

REPORT ON THE
EBB GROUP
for

Doobah Mining Ltd. (NPL)
by
M. K. Lorimer, P.Eng.

PROPERTY FILE

92C077(10W)

L. J. Manning & Associates Ltd.
310 - 890 West Pender Street
Vancouver, B.C.

October 12, 1972.

L. J. MANNING & ASSOCIATES LTD.
CONSULTING MINING AND GEOLOGICAL ENGINEERS

610-890 WEST PENDER STREET VANCOUVER 1, B.C.

OFFICE PHONE:
683-5861

RESIDENTIAL PHONE:
L. J. MANNING - 985-5690

October 12, 1972.

Doobah Mining Ltd. (NPL)
1722 Barnard Ave.
Kelowna, B.C.

Dear Sirs:

This report on the Ebb claims is based on a visit made on 3 October, 1972, and on a study of available maps of the area.

SUMMARY:

The Ebb group consists of 12 recorded claims and 16 recently staked claims near Nitinat Lake on Vancouver Island.

The area is relatively flat but a heavy forest growth and logging debris make walking difficult.

The claims cover an area of heavy overburden. Outcrops indicate that the underlying rocks consist of volcanics and sediments with quartz diorite intrusives. Sulphides, consisting of pyrite, chalcopyrite and sphalerite occur in several fractured and oxidized areas of the volcanics. The heavy overburden obscures the frequency, extent and continuity of these metallic showings.

The geology is regarded as favourable for the occurrence of metallic deposits.

A phased programme of geological, aeromagnetic and induced polarization surveys is recommended followed, if warranted, by diamond drilling.

The estimated cost is \$16,600 for Phase I and a minimum of \$40,000 for diamond drilling in Phase II.

LOCATION:

The property is located at Doobah, Cheewat and Sprise Lakes near Nitinat Lake on the southwest coast of Vancouver Island. It is most conveniently reached by air but access may be gained over logging roads from Cowichan Lake and a short barge trip on Nitinat Lake. The northern claims cover a logged-off area where logging roads provide convenient local access.

The geographic location is $N48^{\circ}42'$, $W124^{\circ}45'$, the National Topographic System area is 92C10 and the Mining Division is Victoria. Elevations range from about 100 to 400 feet above sea level. Map 1.

TITLE:

The property consists of 12 claims staked and recorded in April, 1972, and 16 claims staked a few days before the examination and not recorded at that time.

The 12 recorded claims are all named Ebb without any numerical prefix or suffix. They can only be distinguished in the field by their tag numbers and on staking maps by their record numbers. The tag numbers are from 268535M to 268546M and the record numbers are from 17363 to 17374. The expiry date is 12 April, 1973, and the owner, according to records in the Vancouver Mining Recorder's office on 6 October, 1972, is F. Bowman. The newly staked claims are named Tide.

The claim posts indicate that the property has been staked in accordance with the provisions of the Mineral Act but the claims are approximately one half mile north of the described location.

TOPOGRAPHY:

The area is generally fairly flat with a maximum relief of about 300 feet but locally there are low cliffs and steep slopes. The chief impediments to travel are the heavy forest growth of hemlock, cedar and salal on the southern claims and the stumps and logging debris on the northern claims.

Three small lakes lie partly within the property boundaries. There are also several small streams.

Most of the area is covered with overburden. It appears to be shallow on the hillsides but it could be deep in the low-lying areas. Enough outcrops exist to give a general idea of the geology.

CLIMATE:

The climate is mild for most of the year but the precipitation is heavy, averaging about 100 inches per year. The snowfall is light and in some years is practically non-existent. Low clouds and fogs are common.

HISTORY:

As far as is known, no mining work of any consequence has been done on the property other than minor attempts to open up the various showings.

GEOLOGY:

There appears to be no detailed geological mapping of the region. The Geological Survey of Canada Map 932A, on a scale of 20 miles to the inch, shows the claims area to be underlain by sedimentary and volcanic rocks of the Leech River formation and the Malahat volcanics. Immediately to the north, and mapped with the contact close to the northern boundary of the property, is a body of acidic to intermediate intrusives.

Outcrops examined adjacent to showings of chalcopryite proved to be mainly highly oxidized tuffs and basalts, frequently vesicular. Associated sediments are quartzites and limestone. The rocks are highly fractured in all directions.

The main showings are on a knoll north of the centre of Cheewat Lake and about 700 feet from the shore. They consist of three poorly exposed and highly oxidized occurrences of pyrite and chalcopryite. One is located near the top of the knoll where the rock is a quartz diorite with lighter phases having the appearance of a granite. Sparse pyrite and chalcopryite occur in fractures in these rocks.

Approximately 100 feet to the south and the same distance to the southeast are two other exposures. Here the rocks are volcanics and again they are fractured and oxidized. The sulphides are much more plentiful here than in the intrusives. They occur as blebs and fracture fillings. Epidote and malachite stains are prominent associates. Fault gouge carries specks of pyrite and chalcopyrite.

The knoll gives the appearance of being a cupola of the intrusive which is well exposed to the northeast. The intense faulting and fracturing and the sulphide mineralization of the surrounding volcanics are undoubtedly the results of intrusive uplifting.

Several minor occurrences of chalcopyrite mineralization are located in volcanic rocks north and east of Sprise Lake.

SAMPLING:

Meaningful channel samples were difficult to obtain because of the random fracturing. The samples taken were of necessity cut partly along, and partly across, fracture planes.

Two samples were taken from the two exposures in the volcanics at the main showings. They were assayed for copper and zinc by General Testing Laboratories of Vancouver with the following results:

<u>No.</u>	<u>Width (ft)</u>	<u>Copper (%)</u>	<u>Zinc (%)</u>
1	3	0.45	0.08
2	4	1.07	0.10

CONCLUSIONS:

The Ebb claims are located in an area of intrusive activity. Since copper and zinc are known to be present, the area is geologically favourable for the deposition of economic deposits.

Showings of copper minerals in several isolated areas indicate that the mineralization is widespread.

The metallic mineralization is probably associated with the intrusive and should be looked for near intrusive-volcanic contacts.

Because of the rough ground, overburden and heavy forest growth, preliminary exploration can best be carried out by geophysics. Geochemistry does not appear to be a useful technique particularly on the northern claims where the ground has been disturbed by logging.

The property appears to warrant a phased exploration programme.

RECOMMENDATIONS:

In accordance with the foregoing discussion and conclusions it is recommended that a two-phased exploration programme be carried out on the Ebb group, the second phase to be entirely dependent on the results of the first.

Phase I:

1. Set up a small camp or move a camper onto the property.
2. Geologically map all outcrops to assist in interpretation of geophysical results.
3. Carry out an airborne magnetometer survey with flight lines one eighth of a mile apart and ground clearance of 300 feet, for the purpose of locating contacts and other features of the underlying rocks.
4. Lay out a ground grid with lines 400 feet apart over areas considered of interest from the results of the aeromagnetic survey.
5. Conduct an induced polarization survey over the grid, initially on the 400-foot lines and then on intermediate lines where warranted.

Phase II:

Diamond drill any target areas located by the Phase I surveys. A fairly heavy drill will be required to penetrate the badly broken ground.

L. J. MANNING & ASSOCIATES LTD.

COSTS:

The estimated costs are:

Phase 1:

1.	Camp facilities		\$ 1,000
2.	Geologic survey		1,000
3.	Aeromagnetic survey		5,000
4.	Ground grid, assuming $\frac{1}{4}$ of the total area to be covered. 8 miles @ \$300/mile		2,400
5.	I.P. survey: Mobilization & demobilization-		
		\$1,000	
	8 miles @ \$400/mile	<u>3,200</u>	
	Total I.P. survey		4,200
6.	Engineering & supervision		1,500
7.	Miscellaneous and contingencies @ 10%		<u>1,500</u>
	Total Phase 1		\$16,600

Phase II:

The cost of this phase cannot be estimated at present, assuming a minimum of 2,000 feet of drilling at a cost of \$20.00 per foot including all costs, the minimum would be

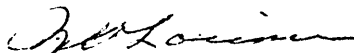
\$40,000

Total minimum cost for both phases

\$56,600

Yours truly,

L. J. MANNING & ASSOCIATES LTD.



M. K. Lorimer, P. Eng.

MKL:kd1


CERTIFICATE OF QUALIFICATIONS

I, MALCOLM KEITH LORIMER, of the City of Vancouver, Province of British Columbia, Mining Engineer, hereby certify:

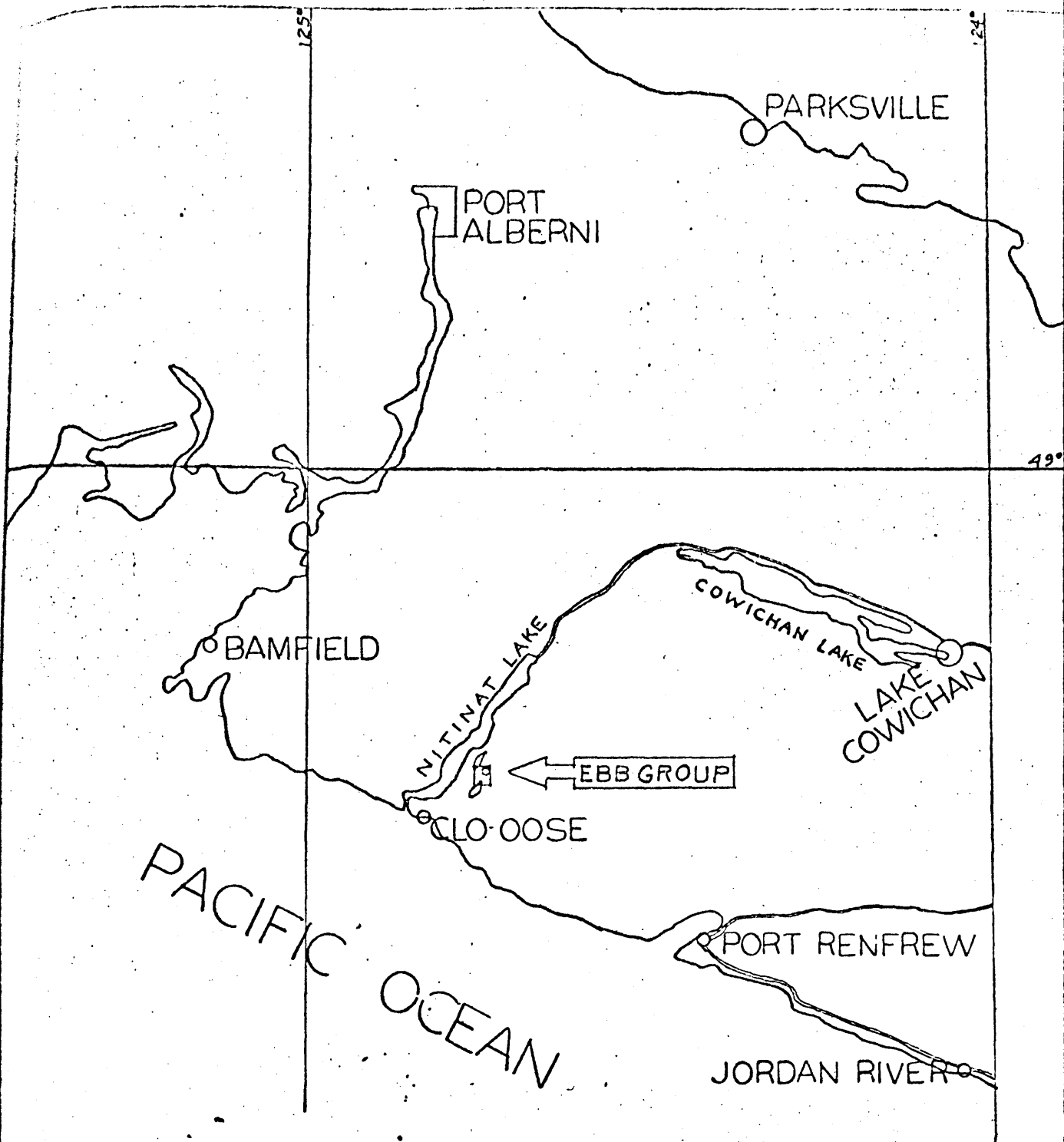
1. THAT I am a practicing Mining Engineer and reside at 3082 West 27th Avenue, Vancouver, B.C.
2. THAT I am a graduate in Mining Engineering of the University of British Columbia, Bachelor of Applied Science, 1950 and have been practicing my profession for over twenty-two years.
3. THAT I am a member of the Association of Professional Engineers of the Province of British Columbia.
4. THAT I am a member of the Canadian Institute of Mining and Metallurgy.
5. THAT I am an associate of the firm of L. J. Manning & Associates Ltd., Consulting Mining Engineers, of 310 - 890 West Pender Street, Vancouver 1, B.C.
6. THAT the following is a true record of my employment and experience:

1950 - 52	General engineering, Consolidated Mining and Smelting Company of Canada Limited, Kimberley, B.C.
1952 - 56	Chief Engineer, Pioneer Gold Mines of B.C. Ltd., Pioneer Mines, B.C.
1956 - 57	Chief Engineer, Buchans Mining Co. Ltd. Buchans, Nfld.
1957 - 59	Chief Engineer and Mine Superintendent, Cowichan Copper Co. Ltd., Cowichan Lake, B.C.
1959 - 65	General Exploration work for various companies mostly in southern British Columbia.
1965 - Present	Associate, L. J. Manning & Associates Ltd., Vancouver.
7. THAT I have no direct or indirect interest in the properties or securities of Doobah Mining Ltd. (NPL) or any of its affiliates nor do I expect to acquire any.

DATED at Vancouver, British Columbia, the 12th day of October, 1972.



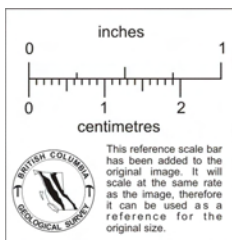
M. K. Lorimer, B.A. Sc., P. Eng.



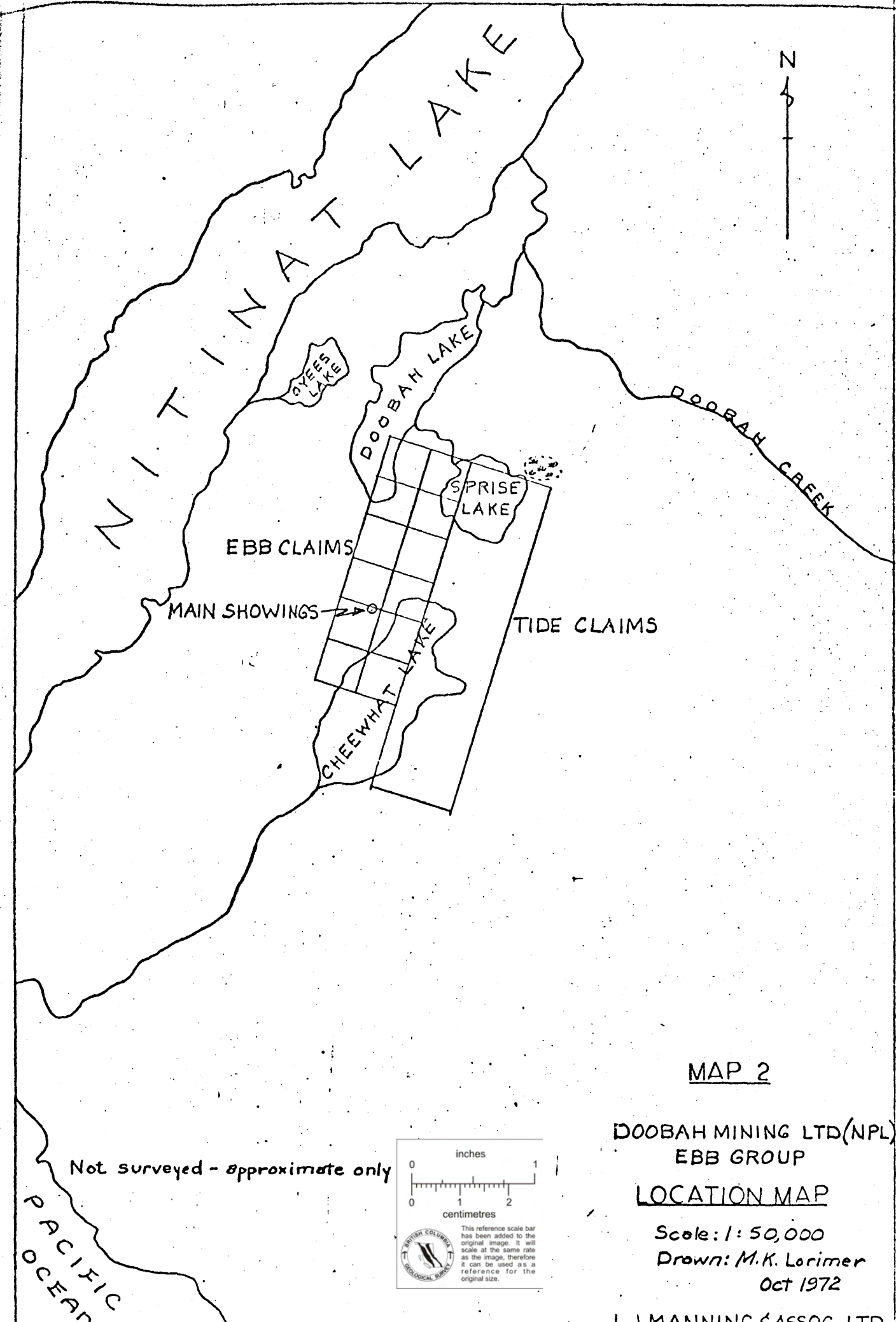
MAP 1

DOOBAH MINING LTD NPL
 EBB GROUP
LOCATION MAP

Scale: 1" = 10mi.
 Drawn: M.K Lorimer
 Oct 1972



LJMANNING & ASSOC. LTD.



EBB CLAIMS
 MAIN SHOWINGS →

TIDE CLAIMS

MAP 2

DOOBAH MINING LTD (NPL)
 EBB GROUP

LOCATION MAP

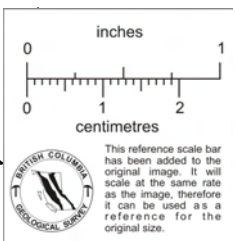
Scale: 1 : 50,000

Drawn: M.K. Lorimer

Oct 1972

LJ MANNING & ASSOC. LTD.

Not surveyed - approximate only



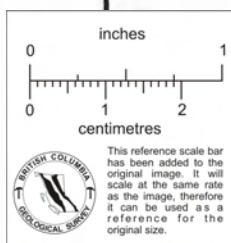
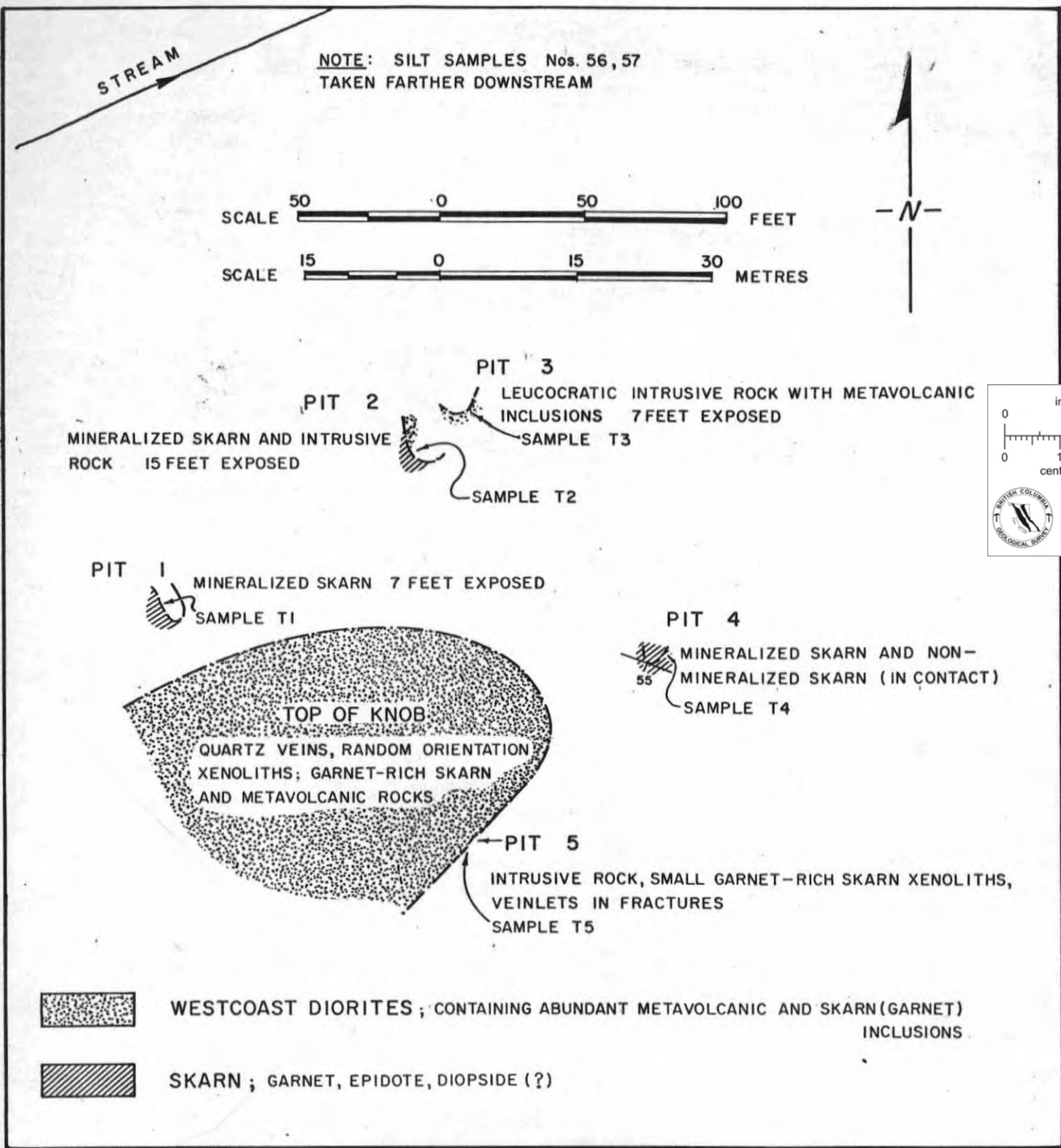
PACIFIC OCEAN

EBB

92C-77

on EBB (17364)

no claim number



5"

Location of pits on Ebb, Tide prospect corresponds to III on Figure 24