Chief and Geochemical Operator June 10 - June 16 7 days @ \$ 27.50 /day .....	192.50
Preece, H.	- Sampler June 10 - June 16 7 days @ \$ 20.00 /day.....	140.00
Rotzien, J.L.	- Sampler June 10 - June 16 7 days @ \$ 22.50.....	157.50
Seeman, D.	- Sampler June 10 - June 16 7 days @ \$ 20.00 /day.....	140.00
Skidmore, D.	- Sampler June 10 - June 16 7 days @ \$ 22.50 /day.....	157.50
Thompson, G.	- Sampler June 10 - June 16 7 days @ \$ 20.00 /day .....	140.00
Zastavnikovich, S.	- Party Chief and Geochemical Operator June 10 - June 16 7 days @ \$ 27.50 /day.....	192.50
Helgesen, D.H.	- Field Geologist June 10 - June 16 7 days @ \$ 30.00 /day.....	210.00
	Sub Total	<u>\$1,487.50</u>
Laboratory Charges:	- 205 samples (portion of total) @ \$ 3.00 /sample	<u>615.00</u>
	Total	<u>\$2,102.50</u>

And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."



Declared before me at the City  
 of Vancouver, in the  
 Province of British Columbia, this  
 day of October, 1969, A.D.

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



# FALCONBRIDGE NICKEL MINES LIMITED

1112 WEST PENDER STREET

VANCOUVER 1, B. C., CANADA

TELEPHONE: 682-6242

TELEX: 04-5938

## STATEMENT OF QUALIFICATIONS

The Mining Recorder,  
VANcouver, B. C.

Dear Sir:

This is to certify that the geochemical work on the Marino Group Mineral Claims was done under my supervision.

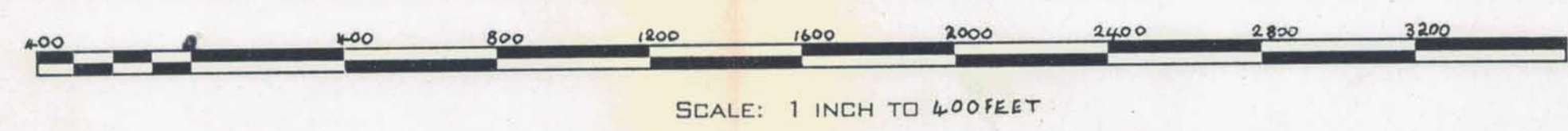
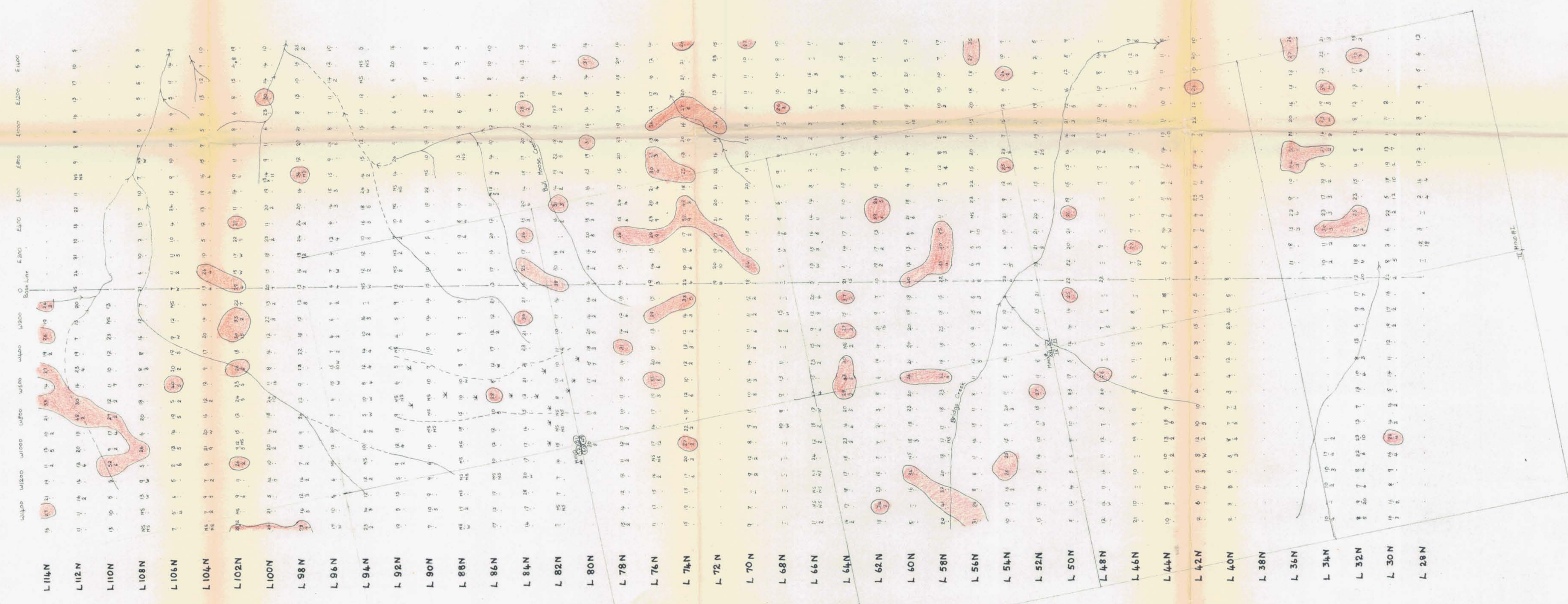
The geochemical field work was performed under the guidance of Mr. D. H. Helgesen of Vancouver, B. C. Mr. Helgesen attended Victoria College and University of British Columbia 1955-1959. From 1961-1964 he was employed as field assistant and geological assistant in Zambia, since 1964 he has been employed by Falconbridge as field geologist in mineral exploration in British Columbia.

The analyses and evaluation of the results were done under the direction of Dr. Ivor Elliott, Chief Geochemist for Falconbridge Nickel Mines Limited. Dr. Elliott received his Doctorate from the Royal School of Mines, Imperial College, London, England. He has been in charge of geochemical surveys in Africa for three years and the Dominican Republic for one year.

Yours very truly,

FALCONBRIDGE NICKEL MINES LIMITED

J. J. McDougall



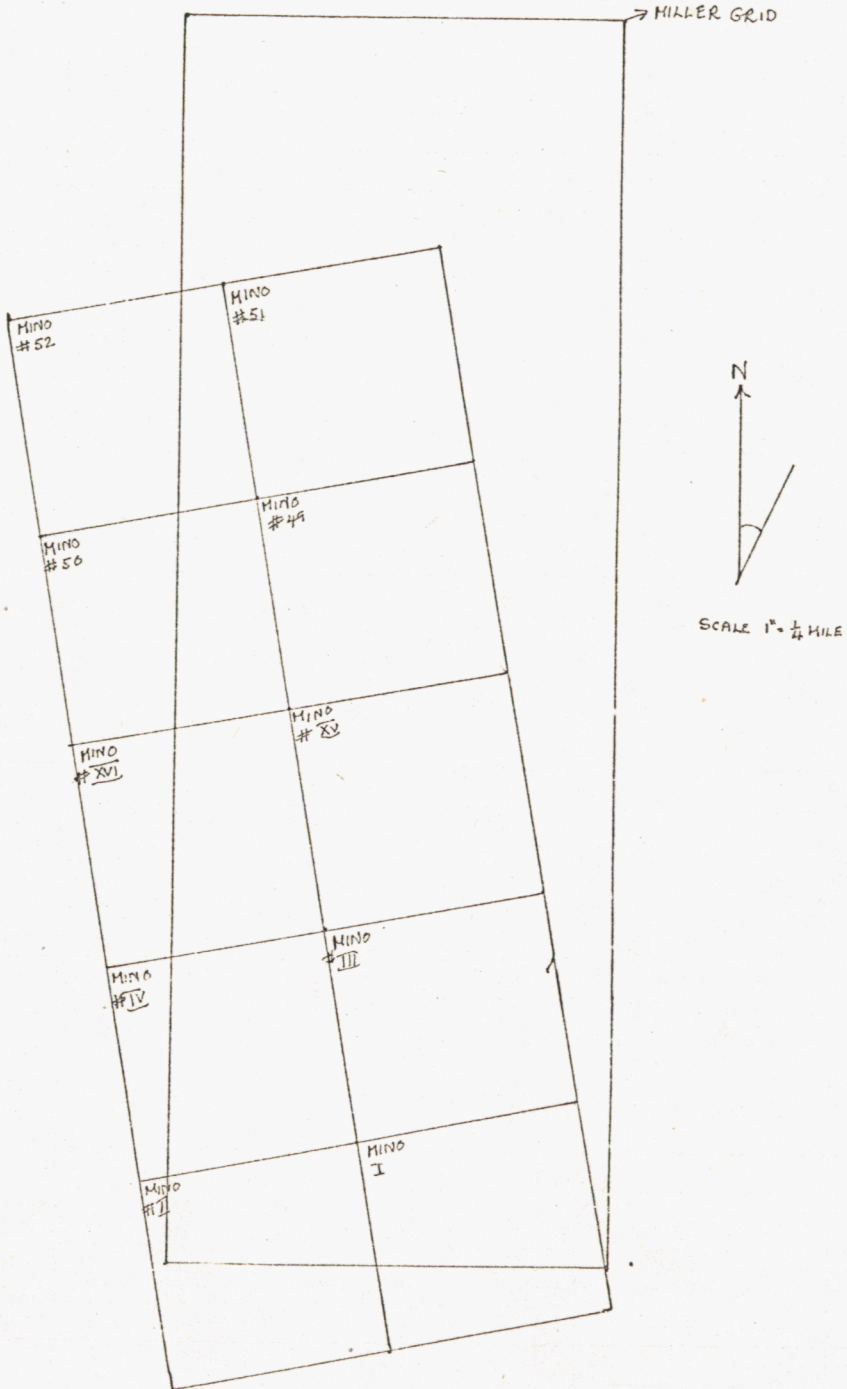
COMPANY . . . FALCONBRIDGE NICKEL MINES LTD.  
 PROPERTY . . . MILLER GRID (HARNO GROUP)  
 LOCATION . . . GRAHAM ISLAND, Q. C.

WORKING PLACE . . .  
 TYPE OF MAP . . . GEOCHEMICAL ASSAYS  
 BASED ON . . .

DATE . . . SEPT, 1969  
 DRAWN BY . . . C. L. S.  
 DATE OF WORK . . . MAY 1968.

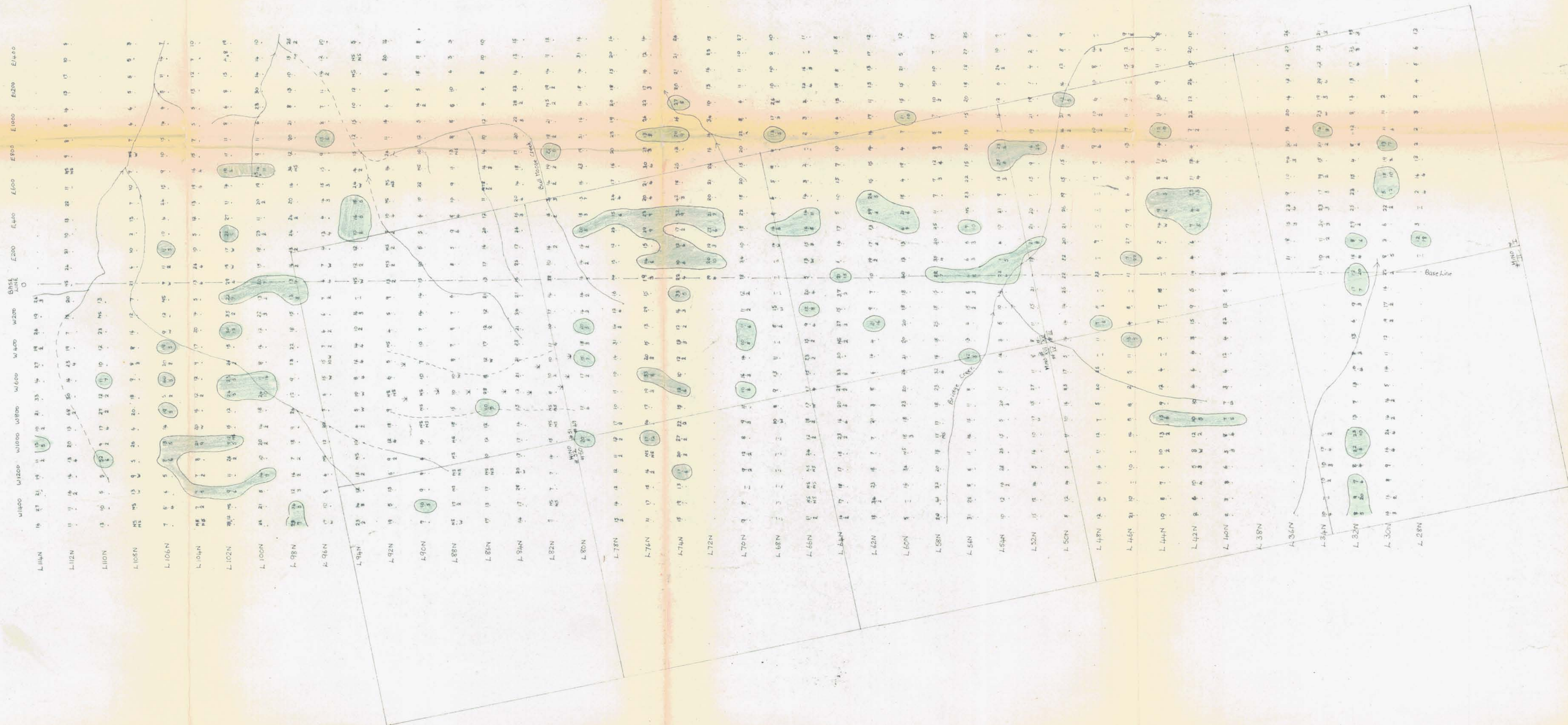
MC 1/69

MARINO GROUP



Sketch map showing claims of the Marino Group which cover the Miller Grid.

- Sample position
- 26 Copper value 10 ppm
- 3 Molybdenum value > 2 ppm
- Molybdenum value < 2 ppm
- NS No sample available
- SW Swamp
- ~ ~ ~ Creek
- W Suspected Tungsten
- WMO? Approximate location of molybdenum
- Mo > 5 ppm



SCALE: 1 INCH TO 4,000 FT.

COMPANY . . FALCONBRIDGE NICKEL MINES LTD.  
 PROPERTY . . MILLER GRID (MINING GROUP)  
 LOCATION . . GRAHAM ISLAND, QUEEN CHARLOTTE ISLANDS.

WORKING PLACE . .  
 TYPE OF MAP . . GEOCHEMICAL ASSAYS (MOLYBDENUM)  
 BASED ON . .

DATE . . SEPT. 1969  
 DRAWN BY . . C.A.S.  
 DATE OF WORK . . MAY, 1969