

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT
September 21, 1978

GEOCHEMICAL AND GEOLOGICAL

ASSESSMENT REPORT

on the

AV 1-2 MINERAL CLAIMS

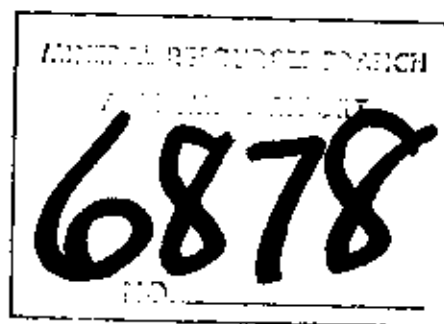
82 N/12

51°31'N 119°44'W

Kamloops Mining Division, B.C.

Period of Work

June 30 - July 30, 1978



Report by:

P.J. Wojdak

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AV 1-2 MINERAL CLAIMS

INTRODUCTION

The AV claims are located on the divide between Avery Creek and Barriere River (Saskum Creek) 7 km south of Vavenby, B.C. at 51°31'N, 119°44'W. Relief on the claims is 2000 feet but 1000 feet over the area of prime interest and there are a few steep slopes. Large areas have been logged but elsewhere thick undergrowth makes traversing difficult. The logging road network affords good access and road cuts augment sparse natural outcrop.

Previous exploration by the Cariboo Syndicate in 1971 consisted of geological mapping, soil geochemistry and bulldozer trenching. Their exploration target was a large zone of open pit grade copper mineralization (Assessment Report 3525). Re-interpretation of the "quartz feldspar augen schist" unit as a rhyolite rather than a sedimentary rock, and potential for a smaller massive sulphide target led to staking by Cominco Ltd.

The 1978 program consisted of geological mapping and a soil geochemical survey, 750 samples having been analysed. About one half of the soil survey was covered by the Cariboo Syndicate survey but by widely spaced lines (600 to 1200 feet apart). The brief mapping program largely confirms the work of Naylor and White (Assessment Report 3525). Results are shown on a 1:10,000 map prepared from an enlargement of published 1:50,000 topographic map 82M/12E. Field work was carried out in the period June 30 - July 30.

PROPERTY AND OWNERSHIP

The AV 1 (18 units) and AV 2 (15 units) mineral claims are within the Kamloops Mining Division and are 100% owned by Cominco Ltd.

<u>Claim</u>	<u>Record No.</u>	<u>Legal Corner Post</u>	<u>Date Recorded</u>
AV 1	1025	42878	September 26, 1978
AV 2	1026	42879	September 26, 1978

REGIONAL SETTING

The AV property is underlain by the Paleozoic Eagle Bay Formation which consists of basalt to rhyolite volcanic rocks, quartzite to argillaceous sedimentary rocks and limestone. These have been converted to phyllites and schists during greenschist facies metamorphism and two major phases of folding. Immediately south of the property Eagle Bay rocks are intruded by the Cretaceous Baldy Batholith of biotite granite to granodiorite composition.

Significant mineralization occurs in the area. Low grade stratabound copper mineralization occurs on the Noranda-Quebec Cartier owned Harper Creek property west and on strike with the AV claims. Dennison's Birch Island uranium deposit is 13 km west of the AV property and lead-zinc-silver mineralization, currently being explored by Craigmont lies 14 km north on Mt. McLennan.

AV PROPERTY GEOLOGY

1) Granodiorite Gneiss (Unit 1)

These are weakly foliated to semi-massive medium grained quartz-feldspar-chlorite-(biotite) rocks commonly with 0.5 cm augen of quartz and feldspar. Their composition, grain size and lack of fissility compared with overlying strata suggest an intermediate intrusive rock, the augen representing relict phenocrysts.

2) Quartz-eye Rhyolite (Unit 2)

These are fissile quartz augen sericite schists. Thin section examination shows the augen consist of 0.2-0.5 cm euhedral to rounded (resorbed) quartz phenocrysts with less abundant and smaller twinned feldspar. The matrix is very fine grained sericite, quartz, feldspar and calcite. Although the end members of units 1 and 2 as described are distinct, a number of outcrops are intermediate in composition and texture so that the contact is difficult to define. This implies the two rock types are genetically related, i.e. the quartz eye rhyolite is an extrusive acid differentiate of the granodiorite. Deformation and poor outcrop obscure a clear interpretation of their relationship. Locally the quartz eye rhyolite contains 5% disseminated pyrite and traces of chalcopyrite.

3) Chert (Unit 3)

Pale grey siliceous rocks form a thin probably discontinuous unit that overlies unit 2 rhyolite. These are interpreted to be impure cherty sediments.

4) Shale, Argillite, Siltstone (Unit 4)

Recessive weathering fine grained clastic sediments which overlie units 2 and 3 range from graphitic black shale to thinly laminated siltstone now metamorphosed to phyllite. Large pyrite cubes are common. A thin cherty bed in argillaceous rocks near the northwest corner of AV-1 contains a minor (8 cm thick) lens of sphalerite and galena.

5) Greenstone (Unit 5)

Metamorphosed mafic volcanic rocks overlie the sedimentary strata. Chlorite schists with no primary textures preserved are common but some more massive rocks contain millimeter-size feldspar phenocrysts and fragmental texture can be discerned on some weathered surfaces. Locally several per cent magnetite is present and secondary (?) calcite is very common.

6) Limestone (Unit 6)

A massive, white to grey crystalline limestone forms a prominent isolated cliff west of Avery Lake. The limestone is similar to, and considered correlative with the Tshinakin limestone at Adams Lake.

7) Structure

Foliation parallels bedding and rock strata trend approximately east-west and dip gently to moderately northwards. A later phase of deformation has produced broad, open folds about northerly trending axes, represented by an anticline near Avery Creek.

SOIL GEOCHEMISTRY

A baseline 2800 m long at 045° was established and soil samples collected at 30 m intervals on 750 m long crosslines spaced 100 m apart. B-horizon soils were collected at depths of 15 to 45 cm (generally 25 cm). The -80 mesh fraction was analysed for Cu, Pb, Zn and Ag by hot nitric acid digestion and atomic absorption at Cominco's Exploration Research Laboratory in Vancouver.

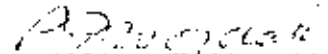
For all 4 elements generally higher values are found on the western half of the grid than the eastern half. Cumulative frequency plots were made (Figures 1-4) in order to determine anomalous thresholds. Several overlapping populations are indicated in the copper plot. Values greater than 500 ppm Cu are definitely anomalous but values as low as 60 ppm may belong to the anomalous population. However, inspection of the distribution of values suggests a 150 ppm contour is significant in that it outlines the area of known pyrite-chalcopyrite mineralization on lines 0 and 1 W. Apart from scattered high values, two other interesting areas are outlined. The larger one extends from lines 7W to 13W north of the baseline and the magnitude of soil values is comparable to the weakly mineralized zone on lines 0 and 1W. The second area extends from 7W to 11W south of the baseline with an offset continuation on lines 6W and 5W. It is characterized by a nearly linear distribution of very high copper values (several greater than 1000 ppm and as high as 6700 ppm).

Cumulative frequency plots for lead and zinc indicate values greater than 60 ppm Pb and 160 ppm Zn are anomalous. However correlation between copper, lead and zinc is poor and distribution of anomalous lead and zinc too erratic to be contoured with significance. No anomalous threshold can be selected from the silver plot.

CONCLUSIONS

The quartz-eye rhyolite/graphitic sediment contact on the AV claims represents a favourable horizon for polymetallic volcanogenic sulphide mineralization. Geological mapping did not indicate any specific area more favourable than near the previously known zone of weakly disseminated pyrite-chalcopyrite mineralization. Soil geochemical results are disappointing in that no significant lead, zinc or silver anomalies are associated with copper soil anomalies. These may represent zones of low grade (sub-economic) copper mineralization comparable to that found on the westerly adjacent claims of Noranda and Quebec Cartier.

Report by:



P.J. Wojdak
Geologist

Approved for
release by:



G. Harden
Manager, Exploration
Western District

PJW/pc1

APPENDIX A

EXHIBIT A

Statement of Expenditures on AV 1 and 2

Mineral Claims for 1978

Wages and Salaries

K. Simpson: 26 days (July 5-30) establishing base line and soil sampling @ \$58/day	\$1,508.
M. Graham: 26 days (July 5-30) establishing base line and soil sampling @ \$52/day	1,352.
T.W. Hodson: 9 days (June 30, July 22-29) mapping @ \$70/day	630.
P.J. Wojdak: 2 days (June 30, July 29) establishing base line and supervision @ \$116/day	232.

Geochemical Analyses

750 soil samples analysed for Cu, Pb, Zn, Ag @ \$3.40/sample	2,550.
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Equipment

150.

Accommodation - 1 month rental of house trailer in Vavenby

250.

Groceries and supplies

744.

Truck rental and gasoline

700.

Report Preparation

P.J. Wojdak 4 days @ \$87/day

348.

TOTAL

\$8,464.00

Signed:

P.J. Wojdak
P.J. Wojdak, M.Sc.

APPENDIX B

IN THE MATTER OF THE

B.C. MINERAL ACT

AND

IN THE MATTER OF A GEOCHEMICAL AND GEOLOGICAL

PROGRAM CARRIED OUT ON THE

AV 1 and 2 MINERAL CLAIMS

Located in the Kamloops Mining Division

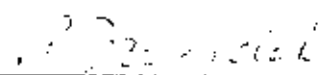
of the Province of British Columbia

More Particularly N.T.S. 82 M/12

A F F I D A V I T

I, PAUL J. WOJDAK OF THE MUNICIPALITY OF DELTA IN THE PROVINCE OF BRITISH COLUMBIA, MAKE OATH AND SAY:

1. THAT I AM EMPLOYED AS A GEOLOGIST BY COMINCO LTD., AND AS SUCH HAVE A PERSONAL KNOWLEDGE OF THE FACTS TO WHICH I HEREINAFTER DEPOSE:
2. THAT ANNEXED HERETO AND MARKED AS "APPENDIX A" TO THIS MY AFFIDAVIT IS A TRUE COPY OF EXPENDITURES ON A GEOCHEMICAL AND GEOLOGICAL PROGRAM CARRIED OUT ON THE AV MINERAL CLAIMS.
3. THAT THE SAID EXPENDITURES WERE INCURRED BETWEEN THE THIRTIETH DAY OF JUNE AND THE THIRTIETH DAY OF JULY, 1978 FOR THE PURPOSE OF MINERAL EXPLORATION ON THE ABOVE NOTED CLAIMS.



P.J. WOJDAK

APPENDIX C

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

I, PAUL J. WOJDAK, OF THE MUNICIPALITY OF DELTA, BRITISH COLUMBIA,
HEREBY CERTIFY:

1. THAT I AM A GEOLOGIST RESIDING AT 11405-85 AVENUE, DELTA,
BRITISH COLUMBIA WITH A BUSINESS ADDRESS AT 2200-200
GRANVILLE SQUARE, VANCOUVER, BRITISH COLUMBIA.
2. THAT I GRADUATED WITH A B.Sc. IN GEOLOGY AND CHEMISTRY FROM
McMASTER UNIVERSITY, HAMILTON, ONTARIO IN 1971 AND WITH A
M.Sc. IN GEOLOGY FROM THE UNIVERSITY OF BRITISH COLUMBIA
IN 1974.
3. THAT I HAVE PRACTISED GEOLOGY WITH COMINCO LTD. FROM 1974 TO
1978.

DATED this 22 Day of September 1978 at Vancouver, British Columbia.

Signed:

P.J. Wojdak
P.J. Wojdak, M.Sc.

CUMULATIVE PROBABILITY PLOT FOR COPPER

cumulative Z (probability scale)

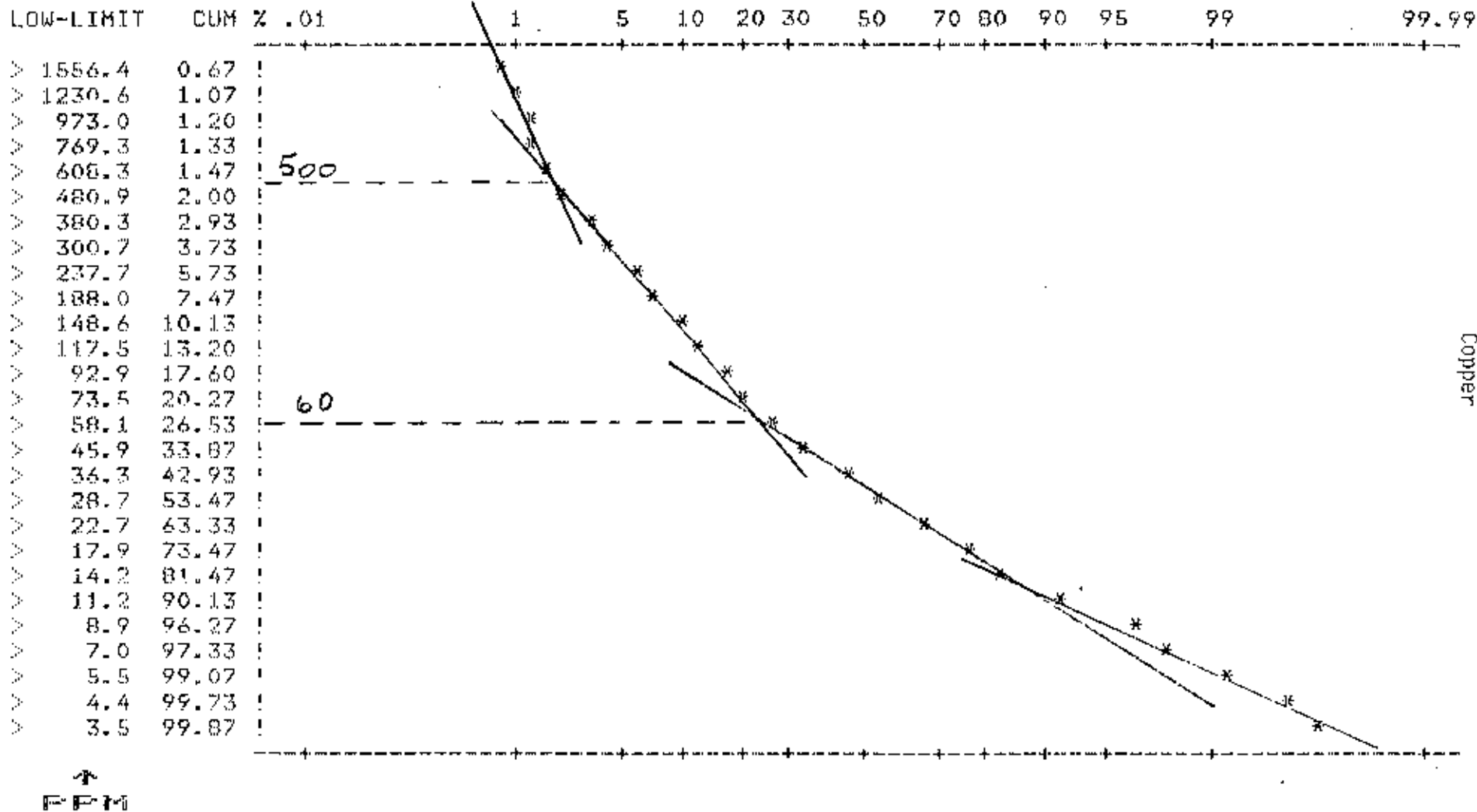


Figure 1
Copper

NOTE: PPM SCALE IS LOGARITHMIC (INTERVAL=.102), VALUES ARE CLASS LOWER LIMITS

SOILS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
COPPER	750	3 TO 6700	86 (720)	36 (300)

cumulative Z (probability scale)

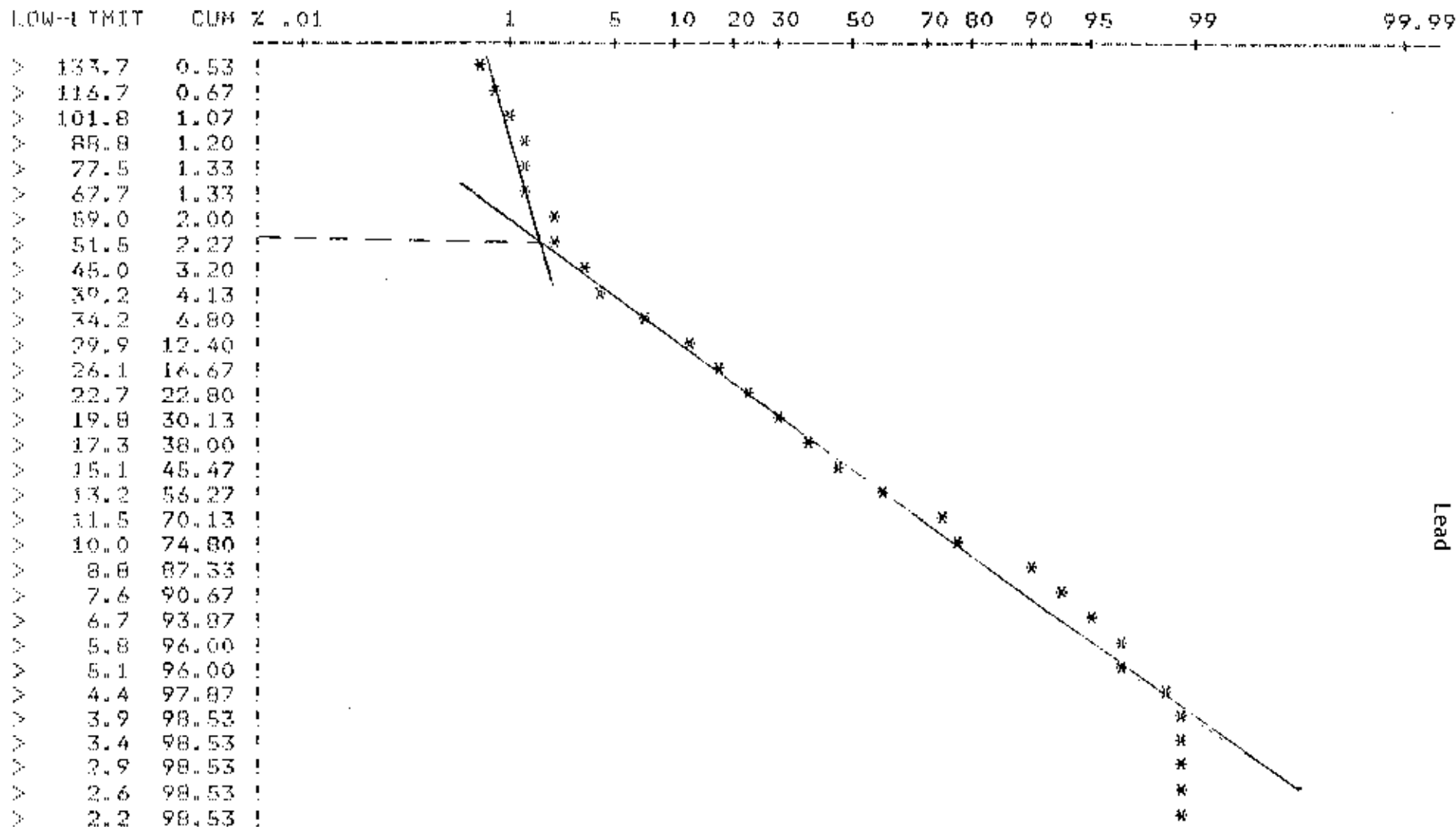


Figure 2
Lead

PPM

NOTE: PPM SCALE IS LOGARITHMIC (INTERVAL=.059), VALUES ARE CLASS LOWER LIMITS

SOILS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
LEAD	750	2 TO 215	18 (51)	15 (51)

40

CUMULATIVE PROBABILITY PLOT FOR SILVER

cumulative % (probability scale)

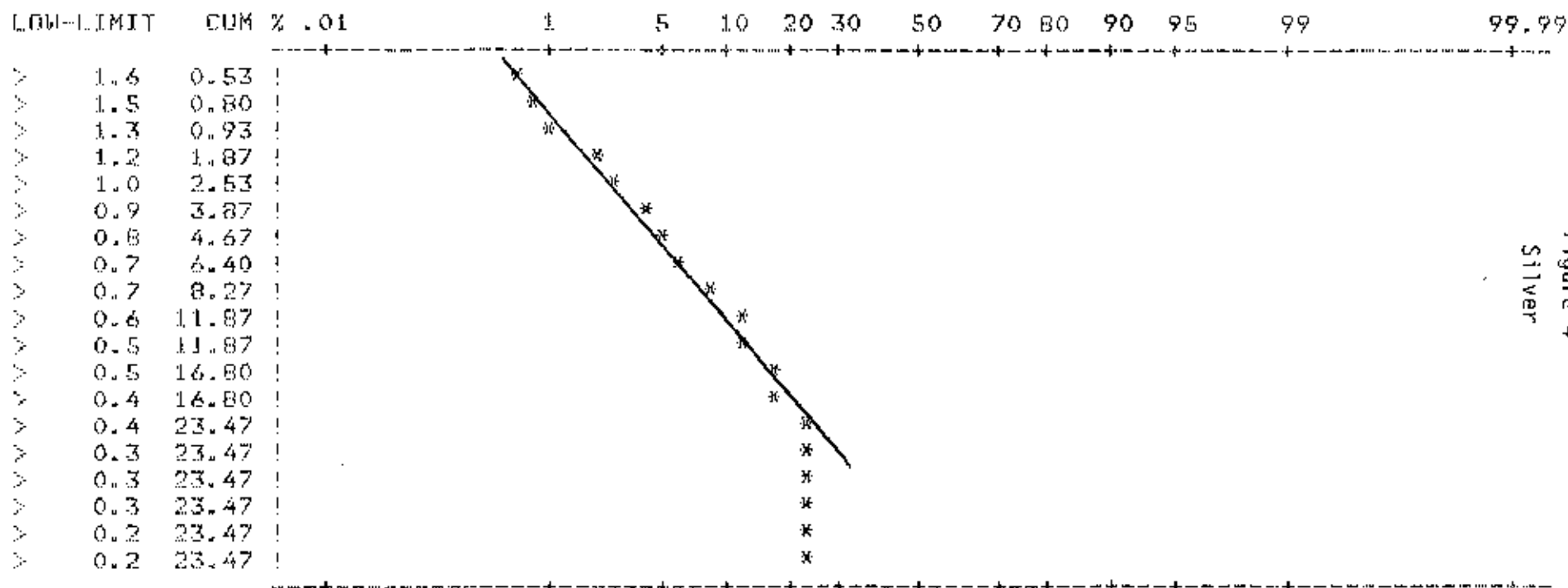


Figure 4
Silver

↑

PFM

NOTE: PFM SCALE IS LOGARITHMIC (INTERVAL=.049), VALUES ARE CLASS LOWER LIMITS

SOILS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
SILVER	750	0.20 TO 3.20	0.31 (0.89)	0.26 (0.73)

CUMULATIVE PROBABILITY PLOT FOR ZINC

cumulative % (probability scale)

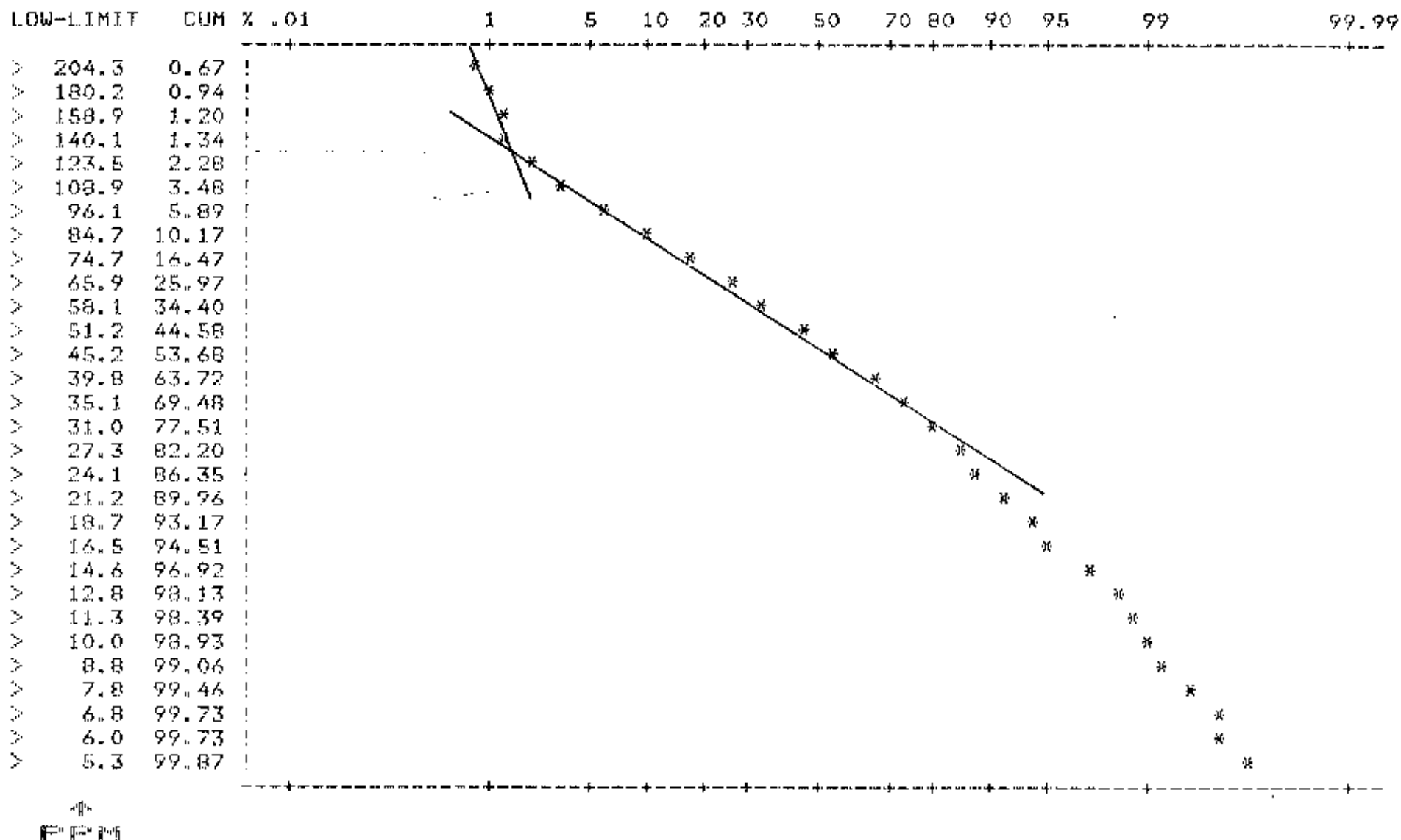


Figure 3
Zinc

NOTE: PPM SCALE IS LOGARITHMIC (INTERVAL=.054), VALUES ARE CLASS LOWER LIMITS

SOILS

ELEMENT	NO OF ANALYSES	RANGE	ARITH MEAN (M+2STD DEV)	GEO MEAN (M+2STD DEV)
ZINC	247	5 TO 208	52 (111)	45 (140)

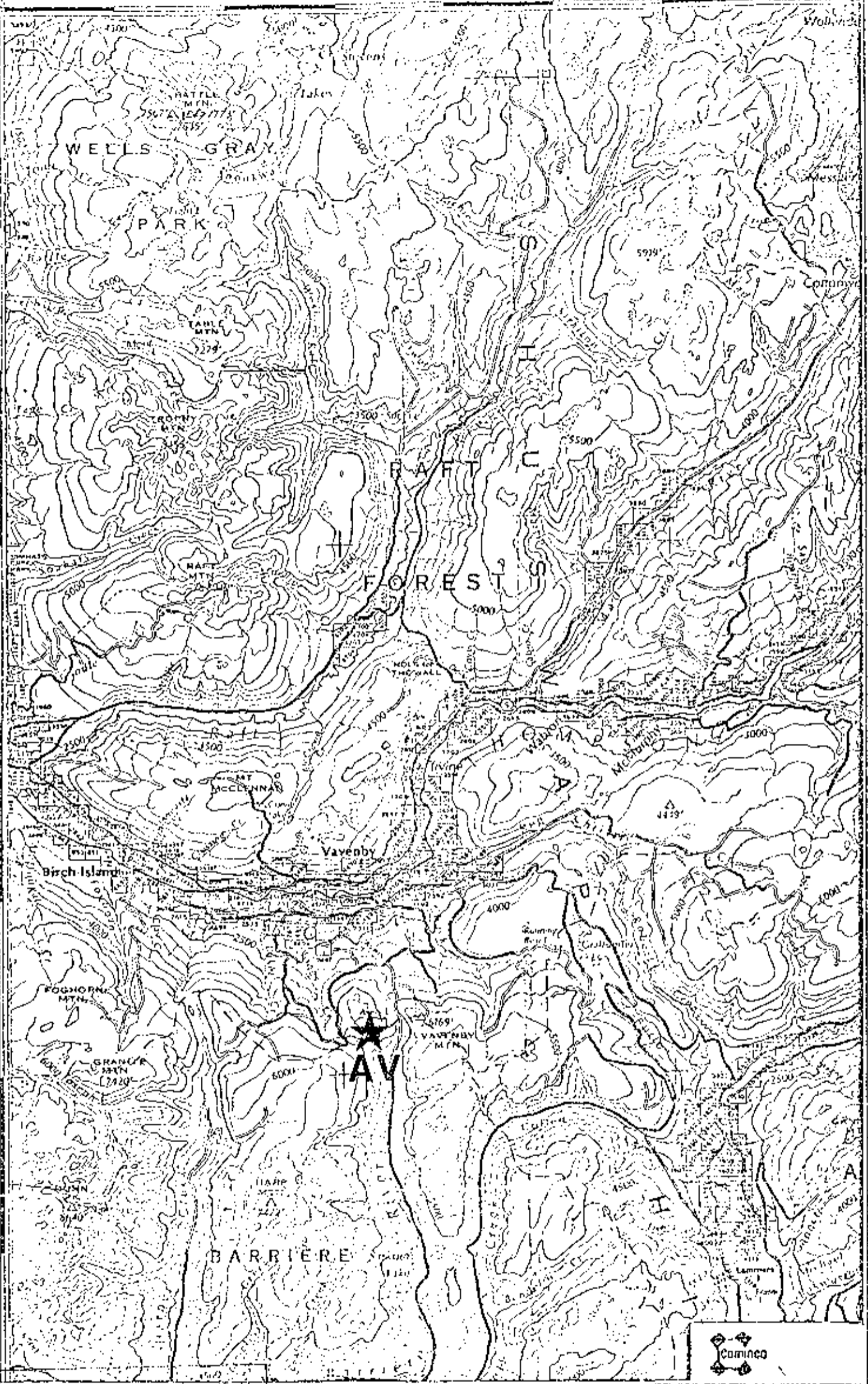
120°W

47

W

52°E

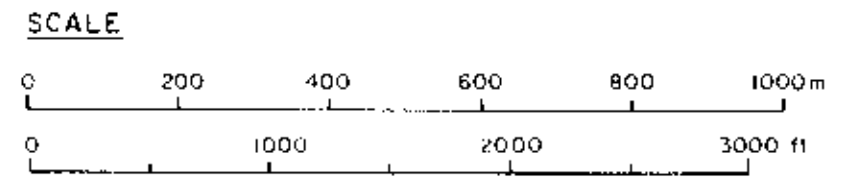
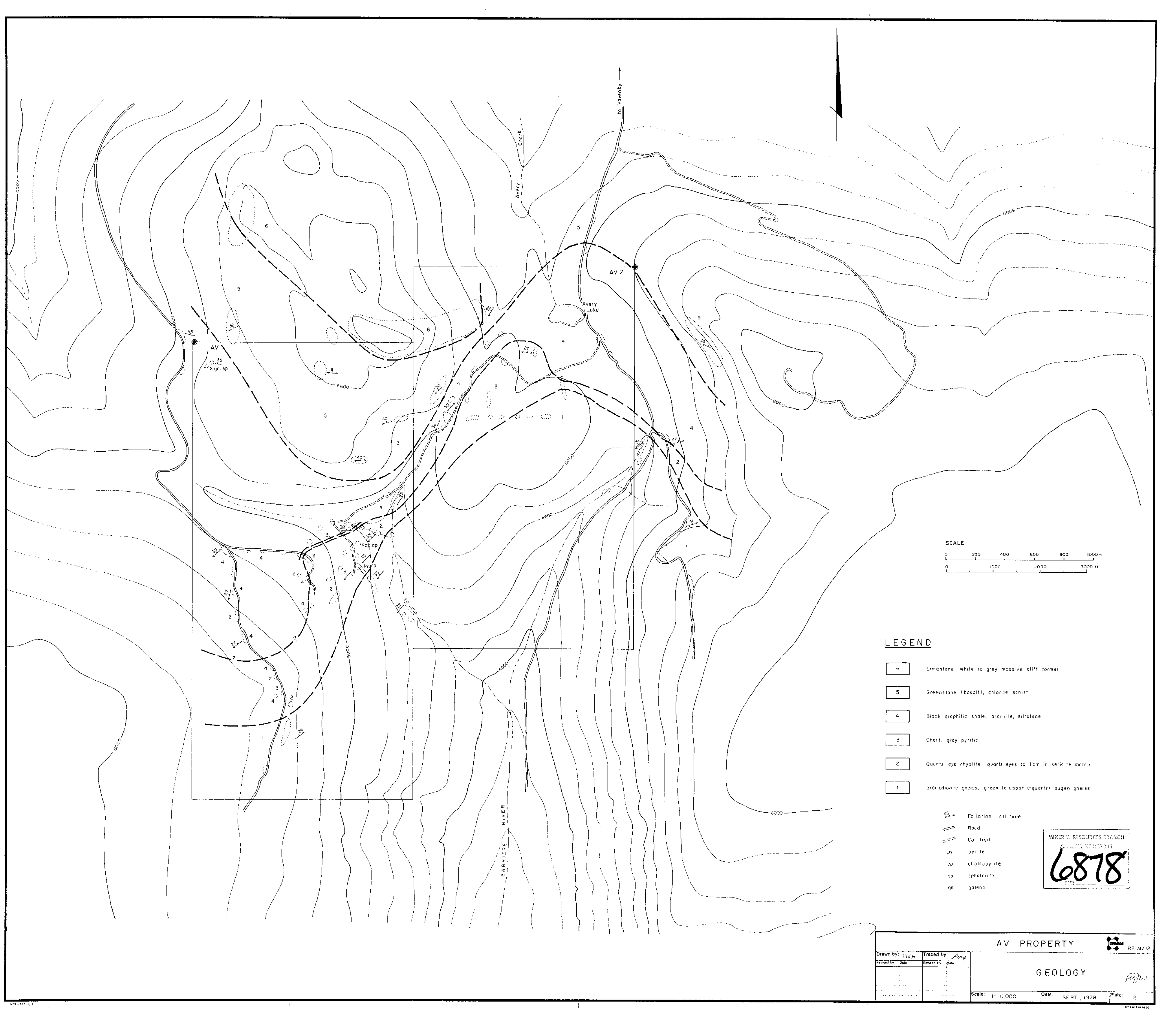
To Clearwater 2 miles
To Kanihoops



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Revised by: [blank]	Revised by: [blank]
Date: [blank]	Date: [blank]
6878	

AV LOCATION MAP

Scale: 1:250,000 Date: 5/21/78 Plate: 1



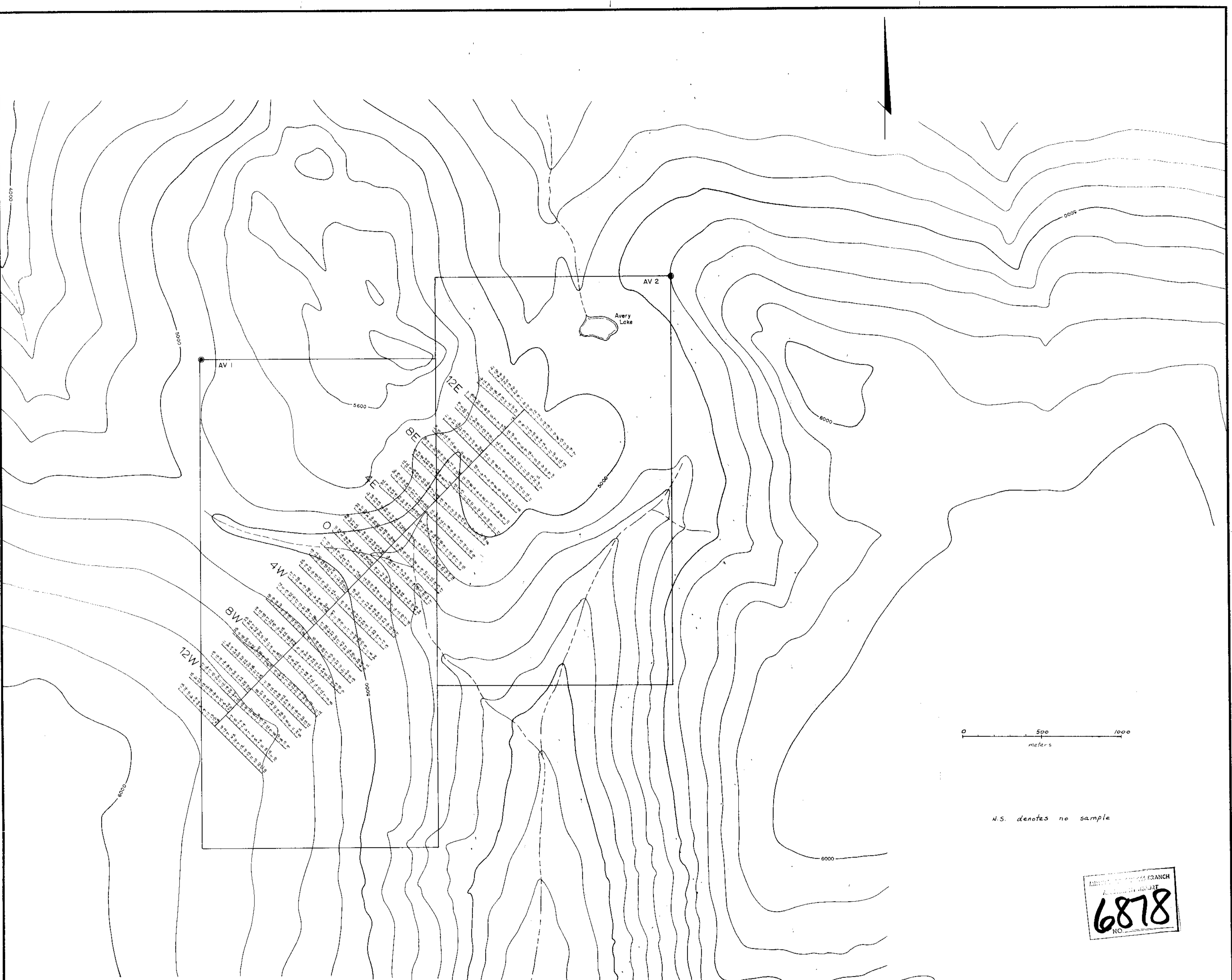
LEGEND

- 6 Limestone, white to grey massive cliff former
- 5 Greenstone (basalt), chlorite schist
- 4 Black graphitic shale, argillite, siltstone
- 3 Chert, grey pyritic
- 2 Quartz eye rhyolite; quartz eyes to 1cm in sericite matrix
- 1 Granodiorite gneiss, green feldspar (=quartz) augen gneiss

- 25° → Foliation attitude
- == Road
- Cat trail
- py pyrite
- cp chalcopyrite
- sp sphalerite
- gn galena

MINERAL RESOURCES BRANCH
 GEOLOGICAL REPORT
6878
 10

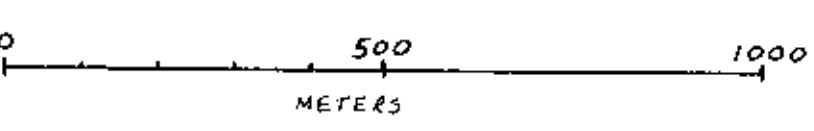
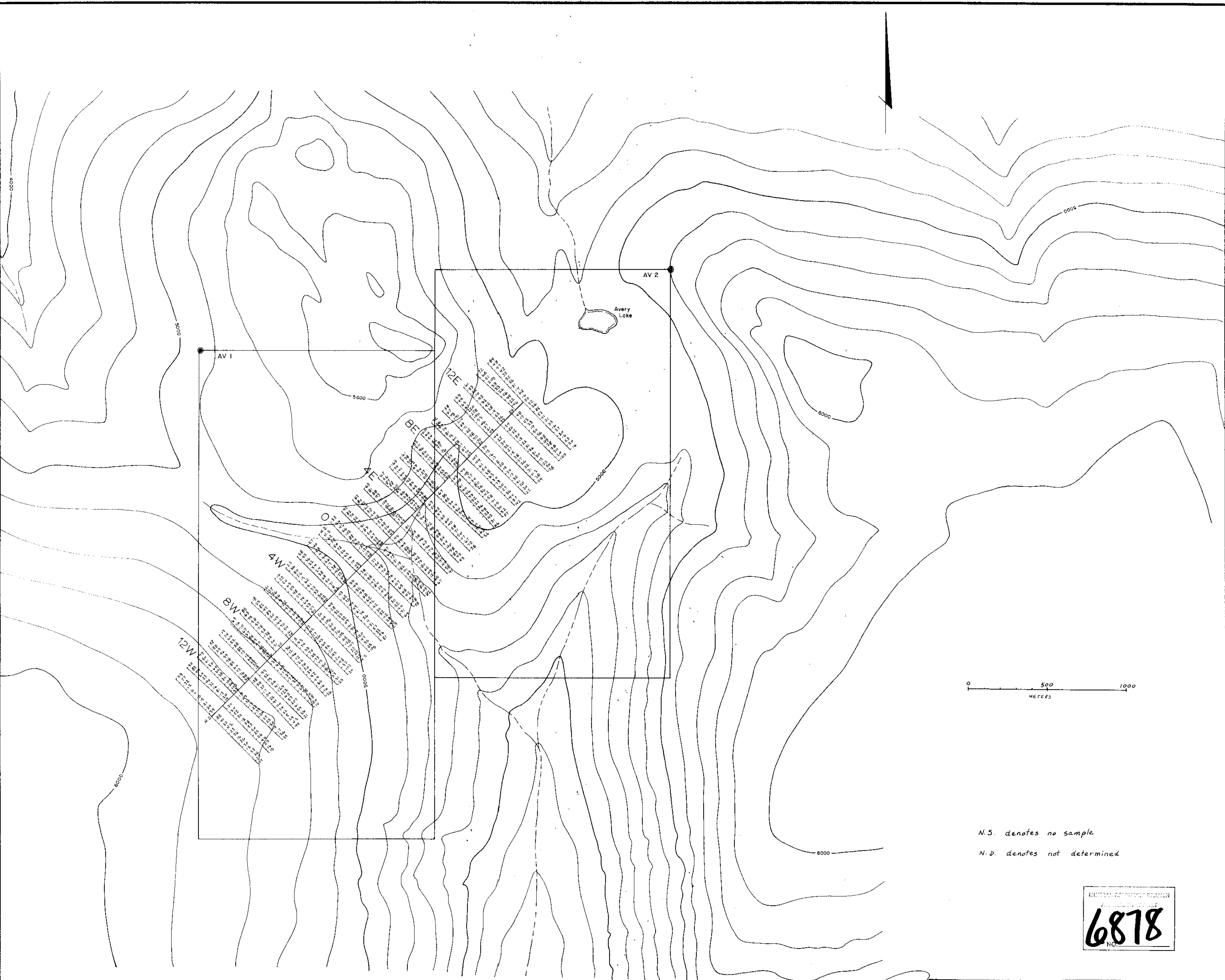
Drawn by: <i>JWH</i>		Traced by: <i>PJW</i>		AV PROPERTY	
Revised by:	Date:	Revised by:	Date:	GEOLOGY	
				Scale: 1:10,000	Date: SEPT., 1978
				Plate: 2	<i>PJW</i>



N.S. denotes no sample

MINING DISTRICT BRANCH
 6878
 NO.

AV CLAIMS		
Drawn by: PJW	Traced by:	
Received by: []	Received by: []	
SOIL GEOCHEMISTRY - Pb		
Scale: 1:10,000	Date: SEPT. 1978	Plate: 4



N.S. denotes no sample
N.D. denotes not determined

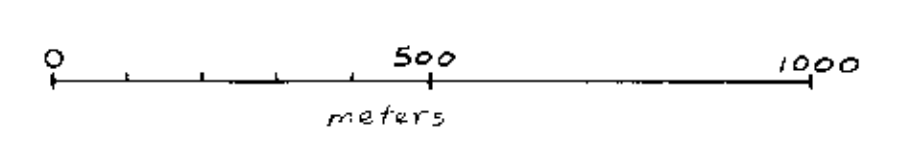
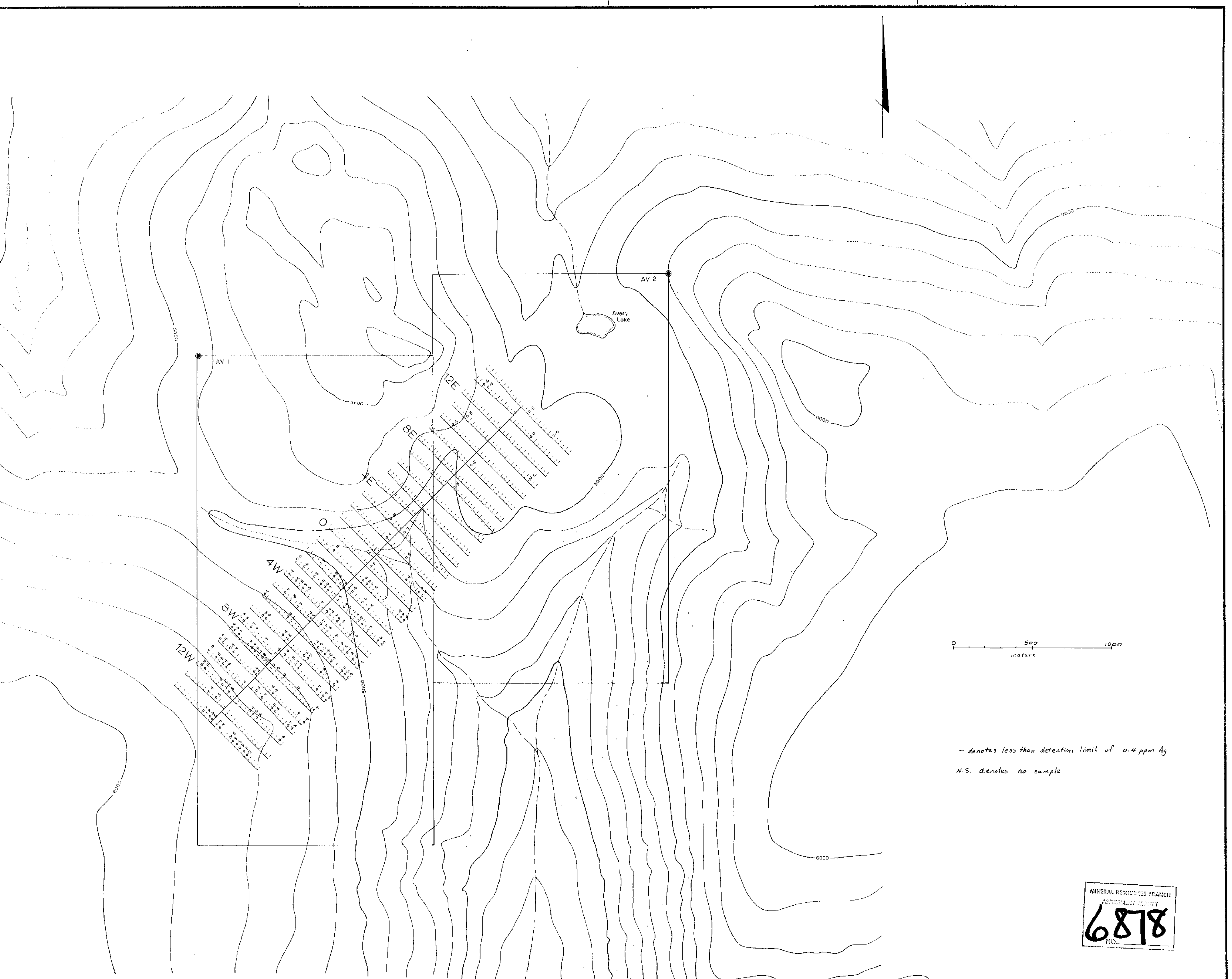
NATIONAL BUREAU OF STANDARDS
Geological Survey
6878
NO.

AV CLAIMS

Drawn by: PJW	Traced by:
Revised by: Date:	Revised by: Date:

SOIL GEOCHEM - Zn

Scale: 1:10,000 Date: SEPT 1978 Plate: 5



- denotes less than detection limit of 0.4 ppm Ag
 N.S. denotes no sample

MINERAL RESOURCES BRANCH
 ASSESSMENT DEPARTMENT
6878
 NO.

AV CLAIMS				
Drawn by: <i>PJW</i>		Traced by:		SOIL GEOCHEMISTRY Ag
Revised by:	Date:	Revised by:	Date:	
Scale: 1:10,000		Date: SEPT. 1978		Plate: 6