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## PROPERTY FILE

**GEOLOGICAL AND EXPLORATION EVALUATION REPORT  
ON THE  
VALENTINE MOUNTAIN GOLD PROPERTY  
VICTORIA MINING DIVISION, BRITISH COLUMBIA**

Latitude 48° 31' North  
Longitude 123° 55' West  
NTS : 92 B / 12W

for

**BEAU PRE EXPLORATIONS LTD.**

By:  
A.A. Burgoyne, P.Eng.  
December 31 1998

## 1. INTRODUCTION AND TERMS OF REFERENCE

The objective of this evaluation report is to define the geological and mineral exploration potential of the large Valentine Mountain Gold Property, owned by Beau Pre Explorations Ltd., and located 42 kilometers west of Victoria, BC. This includes the development of a staged comprehensive exploration program on favorable exploration targets, including extensive diamond drilling, where warranted.

Beau Pre Explorations Ltd. commissioned the writer to complete an evaluation and interpretation / reinterpretation of the extensive package of past exploration results, including geological, geophysical, geochemical, prospecting and diamond drilling surveys that have been completed in the period of 1976 through to the present. This evaluation report was financed through a flow through share issue of Beau Pre Explorations Ltd. that was purchased by The Greenview Inn Ltd. of Edmonton, Alberta.

The writer met with Mr. Robert Beau Pre, President on many occasions to review and run through the nature and location of the extensive exploration survey results. Preliminary technical discussions were held with Mr. Andris Kikauka, P.Geo. concerning the BN Zone exploration target. Mr. Simon Salmon, a prospector and geological technician assisted the writer extensively in compiling, drafting and locating exploration data and with field examinations. The writer spent seven field days, in the period of October 20 through December 15, 1998, physically on the project examining and evaluating gold prospects, geology, soil development, site and exploration target access and topography. A total of about two month's time was spent in evaluating the project data.

The evaluation and compilation maps illustrated in this report were initially manually drafted by the writer and Mr. Salmon and final drafting was done electronically using AutoCAD 12 by Luminai Drafting Ltd. of Vancouver. The format of this report is expected to meet British Columbia government assessment reporting requirements and, as well, formal regulatory reporting requirements. *The claims evaluated in this report are given in Table 3.2 and are indicated on Figure 3.2.*

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## **2. PROJECT SUMMARY**

### **2.1 Project Description & Background**

The Valentine Mountain gold property, located 42 kilometers west of Victoria and 19 kilometers northwest of Sooke, British Columbia, is centered on Valentine Mountain. Access to the property is via Provincial Highway 14 west from Victoria to Sooke and thence by well-established gravel logging roads to the property. The terrain is mountainous and is rugged in places. Plateau development is common at the highest elevations. Elevation ranges from 371 meters at Diversion Reservoir to +1000 meters near Walker Lake on the west side of the property. Valentine Mountain is about 950 meters in elevation.

The Valentine Mountain Gold Property consists of a contiguous block of 92 claims (273 units) that covers a block of ground about 15 kilometers east-west and up to 5 kilometers north-south. Beau Pre Explorations Ltd. owns the claims 100%.

The exploration history of the property can be divided into three main time periods. Preliminary exploration in the period of 1976 to 1986. A middle period from 1986 through 1989 with more intense exploration including extensive regional sampling, soil sampling, ground geophysics, diamond drilling and bulk sampling operations. A late period from 1990 through mid 1998 that included geological mapping limited bulk sampling operations, trenching and geological compilation.

### **2.2 Geology And Structure**

Regionally the metamorphosed pelitic, arenaceous and volcanic rocks of the Leech River Formation of Mesozoic age underlie the area. These rocks are referred to as the Leech River Block that is separated and bound to the north by the east-west trending San Juan Fault Zone from Jurassic Bonanza Formation volcanics and to the south by the east-west trending Leech River Fault Zone from Eocene Metchosin Group volcanics. These rocks are intruded by granitoid intrusives, largely as sills and dykes, that are of Eocene age (38 million years).

Dating gives a late Jurassic to Cretaceous age to the sediments. The rocks of the Leech River Formation have undergone regional progressive metamorphism from green schist up to amphibolitic facies and have been deformed into tight overturned megascopic folds whose axes trend east-west and plunge easterly. A pervasive axial planar cleavage strikes east-west and dips 15 degrees north or south of vertical. The metamorphism and deformation occurred in early Tertiary times.

Studies by the Geological Survey of Canada, including the lithoprobe work, indicate that the Leech River Fault is a deep rooted thrust fault possibly originating near the subducting Juan de Fuca oceanic plate. Mesozoic sedimentation that produced the Leech River Formation is underlain by the westerly migrating Juan de Fuca spreading – subduction zone environment which in-turn produced intercalated volcanism. The Eocene age rocks are interpreted as being formed by melting of the subducting plate and to have in turn generated “plumbing” or structural systems which allowed the transport and deposition of gold and base metal mineralization.

There is a prominent and continuous east-west trending "structural break" that trends west to west-northwest across the center of the property that is coincident to a "Corridor" of gold mineralization. This break is defined by a major ground magnetic (and airborne magnetic) linear (that is defined by magnetic lows and highs) and, as well, by coincident strong and pronounced VLF electromagnetic conductors. There is also, in part, an alignment of topographic depressions and lows expressed by stream valleys. This prominent structural break, referred to as the "Discovery" linear by Noranda, is regional in scale and extends eastward from the east edge (Fred Creek) to the west edge (vicinity of Wye Lake) of the Valentine Mountain property and probably beyond. This structural break truncates obliquely, by a few degrees to the north, the general east-west trend of the hosting sediments and amphibolite.

### 2.3 Mineralization

The Leech River Block contain a large number of precious and base metal occurrences which display a wide variety of lithological, structural, and metamorphic remobilization that can be interpreted to be related to magmatic intrusive events. Regionally within a 35-km strike distance centered over the Valentine Mountain gold property, gold mineralization is hosted in several different environments. These include:

- quartz veins within sediments and intrusive sills,
- quartz vein stock works and quartz vein swarms in metasandstone and biotite schist,
- quartz swarms and stockworks within amphibolite and,
- low grade disseminated gold mineralization within amphibolite and metapelites.

Regional alteration includes potassium (sericite and biotite), silification, argillic, tourmaline and sulfides (pyrrhotite, pyrite, arsenopyrite).

### 2.4 Exploration Targets & Potential

There are several styles of gold metal mineralization known on the property. To date past exploration has focused largely on shear or fault hosted gold-bearing quartz-vein style mineralization at the Discovery and Braiteach Zones. Several other gold deposit model types are present and summarized below that have the exploration potential to define a combination of gold – bearing quartz veins, stockworks and breccias and possible disseminated lower grade gold mineralization associated with felsic intrusives amphibolite and metapelite.

The combined and continuous Discovery Footwall – Discovery West – Log Dam exploration targets have potential for these styles of mineralization and are considered as Priority I exploration. The BN Zone on the east side of the Jordan River is considered a Priority II exploration target for gold – bearing quartz veins, swarms and possible stockwork mineralization. The following styles of gold mineralization or deposit model types are potential exploration targets:

- Shear or fault hosted gold-bearing quartz veins.
- Gold-bearing quartz stockworks, quartz veins swarms and breccias.

- Structurally controlled disseminated lower grade gold mineralization associated with quartz veinlets and sulfides within altered amphibolite and metapelite and felsic intrusives.

*Cross-structure, as defined by geological mapping and interpreted from ground magnetics, where they intersect the regional "Discovery" linear, are considered to be an important structural control for possible mesothermal gold mineralization.*

*The writer during this study has evaluated, reinterpreted, prioritized and defined gold exploration targets in a + 7 kilometer strike length of the "Corridor" of gold mineralization that extends from Valentine Creek in the east to Braiteach Zone west of the Jordan River. A total of eight (8) exploration targets have been defined that extend for 5.5 kilometers from Valentine Creek in the east to the BN Zone just east of the Jordan River.*

It is significant that these exploration targets and defined gold prospects are aligned along a major regional linear called the "Discovery" linear that is expressed as a prominent magnetic linear and in topographic alignment. The gold prospects and the regional linear cut the trend (east-west) of the stratigraphic package obliquely at about ten degrees. Any individual vein showing appears to parallel the east-west rock trend but on a larger scale there appears to be a definite cutting of the regional stratigraphy by about 5 to 10 degrees to the north.

**Priority I** exploration targets include three contiguous targets, the Discovery Footwall Zone – Discovery West Zone – Log Dam Target over a 1.5 kilometer strike length that are located in the center of the "Corridor".

A **Priority II** exploration target is BN Zone at the west end of the "Corridor".

**Priority III** exploration targets includes the Fred West and Fred East Targets at the east end of the "Corridor" and the Alec Creek target in the center of the "Corridor".

A **Priority IV** exploration target is South Trip Creek, based largely on favorable ground magnetic responses, is located south of the "Corridor".

## **2.5 Exploration Strategy & Recommendations**

A comprehensive follow up Phase I ground exploration program consisting of geological mapping, prospecting and rock sampling, grid - line preparation, limited soil sampling, induced polarization and resistivity surveys, magnetometer surveys and 2550 meters of diamond drilling is recommended for the Priority I, II, III and IV exploration targets. The full Phase I exploration budget is \$800,000 of which most is directed at Priority I and II targets.

If the drilling part of this program is positive further drilling expenditures will be warranted probably as a Phase 2-exploration program.

### **3 GENERAL DESCRIPTION**

#### **3.1 Project Location & Access**

The Valentine Mountain gold property is located 42 kilometers west of Victoria and 19 kilometers northwest of Sooke, British Columbia at the southern end of Vancouver Island. The property consists of a large land package that totals about 6900 hectares covering favorable geological terrain that is 20 km long (east-west) by about 6 km wide. The Bear Creek and Diversion Reservoirs bound the property on the south, and Valentine Mountain lies in the central portion of the property. Access to the property is via Provincial Highway 14 west from Victoria to Sooke and thence by well established all weather gravel logging roads to the property. Note Figures 3.1 and 3.2. The property has an extensive network of well-maintained gravel logging roads as Timberwest Forest Co. is actively logging in the area.

Most known prospects and exploration targets are accessible by logging roads, or to within a short, less than one-kilometer hiking distance, usually by defined trails. The property is located on NTS map sheet 92 B /12 W.

#### **3.2 Physiography, Vegetation & Climate**

The terrain is mountainous and is moderately steep to rugged in places. Plateau development is common at the highest elevations. The elevation range is from 371 meters at Diversion Reservoir to +1000 meters near Walker Lake on the west side of the property. Mountaintops are generally rounded and a north-dipping plateau exists west of the Jordan River.

Heavy conifer forest cover parts of the property but much of the property has been clear cut logged, leaving a predominant cover of second growth. An extensive network of roads exists making access to most of the property excellent. The property can be explored year round at lower elevations, though a nine to ten month season is more reasonable due to moderate snowfall above 600 meters.

#### **3.3 Property Ownership & Claim Status**

The property consists of a large land package made up of 90 claims (276 units) that covers a block about 15 kilometers east-west and up to 5 kilometers north-south. Beau Pre Explorations Ltd owns the claims 100%. Note Table 3.1 for a list of all claims comprising the property and Figure 3.2 for claim locations. The claim title and ownership have not been reviewed. The claims evaluated in this report, as given on Maps 1, 2 and 3, are schematically indicated on Figure 3.2 and given in Table 3.2. Timberwest Forest Co. owns the timber rights and logging roads.

The RB 1 through 20 mineral claims owned by Robert Beaupre are not listed in Table 3.1 but are reported to be under a right of first refusal to purchase by Beau Pre Explorations Ltd.

This part of Vancouver Island is designated as a Multi-Resource Use Area. There are no protected areas including parks, ecological zones, etc.

**TABLE 3.2**  
**CLAIMS EVALUATED IN STUDY AND COVERED BY MAPS 1, 2 & 3**

A 1	Blaze 1	BPEX 5	RB 11
A 2	Blaze 2	BPEX 6	RB 12
A 4	Blaze 3	BPEX 7	RB 13
A 6	Blaze 4	BPEX 12	RB 14
A8	BPEX 1	Doran 1	RB 15
A 10	BPEX 2	Doran 2 Fr	RB 16
A 12	BPEX 3	Luster 2	RB 17
A 13	BPEX 4	RB 10	Walker 1

### 3.4 Exploration History

A focus of much of the early exploration by Beau Pre Explorations (1976 – 1986), Valentine Gold Corporation (1986 – 1988) and Beau Pre Explorations (1990-1997) has been on three gold-bearing quartz veins known as C, D, and A in the Discovery Zone in the south-central part of the property. In the order of 35-diamond drill holes totaling in the order of 4258 meters tested the Discovery Zone mineralization over a strike length of 400 meters by about 300 meters in width.

Valentine Gold and Noranda Exploration in the period of 1986-1989 commenced systematic mineral exploration on a +7 kilometer east-west belt or "*Corridor*" of gold mineralization that is perhaps 250 to 400 meters wide that runs from Valentine Creek in the east to about 2 kilometers west of the Jordan River. The original Discovery Zone is located toward the east end of this belt.

Total exploration expenditures are reported in the order of \$4 million and actual surveys plotted with respect to chronology are given on Figure 3.3. A detailed review of past exploration is given in Epp (1998), Kikauka (1998), McCorquodale et al (1989), Hopley (1988) and the reader is referred to these publications for further detail. The exploration history of the property can be divided into three main time periods.

- Early work in the period of 1976 through 1986 focussed on the Discovery Zone gold-bearing quartz veins. Beau Pre Explorations undertook most of this exploration that consisted of prospecting, geological mapping, rock chip sampling, trenching, bulk sampling, limited soil sampling, regional silt sampling, airborne magnetometer and VLV-EM and diamond drilling. Falconbridge Limited undertook a limited trenching and sampling program on the Discovery Zone gold mineralization in 1985.
- A middle period of 1986 through 1989 whereby Valentine Gold and Noranda Exploration undertook extensive regional work including regional silt, pan concentrate and regional rock sampling and analyses.

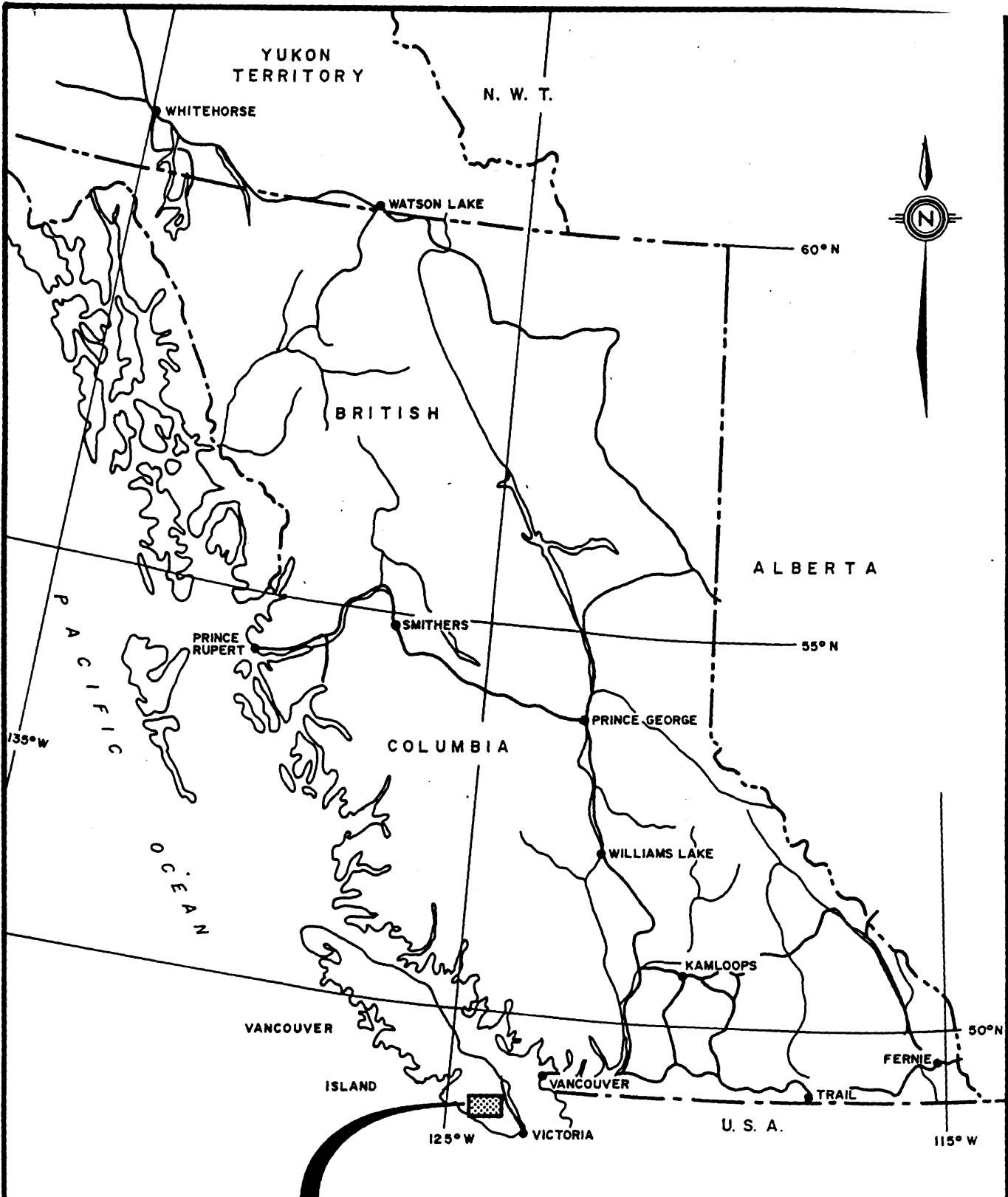
Valentine Gold undertook extensive grid preparation; soil sampling (5900 samples) on regular 100 meter spaced lines at 20 meter intervals and ground electromagnetics and induced polarization surveys on specific grids within and

adjacent to the "Corridor" of gold mineralization noted above. Valentine Gold also completed extensive diamond drilling (22 holes over 2428 meters) and operated a 20-ton bulk sampling plant at the Discovery Zone. They also undertook 2243 meters over 15 drill holes on the Braiteach Zone (also know as Zone C) on the east-central portion of the property adjacent and west of the Jordan River.

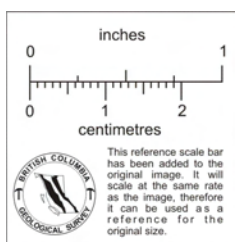
In 1989 Noranda Exploration focussed exclusively on regional exploration and in completing detailed geological and geophysical surveys and limited diamond drilling along a +5 kilometers strike length of the known and inferred "Corridor" of gold mineralization. This work included 51.6 line kilometers of ground magnetic surveys, 17.8 line kilometers of induced polarization and resistivity surveys. Geological mapping at a scale of 1:2000 was completed over a +5 kilometer strike length by about 1 kilometer width within the "Corridor"; mapping at 1:500 scale was also completed within the BN and Braiteach Zones combined with extensive rock sampling. A total of 727 meters of diamond drilling over 5 drill holes was done on anomalies on the Braiteach and Discovery West Zones.

- A late period of exploration from 1990 through mid 1998 by Beau Pre Explorations. This work through to the end of 1997 consisted of further bulk sampling and pilot mill operations at the Discovery Zone, geological mapping on selected parts of the property, compilation of past geological and other exploration surveys, trenching and rock sampling on the BN and Discovery West Zones. Epp (1998) undertook conceptual exploration modeling and evaluation of gold mineralization on the property.





**AREA OF PROPERTIES**



Scale: 1:8,000,000

**FIGURE 3.1**

**VALENTINE MOUNTAIN PROJECT  
PROPERTY LOCATION MAP**

**BEAU PRE EXPLORATIONS LTD**

## 4. GEOLOGY AND MINERALIZATION

### 4.1 Regional Geology, Mineralization & Structure

Regionally the area is underlain by Mesozoic age metamorphosed pelitic, arenaceous and volcanic rocks of the Leech River Formation. These rocks are referred to as the Leech River Block and are separated and bound to the north by the east-west trending San Juan Fault Zone from Jurassic Bonanza Formation volcanics and to the south by the east-west trending Leech River Fault Zone from Eocene Metchosin Group volcanics. To the east the Leech River Block is separated and bound by the northwest trending Cragg Creek Fault and Lower Paleozoic gneiss and metadiorite. These rocks are intruded by granitoid intrusives, largely as sills and dykes, that are of Eocene age (38 million years). **Note Figure 4.1.**

The Leech River Block which extends from Port Renfrew on the west to Langford (near Victoria) in the east is about 75 km long east-west and varies in width from 7-12 km in the west to less than 2 km in the east. Rb-Sr dating gives a late Jurassic to Cretaceous age to the sediments. The rocks of the Leech River Formation have undergone regional progressive metamorphism from green schist up to amphibolitic facies and have been deformed into tight overturned megascopic folds whose axes trend east-west and plunge easterly. A pervasive axial planar cleavage strikes east-west and dips 15 degrees north or south of vertical. K-Ar dating indicates that the metamorphism and deformation occurred in early Tertiary times.

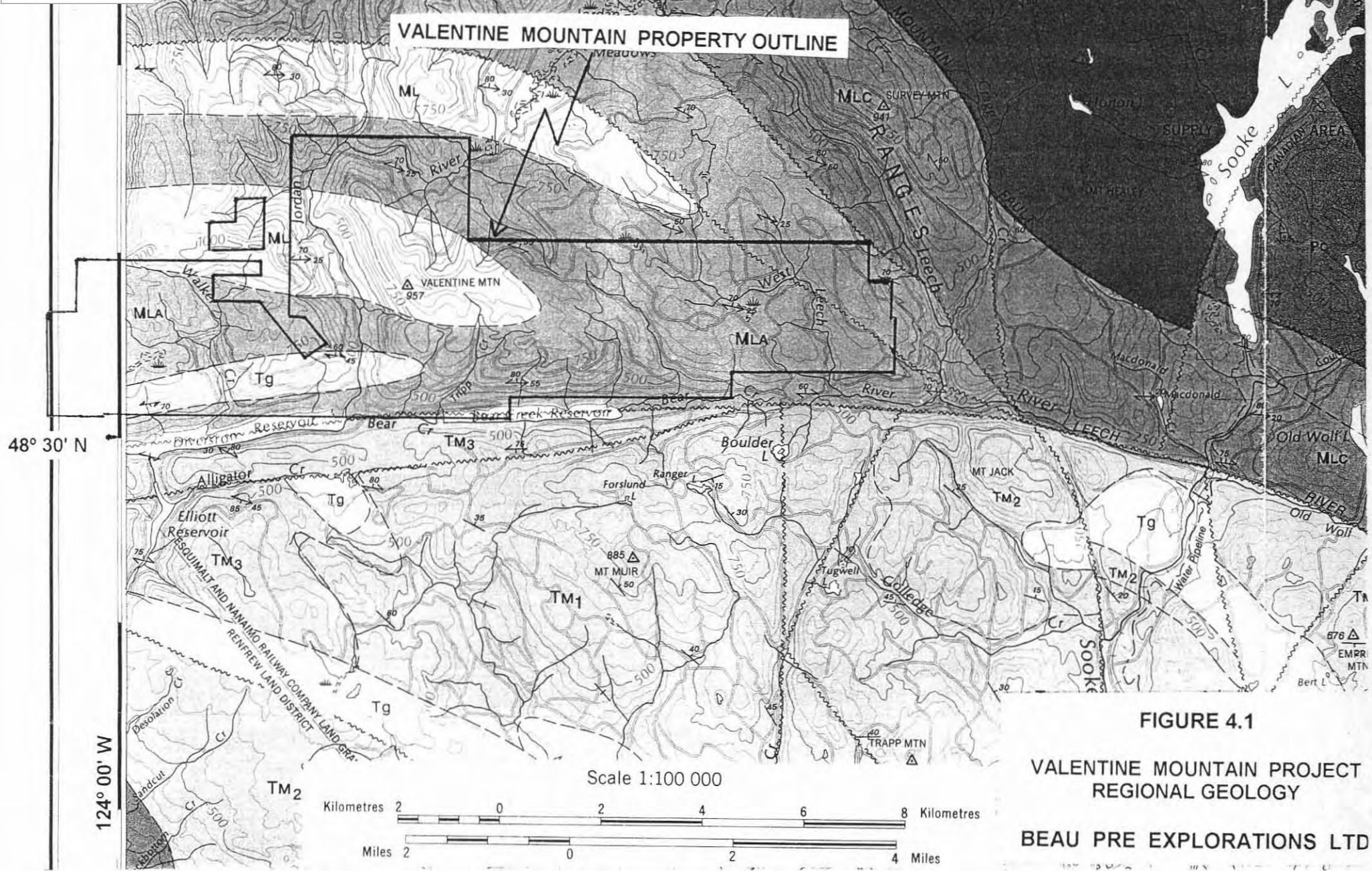
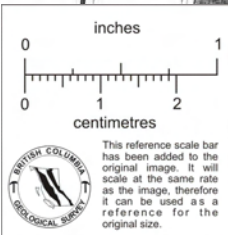
Studies by the Geological Survey of Canada, including the lithoprobe work, indicate that the Leech River Fault is a deep rooted thrust fault possibly originating near the subducting Juan de Fuca oceanic plate. Mesozoic sedimentation that produced the Leech River Formation is underlain by the westerly migrating Juan de Fuca spreading – subduction zone environment which in turn produced intercalated volcanism. The Eocene age rocks are interpreted as being formed by melting of the subducting plate and to have in turn generated a “plumbing” or structural systems which allowed the transport and deposition of gold and base metal mineralization.

The Leech River Block contain a large number of precious and base metal occurrences which display a wide variety of lithological, structural, and metamorphic associations that can be interpreted to be related to magmatic intrusive events (Epp 1998). Regionally within a 35 km strike distance centered over the Valentine Mountain gold property, gold mineralization is hosted in several different environments including quartz veins within sediments and intrusive sills, quartz vein stock works and quartz vein swarms in metasandstone and biotite schist, quartz swarms and stockworks within amphibolite. Regional alteration includes potassium (sericite and biotite), silification, argillic, tourmaline and sulfides (pyrrhotite, pyrite, arsenopyrite).

### 4.2 Local Geology

Both Wingert (1984) and Grove (1984) have mapped the property in some detail at a scale of 1:7200. McCorquodale et al (1989) for Noranda undertook extensive geological mapping, mostly at a scale of 1:2000, but also at a 1:500 scale on the Braiteach and BN Zones towards the west end of the “Corridor”, of gold mineralization. Noranda’s geological mapping was focussed on the “Corridor” from the Discovery Zone





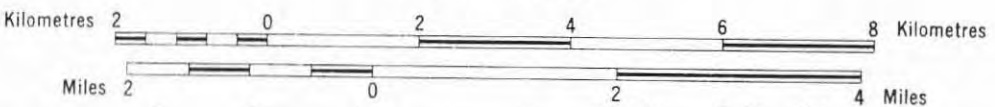
**VALENTINE MOUNTAIN PROPERTY OUTLINE**

**FIGURE 4.1**

**VALENTINE MOUNTAIN PROJECT  
REGIONAL GEOLOGY**

**BEAU PRE EXPLORATIONS LTD**

Scale 1:100 000





## LEGEND

### TERTIARY

#### OLIGOCENE AND/OR MIOCENE

**Ts** SOOKE FORMATION: conglomerate, sandstone, shale

#### EOCENE (AND OLDER?)

**Tg** CATFACE INTRUSIONS: quartz diorite, agmatite

**TM** METCHOSIN VOLCANICS: TM<sub>1</sub>: pillow basalt, breccia, tuff;  
TM<sub>2</sub>: mainly basaltic lava; TM<sub>3</sub>: schistose metavolcanic rock

**Tsg** SOOKE GABBRO: mainly gabbro

### JURASSIC AND CRETACEOUS

#### UPPER JURASSIC AND LOWER CRETACEOUS

**JKs** SPIEDEN FORMATION: conglomerate, sandstone, siltstone

### TRIASSIC TO CRETACEOUS

#### LEECH RIVER FORMATION: (MLC to ML)

**ML** METAGREYWACKE UNIT: metagreywacke, meta-arkose,  
quartz-feldspar-biotite schist

**MLA** ARGILLITE-METAGREYWACKE UNIT: thinly bedded greywacke  
and argillite, slate, phyllite, quartz-biotite schist

**MLC** CHERT-ARGILLITE-VOLCANIC UNIT: ribbon chert,  
cherty argillite, metarhyolite, metabasalt, chlorite schist

**Mc** CONSTITUTION FORMATION (San Juan Island):  
thinly bedded greywacke, argillite and chert

### JURASSIC

#### LOWER TO MIDDLE JURASSIC

**Jg** ISLAND INTRUSIONS: granodiorite, quartz diorite

#### BONANZA GROUP

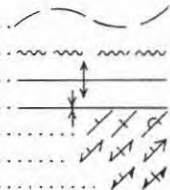
**JB** Basaltic to rhyolitic tuff, breccia, flows, minor argillite, greywacke

#### LOWER PALEOZOIC (OR YOUNGER?)

**Pc** COLQUITZ GNEISS: quartz-feldspar gneiss

**Pw** WARK GNEISS: massive and gneissic metadiorite,  
metagabbro, amphibolite

Geological boundary, (approximate) .....  
Fault, (approximate) .....  
Anticlinal axis .....  
Synclinal axis .....  
Bedding, (inclined, vertical, overturned) .....  
Foliation (inclined, vertical, with plunge of lineation) .....  
Gneissosity, (inclined, vertical) .....



Geology by J. E. Muller, 1970, 1980

westward through the Braiteach Zone. The geology map compilation given in **Map 2**, in the end pocket, is a 1:5000 (1:10,000 for assesment) scale that has been reduced from the 1:2000 scale Noranda outcrop mapping. **Map 2** has been constructed such that only gross geological units and structures are displayed. The reader should refer to McCorquodale et al (1989) for reference to specific outcrop detail and topography.

The Noranda mapping confirms that continuous sequences of metasandstones (Unit 2), metapelites (Unit 3) and lesser metavolcanics or amphibolites (Unit 1) underlie the property. These Units are intruded by Tertiary intrusives of Unit 5, usually in the form of sills and dykes that are of quartz diorite composition and texture. Metchosin Volcanics (Unit 4) is located to the south of the property and is not discussed further. These rocks have undergone regional metamorphism and have been transformed into large-scale tight folds whose axial planes trend east-west and dip on average 70-80 degrees to the north. The following descriptions of the individual Units are arranged in descending age.

**Unit 1 – Amphibolite:** This amphibolite unit occurs in beds from 1 to 3 meters thick. Fresh surfaces vary from pale gray-green to a bright chloritic green. Varieties of amphibolite include i) Ash tuff that is moderately fissile with sericite coatings on cleavage surfaces. ii) Ash / crystal tuff that is fine grained and contains 10% amphibole clasts up to 10 mm long. iii) Lapilli tuff that is medium grained with fragments of feldspar, quartz and mafic minerals; this rock is moderately schistose and slightly to moderately fissile. iv) Volcanic flows and volcanic breccia that are fine to medium grained, composed of feldspar, minor quartz, and chlorite that are slightly fissile with sericite on foliation surfaces. For a detailed description of the petrology of this unit the reader should refer to McCorquodale et al (1989).

There are two amphibolite units trending east-west within the Discovery and Discovery West Zones. The southern unit folds around to the south, of the BN Zone, while the northern unit continues westward. The units range in width from 60 meters to 200 meters, averaging 120 meters. It is perhaps significant, from a structural control perspective for mineralization that the amphibolite unit at the Discovery Zone thickens out to a lens from about 60 meters to 120 meters thick.

**Unit 2 – Metasandstone:** The metasandstone unit occurs as a distinct unit or as interbeds within the metapelites. The metasandstone may be divided into two major sub-units, which originally are thought to have been quartz-feldspar sandstones and greywackes. These sub-units are described as massive metasandstone and greywacke during field mapping. This massive sandstone unit underlies the northern portion of **Map 2** that, according to Noranda, is hundreds of meters thick. In the southern portion of **Map 2** the metasandstone occurs as inter-beds within the metapelites of Unit 3.

The massive metasandstone is quartz-feldspar sandstone that is fine to medium grained. Color varies light gray to dark gray to black. The unit is massive, poorly bedded and forms prominent cliffs. It displays minor schistosity. The quartz-feldspar grains are elongated in the plane of foliation. The unit contains up to 15%-disseminated biotite and has, at least, been partially recrystallized.

The greywacke sub-unit is medium to dark gray in color and is fine to medium grained and contains lithic fragments. This sub-unit has lower quartz content than the massive metasandstone and displays a schistosity.

**Unit 3 – Metapelite:** The metapelite unit occurs as interbeds of metasiltstone (biotite schist) and metamudstone (phyllite) from less than 0.5 meters to greater than 20 meters thick. The metapelites are found interbedded with the metasandstone of Unit 2 above. A metapelite bed that averages 140 meters wide, trends east-west and thickens to the west, is found between the northern and southern amphibolite units and is illustrated on **Map 2**.

The metapelites have been subdivided into five sub-units; these include:

- Phyllites that are very fine grained, extremely fissile with abundant sericite and biotite on cleavage surfaces and may be the product of retrograde metamorphism due to movement along a major east-west proximal fault that is defined by the "Discovery linear". **Note the comments under Structure of Section 4.3.** The color varies from gray to carbonaceous black.
- Biotite Schist that is fine grained, gray to black in color, and composed of quartz and biotite bands 1 to 3 mm thick. Garnet +/- staurolite +/- andalusite porphyroblasts are common within the schist.
- Biotite – garnet schist that is similar to the above biotite schist with the addition of garnet porphyroblasts. The garnets are euhedral, 1-10 mm in width and commonly red.
- Biotite – garnet – staurolite schist that is similar to the biotite – garnet schist but with addition of porphyroblasts of staurolite. The staurolites are dark brown and range in size from 1 – 10 mm in size.
- Biotite – garnet – staurolite – andalusite schist that is similar to the above units but with addition of andalusite porphyroblasts.

The above metapelite sub-units mineralogy reflects the changes in metamorphic grade.

**Unit 4 – Metchosin Volcanics:** This unit is composed of Metchosin volcanics consisting of lapilli tuff agglomerate and andesitic flows of Eocene age. As this unit does not outcrop on the property it is not discussed further.

**Unit 5: Tertiary Intrusives:** These intrusives are leucocratic to mesocratic granitoid, moderately crystalline and equigranular. They outcrop predominantly on the southwest portion of the large Valentine Mountain property (**note Figure 4.1**) and are not illustrated on **Map 2**. These intrusives on this part of the property are found as large intrusive sills, the largest being up to 2.8 kilometers in length and up to 600 meters in width.

The only mapped intrusions within the "Corridor" of gold mineralization and illustrated on **Map 2** is in the footwall of the Discovery Zone gold-quartz veins. Here an east-northeast trending 8-meter wide dike is found to cut metapelite and amphibolite. Also two small area intrusives are found south and east of Log Dam Lake. Small area magnetic highs on **Map 3** may be indicative of buried intrusives.

### 4.3 Structure

The most predominant and pervasive structural feature is the foliation in the form of co-planar schistosity and cleavage. These foliation features strike east-west and dip steeply north or south of vertical. There are minor parasitic folds within the metapelites that form small "S" or "Z" folds within schist layers and quartz veinlets. By the combined use of foliation dip and the "S" and "Z" folds, large-scale folds were inferred by Noranda and are illustrated on **Map 2**.

There is a prominent and continuous east-west trending "structural break" that trends west to west-northwest that is coincident to the "Corridor" of gold mineralization. This break is defined by a major ground magnetic (and airborne magnetic) linear (that is defined by magnetic lows and highs) and, as well, by coincident strong and pronounced VLF electromagnetic conductors. There is also, in part, an alignment of topographic depressions and lows expressed by stream valleys. This prominent structural break, referred to as the "Discovery linear" by Noranda, is regional in scale and extends eastward from the east edge (Fred Creek) (**Map 3**) to the west edge (vicinity of Wye Lake) of the Valentine Mountain property and probably beyond. This structural break truncates obliquely, by a few degrees to the north, the general east-west trend of the hosting sediments and amphibolite. In the vicinity of the BN Zone and the Jordan River there is a small apparent west-northwest flexure of the Discovery linear. A major north-south shear zone or fault trending northerly under the Jordan River valley may cause this. This linear is considered as a major structural control for gold mineralization. There are other east-west trending structural breaks, as defined by a Noranda airphoto interpretation (McCorquodale and Wilson, 1989), and secondary north-northwest and north-northeast structures. The north-northwest trends are common and the north-northeast trends are uncommon. Corresponding magnetic linear directions confirm this observation. The intersection of these cross-structures with the "Discovery linear" and bulges or thickenings of the amphibolite are considered good structural targets for gold mineralization.

It is significant that the Discovery Zone gold-quartz veins are located on the stratigraphic and structural footwall of this amphibolite bulge within metasandstone. Here the amphibolite thickens to about 120 meters versus an average of about 60 meters. It will be noted below that several of the defined exploration targets that have coincident geochemical, geophysical and mineralization attributes are, in certain cases, related to favorable cross-structures.

At the BN Zone a subtle west-northwest fault is believed to be present that coincides with the "Discovery linear". The main structural folding in the area is a gently east plunging anticline where numerous measurements indicate a 12 to 22 degree plunge to the east.

Jointing planes trend roughly north-south and remain not interpreted.

#### 4.4 Mineralization, Alteration & Deposit Model Types

Grove (1990) points out that gold - quartz veins in the Discovery area represent high temperature (mesothermal?) hydrothermal ore deposits deposited in a high grade metamorphic terrain are a result of late Tertiary igneous activity. The known vein mineralization is localized within intercalated metasediments above and below layers of amphibolite.

Grove points out that quartz-tourmaline and tourmaline mineralization and alteration is most extensive in the Walker Creek area (to the west of the Braiteach Zone) and is also found in the eastern Discovery Zone mineralization. In contrast arsenopyrite alteration increases in both veins and country rock from west to east. Grove (1990) suggests a geochemical zoning comparable to the easterly plunge of the rock structures and indicates a temperature gradient, which also plunges easterly. Grove also points out that no gold-pyrite (or gold-sulfide) zone has been recognized but, if present, should lie between Jordan River and the Discovery Zone.

There are several styles of gold mineralization defined by diamond drilling and surface mapping and sampling. These include:

- Gold – bearing quartz veins: This style of mineralization is well documented and appears to be the most common form of gold mineralization defined to date on the property. The quartz veins (and veinlets) at the Discovery Zone, which has been extensively diamond drilled, are of this type. These veins are typically narrow (0.1 to 0.5 meters) but can vary from 0.5 cm to 2 meters. They have variable nugget gold content and, at the Discovery Zone, can be traced discontinuously along an east west strike of about 400 meters; here they dip steeply south generally parallel to schistosity and are hosted within metapelite and metasandstone. One vein, the E vein is contained within altered amphibolite. In the order of three separate veins over a width of about 50 meters have been defined. Aggregates of arsenopyrite are found within the veins and the adjoining wallrock. The vein mineralogy includes fine-grained pyrite, arsenopyrite and native gold; potassium feldspar and tourmaline are also present. There is generally an association of arsenopyrite with gold - bearing veins within the metapelite and metasandstone. The tourmaline and arsenopyrite point to a mesothermal environment.
- The gold-bearing quartz veins and veinlets occur throughout all of the lithological units mapped although the phyllites contain very little quartz vein material. The metasiltsstones are a favorite host and here the veins generally parallel schistosity. The metasandstones are also favorable, as defined by the D vein at the Discovery West Zone where the vein is at the metasandstone / amphibolite contact, but the veins may crosscut the foliation by 30 to 45 degrees. Gold – bearing zones within the amphibolites are associated with pyrrhotite aggregates of up to 3 percent. This style of mineralization is associated with both quartz veining and bands of pyrrhotite, pyrite and arsenopyrite banding. It appears to be best developed at the hanging and footwall amphibolite contacts and within the amphibolite.



- Gold-bearing stockworks and breccia zones: This style of mineralization is recognized as small stockworks within the metasandstone and amphibolite. On the north shore of Log Dam Lake the writer mapped a 2.5 meter wide zone of stockwork quartz veining where three separate vein sets (288° / 60° N, 352° / 80° E, 052° / 35° SE) are contained within amphibolite. The veins range from 1 cm to 6 cm in thickness.
- Further to the east, in the Port Renfrew area, the writer has mapped quartz vein stockwork systems associated with intrusive felsic sills and metasiltsstones.
- Disseminated low-grade (15 to +200 ppb gold) gold mineralization associated with quartz veinlets and pyrrhotite within altered amphibolite and biotite gneiss. This style of mineralization appears to be associated with shearing, brecciation, propylitic alteration, calcite and quartz veinlets, pyrite, pyrrhotite and anomalous arsenic. This style of mineralization is found both at the Footwall Zone of the Discovery Zone gold mineralization over diamond drill projected widths of 60 to 120 meters (within amphibolite and biotite schist) and at the Discovery West Zone (within amphibolite). At the Footwall Discovery Zone a gold mineralized intrusive granodiorite dyke is spatially associated with the broader zone of gold mineralization giving credence to the possibility for bulk tonnage hydrothermal gold mineralization associated with intrusive sills and dykes. This possible intrusive / hydrothermal environment has the potential to define potentially economic bulk mineable style gold mineralization within certain areas along the +7 kilometer "Corridor" of gold mineralization on the property.

*Cross-structure, as defined by geological mapping and interpreted from ground magnetics, where they intersect the regional "Discovery" linear are considered to be an important structural control for possible mesothermal gold mineralization.*

#### 4.5 Defined Surface Prospects

##### Discovery Zone

This zone of mineralization was where the initial discovery of gold -bearing quartz veins was found in the 1970's at Valentine Mountain. This zone has been subject to intensive surface trenching, diamond drilling and bulk sampling / pilot mill operations.

Surface Trenching is indicated on **Map 1**; here five major trenches have been drilled and blasted and include A, C, 36 and Falconbridge cross trenches #1 and #2. In certain cases there are spectacular, although narrow, intersections of gold mineralization.

- In Trench A a value of 3.22 g/t gold (0.094 oz/ton) over a 1.38 m width was defined for a strike length of 11.0 meters.
- The 36 Trench gave a great range of gold value. These range from 0.17 g/t (0.005 oz/ton) over a 0.36 m width along a 10 meter strike length; 14.06 g/t (0.41 oz/ton)

over a 0.46 meter width along a 2 meter strike length; 1198.4 g/t (34.95 oz/ton) over a 0.17 meter width along a 2 meter strike length, etc.

- In Trench #1, a cross trench, an 8 meter width of vein and wall rock returned in the order of 3.4 g/t (0.1 oz/ton gold); however, on reanalysis, by Valentine Gold, the results were not confirmed. The reader should refer to Kikauka (1997) for details of the trenching results.
- Valentine Gold also cross-channelled sampled, at 10 to 15 meter intervals the complete distance between cross trench #1 and A trench, a distance of 250 meters of strike length. This tested extensions to the C vein and for lower grade disseminated gold mineralization in the hanging and footwall sides of the vein(s). The cross-channel samples tested widths of 8 to 40 meters and returned locally anomalous gold content but no results of economic significance.

In the order of 4258 meters of diamond drilling over 35 diamond drill holes tested a strike length of 400 meters by about 300 meters north-south and most areas where surface trenching had been done. On the basis of this drilling the C vein has a reported (Allen 1989) calculated resource of 30,600 tonnes grading 14.71 g/t gold (33,800 tons grading 0.429-oz/ton) gold at a zero gold cutoff grade.

A bulk sampling plant operated by Valentine Gold in 1987 and 1988 processed gold mineralization from Trench #1 (247.1 tons grading 0.015 oz/ton), 36 Vein East (184.0 tons grading 0.106 oz/ton) and 36 Vein West (222.0 tons grading 0.027 oz/ton).

### **Braiteach Zone**

Six separate prospects known as Braiteach Zones 1,2,3,4,5 and 6 have been sampled by both Valentine Gold and Noranda Exploration on gold – bearing quartz veins which although very narrow have yielded some high grade gold values. **Map 1** illustrates the location of the main showings. Surface and diamond drill hole sample results for values in excess of 0.5 g/t (500 ppb) gold for the Braiteach Zone are given below.

**TABLE 4.1**  
**Braiteach Zone – Diamond Drill Hole Results**

Drill Hole	Braiteach Zone				Comment
	Intercept (m)	Length (m)	Gold (ppb)	Gold (g/t)	
87-23	27.0-28.0	1.0	1,000		Contained within 6 m zone of geochemical anomalous gold
87-24	6.0-7.0	1.0	700		Contained within 24 m zone of geochemical anomalous gold
	8.0-9.0	1.0	700		
	61.0-62.0	1.0	1,000		
	78.0-79.0	1.0	865		
88-03	14.6-16.0	1.4	695		Contained within 26 m zone of geochemical anomalous gold
88-04	60.0-62.0	2.0	595		Contained within 73 m zone of geochemical anomalous gold
88-05	64.0-69.0	5.0	506		Contained within 91m zone of geochemical anomalous gold
88-09	148.6-149.8	1.2	965		
88-12	96.0-99.0	3.0	4,572	7.2	

**TABLE 4.2**  
**Braiteach Zone – Surface Sample Results**

Showing/Prospect	Grid Location		Intercept (m)	Sample Type	Au (g/t)	AU (ppb)
Noranda R55154	209+45N	166+97E	0.09	grab		12570
Noranda R11617	209+45N	167+50E	-	grab		2680
Noranda R58947	209+40N	166+95E	0.08	channel		740
Valentine Gold	200+70N	167+25E	-	grab	17.8	

The Braiteach Zone is defined by a large area insitu gold soil anomaly and several gold – bearing quartz veins that follow east-west trending fractures parallel to the foliation of the metasandstone unit. The veins vary in width from 0.02 to 0.21 meters and are associated with quartz micro veins that vary from 1 to 5 mm in width that diminish in number and extent with distance from the main vein.

The showings have been well sampled and extensive diamond drilling of 16 diamond drill holes by Valentine Gold has returned, with the exception of DDH 88-12, low grade gold results over narrow intervals. Many of the diamond drill holes returned intersections varying from 5 to 55 meters containing +15 to +200 ppb gold within metasandstone and biotite schists. These anomalous lithogeochemical gold values are sufficient to explain the anomalous surface gold soil geochemistry. **Note Map 2.** DDH 88-12 returned 7.2 g/t gold over a drill intercept of 3.0 meters. Follow up drilling by Noranda in 1989 with two drill holes to the west of this intersection returned no anomalous gold results.

#### 4.6 Other Prospects

Other surface and subsurface prospects are discussed in some detail below in **Section 5.4 – Defined Targets For Future Exploration**. These include the BN Zone which has numerous surface showings and the contiguous Discovery Footwall – Discovery West – Log Dam prospects and exploration target areas.

## 5. PRIORTIZED EXPLORATION TARGETS

### 5.1 Introduction & Summary

The writer has evaluated, reinterpreted, prioritized and defined gold exploration targets in the + 7 kilometer strike length of the "Corridor" of gold mineralization that extends from Valentine Creek in the east to Braiteach Zone west of the Jordan River. A total of eight (8) exploration targets have been defined that extend for 5.5 kilometers from Valentine Creek in the east to the BN Zone just east of the Jordan River. **Note Map 1.** The prioritized exploration targets, where diamond drilling is recommended, should be drilled by large diameter (NQ) core in drill fences oriented north – south, probably up to 300 meter depths.

A ninth target not illustrated on Map 1, located west of Walker Creek on the southwest side of the property on the northwest spur off of WA 6A logging road, is interpreted as a hydrothermal alteration zone that deserves further exploration follow-up.

**Priority I** exploration targets include three contiguous targets, the Discovery Footwall Zone – Discovery West Zone – Log Dam Target over a 1.5 kilometer strike length that are located in the center of the "Corridor". Here further exploration should include extensive diamond drilling and limited induced polarization and resistivity surveys.

A **Priority II** exploration target is the BN Zone at the west end of the "Corridor". Here further exploration should consist largely of diamond drilling.

**Priority III** exploration targets includes the Fred West, Fred East and Alec Creek Targets at the east and center parts of the "Corridor", respectively. Here further exploration should include ground magnetic, where not completed and induced polarization and resistivity surveys followed by limited diamond drilling.

A **Priority IV** exploration target is the South Trip Creek, based largely on ground magnetic responses, is located west of the Priority I targets and south of the "Corridor". Further exploration should consist of detailed prospecting, sampling and mapping.

The exploration programs and budget for evaluation of this Priority I, II, III and IV exploration targets are detailed in **Section 6**.

### 5.2 Interpretive Methodology

**Maps 1, 2 and 3** illustrate, respectively, the prioritized exploration target areas, prospects and diamond drill holes; geology and structure, anomalous gold soil and litho geochemistry; and various ground and air geophysical anomalies and conductors.

A 1:5000 ground magnetic and induced polarization summary by Noranda Exploration was used for the initial base grid map. **Map 1**, the base map, was also based on the 1989 Noranda Exploration 1:2000 topography, roads and geological mapping that was subsequently reduced to 1:5000 for interpretation and drafting. All significant prospects / showings are indicated and their grid locations are given in **Sections 4.5 and 5.4**. Diamond drill hole locations are also indicated; a blow-up for the Discovery Zone is given to present the detailed drilling completed here. The description of the prioritized

exploration targets of **Map 1** is given in **Section 5.4**. For government assessment purposes **Maps 1, 2 & 3** were submitted at a 1:10,000 scale.

**Map 2** is based on the 1:2000 Noranda geology maps for the central and western parts of the "Corridor" of gold mineralization. Previous geological mapping in the eastern part of the "Corridor" of gold mineralization by Wingert (1984), at a scale of 1:7200, and compilation in the Discovery Zone area by Kilkua (1997), at a scale of 1:2000 was used and reduced to 1:5000. The geological maps illustrate the defined units and structures with omission of the individual outcrops. Note **Sections 4.2 and 4.3** for detailed discussions on geology and structure, respectively.

Valentine Gold soil geochemical coverage on **Map 2**, was taken from scales of 1:2000 and 1:5000, and compiled at the 20-ppb gold contour with the omission of the individual soil sample values. Valentine Gold completed soil sampling on lines 100 meters apart with sampling intervals of 20 meters. Infill sampling was on 50 meters lines with 10 meter sample spacings. About 1-2 kg of soil from about 30 to 40 cm depth (B soil horizon) was taken. Analysis was of 30 g samples by multi element ICP (Induced Couple Plasma) with gold by both acid digestion / atomic absorption and fire assay / atomic absorption. Analyses were done at both Min - En and Chemex Laboratories. All of the gold soil anomalies were evaluated with respect to topography and down hill dispersion. Only gold soil values are plotted although anomalous arsenic soil geochemistry, where reviewed, in the eastern part of the "Corridor" is, in part, generally coincident to the anomalous gold soil geochemistry. The arsenic soil anomalies are generally speaking at most, two to three times a background of 5 to 15 parts per million. There are abundant low order arsenic soil anomalies over the grids and most do not have any gold association. It is suspected that much or part of the anomalous arsenic may be caused by syngenetic arsenopyrite.

The in situ gold lithochemical contour values for the Discovery Footwall and Discovery West Zones comprise the hanging and footwall drill intersections projected to surface using an approximated 10 ppb gold value contour value cut off.

**Map 3** is an interpretive map completed at a scale of 1:5000 (1:10,000 for assessment purposes) illustrating all of the various geophysical anomalies, highs and conductors. It should be noted that both the Noranda and Valentine Gold geophysical surveys are used. Valentine completed VLF electromagnetic surveys over the complete eastern and central parts of the "Corridor" and induced polarization surveys over the BN and Braiteach Zones. Valentine Gold also completed horizontal loop electromagnetic surveys over the BN and Braiteach Zones. Noranda completed ground magnetics from Line 161 E to Line 216 E, a strike distance of 5.5 km. Noranda restricted the induced polarization surveys from Line 161 East to Line 180 East (Braiteach and BN Zones) and from Line 196 East to Line 206 East (Discovery West and Log Dam targets).

Noranda personnel carried out the 1989 (Noranda) magnetometer and induced polarization (IP) surveys. The magnetometer survey operated total field magnetometers controlled by a recording base station. The IP survey used a 25-meter dipole - dipole array with readings recorded to the sixth separation. Time Domain equipment manufactured by Phoenix (IPT-1 transmitter) and EDA (IP-6 receiver) was used. The magnetic data was contoured at 20 nT intervals with the chargeability and

resistivity interpretation represented in symbol form. The IP interpretation is for illustrative purposes and the anomaly locations are taken from 1:2500 scale color IP pseudosections.

Dighem Surveys (Smith, 1988) and Western Geophysics (White and Pezzot, 1984) completed airborne geophysical (magnetic and electromagnetic) surveys over most of the Valentine Mountain project in 1988 and 1984, respectively. The reader should refer to the noted references for equipment and survey details.

Valentine Gold (Hopley 1988) personnel in 1987 completed a VLF electromagnetic survey over the property. On the BN and Braiteach and BN Zones a Max-Min horizontal loop (444 Hz) survey was conducted over the known gold geochemical soil anomalies.

The following geophysical criteria have been used in defining anomalies and conductors that could be significant in terms of structurally and/or lithologically controlled gold mineralization:

- Ground magnetic highs and lows are contoured at greater or equal to 55,300 nanoteslas and less than or equal to 55,180 nanoteslas, respectively. The magnetic lows and highs are important as they can represent felsic intrusive and hydrothermal alteration, respectively.
- Ground magnetic linears have been interpreted from a 1:10,000 scale color magnetic contour map prepared by Noranda Exploration and reduced to 1:5000. The magnetic linears are interpretive but are thought to represent, for the most part, geological structures and topographic lineaments including faults, shearing, bedding and linear zones of jointing. **Note Sections 4.3 and 4.4.**
- The Dighem (Smith, 1988) airborne magnetic targets (referred to as Priority I), originally at a scale of 1:10,000 may represent interesting structural intersection targets.
- Induced polarization chargeability anomalies are contoured mostly at +50 milliseconds although Noranda geophysicists defined an anomalous area at the BN Zone at + 15 milliseconds. The chargeability highs can represent areas of sulfide mineralization, alteration and carbonaceous material.
- Induced polarization resistivity highs from +2000 to + 4000 ohm-meters, depending on location, are also plotted. The resistivity highs probably, for the most part, represent particular geological units but where of limited area extent and coincident to chargeability highs should be investigated for silica alterations and quartz veining.
- The Valentine Gold VLF electromagnetic conductors ranging from +10 to +40 degrees possibly represent fault and/or shear and/or topographic structures and lineaments.
- Four horizontal loop electromagnetic conductors, at the 444 Hz frequency, on the BN and Braiteach Zones may represent conductive fault and shear cross-structures.

### 5.3 Mineralization Model Types

There are several styles of gold metal mineralization known on the property. To date past exploration has focused largely on shear or fault hosted gold-bearing quartz-vein mineralization at the Discovery and Braiteach Zones. Several other gold deposit model types are present, as detailed in **Section 4.4** and summarized below, that have the exploration potential to define a combination of gold – bearing quartz veins, stockworks and breccias and possible disseminated lower grade gold mineralization associated with felsic intrusives amphibolite and metapelite. The combined and continuous Discovery Footwall – Discovery West – Log Dam exploration targets have potential for these styles of mineralization and are considered as Priority I exploration. The BN Zone on the east side of the Jordan River is considered a Priority II exploration target for gold – bearing quartz veins, swarms and possible stockwork mineralization. The following styles of mineralization or deposit model types are potential exploration targets:

- Shear or fault hosted gold-bearing quartz veins.
- Gold-bearing quartz stockworks, quartz vein swarms and breccias.
- Structurally controlled disseminated lower grade gold mineralization associated with quartz veinlets and sulfides within altered amphibolite and metapelite and felsic intrusives.

*Cross-structure, as defined by geological mapping and interpreted from ground magnetics, where they intersect the regional "Discovery " linear, are considered to be an important structural control for possible mesothermal gold mineralization*

### 5.4 Defined Targets For Future Exploration [Note Maps 1, 2 and 3]

The prioritized and defined gold exploration targets in the + 7 kilometer strike length of the "Corridor" of gold mineralization extends from Valentine Creek in the east to Braiteach Zone west of the Jordan River. A total of eight (8) exploration targets have been defined that extend for 5.5 kilometers from Valentine Creek in the east to the BN Zone just east of the Jordan River. It is significant that these exploration targets and defined gold prospects are aligned along a major regional linear called the "Discovery" linear that is expressed as a prominent magnetic linear and in topographic alignment. The gold prospects and the regional linear cut the trend (east-west) of the stratigraphic package obliquely at about ten degrees. Any individual vein showing appears to parallel the east-west rock trend but on a larger scale there appears to be a definite cutting of the regional stratigraphy by about 5 to 10 degrees to the north.

#### Discovery Footwall Zone [Priority I]

This zone of mineralization is considered unique and has not been neither explored nor followed up in any systematic exploration manner. This zone of mineralization is considered to be a prospective exploration target for possible bulk tonnage hydrothermal gold mineralization and the mineralogical / alteration characteristics are described in **Section 4.4** – Disseminated Low Grade Gold Mineralization. The anomalous gold litho geochemistry described below for this exploration target may, in

- A gold – bearing quartz vein, known as D Vein, within metasandstone close to the underlying hanging wall contact of amphibolite gave the following results.

**TABLE 5.1  
DISCOVERY WEST ZONE – DIAMOND DRILL HOLE RESULTS**

Drill Hole	Intercept (m)	Length (m)	Gold (ppb)	Gold (g/t)	Comment
89-22	79.0-80.46	1.46	740	0.86	D Vein - quartz veining in metasandstone at amphibolite contact
	148.37-148.38	1.01	930	0.34	Visible gold within amphibolite & IP anomaly
89-23	56.91-58.40	1.49	1,390	1.13	D Vein - quartz veining in metasandstone at amphibolite contact
	106.55-108.05	1.50	970	<0.07	Pyrrhotite zone within amphibolite
89-24	59.15-59.52	0.37	78,900	73.31	D Vein - 2.75 m zone anomalous gold & quartz veining in metasandstone at amphibolite contact
	69.08-71.51	2.43	1,249	2.11	Moderately siliceous amphibolite
	127.70-128.23	0.53	410	5.21	Pyrrhotite aggregates within amphibolite & IP anomaly

The most significant result was from drill hole 89-24 where 73.3 g/t gold was defined over a drill intercept of 0.37 meters. The surface projection of the vein was trenched by Beau Pre Explorations in 1997 and gold-bearing quartz vein material both in float and in bedrock was defined; however, the trenching may have been at the incorrect projected surface location of the D vein. The following result is documented.

Showing/Prospect	Grid Location		Intercept (m)	Sample Type	Au (g/t)	Comments
97 AR 38	200+47N	203+50E	0.4	Channel	33.67	Gravimetric
					6.84	Metallic Screen

- In the footwall of the Discovery West Zone, within amphibolite, a gold lithochemical anomaly is present. This gold anomaly appears to be contained within the amphibolite although the drill holes did not effectively test the underlying footwall amphibolite contact and biotite schist. The anomaly is defined by a + 10 ppb threshold but values in excess of 100 ppb gold are present. The anomaly is up to 60 meters wide and + 100 meters long but is separated by bands of less than 10 ppb gold. The anomaly is open to the east and west along trend and to the south down dip.

The west part of the Discovery West Zone is adjacent to the Log Dam Target discussed below. A northeast trending topographic lineament and coincident magnetic linear expressed as the east tributary of Trip Creek probably represents a shear or fault zone defines the approximate west and east sides of the Discovery West and Log Dam Targets, respectively.

This exploration target is favorable for both definition of gold – bearing quartz veins of the D vein system but for possible stockworks and dissemination's of gold mineralization within the amphibolite and the underlying metapelites. The above noted northeasterly trending cross-structure, where it transects the magnetic low and the



induced polarization chargeability anomaly provides a possible structural target for gold mineralization.

### Log Dam Target [Priority I]

The Log Dam exploration target is centered between the east and west tributaries of Trip Creek and is characterized by the following anomalous parameters:

- The target area is bound on the east by the northeasterly trending and coincident magnetic linear / topographic linear noted under the Discovery West Zone and on the west by the west tributary of Trip Creek.
- Both amphibolite and the footwall metapelite unit, at the contact, underlie the favorable area of exploration; two area small felsic intrusives are present west and south of Log Dam Lake.
- An insitu gold geochemical soil anomaly, at the 20 ppb contour level, defines an anomaly that straddles the amphibolite / metapelite contact and is about 500 meters long (east-west) and up to 50 meters wide.
- Both quartz veins and stockworks have been defined by prospecting. The writer examined a 2.5 meter wide zone of quartz veining on the north shore of Log Dam Lake; Beau Pre Explorations report a quartz vein stockwork zone with biotite and pyrrhotite at the east end of Log Dam Lake. A quartz vein showing, sampled by Beau Pre Explorations, just to the east of the west end of Log Dam Lake gave the following high grade result:

Showing/Prospect	Grid Location		Intercept (m)	Sample Type	Au (g/t)	Comments
97 AR 31	201+75N	197+80E	0.4	channel	94.68	Gravimetric

- A prominent east-west magnetic linear with coinciding VLF electromagnetic conductors are coincident to the geochemical and other geophysical anomalies.
- A strong intensity induced polarization chargeability high with a coincident resistivity high trends east-west through the target area; the chargeability anomaly is up to 50 meters wide and straddles the amphibolite / metapelite contact.
- An east-west magnetic high 350 meters by 40 meters width is located to the south of the induced polarization anomalies and is underlain by amphibolite

### BN Zone [Priority II]

The BN Zone is located in the west part of the "Corridor" of gold mineralization, east of the Jordan River, and on the west slope of Valentine Mountain. The area of interest as defined by anomalous insitu gold soil geochemistry, based on the 20 ppb contour and defined gold-bearing quartz veins is about 600 meters east-west by up to 300 meters north-south. The area of interest is underlain by west-northwest trending metasandstone and metagreywacke which has been mapped in detail, at a scale of 1:500, by Noranda Exploration and Beau Pre Explorations.

The mineralized prospects fall into five separate areas, which are indicated on Map 1 and tabulated below. The gold values range from 0.5 g/t over 0.5 meters to 5.93 g/t over 4.5 meters. Below is a tabulation of all rock samples, that could be documented, exceeding or equal to 0.5-g/t gold.

**TABLE 5.2**  
**BN ZONE - ROCK SAMPLING RESULTS**

Showing/Prospect	Grid Location		Intercept (m)	Sample Type	Au (opt)	Au (g/t)	Au (ppb)	Comments
97 AR 05	208+25N	177+10E	4.50	N/A	0.173	5.93		769 ppm As
97 AR 07	209+32N	176+16E	0.40	N/A	0.019	0.65		
97 AR 27	208+41N	176+13E		Grab		3.82		
256	209+35N	175+92E	0.50	Channel	0.018	0.62		
268	209+36N	176+15E	0.50	Channel	0.016	0.55		
269	209+36N	176+15E	0.50	Channel	0.039	1.34		
270	209+36N	176+15E	0.50	Channel	0.026	0.89		
272	209+36N	176+15E	0.50	Channel	0.034	1.17		
279	209+33N	176+19E	0.50	Channel	0.015	0.51		
280	209+36N	176+18E	0.50	Channel	0.095	3.26		633 ppm As
301	208+94N	177+04E	0.10	N/A	0.020	0.69		
304	208+93N	177+07E	0.10	N/A	0.017	0.58		
307	208+81N	177+06E	0.10	N/A	0.040	1.37		2623 ppm As
327	208+73N	178+05E	0.50	Channel	0.015	0.51		2642 ppm As
342	208+68N	178+07E	0.50	Channel	0.061	2.09		2059 ppm As
Norex 8911620	208+42N	177+57E	1.50	Chip			4370	On strike with 8959655
Norex 8955598	209+80N	178+00E	N/A	Chip			1480	4913 ppm As
Norex 8958552	208+32N	176+15E	0.50	Chip			1540	711 ppm As
Norex 8958559	208+15N	178+18E	0.05	N/A			5530	
Norex 8959651	207+67N	178+05E	1.00	Grab			1330	
Norex 8959655	208+42N	177+57E	0.03	N/A			5950	2219 ppm As
Norex 8959660	208+71N	177+39E	0.02	N/A			3850	573 ppm As
Norex 8959662	208+77N	177+01E	0.02	N/A			3960	1730 ppm As
R96-8	208+15N	178+18E	0.10	Chip			3370	Resampled:8958559
R96-9	208+42N	177+71E	0.15	Chip			785	Resampled:8959655
R96-10	208+71N	177+39E	0.40	Chip			1770	Resampled:8959660
R96-11	208+77N	177+01E	0.10	Chip			4637	Resampled:8959662

The rock type is almost exclusively metasandstone, typically 10-20% biotite and showing a texture described as "woodgrain". There is some biotite-garnet-staurolite schist at the western edge of the area and chloritized, massive amphibolite at the southern edge. The metasandstone is massive and forms cliffs.

The metasandstone contains quartz veins and veinlets that are gold-bearing and appear to be most abundant toward the west side of the area. Most veins trend approximately east-west and are steeply north dipping. The veins are generally narrow varying from 2 to 8 cm in width and in one outcrop (Line 176 E, 209+30 N) examined by the writer there appears to have developed a swarm of quartz veins which in part is stock-like in form. This prospect outcrop occurs over a strike length of 30 meters and up to 20 meters wide. These gold-bearing quartz vein swarms are defined intermittently for at least 100 meters on strike to the east-southeast. A second prospect outcrop

(Line 177E, 208+25N area) extensively sampled by Beau Pre Explorations (Kikauka, 1998) in 1997, a 4 to 12 meter wide zone of disseminated pyrrhotite with minor quartz veining in greywacke, returned 5.93 g/t gold over a 4.50 meter length. Unfortunately follow-up detailed one-meter channel sampling did not confirm the initial results (Kikauka, 1998a).

The BN Zone target area is defined by several additional criteria which make this zone a Priority II exploration target. These include:

- The anomalous insitu gold soil geochemical results appear to be terminated, to the north, by a 120 degree trending linear that is also expressed as a magnetic linear that may represent a shear or fault zone.
- Noranda reports that the magnetics appear to indicate a possible fold axis, which is supported by the induced polarization data, that plunges east-southeast in the vicinity of 176 E, 207+50N.
- The majority of the anomalous gold soil geochemistry appears to be cut off to the south by the regional magnetic linear that defines the "Corridor" of gold mineralization.
- Several of the gold-bearing quartz vein outcrops appear to be on the southern edge of a large resistivity high.
- Two small ground magnetic highs are associated with the known mineralization and may represent small felsic intrusions.
- On the south part of the BN Zone a strong intensity induced polarization chargeability high up to 140 meters wide and 400 meters long is also spatially associated with gold mineralization.
- Two northeast trending horizontal loop electromagnetic (444 Hz) conductors appear to terminate (northeast side) against the east-southeast trending magnetic linear or shear zone referred to above; these electromagnetic conductors may represent northeasterly trending shear and / or fault zones.

The BN Zone contains many of the geological, structural, mineralogical, geophysical and geochemical elements and criteria that make a case for a good potential to define gold-bearing quartz veins and quartz vein swarms, stockworks and possibly disseminated gold mineralization. A follow up exploration program of diamond drilling is required to further test this exploration target.

### **Fred Creek East [Priority III]**

The Fred East geochemical exploration target is located on a plateau and ridge that is located between Valentine and Fred Creeks. Valentine Gold completed detailed (20 x 100 meter and 10 x 50 meter soil sampling density) soil geochemistry over this area to define a gold geochemical soil anomaly, based on the 20 ppb contour, to be up to 200 meters east-west in length and up to 90 meters wide. The target area is underlain by metasandstone that trends southeast and dips steeply.

No detailed follow-up exploration has been completed on this target. Further exploration work is warranted on the property including detailed mapping and prospecting, ground magnetics, induced polarization and resistivity surveys and diamond drilling.

### **Fred Creek West [Priority III]**

The Fred West geochemical exploration target, on trend to the Discovery Zone, straddles an easterly flowing creek that flows into Fred Creek. This creek may be an east-west fault structure. Valentine Gold completed detailed (20 x 100 meter and 10 x 50 meter soil sampling density) soil geochemistry over this area to define a gold geochemical soil anomaly, based on the 20 ppb contour, to be up to 250 meters east-west in length and up to 75 meters wide. The eastern edge of the soil anomaly is about 125 meters west of Fred Creek. Coinciding low order (up to 50 parts per million) arsenic soil anomalies are also present. The Fred Creek target area is surrounded by and includes seven other small area gold soil anomalies.

Approximately 100 meters to the south of the geochemical gold soil anomaly an east-west VLF electromagnetic conductor is defined; this may represent a fault structure and should be investigated for gold mineralization

The rocks underlying the target area are metapelite and amphibolite, dip south at 45 to 50 degrees and strike from east to north 20 degrees east and plunge easterly at 15 degrees. The target area is on the south limb but close to the nose and axis of the large regional easterly plunging anticline. Kikauka (1997) reports 6.17 g/t gold over a width of 1.0 from a vein (?) structure located about 150 meters west of DDH FC-1. Beaupre (1998) reports extensive quartz veining in the area.

In 1982, prior to the definition of the target area, Beau Pre Explorations completed diamond drill hole FC 1 to a depth of 286 meters, azimuth 360 degrees and a dip of -70 degrees. No significant geochemical gold anomalous responses were obtained. The drill hole was drilled about 100 meters east of the east end of the defined geochemical gold soil anomaly and too far to the north (footwall) of the possible east-west structure.

Further exploration work is warranted on the property including detailed mapping and prospecting, ground magnetics, induced polarization and resistivity surveys and diamond drilling.

### **Alec Creek [Priority III]**

This exploration target area is located between the Log Dam and BN Zone. This area was not explored by induced polarization and resistivity surveys. The principal characteristic of the target include:

- The target area is within the "Corridor" of gold mineralization and is defined by the regional west-northwest trending "Discovery" magnetic linear and a near coincident VLF electromagnetic conductor that may be indicative of faulting and/or shearing.
- It is underlain primarily by metapelite and structurally by a synclinal axis plunging easterly; the rocks dip steeply both north and south.
- The most prominent characteristic to the target is the +1 kilometer long east-west trending ground magnetic low that is up to 150 meters wide.

- Associated with this large magnetic low are two small area magnetic highs at the east end of target area that could be indicative of intrusive activity; further to the east at the Log Dam target two area small felsic intrusives are present.
- Five separate northeast and northwest trending magnetic linears, interpreted as cross-structures, intersect within or adjacent to the magnetic low; two high priority Dighem magnetic linear intersections (targets) occur at the west and east ends of this target area.

The main merits to this target area are its location within the "Corridor" of gold mineralization and association with the regional "Discovery" linear with several other cross structures within a large and pronounced east-west trending magnetic low. Anomalous gold soil geochemistry is only spotty and not extensive. The potential exists for buried structurally controlled gold mineralization possibly associated with felsic intrusions. Consequently a detailed prospecting and sampling program with an emphasis on alteration, limited induced polarization surveys and contingency diamond drilling is warranted. Soil geochemical soil surveys should be repeated over about one-quarter of the grid to confirm previous geochemical soil results.

#### **Trip Creek South [Priority IV]**

This target area is located some 500 meters to the south of the Alec Creek target and the "Corridor" of gold mineralization. It is located between Alec and Trip Creeks. The target area is defined solely on an east-west trending magnetic low that is in the order of 600 meters long by up to 100 meters wide. There are no anomalous gold soil geochemistry other than the odd spot geochemical high; however, Beau Pre Explorations reports abundant quartz veining in Trip Creek.

The target area is considered to be of lower priority and is spatially distance from the "Corridor" of gold mineralization; the causative source of the magnetic low may not be due to alteration. Further follow-up work including limited detailed prospecting, mapping and sampling is warranted.

#### **Other Targets**

A possible favorable exploration target, which has been mapped and sampled by Allen (1988) but not field evaluated by the writer, is located west of Walker Creek on the southwest side of the property on the northwest spur off of WA 6A logging road. It is interpreted as a hydrothermal alteration zone some six meters wide contained within altered amphibolite and felsic intrusive (Allen, 1988). Alteration consists of quartz stringers, chalcedonic quartz, argillic and carbonate that are gossanous.

Further evaluation and exploration follow-up is warranted.

#### **Reconnaissance Targets**

Beau Explorations Ltd., Valentine Gold Limited and Noranda Explorations completed an extensive amount of regional silt, panning concentrate, rock and soil geochemistry. All stream sediment silt and panning concentrate geochemical gold anomalies were, for

the most part, followed up and evaluated by reconnaissance and more detailed exploration. Those targets giving positive results are covered in this report. Targets and zones such as Braiteach, BN, Fred Creek West and others were defined.

Noranda Explorations carried out extensive regional exploration on the periphery of the Valentine Mountain project on the then FRS, Leech, Met, VG, Peg & Bo, Heart, Little Heart, Little Wolf claims and Wolf claims. Some pan concentrate gold anomalies were defined and these included:

- VG Group – Achnamurchen Creek: 3040 ppb gold
- North Fork of Jordan River: 5450 ppb gold
- Peg & Bo Group – Walker Creek: 1900 ppb gold
- Wolf Group – Leech River: 5000 ppb

Noranda Explorations did not find a bedrock source for the above anomalies and further reconnaissance exploration may be warranted. The writer has not evaluated these targets nor completed a detailed review of the regional exploration; however, detailed exploration by Noranda did not define any significant exploration anomalies nor results.

## 6. EXPLORATION STRATEGY & RECOMMENDATIONS

A follow up Phase I ground exploration program consisting of geological mapping, prospecting and rock sampling, grid - line preparation, limited soil sampling, induced polarization and resistivity surveys, magnetometer surveys and 2550 meters of diamond drilling is recommended for the Priority I, II, III and IV exploration targets. The exploration programs and respective budget are presented in Table 6.1. The complete Phase I exploration budget to evaluate all exploration targets is \$800,000. If the lower priority exploration targets are not explored and / or diamond drilling is reduced on any target, the budgets can be reduced accordingly. The prioritized exploration targets will be diamond drilled by large diameter (NQ) core in drill fences oriented north - south, probably up to 300-meter depths. A total of 2550 meters is budgeted.

The Priority I Discovery Footwall - Discovery West - Log Dam Targets, which are contiguous, and cover about 1.5 kilometers of strike length within the center of the "Corridor" of gold mineralization. They are characterized by coincident and anomalous geophysical ground magnetic lows, magnetic highs representing possible felsic intrusions, defined magnetic linears representing possible fault / shear cross-structures, resistivity highs, several gold - bearing quartz veins, quartz stockworks, and low grade disseminated gold mineralization and anomalous insitu gold soil geochemical and lithochemistry.

The Priority II BN Zone, which is located about three kilometers west of the Discovery Zone, is defined by several gold - bearing quartz veins and quartz vein swarms and is characterized by multi - coincident geological, geophysical and geochemical anomalies.

These Priority I and II exploration targets have the potential to define gold - bearing quartz veins, stockworks and breccias and disseminated / veinlet controlled lower grade gold mineralization associated with felsic intrusions, hydrothermally altered rocks and structural intersections.

The Priority III exploration targets remain to be more fully investigated by geophysical methods. They have the potential, at this stage of knowledge, for gold - bearing quartz veins and mineralization similar to the Priority I and II targets.

The Priority IV targets are raw and relatively unexplored and have the potential to define gold-bearing quartz veins and other unknown styles of gold mineralization.

Table 6.1 below summarizes the various recommended surveys and their respective budgets for a fully completed Phase 1 exploration program. The exploration program, to fully evaluate all exploration targets in the "Corridor" of gold mineralization, is budgeted at \$800,000. The exploration program budget could be reduced if all targets are not evaluated or explored.

If the drilling part of this program is positive further drilling expenditures will be warranted probably as a Phase 2-exploration program.

**TABLE 6.1  
RECOMMENDED 1999 EXPLORATION BUDGET  
VALENTINE MOUNTAIN PROJECT**

Priority	Target	Grids	IP	Magnetics	Geochem	Diamond Drilling	
		(km)	(km)	(km)	(km)	Holes	Meters
I	Discovery Footwall	5.0	4.0			1	300
I	Discovery West					3	950
I	Log Dam					4	400
II	BN Zone					3	400
III	Fred West	3.0	2.5	3.0	2.5	1	125
III	Fred East	3.0	2.5	3.0	2.5	1	125
III	Alec Creek	16.0	6.0			16	
IV	South Trip Creek	2.0				2	
	Other Targets	6.0	5.0	5.0		10	250
	<b>Sub Total</b>	<b>35.0</b>	<b>20.0</b>	<b>11.0</b>		<b>33</b>	<b>15 2550</b>

Surveys	Units	Unit Cost	Cost
Grid Preparation (line km)	35.0	500	17,500
Induced Polarization (line km)	20.0	3000	60,000
Magnetometer (line km)	11.0	500	5,500
Geochemistry (line km)	33.0	900	29,700
Diamond Drilling* (meters)	2550	150	382,500
Other Analytical (samples)	150	20	3,000
*All-inclusive – drilling, geology, assays, etc.			
<b>Supervision &amp; Support</b>			
Senior geologist (man days)	70	800	56,000
Junior Geologist (man days)	180	300	54,000
Assistant 1 (man days)	180	200	36,000
Assistant 2 (man days)	50	150	7,500
Vehicles - 2 @ 4 months	8	2000	16,000
Accommodations (man days)	120	75	9,000
Helicopter (hours)	20	1000	20,000
Supplies			10,000
		<b>Sub Total</b>	<b>706,700</b>
Contingencies @ 12%			<b>84,804</b>
		<b>Total</b>	<b>791,504</b>
		<b>Say</b>	<b>800,000</b>



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**Respectfully Submitted,**



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