COMINCO LTD.

EXPLORATION
NTS: 92 H/7

# ASSESSMENT REPORT:

# GEOLOGICAL AND GEOCHEMICAL

# SURVEYS ON THE

# PHANTOM PROPERTY

Latitude: 120 degs. 35'

Longitude: 49 degs. 19'

FIELD WORK PERFORMED FROM:
SEPTEMBER 10 - 16, 1991



MAY 8, 1992

J. BARIL

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# PHANTOM PROPERTY
# 1992 ASSESSMENT REPORT

## 1. SUMMARY

The Phantom Property was staked in May, 1991 as a porphyry copper-gold target.

This year's work consisted of soil and rock sampling as well as geological mapping. It is concluded that a Cu-Au porphyry system could be present on the property. An I.P. survey, soil sampling and trenching are recommended.

## 2. INTRODUCTION

The Phantom Property has been worked on intermittently by several different companies and individuals. The area surrounding the property has a long history of mineral exploration and mining, dating back to the late 1800's. Cominco staked the Phantom 1 and 2 claims in May 1991. A 7 day recce program was carried out between September 10 - 16, 1991. The site was accessed along parts of highway # 3, as well as some older logging and exploration roads. Food and accomodation was available in the nearby town of Princeton. The fieldwork was performed by John Baril (Geologist) and Andrew Molnar (Assistant), and was supervised by A.M. Pauwels (Senior Geologist). The work consisted of geological mapping, rock sampling and soil sampling. All map work and sample plotting was performed at 1:10,000 scale.

## 3. LOCATION AND ACCESS

The claims are located 15 kilometers south of Princeton, B.C. (Figure 1). Highway # 3 cuts through the property, and a large number of secondary logging and exploration roads provide excellent access to many parts of the site. The Copper Mountain mine of Similco Mines Limited is located 3 kilometers to the northeast.

## 4. PHYSIOGRAPHY

This area is located at the southern end of the Thompson Plateau, overlooking the Similkameen River Canyon. It is within a transitional zone between the Interior Plateau to the north, and the Cascade Mountains (of the Coast Ranges) to the south. The topography varies from being very gentle to moderately steep. Elevations range from 1005-1490 m (3300-4900 ft.). Forest cover consists mainly of lodgepole pine and fir trees, however, several clearcuts are present.

## 5. TENURE

The Phantom Property is 100% Cominco owned and consists of two mineral claims (PHANTOM 1 and 2). All claim data are listed below in Table 1. The location of the PHANTOM claims are illustrated in Figure 2.

TABLE 1: Claim information

| Claim | Units | Record # | Date Staked | Due Date |
|---|---|---|---|---|
| PHANTOM 1 | 15 | 300814 | May 21, 1991 | May 21, 1992 |
| PHANTOM 2 | 20 | 300815 | May 23, 1991 | May 23, 1992 |

The eastern portion of the Phantom Property is overlapped by claims which are held by several different owners.

Total expenditures for this year's work amounted to $ **6,622.72** which are detailed in Appendix I.

## 6. HISTORY

**1952:** The area was staked by J.W. Galagher. It was subsequently held by Deep Gulch Mines and Oro Mines.

**1968:** Seigel Associates Limited performed magnetometer and I.P. surveys for Anchor Mining Ltd. (N.P.L.) on the T group of mineral claims.

**1969:** Four and a half miles of road was constructed and seven trenches were cut on the NEV claim group of Grandora Explorations Ltd.

**1970:** Grandora Explorations Limited drilled 4 short diamond drill holes totalling 419 feet on the NEV claim group.

**1972:** Agilis Exploration Services Limited conducted a geological and geochemical survey on the NEV claim group for owners J. Bartle, T. Doubt and Grandora Explorations Ltd.

**1972:** Anchor Mines Ltd. (N.P.L.) conducted a soil sampling program on the T group of mineral claims in order to further evaluate their magnetometer and I.P. surveys from 1968.

**1977:** Allen Geological Engineering Limited carried out assessment work for Gilford Resources Limited on the NORMA claim. This work consisted of geological, topographic, geochemical, magnetometer and electromagnetic surveys, as well as the clearing and deepening of six old trenches.

**1986:** The Goldrop Property (located immediately NW of the Phantom Property) was staked by Huff and Shewchuk.

**1988:** 2 holes were diamond drilled on the Goldrop Property.

**1989:** 1 hole was diamond drilled on the Goldrop Property.

**1990:** An exploration program was carried out on the Goldrop Property by Murphy Shewchuk which consisted of the following: grid establishment, a VLF-EM survey, a soil geochemical survey and 1 diamond drill hole.

The above historical summary describes work which was carried out in the immediate vicinity of the Phantom Property. The land area surrounding the Phantom claims has been subjected to extensive exploration work, developement and mining. Much of the early work in this area (late 1800's and early 1900's) has not been documented.

## 7. REGIONAL GEOLOGY

The regional geology has been described in detail by V.A. Preto (1972).

The map area lies at the southern terminus of the Nicola Belt. The main rock unit within this belt consists of volcanic and sedimentary rocks, of the Upper Triassic Nicola Group island arc

sequence. The volcanic rocks are mainly andesitic flows, tuffs, breccias and agglomerates. The sedimentary rocks consist mainly of siltstone and sandstone with lesser conglomerate and brecccia, all of volcanic derivation.

To the northeast of the Phantom Property in the vicinity of the Copper Mountain and Ingerbelle mines, lies the core of the differentiated Copper Mountain Intrusions. The largest intrusive body here is called the Copper Mountain Stock. These intrusions range in composition from diorite to syenite, and are generally porphyritic. The age of the Copper Mountain Intrusions is Upper Triassic, and they have intruded the Nicola Group rocks.

The Copper Mountain Intrusions and Nicola Group rocks are unconformably overlain by intrusive, volcanic and sedimentary rocks of the Middle Eocene Princeton Group.

A major northerly trending, steeply westerly dipping normal fault called the Boundary Fault, bisects the Nicola rocks in this map area. This division has created two distinct packages of the Nicola Group, one to the east and one to the west side of the fault. It appears that the eastern (upthrown) side of the Boundary Fault has exposed an older part of the Nicola succession. This portion of the Nicola Group is called the Wolf Creek Formation (map units 1 and 2 of Figure 3). The Nicola Group ocurring west of the Boundary Fault consists of map units 3 and 4 (Figure 3).

## 8. EXPLORATION 1991

### (a) Property Geology

The Phantom Property geology is illustrated in Figure 3. The map units are the same as those used by V.A. Preto (1972) during his regional mapping of the Copper Mountain area.

The western half of the property is overlain by hornblende porphyritic andesite flows, tuffs and breccias of the Princeton Group (map unit 8). On the east-central portion of the property lie rocks of the Nicola Group (map units 1,2,3 and 4). The eastern edge of the property mainly contains outcrops of the Copper Mountain Stock (map units 5 and 6). These three major rock units are separated by NNW trending contacts.

### (b) Structure

The reader is again referred to Figure 3 for the following discussion.

The most prominent structure on the Phantom Property is the Boundary Fault which cuts through the eastern side of the property. This northerly trending steeply westerly dipping normal fault, is visible in the rock outcrops of Deep Gulch Creek. This fault has also caused the andesitic Nicola Group rocks to be strongly foliated for at least 100 meters on either side.

In addition to the main structural fabric of the Boundary Fault, a second ESE fault direction was noted at several outcrop locations.

The Nicola Group sedimentary rocks of map unit 3 were found to be well bedded and often graded. In general, this bedding orientation strikes NNW with moderate westerly dips. At one location, these sediments were found to be weakly folded.

**(c) Alteration and mineralization**

Map units 1, 3, 6, 7 and 8 were all found to be fresh and unmineralized. The unit 4 andesites are intensely, pervasively chloritized, but unmineralized.

3 examples of mineralization were found during the 1991 reconnaisance of the Phantom Property:

> First of all, the andesites of unit 2 (east of the Boundary Fault) were found to be occasionally mineralized with pyrite +/- chalcopyrite +/- bornite +/- malachite. This mineralization either occurs on fracture faces, in quartz stringers or as disseminations. In one instance, the mineralization occurred in conjunction with pink K-feldspar alteration envelopes.
>
> Secondly, several examples of mineralized, fine grained micromonzonite (map unit 5) were found in trenches immediately east of the Boundary Fault. This fracture controlled and disseminated mineralization consists of malachite +/- pyrite +/- chalcopyrite +/- bornite. The mineralization is always associated with pink K-feldspar alteration envelopes. Occasionally, secondary pink rhodochrosite and biotite are also present.
>
> Finally, several large angular mineralized boulders were found around an old diamond drill site, about 200 meters west of highway 3. These andesite and monzonite boulders are mineralized with chalcopyrite, bornite and malachite. The associated alteration consists of very intense secondary pink K-feldspar and biotite.

There is a strong correlation between potassic alteration and copper mineralization on the Phantom Property. Propylitic alteration appears to occur peripherally to copper mineralized areas.

**(e) Geochemistry**

from the B horizon with a shovel

During the September reconnaisance program, 72 soil samples were collected along the Phantom 1 and 2 claim lines at 200 meter intervals. These samples were analyzed for copper and gold, and the results are plotted in Figure 4. at the Cominco laboratory in Vancouver using standard methods.

In addition to the soil samples, 14 rock samples were collected and analyzed for copper and gold. The results of this sampling can also be found in Figure 4.

T.K.

## 9. CONCLUSIONS AND RECOMMENDATIONS

This year's exploration work on the Phantom Property has confirmed the existance of Cu-Au porphyry style mineralization. Three distinct areas were dilineated where Cu-Au mineralization was found. Copper mineralization consists of varying degrees of chalcopyrite, bornite and malachite. The mineralization normally occurs along fracture faces, or as disseminations. One float sample mineralized with bornite returned an assay of 44,100 ppm Cu and 318 ppb Au. 5 more rock samples (grab and float) returned assay values between 1,320 - 6,400 ppm Cu and between 44 - 276 ppb Au.

An I.P. survey and soil sampling are recommended to help define the limits of mineralization. As well, some of the old trenches on the property should be cleared out, re-examined and

sampled.

## 10. REFERENCES

Allen, A.R. (1977): Geological, Geochemical and Geophysical Survey, Norma Claim # 207; Gilford Resources Ltd. - assessment report # 6,635.

Baird, J.G. (1968): Report on Induced Polarization Survey, Princeton Area, British Columbia on Behalf of Anchor Mining Ltd. (N.P.L.) - assessment report # 1774.

Crooker, G.F. (1991): Geochemical, Geophysical and Diamond Drilling Report on the MURPHY, MAGGIE, M 2, M 3 and GOLDROP 1 to 4 Claims; Murphy Shewchuk (owner) - private report.

Preto, V.A. (1972): Geology of Copper Mountain; British Columbia Department of Mines and Petroleum Resources, Geological Survey Branch - Bulletin 59.

Read, W.S. (1972): Geochemical Report, T 1-22 Mineral Claims; Anchor Mines Ltd. (N.P.L.) - assessment report # 4,171.

Taylor, D.P. (1972): Geological and Geochemical Survey Report on the Property of Messrs. J. Bartle and T. Doubt, and Grandora Explorations Ltd. (N.P.L.), Whipsaw Creek, Similkameen Mining Division, B.C.; Agilis Exploration Services Ltd. - assessment report # 3,939.

Written by: John Baril.

John Baril
Geologist

Endorsed by:

A.M. Pauwels
Senior Geologist

Approved for Release: W.J. Wolfe

W.J. Wolfe
Manager, Exploration
Western District

## APPENDIX I

## STATEMENT OF EXPENDITURES

| | |
|---|---|
| - Project supervision/planning | |
| A.M. Pauwels: 2 days @ $446.60/day | $ 893.20 |
| - Field mapping/sampling | |
| J. Baril: 7 days @ $196.68/day | 1376.76 |
| A. Molnar: 7 days @ $150.00/day | 1050.00 |
| - Report writing/drafting | |
| J. Baril: 7 days @ $196.68/day | 1376.76 |
| - Geochem (soil) - Cu/Au analysis | |
| 72 samples @ $9.50/sample | 684.00 |
| - Geochem (rock) - Cu/Au analysis | |
| 14 samples @ $10.50/sample | 147.00 |
| - Truck Rental | |
| 7 days @ $50.00/day | 350.00 |
| - Fuel | 80.00 |
| - Food/Motel | |
| 7 days @ $95.00/day | 665.00 |
| **Total:** | **$6,622.72** |

## APPENDIX II

## Statement of Qualifications

I, JOHN F. BARIL, hereby certify that:

1) I obtained a Bachelor of Science degree in Geology from the University of British Columbia in 1988 ;

2) I have been involved in mineral exploration in British Columbia and the Yukon since 1987 ;

3) I was personally engaged in fieldwork on the Phantom Property and am responsible for the interpretation of data, and the writing of this report ;

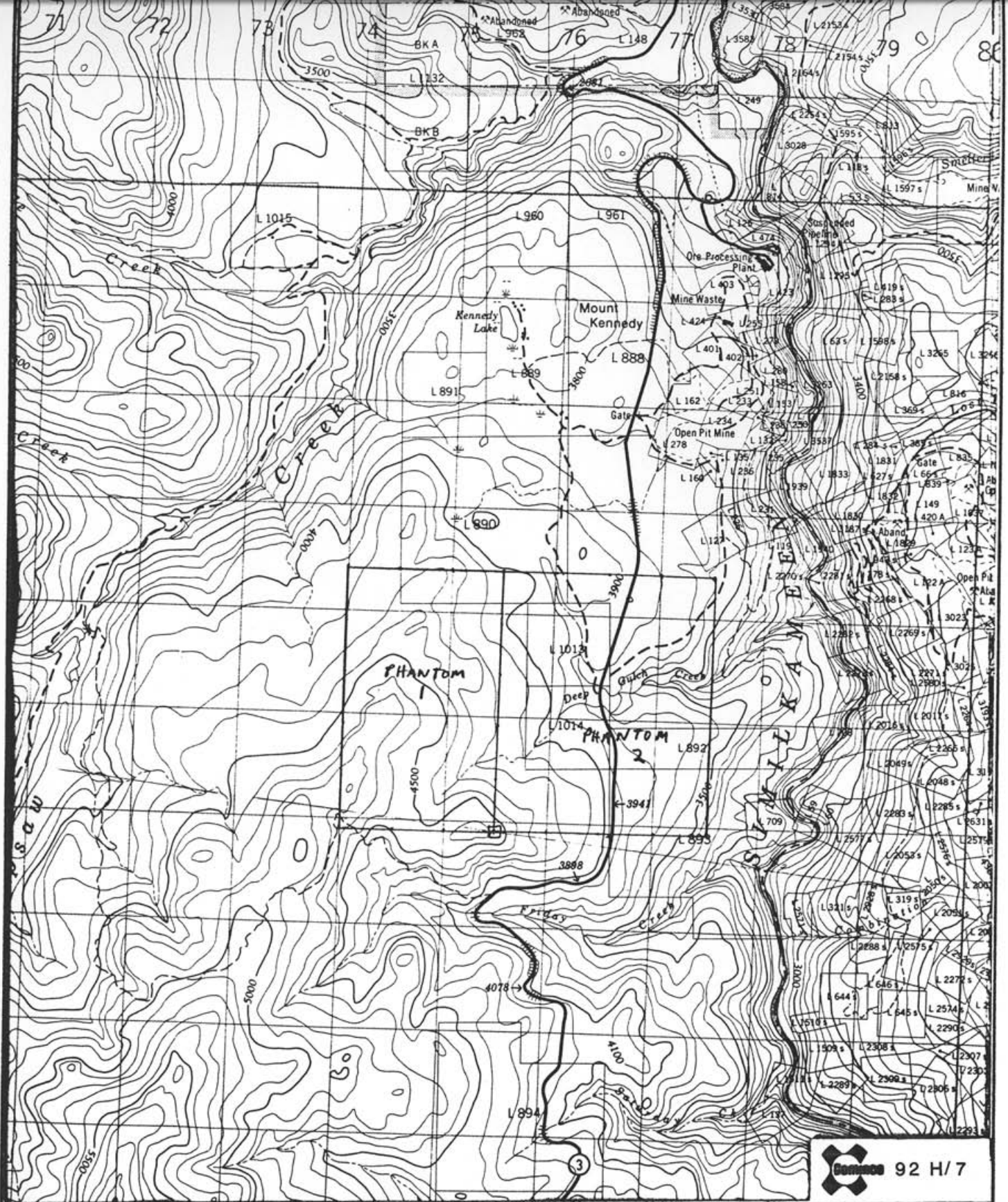
4) My home address is:

#202 - 5774 Balsam St.
Vancouver, B.C.
V6M 4B9

John Baril.

Date: May 8, 1992

John Baril
Geologist




| Drawn by: J.F.B. | | Traced by: | |
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# PHANTOM PROPERTY

## - CLAIM LOCATION MAP

| Scale: 1 : 50,000 | Date: May 1992 | Plate: 2 |
|---|---|---|

NCI - 112A - CL

210-0610


| Drawn by: J.F.B. | | Traced by: | |
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# PHANTOM PROPERTY

## - LOCATION MAP

Scale: 1 : 2,500,000 | Date: May 1992 | Plate: 1

NCI - 112A - CL

210-0610

KENNEDY LAKE

TO KM. 10 PRINCETON

WHIPSAW CREEK

SIMILKAMEEN RIVER

Aband. Pit

INGERBELLE

Aband. Pit

Aband. Pit

Aband. Pit

COPPER MOUNTAIN

BOUNDARY FAULT

DEEP GULCH CREEK

FRIDAY CREEK

Princeton Group

Nicola Group

Copper Mountain Stock

BOUNDARY FAULT

Columnar Joints

120°-35°

4000 3500 3500 4000 4500 3500 3000 3500 4000 4500 5000

49°20'

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,326

## LEGEND

### LITHOLOGIES :

**TERTIARY**

**MIDDLE EOCENE – PRINCETON GROUP**

8 VOLCANIC ROCKS : Massive grey & buff hornblende andesite porphyry. Minor andesite breccia & tuff.

7 Conglomerate.

**UPPER TRIASSIC – COPPER MOUNTAIN STOCK**

6 Pegmatite, syenite, perthesite.

5 Monzonite & micromonzonite.

**UPPER TRIASSIC – NICOLA GROUP**

4 VOLCANIC ROCKS : green andesite (mainly pyroxene phyric varieties. Minor feldspar phyric varieties).

3 SEDIMENTARY Rocks : grey & dark grey, finely laminated calcareous shale, siltstone & sandstone. Locally, graded bedding occurs.

2 WOLF CREEK FORMATION
Massive green andesite.

1 WOLF CREEK FORMATION
Grey & dark grey, graded and/or cross bedded volcanic siltstone & sandstone.

### SYMBOLS :

- old trench
- Bedding attitude
- Fault attitude
- Fault
- Plunge of slickensides
- Plunge of anticlinal fold axis.
- outcrop boundary.
- Phantom claim boundaries
- older overlapping claim & crown grant boundaries.
- Highway # 3
- Secondary road
- Geological contact (defined, inferred)

0 200 400 600 800 1000 metres

# PHANTOM PROPERTY

N.T.S. 92 H/7

| Drawn by: J F B | | Traced by: | |
|---|---|---|---|
| Method (a) | Date | Method (b) | Date |
| | | | |

## GEOLOGY

Scale: 1 : 10,000 | Date: NOV. 1991 | Plate: 3

KENNEDY LAKE

16 Km. to PRINCETON

3

Aband. Pit

INGERBELLE

SIMILKAMEEN RIVER

Aband. Pit

Aband. Pit

Aband. Pit

COPPER MOUNTAIN

49° 20'

WHIPSAW CREEK

4000

3500

4000

3500

4000

4500

DEEP GULCH CREEK

4000

3500

3000

4000

4500

3000

3500

5000

FRIDAY CREEK

120° 35'

old trench drill site

## LEGEND

### SYMBOLS :

- old trench
- Fault
- outcrop boundary
- Phantom claim boundaries
- older overlapping claim & crown grant boundaries
- Highway # 3

### ROCK & SOIL SAMPLES :

- ▲ Grab sample (rock)
- ■ Float sample (rock)
- ● Soil sample

Results : Cu (ppm) / Au (ppb)
– Au values < 10 ppb not recorded

GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,326

0 200 400 600 800 1000 metres

# PHANTOM PROPERTY

N.T.S. 92 H/7

| Drawn by: J F B | Traced by: | |
|---|---|---|
| Revised by: Date: | Revised by: Date: | |

## GEOCHEMISTRY – ROCK & SOIL SAMPLES

Scale: 1 : 10,000 Date: NOV. 1991 Plate: 4