# REPORT OF FIELD GEOLOGY INVESTIGATIONS

on the

**MAMMOTH PROPERTY**

**SOUTHEASTERN B.C.**

Prepared for

**Rossmin Explorations Ltd.**

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by

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## 1.0 SUMMARY

This report of Field Geology Investigations on the Mammoth Property is written at the request of Tom Kelly and William Howard, directors of Rossmin Explorations Ltd. It is based on fieldwork carried out by the author and assistant Jill Moore, B.A., from Sept. 26th to Oct. 9th, 1996.

The Mammoth property, located in southeastern B.C. 9 km northwest of the town of Ymir and 3km east of Commonwealth Mountain has recently been optioned by Rossmin Explorations. The purpose of the fieldwork was to investigate and sample rock outcrops near gold soil anomalies on the existing cut grid in the central part of the Mammoth property. The Mammoth copper-molybdenum-gold skarn showing was not the focus of field investigations. A total of 20 km of grid line and prospecting traverses were completed. This resulted in analytical analysis of 36 rock samples, a complete rock library, slide photos of selected property features and an updated geological compilation map.

Throughout the course of investigations, it has became clear that the property is well mineralized. The area hosts several old workings and outcrops where showings of pyrite, pyrrhotite, arsenopyrite, chalcopyrite and molybdenite occur. New occurrences of shear related mineralization and areas of sulfide bearing boulders were discovered.

Geological conditions in the area provide a variety of mineralization styles for gold exploration targets. The following gold exploration targets were noted and sampled:

1) Favorable Elise volcanic/Mammoth diorite porphyry intrusive contacts.

2) Inliers of mineralized Elise volcanics within the Mammoth intrusives.

3) Traditional hi-grade gold in quartz veins.

4) Possible bulk tonnage targets, where numerous thin quartz veins traverse large areas of Mammoth diorite porphyry.

5) Newly discovered shear zone type gold-silver-copper mineralization in favorable Elise volcanics.

Although more fieldwork and sampling is required, results to date are encouraging. Best results were obtained from the Linny showing where quartz vein stockwork material graded up to 16.64 g/t gold. The newly discovered Marcus shear showed values of 0.86 g/t gold and 0.26% copper in silicified shear-core material, with a nearby subangular boulder grading 0.88 g/t gold and 1.6 % copper.

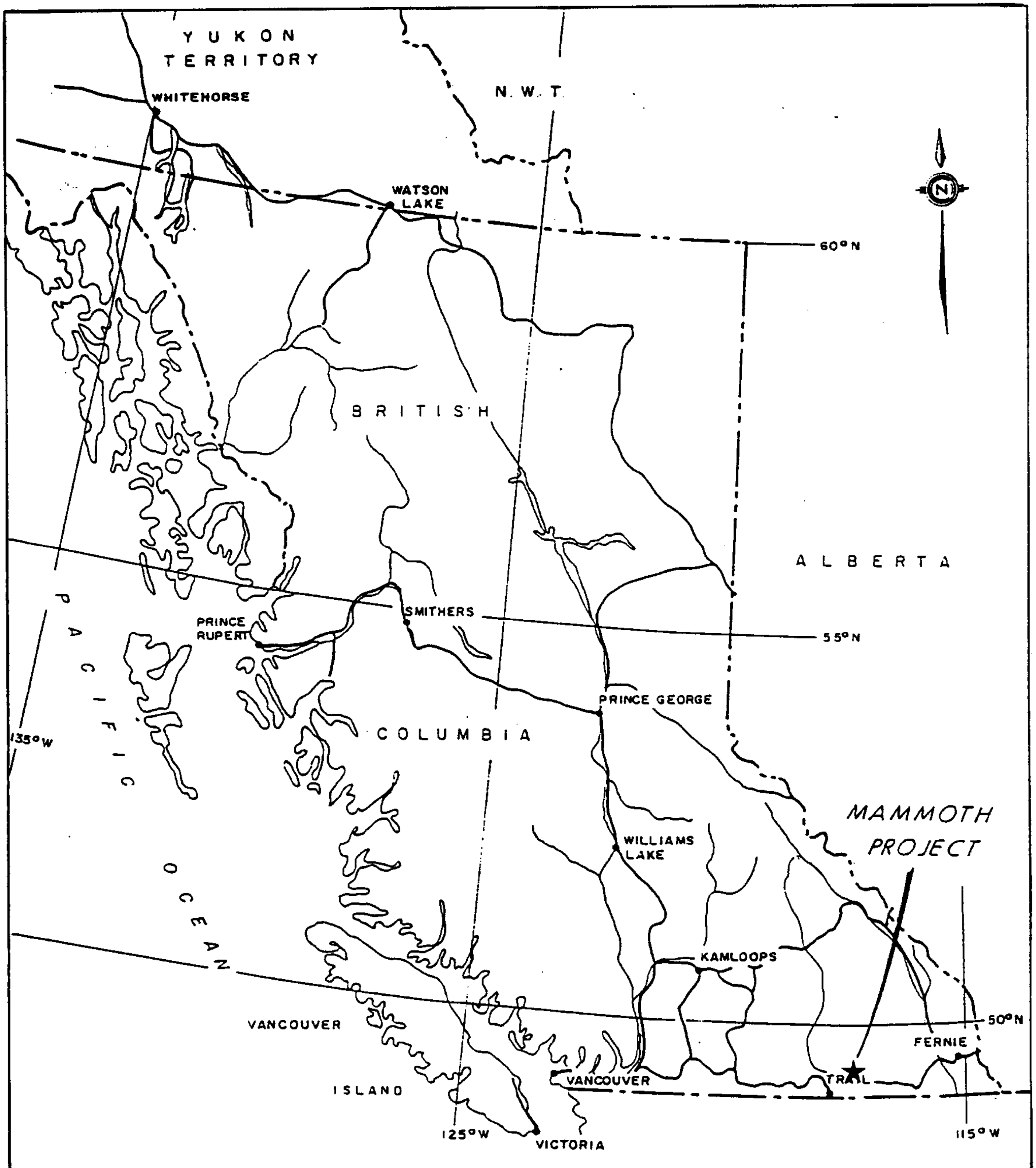
Future exploration work on the Mammoth property is recommended. The property should be thoroughly prospected and sampled in order to provide a current and prioritized mineral inventory. The Marcus shear, Stephie shear, Linny showing and Sarah showing should receive detailed prospecting, mapping and sampling. An initial VLF ground geophysical program is also recommended for the Marcus and Stephie shear areas.

## 2.0 LOCATION, ACCESS AND PROPERTY

The Mammoth property is located 3 km west of Highway 6, 15 km south of the city of Nelson and 9 km northwest of the town of Ymir, B.C. (Fig. 1). Access from Highway 6 is by a well developed 4x4 gravel road system. The property is centered at approximately $49^{O}$ 22' N latitude, $117^{O}$ 17' W longitude on NTS mapsheet 82 F/6 west half, located in the Nelson Mining Division.

The area is mountainous, lying just below the tree line where it is heavily covered with alder and pine (Photo 1). Fieldwork was carried out between elevations 1400 and 1800 m ASL. Outcrop exposure is limited to the occasional exposed ridge or hilltop, in old workings, road excavations and within stream cuts.

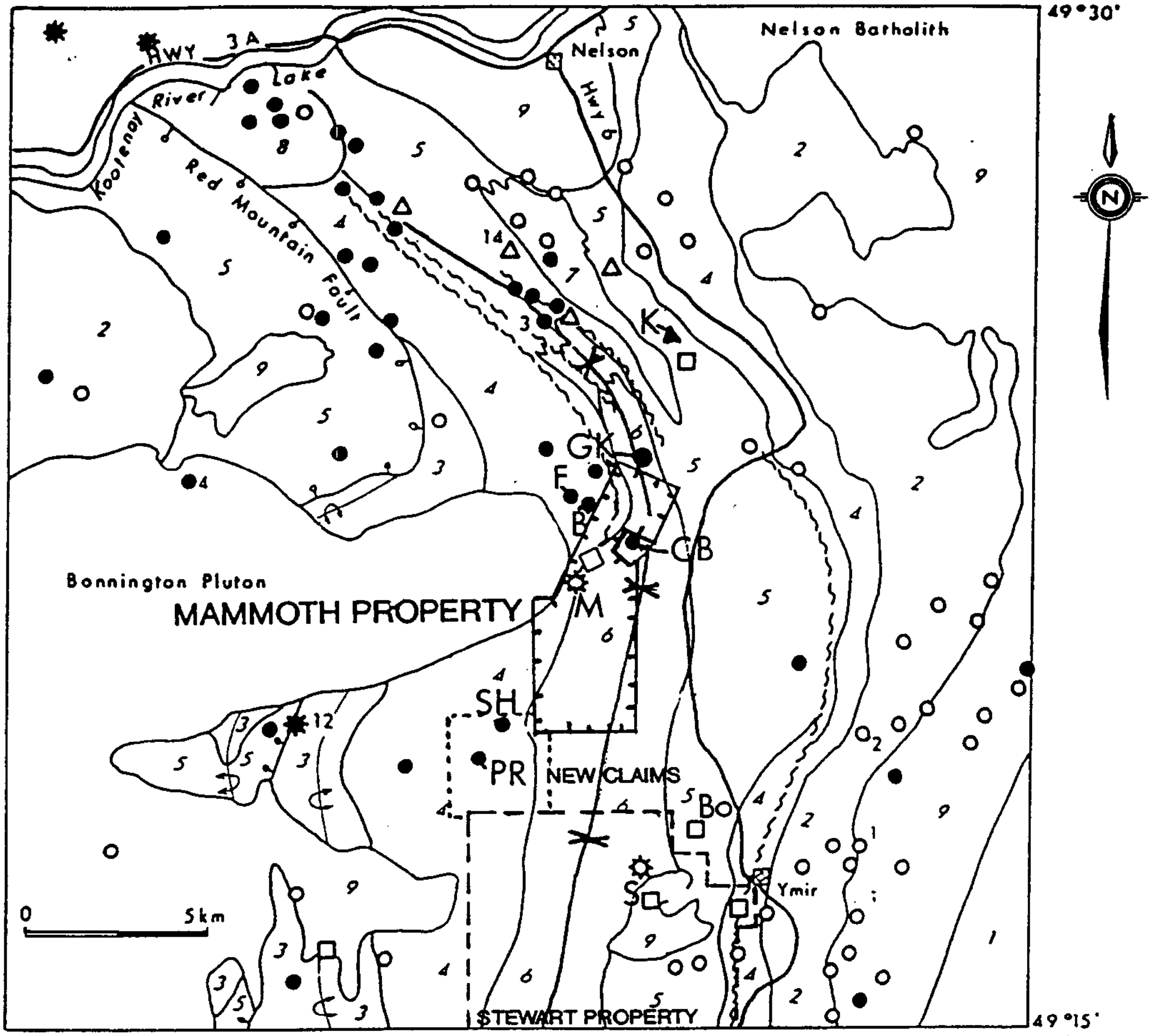
The Mammoth option is comprised of approximately 100 claim units. Rossmin Explorations Ltd. has an option to earn 100 % interest in the property subject to a 2 % NSR royalty to the vendors (E. and J. Denny, H. Sanders). Rossmin has staked 26 new claim units to cover part of the gap between the optioned claim group (the property) and the Stewart property to the south (Fig. 2). Of these units, 18 fall within the option agreement area of interest and 8 units adjacent to the Stewart property are 100 % owned by Rossmin.




**ROSSMIN EXPLORATIONS LTD.**
**MAMMOTH PROPERTY**

**PROPERTY LOCATION**

| DATE Jan., 1997 | NTS: 82F / 3W | FIGURE 1 |
|---|---|---|




LEGEND ( Ref. Hoy and Andrew, 1989)
(Wells, 1996)

GEOLOGY

MIDDLE JURASSIC
9 Nelson Intrusions
LOWER OR MIDDLE JURASSIC(?)
8 Pseudodiorite
LOWER JURASSIC
Rossland Group
7 Silver King Intrusions
6 Hall Formation
5 Upper Elise Formation
4 Lower Elise Formation
3 Archibald Formation
2 Ymir Formation
PALEOZOIC AND PRECAMBRIAN
1 Metasedimentary rocks

SYMBOLS

Geological contact
Fault
Normal fault
Syncline axis
Overturned anticline axis
Mammoth property boundary

MINERAL OCCURRENCES

□ PORPHYRY Cu-Mo
Cu-Au SKARN
W-Mo SKARN
● Au-Ag-Cu VEIN
○ Ag-Cu-Pb-Zn VEIN
△ CONFORMABLE GOLD?

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MAMMOTH PROPERTY

REGIONAL GEOLOGY AND
MINERAL OCCURRENCES

| DATE Jan., 1997 | NTS: 82F / 3W | FIGURE 2 |
|---|---|---|

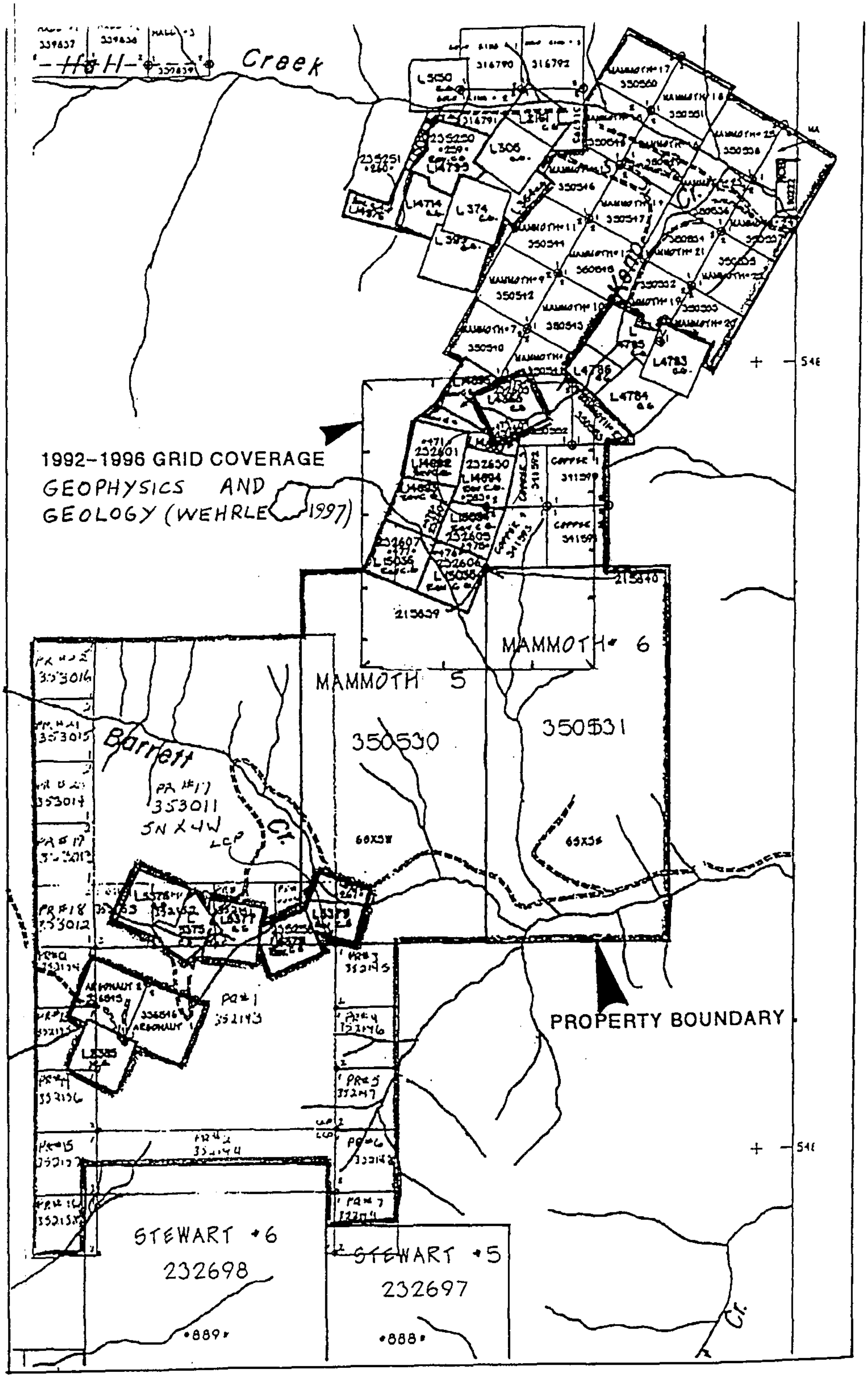



FIGURE 1B CLAIM MAP FOR PROPERTY AREA

## TABLE 1: MAMMOTH PROJECT, CLAIM INFORMATION

| Claim Name | Units | Tenure No. | Current Expiry Date |
|---|---|---|---|
| TNT L 14695 | 1 | 232603 | July 7, 1998 |
| TNT FR 14880 | 1 | 232604 | " " |
| MAMMOTH FRACTION LI5034 | 1 | 232605 | " " |
| MAMMOTH NO. 4 LI5035 | 1 | 232606 | " " |
| MAMMOTH NO. 3 LI5036 | 1 | 232607 | " " |
| MAMMOTH NO.2 L14694 | 1 | 232630 | March 13, 1998 |
| MAMMOTH L.14692 | 1 | 232601 | July 7, 1998 |
| MAMMOTH NO.1 L14693 | 1 | 232602 | " " |
| COPPER 1 | 1 | 341590 | Oct. 30, 1997 |
| COPPER 2 | 1 | 341591 | " " |
| COPPER 3 | 1 | 341592 | " " |
| COPPER 4 | 1 | 341593 | " " |
| MAMMOTH 5 | 18 | 350530 | Sept. 13, 1997 |
| MAMMOTH 6 | 18 | 350531 | " " |
| MAMMOTH 7 | 1 | 350540 | " " |
| MAMMOTH 8 | 1 | 350541 | " " |
| MAMMOTH 9 | 1 | 350542 | " " |
| MAMMOTH 10 | 1 | 350543 | " " |
| MAMMOTH 11 | 1 | 350544 | " " |
| MAMMOTH 12 | 1 | 350545 | " " |
| MAMMOTH 13 | 1 | 350546 | " " |
| MAMMOTH 14 | 1 | 350547 | " " |
| MAMMOTH 15 | 1 | 350548 | " " |
| MAMMOTH 16 | 1 | 350549 | " " |
| MAMMOTH 17 | 1 | 350550 | " " |
| MAMMOTH 18 | 1 | 350551 | " " |
| MAMMOTH 19 | 1 | 350532 | Oct. 29, 1997 |
| MAMMOTH 20 | 1 | 350533 | Sept. 12, 1997 |
| MAMMOTH 21 | 1 | 350534 | " " |
| MAMMOTH 22 | 1 | 350535 | " " |
| MAMMOTH 23 | 1 | 350536 | " " |
| MAMMOTH 24 | 1 | 350537 | " " |
| MAMMOTH 25 | 1 | 350538 | " " |
| MAMMOTH 26 | 1 | 350539 | " " |
| MAMMOTH 27 | 1 | 350552 | " " |
| MAMMOTH 28 | 1 | 350553 | Sept. 19, 1997 |

## 3.0 GEOLOGY

The regional geology has been well investigated by the British Columbia Ministry of Energy Mines and Petroleum Resources. Details from BCMEMPR Paper 1989-1, (Hoy and Andrew, 1989) and G.A.C. Guidebook A-7 (Hoy, Andrew and Wilton, 1993) may be summarized as follows:

### 3.1 Regional Geology

"Extending in an arcuate belt south from Nelson to Salmo and west to the Rossland-Trail area in southeastern B.C. are rocks of the Rossland Group (Figure 2). They are Early Jurassic in age and are comprised of a basal succession of fine to coarse-grained clastic rocks of the Archibald Formation, volcanic and epiclastic rocks of the Elise Formation and overlying clastic rocks of the Hall Formation. The Archibald Formation is correlated with the upper part of the Ymir Group of clastic rocks.

The Ymir Group, estimated to be at least 1000 m thick, comprises highly deformed, fine-grained clastic rocks including argillite, argillaceous siltstone and minor impure limestone, grit and quartzite. The Ymir Group is host to the Au-Ag-Pb-Zn veins of the Ymir camp.

The Archibald Formation consists of dark grey to black, massive to finely laminated, rusty weathering argillite, minor siltstone, graded wacke, pebble sandstone and conglomerates. The total exposed thickness of the formation varies from 825 to 2,550 m.

Elise Formation rocks are alkaline to subalkaline, low titanium basalts, andesites and trachyandesites. The lower Elise is typically comprised of dark green, massive, compound, coarse-grained augite porphyry flows and flow breccias that have 20 to 40 % augite phenocrysts up to 1 cm in size and minor plagioclase phenocrysts. Usually the flows are autobrecciated; the subangular to subrounded fragments range from 2 to 10 cm in diameter.

Tuffaceous conglomerate near the base of the upper Elise comprises an interbedded sequence of conglomerate, grit, sandstone and siltstone-sized volcanic clasts and forms the basal part of a thick upward-fining sequence. This sequence contains a series of fining-upward clastic cycles, generally a few to several tens of meters thick, that are coarser near the base of the succession and finer at the top. Hence, cycles near the base grade from coarse conglomerates and grits whereas those at the top typically grade upward from sandstone to siltstone. On the Mammoth property in the western limb of the Hall Creek syncline the Elise Formation is made up of coarse mafic pyroclastic breccias known as the Porto Rico tuffs, minor augite porphyry flows and prominent sections of waterlain crystal and lapilli tuffs.

The distinction between the upper and lower Elise Formation in the Cabin Peak and Mammoth Peak areas on the west limb of the Hall Creek syncline is less evident. The total thickness of the formation in this area is approximately 1.5 to 2 kilometers. It comprises primarily mafic coarse pyroclastic breccia interlayered with minor augite porphyry flows and prominent sections of waterlain crystal and lapilli tuff. Pyroclastic breccias and flow breccias of intermediate composition, similar to those that characterize much of the upper Elise east of the Hall Creek syncline are uncommon.

The mafic pyroclastic breccias, informally referred to as the 'Porto Rico tuffs', mainly comprise clasts of mafic augite porphyry and minor augite-plagioclase porphyry in a fine to coarse crystal matrix. They are best exposed in the Cabin Peak area where clasts commonly exceed 20 to 30 centimeters in diameter. The size of pyroclastics decreases to the north and south suggesting the Cabin Peak area is close to an explosive volcanic center. A prominent mafic intrusion at Cabin Peak may also indicate proximity to a volcanic vent.

The pyroclastic breccias are interbedded with sections dominated by well-bedded, mafic to intermediate lapilli, crystal and fine tuff. These units are occasionally massive but more commonly contain numerous structures, including graded or laminated beds, scours, channels and crosslaminations suggestive of subaqueous deposition. Although interpreted to be primarily pyroclastic deposits that are reworked into turbidites, it is possible that they are base-surge deposits; their distribution is areally restricted, unusual for turbidites, and they are closely associated with a proximal vent facies.

The Hall Formation overlies the Elise Formation in the core of the Hall Creek syncline, mainly conformably with local minor erosional unconformities. The Hall is at least 1400 m thick and includes a lower coarsening upwards, locally limy section of argillites, siltstones, grits, conglomerates and an upper section of interlayered argillaceous siltstone, silty argillite and argillite. Impure limestone occurs locally near the top of the exposed Hall Formation section.

The Rossland Group is intruded by a variety of igneous rocks. The Eagle Creek plutonic complex, the Rossland monzodiorite and a number of stocks of dominantly monzogabbro composition are comagmatic with volcanic rocks of the Elise Formation. Silver King intrusions, located south of Nelson, are a suite of syn to post-tectonic leucodiorites found in the upper Elise Formation. Middle Jurassic intrusions, including the Nelson and Bonnington Batholiths and the Trail pluton are common throughout the Nelson-Trail-Rossland area and Early Cretaceous intrusions, such as the Wallack Creek and Hidden Creek stocks, occur along the eastern margin of Rossland exposures near Salmo. Tertiary intrusions include Middle Eocene Coryell rocks and numerous mafic to felsic dikes of Paleocene and Middle Eocene age.

Plagioclase porphyry intrusions are characterized by 20-30 % euhedral plagioclase phenocrysts and up to 5 % amphibole laths. Contacts with Rossland Group rocks are either sharp and discordant or intensely sheared." (Hoy and Andrew, 1989; Hoy, Andrew and Wilton, 1993).

## 3.2 Regional Structure

"The structure of the Nelson map area 82 F/6 W is dominated by northerly trending tight folds and associated shears. The intensity of deformation increases toward the east.

The Hall Creek syncline is the most prominent fold in the map area. It is a tight, south-plunging, west-dipping overturned fold, cored by the Hall Formation, that extends from west of Nelson to southwest of Ymir. A pronounced cleavage in clastic rocks of the Hall Formation and a penetrative foliation in the Elise Formation parallel the axial plane of the the syncline. Northwest of the closure of the Hall Formation, between the headwaters of Norman and Giveout creeks, the core of the syncline forms a zone of intense shearing more than a kilometer in width. The shear zone, informally known as the Silver King shear, continues northwestward into intrusive rocks and more highly metamorphosed rocks of the Elise Formation near Eagle and Sandy creeks.

Other zones of intense shearing are recognized in the Elise Formation and Ymir Group east of the Hall Creek syncline. The most prominent follows the western slope of Mount Elise and crosses Highway 6 south and west of Ymir. It dips to the west, essentially parallel to the prominent foliation, cuts down section to the south and has an apparent net reverse displacement.

An overturned anticline occurs in the Archibald Formation near the western edge of the map area. It is truncated by apophyses of the Bonnington Batholith near Erie Creek and appears to be cut by the Red Mountain fault in the Mount Verde-Red Mountain area.

The Red Mountain fault extends from Fortynine Creek south to Erie Creek. It dips to the North with a normal displacement in the Mount Verde-Copper Mountain area, but is overturned in Fortynine and Erie Creeks where its apparent displacement is reverse. It is younger than the intense folding and associated shearing, but older than the Nelson granitic rocks." (Hoy and Andrew, 1989).

In summary, the Nelson map area has experienced a period of post Hall Formation compressional tectonics forming folds and shears followed by extensional tectonics forming normal faults like the Red Mountain Fault.

### 3.3 Area Mineralization

"Metallic mineral deposits in the Nelson-Ymir area have produced more than 16,750 kilograms of gold and 190,000 kilograms of silver, primarily from vein deposits in the Ymir camp. Rossland, the second largest gold-producing camp in B.C. produced more than 84,000 kilograms of gold and 105,000 kilograms of silver.

Mineral occurrences in the Nelson and Ymir areas can be subdivided into 4 main types:

1) porphyry or stockwork molybdenum-copper

2) skarn molybdenum, tungsten, copper, gold

3) vein gold, silver, copper; gold, silver, lead, zinc

4) 'conformable gold'

Porphyry, skarn and vein occurrences are closely associated with late granitic intrusions, whereas deposits referred to as conformable gold are more closely associated with Rossland Group lithologies and early structures." (Hoy and Andrew, 1989).

Porphyry Molybdenum-Copper

"The most significant porphyry occurrences in the Nelson area are the Stewart and Bobbi prospects just west of Ymir. These occurrences contain zones of intense alteration and brecciation in a quartz monzonite stock. Adjacent rocks of the Elise and Hall formations contain disseminated, vein and stockwork molybdenite, pyrite and minor powellite mineralization." (Hoy and Andrew, 1989).

Skarn

Three main types of skarn deposits are recognized in the area. These are molybdenum or tungsten skarns, copper skarns and gold-enriched skarn. The historic Mammoth property hosts a copper-molybdenum-gold mineralized skarn zone in Elise and Hall rocks close to the eastern edge of the Bonnington Batholith at the Mammoth showing (MINFILE 082FSW311), (Wells, 1996). Skarn gangue minerals include pyrite, pyrrhotite, quartz, epidote, potassium feldspar, garnet and actinolite.

The Arrow Tungsten prospect is a tungsten-molybdenum-garnet-diopside skarn in Hall Formation metasedimentary rocks on the north side of the intrusive complex that hosts the Stewart deposit. A number of copper skarns, comprising coarse-grained diopside-garnet-quartz-epidote with pyrrhotite, chalcopyrite, magnetite and bornite, occur in the Hall Formation along the margin of the Bonnington Batholith west of Nelson.

The Second Relief is a gold enriched skarn 8 km southwest of the Mammoth property. It comprises a number of fissure veins in augite porphyry volcanics of the Elise Formation and siltstone, sandstone, argillite and quartzite of the Archibald Formation, adjacent to a diorite porphyry sill. These occur as a roof pendant within granodiorite of the Bonnington Batholith. From 1902 to 1959 the Second Relief produced 3118 kilograms of gold, 866 kilograms of silver and 20,210 kilograms of copper from 207,023 tonnes, for a recovered grade of 15.06 g/t gold and 4.18 g/t silver, (0.44 oz./t and 0.12 oz./t respectively). It ranks as one of the larger gold skarns in B.C.

The Second Relief mine comprises at least eight subparallel veins striking northeast and dipping steeply northwest. The veins are sheared, quartz poor structures irregularly mineralized with pyrite and/or pyrrhotite plus one or more of magnetite, chalcopyrite and sphalerite. Gold and silver bearing veins consist of quartz, pyrite, epidote, garnet and magnetite, locally with visible gold. Lesser auriferous veins contain massive pyrrhotite and chalcopyrite. (MINFILE 82FSW187).

<u>Vein</u>

"Vein deposits are widely distributed throughout the Elise and Archibald Formations, the Ymir Group and Nelson granitic rocks. Many of these veins have a preferred orientation parallel to either bedding or foliation, AC jointing, or extension joints. Vein mineralogy appears to have a lithologic control; veins that carry lead and zinc in addition to gold and silver are preferentially distributed in metasedimentary rocks of the Ymir Group or correlative Archibald Formation and within or adjacent to Nelson granitic rocks, whereas copper-gold-bearing veins are more common in Elise volcanic rocks. Most gold-copper-bearing veins are within or close to large faults or shear zones such as the Silver King shear. The gangue of these veins is predominantly quartz, with minor carbonate, chlorite, trace tourmaline and rare scheelite. Sulfides include pyrite, pyrrhotite, chalcopyrite and in some veins, arsenopyrite and galena." (Hoy and Andrew, 1989).

The Porto Rico occurrence is located 5 km southeast of the Mammoth showing. Production from the Porto Rico vein began in 1897 and totals 178.47 kilograms of gold, 46.4 kilograms of silver and 322 kilograms of copper recovered from 5,740 tonnes, for a recovered grade of 31.09 g/t gold, 8.08 g/t silver, (0.91 oz./t and 0.24 oz./t respectively). The occurrence consists of a quartz-filled fissure that strikes northeast and dips about $45^{O}$ to the northwest. the vein averages 0.8 m wide and carries pyrite, gold, arsenopyrite, and very minor galena, sphalerite and chalcopyrite. The host rocks are augite porphyry and andesitic volcanics which locally show extensive propylitic alteration. (MINFILE 82FSW189).

The Fern mine is located 2 km north northeast of the Mammoth showing. Production from 1896 to 1942 totals 11,277 tonnes yielding 196.448 kilograms of gold and 16.515 kilograms of silver, for a recovered grade of 17.42 g/t gold and 1.46 g/t silver, (0.51 oz./t and 0.04 oz./t respectively). The area is underlain by sheared Elise volcanics and granitic Nelson intrusions, with the Fern vein hosted in augite porphyry. It strikes 305 to $75^{O}$ with a $60^{O}$ west dip. Mined portions were up to 1.2 m wide and contained pyrite, chalcopyrite, bornite, pyrrhotite and free gold in a gangue of quartz with crushed rock and minor siderite. Arsenopyrite is a minor constituent of some quartz veins. The vein is faulted off by a lamprophyre dike which strikes northwest and dips $75^{O}$ north. Records indicate that better grades of precious metals were obtained from areas of the vein which were within or associated with an older granite porphyry dike. (MINFILE 82FSW183).

Located 2 km northeast of the Mammoth showing is the Canadian Belle occurrence. Recorded production during 1939 and 1940 is 24 tonnes, yielding 840 grams of gold, 280 grams of silver and 23 kilograms of copper, for a recovered grade of 35 g/t gold and 11.66 g/t silver, (1.022 oz./t and 0.34 oz./t respectively). The showing is hosted in faulted and fractured argillites of the Hall Formation. Faults and fractures vary from 1 cm to 1.8 m in width with locally developed gouge zones. Quartz veining in these zones is host to massive (locally, up to 0.20 m wide) and disseminated arsenopyrite, pyrite, pyrrhotite and chalcopyrite.

'Conformable Gold'

"Conformable gold is an informal name applied to a variety of deposits that are conformable with either foliation or bedding in the host Elise Formation. They include the Great Western, Shaft and Cat showings, Kena, some showings in the Star area and perhaps the Silver King deposits. In contrast with other deposits, conformable gold deposits are sheared and foliated together with their host rocks. Many appear to be associated with synvolcanic intrusions that range in composition from rhyodacite(?) to diorite, and all have extensive alteration halos.

The Great Western showings, located just southwest of Nelson, were extensively trenched and drilled by Lectus Developments Ltd. in 1987. One of the best mineralized intercepts included approximately 7 meters containing 9.7 grams per tonne gold (DDH 87-10); the highest reported assay was 58 grams per tonne over 0.9 meter (DDH 87-3). The showings consist of a number of elongate zones of intense carbonate-silica-sericite-pyrite alteration up to several tens of meters thick. A number of the zones include thin lenses of quartz-eye rhyodacite or granular dacite. The zones are hosted by highly sheared mafic tuffs, lapilli tuffs and possible augite flows of the upper Elise Formation." (Hoy and Andrew, 1989).

## 4.0 RESULTS OF FIELDWORK

Fieldwork on the Mammoth property was carried out from Sept. 26 to Oct. 9, 1996 by the author and assistant Jill Moore, B.A. The purpose of this program was to investigate and sample rock outcrops near gold soil anomalies on the existing 1992 Mammoth grid. Although the author briefly visited the known Mammoth skarn showing, investigations outside of this area were the priority. A total of 20 km of grid line geological and prospecting traverses were completed resulting in the analysis of 36 rock samples, a complete rock library, slide photos of selected rock units, structure and property overview and an updated geological compilation map (Fig. 3).

The soil sampling was performed by CME Consulting Ltd. in 1992 and shows a cluster of gold anomalies in the south central part of the grid in an area bounded by Lines 27 to 38 N and 24 to 37 E and a more dispersed pattern of gold anomalies in the north portion of the grid north of L38N (Fig. 3). Most of the 1996 fieldwork was carried out on the southern cluster of gold soil anomalies and minor work carried out over select anomalies to the north.

Due to the intense cover of alder and pine on moderate to steeply sloped terrain, investigations were mostly limited to grid lines. Exceptions to this were traverses up the north fork of Barrett Creek and its tributary, herein named Hilary Creek and detailed mapping in the Monarch adit area between Lines 42 and 44 N. Traverses along the north fork of Barrett Creek proved to be very useful especially where conditions have allowed it to cut slightly different drainage courses and expose new outcroppings, particularly the mudslide area near L34N and 28E.

Most of the grid area had previously been mapped by Bernhardt E. K. Augsten in 1993. This allowed the 1996 fieldwork to concentrate more on structural details, prospecting and sampling. Wherever suitable, sampling was carried out for both high-grade gold and bulk tonnage potential.

## 4.1 Property Geology

Exposed in a prominent ridge near the center of the Mammoth grid are rocks forming the western limb of the north trending Hall Creek syncline (Fig. 3). Here Hall Formation argillites are intruded by plagioclase porphyry diorites, the informally named Mammoth intrusions. On the western portion of the map area Elise Formation augite porphyry flows, flow breccias and volcaniclastics are cut by a prominent granodiorite lobe of the Bonnington Batholith, leaving a narrow, funnel-shaped area of Elise volcanics in the northwest. The eastern map area is for the most part covered by overburden.

Elise volcanics vary from massive flows in the northwest map area to coarse volcaniclastics and flow breccias in the southwest. Both are dark green to brown and porphyritic with 10-30 %, 2-10 mm-sized augite phenocrysts and locally 5 mm plagioclase phenocrysts.

Volcanics in the southwest are comprised of a number of repetitive fining-upward sequences, generally 20 m thick. Typically, as in the north fork of Barrett Creek exposure near L34N, 28E, coarse, basal epiclastics with clasts up to 15 cm grade into a fine augite porphyry with rare 5 cm-sized clasts. Clasts are usually rounded, averaging 10 cm and where weathered-out leave a distinct pock-marked surface. These clasts can be gossaned and contain plagioclase phenocrysts, whereas the surrounding matrix is usually fresh and is comprised of augite phase phenocrysts. The basal units comprise only the lower few meters of each package (Photo 10).

Hall formation rocks exposed in the east central portion of the map area are medium grey to dark black, fine-grained argillites. Locally they weather to a subcrop of broken, rubbly cm-sized fragments (Photo 2). Where good outcrops exist the Hall is generally featureless and barren in appearance. Occasionally, contact margins with plagioclase porphyry diorites are silicified and bleached to a light brown color.

Weathered exposures of plagioclase porphyry diorite are usually tan to grey-white in color, contain up to 50 %, 5-20 mm-sized plagioclase phenocrysts (crowded), and 5 % , 10 mm-sized hornblende laths. The fresh surface matrix is fine to medium-grained and medium grey in appearance. Mammoth porphyry intrusions form prominent N-S ridges and topographic highs in the central portion of the property and here are of greater areal extent than is shown by the mapping efforts of Little, 1982 or Hoy and Andrew, 1989.

In the northeast portion of the map area a granodiorite of the Bonnington Batholith forms a large sharp ridge. Here the rock is white, medium to coarse-grained and locally where plagioclase phenocrysts are abundant, looks very similar in appearance to the Mammoth intrusives.

Quartz veins are generally found in Mammoth rocks of the central map area. They are usually thin, varying from mm-size to less than 1 m and can range in color from white, light blue-grey to black, although white is most common.

Rare examples of thin late-stage diking occur in the map area. A dark grey, biotite lamprophyre dike outcrops near L40N, 35E. It is approximately 2m wide and intrudes Mammoth rocks. The only other positively identified dike occurs near L42N, 34E. Here a meter wide mafic dike cuts through Mammoth intrusive.

## 4.2 Structure

Many of the observable structures in the Mammoth area are closely related to the northerly trending Hall Creek syncline. Many contacts, emplacement of Mammoth intrusives, foliations and fractures mimic the local trend of this syncline.

Fracturing in the volcanic outcrops of the map area generally falls into two sets, a northeasterly trending set which dips steeply SE and a northwesterly trending set that dips vertically. Occasionally, a steep dipping east-west set was observed. Fracture densities vary but may be estimated at 1-4 per meter.

Elise volcanics in the northwest show a jagged and variable contact with rocks of the Bonnington Batholith. The volcanic contact with Mammoth porphyry intrusive at 37+20N, 28+50E is well exposed and shows a north strike dipping 65$^{\circ}$ E.

Hall formation rocks are well fractured, with fracture density approaching 1 per cm. In general, northerly trending fractures which dip moderately to both the east and the west are cut by a younger steeply dipping east-west set.

Mammoth intrusions are elongate north-south and show north trending foliations (hornblende alignments). Intrusive contacts also trend north, dipping moderately to steeply east. Fracturing can be generally divided into two sets. An older north-south trending set which dips steeply east and west is cut by younger fractures which generally trend east-west and dip moderate to steeply north. Fracture densities are highly variable, making it difficult to estimate averages. Most outcrops show fracture densities equal to that of the volcanics, 1-4 per meter but locally this may increase to 1-4 per decimeter, such as the large Mammoth outcrop at 40+50N, 35+10E in the vicinity of the Linny showing.

Rocks of the nearby Bonnington pluton were not investigated in the same detail to determine structural data, but the outcrops observed generally seemed unfractured and massive.

Glacial striations were observed in the large Mammoth outcrop near L34N, 32E. Several grooves 50 cm in length trend south-southwest.

### 4.3 Mineralization and Alteration

Where the narrow section of Elise flows to the northwest are in contact with plagioclase porphyry diorite (L42N, 29E area), the Mammoth copper-molybdenum-(gold) skarn showing occurs (Photo 5). Here mineralization is associated with fracture controlled pyrite, molybdenite, chalcopyrite and malachite hosted by garnet-epidote-magnetite skarn and calc-silicate hornfels (Wells, 1996). Diamond drilling in 1972 showed an intercept of 21.95 m grading 0.672 % copper. Gold grades were not determined at that time but later surface sampling of copper bearing zones in the area has produced grades of up to 0.07 oz./t gold from augite porphyry material grading 1.52 % copper (Hawkins and Naciuk, 1992).

In the area of the Monarch adits and trenches the host Elise volcanics (minor Mammoth), are heavily gossaned and locally sericitized. Here up to 5 % pyrite with trace to 1 % pyrrhotite/chalcopyrite was observed. The Monarch adit is approximately 17m long (Photo 3). The T-trench, located nearby at 44+10N, 30+75E is strongly gossaned and contains trace to 2% pyrrhotite/pyrite/chalcopyrite with local pyrrhotite veinlettes up to 2 cm. This pit is approximately 8 X 5 m in dimension (Photo 4).

Hall Formation rocks contained rare traces of py and po. The only observed exception was at 37N, 31+25E where hornfelsed and moderately bleached argillite containing 2 % pyrite was found in a 1m wide contact zone adjacent to Mammoth intrusive. At L42N, 38+50E a large moderately gossaned Hall outcrop containing local mm-sized tan, felsic veining occurs. This peculiar veining distinguishes this outcrop from other noted Hall formation outcrops.

No mineralization and only weak silicification was noted in the few observed outcrops of Bonnington granodiorite.

### 4.4 <u>Sampling</u>

During the course of fieldwork 36 rock samples were taken; 34 were rock outcrop and 2 were stream boulder samples. A sample description list is included in Appendix 3 with analytical results listed in Appendix 4.

Of the 36 samples taken, 26 show gold values below 0.1 g/t (0.003 oz/t) and 10 showed elevated values above 0.1 g/t. The highest gold value obtained was at the Linny showing, 16.64 g/t (0.485 oz/t). One stream boulder sample showed 1.6 % copper.

Sample numbers MW-96-01 to 09 were taken near the Monarch adit and trenches where strongly gossaned and locally sericitized augite porphyry and Mammoth intrusive occur.

The highest value obtained was 0.14 g/t gold in sample MW-96-02. Copper values in the area were slightly elevated with the best value from the T-pit , 2030 ppm.

Samples MW-96-10 and 12 tested a weak to moderately gossaned, silicified, bleached and fractured Mammoth outcrop containing minor pyrite stringers near L41+80N, 33+60E. These samples did not run gold and showed no significant elevations.

A large moderately gossaned and fractured Hall outcrop at L42N, 38+50E containing tan colored mm-sized felsic veining showed 0.17 g/t gold (0.005 oz./t) in sample MW-96-11. Perhaps this partially accounts for the 190 ppb gold soil anomaly downslope at L42N, 39+50E.

Sample MW-96-23, taken from a black quartz vein located at L38N, 31+75E ran 0.82 g/t gold (0.024 oz/t). This vein was 30 X 2 cm and was hosted in a locally gossaned Mammoth intrusive that did not run gold, sample MW-96-24.

Sample MW-96-25 was taken from the augite porphyry/Mammoth contact at 37+20N, 28+50E (Photo 6). Although the contact was gossaned with 1 % disseminated pyrite and the sample was taken between anomalous gold soil values of 83 and 160 ppb, it did not run gold.

Two samples were taken from moderate to strongly gossaned, hornfelsed argillite containing traces of pyrite at Mammoth contacts near the L37N, 30+50E area. Samples MW-96-26 and 27 did not run gold, even though sample MW-96-26 was close to a 176 ppb gold soil anomaly.

The final sample, MW-96-36, was a grab from a white to grey quartz vein, 10 cm wide, displaying local 5 mm boxwork structure, located near 29+35N, 32E. Although it did not run gold, it showed the highest arsenic value outside of the Linny showing area, 225 ppm. This may help explain the unknown source of the nearby 524 ppb gold soil anomaly.

## 4.5 Prospecting

Although the emphasis of fieldwork was primarily sampling and mapping a small amount of time was spent prospecting. The following four areas were prospected: the north fork of Barrett creek between L27N and 37N; a small tributary to the north fork of Barrett Creek herein named Hilary Creek; a small portion of the highlands above Hilary Creek; and the large outcropping of Mammoth intrusive north and adjacent to the Linny showing.

Prospecting the entire length of Hilary Creek showed only overburden but on the ridge high above it the Elise/Bonnington granodiorite contact was locally exposed. No areas of interest were discovered, with the contact generally having a fresh and barren appearance. Local phases of the granodiorite seemed similar in appearance to Mammoth plagioclase porphyry diorite. As well one outcrop of Mammoth/augite porphyry contact was observed, suggesting Mammoth intrusive bodies within the volcanics. This is important considering the majority of mineral showings on the map area are on or near Mammoth/Elise or Mammoth/Hall contacts.

# 5.0 MINERAL SHOWINGS

## 5.1 Stephie and Marcus Shears

### 5.1.1 Geology

Elise volcanics in the southwest part of the map area contain two shear zone outcrops in the north fork of Barrett Creek. They are within 250 m of the Elise/Mammoth contact. The well exposed shear located at 33+90N, 28+37E, herein named the Stephie shear (previously Shear 1), lies at the basal contact between coarse reworked tuffs and fine ash tuffs. The Marcus shear (previously Shear 2), located at 34+70N, 27+09E is poorly exposed and likely only observable at times of low water flow. A mossy cross-section was observable at the time of fieldwork and was uncovered as much as possible to show a minimum 4 m wide section of sheared augite porphyry.

### 5.1.2 Structure

The Stephie shear structure strikes approximately $25^{o}$ and dips $85^{o}$ SE. It is approximately 2 m wide with a more intense and silicified section 20 cm. in width adjacent to the coarse basal unit to the southeast. It is exposed over a length of 15 m and shows protomylonitic texture in the coarse epiclastics directly adjacent to the shear (Photos 7-10).

The Marcus shear strikes approximately $35^{o}$ and dips $70^{o}$ SE. This shear contains several silicified cores 10-40 cm in width containing quartz, calcite, chlorite, trace to 2% pyrite, pyrrhotite, chalcopyrite and malachite. Locally these shear cores contain protomylonitic texture.

### 5.1.3 Mineralization and Alteration

Mineralization at the Stephie shear consists of trace to 2 % pyrite, chalcopyrite and pyrrhotite mainly in the more intensely silicified and sheared hanging wall. Accessory minerals include calcite, chlorite and epidote. The calcite is found mainly in the shear hanging wall while the epidote is found locally within 5 m of the shear footwall contact, including one patch of moderate to intense epidote alteration measuring 2 X 3 m. Chlorite was found mainly in the more intensely silicified and sheared hangingwall. The shear structure and portions of the footwall host are weak to moderately bleached and weakly gossaned.

The Marcus shear contains trace to 5 % pyrite, chalcopyrite, pyrrhotite and malachite mainly in the silicified shear cores. Accessory minerals include calcite and chlorite again found mainly in the shear cores. The structure was moderately gossaned and silicified.

Located in the stream bed and between these two shears at 34+50N, 27+55E a subangular boulder measuring 30 X 20 X 5 cm was discovered. It contains approximately 10 % pyrite and 1 % chalcopyrite/pyrrhotite in a strongly silicified and gossaned host.

Additional gossaned boulders were found 200 m downstream from the Stephie shear between 28+40N and 32+50N. These are subangular to subrounded volcanic and Mammoth stream boulders averaging approximately 30 cm in each dimension. They are moderate to strongly gossaned and contain 1-10 % finely disseminated pyrite/chalcopyrite/pyrrhotite. It should be noted that no gossaned boulders were found between the Stephie shear and 32+50N and only rarely downstream of 28+40N. This suggests a discrete host area for these boulders, as yet undetermined.

The north fork of Barrett creek contained varying proportions of Elise volcanics, plagioclase porphyry diorite, granodiorite and argillite boulders. Large, subangular boulders of augite porphyry flow breccia and pock-marked, epiclastics were prominent. Mammoth and granodiorite boulders were ubiquitous and Hall boulders were generally rare.

### 5.1.4 Sampling

Two reconnaissance samples were taken at the Marcus shear, located at 34+70N, 27+09E. The 4 m channel sample, MW-96-30, taken across the width of the shear, despite running 0.07 g/t (0.002 oz./t) was anomalous in copper, 436 ppm. Sample MW-96-31, was a composite sample of the silicified cores within the shear structure and ran 0.86 g/t gold (0.025 oz/t), 3.4 ppm Ag and 2,634 ppm copper.

At the Stephie shear, 33+90N, 28+37E, two reconnaissance samples were taken. The first, MW-96-33 was a composite grab 15 m in strike length X 1 m in width along the shear and did not run gold. The second sample, MW-96-34 was a composite grab 10 m in strike length X 0.2 m in width along the hanging wall. It ran 0.11 g/t gold (0.003 oz/t) and 199 ppm copper.

The subangular, gossaned, sulfide-rich boulder that was found between the two shears, sample MW-96-32 ran 0.88 g/t gold (0.026 oz/t), 28.2 ppm silver, 1.6 % copper, 8.69 % iron, 91 ppm molybdenum and 144 ppm zinc. Of the 36 samples taken during fieldwork, this sample was the highest recorded gold sample outside of the Linny showing area, the highest recorded copper, silver, molybdenum and iron percentage and the second highest zinc value.

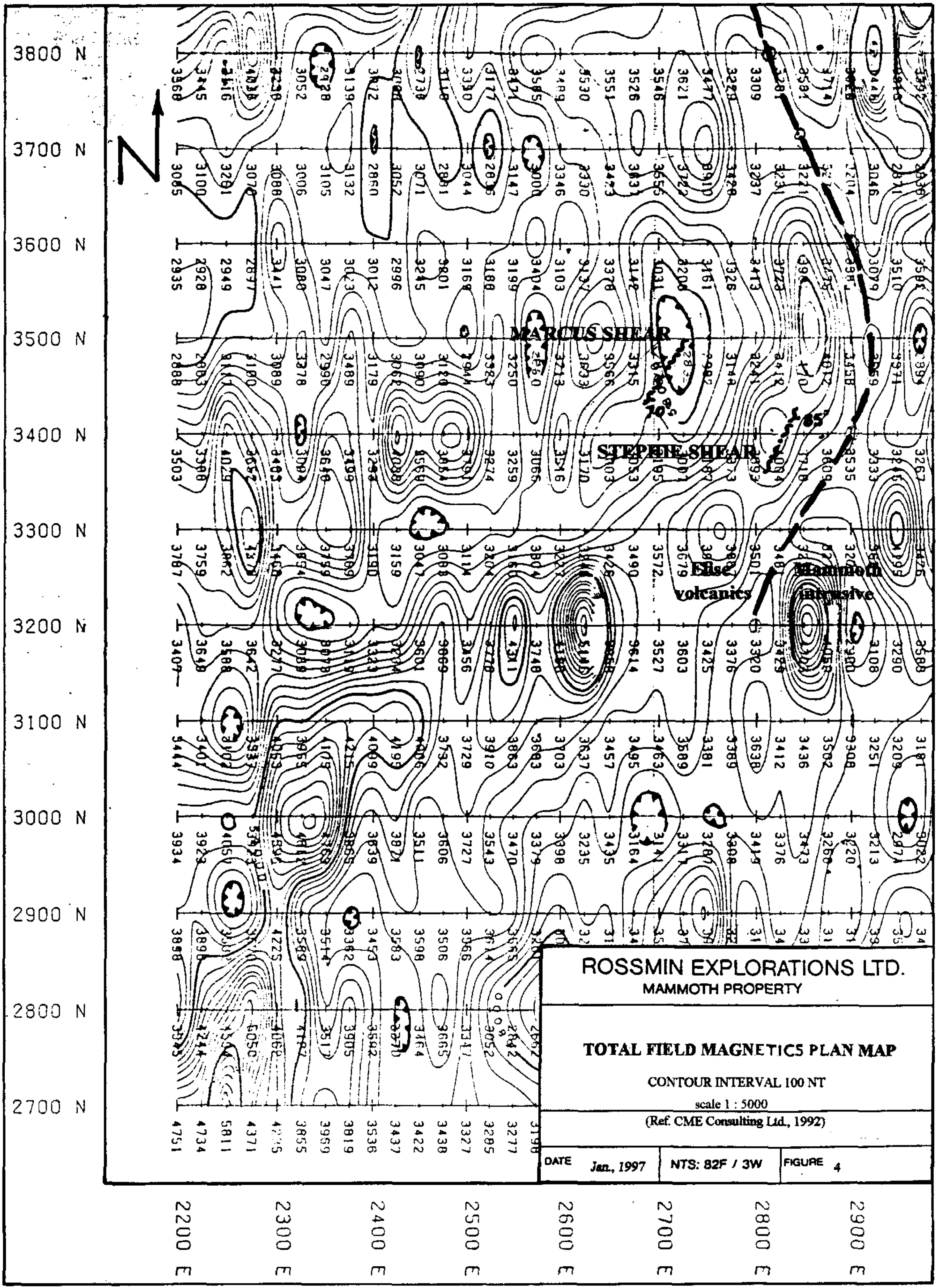
Results show that this boulder has more of an affinity for the Marcus shear as both have elevated gold/silver/copper values and the boulder was found downstream of this shear. It should be noted that the high percentage of sulfide found in the boulder was not found in place in the Marcus shear, suggesting that better mineralized portions of the shear structure are covered. Also these results likely explain the gold soil anomalies in the area.

Sample MW-96-35 was taken from a gossaned and silicified Mammoth boulder found in the north fork of Barrett creek near L31N. It appeared to contain 5 % pyrrhotite, 2 % pyrite and traces of chalcopyrite but did not run gold.

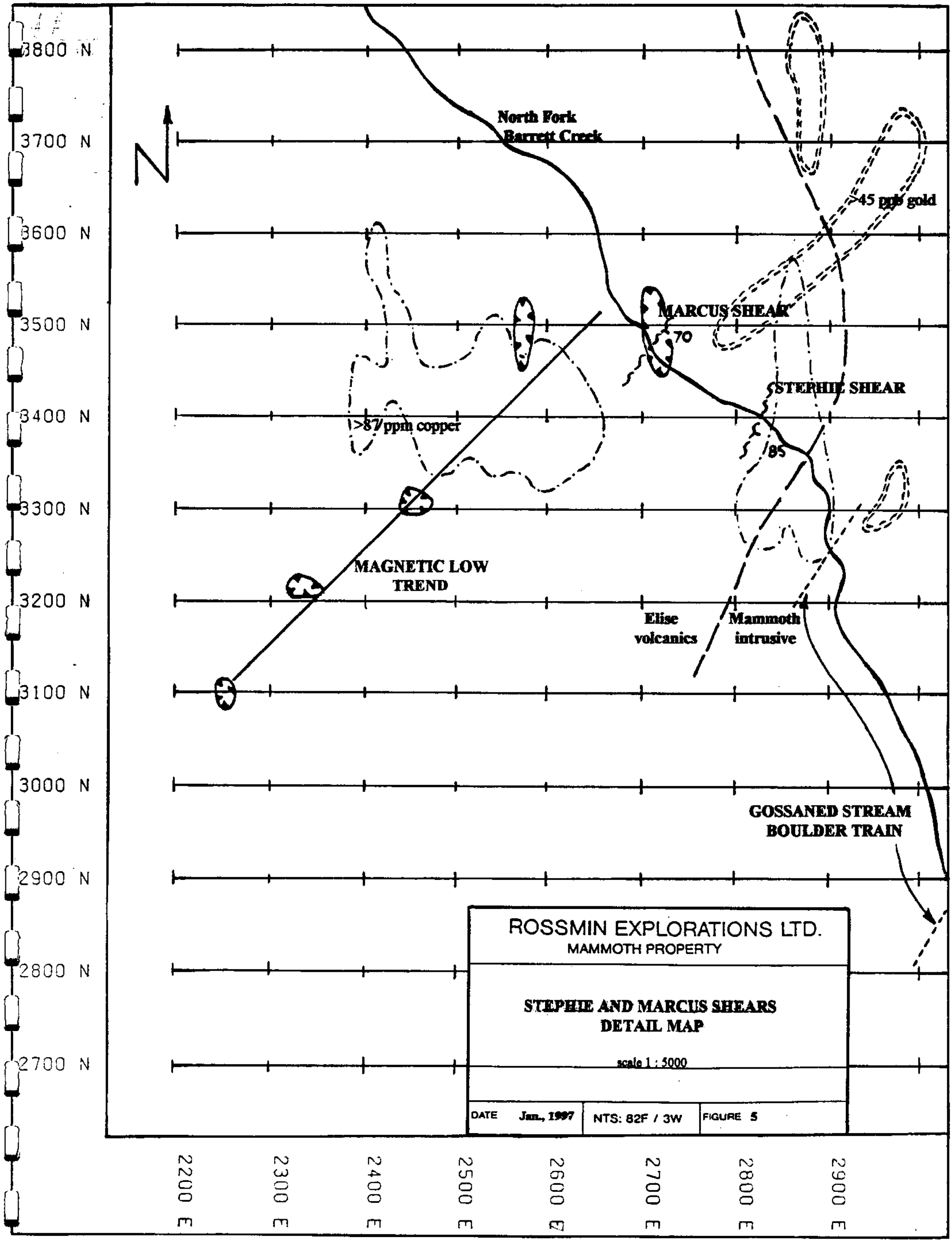
### 5.1.5 Recommendations

It is likely that the Stephie shear was recently uncovered by the large mudslide nearby. Prospecting to the northeast would be difficult due to the thick mudslide (Photo 8), but southwest of the shear, prospecting may prove useful (Photo 7). The Marcus shear may be somewhat more prospectable to the northeast (or north) but traverses south and southwest may have less overburden. It should be noted that the Marcus shear was poorly exposed and likely only visible at times of low water level. Also, good, gossaned rubble containing sulfides typical of the Marcus shear was uncovered in overburden adjacent to the hangingwall. It is possible that the Marcus and Stephie shears form parts of a larger shear zone.

Geophysical prospecting using a combination of magnetics and VLF could prove to be the most useful in the shear/sulfide boulder area. In 1992 C.M.E. Consulting did perform some magnetics over part of the area of interest in the southwest map area (Fig. 4). It clearly shows a northeast-southwest trend of magnetic-lows, trending between $20^{o}$ and $40^{o}$ azimuth. The Marcus shear is located on a magnetic-low within this trend (Fig. 5 and 6). Additional geophysical information using VLF where there are such coincident anomalies can be highly beneficial (Paterson and Hallof, 1991), and is strongly recommended.



ROSSMIN EXPLORATIONS LTD.
MAMMOTH PROPERTY
TOTAL FIELD MAGNETICS PLAN MAP
CONTOUR INTERVAL 100 NT
scale 1 : 5000
(Ref. CME Consulting Ltd., 1992)
DATE Jan., 1997
NTS: 82F / 3W
FIGURE 4
MARCUS SHEAR
STEPHIE SHEAR
Elise volcanics
Mammoth intrusive
85°
3800 N
3700 N
3600 N
3500 N
3400 N
3300 N
3200 N
3100 N
3000 N
2900 N
2800 N
2700 N
2200 E
2300 E
2400 E
2500 E
2600 E
2700 E
2800 E
2900 E



3800 N
3700 N
3600 N
3500 N
3400 N
3300 N
3200 N
3100 N
3000 N
2900 N
2800 N
2700 N
2200 E
2300 E
2400 E
2500 E
2600 E
2700 E
2800 E
2900 E
North Fork
Barrett Creek
>45 ppb gold
MARCUS SHEAR
70
STEPHIE SHEAR
>87 ppm copper
85
MAGNETIC LOW
TREND
Elise
volcanics
Mammoth
intrusive
GOSSANED STREAM
BOULDER TRAIN
ROSSMIN EXPLORATIONS LTD.
MAMMOTH PROPERTY
STEPHIE AND MARCUS SHEARS
DETAIL MAP
scale 1 : 5000
DATE Jan., 1997
NTS: 82F / 3W
FIGURE 5

## 5.2 Linny Vein Stockwork

### 5.2.1 Geology

At the Linny showing, located at approximately L40+50N, 35+50E, numerous thin, milky to dark grey quartz veins traverse crowded plagioclase porphyry intrusive. This intrusive is tan colored on the weathered surface, white to light grey on the fresh surface, contains approximately 50 % plagioclase porphyry in a fine-grained, medium grey mafic matrix. The matrix locally contains minor hornblende and biotite, less than 2 mm in size. The host intrusive outcrop measures approximately 100 X 200 m.

### 5.2.2 Structure

Quartz vein orientations are typically north-south and east-west, steeply dipping to vertical. Generally the east-west trending veins are wider, ranging from mm-size to rarely 30 cm, average 5 cm and carry more mineralization than the thinner north-south veins which average 1-2 cm in width. A rough estimate of visible quartz vein densities in the area would be approximately 1 for every 2 meters.

### 5.2.3 Mineralization and Alteration

The Linny quartz veins contain trace to locally massive arsenopyrite and traces of pyrite. The host Mammoth intrusive is moderately gossaned, weakly bleached and locally contains secondary biotite, (after hornblende?).

### 5.2.4 Sampling

Samples MW-96-13 to 22 were at the Linny showing, near 40+50N, 35+50E close to an 89 ppb gold soil sample and where in 1992 sampling returned 0.94 oz/t gold in arsenopyrite-rich quartz veins (Hawkins and Naciuk, 1992). To test the area of the arsenopyrite-gold-rich quartz veins for both high grade gold and bulk rock potential in the host Mammoth intrusive a specific sampling method was used. Four adjacent 15 X 15 m areas of Mammoth outcrop were measured out north from L40 between 35+45 to 60E. Two specific types of samples were taken in each 15 X 15 m area. The first was a composite grab sample of all the visible quartz veins contained, followed by a grab composite sample of host rock without visible quartz veins. This was done to try and keep high-grade vein material from skewing the results of the host rock. Samples MW-96-15 to 18 were vein samples and samples MW-96-19 to 22 were host rock samples (Fig. 3).

Results in this small limited test suggest increasing gold values to the south in both the vein material and the host rock. In one sample, MW-96-22 the host rock is capable of carrying small amounts of gold. Vein results MW-96-15 to 18, and host rock results, MW-96-19 to 22, from north to south respectively are: <0.03, 0.33, 16.64, 16.25 g/t gold; 0.08, 0.03, <0.03, 0.37 g/t gold. The same value in oz/t gold are: <0.001, 0.01, 0.485, 0.474; 0.002, 0.001, <0.001, 0.011. Copper values were low, the best result being 95 ppm in sample MW-96-17.

Nearby at 40+90N, 35+00E a moderately gossaned and fractured Hall outcrop was sampled, MW-96-13 and showed no gold value. It did show an elevated zinc value, 208 ppm, the highest reported in the samples. Sample MW-96-14 was taken from a strongly fractured and sheared Mammoth outcrop containing sheared east-west quartz veins near the Hall contact. It returned no elevated values and contained the lowest copper value of all the samples, 8 ppm.

### 5.2.5 Recommendations

The large outcropping of Mammoth intrusive north of the Linny showing contains numerous unsampled quartz veins, some moderately gossaned and up to 40 cm in width. It is recommended that this area receive detailed prospecting and sampling, particularly south and southwest of the sampled area.

## 5.3 Sarah Showing

### 5.3.1 Geology

The largest observed quartz vein occurs at the Sarah showing, 35+10N, 31+90E and averages 50 cm in width with some sections up to 1 m wide. The quartz is generally milky white. It is exposed over 20 m in shallow pits and a 5 m deep shaft. Host rock at the Sarah showing is moderately gossaned plagioclase porphyry intrusive with a tan to light grey matrix containing approximately 40 % plagioclase porphyry.

### 5.3.2 Structure

Quartz veins were observed almost exclusively in Mammoth intrusive rocks, usually following the north-south and east-west fracture sets. The Sarah showing quartz vein strikes $72^{o}$ and dips $90^{o}$. Approximately 15 m to the north of the main vein is a small stockwork of quartz veins, with individual veins averaging 30 cm. They are mostly white colored, some are light grey. Fracturing within the quartz veins was generally parallel and at right angles to vein orientation.

At 29+35N, 32E a 10 cm wide white to light grey quartz vein hosted in weakly gossaned Mammoth intrusive displayed local 5 mm-sized boxwork structure.

### 5.3.3 Mineralization and Alteration

The main quartz vein at the Sarah showing shows up to 5 % stringy pyrite in the pits and the small shaft. The host rock is moderately gossaned and silicified Mammoth intrusive.

### 5.3.4 Sampling

At the Sarah showing two samples were taken. Sample MW-96-28 was a composite grab of all the quartz veins in the vicinity and MW-96-29 was a composite grab of the host Mammoth intrusive. Although these samples were taken in an area of known workings and an anomalous gold soil value of 204 ppb 50 m downslope to the east, they did not run gold. This is likely due to the broad and composite sampling method.

### 5.3.5 Recommendations

More sampling and prospecting is required at the Sarah showing. Sampling should be targeted on individual veins and measured areas of host rock.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

Results of investigations on the Mammoth property are encouraging. Several of the 1992 gold in soil anomalies coincide with outcrops containing gold mineralization or indications of gold mineralization. New discoveries of gold-copper mineralization in Rossland Group Elise volcanic hosted shear zones and possible conformable gold shear zones were made. Results also suggest that low-grade gold, bulk tonnage exploration targets may be found in certain quartz-veined Mammoth intrusives.

The Marcus shear is a coincidence of magnetic-low, shear structure, gold in place and gold in soil anomalies. Although the gold-copper values were not high, it was clearly shown that the Marcus shear structure can carry gold-copper mineralization. The known magnetic-low trend it is associated with continues southwest for a minimum of 700 meters. A boulder containing 1.6 % copper and nearly 10 % iron found near and likely associated with the Marcus shear suggests that further geophysical prospecting, VLF, may help to discover similar, probably drift covered mineralization along the magnetic-low trend.

Sampling at the Linny showing re-affirmed the presence of high-grade gold in quartz veins discovered in 1992. Further sampling showed that the Mammoth intrusive host to these thin high-grade veins may carry low grade gold.

Future exploration work is recommended on the Mammoth property. The property should be thoroughly prospected and sampled to find possible new and unexplored gold-copper targets. This will provide a current and prioritized property mineral inventory. Ranked in priority, the Marcus shear, Stephie shear, Linny showing and Sarah showings should receive detailed prospecting, mapping and sampling. An initial VLF ground geophysical program is also recommended for the Marcus and Stephie shear areas.

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## Appendix 1

Statement of Qualifications

## STATEMENT OF QUALIFICATIONS

I, Dan Wehrle, of the City of Rossland, in the Province of British Columbia, do certify that:

1) I am a geologist residing at 1619 Spokane Street, Rossland, B.C. VOG 1YO.

2) I am a graduate of the University of Saskatchewan (1985) in Geology, B.Sc. Honours.

3) I have been employed as an exploration geologist for the past 11 years.

4) I have not received nor expect to receive any interest direct or indirect, in the properties or securities of Rossmin Explorations Ltd.

Dated this 6th day of January, 1997, in the City of Rossland, British Columbia.

Dan Wehrle

D.M. Wehrle, Geologist

## Appendix 2

Selected Photographs

**PHOTO 1 : MAMMOTH PROPERTY OVERVIEW**
Looking Northeast

**PHOTO 2 : TYPICAL HALL FORMATION OUTCROP**
L39+65N, 31+40E

PHOTO 3 : ADIT L43+65N, 30+85E

PHOTO 4 : "T-PIT" L44+05N, 30+70E

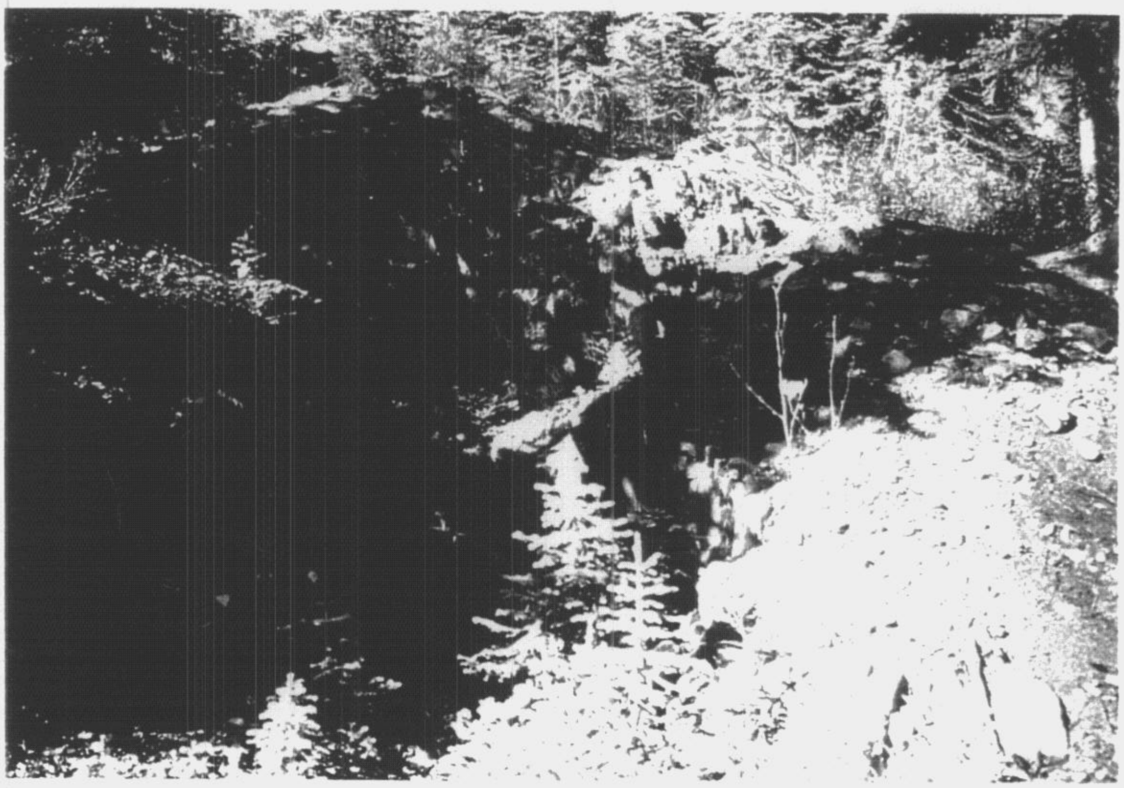

**PHOTO 5 : MAMMOTH WORKINGS L41+75N, 29+20E**

**PHOTO 6 : ELISE VOLCANIC / MAMMOTH INTRUSIVE CONTACT L37+20N, 28+50E**

PHOTO 7 : STEPHIE SHEAR, Looking Southwest L33+90N, 28+37E

PHOTO 8 : STEPHIE SHEAR, Looking Northeast L33+90N, 28+37E

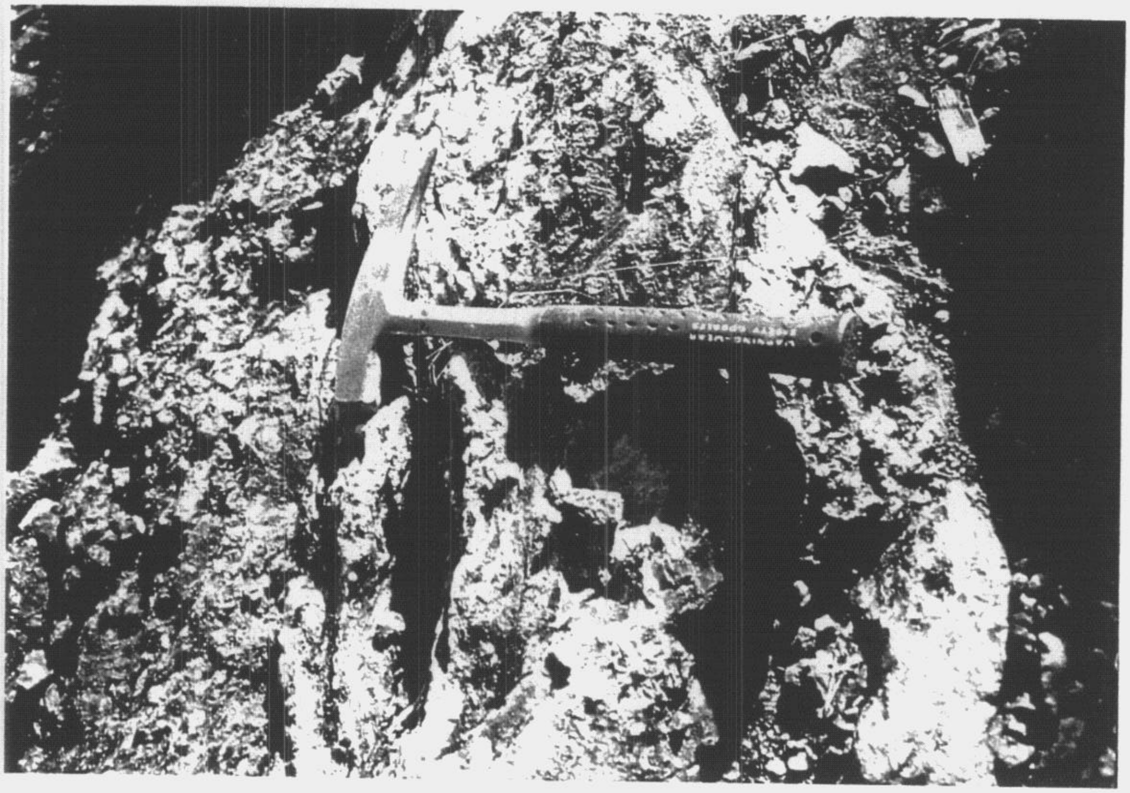

**PHOTO 9 : STEPHIE SHEAR DETAIL L33+90N, 28+37E**
Note hangingwall contact with Elise volcanic coarse epiclastics at hammerhead

**PHOTO 10 : STEPHIE SHEAR, ELISE VOLCANIC HOST ROCK L33+90N, 28+37E**
Hangingwall

## Appendix 3

Sample Descriptions

## SAMPLE DESCRIPTIONS

MW-96-**01**, 44+10N, 30+75E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab of old workings, T-shaped pit/trench approximately 8 X 5 m. Host rock indeterminable but strongly gossaned with trace to 2 % pyrrhotite/pyrite/chalcopyrite and local veinlettes pyrrhotite up to 2 cm. Surrounding lithotype is Mammoth plagioclase porphyry diorite.

MW-96-**02**, 43+60N, 30+60E, **0.14** g/t gold (0.004 oz/t)
Channel 1.5 m in length taken directly above the Monarch adit. Host rock is strongly gossaned plagioclase porphyry diorite, locally sericitized and containing 1-10 % disseminated pyrite.

MW-96-**03**, 43+62N, 30+55E, **<0.03** g/t gold (<0.001 oz/t)
Channel 1.0 m in length taken above and northwest of the Monarch adit. Host rock is strongly gossaned plagioclase porphyry diorite, locally sericitized and containing 1-10 % disseminated pyrite.

MW-96-**04**, 43+58N, 30+55E, **<0.03** g/t gold (<0.001 oz/t)
Channel 1.0 m in length taken above and southwest of the Monarch adit. Host rock is strongly gossaned plagioclase porphyry diorite, locally sericitized and containing 1-10 % disseminated pyrite.

MW-96-**05**, 43+30N, 30+70E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab taken from a 20 X 5 m area of strongly gossaned augite porphyry above the Monarch adit. The rock contained 1-10 % pyrite and was locally sericitized.

MW-96-**06**, 43+10N, 29+20E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab sample of augite porphyry outcrop, approximately 30 X 30 m. The augite porphyry is light green to tan, massive, moderately gossaned and hornfelsed and contains minor shears and traces of pyrite and epidote.

MW-96-**07**, 42+60N, 30+30E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab 20 m along an old trench. Host rock is strongly gossaned augite porphyry with local sericitized patches and traces of pyrite.

MW-96-**08**, 42+70N, 30+25E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab 4 m along an old trench. Host rock is strongly gossaned augite porphyry with local sericitized patches and 1-5 % disseminated pyrite.

MW-96-**09**, 42+40N, 30+10E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab of strongly gossaned augite porphyry outcrop 15 X 15 m, containing traces of pyrite.

MW-96-**10**, 41+75N, 33+65E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab of moderate to strongly gossaned plagioclase porphyry diorite outcrop 15 X 15 m. Rock contains minor pyrite stringers and traces of calcite.

MW-96-**11**, 42+00N, 38+50E, **0.17** g/t gold (0.005 oz/t)
Composite grab of moderately gossaned, fractured and hornfelsed argillite outcrop 10 X 20 m. Rock contains tan colored, felsic, mm-sized veining.

MW-96-**12**, 41+80N, 33+60E, **<0.03** g/t gold (<0.001 oz/t)
Grab of strongly gossaned plagioclase porphyry diorite outcrop 2 X 2 m. Rock contains stringers of pyrite.

MW-96-**13**, 40+90N, 35+00E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab of moderately gossamed, fractured and hornfelsed argillite outcrop 5 X 20 m.

MW-96-**14**, 40+50N, 35+10E, **<0.03** g/t gold (<0.001 oz/t)
Grab of moderately gossaned, strongly sheared plagioclase porphyry diorite. Outcrop contains local quartz veinlettes <5 cm.

MW-96-**15**, 40+45 to 40+60N, 35+45 to 35+60E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab in a 15 X 15 m area of 1 to 10 cm quartz veins hosted in moderately gossaned plagioclase porphyry diorite. Quartz veins are milky white to grey and contain trace arsenopyrite/pyrite.

MW-96-**16**, 40+30 to 40+45N, 35+45 to 35+60E, **0.33** g/t gold (0.01 oz/t)
Composite grab in a 15 X 15 m area of 1 to 10 cm quartz veins hosted in moderately gossaned plagioclase porphyry diorite. Quartz veins are milky white to grey and contain trace arsenopyrite/pyrite.

MW-96-**17**, 40+15 to 40+30N, 35+45 to 35+60E, **16.64** g/t gold (0.485 oz/t)
Composite grab in a 15 X 15 m area of 1 to 10 cm quartz veins hosted in moderately gossaned plagioclase porphyry diorite. Quartz veins are milky white to grey and contain trace to locally massive arsenopyrite and traces of pyrite.

MW-96-**18**, 40+00 to 40+15N, 35+45 to 35+60E, **16.25** g/t gold (0.474 oz/t)
Composite grab in a 15 X 15 m area of 1 to 10 cm quartz veins hosted in moderately gossaned plagioclase porphyry diorite. Quartz veins are milky white to grey and contain trace to locally massive arsenopyrite and traces of pyrite.

MW-96-**19**, 40+45 to 40+60N, 35+45 to35+60E, **0.08** g/t gold (0.002 oz/t)
Composite grab in a 15 X 15 m area of moderately gossaned plagioclase porphyry diorite host rock to quartz veins in sample MW-96-15.

MW-96-**20**, 40+30 to 40+45N, 35+45 to 35+60E, **0.03** g/t gold (0.001 oz/t)
Composite grab in a 15 X 15 m area of moderately gossaned plagioclase porphyry diorite host rock to quartz veins in sample MW-96-16.

MW-96-**21**, 40+15 to 40+30N, 35+45 to 35+60E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab in a 15 X 15 m area of moderately gossaned plagioclase porphyry diorite host rock to quartz veins in sample MW-96-17.

MW-96-**22**, 40+00 to 40+15N, 35+45 to 35+60E, **0.37** g/t gold (0.011 oz/t)
Composite grab in a 15 X 15 m area of moderately gossaned plagioclase porphyry diorite host rock to quartz veins in sample MW-96-18.

MW-96-**23**, 38+00N, 31+75E, **0.82** g/t gold (0.024 oz/t)
Grab of 2 X 30 cm long quartz vein hosted in moderately gossaned plagioclase porphyry diorite. Quartz vein is dark grey to black in color and contained no visible mineralization.

MW-96-**24**, 38+00N, 31+75E, **0.04** g/t gold (0.001 oz/t)
Grab of gossaned plagioclase porphyry diorite. Sample was taken near black quartz vein at same location, sample MW-96-23.

MW-96-**25**, 37+15 to 37+35N, 28+50E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab of contact between augite porphyry flow breccia and plagioclase porphyry diorite. The moderately gossaned contact zone is 1 m wide and contains 1 % disseminated pyrite.

MW-96-**26**, 37+00N, 30+10E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab of contact between moderately gossaned, hornfelsed argillite and plagioclase porphyry diorite. The argillite contains traces of pyrite.

MW-96-**27**, 37+00N, 31+25E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab of contact brtween strongly gossaned, hornfelsed argillite and weakly gossaned plagioclase porphyry diorite. The argillite is moderately bleached and contains 2 % disseminated pyrite.

MW-96-**28**, 35+10N, 31+90E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab of local quartz veins hosted in plagioclase porphyry diorite. Quartz veins are white to grey in color, range in width from 1 mm to 0.5 m and contain trace to 2 % pyrite.

MW-96-**29**, 35+10N, 31+90E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab sample of moderately gossaned plagioclase porphyry diorite containing local quartz veinlettes.

MW-96-**30**, 34+70N, 27+09E, **0.07** g/t gold (0.002 oz/t)
Channel of 4 m width across moderately gossaned and silicified augite porphyry in Marcus shear. Central bands of shear zone, 10-40 cm in width, contain traces to 2 % pyrite/pyrrhotite/chalcopyrite/malachite/calcite.

MW-96-**31**, 34+70N, 27+09E, **0.86** g/t gold (0.025 oz/t)
Composite grab of central silicified bands 10-40 cm in width from Marcus shear zone. Sample contains traces to 2 % pyrite/pyrrhotite/chalcopyrite/malachite/calcite.

MW-96-**32**, 34+50N, 27+55E, **0.88** g/t gold (0.026 oz/t), **1.6** % copper
Sample of stream boulder, subangular, 20 X 30 X 5 cm, strongly gossaned and containing 10 % pyrite with 1 % chalcopyrite/pyrrhotite.

MW-98-**33**, 33+90N, 28+37E, **<0.03** g/t gold (<0.001 oz/t)
Composite grab of 15 X 1 m width of weak to moderately gossaned and silicified augite porphyry from Stephie shear zone. Sample contains trace to 2 % pyrite/chalcopyrite/pyrrhotite and calcite.

MW-96-**34**, 33+90N, 28+37E, **0.11** g/t gold (0.003 oz/t)
Composite chip 10 X 20 cm of central silicified portion of Stephie shear zone. Sample contains trace to 2 % pyrite/chalcopyrite/pyrrhotite and calcite.

MW-96-**35**, 31+10N, 29+65E, **<0.03** g/t gold (<0.001 oz/t)
Grab of gossaned and silicified plagioclase porphyry diorite stream boulder containing 5 % finely disseminated pyrrhotite/pyrite and traces of chalcopyrite.

MW-96-**36**, 29+35N, 32+00E, **<0.03** g/t gold (<0.001 oz/t)
Grab of 10 cm quartz vein hosted in weakly gossaned plagioclase porphyry diorite. Quartz vein is white to grey in color and locally contains 5 mm boxwork structure.

# Appendix 4

Analytical Results

**Eco·Tech LABORATORIES LTD.**

ASSAYING
GEOCHEMISTRY
ANALYTICAL CHEMISTRY
ENVIRONMENTAL TESTING

10041 E. Trans Canada Hwy., R.R. #2, Kamloops, B.C. V2C 6T4 Phone (250) 573-5700
Fax (250) 573-4557

# CERTIFICATE OF ASSAY AK 96-1266

**ROSSMIN EXPLORATIONS**
302 608 7TH ST SW
**CALGARY, AB**
T2P 1Z1

4-Nov-96

**ATTENTION: BILL HOWARD**

*No. of samples received:38*
*Sample type:ROCK*
*PROJECT #: NONE GIVEN*
*SHIPMENT #:NONE GIVEN*
*Samples submitted by: BILL HOWARD*

| ET #. | Tag # | Au (g/t) | Au (oz/t) | As (%) |
|---|---|---|---|---|
| 1 | MW 96 01 | <.03 | <.001 | |
| 2 | MW 96 02 | 0.14 | 0.004 | |
| 3 | MW 96 03 | <.03 | <.001 | |
| 4 | MW 96 04 | <.03 | <.001 | |
| 5 | MW 96 05 | <.03 | <.001 | |
| 6 | MW 96 06 | <.03 | <.001 | |
| 7 | MW 96 07 | <.03 | <.001 | |
| 8 | MW 96 08 | 0.03 | 0.001 | |
| 9 | MW 96 09 | <.03 | <.001 | |
| 10 | MW 96 10 | <.03 | <.001 | |
| 11 | MW 96 11 | 0.17 | 0.005 | |
| 12 | MW 96 12 | <.03 | <.001 | |
| 13 | MW 96 13 | <.03 | <.001 | |
| 14 | MW 96 14 | <.03 | <.001 | |
| 15 | MW 96 15 | <.03 | <.001 | |
| 16 | MW 96 16 | 0.33 | 0.010 | |
| 17 | MW 96 17 | 16.64 | 0.485 | 2.18 |
| 18 | MW 96 18 | 16.25 | 0.474 | 1.98 |
| 19 | MW 96 19 | 0.08 | 0.002 | |
| 20 | MW 96 20 | 0.03 | 0.001 | |

**ECO-TECH LABORATORIES LTD.**
per Frank J. Pezzotti, A.Sc.T.
B.C. Certified Assayer

| ET #. | Tag # | Au (g/t) | Au (oz/t) | As (%) | Cu (%) |
|---|---|---|---|---|---|
| 21 | MW 96 21 | <.03 | <.001 | | |
| 22 | MW 96 22 | 0.37 | 0.011 | | |
| 23 | MW 96 23 | 0.82 | 0.024 | | |
| 24 | MW 96 24 | 0.04 | 0.001 | | |
| 25 | MW 96 25 | <.03 | <.001 | | |
| 26 | MW 96 26 | <.03 | <.001 | | |
| 27 | MW 96 27 | <.03 | <.001 | | |
| 28 | MW 96 28 | <.03 | <.001 | | |
| 29 | MW 96 29 | <.03 | <.001 | | |
| 30 | MW 96 30 | 0.07 | 0.002 | | |
| 31 | MW 96 31 | 0.86 | 0.025 | | |
| 32 | MW 96 32 | 0.88 | 0.026 | | 1.60 |
| 33 | MW 96 33 | <.03 | <.001 | | |
| 34 | MW 96 34 | 0.11 | 0.003 | | |
| 35 | MW 96 35 | <.03 | <.001 | | |
| 36 | MW 96 36 | <.03 | <.001 | | |
| 37 | MH 96 001 | 0.04 | 0.001 | | |
| 38 | MH 96 002 | <.03 | <.001 | | |
| **QC/DATA:** | | | | | |
| ***Resplit:*** | | | | | |
| 1 | MW 96 01 | <.03 | <.001 | | |
| 36 | MW 96 36 | <.03 | <.001 | | |
| ***Repeat:*** | | | | | |
| 1 | MW 96 01 | <.03 | <.001 | | |
| 10 | MW 96 10 | <.03 | <.001 | | |
| 21 | MW 96 21 | <.03 | <.001 | | |
| ***Standard:*** | | | | | |
| STD-M | | 1.48 | 0.043 | | |
| STD-M | | 1.43 | 0.042 | | |
| CD-I | | | | 0.66 | |

ECO-TECH LABORATORIES LTD.
per Frank J. Pezzotti, A.Sc.T.
B.C. Certified Assayer

XLS/96KMISC#10

4-Nov-96

**ECO-TECH LABORATORIES LTD.**
10041 East Trans Canada Highway
**KAMLOOPS, B.C.**
V2C 6T4

Phone: 604-573-5700
Fax : 604-573-4557

ICP CERTIFICATE OF ANALYSIS AK 96-1266

**ROSSMIN EXPLORATIONS**
302 608 7TH ST SW
**CALGARY, AB**
T2P 1Z1

**ATTENTION: BILL HOWARD**

*No. of samples received:38*
*Sample type:ROCK*
*PROJECT #: NONE GIVEN*
*SHIPMENT #:NONE GIVEN*
*Samples submitted by: BILL HOWARD*

***Values in ppm unless otherwise reported***

| Et #. | Tag # | Ag | Al % | As | Ba | Bi | Ca % | Cd | Co | Cr | Cu | Fe % | La | Mg % | Mn | Mo | Na % | Ni | P | Pb | Sb | Sn | Sr | Ti % | U | V | W | Y | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW 96 01 | 1.0 | 0.82 | <5 | 25 | <5 | 1.18 | 1 | 83 | 73 | 2030 | 7.76 | <10 | 0.21 | 198 | 28 | 0.05 | 212 | 1160 | <2 | <5 | <20 | 53 | 0.08 | <10 | 39 | <10 | <1 | 28 |
| 2 | MW 96 02 | 1.0 | 0.52 | 25 | 50 | <5 | 0.34 | <1 | 16 | 38 | 123 | 7.05 | <10 | 0.47 | 157 | 31 | 0.03 | 14 | 1320 | 2 | <5 | <20 | 18 | 0.15 | 10 | 110 | <10 | <1 | 10 |
| 3 | MW 96 03 | 0.4 | 0.51 | <5 | 35 | <5 | 0.63 | <1 | 21 | 51 | 99 | 5.99 | <10 | 0.37 | 168 | 17 | 0.02 | 31 | 1200 | <2 | <5 | <20 | 14 | 0.19 | 20 | 105 | <10 | 2 | 11 |
| 4 | MW 96 04 | 0.8 | 0.36 | 40 | 25 | <5 | 0.31 | <1 | 91 | 68 | 93 | 3.47 | <10 | 0.34 | 93 | 39 | 0.04 | 11 | 810 | 6 | <5 | <20 | 12 | 0.15 | 10 | 91 | <10 | 10 | 4 |
| 5 | MW 96 05 | 0.4 | 0.76 | <5 | 55 | <5 | 0.51 | <1 | 17 | 52 | 157 | 4.34 | <10 | 0.45 | 146 | 9 | 0.04 | 27 | 1640 | 4 | <5 | <20 | 31 | 0.15 | 10 | 100 | <10 | 7 | 13 |
| 6 | MW 96 06 | <0.2 | 1.25 | <5 | 55 | <5 | 1.52 | <1 | 17 | 91 | 80 | 2.70 | <10 | 0.59 | 447 | 8 | 0.05 | 32 | 1310 | 6 | 5 | <20 | 52 | 0.12 | <10 | 86 | <10 | 8 | 26 |
| 7 | MW 96 07 | 0.4 | 0.82 | <5 | 55 | <5 | 0.47 | <1 | 23 | 75 | 125 | 5.48 | <10 | 0.78 | 194 | 10 | 0.02 | 7 | 1720 | 4 | <5 | <20 | 15 | 0.16 | 10 | 140 | <10 | 8 | 29 |
| 8 | MW 96 08 | 0.4 | 0.92 | <5 | 60 | <5 | 0.72 | 1 | 14 | 65 | 326 | 4.67 | <10 | 0.62 | 187 | 7 | 0.03 | 12 | 2000 | 6 | 5 | <20 | 18 | 0.13 | <10 | 133 | <10 | 10 | 21 |
| 9 | MW 96 09 | <0.2 | 0.75 | <5 | 70 | <5 | 0.96 | <1 | 12 | 73 | 154 | 4.60 | <10 | 0.26 | 194 | 4 | 0.03 | 12 | 1870 | 4 | <5 | <20 | 23 | 0.14 | <10 | 123 | <10 | 7 | 18 |
| 10 | MW 96 10 | <0.2 | 0.82 | <5 | 40 | 10 | 0.46 | <1 | 6 | 59 | 18 | 2.31 | <10 | 0.45 | 327 | 2 | 0.04 | 6 | 990 | 4 | 5 | <20 | 25 | 0.12 | <10 | 51 | <10 | 10 | 30 |
| 11 | MW 96 11 | <0.2 | 1.17 | <5 | 25 | <5 | 0.70 | <1 | 9 | 82 | 68 | 2.93 | <10 | 0.68 | 134 | 6 | 0.05 | 17 | 1100 | 4 | 5 | <20 | 26 | 0.11 | <10 | 108 | <10 | 7 | 32 |
| 12 | MW 96 12 | <0.2 | 0.70 | <5 | 35 | <5 | 0.64 | 2 | 14 | 81 | 91 | 3.60 | <10 | 0.31 | 162 | 6 | 0.06 | 30 | 1130 | 2 | <5 | <20 | 30 | 0.12 | <10 | 60 | <10 | 11 | 60 |
| 13 | MW 96 13 | <0.2 | 1.48 | <5 | 45 | <5 | 1.10 | 4 | 18 | 100 | 89 | 3.30 | <10 | 0.29 | 88 | 15 | 0.16 | 47 | 1200 | 12 | 5 | <20 | 78 | 0.09 | <10 | 90 | <10 | 7 | 208 |
| 14 | MW 96 14 | <0.2 | 1.41 | <5 | 35 | <5 | 0.37 | <1 | 9 | 51 | 8 | 3.41 | <10 | 0.91 | 722 | 4 | 0.03 | 6 | 950 | 8 | <5 | <20 | 14 | 0.05 | <10 | 66 | <10 | 11 | 63 |
| 15 | MW 96 15 | 0.2 | 0.85 | 20 | 20 | <5 | 0.26 | <1 | 4 | 107 | 16 | 1.96 | <10 | 0.54 | 352 | 4 | 0.02 | 3 | 480 | 4 | <5 | <20 | 13 | 0.06 | <10 | 40 | <10 | 5 | 22 |
| 16 | MW 96 16 | <0.2 | 1.31 | 5 | 30 | 5 | 0.59 | <1 | 8 | 113 | 46 | 2.78 | <10 | 0.58 | 357 | 5 | 0.05 | 5 | 810 | 8 | <5 | <20 | 23 | 0.07 | <10 | 42 | <10 | 5 | 23 |
| 17 | MW 96 17 | 2.6 | 0.95 | >10000 | 40 | 125 | 0.11 | <1 | 36 | 76 | 95 | 8.11 | <10 | 0.41 | 251 | 9 | 0.02 | 3 | 470 | 32 | <5 | <20 | 42 | 0.04 | <10 | 40 | <10 | <1 | 20 |
| 18 | MW 96 18 | 2.2 | 0.55 | >10000 | 25 | 130 | 0.09 | <1 | 128 | 118 | 19 | 3.22 | <10 | 0.28 | 201 | 9 | 0.01 | 4 | 320 | 6 | <5 | <20 | 12 | 0.02 | <10 | 24 | <10 | <1 | 13 |
| 19 | MW 96 19 | <0.2 | 1.05 | 50 | 20 | 10 | 0.52 | <1 | 7 | 55 | 20 | 2.29 | <10 | 0.57 | 365 | 3 | 0.05 | 6 | 820 | 4 | 10 | <20 | 19 | 0.06 | <10 | 43 | <10 | 6 | 26 |
| 20 | MW 96 20 | 0.2 | 1.12 | 15 | 70 | 10 | 0.51 | <1 | 6 | 68 | 15 | 2.47 | <10 | 0.62 | 330 | 1 | 0.04 | 3 | 890 | 6 | <5 | <20 | 24 | 0.11 | <10 | 44 | <10 | 7 | 29 |

ROSSMIN EXPLORATIONS | ICP CERTIFICATE OF ANALYSIS AK 96-1266 | ECO-TECH LABORATORIES LTD.

| Et #. | Tag # | Ag | Al % | As | Ba | Bi | Ca % | Cd | Co | Cr | Cu | Fe % | La | Mg % | Mn | Mo | Na % | Ni | P | Pb | Sb | Sn | Sr | Ti % | U | V | W | Y | Zn |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | MW 96 21 | <0.2 | 1.16 | <5 | 30 | <5 | 0.78 | <1 | 7 | 54 | 15 | 2.29 | <10 | 0.58 | 487 | 2 | 0.06 | 4 | 900 | 8 | <5 | <20 | 21 | 0.09 | <10 | 47 | <10 | 8 | 32 |
| 22 | MW 96 22 | <0.2 | 1.29 | 70 | 25 | 10 | 0.57 | <1 | 7 | 56 | 21 | 2.63 | <10 | 0.65 | 469 | 3 | 0.05 | 5 | 930 | 6 | <5 | <20 | 20 | 0.09 | <10 | 53 | <10 | 8 | 33 |
| 23 | MW 96 23 | <0.2 | 0.51 | 10 | 15 | <5 | 0.35 | <1 | 4 | 113 | 25 | 1.22 | <10 | 0.25 | 196 | 4 | 0.04 | 3 | 630 | 2 | <5 | <20 | 15 | 0.07 | <10 | 24 | <10 | 9 | 11 |
| 24 | MW 96 24 | <0.2 | 0.82 | <5 | 20 | <5 | 0.62 | <1 | 6 | 77 | 43 | 2.22 | <10 | 0.40 | 249 | 2 | 0.07 | 4 | 1040 | 4 | <5 | <20 | 28 | 0.11 | <10 | 39 | <10 | 13 | 16 |
| 25 | MW 96 25 | <0.2 | 0.68 | <5 | 20 | <5 | 1.00 | <1 | 30 | 68 | 154 | 2.84 | <10 | 0.34 | 176 | 1 | 0.06 | 38 | 1340 | 8 | <5 | <20 | 43 | 0.15 | <10 | 55 | <10 | 12 | 25 |
| 26 | MW 96 26 | <0.2 | 1.61 | <5 | 70 | <5 | 0.98 | <1 | 8 | 39 | 51 | 3.51 | <10 | 0.82 | 268 | 7 | 0.12 | 6 | 1730 | 6 | <5 | <20 | 110 | 0.12 | <10 | 81 | <10 | 7 | 20 |
| 27 | MW 96 27 | <0.2 | 0.94 | 25 | 35 | <5 | 0.88 | <1 | 11 | 94 | 73 | 3.60 | <10 | 0.24 | 124 | 11 | 0.09 | 29 | 1540 | 6 | <5 | <20 | 53 | 0.07 | <10 | 42 | <10 | 9 | 23 |
| 28 | MW 96 28 | <0.2 | 0.08 | 70 | 10 | <5 | 0.14 | <1 | 4 | 191 | 15 | 2.69 | <10 | 0.02 | 85 | 9 | <0.01 | 5 | 50 | <2 | <5 | <20 | 3 | <0.01 | <10 | 4 | <10 | <1 | 1 |
| 29 | MW 96 29 | <0.2 | 1.15 | <5 | 60 | 5 | 0.31 | 1 | 7 | 55 | 20 | 3.41 | <10 | 0.71 | 321 | 5 | 0.03 | 7 | 1030 | 6 | 10 | <20 | 14 | 0.04 | <10 | 53 | <10 | 5 | 30 |
| 30 | MW 96 30 | 0.2 | 1.26 | <5 | 25 | <5 | 1.86 | <1 | 14 | 41 | 436 | 2.36 | <10 | 0.65 | 399 | 2 | 0.08 | 11 | 980 | 2 | 10 | <20 | 71 | 0.10 | <10 | 76 | <10 | 4 | 26 |
| 31 | MW 96 31 | 3.4 | 0.60 | <5 | 20 | <5 | 2.93 | 2 | 24 | 36 | 2634 | 1.92 | <10 | 0.22 | 348 | 4 | 0.03 | 20 | 970 | <2 | <5 | <20 | 42 | 0.09 | <10 | 45 | <10 | 3 | 44 |
| 32 | MW 96 32 | 28.2 | 2.29 | <5 | 45 | <5 | 0.74 | 4 | 44 | 37 | >10000 | 8.69 | <10 | 1.58 | 519 | 91 | <0.01 | 99 | 480 | <2 | <5 | <20 | 11 | 0.01 | <10 | 194 | <10 | <1 | 144 |
| 33 | MW 96 33 | <0.2 | 1.32 | 15 | 20 | <5 | 2.75 | <1 | 18 | 56 | 95 | 1.93 | <10 | 0.43 | 327 | 2 | 0.10 | 21 | 1570 | 4 | 10 | <20 | 91 | 0.11 | <10 | 51 | <10 | 12 | 30 |
| 34 | MW 96 34 | <0.2 | 1.24 | 20 | 20 | <5 | 4.33 | <1 | 15 | 84 | 199 | 2.00 | <10 | 0.30 | 417 | 6 | 0.09 | 15 | 1180 | 4 | <5 | <20 | 95 | 0.10 | <10 | 46 | <10 | 7 | 18 |
| 35 | MW 96 35 | <0.2 | 0.51 | <5 | 5 | <5 | 2.13 | <1 | 6 | 82 | 358 | 1.25 | <10 | 0.05 | 111 | 3 | <0.01 | 4 | 860 | <2 | <5 | <20 | 40 | 0.09 | <10 | 10 | <10 | 8 | 5 |
| 36 | MW 96 36 | <0.2 | 0.20 | 225 | 10 | <5 | 0.05 | <1 | 3 | 198 | 17 | 1.29 | <10 | 0.09 | 108 | 9 | <0.01 | 4 | 130 | <2 | <5 | <20 | 2 | <0.01 | <10 | 9 | <10 | <1 | 5 |
| 37 | MH 96 001 | 1.2 | 0.53 | 20 | 35 | <5 | 0.17 | <1 | 41 | 58 | 252 | 6.08 | <10 | 0.50 | 178 | 23 | 0.02 | 21 | 700 | 4 | <5 | <20 | 6 | 0.11 | 10 | 98 | <10 | <1 | 11 |
| 38 | MH 96 002 | 0.8 | 0.42 | 25 | 20 | <5 | 0.59 | <1 | 59 | 54 | 388 | 4.87 | <10 | 0.32 | 96 | 23 | 0.03 | 128 | 1580 | <2 | <5 | <20 | 12 | 0.12 | 10 | 76 | <10 | 6 | 8 |
| **QC DATA:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ***Resplit:*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | MW 96 01 | 1.0 | 0.88 | <5 | 20 | <5 | 1.23 | 2 | 85 | 77 | 2140 | 7.81 | <10 | 0.22 | 182 | 27 | 0.06 | 215 | 1210 | <2 | <5 | <20 | 57 | 0.09 | 10 | 43 | <10 | <1 | 30 |
| 36 | MW 96 36 | <0.2 | 0.20 | 255 | <5 | <5 | 0.03 | <1 | 4 | 210 | 13 | 1.40 | <10 | 0.09 | 113 | 10 | <0.01 | 4 | 130 | <2 | <5 | <20 | <1 | <0.01 | <10 | 10 | <10 | <1 | 5 |
| ***Repeat:*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | MW 96 01 | 1.0 | 0.82 | <5 | 30 | <5 | 1.23 | <1 | 83 | 71 | 1939 | 7.76 | <10 | 0.19 | 190 | 27 | 0.05 | 210 | 1190 | <2 | <5 | <20 | 52 | 0.09 | 20 | 40 | <10 | <1 | 29 |
| 10 | MW 96 10 | <0.2 | 0.94 | 5 | 40 | 5 | 0.52 | <1 | 7 | 65 | 19 | 2.48 | <10 | 0.52 | 361 | 3 | 0.05 | 7 | 1000 | 6 | 10 | <20 | 30 | 0.13 | <10 | 58 | <10 | 13 | 29 |
| 19 | MW 96 19 | <0.2 | 1.10 | 50 | 25 | 5 | 0.56 | <1 | 9 | 60 | 24 | 2.43 | <10 | 0.62 | 377 | 3 | 0.06 | 7 | 840 | 6 | 10 | <20 | 22 | 0.09 | <10 | 50 | <10 | 8 | 29 |
| 36 | MW 96 36 | 0.4 | 0.18 | 215 | 15 | <5 | 0.05 | <1 | 4 | 185 | 18 | 1.28 | <10 | 0.09 | 100 | 9 | <0.01 | 6 | 140 | <2 | <5 | <20 | 3 | <0.01 | <10 | 10 | <10 | <1 | 5 |
| ***Standard:*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| GEO'96 | | 1.0 | 1.68 | 70 | 165 | <5 | 1.88 | <1 | 19 | 64 | 84 | 3.93 | <10 | 1.01 | 647 | 3 | 0.02 | 29 | 680 | 20 | 20 | <20 | 56 | 0.10 | <10 | 72 | <10 | 9 | 70 |

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B.C. Certified Assayer

df/1265
XLS/96KMISC#11


GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
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LINNY SHOWING
SARAH SHOWING
MARCUS SHEAR
STEPHIE SHEAR
MUDSLIDE
POND
old drill road
main road
NORTH FORK BARRETT CK.
HILARY CK.
O/B TO 43E
O/B TO 22E
gossaned A+2 stream boulders 1-10% py/cpy/po
16.64 ppm Au
16.25 ppm Au
5.6 ppm Au (1992)
31 ppm Au (1992)
lamprophyre
>45 ppb Au
N
ROSSMIN EXPLORATIONS LTD.
MAMMOTH PROJECT
GEOLOGY AND SAMPLE MAP
JN NELSON GRANODIORITE
A PLAGIOCLASE PORPHYRY DIORITE
1s HALL FM. ARGILLITE, SILICEOUS
2 ELISE FM. AUGITE PORPHYRY
2a feldspar/augite/hbl. porphyry 2b lapilli tuff/breccia
outcrop
dump
assumed geol. contacts
road
bedding
foliation
jointing
shearing
quartz vein, vertical
dike
trench, shaft
adit
glacial striation
O50 gold in soil, ppb >22
□1 rock sample
△7 photo
O/B overburden
py. pyrite
cpy. chalcopyrite
po. pyrrhotite
ar. arsenopyrite
mo. molybdenite
mal. malachite
ep. epidote
gt. garnet
gt/ep./carbonate alteration
50 0 100m
SCALE 1:2000
WORK BY: D. WEHRLE, J. MOORE, R. WELLS OCT. 1996. B. AUGSTEN 1993
NELSON MINING DIVISION, B.C. NTS 82 F/6 W
FIG. 3