

SAMPLING

on the

STAR CLAIMS

OMINECA MINING DIVISION

N.T.S. 94-C-5E and 94-C-12E

Lat.: 56° 29'N Long.: 125° 40'W

by

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GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT

27,117

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### **Maps**

Property Geology	1:10000	in pocket
Sample-Sites Star 4 Claim	1:5000	in pocket
Sample Sites Star 5 Claim	1:5000	in pocket

### **Appendix**

Analytical Data

## 1.0 Introduction

In August, 2002 one man spent two days mapping and sampling on portions of the Star 4 and 5 claims. Past sampling and mapping, which located the Queen and GL Zones, indicated that PGM-bearing chalcopyrite is located in the olivine clinopyroxenite-pyroxenite units within the Polaris ultramafic complex. The 2002 sampling was done to locate the olivine clinopyroxenite-pyroxenite units and where mapped by previous explorationists was sampled to determine whether the unit was mineralized. Two new areas of mineralization were located and several previously unse~~en~~n lithologies were observed some of which are highly mineralized by uneconomic pyrite and pyrrhotite. A total of 44 rock samples were collected. All samples were analysed for 30 elements by ICP and Au, Pt, Pd by fire assay ICP-ES.

## 2.0 Location and Access

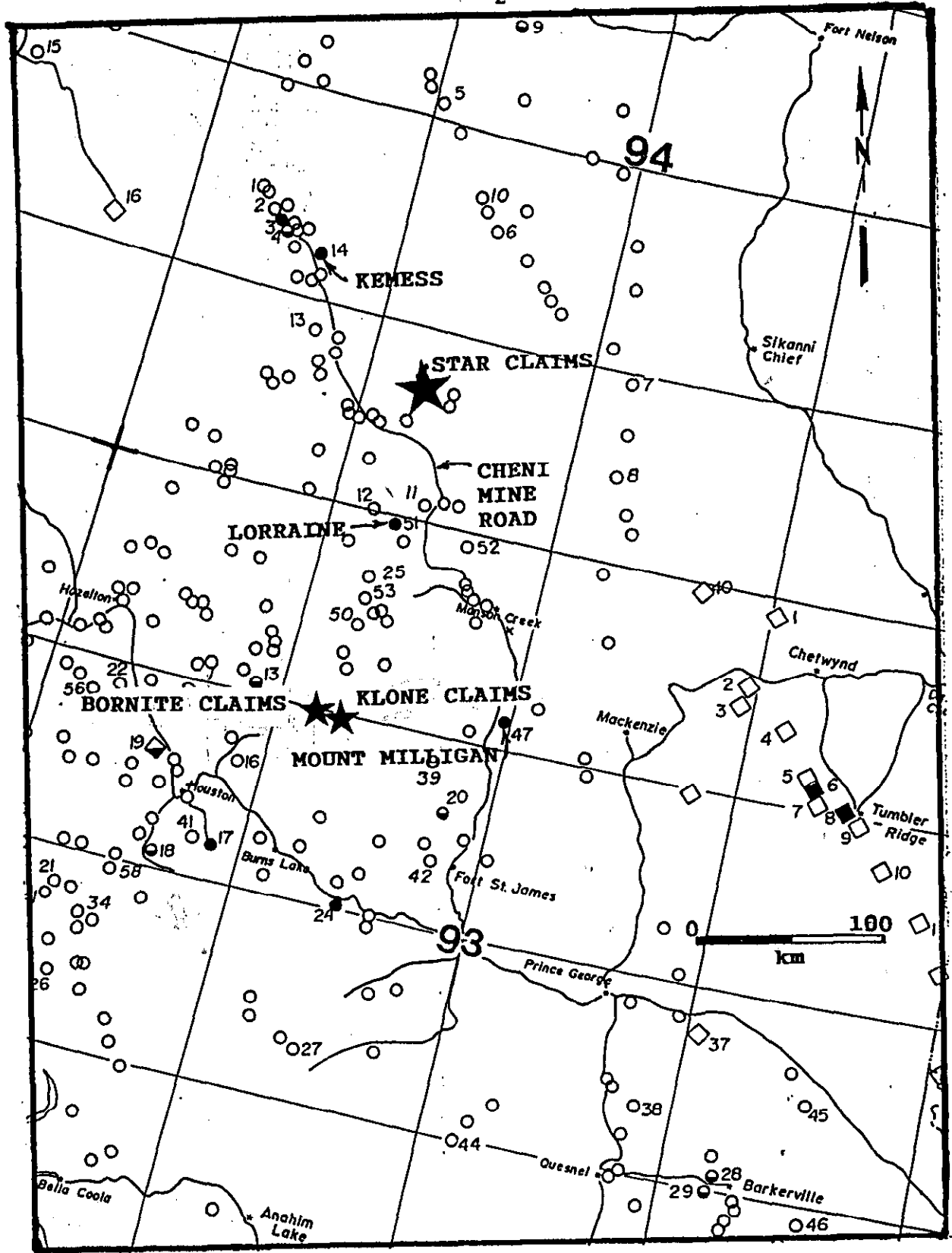
The Star claims, which are located on map sheets 94-C-5E and 94-C-12E, are 13 km northeast of Aiken Lake and 100 km almost due north of Germansen Landing. The property is located at co-ordinates 56° 29'N and 125° 40'W.

Access to the property is by helicopter from Fort St. James approximately 300 km due south. The Cheni Mine Road (Omineca Forestry Road) and the Kemess power line pass within 8 km of the property boundary. Logging roads reach the outer periphery of the property.

## 3.0 Claim Data

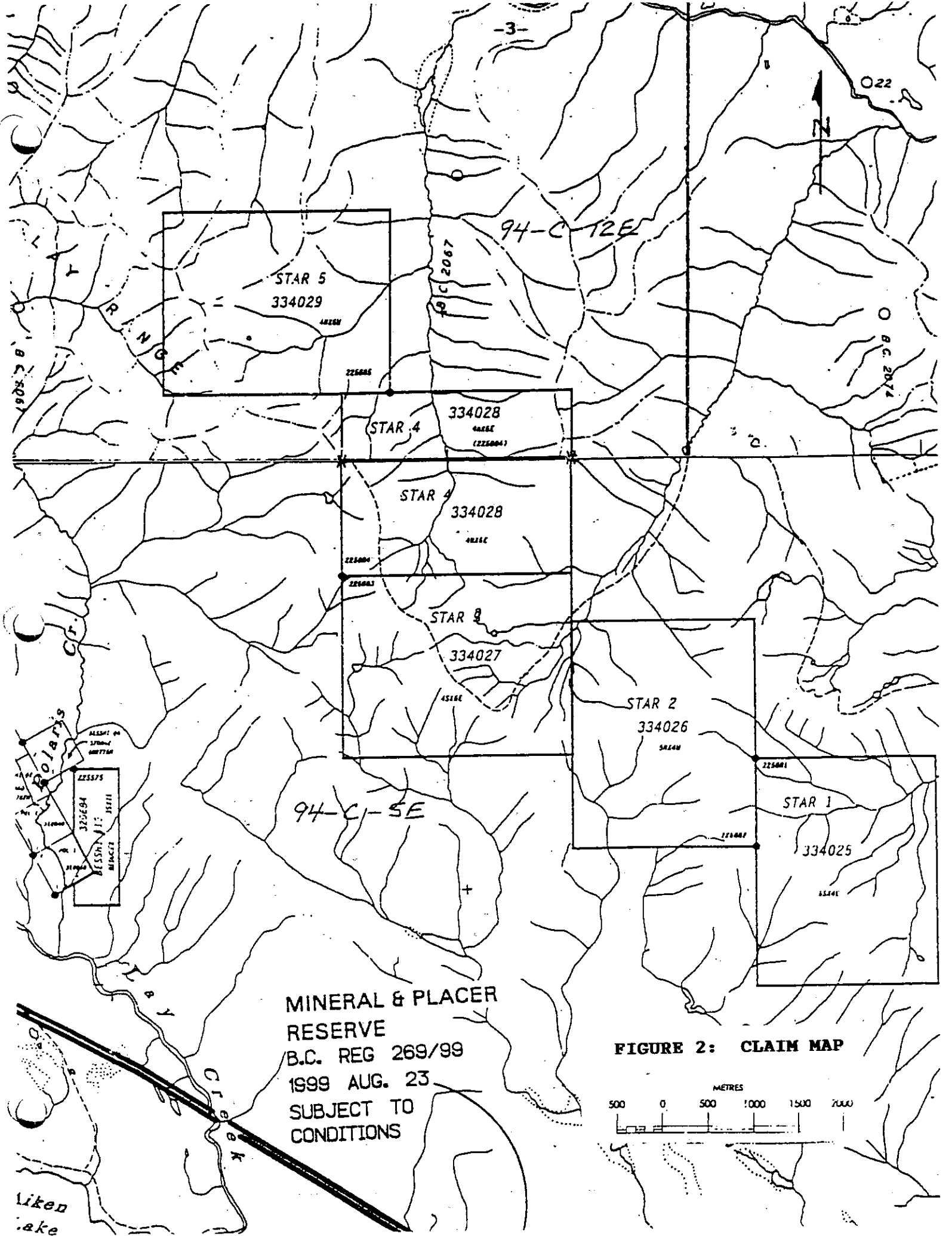
The Star property consists of five 20 unit claims totalling 100 units. The property is located in the Omineca Mining Division.

<u>Claim Name</u>	<u>Record Number</u>	<u>No. of Units</u>
Star 1	334025	20
Star 2	334026	20
Star 3	334027	20
Star 4	334028	20
Star 5	334029	20



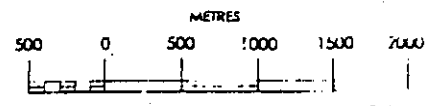
LOCATION MAP : STAR CLAIMS  
BORNITE CLAIMS AND KLONE CLAIMS

Figure 1



MINERAL & PLACER  
RESERVE  
B.C. REG 269/99  
1999 AUG. 23  
SUBJECT TO  
CONDITIONS

FIGURE 2: CLAIM MAP



Liken  
lake

#### **4.0 History**

The area of the Polaris Complex has been examined by R. G. McConnell in 1894, V. Dolmage in 1927, D. Lay in 1939 and J. E. Armstrong in 1945. The first mapping of the Polaris Complex was done by E. F. Roots in 1946, 1947 and 1948.

No geological activity is recorded until 1968 when T. N. Irvine made petrologic studies of the Polaris Complex. The area remained idle until 1974 when T. N. Irvine and F. H. Foster mapped the Polaris Complex in some detail.

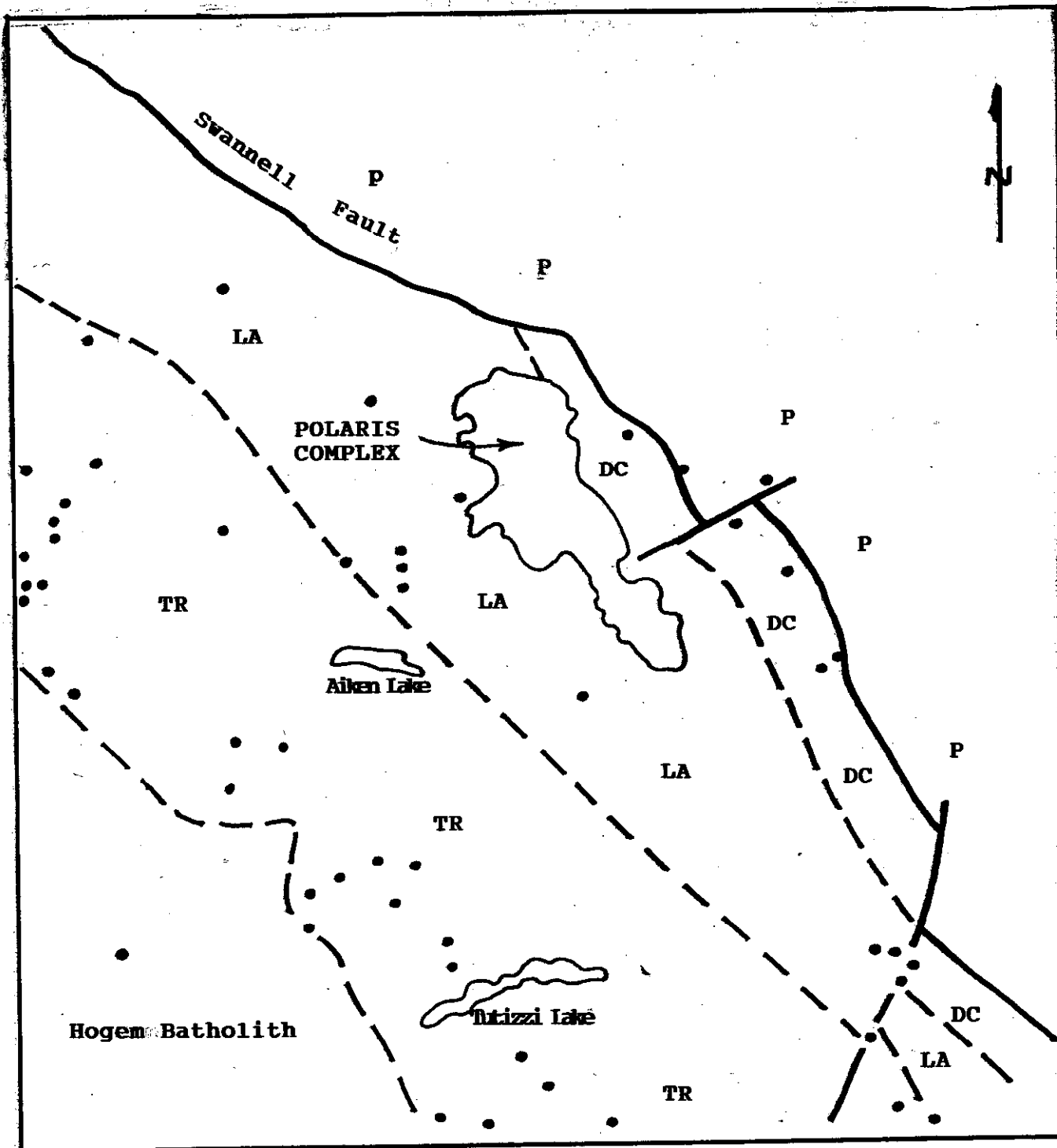
In 1986, a small portion of the Polaris Complex was staked by Equinox Resources who conducted an extensive silt and rock sampling program in a search for Pt and Pd. In 1987, Lacana Mining Corporation and Esso Minerals also staked portions of the Polaris Complex. In 1988 and 1989, the Polaris Complex was mapped and petrologically studied by the BCDM as part of a Pt-chromite study.

The Star 1 - 5 claims were staked in February, 1995 to cover known mineralization, soil/rock anomalies and favourable lithologies outlined by previous exploration.

#### **5.0 Regional Geology**

The Polaris Complex is located in the Omineca Crystalline Belt which is bounded on the west by Upper Triassic to Lower Jurassic Takla Group volcanics and sediments. The volcanics consist of andesitic flows and breccias, basaltic tuff and agglomerate. Sediments consist of shale, conglomerate and limestone. The eastern side of the Omineca Crystalline Belt is marked by the Swannell Fault which separates Lower Cambrian to Mississippian-Permian units from the Upper Proterozoic Ingenika Group and the Wolverine Metamorphic Complex which consists of sediments, metasediments, schists and gneisses.

The area immediately east of the Polaris Complex is underlain by the Lower Cambrian Atan Group of limestone, shale, siltstone and quartzite, the Cambrian to Devonian Razorback Group, Echo Lake Group and the Cooper Ridge Group of shale, argillite, wacke,



- TR Triassic Takla Group
- LA Middle Pennsylvanian to Permian Lay Range Assemblage
- DC Devonian to Cambrian Assemblage
- P Proterozoic Ingenika Group
- Mineral Occurrence

FIGURE 3  
REGIONAL GEOLOGY



(modified from Armstrong, 1945, Roots 1946, 1947, 1948 and Ferri et al, 1993)

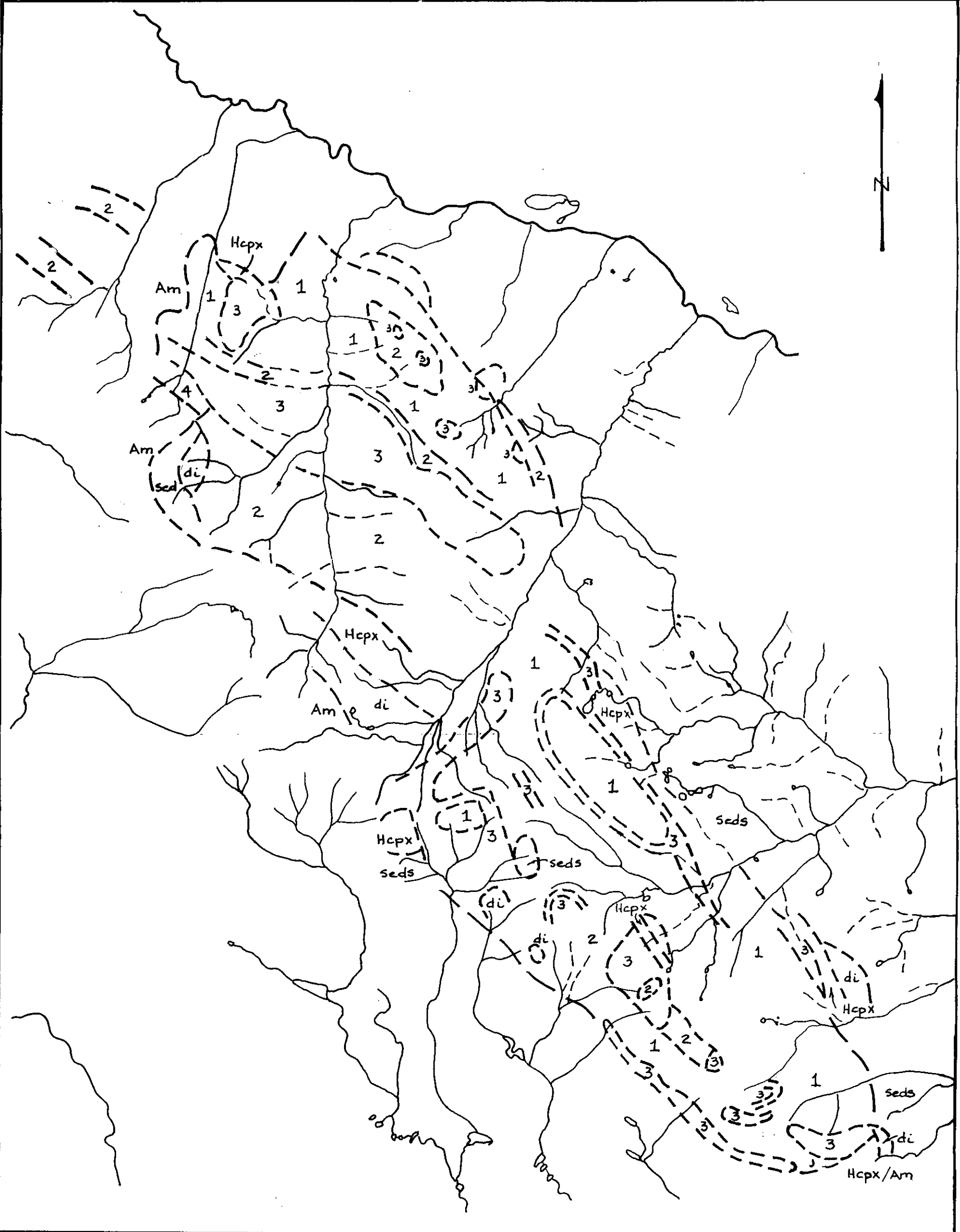
sandstone, felsic tuff and minor limestone.

The area immediately west of the Polaris Complex is underlain by the Middle Pennsylvanian to Permian Lay Range Assemblage which has also been called the Harper Ranch Group and the Slide Mountain Group by various authors. The lithologies consist of volcanics, siltstone, argillite limestone, greywacke and conglomerate. The sediments of the Lay Range are dominantly thin-bedded, grey to black, rusty-weathering carbonaceous argillites. Lense-like bodies of massive limestone and interbedded, chloritized, amphibolitized flows, tuffs, breccias and agglomerate of andesitic or basaltic composition are also found in the sedimentary package. The volcanics of the Lay Range Assemblage are green in colour and consist of very altered flows, breccias, andesitic to basaltic tuffs and agglomerate. The flows contain hypersthene, diopside and amphibole phenocrysts in a groundmass which is altered to an aggregate of amphibole, chlorite, epidote, clinozoisite, sericite and calcite. Occasionally, the flows are leucoxene rich. All lithologies have a regional trend of N27°W to N33°E/45°S.

The Polaris Complex is a crudely zoned and layered ultramafic massif approximately 15 km long and 3 to 4 km wide. The core of the Polaris Complex is olivine-rich lithologies of dunite, peridotite and wehrlite. The ultramafic becomes progressively more pyroxene-rich towards the outer periphery and the lithologies range from olivine clinopyroxenite to pyroxenite to hornblende-magnetite pyroxenite and finally to hornblendite and metamorphosed, metasomatized volcanics and sediments. The Polaris Complex exhibits a thermal halo up to 2500 meters wide. In certain areas, the metasomatism has been so intense that hornblende crystals up to 1 meter in length have been observed.

The Polaris Complex and the surrounding areas have been intruded by Upper Jurassic to Cretaceous monzonite, quartz monzonite, syenite, granodiorite, granite and diorite of the Hogem Intrusive Complex. Potassium-argon dating of biotite forming a potassic halo around one intrusive in the Polaris Complex yielded ages of 167 +/- 9 Ma and 156 +/- 15 Ma. More recent dating using U/Pb on zircons from a quartz-hornblende-plagioclase pegmatite pod yielded dates of 186 +/- 2 Ma.





- 1      dunite
- 2      peridotite
- 3      olivine clinopyroxenite
  
- Am     amphibolite
- di     diorite
- Hcpx   pyroxenite
- seds   sediments

(modified from Irvine, 1976  
and Nixon, 1993)

**GEOLOGY OF THE  
POLARIS ULTRAMAFIC COMPLEX**



Mineral occurrences in the region of the Polaris Complex are predominantly found in the Takla Group belt which hosts numerous copper-gold showings which include the Croydon with auriferous chalcopyrite in quartz-filled shear zones in a diorite, the Porphyry Creek showing with vein and disseminated pyrite, chalcopyrite, molybdenite associated with quartz in a hornblende diorite, and the Granite Basin occurrence with auriferous pyrite bands in Takla volcanics and sediments and a porphyritic hornblende diorite. In addition, several lead-copper showings are found near Tutizzi Lake with galena-chalcopyrite occurring in quartz veins in a medium grained diorite cutting a coarse grained hornblendite and pyroxenite.

Mineralization in the Lay Range Assemblage consists of the Jupiter Group with quartz +/- carbonate veins in shears which are mineralized with chalcopyrite, galena and sphalerite and the Polaris Group which has two types of mineralization. The mineralization consists of ramifying gold-bearing quartz-carbonate veinlets in argillite near a quartz-biotite porphyry stock and also pyrrhotite, pyrite and chalcopyrite in argillite-amphibolite near a fine grained biotite-feldspar porphyry stock. Here the mineralization occurs as seams and semi-massive to massive sulphide lenses up to 8 meters wide and 150 meters long.

Other mineral occurrences in the region include the Orion Group with irregular bodies of galena in quartz veins in Upper Proterozoic Ingenika Group, Jim May Creek with quartz veins and silicified zones which contain ruby silver plus a placer gold occurrence and also several shale-hosted zinc-lead sedex occurrences.

Until recently the only known mineral occurrences in the Polaris Complex were a chromite ball showing and some corundum-bearing dykes.

## **6.0 Property Geology**

### **6.1 General**

The Star claims are underlain by a variety of lithologies including dunite, peridotite, olivine clinopyroxenite and pyroxenite. The ultramafic, where mapped, appears to be a zoned and layered body with a central core of dunite which grades to peridotite, olivine clinopyroxenite and then pyroxenite as the periphery of the ultramafic is approached.

Generally the ultramafic units are flat-lying except for the western and eastern ends of Capricorn Ridge. Here the layers trend 320° and are steeply to vertically dipping.

The ultramafic has been intruded by late stage diorite stocks, diorite dykes, feldspar pegmatite dykes and minor gabbro and granite dykes. The contacts of the diorites are marked by a metamorphic and metasomatised assemblage of porphyritic hornblendite, porphyritic hornblendite-porphyrific pyroxenite and porphyritic pyroxenite. The contacts of the diorite stocks and occasionally some of the feldspar pegmatite dykes are marked by the development of listwanite.

Minor amounts of sediments have been seen in several areas. On the Star 2 claim flat-lying interbedded siltstone and chert are in fault contact with dunite. On the Star 3 claim a limestone body with a vent-like appearance has been noted. The limestone forms an ovoid on surface and is exposed in a cliff face showing it to be vertical. An object which resembles heliophyllum was found in the limestone. A new lithology was located in situ on the Star 5 claim and is termed chert although lacking in the typical conchoidal fractures or the typical cherty appearance. The chert has been noted previously as large boulders located on the GL Zone and occasionally in the talus in various locations.

#### 6.2 Dunite

Yellow to orange weathering dunite occurs on the northeasterly portion of the Star 1 and 2 claims. The dunite is very fine grained to fine grained, dense and is fresh in appearance. Occasionally the dunite contains very coarse grained (2.5 cm) flakes of phlogopite, biotite and muscovite which can form up to 25% of the dunite.

#### 6.3 Peridotite

Peridotite is the second most abundant lithology on the Star claims and is usually blackish in colour, very fine grained to fine grained, dense and fresh in appearance. Peridotites are found adjacent to the dunite core. Occasionally pyroxene crystals up to 2.5 cm are observed. The peridotite also occasionally contains phlogopite, biotite and muscovite flakes up to 2.5 cm which can form up to 25% of the rock.

#### 6.4 Olivine Clinopyroxenite

Present mapping indicates that the olivine clinopyroxenite forms a somewhat discontinuous zone adjacent to the peridotite. Generally, this unit is very fine grained to fine grained but on the GL Zone is coarse grained. In the vicinity of the diorite stock on the Star 2 claim, pyroxene crystals up to 1 cm in length and porphyroblasts of olivine up to 7 mm have been seen.

#### 6.5 Pyroxenite

There are two types of pyroxenite. The primary form of pyroxenite is part of the ultramafic suite of rocks and is found adjacent to the olivine clinopyroxenite. The pyroxenite is fine grained and occasionally, as in the GL Zone, coarse grained. In the vicinity of a diorite stock south of Capricorn Ridge on the Star 2 claim, the pyroxenite is porphyritic with pyroxene crystals averaging 1 cm in length suggesting there was some growth of the crystals.

A second type of pyroxenite is formed from metamorphism and metasomatism of the ultramafic related to granitic activity. On Capricorn Ridge and elsewhere, pyroxenitic haloes were seen forming around dykes which intrude dunite. The haloes are gradational, and vary from fine grained felted pyroxenite to unaltered dunite. A larger diorite stock on the Star 3 claim has also produced a pyroxenite halo with pyroxene phenocrysts up to 5 cm in length. The pyroxenite grades to amphibolite as the diorite is approached and grades to unaltered peridotite farther away from the diorite contact.

#### 6.6 Amphibolite

The amphibolite is black and from fine grained felted material to porphyritic with hornblende crystals up to 15 cm in length. Occasionally, the hornblende contains minor amounts of white feldspar as an interstitial component. The amphibolite is a metamorphic and metasomatic halo associated with granitic activity.

#### 6.7 Diorite

Diorite is found as stocks and dykes. The stocks form a northwesterly trending belt across the Star claims. The diorite is relatively fresh with minor local areas of K-spar veining, carbonate veining or pervasive epidote alteration. The diorite is medium grained with 30% hornblende except near the contact with the ultramafics where it is dark grey, fine grained with both augite and hornblende and also dark grey breccia fragments of presumably the ultramafic. The contacts of the diorite stocks are usually marked by intense listwanite alteration.

#### 6.8 Feldspar Pegmatite

White feldspar pegmatites form dykes ranging in width from 0.3 to 10 meters. The dykes which are composed almost entirely of orthoclase, plagioclase with minor sanidine and rarely hornblende crystals up to 15 cm in length, form a parallel swarm of dykes which can be traced for 6 km. The dykes appear to be controlled by lithological/chemical changes within the ultramafic. Occasionally, the dykes have metasomatic halos of fine grained pyroxenite or listwanite development.

#### 6.9 Granite

A small granite dyke and granite talus were found on the Star 5 claim. The granite dyke is pink in colour whereas the granite talus was intensely pervasively replaced by epidote.

#### 6.10 Gabbro

One dyke of gabbro was located south of Capricorn Ridge. The east-west trending dyke is black with minor white interstitial feldspar. The dyke has formed a well developed metamorphic, metasomatic halo of porphyritic pyroxenite and porphyritic amphibolite.

#### 6.11 Chert

A new lithology was located in situ on the Star 5 claim although a few large boulders of chert were noted on the GL Zone and also occasionally in talus. The chert is a very fine grained pale beige in colour, dense, generally textureless and

frequently rusty weathering. Although termed chert, occasionally bands of dark grey layering can be observed suggesting possibly an alteration product, probably potassic, associated with nearby diorite intrusives. The chert does not have the typical conchoidal fracturing or the typical cherty appearance. In addition, the chert is shattered into angular pieces and also shows cobweb-like fracturing. Both of these features suggest that the chert is most likely a hot ash deposited in an aquagene environment. On a shelf above Stinky Creek, the chert has dark grey bands which suggest layering. The chert here is also highly shattered into angular pieces. A diorite stock which was unshattered was located in the rubble field. In addition, a small 1 meter wide outcrop of peridotite in contact with limestone was also located in the rubble field. No fault contacts were noted between the chert and the peridotite/limestone outcrop suggesting the chert had fallen as an ash and is later than the Polaris Ultramafic Complex.

#### 6.12 Feldspar-Hornblende-Quartz Pegmatite

Besides the white feldspar pegmatite mentioned in 6.8, a distinct new pegmatite was located near the headwaters of Stinky Creek. The FHQ pegmatite is located in close proximity to both the chert mentioned in 6.11 and a diorite plug. Generally the FHQ pegmatite is intensely oxidized due to considerable pyrrhotite. When broken the FHQ pegmatite resembles a diorite but on cut surface shows the pegmatitic texture. On cut surface white ovoid patches of feldspar and quartz up to 15 cm in length are found in a matrix of dark greenish grey to black pyroxenite which has considerable amounts of white interstitial feldspar. Within the larger feldspar-quartz filled ovoids hornblende crystals emanate from the walls of the ovoid and also grow within the ovoid. The hornblende is greenish black, euhedral and reach 5 cm in length. The FHQ pegmatite appears to be gradational into olivine pyroxenite.

## 7.0 Mineralization

### 7.1 General

Mineralization of economic significance consists of magmatic Pt-Pd-bearing chalcopyrite, pyrite with minor pyrrhotite, bornite and primary covellite. To date the best values have been found within the olivine clinopyroxenite and the magmatic pyroxenite particularly in close proximity to granitic dykes and stocks.

Two zones of significant mineralization were discovered in 2001. Both zones are in the olivine clinopyroxenite/pyroxenite.

### 7.2 Olivine Clinopyroxenite

Mineralization in this unit consists of 3 to 5% very fine grained to fine grained, magmatic, disseminated chalcopyrite and pyrite with minor bornite, pyrrhotite and primary covellite. The sulphides show some remobilization near granitic dykes and stocks forming thin sulphide-filled fractures. There is no associated gangue with the sulphides. The sulphides are not accompanied by any discernible alteration.

Two zones of significant mineralization were discovered during the 2001 sampling. The Queen Zone is exposed on the north-facing cliff face of Capricorn Ridge and appears as a slightly rusty weathering layer. The zone is relatively flat-lying with a gentle southerly dip and can be traced for at least 500 meters (see Figure 5). The Queen Zone is at least 20 meters thick and is possibly thicker but is covered by talus. Mineralization in the Queen Zone consists of very fine grained to fine grained, disseminated, magmatic chalcopyrite, pyrite with lesser amounts of pyrrhotite and bornite. Sulphide content ranges from 3 to 10%. No visible alteration is present. The best results obtained from the Queen Zone include:

11811 ppm Cu	174 ppb Au	46 ppb Pt	109 ppb Pd
1405 ppm Cu	166 ppb Au	581 ppb Pt	1552 ppb Pd

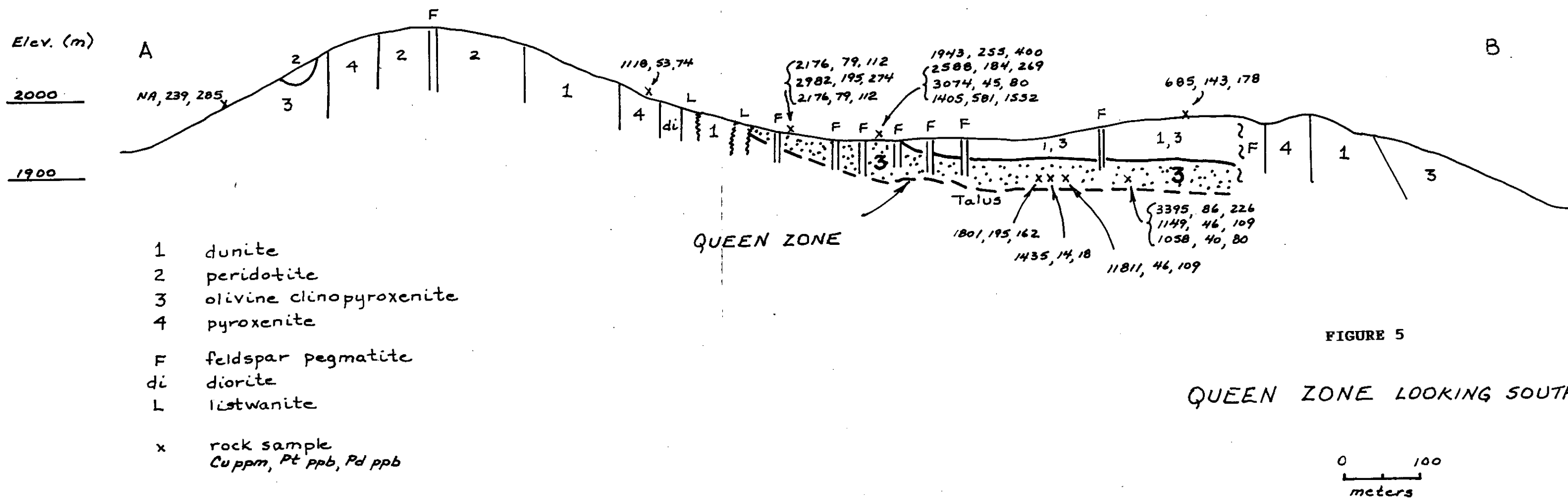


FIGURE 5

QUEEN ZONE LOOKING SOUTH



There is no nickel or cobalt associated with the sulphides in this zone.

The second zone, called the GL Zone is located approximately 1 km north of the Queen Zone (see Figure 6). The GL Zone is extremely rusty weathering and like the Queen Zone is relatively flat-lying with a gentle southerly dip. Both zones are capped by a layer of dunite. The GL Zone also like the Queen Zone, appears to be 500 meters wide and at least 20 meters thick. The true thickness is obscured by talus and overburden cover. Mineralization consists of very fine grained to fine grained disseminated magmatic, disseminated chalcopyrite, pyrite, pyrrhotite with minor bornite and primary covellite. The GL Zone appears to have more pyrrhotite than the Queen Zone. Sulphide content ranges from 3 to 15% and is not accompanied by any discernible alteration. The best results from the GL Zone are:

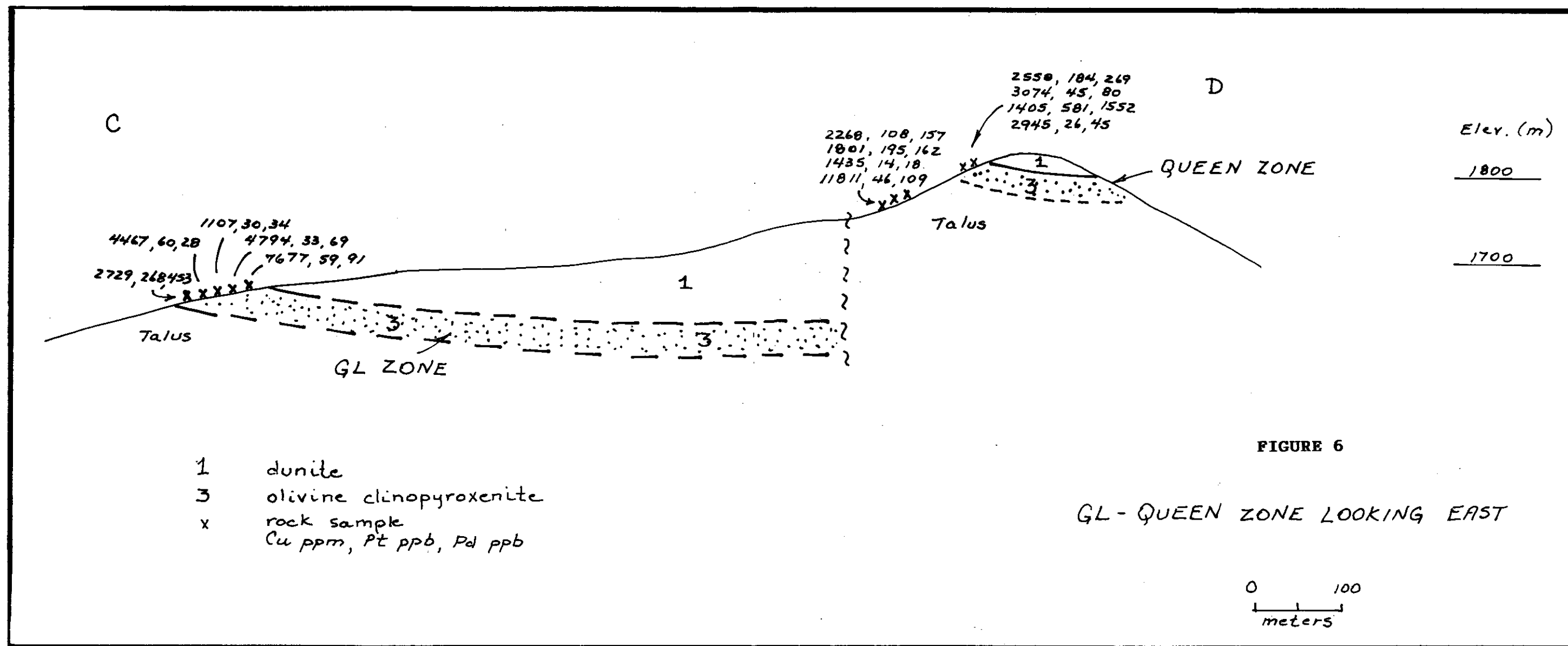
7677 ppm Cu	2474 ppm Ni	833 ppm Co	55 ppb Au	59 ppb Pt	91 ppb Pd
2729 ppm Cu	1647 ppm Ni	77 ppm Co	60 ppb Au	268 ppb Pt	435 ppb Pd

The nickel and cobalt values reflect a somewhat different mineralogy than that of the Queen Zone.

The geological similarities between the two zones, such as both being flat-lying with gentle southerly dips, both being covered by a dunite cap, both having the same very fine grained to fine grained disseminated magmatic sulphides, both having the same lithology of olivine clinopyroxenite, all strongly suggest that they are part of one major mineralized lithologic unit. The GL Zone appears to be located on a down-dropped fault block and is lower in elevation than the Queen Zone. This theory is strongly corroborated by the existence of a fault-controlled listwanite located at the base of Capricorn Ridge.

Where sampled, the olivine clinopyroxenite has returned significant values of Cu, Pt and Pd. On the Star 1 claim, the olivine clinopyroxenite which overlies a diorite stock returned 250 meters of anomalous Cu, Pt and Pd. A sample collected in 1998 returned a value of 3020 ppm Cu, 277 ppb Pt and 254 ppb Pd.

Olivine clinopyroxenite near a granite dyke on the Star 5 claim returned a value of 1389 ppm Cu, 101 ppb Pt and 143 ppb Pd.



Sampling in 2002 on a ridge located in the northeast corner of the Star 5 claim showed that part of the ridge is underlain by olivine clinopyroxenite. Two samples collected in the olivine clinopyroxenite returned values of:

237 ppm Cu	280 ppb Pt	368 ppb Pd
80 ppm Cu	230 ppb Pt	162 ppb Pd

The olivine clinopyroxenite on this ridge is different than the Queen and GL Zones in that these samples are very magnetic and they contain no gold values.

One sample of olivine clinopyroxenite collected on Stinky Creek, so called because of decomposing pyrrhotite, returned a value of:

1383 ppm Cu	403 ppb Pt	248 ppb Pd
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### 7.3 Pyroxenite

Primary pyroxenite is locally well mineralized with pyrite, chalcopyrite and occasionally pyrrhotite. The sulphides are of magmatic origin and range in content from 0 to 40%. The sulphides are generally coarse grained, except for the pyroxene of the GL Zone where the sulphides are fine grained. The sulphides in pyroxenites other than the GL Zone form as disseminations and clots up to 2.5 cm in diameter. Previous thin section examinations have shown that there is a second stage of sulphide mineralization besides the magmatic sulphides. The second stage sulphides form haloes around pyroxene crystals. The second stage of mineralization may be due to either some remobilization of the magmatic sulphides or be due to nearby granitic dykes and stocks. Pyroxene of the GL Zone is well mineralized with very fine grained to fine grained chalcopyrite, pyrite and pyrrhotite. Coarse grained pyroxenite located along the GL Zone is mineralized with pyrite-chalcopyrite clots and has returned a value of:

3606 ppm Cu	73 ppb Au	75 ppb Pt	111 ppb Pd
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The pyroxene of the Jewel Box Zone is mineralized with coarse grained pyrite and chalcopyrite which can form up to 40% of the rock. The best value to date is:

2697 ppm Cu	94 ppb Pt	84 ppb Pd
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The Jewel Box sulphides are geochemically distinct from the Queen Zone, the GL Zone, the Stinky Creek area in that they are highly anomalous in cobalt and silver.

Pyroxenite of metamorphic, metasomatic origin is generally unmineralized but where sulphides do occur, they are coarse grained and consist dominantly of pyrite with minor chalcopyrite. Nickel, cobalt, silver and gold are absent from this unit. Generally Pt and Pd are less than 20 ppb combined. The best values to date are:

975 ppm Cu	35 ppb Pt	50 ppb Pd
328 ppm Cu	15 ppb Pt	31 ppb Pd
138 ppm Cu	46 ppb Pt	50 ppb Pd
460 ppm Cu	34 ppb Pt	39 ppb Pd

#### 7.4 Amphibolite

Although locally well mineralized with pyrite and minor chalcopyrite, this unit contains relatively low Pt and Pd values. The sulphides are coarse grained and disseminated throughout the rock when present. The sulphides also show remobilization occurring as wormy streaks. Total sulphide content may reach up to 40% of the rock. The best value from this unit is:

2692 ppm Cu	28 ppb Pt	52 ppb Pd
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#### 7.5 Diorite

The diorites are locally well mineralized with coarse grained pyrite, minor chalcopyrite and some bornite. Sulphides occur as disseminations and on fracture surfaces. The sulphides also occur as massive fracture fillings with no gangue and rarely in quartz veinlets. On the Star 2 claim, shear zones within the diorite are well mineralized with pyrite and minor chalcopyrite. The best value from the diorite is:

1840 ppm Cu	10 ppb Pt	14 ppb Pd
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#### 7.6 Other

The dunites and peridotites are host to very fine grained nickel sulphides, minor chromite and in several areas chalcopyrite. Generally Pt and Pd values are only in trace amounts in both the dunite and peridotite. Sporadically, the chromites contain some Pt values the best being 785 ppb Pt, 0 ppb Pd. A sample of chalcopyrite-bearing dunite returned a value of 2143 ppm Cu, 30 ppb Pt and

13 ppb Pd.

The listwanites are host to minor very fine grained pyrite and occasionally arsenopyrite. Gold values in the listwanites range from nil to 110 ppb. A soil sample collected previously near a listwanite returned a value of 8631 ppb Au. The listwanites also occasionally have weak Pt and Pd values the best being 72 ppb Pt.

The feldspar-hornblende-quartz pegmatite is well mineralized with pyrrhotite which forms up to 20% of the rock. The FHQ pegmatite is considerable oxidized. The best value obtained from the FHQ pegmatite is:

1133 ppm Cu      51 ppb Pt      35 ppb Pd

## 8.0 Alteration

The most impressive and the most extensive alteration on the Star claims is the porphyritic hornblendite and porphyritic pyroxenite metamorphic and metasomatic halo surrounding the diorite stocks. Hornblende crystals commonly reach 15 cm in length but are generally 10 cm long. Memoir 274 reports that hornblende crystals up to 1 meter in length were found. Pyroxene crystals average 5 cm in length. Porphyritic hornblendite occurs immediately adjacent to the contact of diorite stocks whereas the porphyritic pyroxenite is more distal from the diorite contact. The porphyritic hornblendite and the porphyritic pyroxenite are separated by a zone of both porphyritic hornblendite and porphyritic pyroxenite intermixed.

The most obvious alteration is the red-orange weathering carbonate listwanite zones which are located at the contact of the diorite stocks and dykes, occasionally at the contacts of the feldspar pegmatite dykes and along fault zones. Several listwanites also appear to form along lithological changes within the ultramafic. The largest listwanite zone found to date is 500 meters long and 50 meters wide and is dominantly composed of carbonate with minor quartz and mariposite.

Coarse grained phlogopite, biotite and muscovite occur in dunites, peridotite and pyroxenites in close proximity to diorite intrusives. The mica which composes up to 25% of the rock is commonly 1 cm in diameter but reaches up to 2.5 cm on occasion.

Other than the presence of mica, most ultramafic lithologies appear to be fresh save for small areas of weak serpentization.

Alteration of the diorites and granite intrusives ranges from fresh to intensely pervasively epidotized. A thin section examination of one altered diorite places the alteration as typical greenschist assemblage. Minor potassic alteration and rare carbonate and quartz veins are occasionally present.

Alteration in the olivine clinopyroxenite of the GL Zone consists of weak replacement of the olivine by serpentine and hematite with the clinopyroxene being replaced by 1% hornblende (personal communication, G. Nixon).

### 9.0 Work Program

In August 2002, one man spent two days mapping and sampling on portions of the Star 4 and 5 claims. Past sampling and mapping, which located the Queen and GL Zones, indicated that PGM-bearing chalcopyrite is located in the olivine clinopyroxenite-pyroxenite units within the Polaris ultramafic complex. The 2002 sampling was done to locate the olivine clinopyroxenite-pyroxenite units and where mapped by previous explorationists was sampled to determine whether the unit was mineralized. Two new areas of mineralization were located and several previously unseen lithologies were observed, some of which are highly mineralized by uneconomic pyrite and pyrrhotite. A total of 44 rock samples were collected. All samples were analysed for 30 elements by ICP and Au, Pt, Pd by fire assay ICP-ES.

### 10.0 Sample Description

Sample Number	Description	Cu ppm	Pt ppb	Pd ppb
158527	Brownish weathering dark greenish black coarse grained peridotite; pyroxene crystals 0.5 cm; no visible sulphides; strongly magnetic	9	8	6
158528	Yellow weathering carbonate listwanite cut by white and translucent quartz stringers; no visible sulphides	4	3	3

Sample Number	Description	Cu ppm	Pt ppb	Pd ppb
158529	Brown weathering vfg black peridotite at contact with listwanite; no visible sulphides; highly magnetic	1	3	2
158530	Rusty weathering pale greenish grey carbonate listwanite; green from serpentine; cut by numerous translucent quartz stringers; no visible sulphides	4	0	0
158531	Brownish weathering dark greenish black peridotite; pyroxene crystals 0.5 cm; patchily weakly to moderately magnetic; no visible sulphides	5	32	0
158532	Yellow weathering carbonate listwanite cut by numerous white and translucent carbonate-quartz veinlets; trace silvery metallic in one veinlet	5	14	0
158533	Brownish weathering coarse grained to very coarse grained, dark greenish black olivine pyroxenite/pyroxenite; pyroxene crystals up to 1.5 cm; trace brown mica; trace vfg disseminated sulphides; strongly magnetic	237	280	368
158534	Reddish brown weathering dark greenish black vfg peridotite; pyroxene crystals 1 cm; 1% vfg disseminated sulphide; weakly magnetic	741	14	0
158535	Slightly rusty weathering dark greenish black coarse grained olivine pyroxenite; pyroxene crystals up to 1 cm; trace vfg disseminated sulphides; moderately magnetic	80	230	162
158536	Red brown weathering dark greenish black coarse grained olivine pyroxenite; leached; pyroxene crystals 0.5 cm; weakly magnetic; no visible sulphides	6	9	0
158537	Moderately orange brown rusty weathering; fresh surface brownish black; medium grained, sheared peridotite; pyroxene crystals 4 mm; trace vfg disseminated sulphides; strongly magnetic	4	5	2
158538	Very rusty weathering dark grey porphyritic hornblendite; crystals 0.5 cm in pale grey quartz-feldspar? matrix (10%); pyrite, chalcopyrite as vfg disseminations and pyrite as coarse grained veinlets and fracture fillings; 5% total sulphide; nonmagnetic	393	20	20

Sample Number	Description	Cu ppm	Pt ppb	Pd ppb
158539	Intensely weathered porphyritic hornblendite and olivine pyroxenite; no fresh surface; coated by shiny black Mn? varnish; 3% vfg pyrite and chalcopyrite; 1 clot 1 cm in diameter of pyrite-arsenopyrite?; non magnetic	1133	51	35
158540	Float; very rusty weathering white quartz streaked by patches or fragments of black non magnetic material; 3% vfg pyrite, chalcopyrite restricted to black areas 30% of rock; non magnetic	347	2	0
158541	Intensely oxidized; no fresh surface; covered by reddish black limonite and a strong black shiny Mn? varnish; occasional (rare) sulphide visible; 1 clot 1.5 cm in diameter or pyrite; strongly magnetic	1383	405	248
158563	Very rusty red brown weathering siltstone with pinkish patches of secondary biotite?; 1% vfg disseminated pyrite and as discontinuous stringers; non magnetic	74	4	3
158564	Very rusty weathering deep red brown to black fine grained diorite with 3% vfg disseminated pyrite; non magnetic	892	14	13
158565	Orange brown weathering carbonate listwanite cut by numerous white sucrosic quartz veinlets; average vein width 0.5 cm; trace chalcopyrite in quartz	177	3	2
158566	Rusty weathering black serpentinized basalt?; trace vfg disseminated pyrite; non magnetic	202	17	11
158567	Extremely weathered dark greenish black coarse grained pyroxenite with minor interstitial white feldspar; 3 to 5% fine grained pyrite as disseminations and as clots 1 cm long; non magnetic	336	0	0
158568	As 158567	495	5	3
158569	Very rusty red brown weathering fine grained hornblende diorite; 5% fine grained disseminated pyrite; moderately magnetic	441	0	0



Sample Number	Description	Cu ppm	Pt ppb	Pd ppb
158570	Very rusty orange brown weathering coarse grained hornblende diorite; black hornblende 1 to 2 cm in white quartz matrix; 5% vfg pyrite; trace chalcopyrite; non magnetic	841	2	0
158571	Rusty weathering orange brown to black fine grained pyroxenite? with minor white interstitial feldspar; numerous patches of white translucent quartz; 5% disseminated vfg pyrite-chalcopyrite; pyrite occasionally as clots; non magnetic	145	40	26
158572	Rusty weathering deep brown vfg dark grey diorite?; 3% vfg disseminated chalcopyrite-pyrite; non magnetic; may be a pyroxenite with much feldspar	705	2	0
158573	Deep red brown weathering fine grained pyroxenite with much feldspar; may be a diorite; non magnetic; no visible sulphides	42	8	4
158574	Deep red brown weathering hornblende-feldspar pegmatite with hornblende crystals up to 1.5 cm in a feldspar matrix (30% of rock); 3 to 5% disseminated chalcopyrite, pyrite, covellite and pyrrhotite?; patchily magnetic from weak to strong	652	6	5
158575	Heavily oxidized red black varnish; fresh surface dark green; pyroxenite; 2% vfg disseminated chalcopyrite, minor pyrite and covellite; very strongly magnetic	1908	33	33
158576	White shattered quartz; rusty red brown on interior with hematite-coated vugs; no visible sulphides	19	7	5
158577	Orange brown weathering, pale green grey carbonate listwanite; greenish hue from serpentine; minor white carbonate veinlets; no visible sulphides	61	7	3
158578	Orange brown weathering dark green pyroxenite?; fine grained; 2% vfg disseminated pyrite, chalcopyrite; non magnetic	496	25	31
158579	Dark green black medium grained olivine pyroxenite; minor black mica; trace vfg disseminated pyrite; slightly magnetic	9	12	3

Sample Number	Description	Cu ppm	Pt ppb	Pd ppb
158580	Rusty weathering dark green black coarse grained pyroxenite; 1% vvf <sub>g</sub> disseminated chalcopyrite, pyrite; strongly magnetic	904	24	43
158581	Brownish weathering dark greenish black coarse grained pyroxenite; pyroxene crystals average 2 mm but up to 2 cm in length; 0.5% vvf <sub>g</sub> disseminated pyrite; strongly magnetic	131	33	97
158582	Brownish weathering dark greenish black coarse grained pyroxenite; pyroxene crystals average 0.5 mm but up to 1 cm in length; trace vvf <sub>g</sub> disseminated pyrite; very magnetic	203	18	57
158583	Very rusty weathering red brown black coarse grained granular pyroxenite; trace vvf <sub>g</sub> disseminated pyrite; very magnetic	465	14	29
158584	Dark greenish black coarse grained pyroxenite with pyroxene crystals up to 1 cm (av. 2 mm); magnetism patchy from moderate to strong; trace vvf <sub>g</sub> disseminated pyrite	76	10	6
158585	Slightly brownish weathering black coarse grained granular pyroxenite; 0.5% disseminated pyrite; very magnetic	75	13	12
158586	Deep red brown weathering, heavily varnished dark greenish black pyroxenite; trace vvf <sub>g</sub> disseminated chalcopyrite; very magnetic	382	28	26
158587	Slightly brownish weathering dark greenish black crumbly granular pyroxenite; pyroxene crystals average 2 mm; trace vvf <sub>g</sub> disseminated pyrite; very magnetic	122	15	14
158588	Brown weathering black coarse grained pyroxenite; trace vvf <sub>g</sub> disseminated pyrite; very magnetic	122	10	11
158589	Very rusty weathering; outcrop consists of black coarse grained amphibolite with some interstitial feldspar and dark green pyroxenite with minor interstitial feldspar; trace vvf <sub>g</sub> disseminated pyrite; very magnetic	190	10	15

Sample Number	Description	Cu ppm	Pt ppb	Pd ppb
158590	Slightly brown knobble weathering dark greyish black coarse grained peridotite; sheared; trace vvfgr disseminated pyrite; weakly magnetic	8	9	2
158591	Dark greyish black coarse grained peridotite; pyroxene crystals and olivine equigranular (2 mm) but occasionally pyroxene up to 1.5 cm; both olivine and pyroxene serpentinized; minor brownish mica; trace vvfgr disseminated pyrite; weakly to non magnetic	2	4	0

### 11.0 Results

Two samples of olivine clinopyroxenite collected on a ridge on the Star 5 claim indicate that the olivine pyroxenite is mineralized; Samples 158533 and 158535 returned values of:

237 ppm Cu    280 ppb Pt    368 ppb Pd  
 80 ppm Cu    230 ppb Pt    162 ppb Pd

Geochemical analyses shows that the olivine clinopyroxenite on this ridge is different from the olivine clinopyroxenite of the Queen and GL Zones. The olivine clinopyroxenite on the ridge is magnetic whereas the Queen and GL olivine clinopyroxenites are non magnetic. There is no gold values in the olivine clinopyroxenites from the ridge. Both the Queen and GL olivine clinopyroxenites have sporadic gold values.

Between the ridge mentioned above and the Stinky Creek area well mineralized diorite is found as outcrop and talus. Weak copper, platinum and palladium values were obtained.

In Stinky Creek outcrops of feldspar-hornblende-quartz pegmatite were found in contact with sediments and volcanics. Although well mineralized with pyrrhotite samples only returned anomalous values the best being:

145 ppm Cu    40 ppb Pt    26 ppb Pd  
 1908 ppm Cu    33 ppb Pt    33 ppb Pd

The Stinky Creek area is rather interesting as several large 1 meter by 1 meter blocks of shattered quartz are present. They appear to be of local origin as they are angular and no trail of float was observed near the quartz blocks. No quartz veins in outcrop were noted above the quartz float.

The most interesting feature of Stinky Creek is sample 158541 which returned a value of 1383 ppm Cu, 403 ppb Pt and 248 ppb Pd. Although no fresh surface was obtainable geochemical analysis clearly shows the sample to be an olivine clinopyroxenite. The sample is from an area which is presently mapped as being underlain by diorite. This suggests that there may be additional unmapped areas of olivine clinopyroxenite.

A portion of a ridge located in the southeast corner of the Star 4 claim was sampled in order to determine the source of a 251 ppb Pt value in a silt sample collected previously. Sampling shows the ridge to be underlain by pyroxenite which appears to be a metasomatic halo formed by a large nearby diorite stock. The best results obtained are:

904 ppm Cu	24 ppb Pt	43 ppb Pd
131 ppm Cu	33 ppb Pt	97 ppb Pd

Due to a lack of time, the sampling was terminated before the olivine clinopyroxenite unit which is believed to be the source of the 251 ppb Pt in silt target was reached.

## 12.0 Conclusions

Past sampling in different locations on the Star 1, Star 2 and Star 5 claims has shown that the olivine clinopyroxenite hosts magmatic Cu-Pt-Pd mineralization. The present sampling on the Star 5 claim shows that the olivine clinopyroxenite continues to return Cu-Pt-Pd values. The present sampling also shows distinct geochemical variations from location to location within the olivine clinopyroxenite suggesting multiple layers.

The relatively consistent significant values of Cu, Pt and Pd within the olivine clinopyroxenite and some pyroxenites suggest the possibility for a bulk tonnage copper deposit with significant Pt and Pd values.

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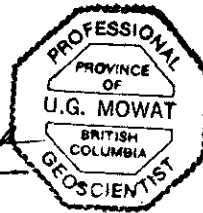
**14.0 Statement of Costs**

Analyses	
44 rock samples analysed for 30 elements by ICP and Au, Pt, Pd by FA/ICP-ES at \$18.50/sample	\$ 814.00
44 rock preps at \$5.00/sample	220.00
GST	<u>72.38</u>
	\$1106.38
Helicopter	
7.4 hours at \$700.00/hour	\$5180.00
615.6 liters at \$0.90/liter	554.04
114 liters at \$1.30/liter	148.20
114 liters at \$1.10/liter	125.40
GST	<u>420.53</u>
	\$6428.17
Labour	
1 man for 14.8 days at \$400.00/day	\$5920.00
Accommodation	
1 room for 5.2 nights at \$62.10/night	\$ 322.92
Meals	\$ 152.47
Freight	\$ 69.50
Airfare	\$ 203.38
Bus	\$ 15.71
Taxi	\$ 36.80
Supplies	\$ 74.23
Reproduction	\$ 54.70
Telephone	\$ 2.83
Postage	\$ 2.42
	<hr/>
TOTAL	\$14490.51

15.0 Statement of Qualifications

- 1.0 I am a graduate of the University of British Columbia having graduated in 1969 with a Bachelor of Science in Geology.
- 2.0 I have practiced my profession since 1969 in mineral exploration, oil and gas exploration and coal exploration.
- 3.0 I am a registered member of the Association of Professional Engineers and Geoscientists of British Columbia.
- 4.0 I have a direct interest in the Star Claims.

Ursula G. Mowat



Ursula G. Mowat, P. Geo.

Dated this 21st day of March, 2003  
at Vancouver, B. C.



**APPENDIX**

GEOCHEMICAL ANALYSIS CERTIFICATE

Mowat, Ursula PROJECT STAR File # A203197

1405 - 1933 Robson St., Vancouver BC V6G 1E7 Submitted by: Ursula Mowat



SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au**	Pt**	Pd**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppb	ppb	ppb	
SI	<1	<1	<3	1	<.3	<1	<1	4	.03	<2	<8	<2	<2	3	<.5	<3	<3	1	.13	<.001	<1	3	<.01	3	<.01	<3	<.01	.60	.01	<2	<2	<2	<2
1	2	25	<3	50	<.3	130	13	1072	4.17	161	<8	<2	<2	244	.6	<3	<3	114	10.44	.010	1	180	4.84	895	<.01	<3	.26	.03	.01	<2	3	<2	2
2	1	86	<3	62	<.3	16	20	1081	6.43	6	<8	<2	<2	40	<.5	3	<3	224	4.39	.053	5	23	.86	49	.12	3	.94	.11	.03	<2	2	4	9
3	1	73	<3	59	<.3	29	20	1177	5.86	<2	<8	<2	<2	15	<.5	<3	<3	274	4.68	.061	4	63	2.56	47	.59	14	4.32	.02	.05	<2	<2	4	4
B 158527	2	9	<3	32	<.3	888	86	1022	5.64	<2	<8	<2	<2	2	<.5	<3	<3	9	.19	.003	<1	336	11.05	3	.01	<3	.15	.01	<.01	2	<2	8	6
B 158528	2	4	<3	4	<.3	291	35	524	2.36	171	<8	<2	<2	46	<.5	6	<3	21	5.06	.002	<1	325	4.84	19	<.01	<3	.04	.01	.03	2	<2	3	3
B 158529	<1	1	<3	30	<.3	958	105	671	6.24	5	<8	<2	<2	10	<.5	<3	<3	6	.90	.003	<1	343	15.21	51	.01	94	.10	<.01	<.01	<2	<2	3	2
B 158530	<1	4	<3	4	<.3	137	20	468	1.58	71	<8	<2	<2	137	<.5	<3	<3	32	6.71	.002	<1	576	4.03	24	.01	3	.14	.01	.02	<2	<2	<2	<2
B 158531	2	5	3	22	<.3	379	52	539	3.32	2	<8	<2	<2	7	<.5	<3	<3	12	.32	.004	<1	280	5.85	6	.02	26	.23	.01	.01	2	3	32	<2
B 158532	1	5	<3	2	<.3	41	7	265	.88	23	<8	<2	<2	86	<.5	4	<3	17	4.66	.002	<1	86	2.16	8	<.01	<3	.03	.01	.02	6	<2	14	<2
B 158533	1	237	<3	19	<.3	388	59	524	4.67	4	<8	<2	<2	5	<.5	<3	<3	131	.31	.003	<1	248	5.26	7	.07	4	.17	.01	.01	2	4	280	368
B 158534	1	741	3	20	.3	561	77	577	3.95	7	<8	2	<2	2	<.5	<3	<3	13	.21	.003	<1	257	6.24	4	.02	<3	.13	.01	<.01	3	16	14	<2
B 158535	2	80	<3	20	<.3	458	59	565	3.43	6	<8	<2	<2	3	<.5	<3	<3	15	.22	.004	<1	321	6.31	5	.02	9	.16	.01	<.01	<2	3	230	162
RE B 158535	1	78	<3	22	<.3	454	58	560	3.41	3	<8	<2	<2	3	<.5	<3	<3	16	.21	.004	<1	319	6.25	4	.02	9	.19	.01	<.01	2	2	229	157
B 158536	1	6	<3	9	<.3	256	29	279	1.83	<2	<8	<2	<2	2	<.5	<3	<3	5	.26	.002	<1	227	3.53	2	.01	5	.07	.01	<.01	2	<2	9	<2
B 158537	1	4	<3	28	<.3	655	82	843	4.96	<2	<8	<2	<2	3	<.5	<3	<3	3	.48	.003	<1	217	9.97	8	.01	35	<.01	<.01	<.01	2	<2	5	2
B 158538	1	393	<3	18	<.3	44	24	313	4.20	2	<8	<2	<2	42	<.5	<3	<3	115	1.52	.224	2	91	1.66	22	.19	<3	1.35	.15	.09	<2	<2	20	20
B 158539	2	1133	<3	25	.5	156	60	265	5.76	<2	<8	<2	<2	35	<.5	<3	<3	305	1.34	.025	1	28	1.31	22	.32	<3	1.00	.15	.10	2	<2	51	35
B 158540	3	347	<3	3	<.3	15	18	53	1.44	<2	<8	<2	<2	1	<.5	<3	<3	5	.04	.001	<1	44	.04	2	.01	<3	.02	.01	<.01	15	<2	2	<2
B 158541	5	1383	<3	19	<.3	382	97	260	4.72	<2	<8	<2	<2	19	<.5	<3	<3	62	.75	.023	1	138	1.74	14	.09	<3	.95	.08	.04	2	2	403	248
STANDARD DS3/FA-10R	10	134	30	160	<.3	35	13	803	3.39	32	<8	<2	4	30	6.0	4	5	75	.55	.085	18	190	.60	141	.09	3	1.69	.04	.16	6	495	482	482

GROUP 1D - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY ICP-ES.  
 UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.  
 ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB  
 - SAMPLE TYPE: ROCK R150 60C AU\*\* PT\*\* PD\*\* GROUP 3B BY FIRE ASSAY & ANALYSIS BY ICP-ES. (30 gm)  
 Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 21 2002 DATE REPORT MAILED: *Aug 30/02* SIGNED BY: *C.L.* D. TOYE, C. LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

GEOCHEMICAL ANALYSIS CERTIFICATE

Mowat, Ursula PROJECT STAR File # A203271

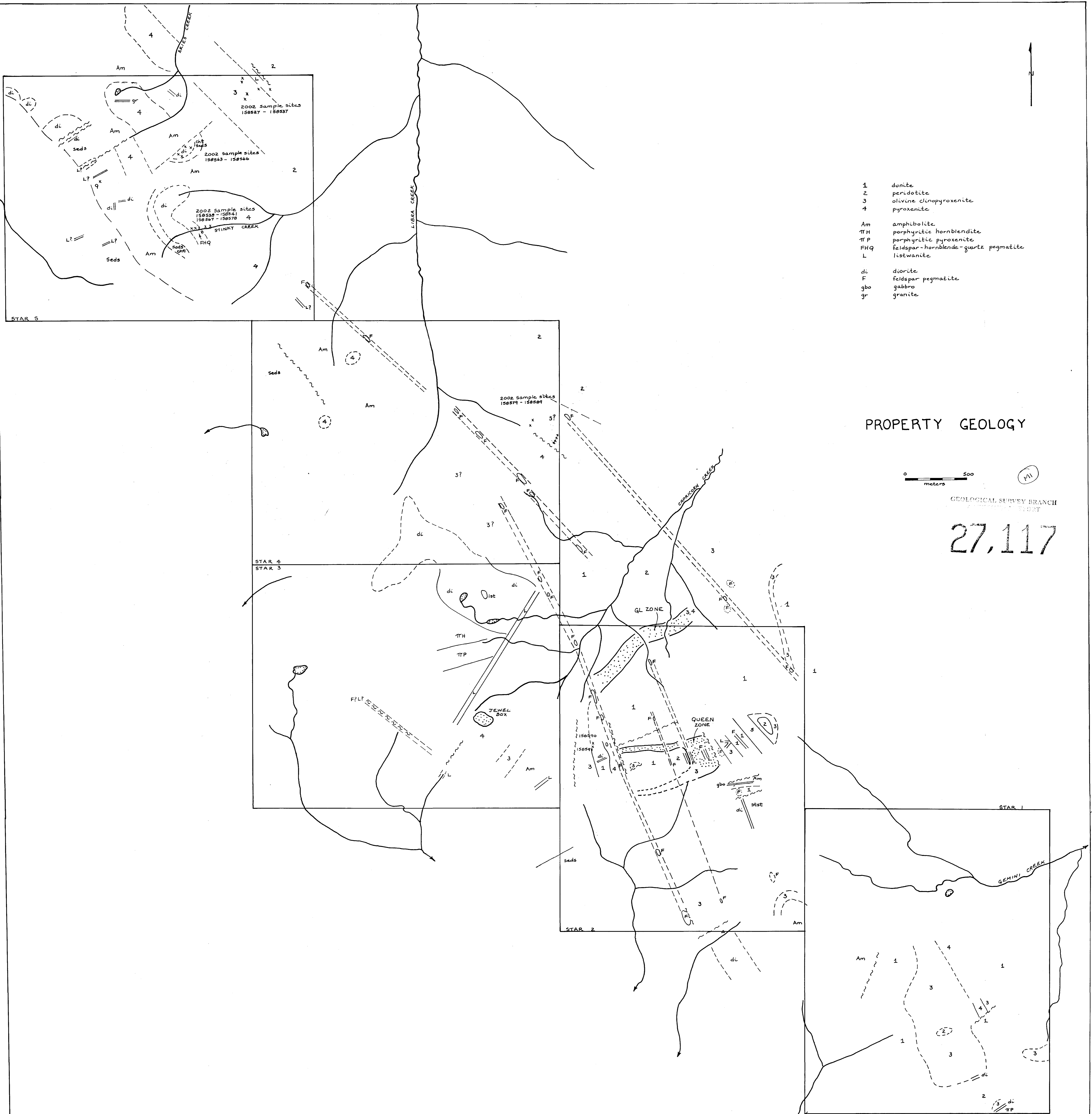
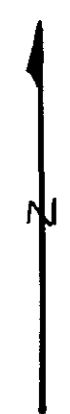
1405 - 1933 Robson St., Vancouver BC V6G 1E7 Submitted by: Ursula Mowat

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Au**	Pt**	Pd**
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	ppm	ppb	ppb	ppb	
SI	<1	<1	<3	2	<3	2	<1	4	.02	<2	<8	<2	<2	3	<.5	<3	<3	<1	.12	<.001	<1	2	.02	3	<.01	<3	.04	.59	.01	<2	4	<2	<2
B 158563	4	74	5	52	.4	15	14	644	4.24	<2	<8	<2	2	59	<.5	<3	<3	114	1.53	.066	6	32	1.20	136	.30	3	2.76	.34	.73	5	10	4	3
B 158564	2	892	9	21	.5	154	43	319	4.16	<2	<8	<2	2	36	<.5	<3	<3	119	1.61	.061	2	85	1.45	36	.26	3	1.66	.15	.13	<2	<2	14	13
B 158565	3	177	263	57	<.3	8	7	1637	4.87	11	<8	<2	<2	99	<.5	152	<3	41	9.37	.016	<1	14	2.47	81	<.01	<3	.34	.01	.05	6	3	3	2
B 158566	<1	202	4	29	.3	178	29	529	3.28	3	<8	<2	<2	39	<.5	<3	<3	114	1.71	.097	3	168	2.20	88	.23	3	2.08	.10	.21	2	2	17	15
B 158567	<1	336	4	26	.5	7	11	571	6.84	2	<8	<2	<2	61	<.5	<3	<3	297	2.54	.111	1	34	2.31	45	.47	4	2.57	.31	.22	2	2	<2	<2
B 158568	<1	495	6	23	.5	28	45	482	6.39	5	<8	<2	<2	49	<.5	<3	<3	233	2.33	.223	2	40	1.91	30	.33	3	1.95	.23	.14	<2	3	5	3
B 158569	1	441	10	34	.4	16	38	644	6.49	5	<8	<2	<2	57	<.5	<3	<3	211	2.88	.224	2	41	2.38	54	.33	5	2.99	.28	.22	<2	<2	<2	<2
B 158570	1	841	<3	21	.4	8	17	445	4.86	4	<8	<2	<2	57	<.5	<3	<3	153	3.30	.466	4	8	1.41	37	.18	12	2.56	.17	.18	4	8	2	<2
B 158571	5	145	<3	6	<.3	26	12	145	1.58	<2	<8	<2	<2	13	<.5	<3	<3	46	.97	.026	1	90	.74	14	.14	<3	.34	.07	.03	4	4	40	26
B 158572	2	705	3	8	.3	14	27	117	2.59	2	<8	<2	<2	18	<.5	<3	<3	33	.88	.147	6	10	.21	29	.16	7	.62	.11	.16	2	2	2	<2
B 158573	1	42	4	8	<.3	27	9	179	1.83	2	<8	<2	<2	33	<.5	<3	<3	66	1.23	.021	1	78	1.13	33	.24	<3	.65	.15	.10	<2	<2	8	4
B 158574	1	642	8	38	.5	19	40	512	5.97	<2	<8	<2	<2	74	<.5	<3	<3	203	2.93	.416	6	11	1.81	52	.14	4	2.09	.27	.21	<2	3	6	5
B 158575	<1	1908	10	23	.4	132	48	237	13.71	19	<8	<2	<2	21	<.5	<3	<3	829	1.10	.013	<1	167	1.37	19	.24	<3	.94	.07	.04	<2	6	33	33
B 158576	35	19	<3	9	.3	4	1	61	.83	2	<8	<2	<2	1	<.5	<3	<3	3	.02	.005	<1	35	.01	4	<.01	<3	.01	<.01	.01	18	4	7	5
B 158577	1	61	3	30	<.3	715	67	1631	3.17	188	<8	<2	<2	307	.5	9	<3	53	8.76	.024	1	484	4.00	33	<.01	3	1.41	.01	.09	5	<2	7	3
B 158578	22	496	<3	20	.3	99	37	246	8.19	4	<8	<2	<2	23	<.5	<3	<3	450	1.15	.016	1	133	1.24	25	.31	<3	.98	.10	.05	2	2	25	31
B 158579	3	9	3	17	<.3	140	29	368	3.51	<2	<8	<2	<2	25	<.5	<3	<3	87	.85	.016	1	383	2.64	30	.10	4	.55	.08	.06	4	<2	12	3
B 158580	<1	904	4	11	1.2	49	32	262	10.78	<2	<8	<2	<2	31	<.5	<3	<3	720	1.48	.072	<1	36	1.16	14	.19	<3	.91	.11	.07	<2	9	24	43
B 158581	1	131	7	18	.3	23	24	450	11.42	<2	<8	<2	<2	73	.5	<3	<3	749	2.27	.024	1	98	2.01	51	.33	<3	1.61	.31	.20	<2	3	33	97
B 158582	<1	203	3	10	<.3	24	23	349	11.15	<2	<8	<2	<2	19	<.5	<3	<3	730	1.34	.020	1	49	1.05	11	.20	<3	.77	.08	.04	3	4	18	57
B 158583	<1	465	4	22	.3	23	23	445	10.21	<2	<8	<2	<2	123	<.5	<3	<3	632	3.36	.245	2	106	2.56	72	.18	<3	2.14	.44	.29	<2	4	14	29
B 158584	<1	76	3	14	.3	56	17	238	2.56	<2	<8	<2	<2	32	<.5	<3	3	116	1.49	.051	1	411	1.41	19	.15	5	.80	.15	.09	3	<2	10	6
RE B 158584	<1	74	<3	13	<.3	55	17	233	2.50	<2	<8	<2	<2	32	<.5	<3	<3	114	1.45	.051	<1	404	1.37	19	.15	<3	.75	.14	.09	2	3	7	6
B 158585	1	75	7	27	<.3	57	29	466	6.87	<2	<8	<2	<2	70	<.5	3	<3	386	2.23	.005	1	226	2.20	57	.40	<3	1.75	.32	.22	<2	5	13	12
B 158586	<1	382	<3	8	.4	61	23	349	12.18	<2	<8	<2	<2	28	<.5	<3	<3	869	1.11	.009	<1	87	.93	12	.26	<3	.70	.08	.04	<2	8	28	26
B 158587	1	122	5	10	<.3	55	15	240	3.35	<2	<8	<2	<2	24	<.5	<3	4	172	1.38	.005	<1	341	1.30	13	.16	<3	.60	.10	.06	2	3	15	14
B 158588	<1	122	5	29	<.3	23	23	524	6.12	2	<8	<2	<2	202	<.5	<3	<3	253	3.09	.142	1	39	1.66	179	.19	<3	2.89	.27	.29	2	<2	10	11
B 158589	<1	190	<3	20	.5	19	29	460	8.65	<2	<8	<2	<2	120	<.5	<3	<3	437	3.44	.024	<1	10	1.60	51	.23	<3	3.29	.35	.26	<2	4	10	15
B 158590	<1	8	<3	29	<.3	423	68	849	4.14	<2	<8	<2	<2	12	.5	<3	<3	8	.37	.005	<1	161	9.46	7	.02	38	.15	.01	.01	<2	<2	9	2
B 158591	<1	2	4	32	<.3	477	91	1086	5.09	<2	<8	<2	<2	7	<.5	<3	<3	<1	.21	.003	<1	98	11.85	2	.01	19	.01	.01	<.01	<2	2	4	<2
STANDARD DS3/FA-10R	9	123	36	146	.3	36	13	794	3.13	32	<8	<2	3	28	6.0	5	5	74	.53	.090	18	180	.59	146	.09	<3	1.69	.04	.16	4	494	478	482

STAR 5

GROUP 10 - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY ICP-ES.  
 UPPER LIMITS:- AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.  
 ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB  
 - SAMPLE TYPE: ROCK R150 60C AU\*\* PT\*\* PD\*\* GROUP 3B BY FIRE ASSAY & ANALYSIS BY ICP-ES. (30 gm)  
 Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: AUG 23 2002 DATE REPORT MAILED: *Sept 4/02* SIGNED BY: *C. Leong* TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS



- 1 dunite
- 2 peridotite
- 3 olivine clinopyroxenite
- 4 pyroxenite
  
- Am amphibolite
- TP porphyritic hornblendite
- TP porphyritic pyroxenite
- FHQ feldspar-hornblende-quartz pegmatite
- L listwanite
  
- di diorite
- F feldspar pegmatite
- gbo gabbro
- gr granite

# PROPERTY GEOLOGY



M1

GEOLOGICAL SURVEY BRANCH  
MINERAL REPORT

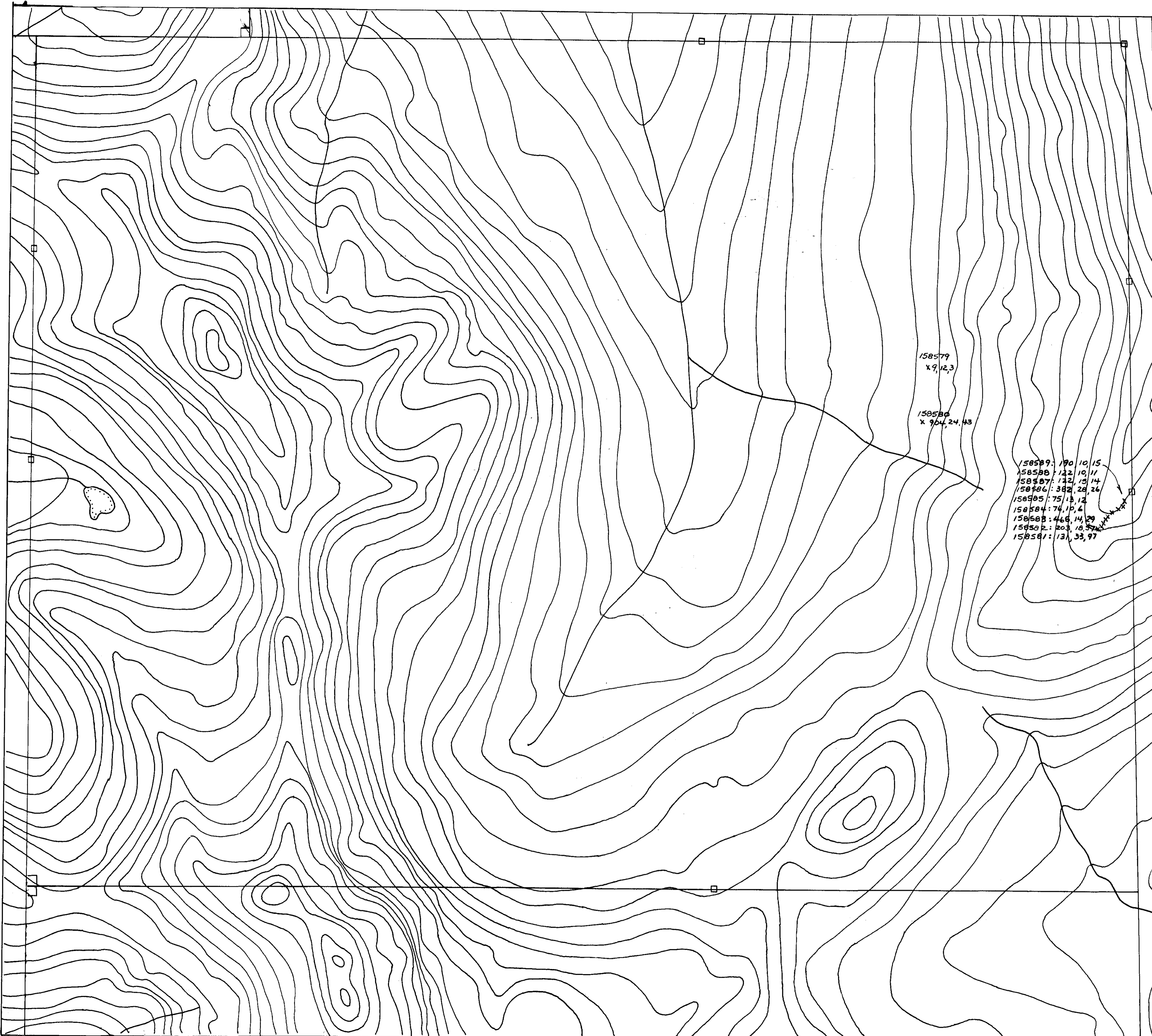
## 27,117

STAR 5

STAR 4  
STAR 3

STAR 2

STAR 1



158579  
x 9, 12, 3

158580  
x 96, 24, 43

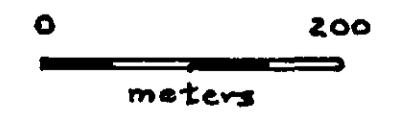
158589: 190, 10, 15  
158590: 122, 10, 11  
158597: 122, 13, 14  
158596: 382, 28, 26  
158595: 75, 13, 12  
158584: 74, 10, 6  
158583: 466, 14, 29  
158582: 203, 15, 37  
158581: 131, 33, 97

- x rock sample
- x 158581: 131, 33, 97  
sample number: Cu ppm, Pt ppb, Pd ppb

STAR 4 CLAIM

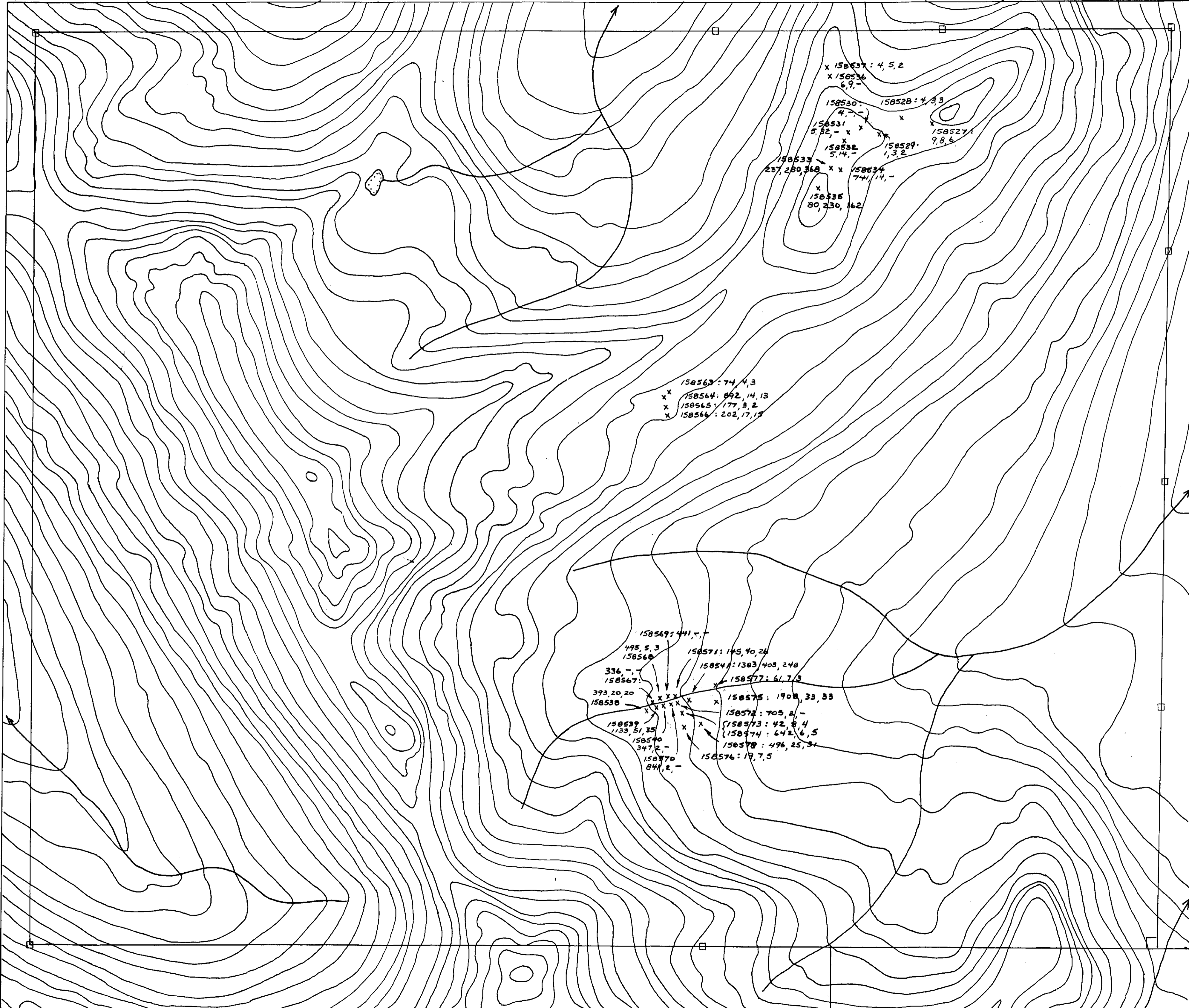
SAMPLE SITES  
GEOLOGICAL SURVEY BRANCH  
SOUTH AFRICAN DEPARTMENT OF MINES AND ENERGY

27,117



112





x rock sample  
 x 150541 : 1303, 403, 248  
 sample number: Cu ppm, Pt ppb, Pd ppb

150569: 441, -  
 495, 5, 3  
 150568  
 336, -  
 150567  
 393, 20, 20  
 150538  
 150539  
 1133, 51, 35  
 150540  
 347, 2, -  
 150570  
 844, 2, -  
 150571: 145, 40, 24  
 150541: 1303, 403, 248  
 150572: 61, 7, 3  
 150575: 1908, 33, 33  
 150572: 705, 2, -  
 150573: 42, 8, 4  
 150574: 642, 6, 5  
 150578: 496, 25, 31  
 150576: 19, 7, 5

STAR 5 CLAIM

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SAMPLE SITES  
 GEOLOGICAL SURVEY BRANCH  
 REPORT

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0 200  
 meters