

COMINCO LTD.

EXPLORATION  
NTS: 82F/15E

WESTERN DISTRICT

GEOLOGICAL MAPPING AND SOIL GEOCHEMICAL SURVEY

ON THE ROSE MINERAL CLAIMS

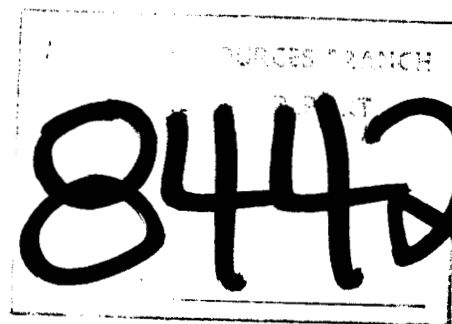
CRAWFORD BAY AREA

SLOCAN MINING DIVISION, B.C.

49°46.5'N; 116°40'W

PERIOD OF WORK

JUNE 11 TO JULY 15, 1980



SEPTEMBER 1980

R.L. WRIGHT

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*maps filed in pocket folder.*

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GEOLOGICAL MAPPING AND SOIL GEOCHEMICAL SURVEY

ON THE ROSE MINERAL CLAIMS

CRAWFORD BAY AREA

SLOCAN MINING DIVISION, B.C.

SUMMARY

A geological mapping and soil sampling program was carried out on the ROSE claims which are located 15 kilometres NE of Crawford Bay, B.C., near the headwaters of Crawford Creek. The work consisted of detailed geological mapping and prospecting of the property, and soil sampling on a grid. Sampling consisted of 617 soils and 8 stream silts. All samples were analyzed for Cu, Pb, Zn, Mn, Mo and W.

Results show scattered anomalous values for Cu, Pb, Zn, Mn and W which cannot be related to known mineralization. Anomalous molybdenum values correspond to a large quartz monzonite intrusion containing several molybdenite showings. Further work is recommended to determine the significance of these anomalies.

LOCATION

Latitude : 49°46.5'N  
Longitude: 116°40'W  
NTS : 82F/15E  
Slocan Mining Division

The ROSE claims are located near the headwaters of Crawford Creek, about 15 kilometres (10 miles) northeast of the town of Crawford Bay (Plate 1). Access to the property is by way of an old lumber road up Crawford Creek. Elevation ranges from 1325 to 2320 metres.

HISTORY

There is no evidence of previous work having been done in this immediate area. The old Rose Pass tin occurrences, a quartz vein containing galena, sphalerite, chalcopryrite, and reportedly, stannite, is located about 4 km southeast of the property.

The property was staked in 1979 to cover several molybdenite occurrences located by follow-up of regional stream silt anomalies.

OWNERSHIP

Two claims comprising 32 units, owned 100% by Cominco Ltd.

<u>Claim</u>	<u>No. of Units</u>	<u>Recorded</u>	<u>Record No.</u>	<u>Due Date</u>
Rose 1	20	August 16/79	1391	August 16/80
Rose 2	12	August 16/79	1392	August 16/80

GEOLOGY AND MINERALIZATION

General Geology

The ROSE property is underlain by clastic sediments of the Horsethief Creek and Hamill Groups of Upper Proterozoic age. The rocks, which appear to be younging westward have been regionally metamorphosed and altered to light-grey phyllites, muscovite-plagioclase  $\pm$  andalusite  $\pm$  chlorite schists, quartz pebble conglomerates and light-grey quartzites. The majority of outcrops, foliation in schists and quartz veins in all rock types generally strike NNE and dip fairly steeply toward the east. These rocks have been intruded by a large elliptical quartz monzonite stock of Cretaceous(?) age.

Detailed Geology (Plate 6)

In the NE corner of the property is a 300 m wide unit of silvery-grey phyllite, consisting of 90% muscovite and 10% plagioclase, with a NNE strike and steep eastward dip. In the upper part of the unit, the phyllite is interbedded with fine to coarse quartz pebble conglomerate beds up to 50 cm thick. The quartz pebbles which range from 1 to 12 cm in length, averaging 2 cm, show a fining westward sequence. The phyllites grade along strike into silvery-grey muscovite-plagioclase schists which are simply a coarser-grained version of the same rock with similar foliation and composition. Fine to coarse quartz pebble conglomerates, as above, are interbedded with the schists. Toward the intrusive contact, the rocks become coarser-grained with the muscovite-plagioclase schists grading into fine to medium-grained and andalusite-muscovite-plagioclase schists. These rocks are typically light to dark grey, weathering medium to dark grey, with 70-80% muscovite, 5-15% plagioclase, 5-7% andalusite, and less than 1% disseminated pyrite.

Adjacent to the quartz monzonite contact, the schists become chloritized, with an average composition of 60% muscovite, 10-20% chlorite, 5-15% plagioclase, 5-15% andalusite and 1% pyrite. These rocks are light to dark greenish-grey, weathering dark reddish-green to grey. Infrequent quartz veins up to 4 cm thick parallel foliation, averaging 022°/60°E.

Within the schists, unit 2a constitutes a 20-25 metre-wide band of medium quartz pebble conglomerate in a coarse-grained quartzite matrix. The milky white quartz pebbles, which range in size from 1-5 cm and average 2 cm, make up approximately 15-20% of the rock are well-rounded and poorly sorted. Also within the schists, in the eastern half of the property is

a 25-50 metre-wide unit of pinkish-white to yellowish-grey, medium-grained quartzite, in places containing less than 1% disseminated pyrite.

Along the western edge of the property is a thick resistant unit of light grey, fine to medium-grained quartzite of the Hamill Group. Manganese and iron staining, and specular hematite are abundant on fracture surfaces. Near the contact with the quartz monzonite intrusion, coatings of pyrolusite and recrystallized quartz are abundant along fractures. In places, small dark red crystals of magnetite make up less than 2% of the rock.

The quartz monzonite, which forms an elliptical stock in the centre of the property is typically white to pinkish-grey, weathering medium to dark grey, fine to coarse-grained, and consists of 30-35% plagioclase, 30-35% K-feldspar, 30% quartz and 5-10% biotite. Aplite veins are common, ranging from 1 to 50 cm in width with an average attitude of 065/80S. Milky white quartz veins up to 20 cm thick are less abundant than the aplite veins, and exhibit sharp contacts with random orientations throughout most of the intrusion. Near the contact with the schists, especially along the southern contact, the percentage of biotite in the quartz monzonite rises sharply to approximately 30% giving the rock a dioritic appearance. The contact between the quartz monzonite and the Hamill quartzite is gradational, from unaltered quartz monzonite to kaolinized quartz monzonite, then pinkish quartzite and finally light-grey quartzite.

Alteration is most intense in the quartz monzonite within three hundred metres of the contact. The rock is pervasively sericitized and kaolinized, with silicification, iron and manganese staining along joints. The central portion of the intrusion, where exposed, is relatively fresh.

#### Mineralization

Molybdenite mineralization, as disseminated flakes and rosettes in quartz veins was noted in several localities within the altered margin of the intrusion. These are located on Plate 6 - Geology. Trace amounts of powellite were also noted from scattered localities.

#### SOIL GEOCHEMISTRY AND ANALYTICAL PROCEDURE

The field work was conducted by R.L. Wright, M.Sc. 1974, assisted by R. Cadel, B.Sc. 1980, T. Hodson, B.Sc. 1980, L. Goldberg, G. Dobek, K. MacDonald, R. Grant, M. Seifert, T. Wells and S. Ahrend.

Soil samples were collected from a grid consisting of flagged east-west lines between two cut north-south baselines. Line spacing was 200 or 400 metres, depending on location relative to the intrusion, and spacing along lines was 50 metres. Control of sample locations was provided by chaining with slope correction. Several stream silts were also collected to provide additional information on broad distribution patterns of elements.

Soil and silt samples were collected in numbered kraft sample bags, air dried, then shipped to Cominco's Vancouver Research Laboratory. Samples were then dried and sieved, and the -80 mesh fraction was analyzed for Cu, Pb, Zn, Mn, Mo and W. The Cu, Pb, Zn and Mn were determined by atomic absorption following extraction by hot 20% nitric acid. Mo was determined by nitric-perchloric acid digestion and HCl extraction followed by thiocyanate colorimetry. W was determined by pyrosulphate fusion and HCl extraction followed-by Zn dithiol colorimetry. All values are reported in parts per million (ppm).

RESULTS AND INTERPRETATION

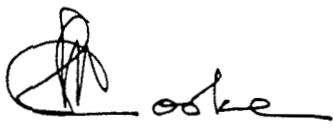
The results for Cu, Pb, Zn, Mn and W in soils (Plates 3, 4 and 5) show scattered weakly anomalous values which could not be related to known mineral occurrences or to specific geological settings. More work would be required to determine the source and significance of these values.

The Mo results show a large irregular anomalous zone corresponding to the area underlain by intrusive rock. There is no apparent correspondence, in detail, between known molybdenite occurrences and anomalous soil geochemistry, although the general picture of a mineralized intrusion in barren country rock is substantiated by these results.

CONCLUSIONS


A program of detailed geological mapping and soil geochemistry on the ROSE property has indicated a broad anomalous zone for molybdenum corresponding to a quartz monzonite intrusion. Further work is required to determine the economic significance of these results.

Report by: R.L. Wright  
R.L. Wright, Geologist

Endorsed by:   
D.L. Cooke  
Senior Geologist

RLW/gmk

Distribution:  
Mining Recorder (2)  
Western District (1)  
RLW/DLC (2)

Approved for  
Release by:   
G. Harden, Manager  
Exploration  
Western District

APPENDIX ISTATEMENT OF EXPENDITURES

Cost of geological mapping and soil geochemistry surveys on the ROSE mineral claims, Crawford Bay area, Slocan Mining Division, B.C. from June 11 to July 15, 1980.

SALARIES

R.L. Wright	-	5 days @ 164.63	823.15
R. Cadel	-	20 days @ 106.83	2,136.60
L. Goldberg	-	18 days @ 87.12	1,568.16
T. Hodson	-	2 days @ 111.14	222.28
M. Seifert	-	7 days @ 96.36	674.52
G. Dobek	-	16 days @ 77.88	1,246.08
K. MacDonald	-	6 days @ 77.88	467.28
T. Wells	-	3 days @ 73.26	219.78
R. Grant	-	6 days @ 80.96	485.76
S. Ahrend	-	7 days @ 73.26	512.82
			<u>\$8,356.43</u>

TRANSPORTATION

Truck Rental - 3 vehicles, 2 weeks each, including gas, oil, servicing, etc.	1,709.75
Helicopter Rental - 2.1 hours	856.61

FIELD COSTS

Food and accomodation - 90 man days @ 37.17	3,345.59
Equipment	380.56

GEOCHEMISTRY

Linecutting Contract - 5 km	3,293.78
625 soils and silts @ 8.40	<u>5,250.00</u>
	<u>\$23,192.72</u>

Signed: R.L. Wright  
R.L. Wright, Geologist

APPENDIX II

IN THE MATTER OF THE B.C. MINERAL ACT AND  
IN THE MATTER OF A GEOLOGICAL AND GEOCHEMICAL  
PROGRAM CARRIED OUT ON THE  
ROSE MINERAL CLAIMS  
LOCATED IN THE SLOCAN MINING DIVISION  
OF THE PROVINCE OF BRITISH COLUMBIA  
MORE PARTICULARLY NTS: 82F/15E

A F F I D A V I T

I, ROBERT L. WRIGHT, OF THE CITY OF VANCOUVER 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 I to this my affidavit is a true copy of expenditures on a geological and geochemical program carried out on the ROSE mineral claims.
3. THAT the said expenditures were incurred between the 11th day of June 1980 and the 15th day of July 1980 for the purpose of mineral exploration on the above noted claims.

R.L. Wright.  
R.L. Wright, Geologist



COMINCO LTD.

EXPLORATION  
NTS: 82F/15E

WESTERN DISTRICT  
5 SEPTEMBER 1980

STATEMENT OF QUALIFICATIONS

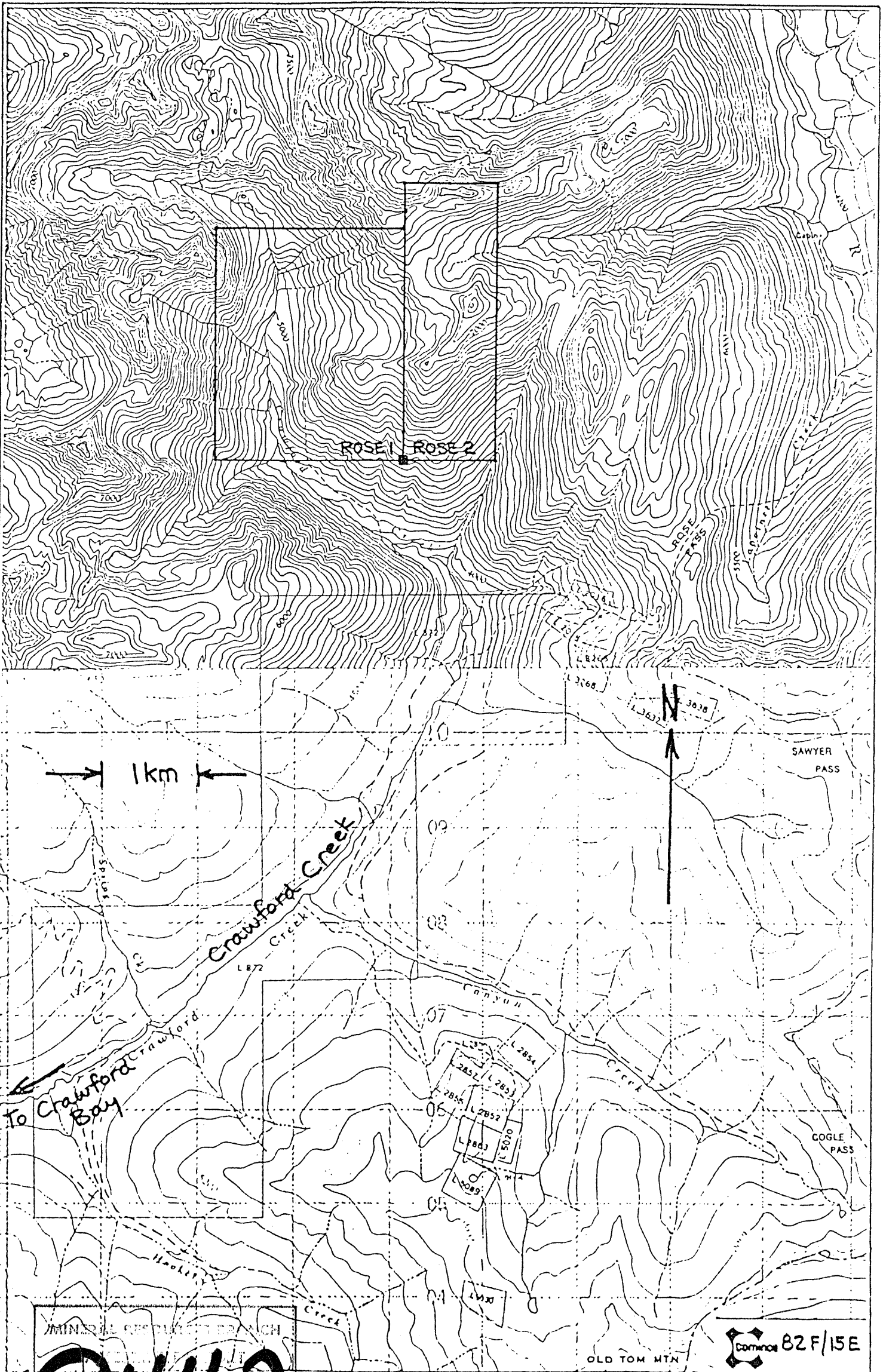
APPENDIX III

I, ROBERT L. WRIGHT, OF THE CITY OF VANCOUVER, IN THE PROVINCE OF BRITISH COLUMBIA, HEREBY CERTIFY:

1. THAT I am a geologist residing at 1859 Napier Street, Vancouver, British Columbia, with a business address at 409 Granville Street, Vancouver, British Columbia.
2. THAT I graduated with a B.Sc. in geology from McMaster University, Hamilton, Ontario in 1971 with a M.Sc. in geology from the University of British Columbia in 1974.
3. THAT I have practised geology with Cominco Ltd. from 1975 to 1980.

DATED THIS 5th DAY OF SEPTEMBER 1980 AT VANCOUVER, BRITISH COLUMBIA.

R.L. Wright.  
R.L. Wright, M.Sc.



MINERAL RIGHTS BEACH

Cominos 82F/15E

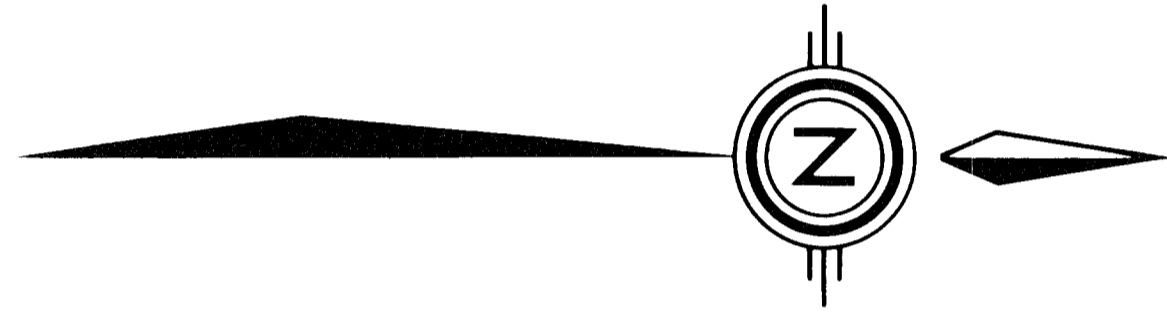
OLD TOM MTN

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 No. **8442**

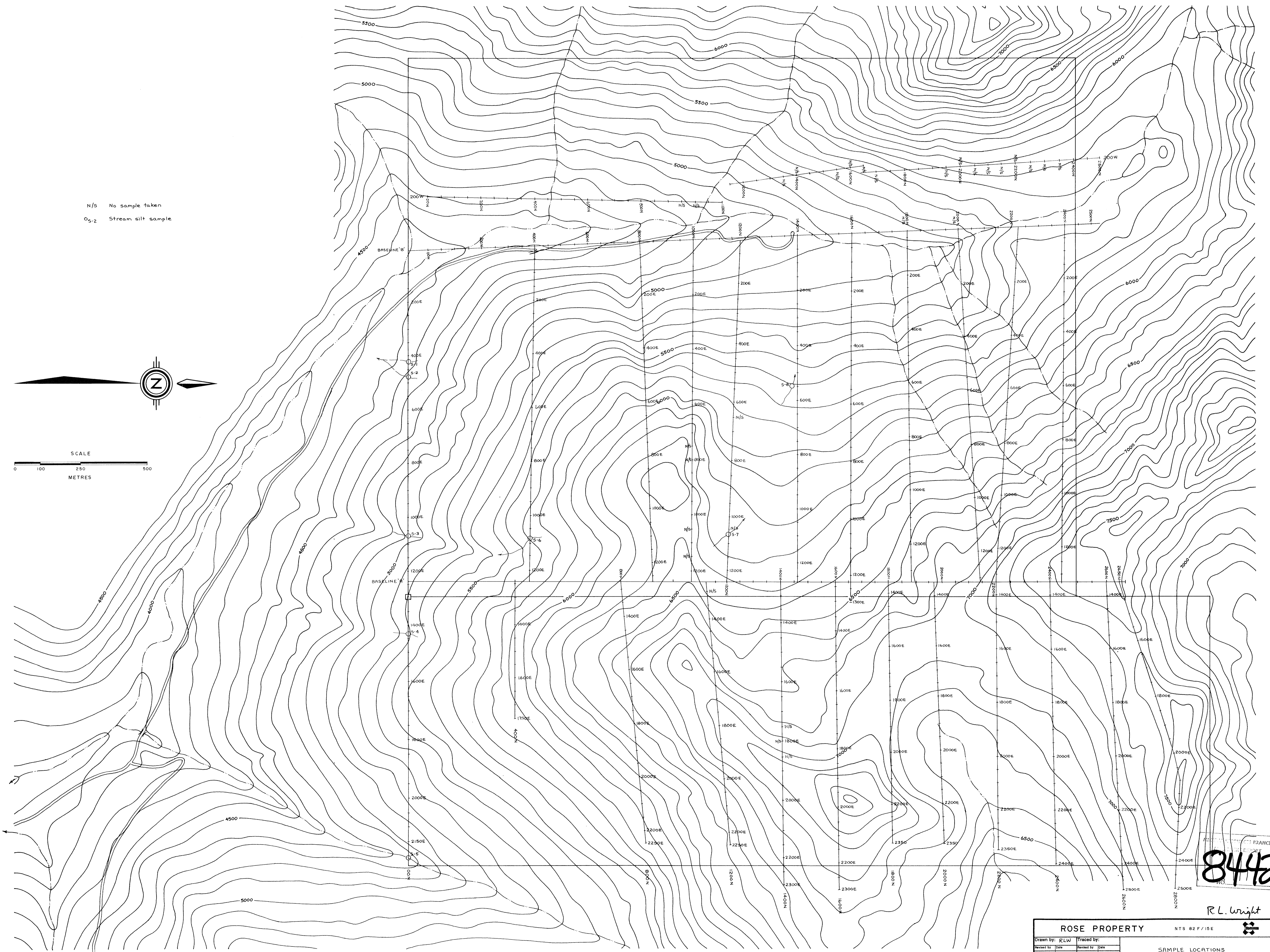
ROSE PROPERTY  
 Location Map

Scale: 1:50,000      Date: Sept, 80      Plate 1

N/S No sample taken  
 O<sub>5-2</sub> Stream silt sample



SCALE  
 0 100 250 500  
 METRES



8442

R.L. Wright

ROSE PROPERTY NTS 82 F / 15 E

Drawn by: RLW	Traced by:
Revised by: Date	Revised by: Date

SAMPLE LOCATIONS

Scale: 1: 5000 Date: Sept. 5 / 60 Plate: 2



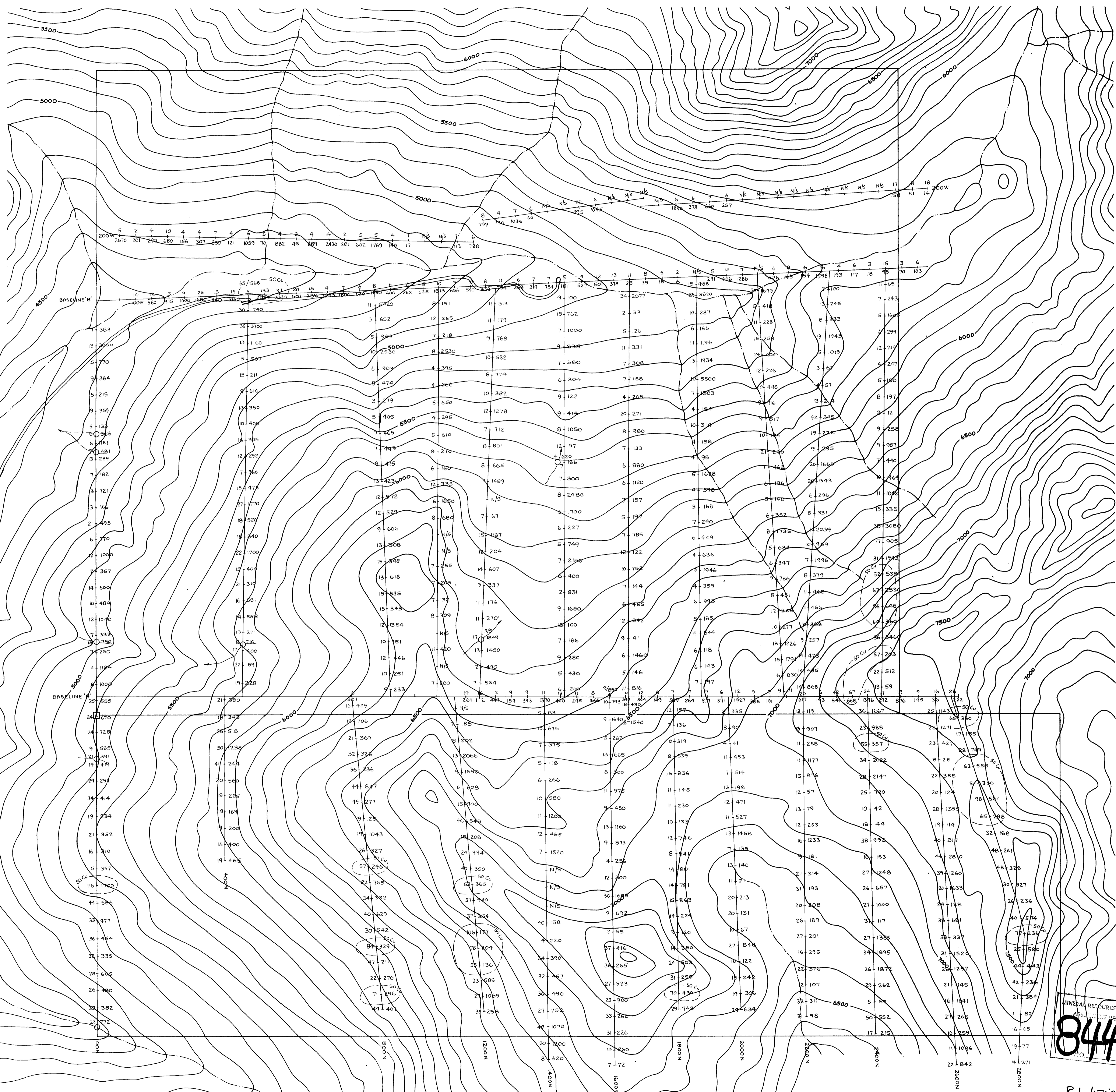
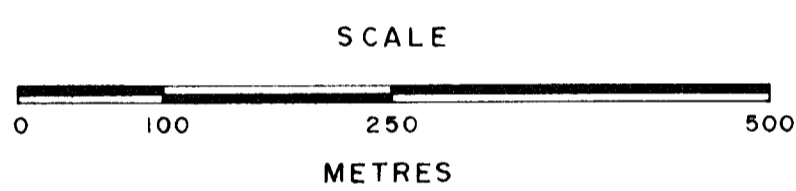
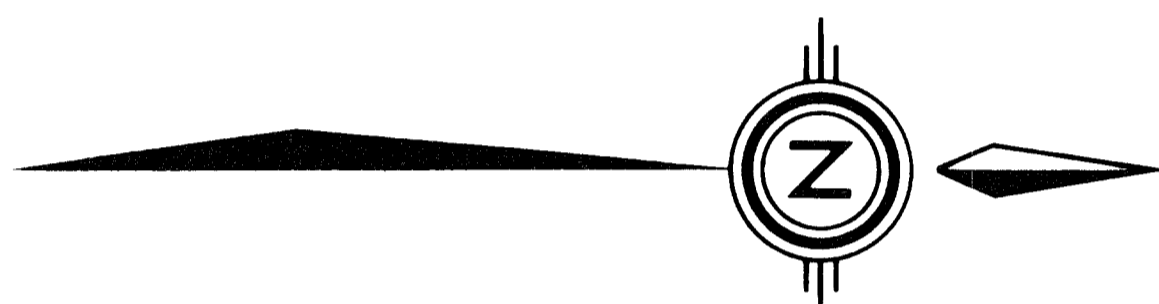
LEGEND

Cu Mn Soil Grid: Cu, Mn values in ppm

Cu Mn Stream Silt Location

Contour intervals in ppm Cu or Mn, as indicated

NOTE: elevations are in feet



MINERAL RESOURCES BRANCH  
8442

R.L. Wright

ROSE PROPERTY		NTS B2 F/15E
Drawn by: RLW	Traced by:	
Checked by: Date	Revised by: Date	
GEOCHEMISTRY		
Cu, Mn ppm.		
Scale: 1:5000	Date:	Plate: 3



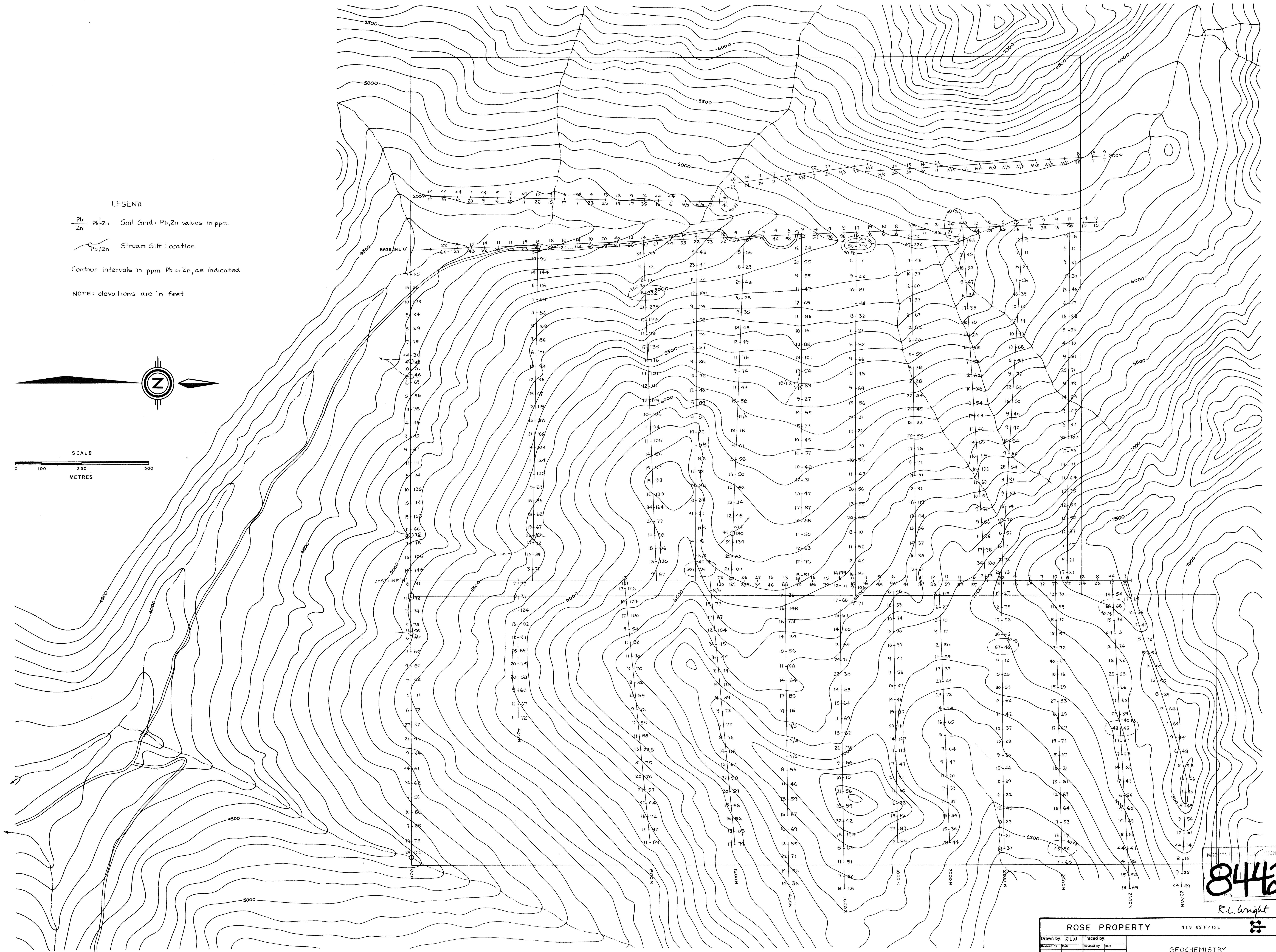
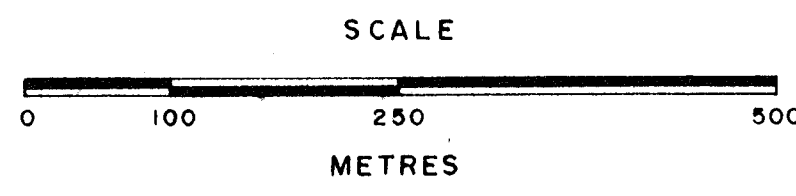
LEGEND

Pb | Zn Soil Grid: Pb,Zn values in ppm.

○ Pb/Zn Stream Silt Location

Contour intervals in ppm. Pb or Zn, as indicated

NOTE: elevations are in feet



8442

R.L. Wright

ROSE PROPERTY NTS 82 F/15E

Drawn by: R.L.W.	Traced by:
Revised by: Date	Revised by: Date

GEOCHEMISTRY  
Pb, Zn ppm.

Scale: 1:5000 Date: Sept. 80 Plate: 4



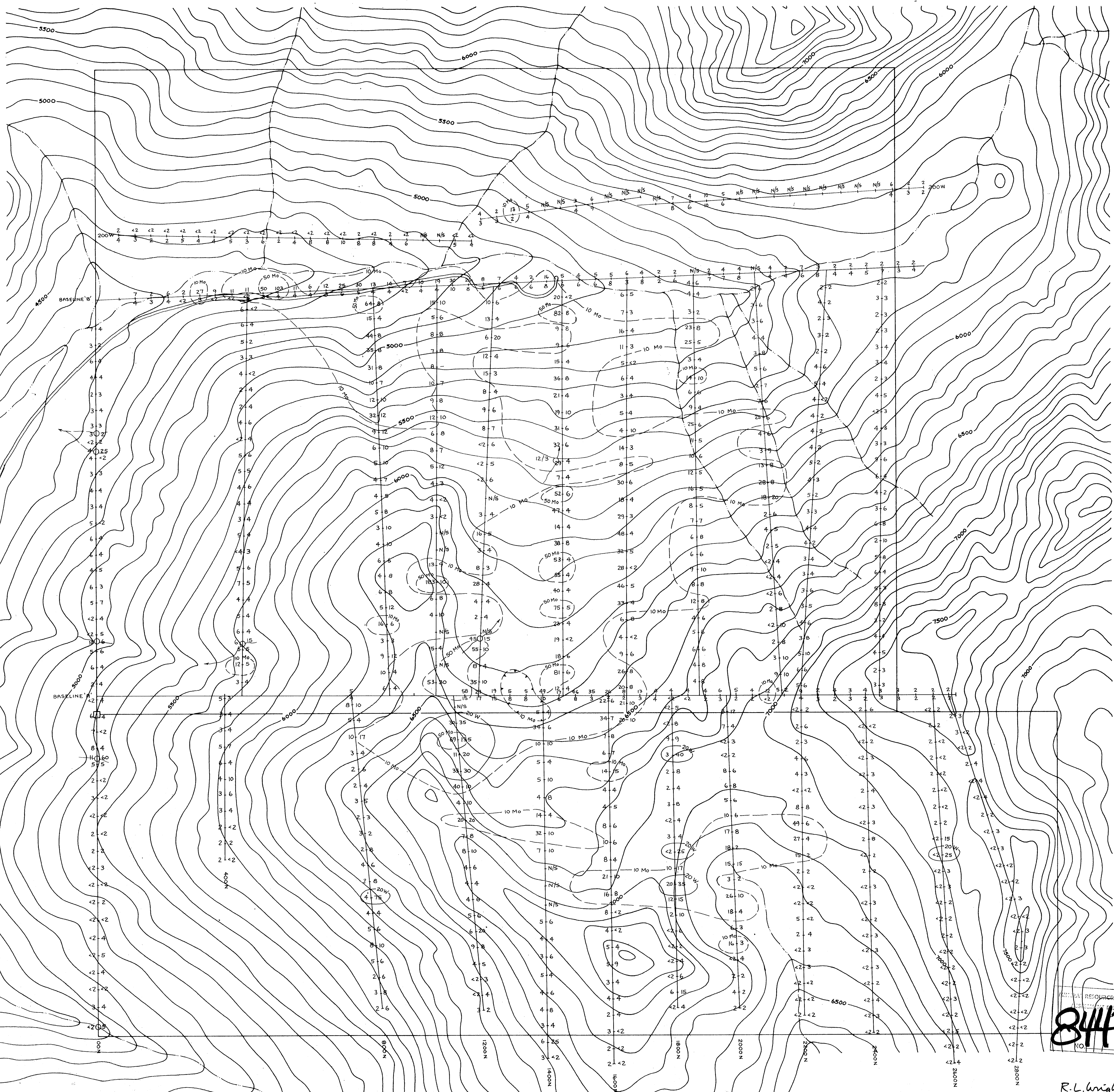
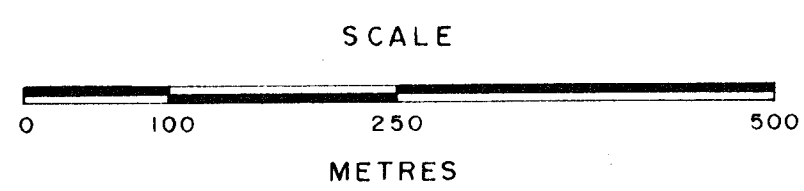
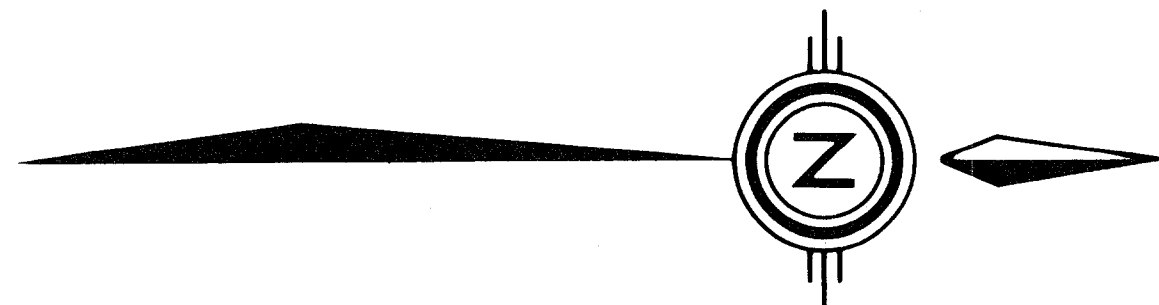
LEGEND

Mo W Soil Grid: Mo,W values in ppm.

Mo/W Stream Silt Location

Contour intervals in ppm Mo or W, as indicated

NOTE: elevations are in feet



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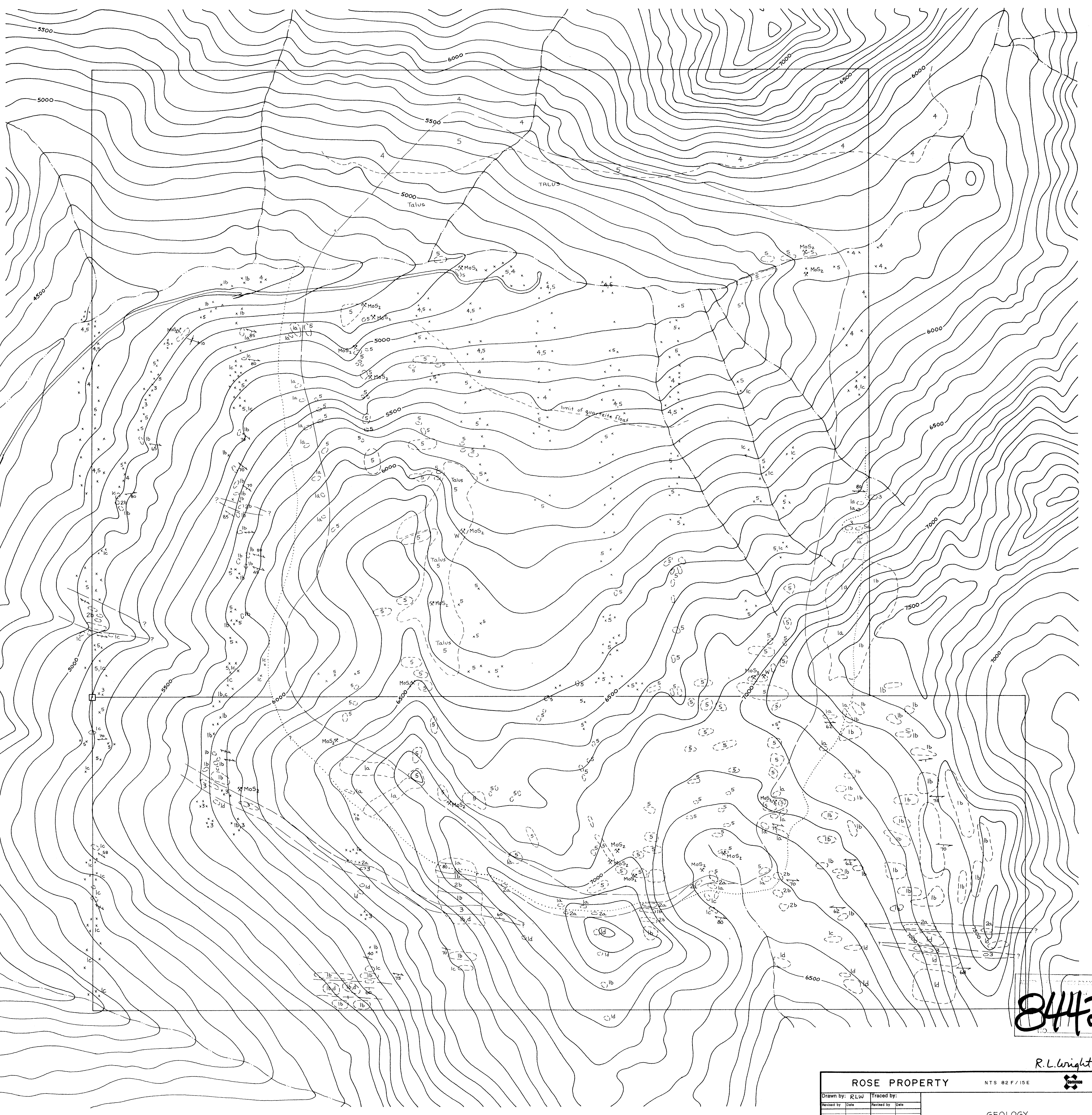
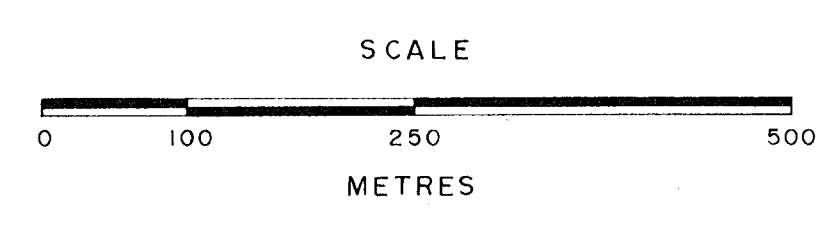
R.L. Wright

ROSE PROPERTY		NTS 82 F / 15E
Drawn by: RLW	Traced by:	
Revised by: [ ]	Date: [ ]	Revised by: [ ]
GEOCHEMISTRY		
Mo, W ppm		
Scale: 1:5000	Date: Sept/80	Plate: 5



LEGEND

- CRETACEOUS
- 5 QUARTZ MONZONITE - LIGHT PINK TO GREY, MEDIUM GRAINED, BIOTITE QUARTZ MONZONITE.
- INTRUSIVE CONTACT - - - - -
- HARILL GROUP:
- 4 QUARTZITE - LIGHT GREY, FINE-GRAINED QUARTZITE WITH DISSEM. PYRITE, MAGNETITE, PYROLUSITE AND HEMATITE ON JOINTS.
- HORSETHIEF GROUP:
- 3 QUARTZITE - LIGHT YELLOW TO PINK, FINE TO MEDIUM GRAINED, WITH DISSEM. PYRITE.
  - 2 CONGLOMERATE
    - 2a QUARTZ PEBBLE CONGLOMERATE IN QUARTZITE MATRIX.
    - 2b QUARTZ-FELDSPAR PEBBLE CONGLOMERATE IN MUSCOVITE-PLAGIOCLASE SCHIST MATRIX
  - 1 SCHIST
    - 1a CHLORITIC SCHISTS ADJACENT TO INTRUSIVE CONTACT.
    - 1b ANDALUSITE - MUSC - PLAG SCHIST.
    - 1c MUSCOVITE-PLAGIOCLASE SCHIST
    - 1d SILVER-GREY PHYLLITE INTERBEDDED WITH CONGLOMERATE
- UPPER PROTEROZOIC
- GEOLOGIC CONTACT (APPROXIMATE)
  - - - - - LIMIT OF CHLORITIZED CONTACT ZONE
  - OUTCROP
  - × FLOAT BOULDER
  - × MINERAL OCCURRENCE: MoS<sub>2</sub> - MOLYBDENITE
  - × - - - - - Scheelite/POMELLITE



8442

R.L. Wright

ROSE PROPERTY		NTS 82 F / 15 E	
Drawn by: R.L.W.	Traced by:		
Revised by:	Date:	Revised by:	Date:
GEOLOGY		Scale: 1:5000	Date: Sept 80
			Plate: 6