

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

GEOLOGICAL REPORT

NOKE GROUP

Fort Steele Mining Division

N.T.S. 82F/8  
82G/5

Lat: 49° 27'

Long: 116° 02'

OWNER .

Cominco Ltd.

Kootenay Exploration  
1051 Industrial Road No. 2  
Cranbrook, B.C.  
VIC 4K7

Work Performed during June to October 1983

Report by:

D. Anderson  
Project Geologist

Submitted: November 1983

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

11,465

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MAPS

Plate 1	Location Map	1:125,000
Plate 2	Geology Map	1:20,000

LIST OF CLAIMS

NOKE GROUP

<u>Claim No.</u>	<u>Record No.</u>	<u>No. of Units</u>	<u>Recording Date</u>
Noke 1	1687	8	Oct. 8, 1982
Noke 2	1688	15	"
Noke 3	1689	14	"
Noke 4	1690	14	"
Noke 5	1691	18	"
Noke 6	1776	20	May 17, 1983
Noke 7	1777	12	"
Noke 8	1778	3	"
Noke 9	1779	15	"
Noke 10	1780	8	"
Noke 11	1781	4	"
Noke 12	1782	6	"
Noke 13	1783	6	"
Noke 14	1784	<u>12</u>	"
		155	

EXPLORATION

WESTERN DISTRICT

GEOLOGICAL REPORT ON THE NOKE GROUP

Fort Steele Mining Division

INTRODUCTION

The Noke group of claims of concern in this report includes numbers 1 through 14 for a total of 155 units. The claims are centered about 18 kilometers southwest of Cranbrook, B.C. The group covers part of the range of mountains between the Moyie river and Perry creek drainages. Elevations range from 1500 to 2400 meters with very extensive tree cover consisting of lodge-pole pine, spruce, and balsam. Access to the claims is good with base roads up the main Moyie and Perry creek valleys and branch logging roads going up most of the tributary valleys.

The property is shown on the accompany index map at a scale of 1:125,000 (plate 1). It is centered on Latitude 49° 27' and Longitude 116° 02'.

These Noke claims were staked in two parts. Noke 1-5 containing 69 units were recorded Oct. 8, 1982 and Noke 6-14 with 86 units were recorded May 17, 1983. Cominco Ltd. as owner and operator acquired a suitable base map and conducted geological mapping of the claim block. The mapping was done at a scale of 1:20,000 covering an area approximately 6x9 kilometers in size. The area is underlain by Proterozoic clastics of the Aldridge and Creston Formations. During the course of the mapping program, no economic concentrations of minerals were located in the surface outcrops. The amount of overburden is highly variable ranging from no overburden (ie. 5-7% outcrop) to over 5 meters in places. Sometimes a residual soil or rubble is the only cover.

A total of \$12,130.87 was spent to complete this initial phase of the program between June and October of 1983.

RESULTS OF GEOLOGICAL MAPPING

General - Regional Geology

The Noke group was acquired to cover geological settings with potential for gold and or lead/zinc mineralization. The claims are located in a 30 km wide northeasterly trending fault block

bounded on the northwest and southeast by major right lateral reverse faults, the St. Mary and Moyie faults respectively. This Moyie fault block containing the Noke claims has several major northeast and north trending faults within it, undoubtedly temporally related in part to the bounding more regional structures.

These structures have cut up and displaced the Purcell Anticlinorium. The stratigraphic sequence mapped on the Noke claims forms part of the west limb of the anticlinorium. The sediments occurring in the claims are all Helikian age rocks of the Lower part of the Purcell Supergroup.

### Stratigraphy

The lithologic sequence of sedimentary rocks on the property ranges from the upper part of the Aldridge Formation to well up into the Creston Formation. Four different packages of rocks can generally be recognized and these have been represented on the map-sheet (plate 2). No Moyie intrusives were found on the Noke claims.

#### Unit 1 Middle Aldridge division

Grey weathering, medium bedded quartzitic wackes with some quartz wackes, occurring predominantly as AE-style Bouma turbidites. These turbidite packages are interbedded with lesser amounts of rusty or dark grey weathering, laminated to thin bedded wackes and subwackes.

#### Unit 2 Upper Aldridge division

Predominantly rusty weathering, dark grey to black, thin bedded wacke/subwacke to argillite, sometimes with fine black and white parallel laminated intervals. Occasional thin to medium bedded quartzitic wacke or wacke. Pyrite/pyrrhotite are quite widespread as disseminations or as laminations.

#### Unit 3 Aldridge to Creston Transition

This is an interval of mixed assemblage. The brownish-rusty weathering, thin bedded dark grey subwackes/argillites (Aldridge-like) are mixed intimately with greenish sometimes rusty weathering, argillites and wackes of Creston affinity. This zone appears to be particularly variable in thickness, but this is also a reflection of the intensity of deformation.

#### Unit 4 - Creston Formation

This package has not been subdivided through the area as the mapping is inadequate to do so. However, two subunits have been recognized. The lower Creston is predominantly thin bedded green, grey or dark grey argillite and wacke with mud cracks, lensoid bedding, and ripple cross-lamination. The upper Creston is a more prominent, often cliff-forming unit. Thin to more commonly medium bedded quartzitic wackes with a purple coloration due to laminations or mottling is the dominant lithotype.

#### Structural Geology

At least three north-northeast trending fault zones have been recognized on the Noke claims. Individual fault planes are difficult to recognize but wide foliated zones with sediment dip reversals across them and internal drag folding within the zones testify to their significance. In all cases, the faults are west side down with the amount of movement undetermined.

The north-northeast structural grain is quite evident. Intense cleavage sub-parallel the faulting as do numerous quartz veins. Large scale folding is evident as are small folds within the fault zones. The folds have north-northeast trending fold axes and generally plunge to the north.


The largest fault or shear zone mapped on the west side of the claims is the previously named Old Baldy Fault.

#### Economic Geology


There are three sets of quartz veins in the region. The most common and continuous quartz veins sub-parallel the structural grain at 010° to 045° azimuth. The second set of veins trend 120° and a third set trend 090° to 100° in azimuth. None of the veins appear to be very continuous and they pinch and swell rapidly. Outcrop evidence and numerous float trains suggest however that quartz veining is quite common along the heavily cleaved fault zones. Alteration associated with these quartz veins is very limited. Chlorite-pyrite zones can be found locally as can silicification of the wallrocks adjacent to a few veins.

#### CONCLUSIONS

The mapping conducted on a scale of 1:20,000 found about 5 to 7% outcrop on the claim block. Although abundant evidence of quartz veining was found no significant gold or base metals were found in the surface exposures. The area is cut by at least three northeasterly trending fault zones. These zones consist of multiple fault surfaces with small scale drag folding and intense cleavage developed sub-parallel to them.

Report by:   
D. ANDERSON, P.Eng.  
Project Geologist

Approved by:   
J.M. HAMILTON, P.Eng.

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

Copies:

Mining Recorder (2 copies) ✓  
Western District, Exploration  
Kootenay Exploration

REFERENCES

- Reesor, J.E., 1980/81 Grassy Mountain Mapsheet 82F/8  
Scale 1:50,000 Marginal Notes. GSC
- Hoy, T., 1982 Geology of the Moyie Lake Area  
Scale 1:50,000 Marginal Notes.  
Province of B.C. - Ministry of  
Energy, Mines and Petroleum Resources.



APPENDIX "A"

STATEMENT OF EXPENDITURES

NOKE CLAIM GROUP

June through October, 1983

Salaries


D. Anderson - Geologist, field, mapping 11 days @ \$225	=	\$2,475.00
- Geologist, Office, report writing and map preparation 3 days @ \$225	=	675.00
P. Klewchuk - Geologist, field, mapping 16 days @ \$210	=	3,360.00
- Geologist, Office, map preparation 1 day @ \$210	=	210.00
D.L. Pighin - Geology, field, mapping 5 days @ \$190	=	950.00

Transportation

Helicopter	=	287.58
4x4 Truck - 28 days @ \$40/day	=	1,120.00

Drafting and Reproduction

Pacific Survey and Corporation - Pencil Manuscript for a map base	=	<u>3,053.29</u>
		\$12,130.87

  
D. ANDERSON, P. Eng.  
Project Geologist

IN THE MATTER OF THE  
B.C. MINERAL ACT

AND

IN THE MATTER OF A GEOLOGICAL PROGRAM  
CARRIED OUT ON THE NOKE MINERAL CLAIMS  
CRANBROOK AREA


in the Fort Steele Mining Division of  
the Province of British Columbia

More Particularly N.T.S. 82F/8 and 82G/5

A F F I D A V I T

I, D. Anderson, of the City of Cranbrook, 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 Exhibit "A" to this my Affidavit is a true copy of expenditures incurred on a Geological program, on the Noke mineral claims.
3. That the said expenditures were incurred between the 1st day of June, 1983 and the 31st day of October, 1983 for the purpose of mineral exploration on the above noted claims.

  
D. ANDERSON, P.Eng.  
Project Geologist

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

AUTHOR'S QUALIFICATIONS


As author of this report I, D. Anderson certify that:

I am employed by Cominco Ltd. as a geologist active in minerals exploration.

I am a graduate of the University of British Columbia with a degree of Bachelor of Applied Science.

I have been continuously engaged in geology and mineral exploration for 14 years.

I am a member of the Association of Professional Engineers of British Columbia.

  
D. ANDERSON, P.Eng.  
Project Geologist

GEOLOGICAL BRANCH  
ASSESSMENT REPORT

11,465

Cranbrook

NOKE 1 to 14

Old Baldy  
Mountain

WIMSMITH LAKE  
PROV PARK

Fassiforne

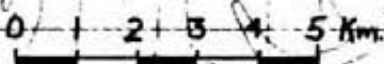
Swansea

Middle Lake  
Monroe

Jerome

Lamb  
Ck

Mines

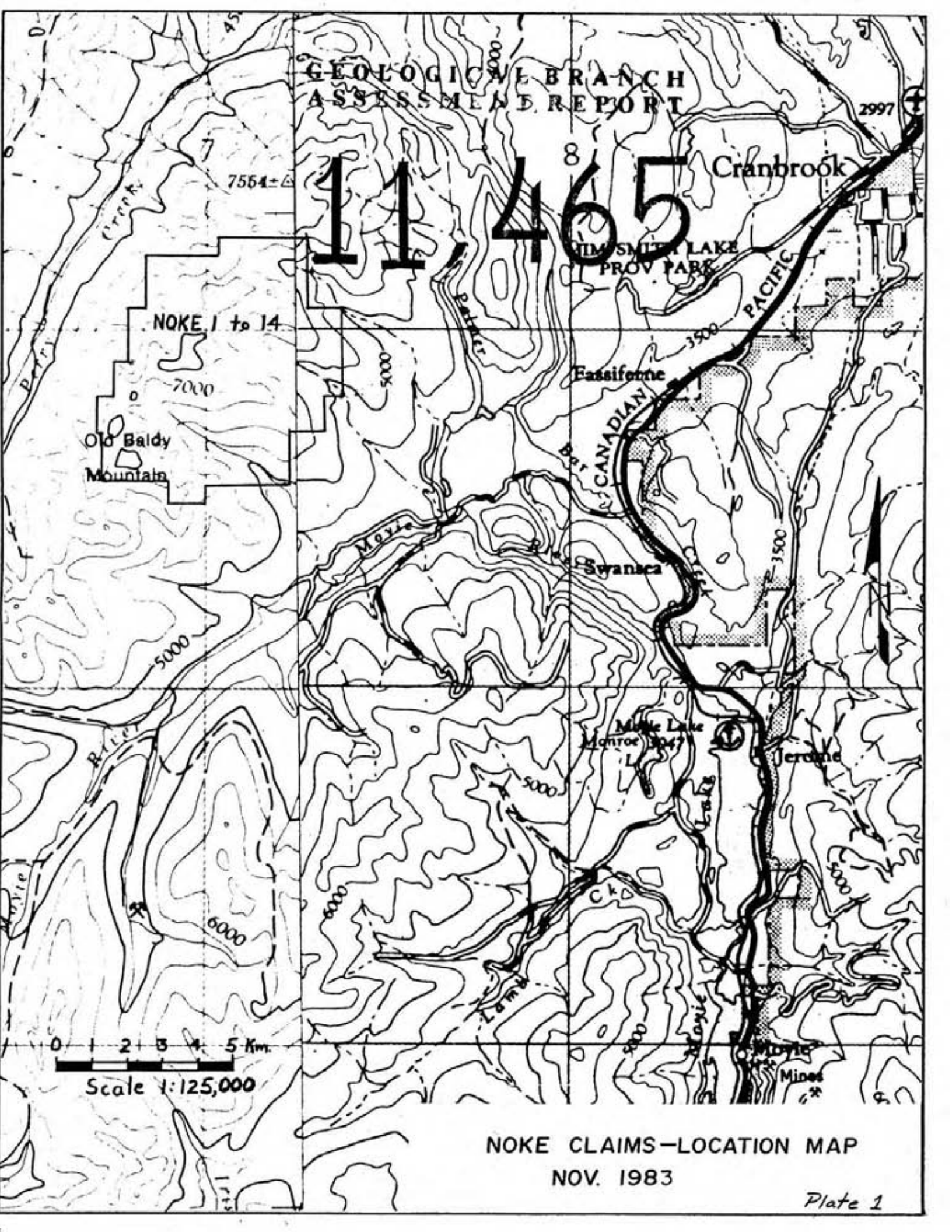


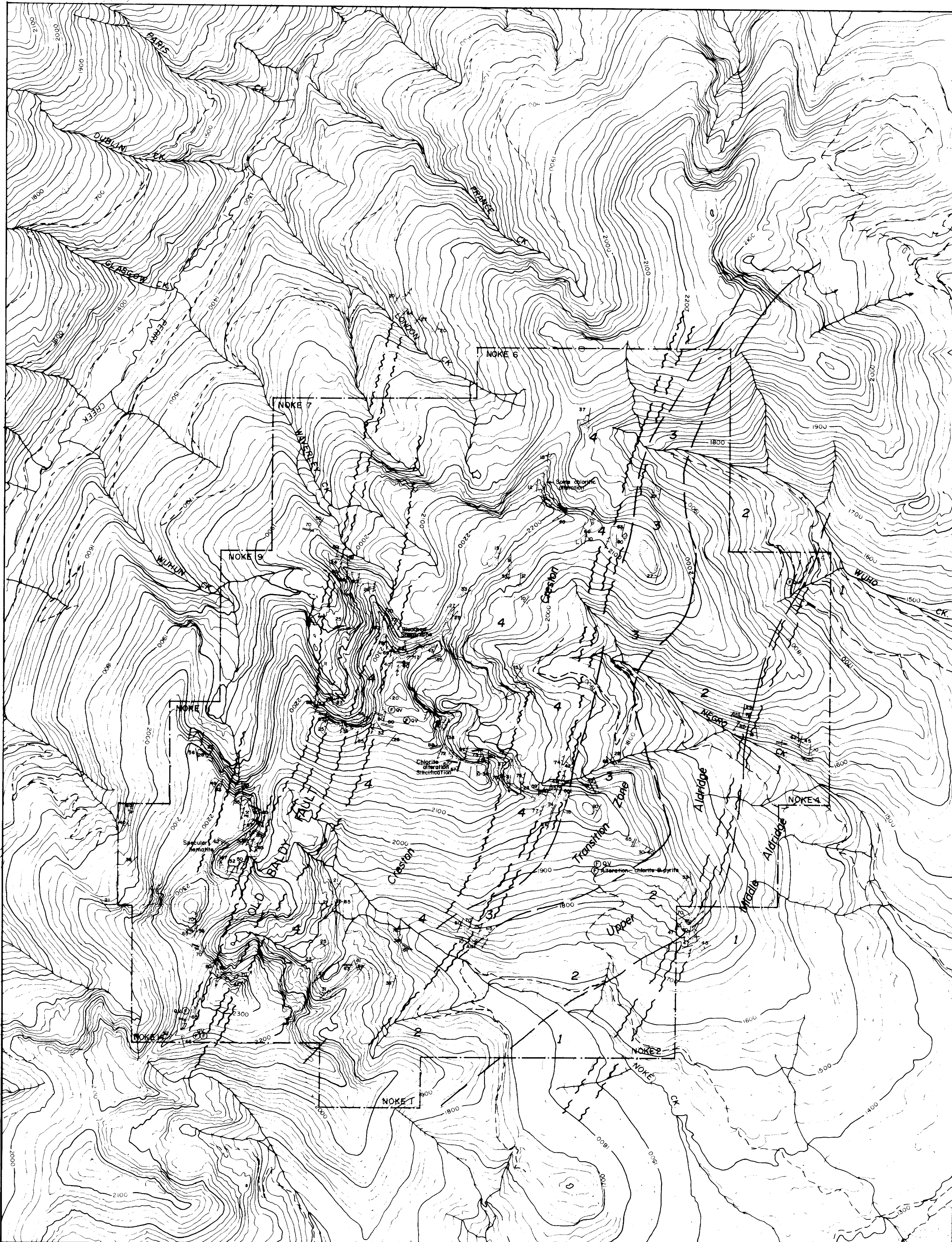
Scale 1:125,000

NOKE CLAIMS—LOCATION MAP

NOV. 1983

Plate 1





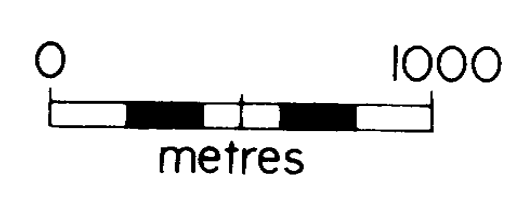
**LEGEND**

- 1 Aldridge - Middle division (oldest)
- 2 Aldridge - Upper division
- 3 Aldridge to Creston Transition
- 4 Creston Formation - 2 subunits (youngest)

**SYMBOLS**

- Geological Contact - defined, assumed
- ~~~~~ Faults
- ↗ Anticline-axial surface trace with plunge
- ↘ Syncline-axial surface trace with plunge
- Bedding
- Cleavage
- Quartz Vein (Q.V.)
- ⊕ Float (talus)
- Outcrop
- Claim Boundaries

Lat. 49° 27'  
Long. 116° 02'



<b>NOKE PROPERTY</b>		
Drawn by: D.A.	Traced by:	
Revised by: Date	Revised by: Date	<b>GEOLOGY</b>
Scale: 1:20,000	Date: OCT 1983	Plate: 2