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3

PRELIMINARY GEOLOGICAL MAPPING

AND

SOIL GEOCHEMISTRY

NORTHERN BELLE GROUP

MOUNT PAYNE

SLOCAN MINING DISTRICT

SANDON, B. C.

LAT. 50°00'N, LONG. 117°12.3'W

82K3E

Owner: G. Bennett  
Operator: L. B. Goldsmith.

ARCTEX ENGINEERING SERVICES

Locke B. Goldsmith, P.Eng.  
Consulting Geologist

March, 1983

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**11,260**

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SUMMARY

Silver-lead-zinc mineralization in fissures has been observed at two locations within the claim group, thus explaining some of the anomalous values obtained in 1981 from soil geochemistry. Additional soil geochemistry in 1982 suggests the presence of two other anomalous concentrations of metals.

Reopening of the adits and trenching with a backhoe-loader is recommended as the next phase of exploration. A budget of \$32,300.00 should be available.

## INTRODUCTION

The group consists of two reverted crown grants and two located claims.

<u>Name</u>	<u>Lot Number</u>	<u>Record Number</u>
Northern Belle	L 3173	1143(3)
Galena Fraction	L 4895	
Judith Ann		2688(9)
Ju Ju 1		3000(8)

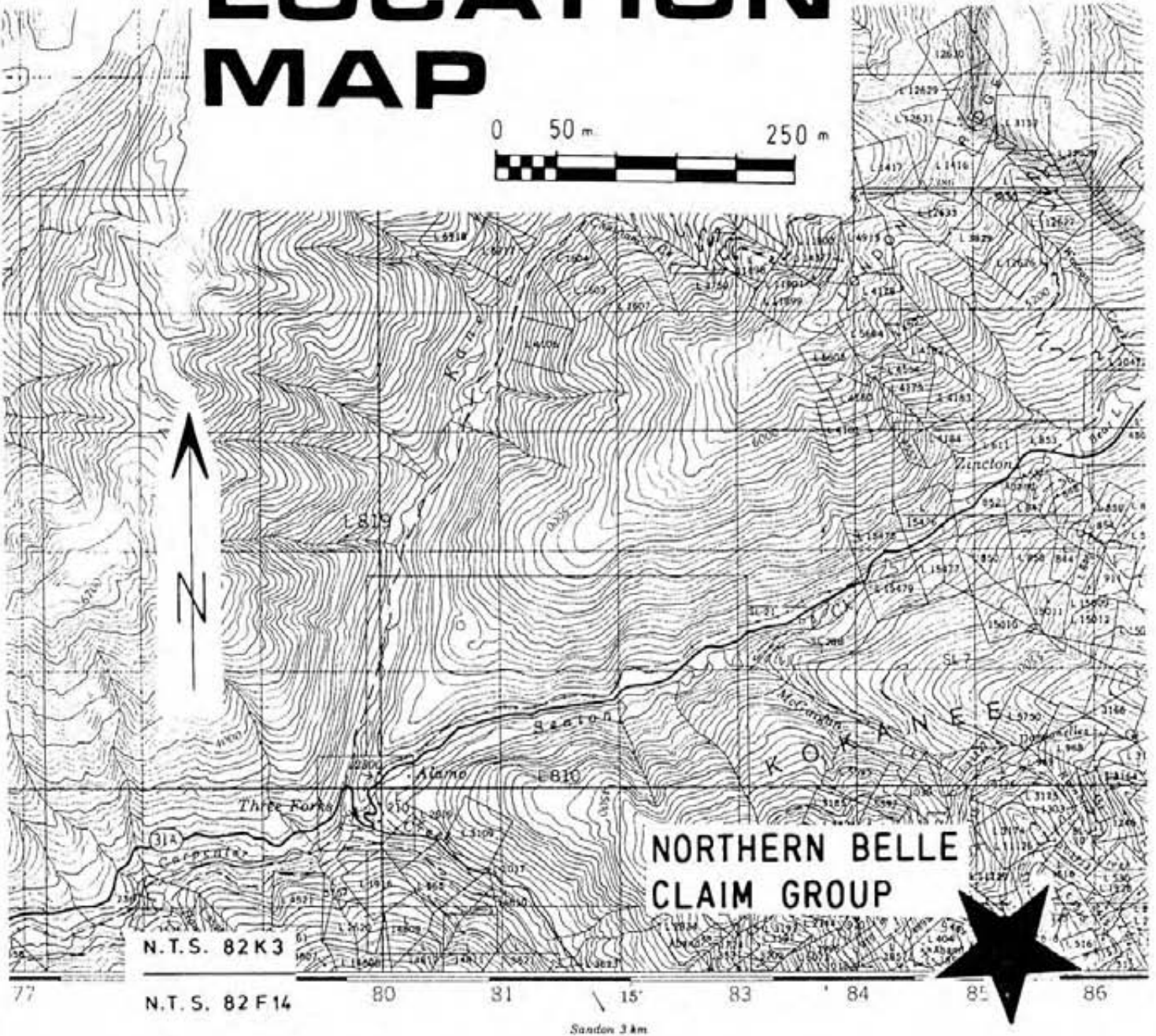
The Ju Ju 1 was recorded August 30, 1982. Because of a contest rumoured to have been lodged with the Chief Gold Commissioner by the former holders of the ground who allowed their claim to lapse, the recording notice has not been placed on file.

Two kilometres (1.25 miles) west of Zincton, a dirt road departs from Highway 31A and trends southeasterly up the valleys of McGuigan and Rambler creeks, eventually turning southwesterly and thence southerly to the Old Tom Moore and Antoine Mines. During 1981 a road was extended westerly and southerly from a switchback on a talus slope midway between the former mines. Approximate location of the new road where it crosses the Northern Belle group is shown on the soil geochemistry map. Total distance from Highway 31A to the property is about 10 km (6 miles). Elevations range from 2135 m (7000') to 2410 m (7900') within the claim boundaries.

Two adits which have soil slumped over the portals were observed on the Northern Belle claim. Dumps are small; the workings are probably not extensive. An open stope above and to the north of the upper adit has been mined to surface where it breaks through on a steep, north-facing cliff. Some unrecorded production has therefore been attained from the property.

Eighteen soil samples were collected on a grid within the Ju Ju 1 claim.

# LOCATION MAP



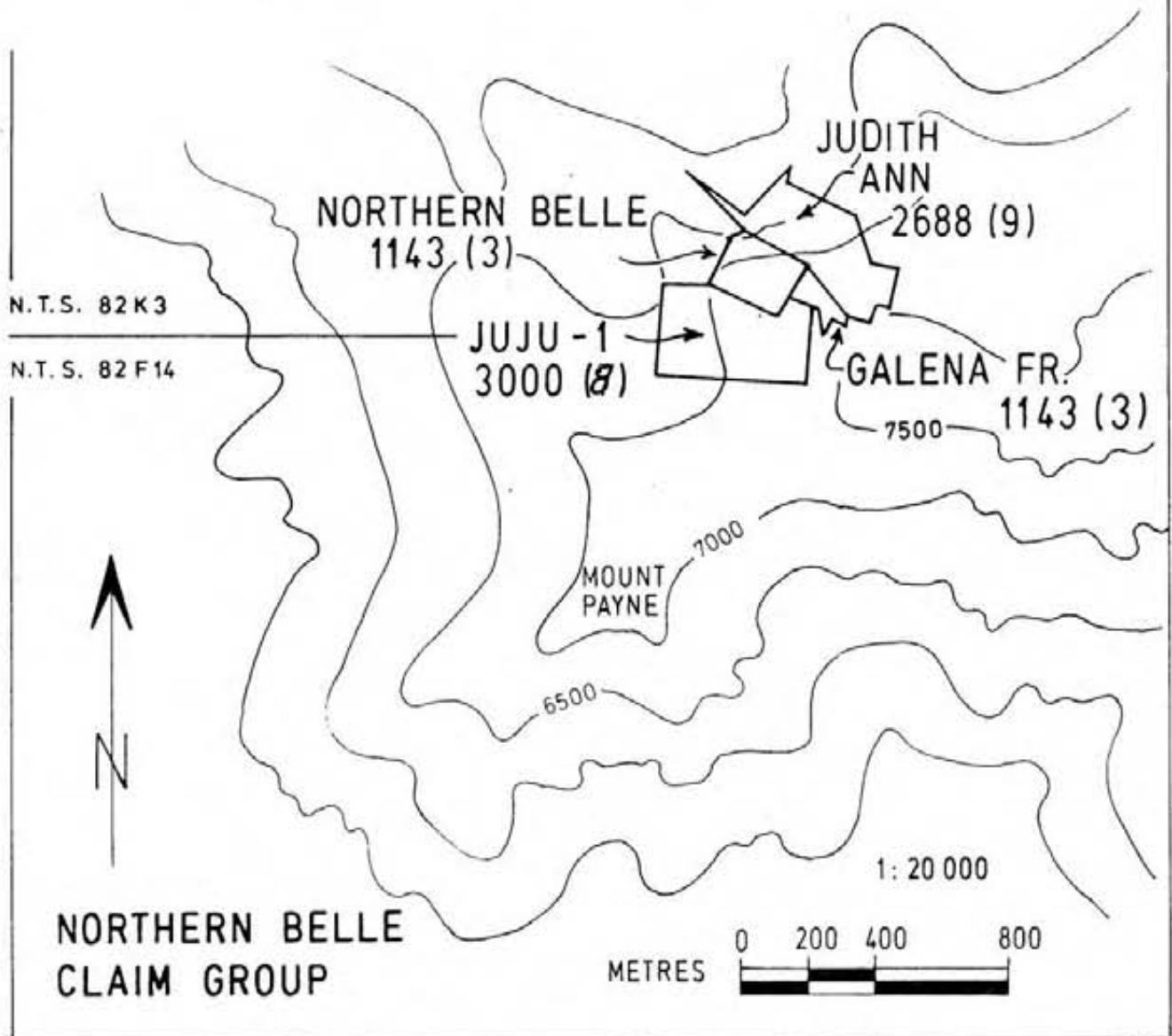
TO ACCOMPANY REPORT BY  
**L. B. GOLDSMITH, P.Eng.**  
CONSULTING GEOLOGIST



**ARCTEX**  
ENGINEERING SERVICES

MARCH 1983

# CLAIM MAP



TO ACCOMPANY REPORT BY  
**L. B. GOLDSMITH, P.Eng.**  
CONSULTING GEOLOGIST



**ARCTEX**  
ENGINEERING SERVICES

MARCH 1983

## GEOLOGY AND MINERALIZATION

The area is underlain by Slocan sediments, a thick sequence of argillite and shale, with subordinate amounts of quartzite, limestone, and tuff. Feldspar porphyry sills (??) up to 5 m thick can be seen in a cliff face along the northeast side of the Galena Fraction claim; these bodies are pygmatically folded, and when viewed from a distance appear to outline recumbent folds. Fragments of micaceous lamprophyre or minette were noted in soil at 1+00 E, 3+00 S.

Bedding attitudes have assisted in mapping folds. It is likely that other axes are concealed beneath overburden. Where the road rounds the ridge crest in the western portion of the Northern Belle claim a near-continuous outcrop exposure allows some confidence in interpretation of folding. Although at road level the fold pattern appears to be upright isoclinal, within approximately 30 m (100') upslope to the southeast the crest of the anticline can be seen to gradually assume a recumbent position, overturned to the northeast. The pattern is part of the regional, northwesterly-trending Slocan fold.

There is a suggestion that silver-lead-zinc mineralization is localized in 070°-trending fissures where they cross the hinge zones of the northwesterly-trending folds. Detailed mapping on cliff faces near the observed mineralization may clarify the suggested relationship.

A sample (NB-001) of sulphides from the dump at the upper adit contained 37.74 oz Ag/ton, 29.18% Pb, 3.80% Zn, and 0.014 oz Au/ton. It is probable that this adit meets the downward projection of the stope (see Geology and Soil Geochemistry Map). Sample NB-002 (El. 2166 m, 7100') from a dump at the western end of the stope, contains 10.38 Ag/ton, 5.20% Pb, 16.98% Zn, and 0.022 oz Au/ton. Galena could be seen in place in the stope but it was deemed imprudent to enter the unsupported opening. The stope strikes 075°, dips 40°S, and has been mined for widths of 0.6-1.2 m (2'-4') over a length of +10.6 m (35').

Sample NB-003 (8.30 oz Ag/ton, 4.30% Zn) was taken from a shear zone exposed on the ridge crest at elevation 2350 m (7700'). The material consisted of vuggy, iron-stained calcite; there were no visible sulphides.



Sample NB-004, from a shear zone on the level ridgetop (El. 2380 m, 7800'), trending 350°, 50°NE, is located to the southeast of the map area and outside of the claim block. The zone is thoroughly stained with black oxide. Galena was observed as disseminations. A grab sample assayed 1.88 oz Ag/ton, 1.34% Pb, 4.41% Zn, and 0.02 oz Au/ton.

Sample NB-005, which contains much pyrite and sphalerite, is from a dump (El. 2312 m, 7580') at a caved adit portal on the west side of the spur ridge, approximately 46 m (150') down from the crest, at Az. 285° from the peak. This adit corresponds to the "Galena" workings described by Cairnes (1935, p. 43), who notes that the mineralization contains a high proportion of zinc; the assay of selected material confirms Cairnes' observation (12.06 oz Ag/ton, 0.27% Pb, 37.06% Zn, Tr Au). Size of the dump is 46 m (150') downslope X 4.6 m (15') perpendicular to the slope X 9.2 m (30') along the contour.

At location NB-006 (El. 2111 m, 6920') a chip-channel sample across 0.6 m (2') of a mineralized fissure which contains bands of galena up to 2.5 cm (1") wide assayed 13.36 oz Ag/ton, 13.90% Pb, 0.40% Zn, and 0.020 oz Au/ton. An inclined shaft or pit has been sunk on the fissure to a depth of ±6 m (20'). The fissure trends 070°, 32°S, varies in width from 0.15 m (0.5') to 0.6 m (2'), and is obscured by overburden and talus within 3 metres on strike in either direction. Grab sample NB-007 from the hangingwall of the fissure contains 5.54 oz Ag/ton and 3.05% Pb; this specimen is of bedded pyrite in black shale and argillite with a rhyolitic tuff component. Bedding trends 130°, 48°SW. Because this fissure is located to the north of NB-002, is 55 m (180') lower, and attitudes of both are 070°-075°, 35°-40°S, the two occurrences of mineralization are on different structures.

## SOIL GEOCHEMISTRY

Values derived from the 1981 survey had been plotted incorrectly and have been moved northerly along the road.

Samples were collected at 50-metre spacings on lines 100 metres apart. Line 00 followed the cutbank of the road southerly from the 1981 work. Soil was obtained between 0.15-1.2 m (0.5'-4') below organic debris. Soil is generally brown to black, clay-rich, with argillite and quartzite fragments.



Extensive sampling in argillite terrain in the immediate vicinity has established the following statistical levels of silver, lead, and zinc.

	<u>Background</u>	<u>Threshold</u>	<u>Anomalous</u>
ppm Ag	-2.3	2.3 to 4.9	+4.9
ppm Pb	-38	38 to 150	+150
ppm Zn	Mixed populations		+980

Silver is anomalous at 00, 1+00 S and threshold at 00, 3+00 S; lead is anomalous at both of these stations. None of the known occurrences of mineralization could have contributed metals which would have migrated downslope to these locations.

Shearing in an easterly direction between 00, 1+00 S and 00, 2+50 S may be related to fissure (lode) zones.

## CONCLUSIONS

At least two fissure (lode) zones contain silver-lead-zinc mineralization within the claim group. Another source of silver and lead is presumed to exist upslope (easterly) from 00, 1+00 S.

## RECOMMENDATIONS

1. A road to the adits should be prepared, extending northerly from the present road at approximately 00, 1+50 S. The portals should be excavated with a backhoe-loader. Trenches should be excavated upslope from anomalous silver and lead values in soils.
2. Geochemical sampling should be completed along new roads or trenches.
3. Detailed geological mapping and sampling should be undertaken, both of surface and underground.

## COST ESTIMATE

1. Backhoe-loader; roads, trenching and portal excavation	\$15,000	
Supervision	4,000	
Vehicle, travel, room, board, supplies	<u>1,500</u>	
	20,500	
Contingencies @ 20%	<u>4,100</u>	
	\$24,600	\$24,600
2. Soil sampling	\$ 500	
Analyses	<u>500</u>	
	1,000	
Contingencies @ 10%	<u>100</u>	
	\$ 1,100	1,100
3. Geological mapping, sampling	\$ 2,000	
Analyses, assays	1,000	
Vehicle, travel, room, board, supplies	1,000	
Reporting	<u>2,000</u>	
	6,000	
Contingencies @ 10%	<u>600</u>	
	\$ 6,600	6,600
	TOTAL	\$32,300



Respectfully submitted,

A handwritten signature in cursive script that reads "Locke B. Goldsmith".

Locke B. Goldsmith, P.Eng.  
Consulting GeologistVancouver, B. C.  
March 12, 1983

ENGINEER'S CERTIFICATE  
 LOCKE B. GOLDSMITH

1. I, Locke B. Goldsmith, am a Registered Professional Engineer in the Province of Ontario and a Registered Professional Geologist in the State of Oregon. My address is 301, 1855 Balsam Street, Vancouver, B. C.
2. I have a B.Sc. (Honours) degree from Michigan Technological University and have done postgraduate study in Geology at Michigan Tech, University of Nevada and the University of British Columbia. I am a graduate of the Haileybury School of Mines and am a Certified Mining Technician. I am a member of the Society of Economic Geologists, the AIME, and the Australasian Institute of Mining and Metallurgy, and a Fellow of the Geological Association of Canada.
3. I have been engaged in mining exploration for the past 24 years.
4. I have authored the report entitled, "Preliminary Geological Mapping and Soil Geochemistry, Northern Belle Group, Mount Payne, Slocan Mining District, Sandon, B. C.", dated March 12, 1983. The report is based upon fieldwork and research supervised by the author.
5. I own, with associates, 100% interest in the property.
6. I consent to the use of this report in a prospectus or in a statement of material facts related to the raising of funds.



Respectfully submitted,

*Locke B. Goldsmith*

Locke B. Goldsmith, P.Eng.  
 Consulting Geologist

Vancouver, B. C.

March 12, 1983

## REFERENCES

1. Cairnes, C. E., 1934, Slocan Mining Camp, British Columbia; GSC Memoir 173.
2. \_\_\_\_\_, 1935, Description of Properties, Slocan Mining Camp, British Columbia; GSC Memoir 184.
3. Goldsmith, L. B., 1982, Soil Geochemistry, Northern Belle Group, Mount Payne, Slocan Mining District, Sandon, B. C.; Private Report.
4. MINDEP Computer Files, University of British Columbia.

## COST SUMMARY, 1982 PROGRAMME

1.	L. B. Goldsmith, Aug. 12, 13, 26, Sept. 2, $\frac{1}{2}$ March 9, 12, $\frac{1}{2}$ 13, total 6 days @ \$360/day	\$2,160.00	
	G. Bennett, Sept. 2, 1 day @ \$180/day	<u>180.00</u>	
		2,340.00	\$2,340.00
2.	Meals, accommodation - \$71.70 $\div$ 5 field days = \$14.34/day		71.70
3.	Transportation, \$192.00 $\div$ 4 = \$48.00/day Aug. 12, 13, 26, Sept. 2, 40 miles/day, 4 days, \$0.30/mile Truck rental, \$30/day Gas	\$ 48.00 120.00 <u>24.00</u>	192.00
		192.00	192.00
4.	Geochemical analyses and assays \$290.00 $\div$ 25 samples = \$11.60/sample		290.00
5.	Report - drafting, prints, report materials, typing		<u>337.50</u>
		TOTAL	\$3,231.20

A P P E N D I X



To: L. B. GOLDSMITH,  
 301 - 1855 Balsam Street,  
 Vancouver, B.C. V6K 3M3



File No. 23948  
 Date September 27, 1982  
 Samples Rock

Certificate of  
 ASSAY of  
 LORING LABORATORIES LTD.

Page # 1

SAMPLE No.	OZ/TON Gold	OZ/TON Silver	% Pb	% Zn
NB-001	.014	37.74	29.18	3.80
NB-002	.022	10.38	5.20	16.98
NB-004	.002	1.88	1.34	4.41
NB-005	Trace	12.06	.27	37.06
NB-006	.020	13.36	13.90	.40
CP-1	---	5.24	7.99	9.17
CP-3	---	.66	.45	1.30
CP-4	---	2.28	3.30	10.89
CP-5	---	.02	.10	.86
NB-003		8.30	----	4.30
NB-007		5.54	3.05	----

**I Hereby Certify** THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.  
 Pulps Retained one month  
 unless specific arrangements  
 made in advance.

*Paul J. ...*  
 Assayer



# LORING LABORATORIES LTD.

Phone 274-2777

629 Beaverdam Rd. N.E.  
Calgary 67, Alberta

## Geochemical Analysis of Soils, Sediments and Silts.

FOR: Copper, Lead, Zinc, Nickel and Silver, and Cobalt

### Sample Preparation:

- Samples were placed in dryer overnight at 105°C.
- All samples are sieved through an 80 mesh nylon screen.
- The minus 80 is placed in pre-marked sample bag for analysis. The plus 80 portion is discarded.

### Sample Dissolution:

- 1/2 gram samples are weighed and transferred to test tubes.
- One ml water added, then three mls hydrochloric (concentrated), one ml nitric acid (concentrated) are added.
- Test tubes are then placed into hot water bath 100°C and digested for three hours with occasional shaking to ensure complete digestion.
- Test tubes are removed from water bath and allowed to cool.
- Test tubes are bulked to exactly 10 mls, corked and shook.
- All samples are then allowed to settle until clear.
- The clear solutions are then aspirated through the atomic absorption spectrophotometer with appropriate standards to obtain the metal content.

### Detection Limits and Precision:

<u>Element</u>	<u>Detection Limit</u>	<u>Precision at 100 ppm level</u>
Copper	1 ppm	+ - 2 ppm
Lead	2 ppm	+ - 4 ppm
Zinc	1 ppm	+ - 2 ppm
Nickel	1 ppm	+ - 2 ppm
Silver	0.2 ppm	+ - 1 ppm
Cobalt	1 ppm	+ - 4 ppm

To: L. B. GOLDSMITH,  
 301 - 1855 Balsam Street,  
 Vancouver, B.C. V6K 3M3



File No. 23948  
 Date September 27, 1982  
 Samples Soil

Certificate of  
 ASSAY of  
 LORING LABORATORIES LTD.

Page # 2

SAMPLE No.	ppm Pb	ppm Zn	ppm Ag
<u>"Soil Samples"</u>			
NB-00-0+50S	53	355	1.9
00-1+00S	188	590	10.2
00-1+50S	31	178	1.4
00-2+00S	40	205	1.6
00-2+50S	72	265	1.9
00-3+00S	174	295	3.2
1+00E-0+50S	29	61	.6
1+00E-1+00S	50	290	1.1
1+00E-1+50S	98	285	.8
1+00E-2+00S	56	230	.8
1+00E-2+50S	102	435	1.6
1+00E-3+00S	78	153	1.5
2+00E-0+50S	41	146	.9
2+00E-1+00S	95	275	.7
2+00E-1+50S	58	310	1.4
2+00E-2+00S	71	590	1.5
2+00E-2+50S	62	220	1.6
2+00E-3+00S	41	135	1.0

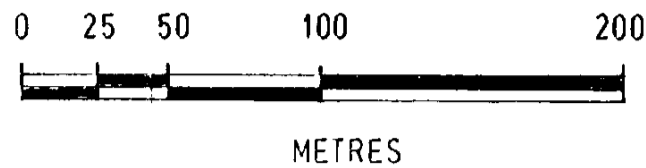
**I Hereby Certify** THAT THE ABOVE RESULTS ARE THOSE  
 ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . .

Rejects Retained one month.  
 Pulps Retained one month  
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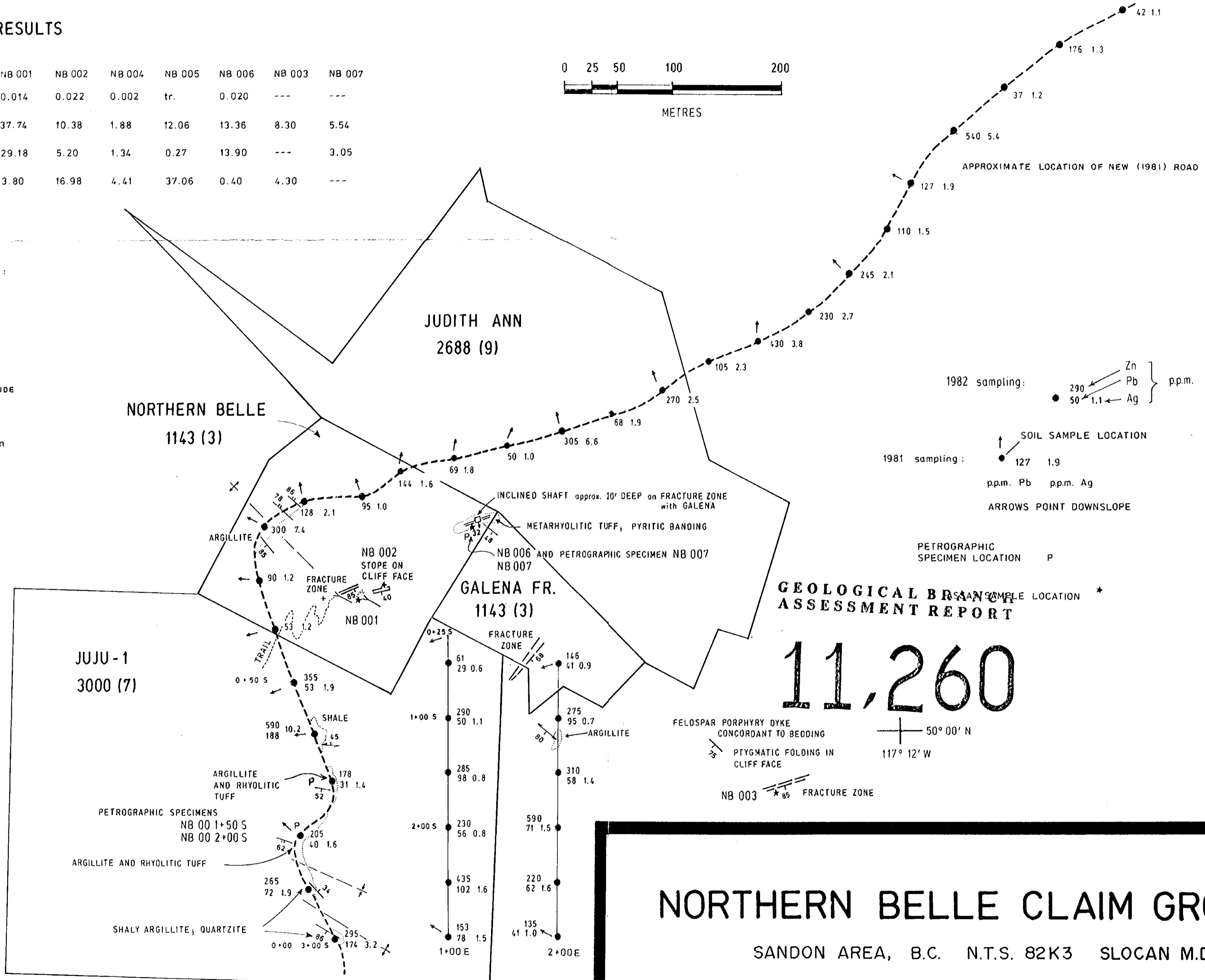
*[Signature]*  
 Assayer

**ASSAY RESULTS**

SAMPLE No.	NB 001	NB 002	NB 004	NB 005	NB 006	NB 003	NB 007
OZ./TON Au	0.014	0.022	0.002	tr.	0.020	---	---
OZ./TON Ag	37.74	10.38	1.88	12.06	13.36	8.30	5.54
% Pb	29.18	5.20	1.34	0.27	13.90	---	3.05
% Zn	3.80	16.98	4.41	37.06	0.40	4.30	---



- FOLD AXIS:
  - ANTICLINE
  - SYNCLINE
- FOLIATION
- BEDDING WITH ATTITUDE
- FLAT
- TOPS UPWARDS
- Approx. location OLD ADIT
- SHAFT
- INCLINE
- OUTCROP



**GEOLOGICAL BRANCH SAMPLE LOCATION**

**11,260**

- FELDSPAR PORPHYRY DYKE CONCORDANT TO BEDDING
- PTYGMATIC FOLDING IN CLIFF FACE
- FRACTURE ZONE

**NORTHERN BELLE CLAIM GROUP**  
 SANDON AREA, B.C. N.T.S. 82K3 SLOCAN M.D.  
 1981 & 1982 **SOIL GEOCHEMISTRY** 1:2500  
 SHOWING LOCAL GEOLOGY ASSAY SAMPLING & PETROGRAPHIC SPECIMENS.

To accompany report by  
 L. B. GOLDSMITH P. Eng.  
 ARCTEX ENGINEERING SERVICES

**MARCH 1983**

