5754

#5754

Geological and Geophysical Report on the IDE, NEW IDE, ANN, NEW ANN, AM, MO, JAY and PHYLLIS Mineral Claims.

Highland Valley 50° 26'N, 121° 00W (NTS 92 I/SW)

Kamloops Mining Division.

Highmont Mining Corporation Limited

1st September 1975 - 5 December 1975.

92I/6E, 7W

By

A. J. Reed, P.Eng.

January 12th, 1976

Ashcroft, B.C.

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ILLUSTRATIONS

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Geological and Geophysical Report

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INTRODUCTION

This report describes approximately 4 square kilometres of surface geological mapping and approximately 18 line-kilometres of VLF electromagnetic survey performed by Highmont Mining Corporation Limited at Gnawed Mountain in the Highland Valley area of British Columbia. The survey area is located at 50 26'N, 121 00'W. Mineral claims covered by the survey are shown in Table 1. The work described in this report constitutes a detailed follow-up to geophysical work performed from 16 October 1974 and 17 February 1975 which was described in assessment reports by A.J.Reed dated 6 January 1975 and 10 March 1975.

Access to Gnawed Mountain is by 45 kilometres of paved highway from Ashcroft to the Highland Valley and then by 8 kilometres of bush road southwards from the Lornex turnoff.

Four-wheel drive vehicles were used for access from Ashcroft and during the final stages of the work in December it becames necessary to use snowmobiles for the last 6 kilometres of access to the survey area.

TABLE 1

MINERAL CLAIM DATA

NAME	RECORD NUMBER	ANNIVERSARY DATE
IDE 1	24994	11 December
IDE 3	24996	"
IDE 4	24997	"
IDE 5	24998	"
IDE 6	24999	"
IDE 7	25000	"
IDE 8	25001	"
IDE 12	25710	19 March
IDE 13	25711	"
IDE 14	25712	"
IDE 15	25713	"
IDE 16	25714	"
IDE 18	25716	"
NEW IDE 19	64034	8 May
NEW IDE 20	64036	"
ANN 3 Fr.	45132	21 February
ANN 4 Fr.	45133	"
ANN 18 Fr.	46153	20 May
NEW ANN 11 Fr.	64030	8. May
AM 1	31188	18 February
AM 2	31189	"
AM 3	31190	"
AM 4	31191	"
AM 5	31192	"

TABLE 1 (continued)

NAME	RECORD NUMBER	ANNIVERSARY DATE
AM 6 Fr.	31193	18 February
AM 7	31194	"
AM 8	31195	"
AM 9	31196	"
AM 10	31197	"
MO 2 Fr.	38524	24 November
MO 3 Fr.	38525	"
JAY 102	37922	9 August
PHYLLIS Fr.	48513	5 February

GEOPHYSICAL SURVEY

A detailed Very-Low-Frequency Electromagnetic survey was performed over 3 separate areas that were shown to be anomalous by a VLF-EM survey described by A.J.Reed, P.Eng. in Assessment Reports dated 6 January 1975 and 10 March 1975.

On the two larger areas intermediate east-west grid lines were cut at intervals of 60 metres and on the third area intermediate east-west grid lines were cut at intervals of 30 metres. Readings were taken at stations marked every 15 metres along these gridlines , using a RONKA EM 16 Electromagnetic Detector (Serial #78) made by Geonics Ltd. of Toronto facing west to monitor the VLF radio signals transmitted from Seattle, Washington at a frequency of 18.6 KHz.

Over two of the survey areas north-south gridlines were cut and observations made using the same RONKA EM 16 instrument facing North to monitor the VLF-EM radio signals transmitted from Cutler Maine at a frequency of 17.8 KHz.

A total of 15 line-kilometres of new grid-line was cut during the course of these detailed surveys.

Figures (2) to (6) inclusive show the numerical dip angle data plotted on plans of the gridlines together with the filtered values obtained by the method described by Fraser (1969,1971). To assist in the interpretation of

these figures, the filtered values of the gridlines surveyed in 1974 are included. Contours are drawn on the filtered results at +10, +20 and +40 units.

INTERPRETATION and RESULTS

AREA (1) - Figure (2) - IDE 4,6,12,13,14, mineral claims.

The reason for detailing this area was a northwesterly-trending anomaly crossing from the IDE 12 to the IDE 4 mineral claims and a high "spot" value at 11E on line 88N. The detailed survey shows that the northwesterly-trending anomaly does not exist and that all the anomalies within this area trend northeasterly. The spot value at 88N11E extends northeastwards to line 90N and has a similar parallel anomaly at 90N15E.

AREA (2) - Figures (3),(4). - IDE 1, AM 1 mineral claims.

This area was detailed to investigate a northeasterly trending anomaly lying parallel to and approximately 150 metres west of the anomaly associated with the Water Hole Fault. Detailing with the Seattle signal produced no significant changes from the 1974 interpretation. Detailing with the Cutler signal shows an east-west structure which cuts across the Water Hole Fault at 108N and across its parallel relative at 107N. The Water Hole Fault is weaker to the south of this east-west cross-structure, whereas the parallel

relative is weaker to the north of the east-west structure and it is suggested that the Water Hole Fault, its parallel relative and the east-west structure are all part of a conjugate fault system.

AREA (3) - Figures (5),(6). - IDE 15 & 16 mineral claims.

This area was detailed to investigate the anomaly associated with the Highmont #7 ore-zone. The Seattle signal shows a northnorthwesterly-trending anomaly with a distinct break between 88N and 89N. The Cutler signal shows an east-west cross-structure at 86N but nothing between 88N and 89N. It is suggested that the copper-molybdenum mineralisation may not be continuous between the known diamond drill intersections on lines 87N and 91N.

GEOLOGICAL MAPPING

Figure (7) is a geological map of the northern part of the Highmont property which was made by walking all the gridlines (east-west at 122m intervals) and trails, and plotting all bedrock exposures on a detailed topographic base-map at a scale of 1:4800 with a contour interval of 3 metres. Where geological boundaries were projected into areas with no bedrock outcrops then diamond drill core, where available, was examined to determine the position of the geological boundary.

The area covered by Figure(7) includes the Highmont #1,#2,#3 and #4 ore-zones, which taken together are estimated to contain 150 million tonnes of ore grading 0.28 per cent copper and 0.050 per cent molybdenite. The Highmont #1 zone occupies the IDE 1,3,and 5, AM 1 and 3 and ANN 3 Fr. mineral claims and contains 111 million tonnes of ore grading 0.287 per cent copper and 0.042 per cent molybdenite. The average thickness of overburden (glacial till) is 4 m and zone #1 has the greatest number of bedrock outcrops although still less than 10% of the surface area. The Highmont #2 zone occupies the AM5 and 6 Fr. and IDE 7 mineral claims and although it has been subject to much bulldozer trenching there is only a single bedrock exposure, at the western side of the IDE 7 M.C. Drill data indicates an average overburden thickness of 7 m

on the #2 zone. There is no surface expression of the Highmont #3 zone which was discovered by percussion drilling of an IP anomaly, and underlies the IDE 6 and 8 mineral claims. The Highmont #4 zone occupies the IDE 4 M.C. and is exposed in several shallow trenches and natural outcrops.

The Highmont property lies within the northern part of the outcrop of the Guichon Creek Batholith which has been sub-divided into various units and phases by Northcote(1969). The greatest part of the area shown in Figure (7) in underlain by the Skeena phase of Guichon Creek Batholith and which is the oldest rock occurring on the property. The Skeena phase is a coarse-grained quartz-diorite characterised by the presence of large (2 cm) poikilitic hornblendes plus small (1-2 mm) needle-like hornblendes (i.e. two generations of hornblende).

The Bethsaida phase of the Guichon Creek Batholith is a coarse-grained granodiorite characterised by the presence of large (3 cm) booklike crystals of biotite and large (3 cm) quartz "eyes" and which occupies a circular area approximately 100 m diameter on the IDE 4 M.C. and a small area on the IDE 2 M.C.

The Gnawed Mountain Porphyry is a distinctive leucocratic porphyry with large euhedral (2 cm) quartz phenocrysts in a fine-grained pale grey or creamy-yellow matrix. Plagioclase phenocrysts are locally abundant often in

association with 1-5 mm biotite "books". The Gnawed Mountain Porphyry forms a dyke which extends from the summit of Gnawed Mountain westnorthwest across the IDE 1,2,3,4, and 6 and 8 mineral claims. At Gnawed Mountain the dyke is about 250 m wide, but becomes narrower as it crosses the IDE 3 and 4 mineral claims and on the IDE 6 M.C. it has a width of 50 m . The northern margin of the dyke is remarkably straight trending N 70° W across the IDE 1 M.C. to the IDE 3 M.C. where it changes to N 75° W. The southern margin of the dyke is more irregular and accounts for the variations in width of the dyke outcrop. Drill hole data along the north edge of the dyke show that the contact is vertical or steeply-dipping towards the north. On the IDE 1 M.C. , approximately 60 m morth of the main dyke is a sub-parallel subsidiary dyke, 5 m wide with chilled contacts. At the east side of the IDE 1 M.C. the strike of this subsidiary dyke is due east.

The Gnawed Mountain Breccia occupies a small elliptical area 180m long near the southwest corner of the IDE 1 M.C. This is a typical "crackle" breccia with angular fragments of Gnawed Mountain Porphyry in a tourmaline-haematite matrix.

Copper and Molybdenum mineralisation together with potassic, argillic and propylitic alteration occur in all the above mentioned rock units, but the paucity of exposure and oxidation of the copper minerals obscures their relationships.

Tertiary andesite is known from diamond drill core on the AM 5 and 6 Fr. mineral claims where a grey fine-grained vesicular andesite with 1-5 mm needles of hornblende and plates of biotite forms a dyke 4-5 m wide striking N70°W and dipping 80°N. This dyke has no known outcrop on the property but has been intersected in diamond drill-holes 69 - 91, 70 - 217, 70 - 219, 70 - 243, 70 - 301.

REFERENCES

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December, 1969.

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January 1971.

NORTHCOTE,K.E.(1969) : Geology and Geochronology of the
Guichon Creek Batholith,
B.C. Department of Mines and Petroleum
Resources, Bulletin 56.

Alan J. Reed

A.J. Reed, P.Eng.

STATEMENT OF PERSONNEL AND COSTS

A.J.Reed Box 158 Ashcroft, B.C.	Chief Geologist	2 Sept.-17 Oct,1975 3 - 13 Nov, 1975 1 - 5 Dec, 1975	$ 3,400
M.J.Porter Box 144 Savona, B.C.	Superintendent	1 Oct, - 5 Dec,1975	$2,100
4 X 4 Pickup		2 Sept - 5Dec, 1975	$1,625
Topofil & Ronka EM 16 Rental		2 Sept - 5 Dec, 1975	$ 150
Snowmobile Rental		2 Sept - 5 Dec, 1975	$ 125
Preparation of Report			$ 400
			$7,800

Alan J. Reed

A.J.Reed, P.Eng.
January 12, 1976

CERTIFICATE

I, Alan James Reed of Ashcroft, British Columbia, do hereby certify that :

1. I am a geologist employed by Highmont Mining Corporation Limited of 1199 West Hastings Street, Vancouver, B.C.

2. I am a Professional Engineer registered in the Province of British Columbia and the Province of Ontario.

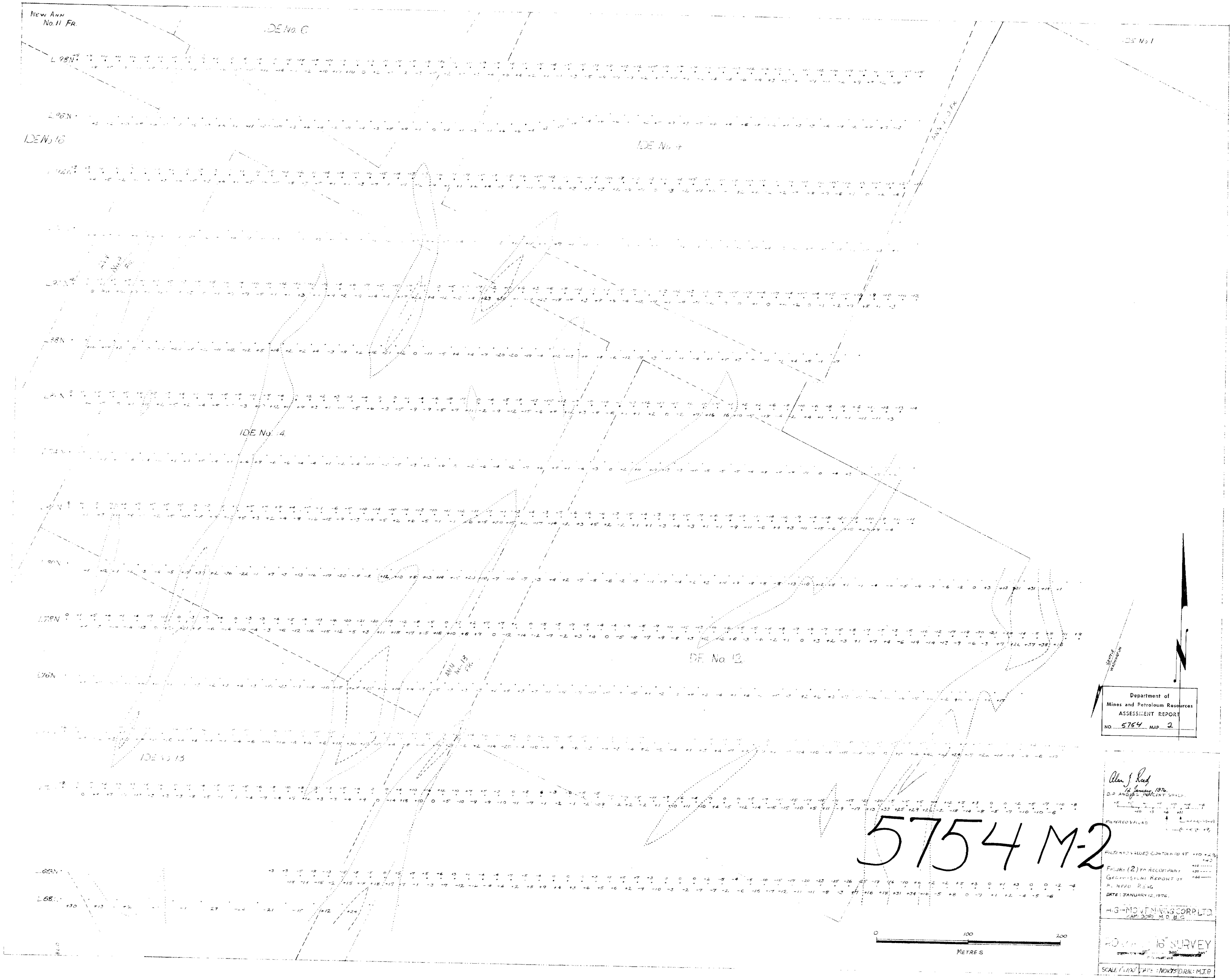
3. I am a graduate of the University of Leeds with a B.Sc. (Hons. 1963) in Geology.

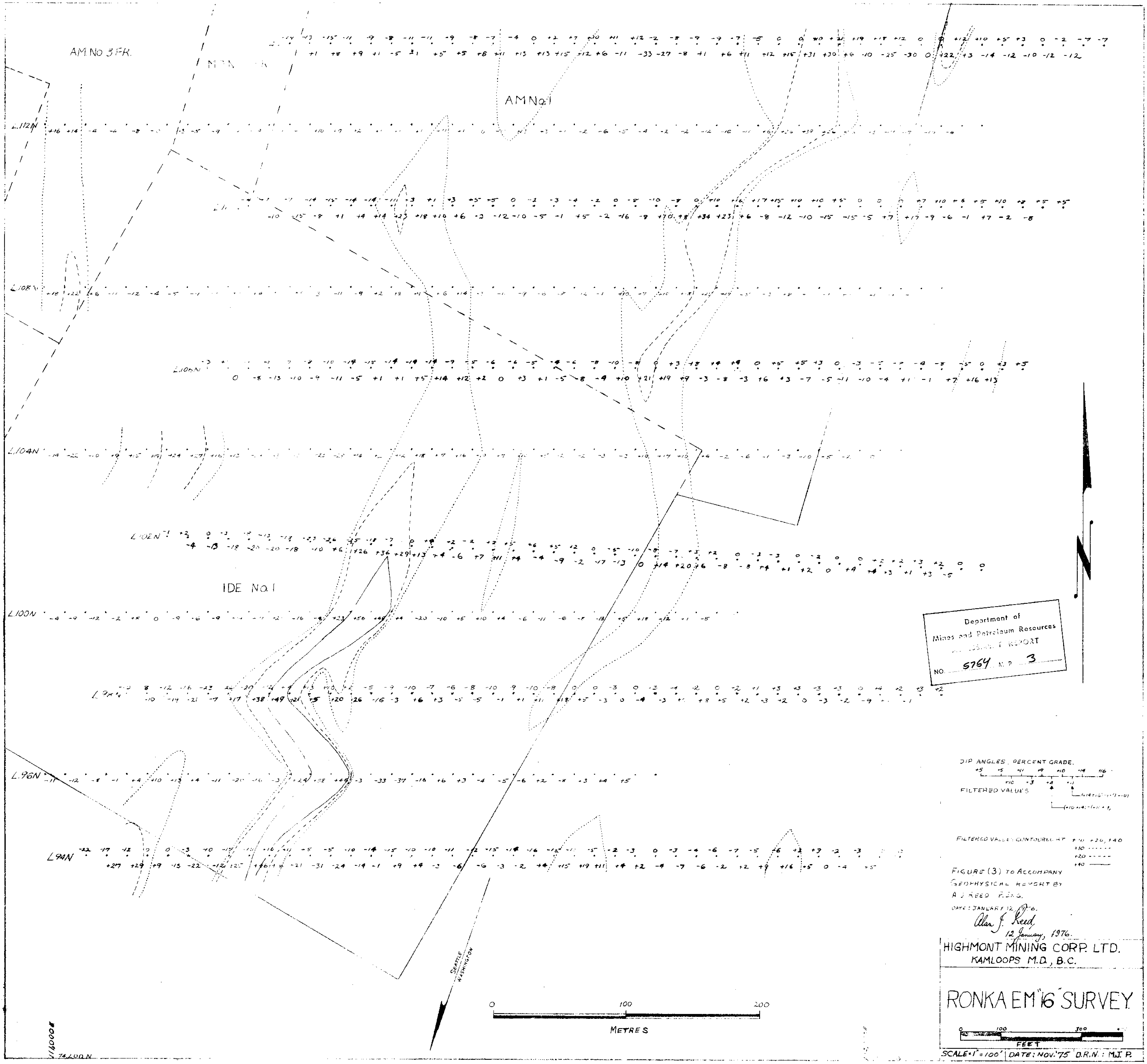
4. I have practised my profession since 1963 while employed with the Geological Survey of Jamaica, Siscoe Metals of Ontario Ltd., and Highmont Mining Corporation Limited.

5. This report deals with work performed on the IDE, NEW IDE, ANN, NEW ANN, AM, MO, JAY and PHYLLIS mineral claims by myself and under my supervision during the period 2nd September to 5th December, 1975.

Alan J. Reed

A.J.Reed, P.Eng.
January 12, 1976


New Ann
No. 11 Fr.
IDE No. 6
IDE No. 16
IDE No. 4
IDE No. 14
IDE No. 13
IDE No. 15
ANN No. 13 FR.
L 98N
L 96N
L 88N
L 78N
L 76N
L 68N
SEATTLE WASHINGTON
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5754 MAP 2
5754 M-2
Alan J. Reed
12 January 1976.
D.P. ANGLES, PERCENT SCALE
FILTERED VALUES
Figure (2) to accompany
DATE: JANUARY 12, 1976.
16" SURVEY
SCALE 1"=100'
NOV.75
D.R.N.: M.J.P.
METRES
0
100
200


AM No 3 FR.
AM No.1
IDE No.1
L112N
L108N
L106N
L104N
L102N
L100N
L96N
L94N
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5764 MAP 3
DIP ANGLES, PERCENT GRADE.
FILTERED VALUES
FILTERED VALUES CONTOURED AT +10, +20, +40
FIGURE (3) TO ACCOMPANY
GEOPHYSICAL REPORT BY
A. J. REED P.ENG.
DATE: JANUARY 12, 1976.
Alan J. Reed
12 January, 1976.
HIGHMONT MINING CORP. LTD.
KAMLOOPS M.D., B.C.
RONKA EM "16" SURVEY
FEET
METRES
0
100
200
SEATTLE
WASHINGTON
SCALE: 1" = 100'
DATE: NOV. '75
D.R.N.: M.J.P.

AM No. 4

AM No. 2

AM No. 3

AM No. 1

MD No 3 FR

IDE No 1

Alan J. Reed
12 January, 1976.

FILTERED VALUES.
(+10+14)-(+11+9)
(+14+16)-(+9+10)

FILTERED VALUES CONTOURED AT +10+20+40
+10 ·····
+20 - - - -
+40 ——

DIP ANGLES
PERCENT GRADE

FIGURE (4) To ACCOMPANY GEOPHYSICAL REPORT BY
A J REED. P ENG.
DATE: JANUARY 12, 1976

HIGHMONT MINING CORP LTD.
KAMLOOPS M.D. B.C.

RONKA EM 16" SURVEY

0 100' 200' 300'

SCALE 1:2000 DATE DEC/75 DRN MJP

METRES

WATER WHITE

5754
M4

NEW IDE No 20

IDE No 16

AUN

NEW IDE No.

IDE No 15

SEATTLE WASHINGTON

0 100 200

METRES

Alan J. Reed
12 January, 1976.

HIGHMONT MINING CORP. LTD.
KAMLOOPS, M.D. B.C.

RONKA EM 16 SURVEY

SCALE: DATE: DEC/75 DRN:

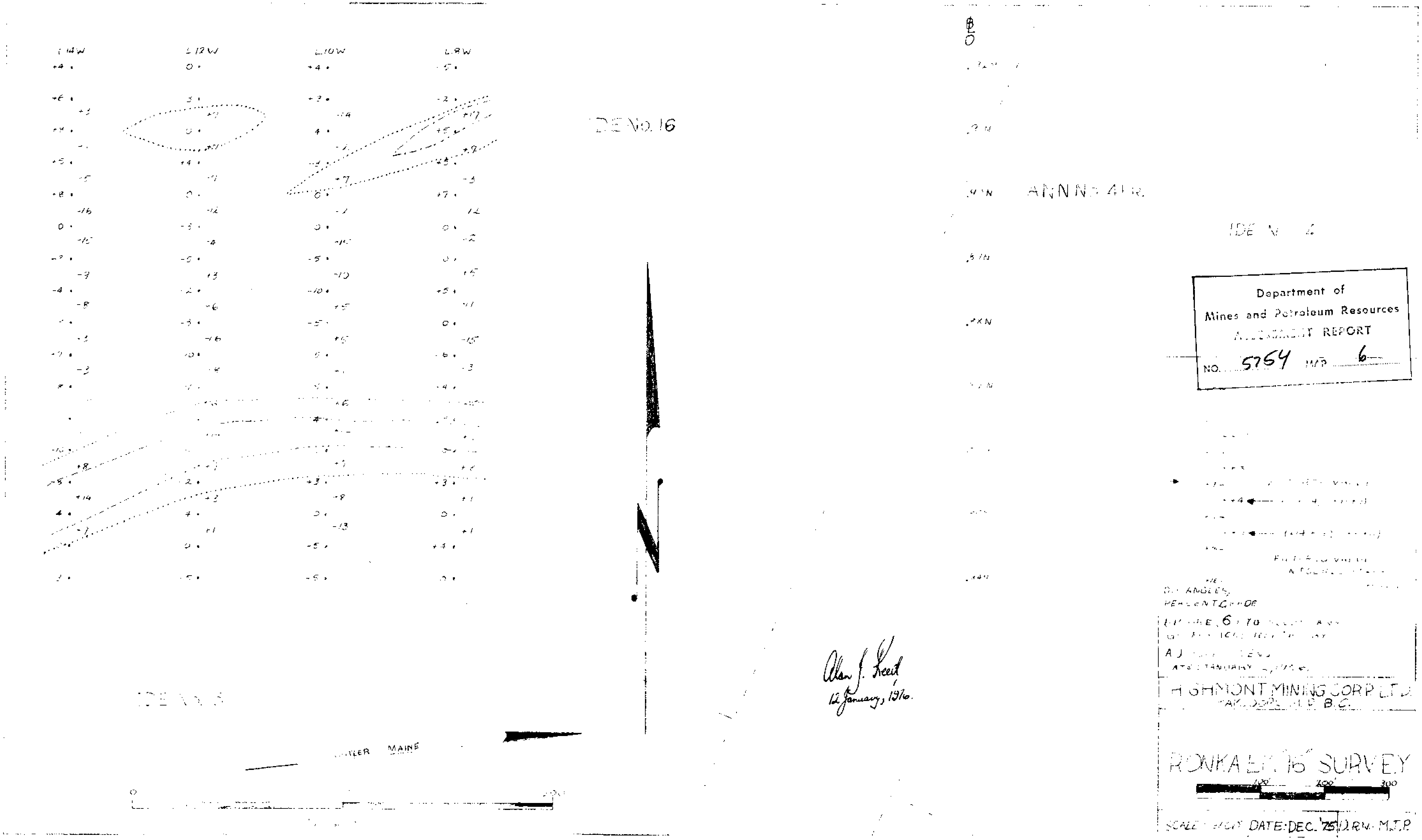

L14W
L12W
L10W
L8W
Department of
Mines and Petroleum Resources
REPORT
NO. 5754 MAP 6
HIGHMONT MINING CORP LTD
B.C.
RONKA EM 16 SURVEY
100'
200'
300
DATE: DEC. '75
12 January, 1976.

FIG. (7) TO ACCOMPANY GEOLOGICAL & GEOPHYSICAL REPORT BY A.J. REED, P. ENG. DATED 12 JANUARY, 1976.

ANN 20 Fr.
AM 9
AM 10
AM 7
AM 8
PHYLLIS FR.
No bedrock outcrops
Sand and Gravel outcrops
No bedrock outcrops
JAY 102
JAY 103 Fr.
MO 2 Fr.
MO 3 Fr.
AM 6 Fr.
AM 5
AM 4
AM 3
AM 2
AM 1
ANN 7 Fr.
ANN 3 Fr.
IDE 18
IDE 17
IDE 7
IDE 8
IDE 5
IDE 6
IDE 3
IDE 4
IDE 1
IDE 16
NEW ANN 11 Fr.
ANN 4 Fr.
IDE 14
GNAWED LAKE.
0 500
METRES

QFx	Quartz-feldspar porphyry.
Qx	Quartz porphyry.
FWS.	Flaky white sericite.
Mal	Malachite.
Bo	Bornite.
Cc	Chalcocite.
Q	Quartz.
Cpy	Chalcopyrite.
Tm	Tourmaline.
Spec.	Specularite.
Epid.	Epidote.
Lim.	Limonite.
Alt	Altered.
	Shaft.
Sp	Spring.
DDH	Diamond Drill-holes.
PDH	Percussion Drill-hole.

TERTIARY.
A Andesite dyke

UPPER TRIASSIC.
Phases of the GUICHON BATHOLITH.
Ap Aplite.
bx Breccia.
x Gnawed Mountain Porphyry.
B Bethsaida Granodiorite.
Sk Skeena Quartz-diorite.

Contour interval is 10 feet

Allan J. Reed
12 January, 1976.

ISSUE NO.	D/M/Y	ISSUE	DR.	CH.	APP

CERTIFIED FOR CONSTRUCTION

TECK PROJ. ENG. HAS PROJ. ENG.

TECK CORPORATION LTD.
HIGHMONT PROJECT
[redacted]
VANCOUVER PROJECT 1961 CANADA

AREA
HIGHMONT 1, 2, 3 & 4 OREZONES.

SUBJECT
GEOLOGICAL MAP.

SCALE		DSN.	DAY	MO.	YR.
1:4800 (1" : 400')	DR. A.J. REED, P. ENG.		9	1	76
	CH.				
	APP.				

TECK DRAWING NO. H.A.S. DRAWING NO. E1961- ISSUE