# Magnetometer Report on the Lloyd Mineral Claims Grid 86-33

for



BIG VALLEY RESOURCES INC.
Box 4210, Williams Lake, BC
V2G 3V2

Cariboo Mining Division
Likely, British Columbia

N.T.S. 93A/12
53° 34' N 121° 36.5' W



by J.E. Wallis, P.Eng.
Williams Lake, BC

October 1, 1993

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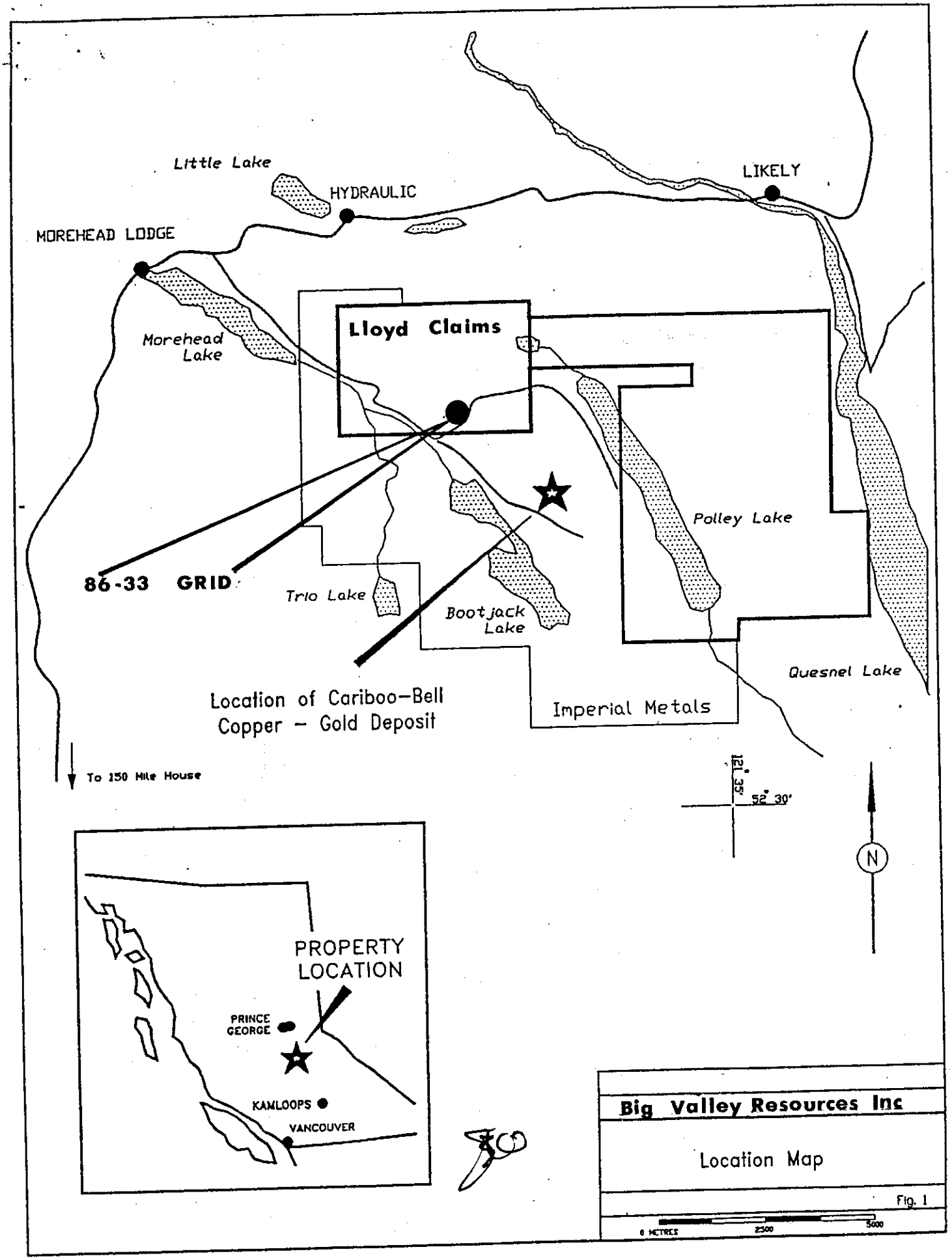
## APPENDICES


Little Lake
HYDRAULIC
LIKELY
MOREHEAD LODGE
Morehead Lake
Lloyd Claims
Polley Lake
86-33 GRID
Trio Lake
Bootjack Lake
Quesnel Lake
Location of Cariboo-Bell Copper - Gold Deposit
Imperial Metals
To 150 Mile House
121° 35'
52° 30'
N
PROPERTY LOCATION
PRINCE GEORGE
KAMLOOPS
VANCOUVER
Big Valley Resources Inc
Location Map
Fig. 1
0 METRES
2500
5000

## INTRODUCTION

In early July 1993 the writer was contracted by Big Valley Resources, Inc. to review all work previously conducted on the Lloyd mineral claims and to recommend an exploration program based on this analysis. All available reports on exploration conducted in the immediate area by E&B Explorations, Inc., Imperial Metals Ltd., Amax Exploration Ltd., Romulus Resources Ltd. and Big Valley Resources Inc. were carefully evaluated. As a result of this evaluation, a portion of the Lloyd 2 mineral claim immediately to the north, and on strike with the Mount Polley Cu-Au ore deposit was targeted for further exploration. This rationale was based on the results of a rotary drill hole completed by E&B Explorations Inc. in 1986, near the south boundary of the Lloyd 2 mineral claim, which suggested that the Mount Polley type mineralization may well extend out into the volcanics and breccias on the Lloyd claims.

In late July, 1993, a tight, 13 km line grid was established over the target area and a total field magnetic survey completed over the grid. This report describes and interprets the results of this geophysical program.

## LOCATION AND ACCESS

The Lloyd claim group adjoins Imperial Mines Ltd., Mount Polley ore deposit immediately to the north. The property is located west of the north end of Polley Lake, approximately 75 km north east of the city of Williams Lake, BC and 6 km south west of the village of Likely, BC (see Figure 1). These claims are registered on NTS map sheet 93A/12 at 52° 34' north latitude and 121° 36.5' west longitude.

The city of Williams Lake is the major supply center in the area, and is accessible by both highway and schedule air carrier service. Best access to the property from Williams Lake is via highway 97 southerly to the 150 Mile junction, then north easterly on the Likely highway to the Morehead-Bootjack Forest Service Road; some 13 km west of the village of Likely. Secondary gravel logging roads provide good access to the property from this junction.

## PHYSIOGRAPHY

The Lloyd claims cover an area of gentle to moderate topography with ground elevations varying from approximately 925 meters to 1130 meters. The most northerly portion of the claims has been clear cut logged, and the remainder supports a good cover of fir, pine and cedar second growth timber. In many of the lower areas, dense willow and alder undergrowth combined with a healthy population of devil's club, form almost impenetrable barriers.

Outcrop on the property is sparse, and occurs mostly along forestry access road cuts.

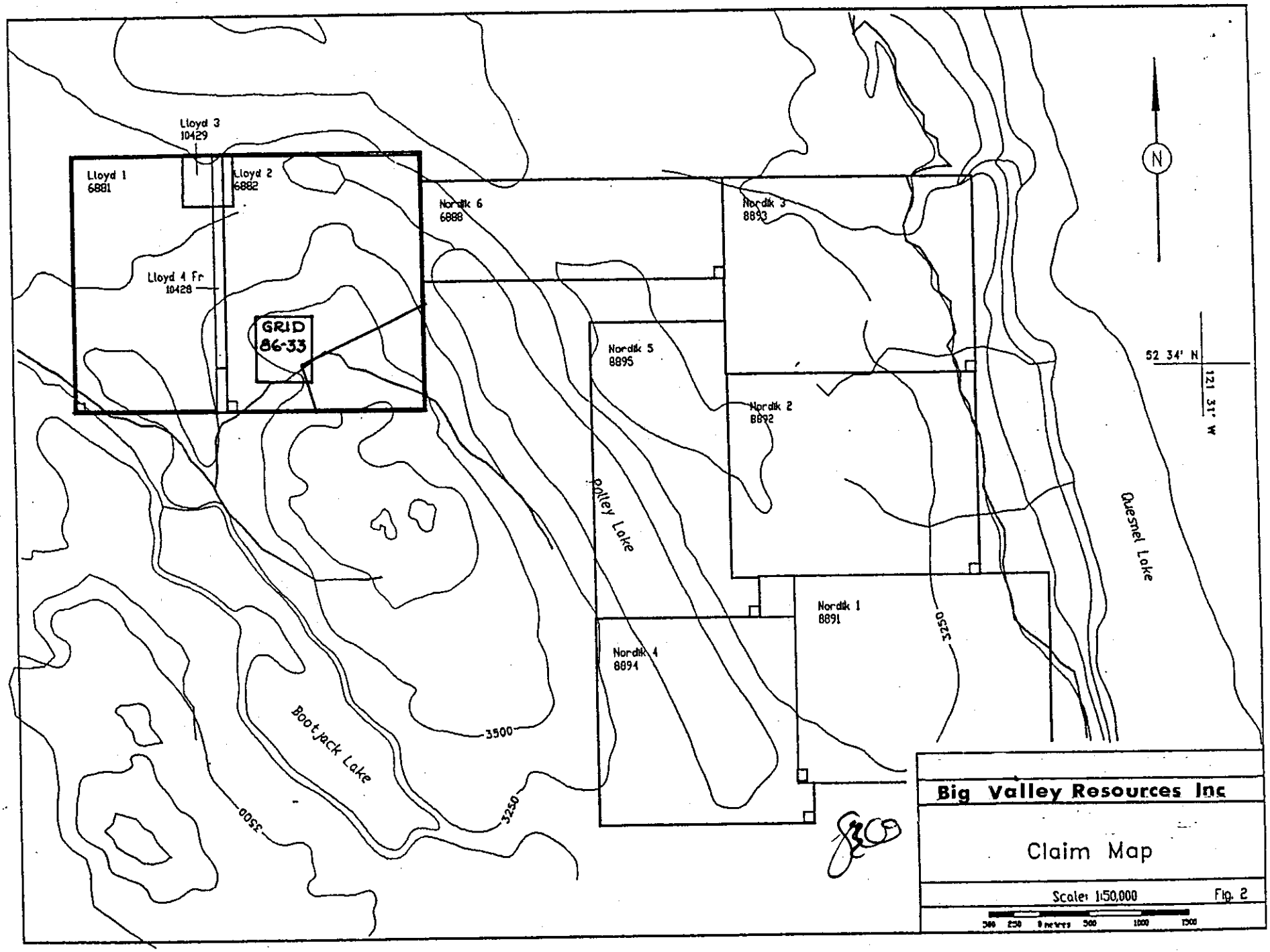
## PROPERTY STATUS

The Lloyd claim group consists of two contiguous Modified Grid claims (Lloyd 1 & 2), one fractional claim (Lloyd 4) and one two-post claim (Lloyd 3), see Figure 2. During the course of the field work the legal corner post for the Lloyd 2 claim was inspected. The claims appear to have been located as shown.

Claim status, as recorded in the local recorder's office, is as follows:

| Claim Name | Record No. | Units | Expiry Date |
|---|---|---|---|
| Lloyd 1 | 6881 | 15 | Jan. 25/94 |
| Lloyd 2 | 6882 | 20 | Jan. 25/94 |
| Lloyd 3 | 1042 | 1 | Feb. 9/94 |
| Lloyd 4 | 10428 | 1 | Feb. 9/94 |

Registered owner of the claims is Big Valley Resources Inc., 100 percent.


Lloyd 3
10429
Lloyd 1
6881
Lloyd 2
6882
Lloyd 4 Fr
10428
GRID
86-33
Nordik 6
6888
Nordik 3
8893
Nordik 5
8895
Nordik 2
8892
Nordik 1
8891
Nordik 4
8894
Valley Lake
Quesnel Lake
Bootjack Lake
3500
3250
3500
3250
N
52 34' N
121 31' W
Big Valley Resources Inc
Claim Map
Scale: 1:50,000
Fig. 2

## PREVIOUS EXPLORATION

The first detailed exploration in the area took place in 1964 when Cariboo-Bell Copper Mines Ltd. discovered oxidized exposures of what is now the Mount Polley Cu-Au Deposit (Hodgson et. al 1976). Since 1987, drilling by Imperial Metals Ltd. has defined open-pittable reserves of 53 million tons averaging 0.44% copper and 0.017 ozs. gold per ton (Danielson, 1989). In 1992, Imperial Metals Ltd. received mine production permits from the provincial government. Low metal prices have delayed final mine decisions.

Public mine assessment records show that the following exploration has been conducted in the vicinity of the Lloyd claims:

a) 1971, Ardo Mines Ltd. (Manani, 1971) completed a magnetometer survey to the east of the Lloyd Claims.

b) 1979, JMT Services Corp. completed an auger geochemical soil survey on the Cab 1-5 claims within the present Lloyd Claims. Results were spotty and inconclusive (Christie, 1979).

c) 1981, JMT Services Corp. conducted 10 km of I.P. survey on the Cab 1-5 claims (now Lloyd 1 & 2). Four lines across the property indicated deep, conductive overburden (Schlax & Shore, 1981).

d) 1986, E&B Explorations Inc. conducted a magnetic survey on the Polley claims and the southerly portion of the Lloyd 2 claim. One rotary hole was drilled on a magnetic anomaly located near the Lloyd 2 - Polley claim boundary which intersected significant copper and gold values in a magnetite-skarn zone at a depth of 300-350 feet. This hole suggests that the new exploration targets may exist in the volcanics north of the Mount Polley intrusive.

e) 1986, Northwest Geological Consulting Ltd. conducted a reconnaissance geological and geochemical survey over the Lloyd-Nordik claims. A sample

from a road cut near the southern Lloyd 2 boundary ran 0.32% copper and 75 ppb gold (Schmidt, 1986).

f) 1988, Romulus Resources Ltd. conducted a reconnaissance geological and geochemical survey of the Lloyd 1 and 2 claims. This work confirmed copper and gold values reported by Schmidt, 1986 and located a 200 meter wide copper anomaly some 900 meters north west of Schmidt's sample.

g) 1989, Romulus Resources Ltd. conducted a 480 meter trenching program near the south boundary of the Lloyd 2 claim (Cann 1989). The program extended low grade copper-gold values onto the Lloyd 2 claim.

h) 1990, Romulus Resources Ltd. conducted 39.1 km of pole-dipole I.P. survey and 56 km of magnetic survey over the southern half of the Lloyd 1 and 2 claims. In March 9, 1990, the most attractive geophysical target was drill tested with a five-hole, 750-meter diamond drilling program (Cann, 1990). Low grade, sub-economic copper values with locally elevated gold values were traced on the Lloyd 2 claim.

## REGIONAL GEOLOGY

The Lloyd claims are located near the centre of a volcanic belt of rocks (Nicola Group) mapped as the Quesnel trough. This belt is bounded on the east by the Eureka thrust, and on the west by major, regional dextral faults. In the Quesnel Lake area, the rocks of the Nicola Group form a broad, north west trending syncline.

Basal strata is represented by a middle to late Triassic black phyllite which grades locally into siltstone, sandstone and greywacke. Overlying this basal package are Upper Triassic alkali olivine basalt flows and breccias. Monolithic latite breccias are common near volcanic centres.

## ECONOMIC GEOLOGY

Locally, the Triassic and Jurassic volcanic rocks are intruded by Lower Jurassic syn-volcanic syenite to dioritic stocks and plugs. Many of these alkalic stocks host or are spatially related to copper-gold mineralization with associated strong K-feldspar and propylitic alteration zones.

Extensive exploration of these stocks has been successful in defining the Mount Polley deposit with reserves of 53 million tons averaging 0.44% copper and 0.017 ozs. gold per ton, and the QR deposit (some 15 km NW of Mount Polley) with reserves of 1.1 million tons averaging 0.21 ozs. gold per ton.

Further to the east, the Triassic black phyllite basal strata has long been known to host erratic gold quartz veins. Examples are Spanish Mountain and Eureka Peak.

## LOCAL GEOLOGY

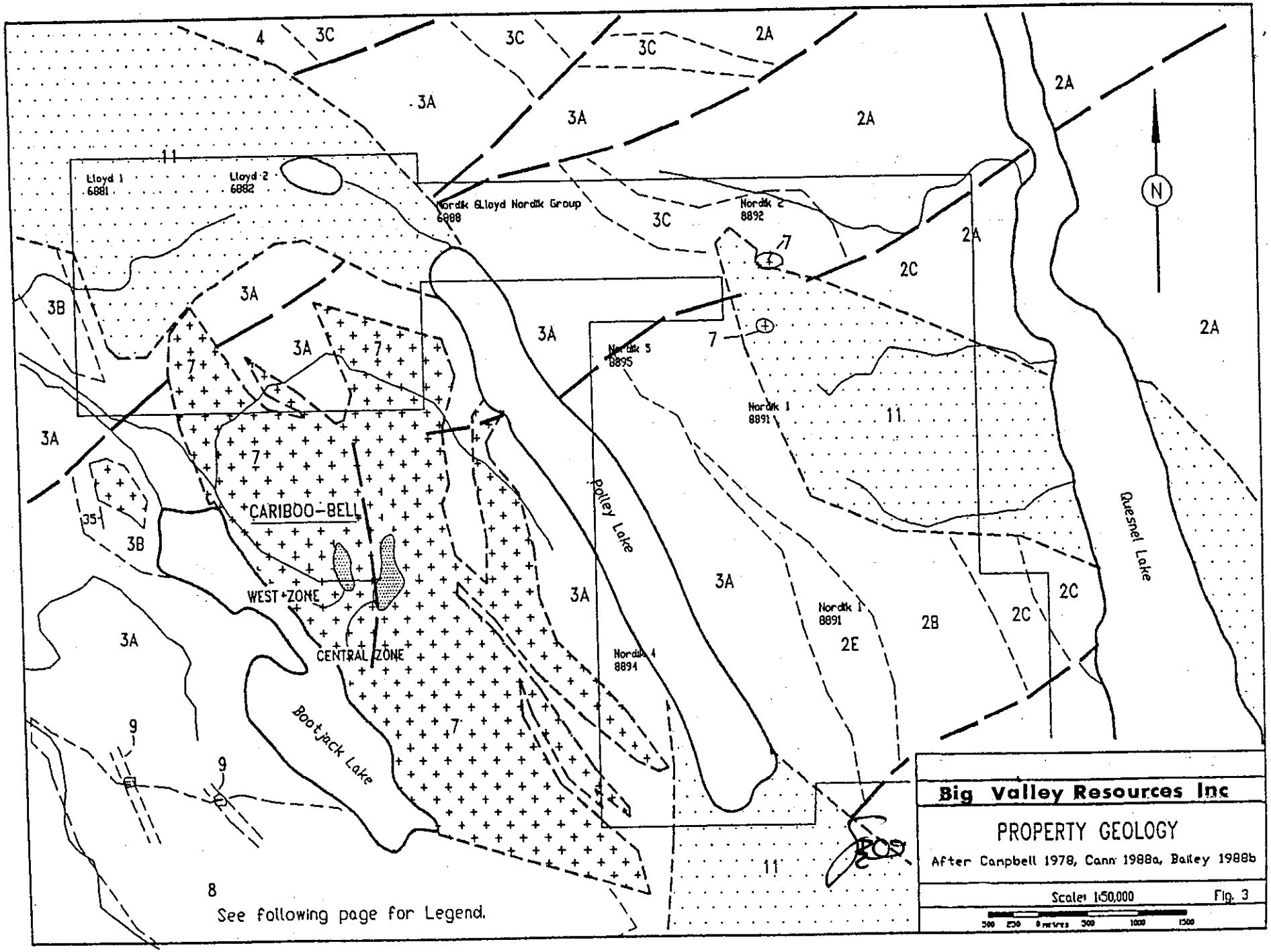
The local geology is best illustrated by Figure 3 - Local Geology, after Bailey (1988).

Bedrock exposure on the Lloyd claims is restricted to a small area near the southern boundary and to a road cut midway along the west boundary of the Lloyd 2 claim. In both cases, bedrock consists of polylithic breccia (Unit 3A).

## LINE GRID

Field work completed in mid-July 1993 located the collar of a drill hole near the Lloyd 2 - Polley 5 claim boundary. This hole was assumed to be the rotary hole drilled by E&B Explorations in 1986 which suggested that significant copper-gold mineralization might extend northerly into the volcanics on the Lloyd 2 claim.

As a result, a north-south baseline centered on the drill collar was cut 450 meters north and 200 meters south, with crosslines established at 30 meter intervals and stations at 15 meter intervals.


Lloyd 1
6881
Lloyd 2
6882
Nordik &Lloyd Nordik Group
6888
Nordik 2
8892
Nordik 5
8895
Nordik 1
8891
Nordik 1
8891
Nordik 4
8894
CARIBOO-BELL
WEST ZONE
CENTRAL ZONE
Bootjack Lake
Polley Lake
Quesnel Lake
4
3C
3A
2A
2C
2B
2E
3B
11
7
9
35
8
N
See following page for Legend.
Big Valley Resources Inc
PROPERTY GEOLOGY
After Campbell 1978, Cann 1988a, Bailey 1988b
Scale: 1:50,000
Fig. 3

# LEGEND

## SEDIMENTARY AND VOLCANIC ROCKS

| | | | |
|---|---|---|---|
| TERTIARY | PLEISTOCENE | 11 | Glacial, fluvioglacial and fluvial gravel and sand |
| | MIOCENE | 10 | Green, grey and maroon plateau basalt (alkali olivine basalt) |
| CRETACEOUS | | | |
| JURASSIC | PLIENSBACHIAN | 6 | Cobble conglomerate: clasts of chert, limestone, sandstone, carbonaceous shale and sandstone |
| | | 5 | Well bedded dark grey siltstone and sandstone |
| | SINEMURIAN | 4 | Maroon, vesicular alkali olivine basalt, commonly analcite-rich |
| | | 3C | Feldspathic tuffaceous siltstone and sandstone: minor breccia |
| | | 3B | Lithic crystal tuff, tuff breccia and tuffaceous sandstone: minor lahar flow breccia |
| | | 3A | Maroon and grey polylithic breccia: clasts of mafic and intermediate compositions in chloritic and feldspathic matrix |
| TRIASSIC | NORIAN | 2H | Coarse-grained greenish grey and brown sandstone, grey medium-grained sandstone and dark grey siltstone and argillite |
| | | 2G | Massive grey limestone and calcareous sandstone |
| | | 2F | Interbedded dark grey mafic sandstone and siltstone |
| | | 2E | Analcite-bearing maroon and greenish grey alkali basalt; feldspathic in places |
| | | 2D | Hornblende-bearing pyroxene basalt |
| | | 2C | Polylithic, grey and maroon mafic breccia; minor feldspathic clasts |
| | | 2B | Maroon, pyroxene-phyric alkali basalt |
| | | 2A | Green and grey pyroxene-phyric alkali olivine basalt and alkali basalt |
| | CARNIAN | 1 | Dark grey siltstone, brown and grey sandstone; unit becomes volcaniclastic towards top. Minor conglomerate and dark grey limestone |

## INTRUSIVE ROCKS

| | |
|---|---|
| 9 | Grey hornblende granodiorite and quartz monzonite |
| 8 | Fine- to coarse-grained grey nepheline syenite; locally orbicular |
| 7 | Grey and pink, medium fine grained monzonite, monzodiorite, syenodiorite and syenite; pyroxene and/or hornblende-bearing |

## MAGNETOMETER SURVEY

The magnetometer survey utilized a Scintrex Omni-Plus field unit with an independent base station. Both units are capable of storing data in a digital format. The data was down loaded at the end of each field day in ASCU format using the software provided. During the data transfer the filed data was corrected for diurnal variation and reference field. The data in the ASCU files were then imported to the GMS (General Mapping System) computer program of Muir & Associated Computer Consultants. Within this program, raw data and contoured data were rendered to digital drawings, and grid locations and title blocks added. The drawings were then transferred to Autocad and plotted as Figures 4 and 5 of this report.

## CONCLUSIONS

The survey outlines a significant magnetic anomaly which is somewhat centrally located on the common Lloyd 2 - Polley 5 claim boundary. Magnetic response northerly into the volcanic rock series is virtually non-existent. Interpretation suggests that the anomaly is caused by a magnetite rich sulphide skarn zone associated with a subsurface outlier of the Mount Polley intrusive.

## RECOMMENDATIONS

A drilling program, consisting of a minimum of 4-500 foot NQ size diamond drill holes, is recommended to test the anomaly.

The estimated cost of this program is detailed as follows:

| | |
|---|---|
| Diamond drilling, 2000 ft. NQ size drilling @ $25/ft | 50,000 |
| Site preparation 20 hrs. @ $175/hr | 3,500 |
| Assaying | 1,500 |
| Engineering, geology 10 days @ $400/day | 4,000 |
| Room & board 35 man days @ $75/man day | 2,625 |
| Mobilization & demobilization | 2,000 |
| Sub-total | 63,625 |
| Contingency | 7,375 |
| TOTAL | $ 71,000 |

# CERTIFICATE

I, James E. Wallis of 96 414 Avenue South, Williams Lake, BC, do certify that:

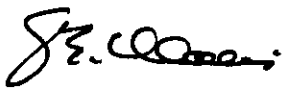
1. I am a mining engineer registered as a professional engineer with the Association of Professional Engineers of British Columbia.

2. I am a graduate of the Haileybury School of Mines (1958), the university of Alaska (B.Sc. 1965), and Queen's University (M.Sc. [Eng.] 1967).

3. I am familiar with the Lloyd claims through field investigations in 1992 and 1993 and supervised the magnetometer survey detailed in this report.

4. This report may be used for any purpose normal to the business of Big Valley Resources Inc.

Dated this 4th day of October 1993 at Williams Lake, BC



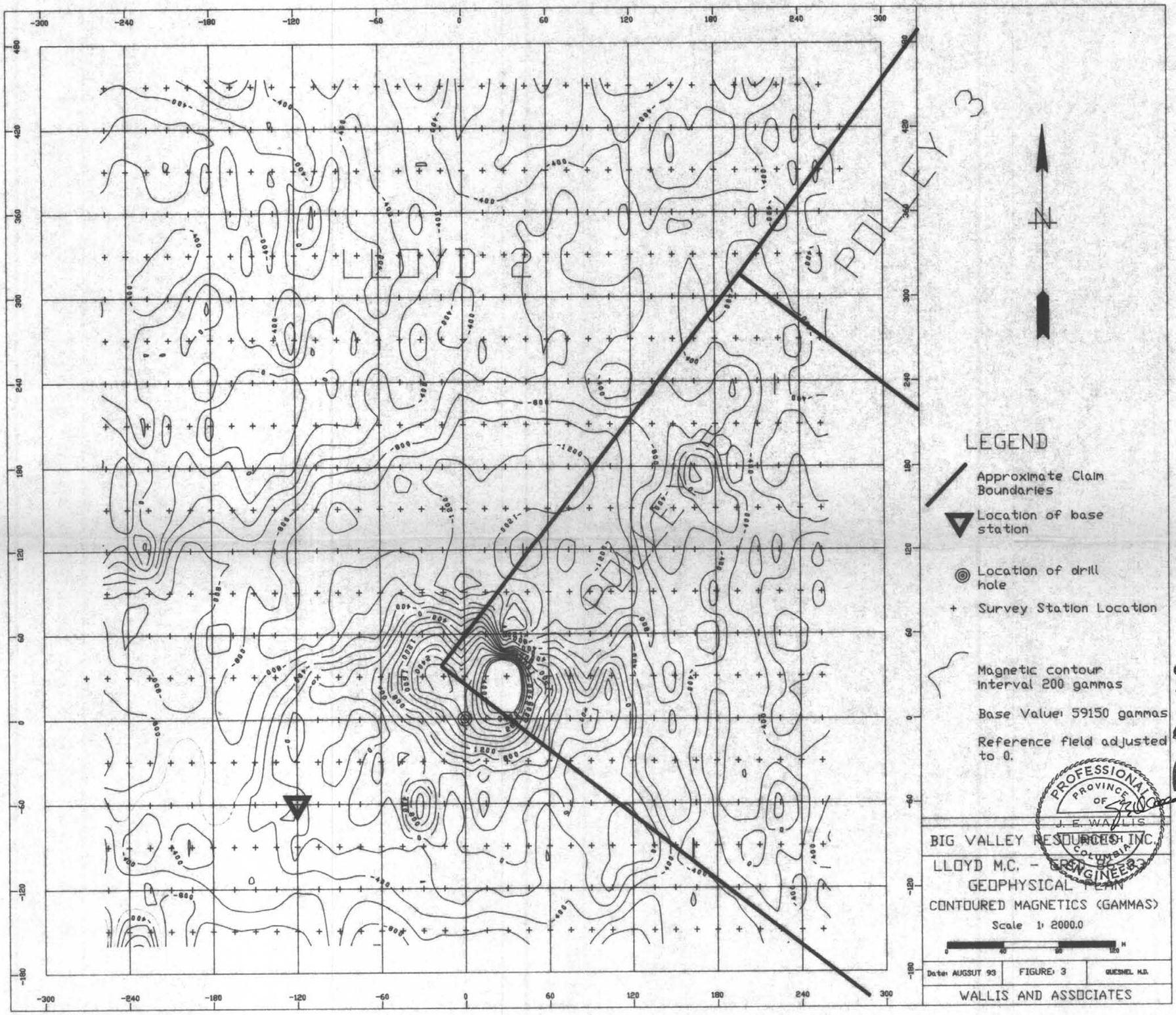
J.E. Wallis, P.Eng.

# APPENDIX A

1993 Program Expenditures

## 1993 PROGRAM EXPENDITURES

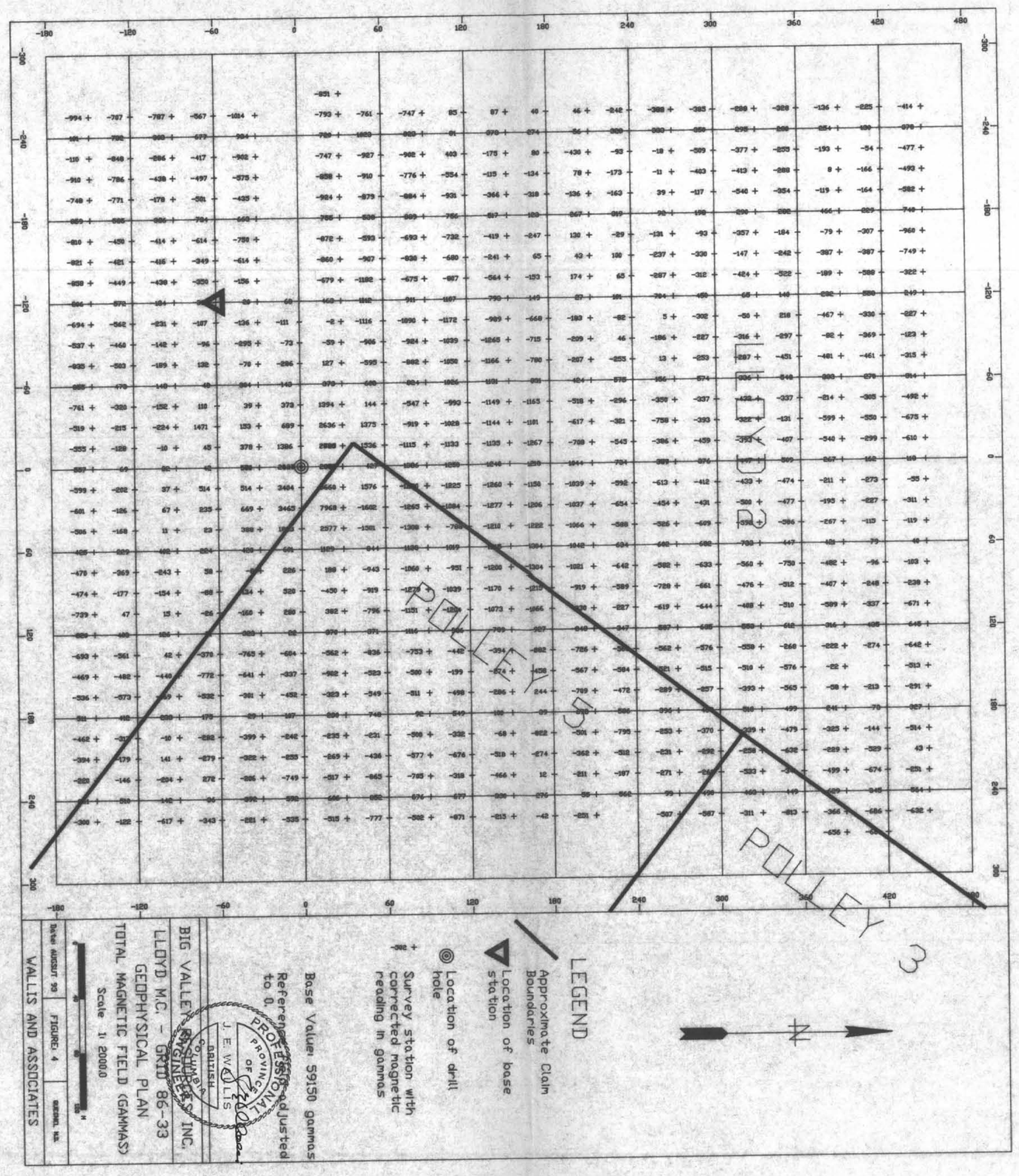
| | |
|---|---|
| Line Grid, | |
| 11.4 km $ $300/km | $ 3,420 |
| Magnetometer Survey, | |
| 11.4 km @ $150/km | 1.710 |
| Senior Engineer, | |
| 7 days @ $400/day | 2,800 |
| Vehicle Rental, | |
| 7 days @ $50/day | 350 |
| Meals and Accommodation, | |
| 7 days @ $75/day | 525 |
| Final Report | 1,500 |
| Total | $10,305 |




PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. E. WALLIS

GEOLOGICAL BRANCH
ASSESSMENT REPORT

23,064

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