3603

GEOLOGICAL REPORT

PREPARED FOR

KEITH COPPER MINES LTD. (N.P.L.)

104 A / 4E & W

ON THE

STEWART PROPERTY

SITUATED AT BEAR RIVER AREA,

STEWART, BRITISH COLUMBIA

BY

S. VENKATARAMANI, M.Sc., P.Eng.

MAY 3, 1972

VANCOUVER, BRITISH COLUMBIA

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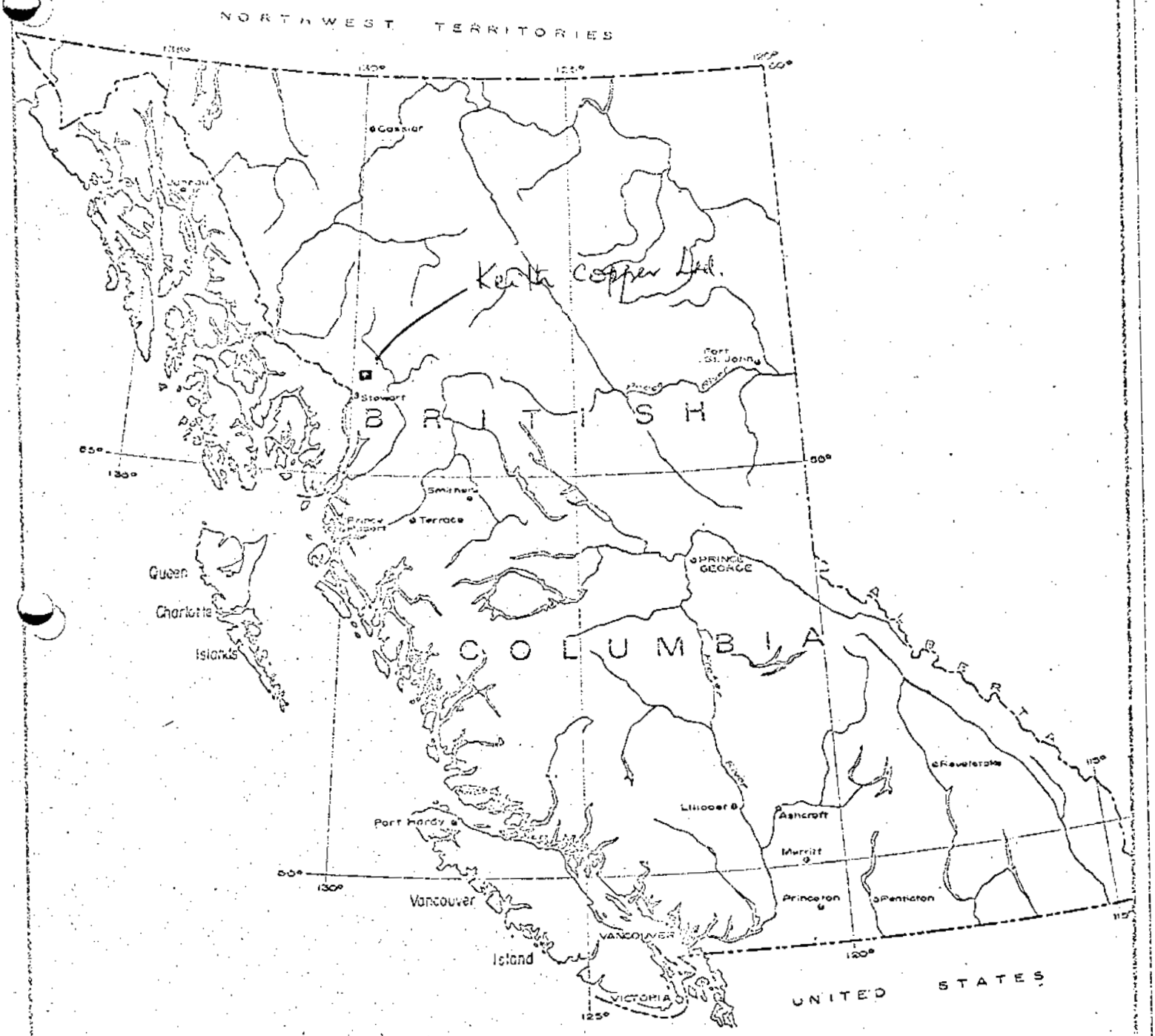

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3603 MAP #1

INTRODUCTION

In the month of March, 1971, some 59 claims were staked in the Bear River area, northeast of Stewart, British Columbia. These claims are well situated in an area where the geology is favourable for mineral deposits. Sporadic exploration work has been carried out in this area by individuals and mining companies and have come up with encouraging results. The inaccessibility to the various parts of the property rendered it impossible to continue the work by them. It is recommended in this report to carry out preliminary exploration work to an amount of $25,000.00 to investigate the various mineralized zones.

PROPERTY

The property consists of some 28 contiguously located and 23 Crown Granted mineral claims with are identified as follows:

Name of Claim (located)	Record Numbers
Mina 1	36508
Mina 2 Fraction	36509
Mina 3	36510
Mina 4 Fraction	36511
Mina 5	36512
Mina 6 Fraction	36513
Mina 7 Fraction	36514
Mina 8 Fraction	36515
Mina 9 Fraction	36516
Mina 10 Fraction	36517
Mina 11 to 22 (inclusive)	36518 to 36529
Mina 24	36530
Mina 25 Fraction	36531
Mina 26 Fraction	36532
Mina 27 Fraction	36533
Mina 28 Fraction	36534
Mina 41 Fraction	36547

Name of Claim (Crown Granted)	Lot Numbers
Speculator #2	4887
Big 4 #1 Fraction	5394
Big Slide	4796
Trail Fraction	4896
Trail 1 to 7 (inclusive)	4889 to 4895
Come Again	4787
Waterfall	4785
Bear #1 to #9 (inclusive)	5332 to 5340
Copper King	4780

ML 290

ML 259

These claims are situated in the Skeena Mining Division and they are recorded with the Mine Recorders Office in Prince Rupert, British Columbia.

The writer has visited this property on several occasions since it was staked in March of 1971. The co-ordinate of this property is 56° 07' N and 129° 50' W.

LOCATION, TOPOGRAPHY AND ACCESS

The property is located on the north and south side of the Bear River and about 24 miles northeast of the Village of Stewart, British Columbia. The claim group occupies the high mountain range in the Bear River area. The elevations range from 1000 feet to 4500 feet above sea level. Mountain slopes are well vegetated, very steep and rugged. Slopes of 50 to 60 degrees for several hundred feet are not uncommon, especially near Bear Pass. Most of the mountain tops are covered by glaciers. The surface presented by the property is covered with good commercial quality timbers.

The property is located on the Stewart-Cassiar Highway about 24 miles from Stewart, British Columbia. The claim group occupies either side of the highway, therefore the access to the centre of the property is very good.

Stewart May be reached from Prince Rupert, British Columbia, a flying distance of 120 air miles by Trans Provincial Airlines, which operates daily flights, weather permitting. Prince Rupert can be reached from Vancouver by daily flights by C. P. Air, or by a weekly coastal freight-passenger service operated by Northland Navigation Ltd. This trip takes approximately 5 days.

GENERAL GEOLOGY

Stewart-Bear River area occupies the eastern margin of the Coast Range batholith, which forms the Coast Mountains from Vancouver to the northwestern boundary of the Yukon. It is generally believed that intrusive rocks have been the source of the metaliferous deposits in British Columbia and with this idea in view, much geological work has been concentrated along the border of the Coast Range batholith. The formation bordering the batholith in this area is of volcanic and sedimentary rocks, chiefly Mesozoic, but in part, possibly older.

Part of the property has been occupied by the oldest rock in this area, known as the Bitter Creek argillites. They are overlying conformably by a series of volcanic rocks known as the Bear River formation. Both these formations are known to contain metaliferous deposits. In places, overlying the volcanic rock is the Nass formation, a series of argillites and other sedimentary rocks in general void of mineral deposits. There are some intrusive rocks in the Bear River and Nass formations and they are the stocks of augite porphyrite, most of which contain metaliferous veins.

GEOLOGY OF THE PROPERTY

The majority of the property is underlain by rocks of Bitter Creek formation. This group of rocks extends from the south and terminates just at the north end of this claim group. This unit consists of argillites, quartzites, limestone, tuff and lava.

The name "Bitter Creek Formation" was derived from one of the main tributaries of Bear River. The rocks of the formation are chiefly black argillite. In most places, the beds are thick and blocky, but in some areas they are thin and consist of black argillite, light coloured quartzites, in layers of one to two inches thick. The upper part of this formation is calcareous and contains several beds of linestone, along with numerous interbeds of tuffacious rock. Some acidic intrusive rocks were noticed within this Bitter Creek formation on this claim group.

The second predominant group of rocks on this property are the Bear River formation. This formation consists essentially of tuffs, breccias, and lava flows. A few thin beds of argillites, limestone, and calcareous tuffs occur, and also a small amount of intrusive matter. This group of rocks are known to be of Middle Jurassic in age.

The most obvious structure in this area are the faults. The definite breaks were seen in many places and were topographically expressed, but it was rather difficult to determine the direction and extent of the throw. Narrow straight valleys in the area commonly follow the faults. Many of these faults appear to strike north-northeast and are probably thrust faults with large horizontal and very little vertical displacement. It is believed that faulting in this general area is preceeded and followed ore deposition. Shear zones of 15 to 50 feet are common within this property. These shear zones are possibly developed as a results of the intrusions taken place in this area.

MINERALIZATION

Mineral deposits were discovered in this area in 1898 by prospectors searching for placer deposits. Many claims were staked and some small scale mining activities were carried out periodically. A few adits were driven following the faults or the shear zones searching for gold and high grade silver.

The mineral deposits in this general area are of two main types.

1. Veins formed by open spaced filling and by replacement;

2. Replacement deposits.

Relations exist between the vein formed by open spaced filling and those formed by replacement. The veins, when formed, were guided by fractures which pass from one rock type to another, whereas the replacement deposits usually owed their outline to bedding plains, plains of schistosity, or the outline of easily replaced strata. The mineralization on this property appears to consist mainly of copper, with minor amounts of silver, lead, zinc, and gold.

During the course of the property examination massive sulphide mineralization just east of the Bear Pass was noticed about 100 feet from the Stewart-Cassiar Highway. This sulphide mineralization, which is about 30 feet in width, contains mostly pyrite with minor amounts of chalcopyrite. This zone of mineralization appears to strike northwest and dips almost vertically. One chip sample was taken from this mineralized area and it assayed as follows:

Sample No.	Cu. %	Au. oz/ton
73001	0.62	0.031

During the course of the examination one small adit was noticed just west of Bear Pass about 100 feet above the Bear River. The adit was not accessible since it was caved in completely and it appears from the dump that it might have been driven for about 20 to 30 feet. It appears that this adit was driven in a shear zone and the main object could have been mining high grade silver pockets.

WORK PERFORMED

In the fall of 1971, a magnetometer survey was conducted on the lower elevations of this property to test the anomalous zones if any were present within this property. Because of the ruggedness of the property and

the steep topography, the survey at that time could not be extended to different parts of the property even though some anomalous readings were obtained during the course of the survey. It has been planned to extend the lines and carry out further detailed magnetometer and induced polarization surveys during the summer of 1972.

The magnetometer survey was conducted using a fluxgate MF-1 magnetometer and the readings were taken at an interval of 100 feet. The readings were expressed in gammas and plotted on the accompanying map, contoured and submitted to Mr. Peter Fominoff, Geophysicist, Seigel Associates Limited for an interpretation which was as follows:

"Vertical component magnetic field intensities were recorded at 100 foot intervals on two grids and one road in the above area. Grid "A" is shown on Plate 1, Grid "B" on Plate 2 and Line "C" on Plate 3. The survey was perfomed by personnel of Keith Copper Mines Ltd. employing a Scintrex MF-1 fluxgate magnetometer. A total of 9.7 line miles was surveyed.

The magnetic survey data from the two grids have been contoured with a 50 gamma interval. The Road Traverse data were shown in profile on the scale of 1 inch = 400 gammas. The base map scales are 1 inch = 400 feet.

The maximum relief on Grid "A" is 1000 gammas near the northern end of the base line. The magnetic grain trends east-westerly, suggesting a similar trend for the magnetically susceptible formations. The most magnetically susceptible rocks lie along L 4 S with decreasing susceptibility to both the north and south. The lowest magnetic susceptibilities occur on the western part of L 2 S. A lense or pod of higher magnetic susceptibility possibly of magnetite, occurs at the northern end of the base line.

The maximum relief on Grid "B" is about 700 gammas. The magnetic grain here also trends east-westerly. Areas of increased magnetic susceptibility such as L 2 SE; 28 SW may again indicate areas of magnetite concentration.

Line "C" along a road shows three peaks on the magnetic profile indicating areas of increased magnetic susceptibility.

It is recommended that all of the above magnetometer surveys be expanded to cover a greater area and thus permit a more detailed interpretation for structure and geology. The present data may be correlated with the known geology to aid in locating magnetically susceptible material and utilizing this information in guiding the search for economic type of mineralization."

CONCLUSIONS AND RECOMMENDATIONS

1. The property appears to be situated in an area where it is geologically favourable to host mineralization of economic interest.

2. The Bitter Creek formation has yielded significant mineralized zone on the property held by Ardo Mines Ltd. (N.P.L.) which is situated approximately 7 miles due south of this claim group.

3. There are various old adits and tunnels which were reported within this claim group and they should be located and explored systematically.

4. The mineralization along the Stewart-Cassiar Road appears to have a good width and it should be traced further along the strike direction.

A systematic exploration work should be carried out on this property. This exploration work should consist of geophysical and geochemical surveys, geological mapping, and to rehabilitate the old existing adits. The intial phase of the expenditure would be approximately $25,000.00 as outlined below:

Prospecting and geological mapping	$5,000.00
16 miles of line cutting at $150.00/mile	2,400.00
Geochemical Survey - 16 miles at $150.00/mile	2,400.00
Magnetometer survey - 16 miles @ $100.00/mile	1,600.00
Rehabilitating the old adits	5,000.00

Bulldozer trenching - 100 hours at $45.00 per hour	$4,500.00
Engineering supervision	$2,000.00
	$22,900.00
Contingency - 10%	2,290.00
	$25,190.00

Respectfully submitted,

SOUNDRAM ENGINEERING LTD.

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Consulting Geological Engineer

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
S. VENKATARAMANI

SANKAR V. RAMANI, M.Sc., P.Eng.
Consulting Geological Engineer

C E R T I F I C A T E

I, S. Venkataramani, of Vancouver, British Columbia, do hereby certify that:

1. I am a consulting geologist with my office located at #750 - 890 West Pender Street, Vancouver 1, B. C.
2. I am a graduate geologist with a Master of Science Degree from the University of Madras, India.
3. I am a member of the Association of Professional Engineers of the Province of British Columbia.
4. I am a certified professional geologist belonging to the American Institute of Professional Geologists, Golden, Colorado, U. S. A.
5. I am a member of the Canadian Institute of Mining and Metallurgy.
6. I have been practicing my profession for over 10 years.
7. I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly in this property or the securities of Keith Copper Ltd.,
8. This report is based on my personal visit to the area and from previous reports on the property and the published geological literature.

Vancouver, British Columbia

S. Venkataramani, M.Sc. P. Eng.

S Venkataramani

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA

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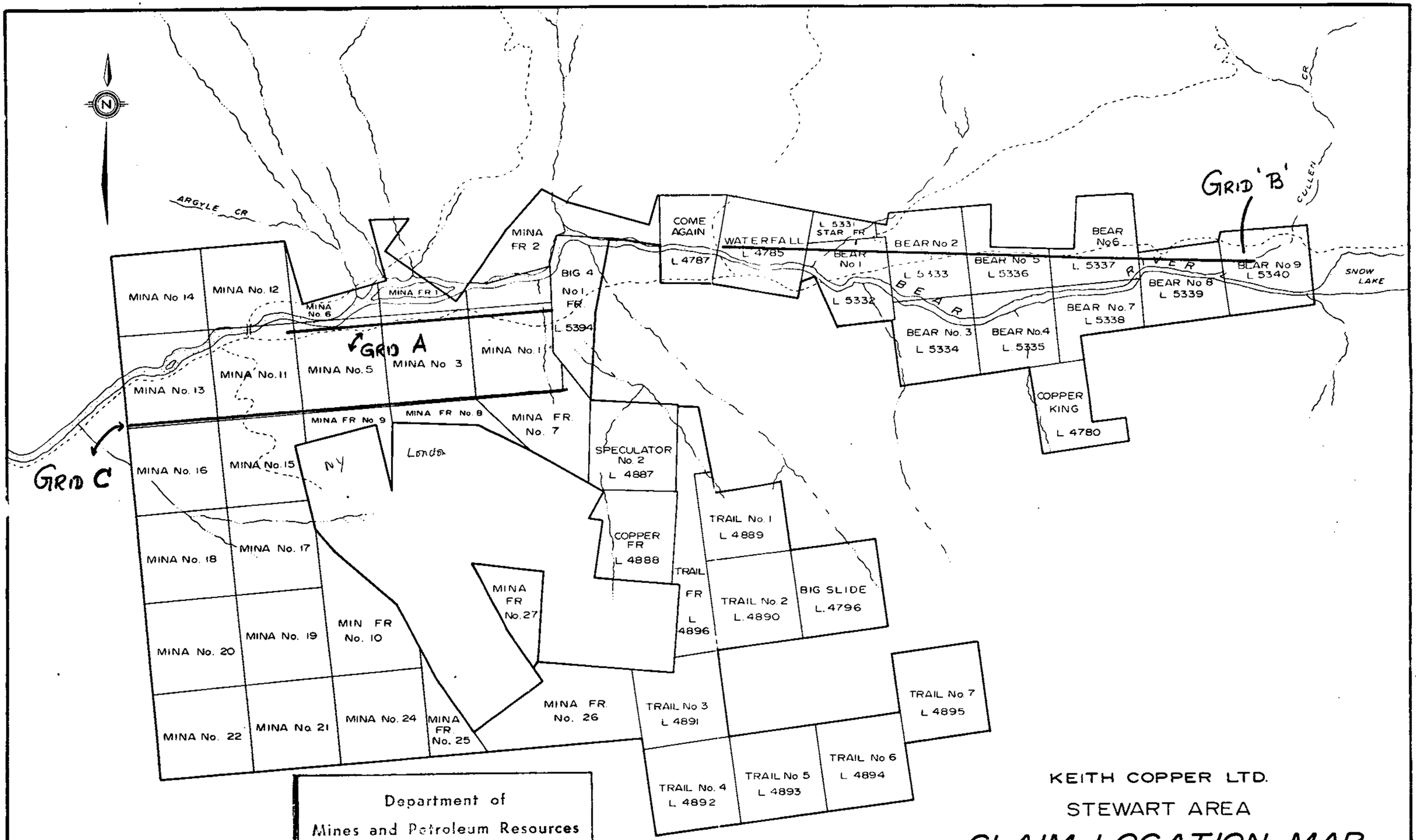

Department of
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NO. 3603 MAP #2

KEITH COPPER LTD.

STEWART AREA

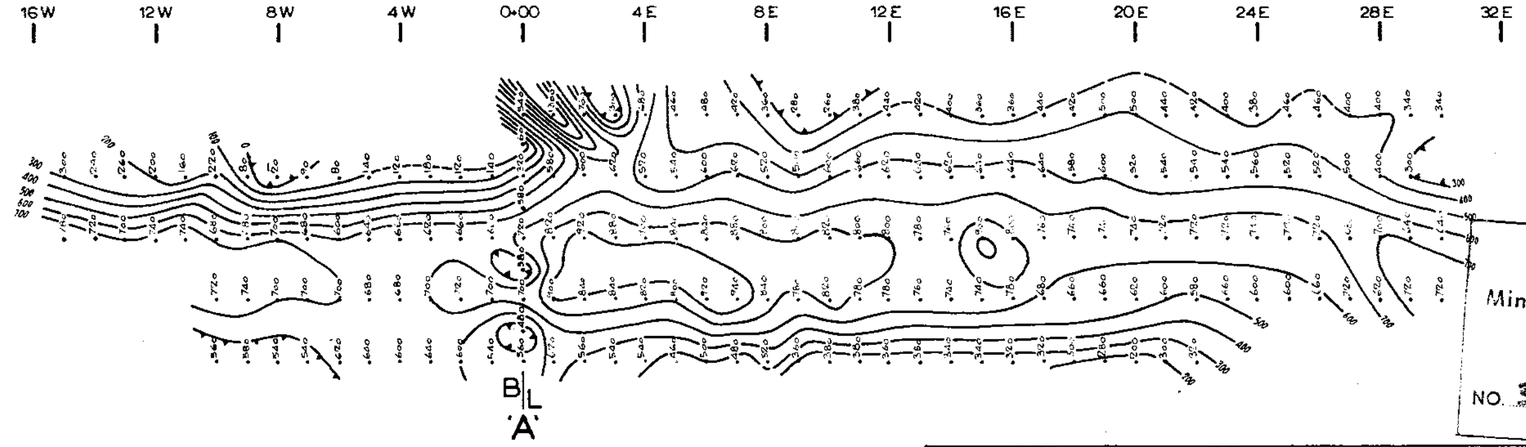
CLAIM LOCATION MAP

STEWART, B.C.

SCALE

FEET 1500 0 1500 3000 FEET

PRIMAC EXPLORATION SERVICES LTD.



LEGEND

100 GAMMA CONTOUR INTERVAL

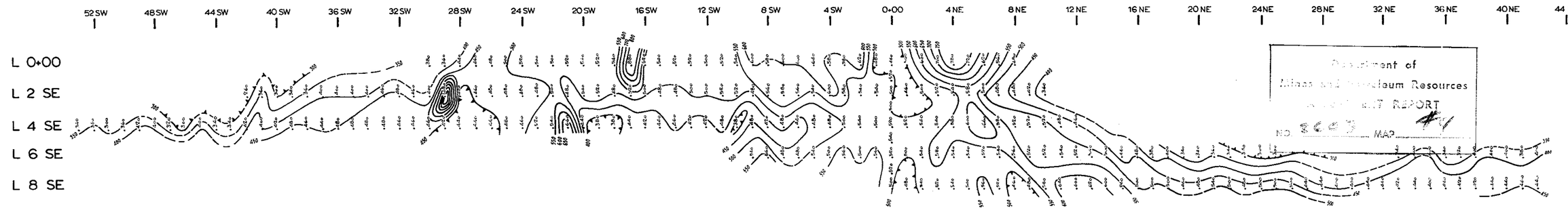
3603 M-3

KEITH COPPER LTD. (N.P.L.)
STEWART AREA B. C.

GRID 'A'
MAGNETOMETER SURVEY
FEBRUARY 1972

SCALE : 1 inch = 400 feet
400' 0 400'

PLATE 1



LEGEND

50 GAMMA CONTOUR INTERVAL

KEITH COPPER LTD. (N.P.L.)
STEWART AREA B. C.

GRID 'B'

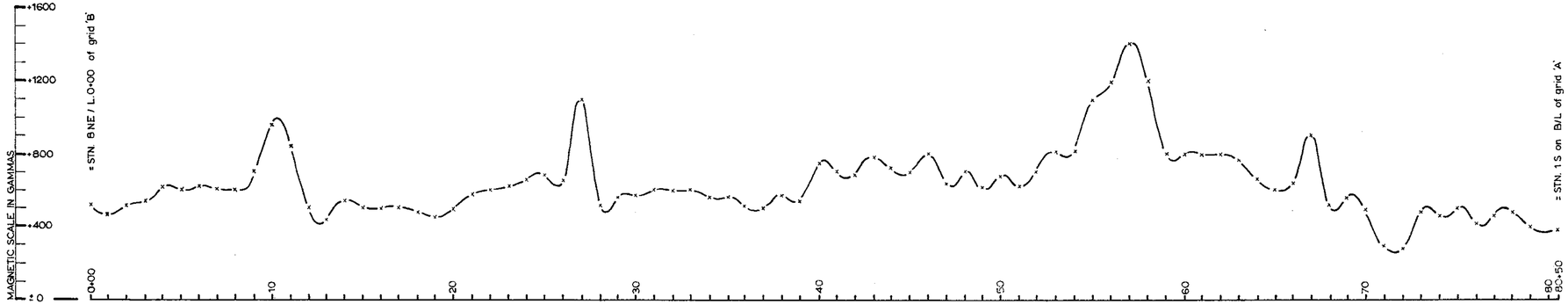
MAGNETOMETER SURVEY

FEBRUARY 1972

SCALE : 1 inch = 400 feet

400' 0 400'

PLATE 2



LEGEND MAGNETIC SCALE : 1 inch = 400 GAMMAS

KEITH COPPER LTD. (N.P.L.)
STEWART AREA B. C.

LINE 'C' ROAD TRAVERSE
MAGNETOMETER SURVEY
FEBRUARY 1972

SCALE : 1 inch = 400 feet
400' 0 400'

PLATE 3