

2191

REPORT ON  
GEOLOGICAL, GEOCHEMICAL AND MAGNET-  
OMETER SURVEYS ON THE BLU GROUP,  
KAMLOOPS MINING DIVISION, B.C.,  
92I/11E FOR  
HUDSON BAY MOUNTAIN SILVER MINES  
LTD. (NPL).

Deposit  
in P.S.  
beginning  
cond. 50° 40' - 41'

121° 13' - 15'

92I/11E  
near Barnes Lake  
see also 2192

Report on Geological, Geochemical and Magnet-  
ometer Surveys on the Blu Group, Kamloops  
Mining Division, British Columbia, for Hudson  
Bay Mountain Silver Mines Ltd. (NPL).

Blu 1-48

75537 - 75584

Mo 1-8.

82281 - 82288

Situated  $3\frac{1}{2}$  miles southeast of Ashcroft, B.C.

121° 13' W ; 50° 40' N.

Submitted by R.H.D. Philp, P.Eng.

Owner : Hudson Bay Mountain Silver Mines Ltd.  
(NPL).

Work conducted by Agilis Exploration Services  
Ltd. during May and June, 1969

REPORT ON

GEOLOGICAL, GEOCHEMICAL AND MAGNETOMETER SURVEYS

ON THE BLU GROUP, KAMLOOPS MINING DIVISION,

BRITISH COLUMBIA,

FOR

HUDSON BAY MOUNTAIN SILVER MINES LTD. (NPL).

August 18, 1969

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Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT

NO. 2191 MAP

REPORT ON  
GEOLOGICAL, GEOCHEMICAL AND MAGNETOMETER SURVEYS  
ON THE BLU GROUP, KAMLOOPS MINING DIVISION,  
BRITISH COLUMBIA, FOR  
HUDSON BAY MOUNTAIN SILVER MINES LTD. (NPL).

INTRODUCTION:

The Blu Group, totalling 56 contiguous mineral claims lies  $3\frac{1}{2}$  miles south-southeast of Ashcroft, British Columbia.

Occupying the moderate western slopes of Glossy Mountain, rising to the east, the claims lie between elevations of approximately 3500 and 5000 feet above sea-level. The area is lightly timbered and underbrush is generally absent.

Access to the western edge of the property is by the Ashcroft - Highland Valley road, a distance of approximately 7 miles from Ashcroft.

During May and June, 1969 an initial exploration program consisting of line cutting, a claims survey, geological, geochemical and magnetometer surveys was undertaken over the entire property. Field work was conducted by personnel of Agilis Exploration Services Ltd. under the supervision of the writer.

PROPERTY:

The property consists of 48 original mineral claims plus 8 staked recently to cover open ground within the group, for a total of 56 contiguous claims.

	Record Numbers	Record Date
Blu 1-36	75537 - 75572	Jan. 2, 1969
Blu 37-48	75573 - 75584	Jan. 3, 1969
Mo 1-8	82281 - 82288	June 17, 1969

All claims are located within the Kamloops Mining Division of British Columbia.

Initially, a property boundary survey was conducted and later all claims tied into the grid.

GEOLOGY:

Procedure:

Mapping was conducted at a scale of 1 inch = 400 feet using the grid stations for control. This was accomplished by traversing along and between the lines and, when outcrop was encountered, tying it into the stations by pace and compass.

General Geology:

Regionally, the property lies near the western edge of the Guichon Batholith and is underlain by rocks of this intrusive body plus older sediments and volcanics in the western portion. Regional mapping of the Batholith at a scale of 1 inch = 1 mile by K.E. Northcote is available, together with a comprehensive geological report.

The Guichon Batholith is approximately 40 miles in length, elongated in a north-south direction, with an average width of 16 miles. Younger volcanics and/or sediments overlie the northern portion of the intrusive, which, in the vicinity of the Blu claims, is

in contact with older Nicola Group volcanics and sediments. The Nicola Group is Triassic in age while the Guichon Batholith is believed to have a Jurassic Age.

Varying from acid to intermediate in composition, the Batholith is a complex intrusive with generally younger rocks toward the center, the core also being more acidic. The Blu Group lies within the Hybrid or Border Phase as mapped by Northcote.

Copper mineralization is widespread throughout the Batholithic rocks and several major deposits have been located. Mineralization occurs as disseminations, along fracture planes, and in quartz stringers and veins. Strongly mineralized areas generally accompany zones of intense alteration.

Molybdenite values are also present within the known ore zones. Pyrite is widespread throughout the rocks, together with magnetite and hematite in variable amounts. The latter is more abundant within the Border Phase of the intrusive.

#### Local Geology:

Outcrop is abundant in the eastern and southeastern portions of the property while the extreme western and northwestern portions are mostly drift covered.

Approximately the eastern two-thirds of the property is underlain by intrusive rocks of the Guichon Batholith. Except for a small area of diorite at the extreme western edge of the property, the western one-third is underlain by volcanics and sediments, presumably of the Nicola Group.

The main intrusive mass within the property boundaries consists of quartz-diorite. This is generally a light grey rock varying from fine to medium grained, and occasionally coarse grained, and consisting essentially of quartz, plagioclase and orthoclase feldspar,

plus hornblende and biotite. During the recent mapping, divisions were made on the basis of quartz content and amount of primary and/or secondary biotite present.

Areas mapped as quartz-rich contain in excess of 25% quartz compared to the normal content of approximately 10 - 25%. Biotite occurs throughout, but areas with greater than approximately 3% biotite have been mapped as biotite-rich. One other variable that has not been distinguished on the map is a milky blue quartz which appears in varying amounts.

The Nicola volcanics are typically a fine-grained siliceous rock with sparsely distributed feldspar phenocrysts. The only other rock type attached to this group is a dense grey siltstone found in the north-western corner of the property from lines 24 + ODN to 36 + ODN.

The contact between the volcanics and quartz-diorite is gradational, consisting of a quartz-rich zone, commonly fine grained and aplitic in texture.

Diorite mapped in the extreme western portion of the group and lying west of the Nicola rocks is generally fine grained and similar in appearance to the quartz-diorite to the east but deficient in quartz and, generally, in biotite.

#### Structure:

The band of Nicola Group rocks trends in a north-northwest direction across the property. Where noted, foliation within these rocks strikes slightly west of north and is close to vertical.

Both the volcanics and intrusives are commonly strongly fractured, the most prominent joint sets being easterly, dipping steeply either north or south; N40° - 60°E with moderate dips north; N30° - 50°W, dipping steeply east or west; and northerly, dipping vertical or steeply east.



A prominent gully trending in a S60°W direction across the central portion of the claims may represent a fault zone, although this is not indicated by the magnetometer survey. A north-south trending fault is indicated at approximately 20 + 00E. Several smaller north-south draws are present, probably controlled by north-south jointing and/or faulting.

#### Mineralization:

Minor pyrite and chalcopyrite were noted at several points within the property, both in the quartz-diorite and the volcanics. These generally occur as finely disseminated grains and appear unrelated to any structural or mineralogical features noted. The most significant amount of chalcopyrite observed occurs near the eastern end of lines 32 + 00N, 36 + 00N and 40 + 00N.

Magnetite occurs as a minor constituent in varying amounts throughout the intrusives. Hematite is occasionally present along fracture planes.

#### CONTROL GRID:

A north-south base-line and two tie-lines were first established, then east-west cross-lines run at 400 foot intervals. Lines were established by chain and compass and cut out by axe and power saw. Stations were marked by pickets and flagging at 200 foot intervals on all lines.

Twenty three thousand feet of base-lines and tie-lines plus 199,200 feet of cross-lines were established in this manner for a total of 42 line-miles.

#### GEOCHEMICAL SURVEY:

##### Field Procedures:

Soil samples were collected at 200 foot intervals on all cross-lines. Sampling was carried out by means of a grub-hoe with samples taken from immediately beneath the surface humous layer.

Depth taken varies between approximately one and twenty inches but generally averages four to six inches. Most common soil type is a light grey or brown sandy loam.

Notes were taken at each sample location regarding soil type, depth taken, topography, vegetation and any other pertinent features to be used later in interpreting the results.

#### Geochemical Testing:

Samples were packaged in Kraft envelopes and sent to Chemex Labs Ltd. of North Vancouver for testing. After drying in an electric oven at 150°F, the samples were screened to -80 mesh and digested by a perchloric-nitric acid mixture, then analyzed by the atomic absorption method. All samples were tested for total copper content and values reported in parts per million (ppm).

#### Results of Survey:

Background values range up to approximately 35 ppm copper and values above 70 ppm are considered anomalous. Values are generally lower in the western and northwestern portions of the claim group where deeper overburden is general. These lower values might also be due in part to a change in rock type.

Values are more erratic in the eastern portion where several isolated highs of greater than 100 ppm copper occur. However, these isolated values are not considered significant and only areas with three or more values are considered anomalous. Two such areas exist near the extreme eastern edge of the property. One is centered near the end of line 20 + 00N and the other on lines 44 + 00N and 48 + 00N. Both are of small areal extent and peak value is 163 ppm copper. Extensive quartz-diorite outcrop occurs in the area of these anomalies and minor copper mineralization has been noted at several points.

Erratic, slightly anomalous values occur at a few points on lines 8 + 00S and 12 + 00S from 22 + 00W to 42 + 00W. These occur with areas mapped as volcanic and along the volcanic-intrusive contact.

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Overburden thickness may be too great within parts of the western and northwestern portions of the claims for soil sampling to be effective.

#### MAGNETOMETER SURVEY:

##### Equipment Used:

The magnetometer survey was conducted using a Sharpe Model MF1 Fluxgate Magnetometer with readings taken at 200 foot intervals on all base, tie and cross-lines. This instrument is self-orienting and requires only coarse levelling. In addition, temperature compensations have been built into the instrument. The magnetometer can be read to five gammas on the lowest scale range and scale ranges vary from a minimum of plus or minus 1,000 gammas on this scale to a maximum of plus or minus 100,000 gammas on the highest scale. A high latitude adjustment permits zeroing of the magnetometer at any location.

##### Field Procedures:

The magnetometer was zeroed for this property and base stations established at 400 foot intervals along all base and tie-lines. In establishing these base stations, each loop ended at the same station as it began and the average of two readings taken at each station was used in subsequent calculations.

Following this, magnetometer readings were taken at 200 foot intervals on all cross-lines with each traverse starting and ending at an established base station. Elapsed time on these traverses was generally around 30 minutes and seldom exceeded one hour.

Tolerable diurnal variation for any traverse was one gamma per minute elapsed, and actual variation was considerably less.

##### Corrections:

Compensations built into the instrument eliminate any need for temperature corrections being applied to the field readings. Diurnal corrections have been applied to all readings and were determined by the difference from the correct reading between the initial and final base stations of each traverse.

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This variation is assumed to be linear and the correction for any one reading in a traverse is the diurnal variation multiplied by the ratio: time elapsed when reading taken, divided by total time elapsed in the loop.

#### Interpretation:

Magnetic susceptibilities of the volcanics and quartz-diorite are very similar, although the latter has a slightly higher average value. Values range from approximately 2400 to 5500 gammas with most values falling between 3000 and 4000 gammas.

Where the contact has been mapped in the field it is fairly well defined by the magnetics with a series of northwesterly trending magnetic highs and lows. The highest readings of the survey were recorded here, between lines 8 + 00S and 20 + 00S. A similar northwesterly trending pattern exists within the intrusives immediately east of the contact. To the northwest the pattern becomes diffuse with a broad low area developing in the area of extensive overburden. The contact may swing northerly in this area.

The magnetics exhibit a distinct northerly trend in the eastern portion of the property, parallel to indicated faulting in this region. Weak magnetic lows occur in the vicinity of the two small geochemical anomalies in the extreme eastern portion.

#### RECOMMENDATIONS AND CONCLUSIONS:

The Blu claims are underlain by intrusives of the Guichon Batholith in the eastern and extreme western portions of the property, with a band of Nicola Group volcanics and sediments occupying most of the western portion of the group. The main contact between the two rock units is well defined by geological mapping and magnetics in the southern half of the property but is obscured by deep overburden to the north.

Topography and magnetics indicate the main structural trend in the eastern half of the property is northerly.

Magnetic susceptibilities of the volcanics and intrusives are too similar for the units to be accurately distinguished on the basis of this.

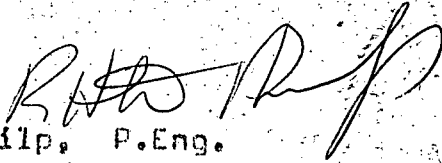
Chalcopyrite occurs in minor amounts in all rock types but is most common in the northeastern corner of the property.

Overburden cover is likely too deep in portions of the western and northwestern parts of the property for geochemical soil sampling to be effective.

No significant geochemical anomalies were outlined, although scattered highs in the vicinity of the volcanic-intrusive contact, where strong magnetic highs and lows occur, warrant further investigation by detailed surveys,

Minor chalcopyrite occurring in the extensive outcrop in the northeast corner of the property would account for the geochemical anomalies in this region and no further work is recommended to explore them. Detailed geochemical, geological and magnetometer surveys should be conducted in the vicinity of the northeastern contact of the volcanics where it is well defined, together with an induced polarization survey in this and the broad drift covered area of generally low magnetic susceptibility to the northwest.

Respectfully Submitted,

  
R.H.D. Philp, P.Eng.

AGILIS EXPLORATION SERVICES LTD.

CERTIFICATE

I, Ronald H.D. Philp of 812 Blundell Road, Richmond, British Columbia, do hereby certify that :

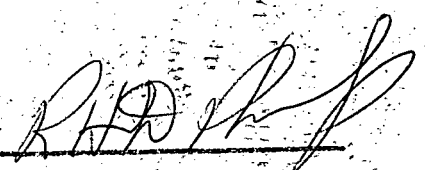
1. I am a registered Professional Engineer of the Province of British Columbia.

2. I am a graduate of the University of British Columbia (B.A.Sc. 1961).

3. I have practiced my profession since 1961 while employed with Casco Consultants Ltd., Asbestos Corporation (Explorations) Ltd., Alrae Exploration Ltd., and Agilis Exploration Services Ltd.

4. My report is based on work conducted in the field by myself and by crews working under my direction.

5. I have no interest nor do I expect to receive any interest in the property described herein.



R.H.D. Philp, P. Eng.

August 20, 1969

Vancouver, B.C.

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

**In the Matter of the Geological, Geochemical  
and Magnetometer Surveys on the Hud and Son Groups,  
Highland Valley, B. C.**

I, **Ronald H. D. Philp,**

of **201-714 West Hastings Street, Vancouver 1, B. C.**

in the Province of British Columbia, do solemnly declare that **the following personnel were employed and costs incurred in conducting the surveys between the period May 1 - June 18, 1969**

**Personnel:**

<b>J. Young - magnetometer operator &amp; labour - 33 days @ \$37.50/day</b>	<b>1,237.50</b>	
<b>D. Reimer - labour - 20 days @ \$34.00/day</b>	<b>680.00</b>	
<b>P. Van Riesen - labour 43 days @ \$34.00/day</b>	<b>1,462.00</b>	
<b>A. Chupa - labour -21 days @ \$36.00/day</b>	<b>756.00</b>	
<b>R. MacBean - party chief &amp; magnetometer operator 45 days @ \$50.00</b>	<b>2,250.00</b>	
<b>J. Hunyadi - labour - 22 days @ \$40.00/day</b>	<b>880.00</b>	
<b>R. McKinnon - labour - 17 days @ \$31.00 day</b>	<b>527.00</b>	
<b>B. Mottershead - geologist - 15 1/2 days @ \$75/day</b>	<b>1,162.50</b>	
<b>F. Holcapek - geologist - 9 days @ \$75.00/day</b>	<b>675.00</b>	
<b>R. Philp - office supervision &amp; report - 4 days @ \$100.00/day</b>	<b>400.00</b>	
<b>K. Kikegawa &amp; L. Marsh - draughting, plotting, 90 hours @ \$5.00/hour</b>	<b>450.00</b>	<b>\$10,480.00</b>

**Disbursements:**

<b>Camp costs - 229 1/2 man-days @ \$8/day</b>	<b>1,836.00</b>	
<b>Geochemical testing</b>	<b>1,060.40</b>	
<b>Truck rental including gas @ \$500.00/month</b>	<b>877.00</b>	
<b>Magnetometer rental</b>	<b>150.00</b>	
<b>Equipment, supplies, misc.</b>	<b>300.00</b>	<b>4,223.40</b>

**TOTAL**

**\$14,703.40**

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 *31*  
day of *Dec.* *1969*, A.D.

*Julie J. J. J.*  
A Commissioner for taking Affidavits for British Columbia or  
A Notary Public in and for the Province of British Columbia.  
Sub-mining Recorder

In the Matter of

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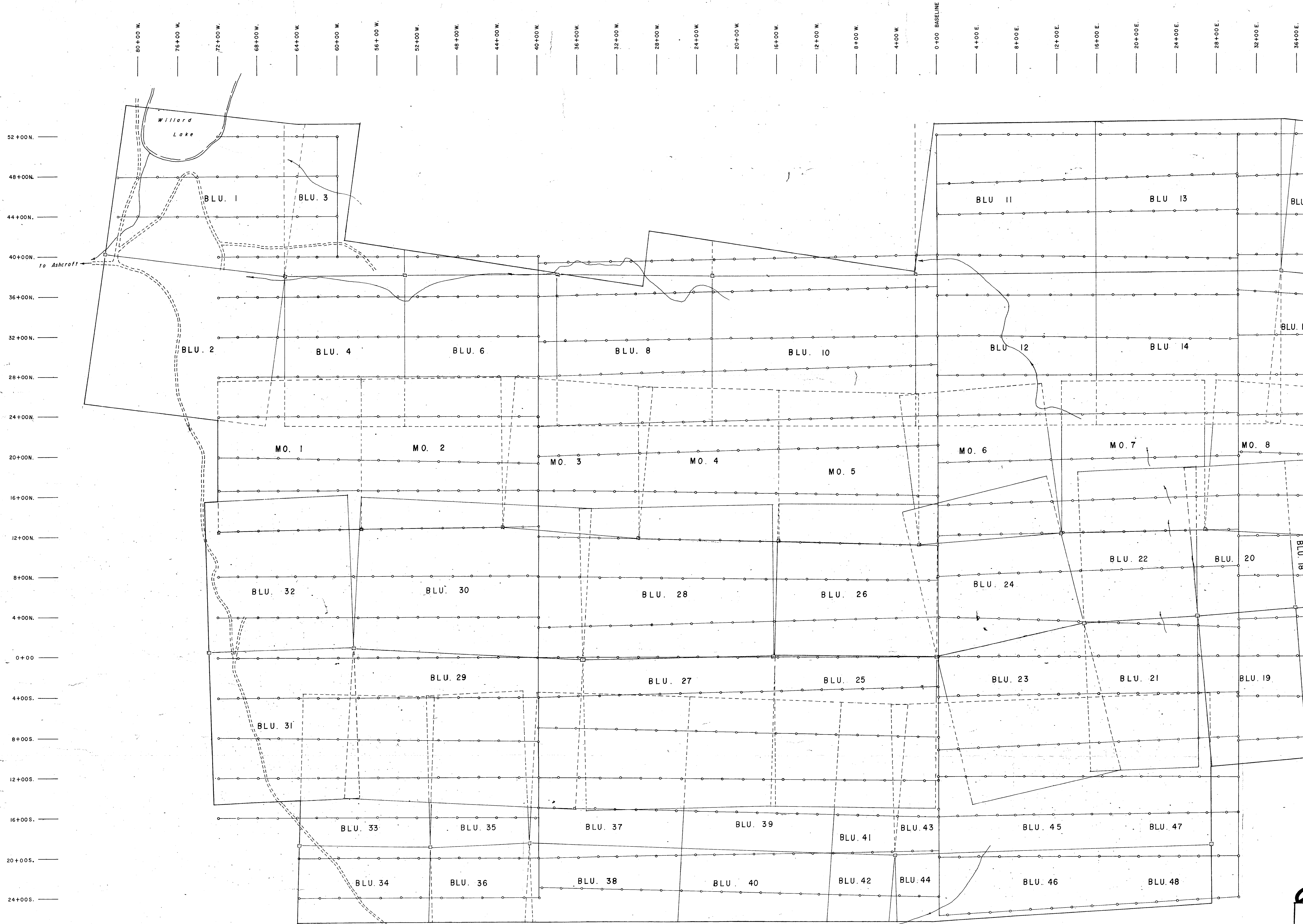
**Statutory Declaration**

(CANADA EVIDENCE ACT)

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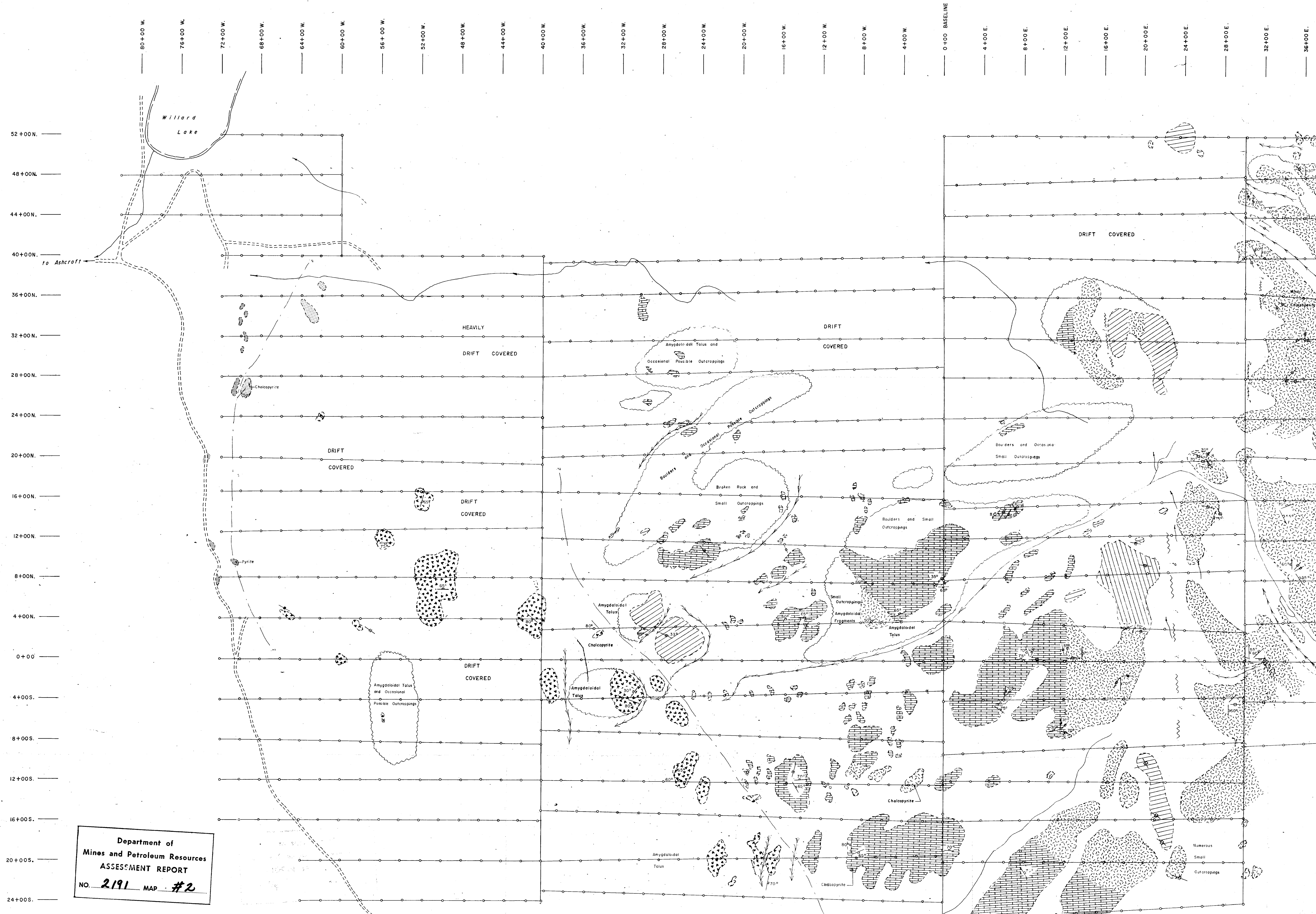




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Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 2191 MAP #1

AGILIS EXPLORATION SERVICES LTD.  
HUDSON BAY MOUNTAIN SILVER MINES  
BLU & MO GROUP  
BASE MAP  
DRAWN BY: K. K. SCALE: 1" = 400 Feet  
CHECKED BY: R. P. DATE: June, 1969



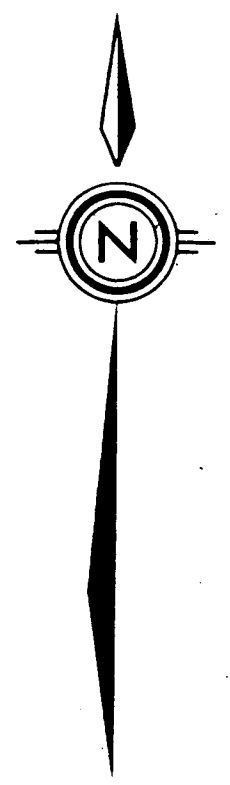
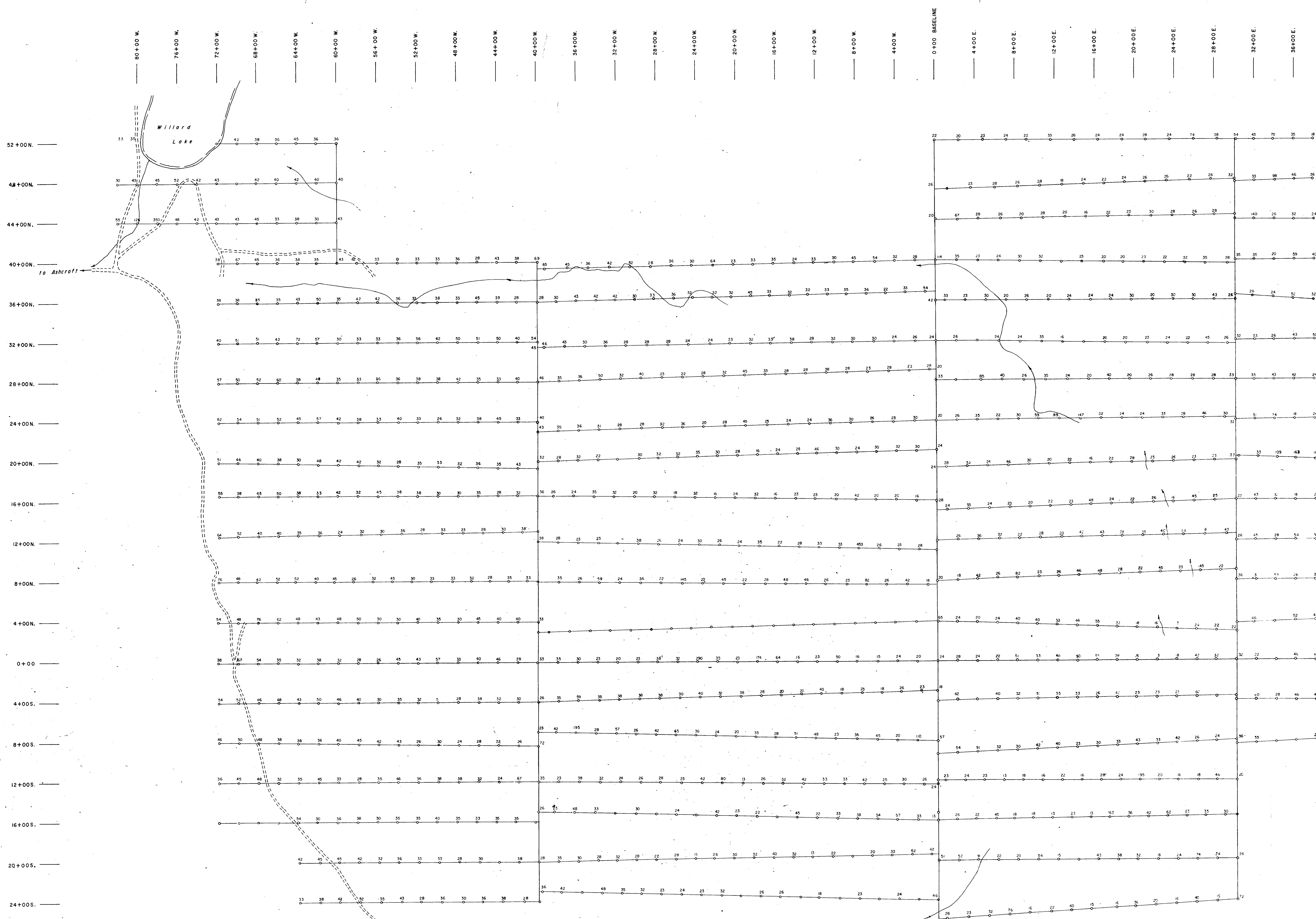
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 2191 MAP #2

**LEGEND**

Guichon Batholith Hybrid Phase	diabase	70°	jointing strike and dip
quartz diorite	70°	bedding strike and dip	
quartz diorite showing significant biotite alteration	70°	foliation strike and dip	
quartz rich phase (> 25% quartz)		incised gully	
Nicola Group fine grained siliceous volcanic, slightly porphyritic			
siltstone			

2191

AGILIS EXPLORATION SERVICES LTD.  
HUDSON BAY MOUNTAIN SILVER MINES  
BLU-B MO GROUP  
GEOLOGICAL SURVEY  
DRAWN BY: K. K. SCALE: 1" = 400 Feet  
CHECKED BY: R. P. DATE: June, 1969



Department of  
 Mines and Petroleum Resources  
 ASSOCIATED REPORT  
 NO. 2191 MAP #3

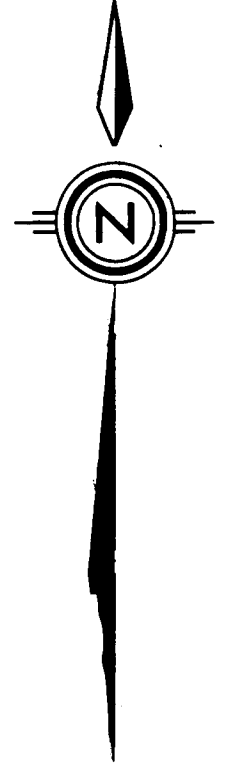
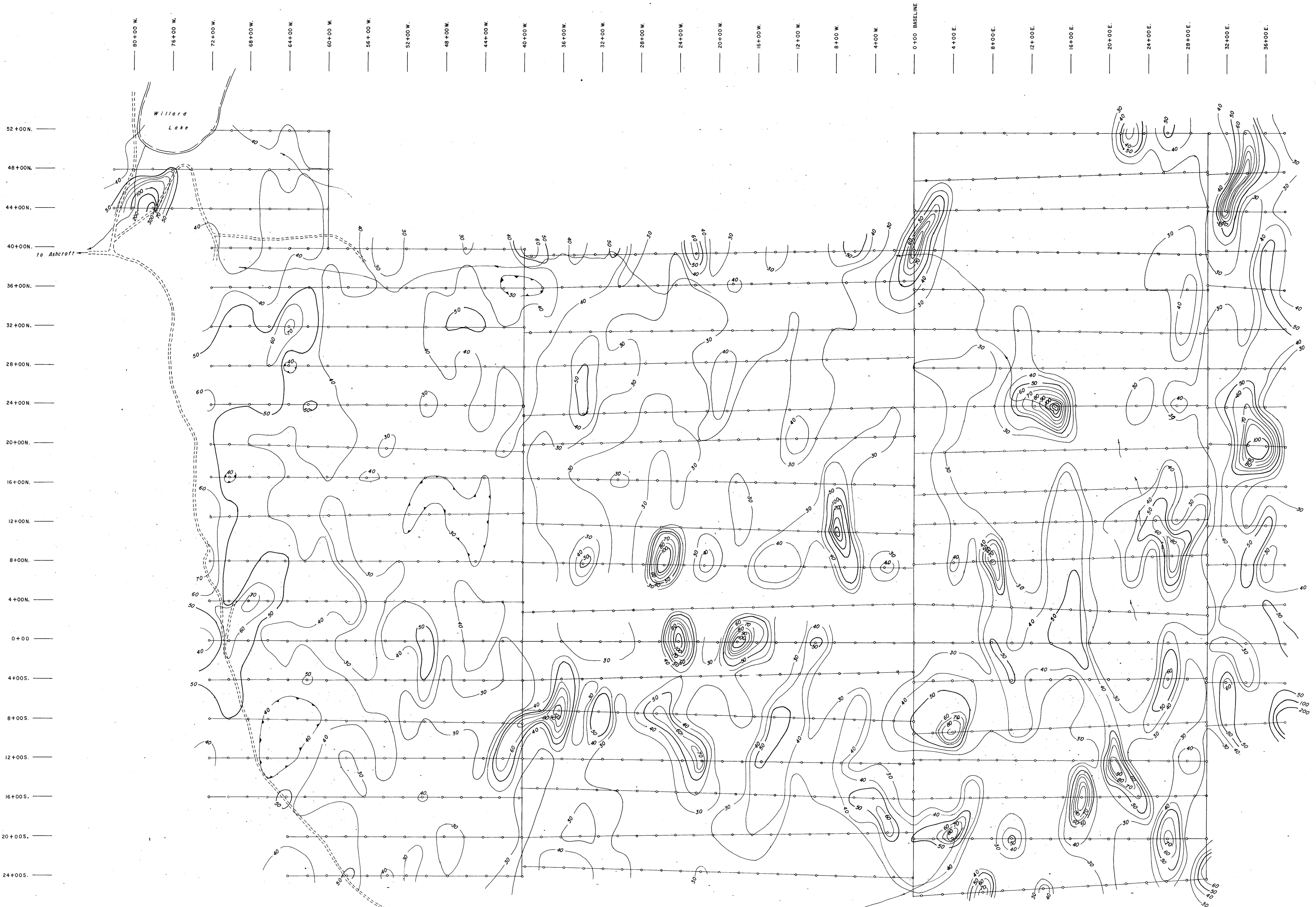
2191

LEGEND

—○— Copper value in ppm.

AGILIS EXPLORATION SERVICES LTD  
 HUDSON BAY MOUNTAIN SILVER MINES  
 BLU & MO GROUP  
 Geochemical Survey  
 DRAWN BY: K. K. SCALE: 1" = 400 Feet  
 CHECKED BY: R. P. DATE: June, 1969





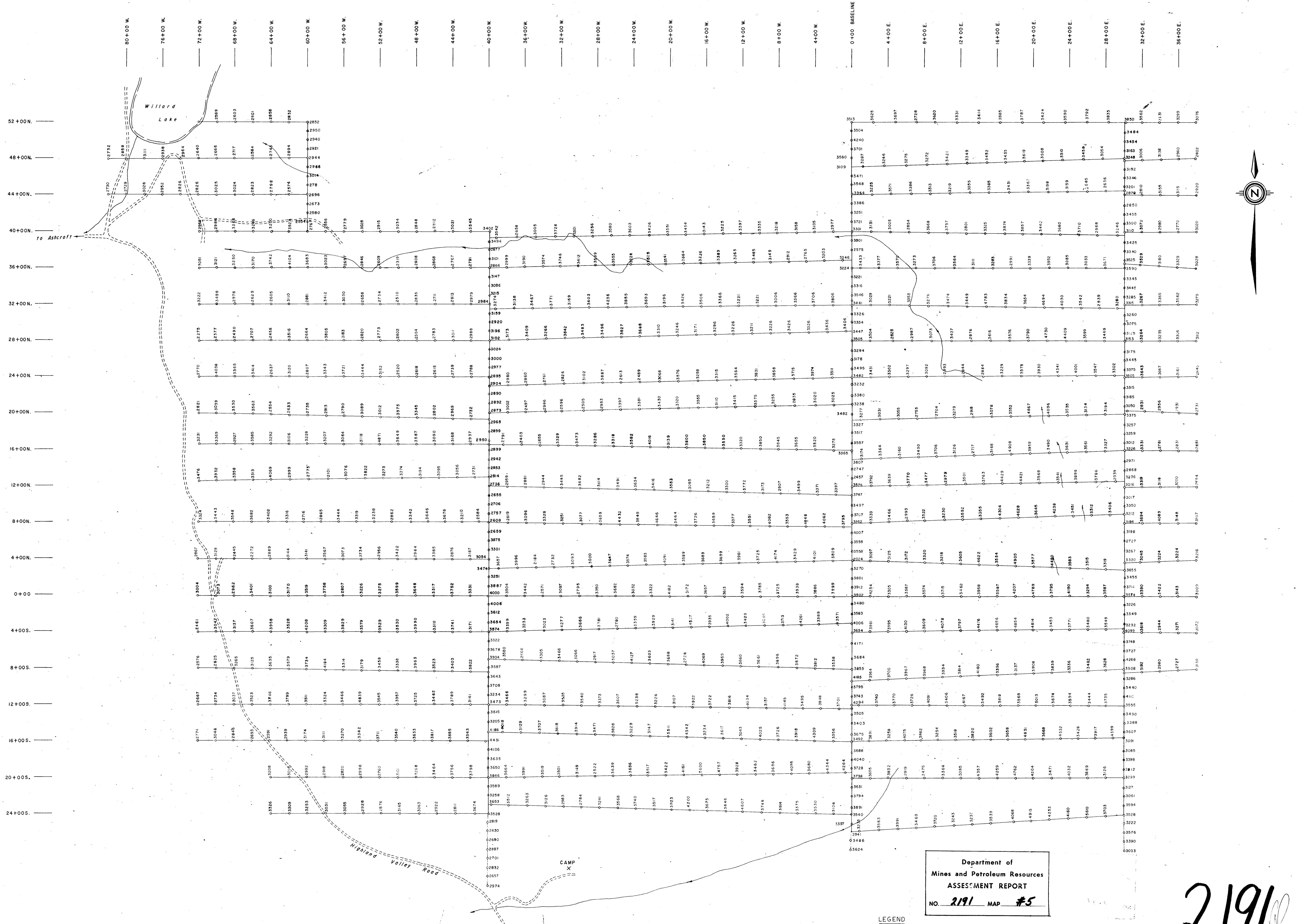
Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 2191 MAP #4

LEGEND

80 ———— COPPER CONTOUR (values in ppm)

2191

AGILIS EXPLORATION SERVICES LTD.  
HUDSON BAY MOUNTAIN SILVER MINES  
BLU & MO GROUP  
Geochemical Survey  
CONTOUR MAP  
DRAWN BY: K. K. SCALE: 1" = 400 Feet  
CHECKED BY: R. P. DATE: June, 1969



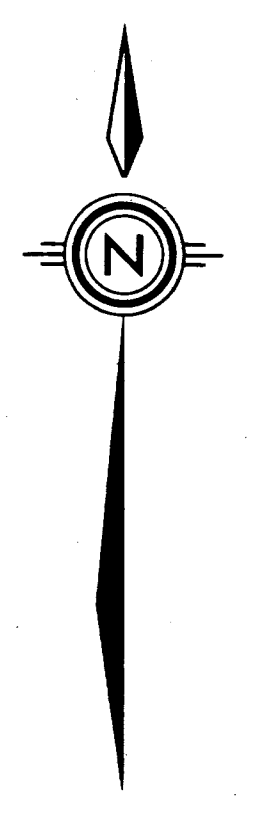
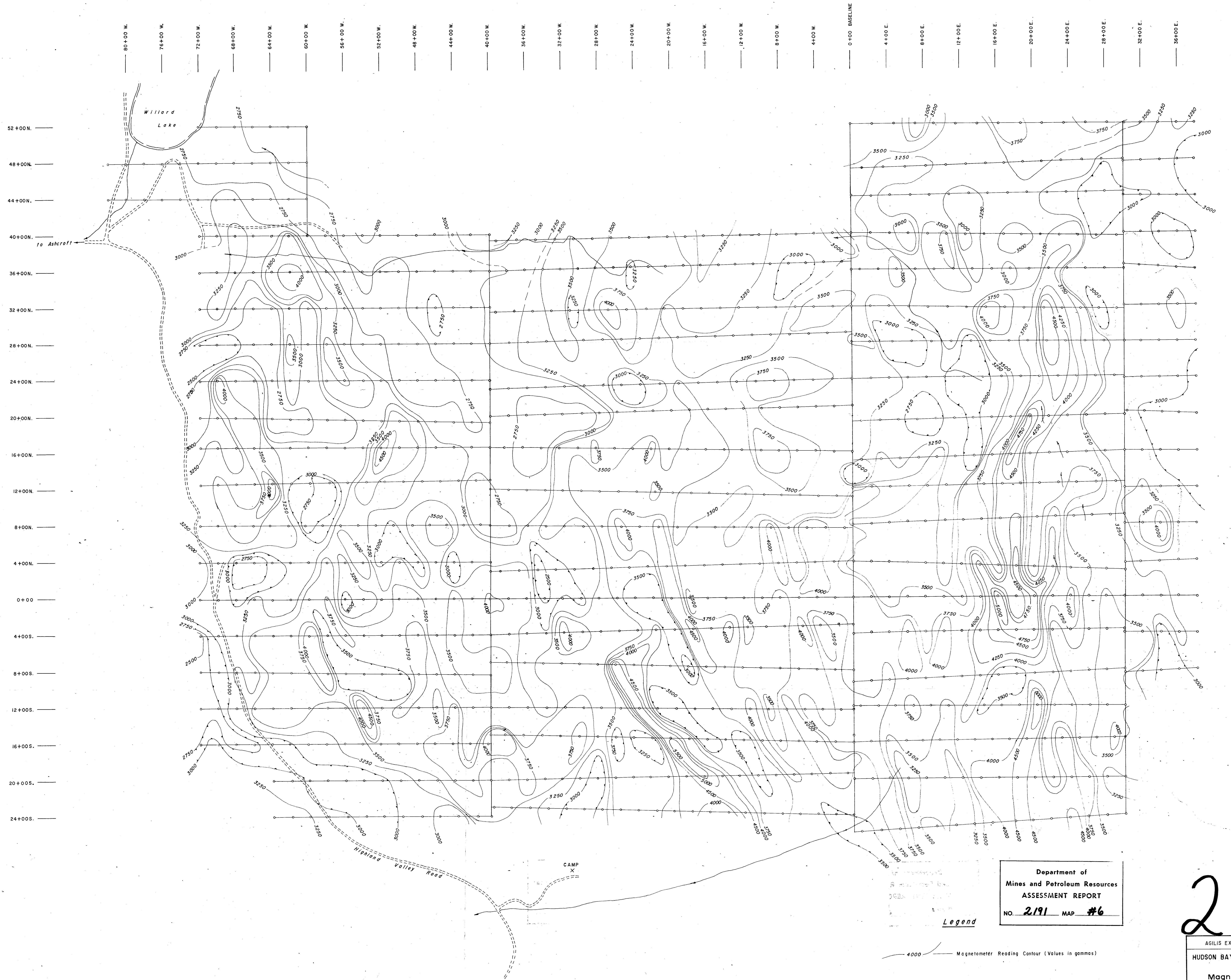
Department of  
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ASSESSMENT REPORT  
NO. 2191 MAP #5

LEGEND  
○ 3480 MAGNETOMETER READINGS in gammas

2191

AGLIS EXPLORATION SERVICES LTD  
HUDSON BAY MOUNTAIN SILVER MINES  
BLU & MO GROUP  
MAGNETOMETER SURVEY  
DRAWN BY: K. K. SCALE: 1" = 400 Feet  
CHECKED BY: R. P. DATE: June, 1969





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ASSESSMENT REPORT  
NO. 2191 MAP #6

2191

Legend

4000 — Magnetometer Reading Contour (Values in gammas)

AGILIS EXPLORATION SERVICES LTD.  
HUDSON BAY MOUNTAIN SILVER MINES  
BLU & MO GROUP  
Magnetometer Survey  
CONTOUR MAP  
DRAWN BY: K. K. SCALE: 1" = 400 Feet  
CHECKED BY: R. P. DATE: June, 1969