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**ASSESSMENT REPORT
ON THE
SWAN PROPERTY**

**Omineca Mining Division, British Columbia
NTS 94C/5, 6 and 12
Latitude: 56°23' North
Longitude: 125°20' West**

Prepared For

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Vancouver, B.C.**

Prepared By

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**GEOLOGICAL BRANCH
ASSESSMENT REPORT**

22,811

November 17, 1992

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1.0 SUMMARY

The Swan (104 units) property was staked in March, 1992 and is registered in the name of David G. DuPré of Delta, B.C. The property is situated in north-central B.C., approximately 200 kilometres north of Fort St. James. Access to the property is via logging roads which originate at Fort St. James or MacKenzie.

In 1972, SEREM Ltd. carried out a reconnaissance, lead-zinc, stream sediment geochemical program throughout the Omineca Mountains' area. Anomalous results from this program and their subsequent investigations led to the staking of three small properties. These previous properties are now, mostly encompassed within the Swan property. In 1973, SEREM carried out a program of linecutting, soil geochemistry, EM geophysics, geological mapping and trenching on all three of their properties. Soil geochemical anomalies and lead/zinc showings were located on each property. In 1974, SEREM evidently tested one of their lead-zinc showings, on their northernmost property, with 13 drill holes. Unfortunately, the results from the drill program are unavailable.

The Swan property is underlain, mostly, by the Cassiar Terrane which consists of a mixed carbonate and clastic sequence. The strata range in age from the Late Proterozoic (Ingenika Group) to the Devonian-Mississippian (Earn Group). This package is similar to that of the Kechika Trough and Selwyn Basin to the north, which hosts numerous significant lead-zinc deposits; and to the sedimentary sequence exposed 40 km to the south at Cominco's PAR property, which hosts high grade stratiform Pb/Zn sulphides in tuffs and argillites of the Kechika Formation.

Geological mapping and geochemical soil sampling done in 1992 led to the documentation of numerous Pb/Zn/Ba occurrences on the Swan property as well as a number of significant Pb/Zn soil geochemical anomalies. The most significant showings discovered to date are the Knoll and Swan mineralized zones. Both locations contain zones of dolomitization, brecciation and low grade Pb/Zn/Ba mineralization in Ordovician, Silurian carbonates. In addition, a number of significant Pb/Zn geochemical anomalies occur in covered areas which are thought to be underlain by tuffaceous argillites and phyllites as well as carbonates. Further exploration is recommended in order to determine the potential of the areas which are underlain by tuffs and argillites of both the Kechika Formation and Earn Group for stratiform Pb/Zn sulphides.

2.0 INTRODUCTION

This report on the Swan property was commissioned by David G. DuPré and is based on available published information, assessment files, research by Pegg (1992) and field work done on the property by the author during August of 1992.

2.1 Location and Access

The Swan property is located in north-central British Columbia, some 200 kilometres north of the town of Fort St. James (Figure 1).

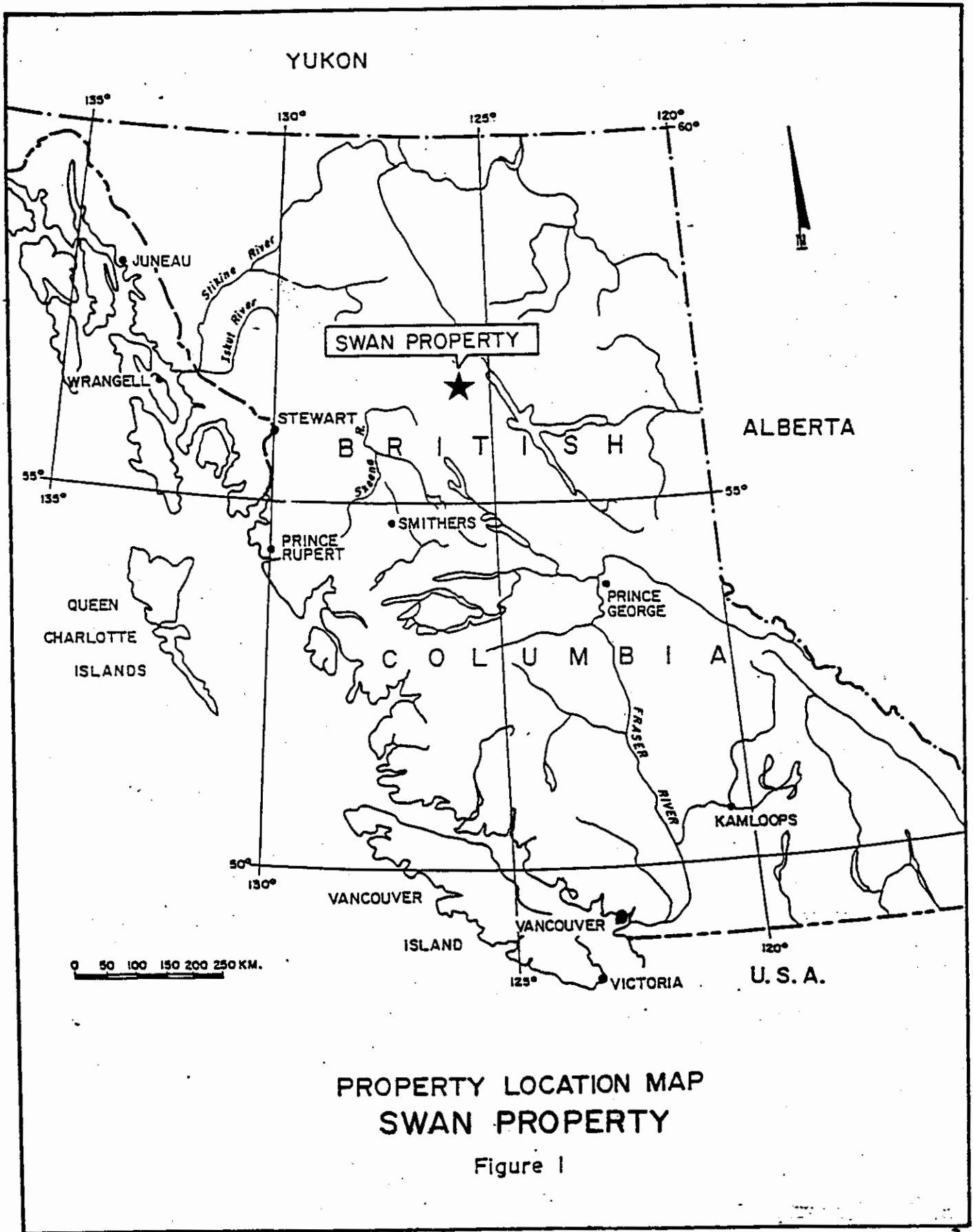
The Swan property is centred upon 56° 28' North latitude and 125° 30' West longitude. This is within the 94C/5, 6 and 12 NTS map sheets.

Road access to the general area of the property is via the gravel, all-season Omineca mining road which extends north from Fort St. James. An alternate route is via a major forestry haulage road, which originates from Highway 97, at the south end of Williston Lake, and adjoins the Omineca road, north of Germanson Landing. The Old Ingenika Mining Road cuts through the southeast corner of the Swan #2 claim. This road or trail to the property (5-6 km) is in very rough condition, accessible by 4 wheel drive truck only in the driest part of the summer.

Helicopter access to the property can be made from either Fort St. James or Germanson Landing where Pacific Western Helicopters have established bases. During the course of this program, a helicopter, temporarily based at BCDM's base camp in Aiken Lake was utilized.

2.2 Physiography and Climate

The Swan property is located within the Lay Range which occupies a divide between the Swannell and Mesilinka Rivers. The topography is generally characterized by moderately steep terrane which is dissected by numerous, secondary drainages. Elevations range from 1,920 metres in the northwest portion of the property to less than 1,120 metres in the southeast corner. Bedrock



PROPERTY LOCATION MAP
 SWAN PROPERTY

Figure 1

exposures are reported (Sonnendrucker, 1973) to be, with the exception of several limestone cliffs, scarce. Felsenmeer is, apparently, locally abundant.

A transitional tree line occurs at, approximately, the 1,700 metre elevation. Lower elevations are covered by stands of coniferous trees, mainly pine.

The climate in the area is typified by cold winters and moderate summers. Snow accumulations are generally less than two metres.

2.3 Property Status

The Swan property (Figure 2) comprises 32 contiguous mineral claims (104 units). These claims are registered in the name of David G. DuPré and are located within the Omineca Mining Division. Their status is summarized as follows:

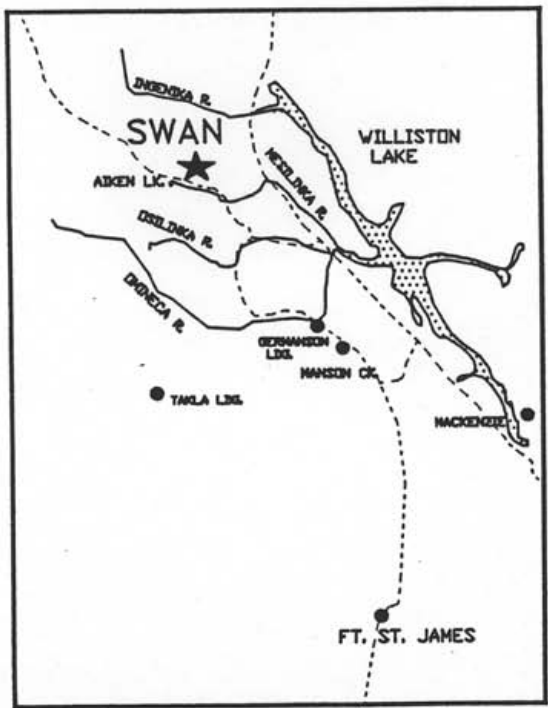
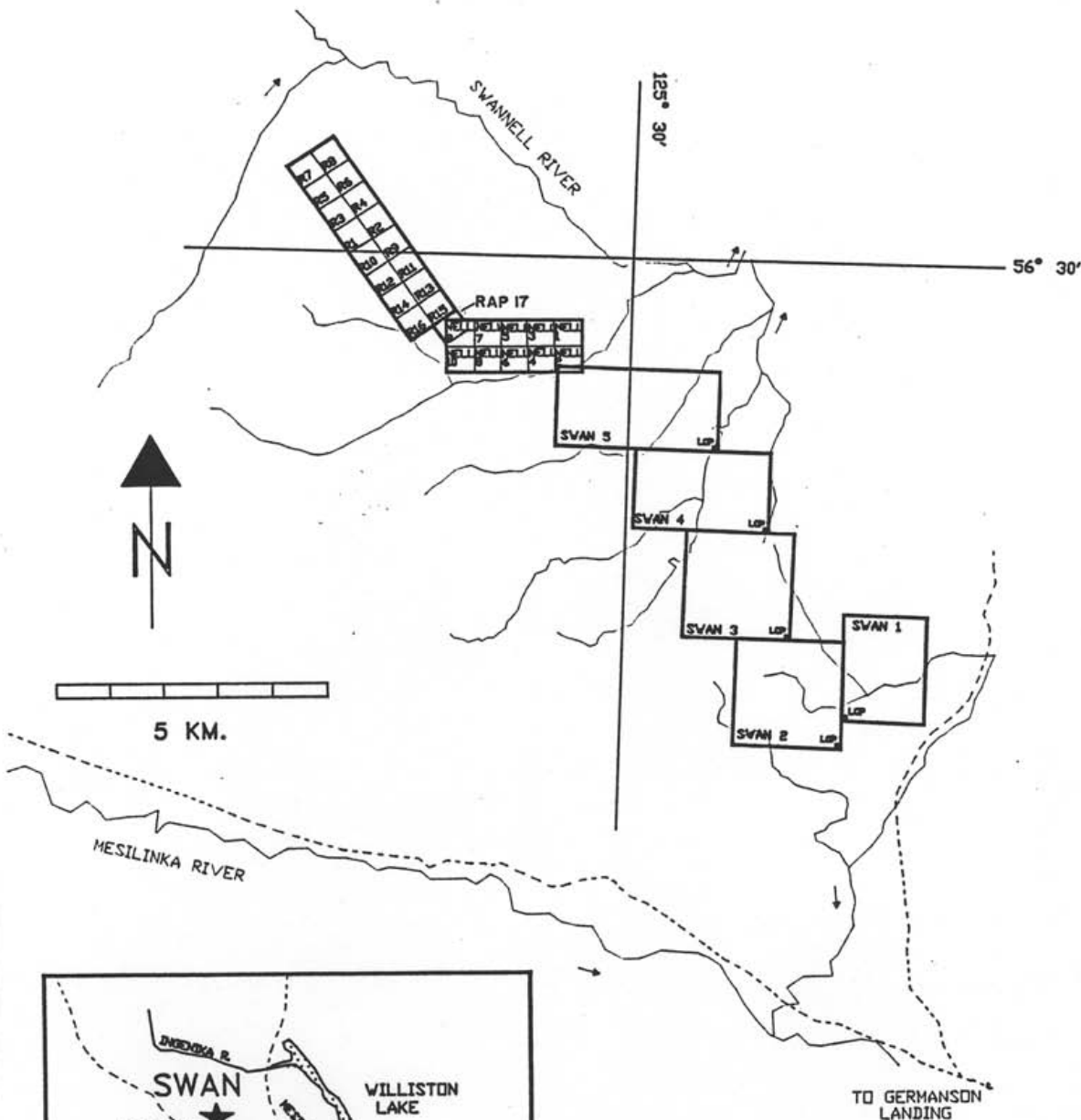
Claim Name	No. of Units	Record No.	Record Date	Expiry Date After Filing
Swan 1	12	308212	March 17, 1992	March 17, 1994
Swan 2	16	308213	March 16, 1992	March 16, 1995
Swan 3	16	308214	March 16, 1992	March 16, 1994
Swan 4	15	308215	March 18, 1992	March 18, 1994
Swan 5	18	308216	March 19, 1992	March 19, 1995

TABLE 1: Swan Property Claim Stats				
Claim Name	No. of Units	Record No.	Record Date	Expiry Date After Filing
R 1	1 (2 post)	308219	March 19, 1992	March 19, 1994
R 2	1 (2 post)	308220	March 19, 1992	March 19, 1994
R 3	1 (2 post)	308221	March 19, 1992	March 19, 1994
R 4	1 (2 post)	308222	March 19, 1992	March 19, 1994
R 5	1 (2 post)	308223	March 19, 1992	March 19, 1994
R 6	1 (2 post)	308224	March 19, 1992	March 19, 1994
R 7	1 (2 post)	308225	March 19, 1992	March 19, 1994
R 8	1 (2 post)	308226	March 19, 1992	March 19, 1994
R 9	1 (2 post)	308227	March 19, 1992	March 19, 1994
R 10	1 (2 post)	308228	March 19, 1992	March 19, 1994
R 11	1 (2 post)	308229	March 19, 1992	March 19, 1994
R 12	1 (2 post)	308230	March 19, 1992	March 19, 1994
R 13	1 (2 post)	308231	March 19, 1992	March 19, 1994
R 14	1 (2 post)	308232	March 19, 1992	March 19, 1994
R 15	1 (2 post)	308233	March 19, 1992	March 19, 1994
R 16	1 (2 post)	308234	March 19, 1992	March 19, 1994
Rap 17	1 (2 post)	312616	August 16, 1992	August 16, 1994
Nell 1	1 (2 post)	308235	March 19, 1992	March 19, 1994
Nell 2	1 (2 post)	308236	March 19, 1992	March 19, 1994
Nell 3	1 (2 post)	308237	March 19, 1992	March 19, 1994
Nell 4	1 (2 post)	308238	March 19, 1992	March 19, 1994
Nell 5	1 (2 post)	308239	March 19, 1992	March 19, 1994
Nell 6	1 (2 post)	309240	March 19, 1992	March 19, 1994
Nell 7	1 (2 post)	308241	March 19, 1992	March 19, 1994
Nell 8	1 (2 post)	308242	March 19, 1992	March 19, 1994
Nell 9	1 (2 post)	308243	March 19, 1992	March 19, 1994
Nell 10	1 (2 post)	308244	March 19, 1992	March 19, 1994
Total	104 Units			

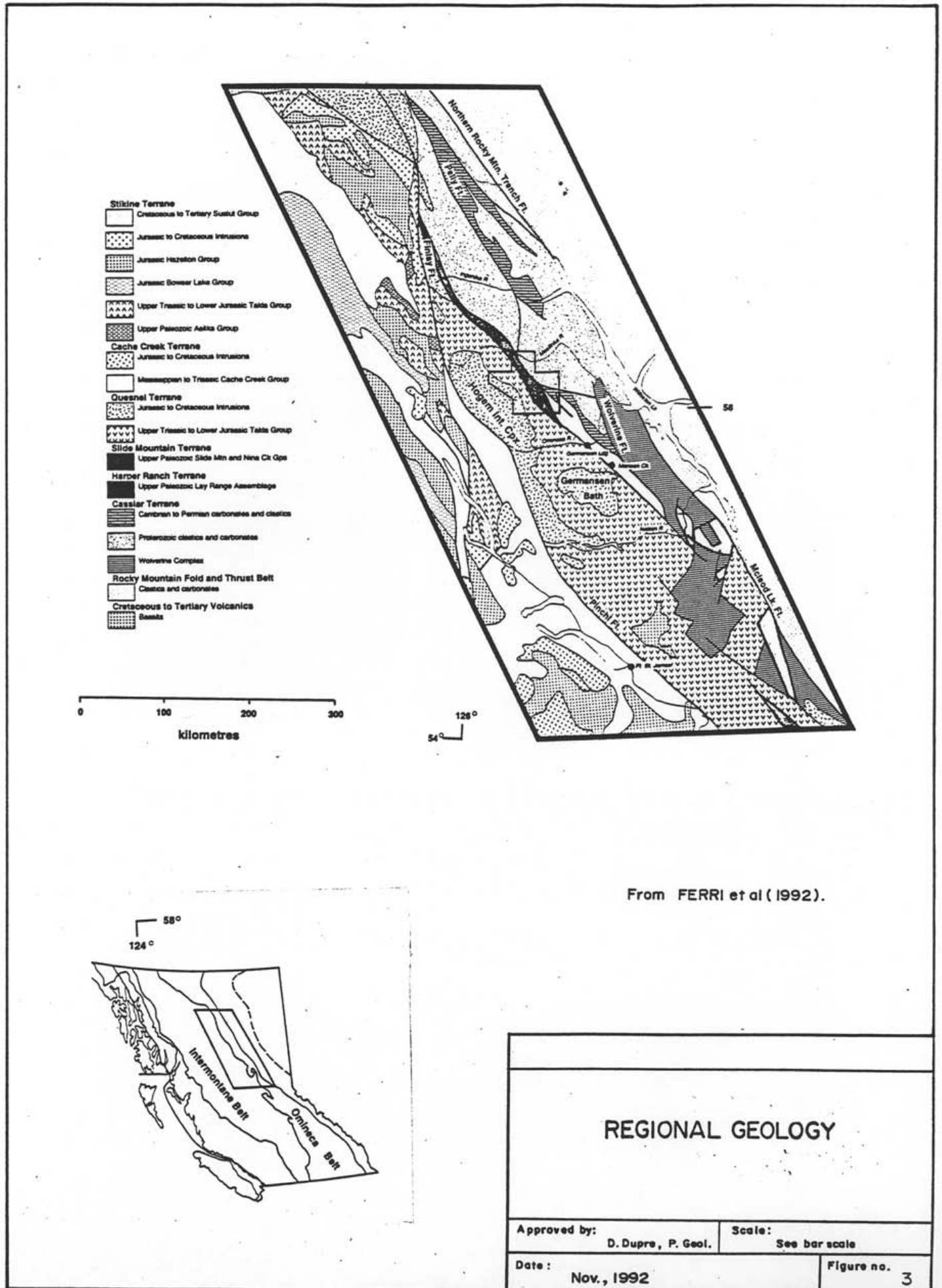
2.4 History of Exploration

During 1972, SEREM Ltd. carried out a regional, lead-zinc stream sediment survey throughout the Omineca Mountains. Carbonate hosted lead-zinc mineralization was discovered during the course of evaluating anomalous silt sample results. This led to the staking of the Swan, Burn and Rain properties. The present Swan property covers most of the three SEREM claim blocks.

△ MT. LAY



FIRESTEEL RESOURCES INC.	
SWAN PROPERTY CLAIM MAP	
DATE: 11 JUNE 1992	NTS:
PROJECT: SWAN	BY: I.D.McCARTNEY
SCALE: AS SHOWN	
FIG. No. 2	



From FERRI et al (1992).

REGIONAL GEOLOGY

Approved by: D. Dupre, P. Geol.

Scale: See bar scale

Date: Nov., 1992

Figure no. 3

In 1973, SEREM carried out a program of linecutting, soil geochemistry, geological mapping, trenching and ground geophysical (Horizontal Shootback EM) surveying on all three of their properties (Sonnendrucker, 1973 a, b, c).

In 1974, SEREM completed a diamond drill program, which totalled 13 holes (2,155 feet), on their Rain property (G.E.M., 1974). This program apparently tested the "B" showing which is located on the R1 and R10 claims. Several old drill sites were observed by the author. SEREM did not file the drilling program for assessment purposes and all three properties were allowed to lapse.

In 1992 a brief field program was conducted by the author which is the subject of this report.

2.5 Objectives of the 1992 Work Program

The goals of the field program were as follows:

1. To confirm that the stratigraphic package covered by the claim group included Paleozoic carbonates and clastics not previously recognized in this particular area.
2. To examine the nature of the known outcrop showings.
3. To validate the existence of a number of Pb/Zn geochemical anomalies as reported by SEREM, 1973.

3.0 GEOLOGY

3.1 Regional Geology

The area of interest covers the boundary between the Omineca and Intermontane tectonostratigraphic belts of the Canadian Cordillera (Figure 4). This area encompasses at least four separate terranes. On the west are island-arc rocks of the Quesnel Terrane (Mesozoic age). On the east are displaced continental rocks of the Cassiar Terrane (Upper Proterozoic to Devono-

Mississippian age). These are separated by the oceanic Slide Mountain and the volcanic (arc?) - sedimentary Harper Ranch terranes (Upper Proterozoic).

Northwest trending faults are the most prominent structural feature in the area. Strike-slip and dip-slip movements have been postulated.

The Swan property is mostly underlain by the Cassiar terrane along the faulted contact with the Harper Ranch Terrane.

North American Cassiar Terrane

The strata are predominantly clastics with carbonate rocks becoming more abundant higher in the stratigraphy. The lower portion of this sequence is polydeformed and metamorphosed to amphibolite grade. The Cassiar Terrane, generally, trends north-northwest and is locally folded and faulted (Figure 4). Strata include the Upper Proterozoic Ingenika Group through to the Devono-Mississippian Big Creek Group (Figure 5).

Late-Proterozoic

Ingenika Group

The Ingenika Group is estimated to be at least several kilometres thick and is composed of quartz and feldspathic wackes, limestone, impure quartzite, sandstone, siltstone, argillite and their metamorphosed equivalents. It has been subdivided (Mansy and Gabrielse, 1987) into, in ascending order, the Swannell, Tsaydiz, Espee and Stelkuz formations.

Paleozoic

A 40 km long belt of Paleozoic carbonate and clastic rocks is exposed along and to the south of the Osilinka River. A 15 km long belt of the same rocks occurs to the north of the Mesilinka River and is covered by the Swan property. This package ranges from Early Cambrian to Early Mississippian in age. Ferri (BCDM)

is presently in the process of mapping the northern belt of rocks. From his work in the Southern package, (Ferri, 1991) has divided the Paleozoic into five main groups (see Figure 5).

Atan Group (Lower Cambrian)

Ferri (1991) has subdivided this group into two formations. The lowermost Mount Brown Formation (Boya Formation equivalent) is divided into two sections. The upper portion consists of moderately to thickly bedded, grey-brown and maroon, impure quartzite and sandstone. These are interlayered with thin to thickly bedded, dark grey to grey-green phyllite and siltstone. The phyllite-siltstone sequence reportedly hosts local limestone nodules, up to 40 cm long. The basal unit, not observed in the Osilinka River area, consists of a white, grey, beige or maroon, massive to thickly bedded orthoquartzite. This is typically fine to medium grained, but thin beds of quartz-granite conglomerate have also been noted. The overlying Mount Kison Formation (Rosella Formation equivalent) consists of dark grey to grey, thinly bedded and platy, finely crystalline and argillaceous limestone. This is overlain by massive, thick bedded, finely to coarsely crystalline limestone and rare dolomite. This formation is poorly exposed in the Osilinka River area.

Some archeocyathids have been found within the Cambrian strata.

Razorback Group (Cambrian to Ordovician)

The Razorback Group is a name now applied by Ferri (1991) to units previously called the Kechika and Road River groups. Dark grey and grey, thinly layered shales and argillites are typically overlain by dark grey, thinly layered, argillaceous to dolomitic limestone. Tuffaceous sericitic phyllite with disseminated pyrite is also present. These strata typically display recessive weathering.

Echo Lake Group (Middle Ordovician to Early Devonian)

These strata were originally equated with the Sandpile Group to the south. Dark grey and grey graptolitic argillites, associated with planar-bedded limestones and argillaceous limestones are exposed at the base of this section. These beds are overlain by buff weathering, pale grey to medium grey, thin to massively bedded, medium grained, sugary dolomites and limestones. Discontinuous or thinly interlayered, light and dark grey mottled dolomite is also present. Bioclastic limestone, oolite and carbonate breccia horizons and sporadic quartz replacement of layers are locally displayed. The thick quartzite and dolomite units, which are common to the south, were not noted in the Osilinka River area.

Otter Lakes Group (Middle Devonian)

This was originally mapped as the McDame Group, to the south. It is typified by thin to medium bedded, grey to dark grey, fetid, fine to medium grained, crystalline dolomite and limestone. Fossiliferous horizons and vugs filled with pyrobitumen, graphite or calcite are common. Locally, the unit is coarsely recrystallized.

Big Creek Group (Late Devonian to Early Mississippian)

Similar rocks to the south and north have been assigned to the Earn Group. This section is characterized by dark grey, blue-grey and black, thin to very thinly bedded, platy to wavy shales, argillites and siltstones.

Harper Ranch Terrane (Mississippian to Permian)

This terrane encompasses the Lay Range assemblage which includes Upper Paleozoic tuffs, argillites, mafic to ultramafic igneous rocks, grits, limestone and chert. This assemblage is subdivided into four units, as follows:

Dacitic Tuff Unit

This unit is characterized by a grey to dark grey, massive quartzofeldspathic tuff which commonly displays a weak to strong penetrative cleavage. The tuff is comprised of up to 30 percent fine to coarse grained quartz, feldspar and rare mica clasts. Grey to dark grey phyllites, quartz-feldspar wackes and arkosic sandstones are locally present. This unit, apparently, structurally overlies argillites of the Big Creek Group.

Argillite - Grit - Limestone Unit

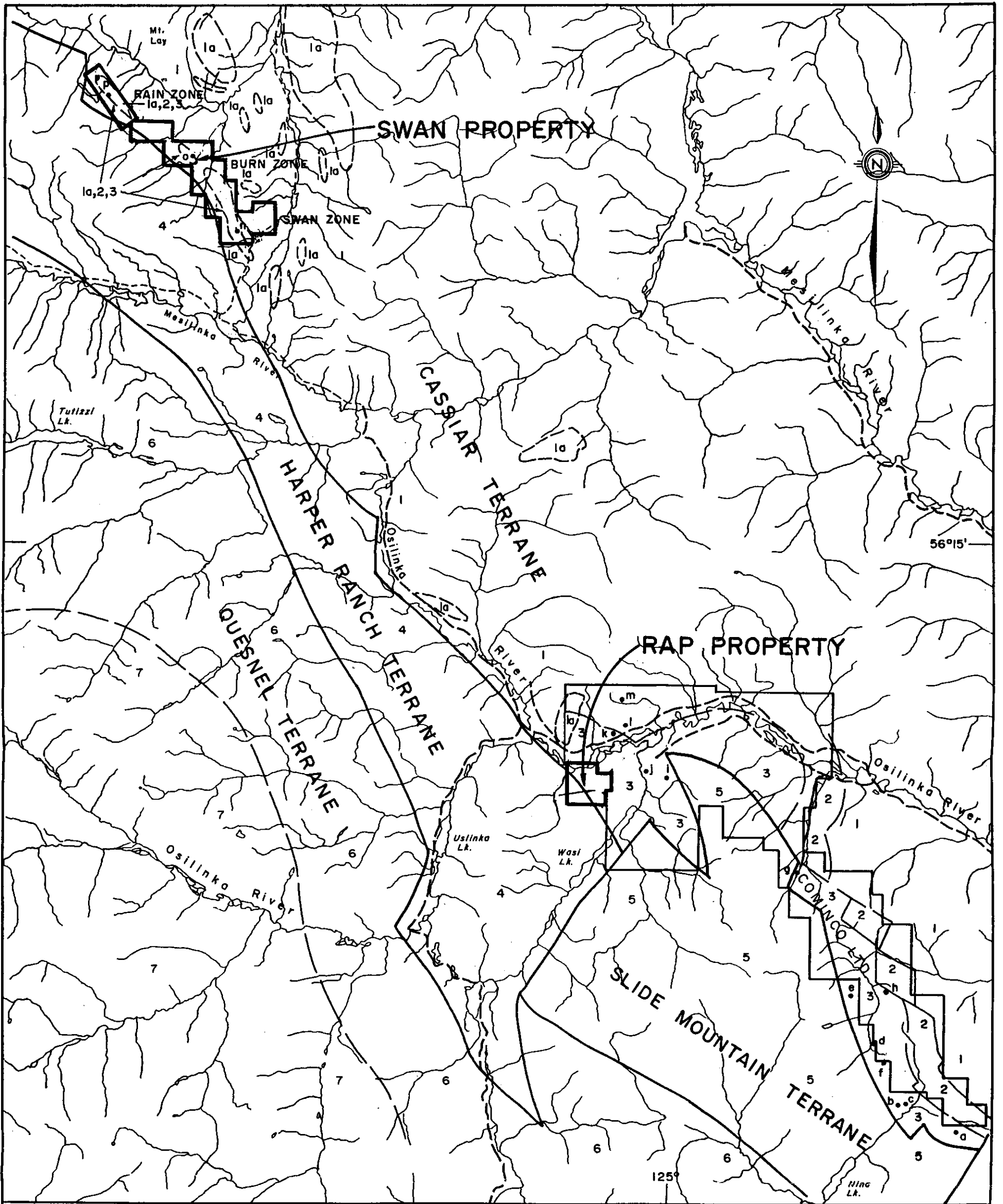
This unit is comprised of black argillite, shale, phyllite, dark grey to black limestone, quartzite and quartz-feldspar wackes. Locally, large limestone boudins are found within the argillites. This unit is fairly well exposed in the vicinity of the Tutizika River.

Mafic Tuff Unit

Thick sequences of green, thin to thickly bedded, very fine tuffs and tuffaceous siltstones are common. Lapilli tuff, agglomerate, basalt and lesser argillite, chert, gabbro and limestone are also present. A strike-slip fault system bounds this sequence to the southwest. Ferri (1991) has postulated a transitional contact of this unit with the dacitic tuff unit.

Mafic-Ultramafic Unit

Dark green, massive to pillowed, olivine(?) - bearing basalt, gabbro, serpentinite and minor amphibolite comprise this unit. Ferri (1991) indicates that this is a fault-bounded structural sequence in the middle of the mafic tuff unit.



LEGEND

QUESNEL TERRANE

- 7 Jurassic to Cretaceous Intrusions. (Hogem Intrusive Complex).
- 6 Upper Triassic to Lower Jurassic Takla Group. (Mainly Volcanics).

SLIDE MOUNTAIN TERRANE

- 5 Pennsylvanian to Permian Slide Mtn. and Nina Ck. Groups. (Basalt, Argillite, Minor Gabbro).

HARPER RANCH TERRANE

- 4 Mississippian to Permian Lay Range Assemblage. (Siltstone, Shale, Sandstone, Limestone, Basalt, Gabbro).

CASSIAR TERRANE

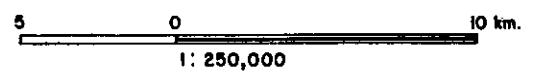
- 3 Ordovician to Middle Devonian Sandpile, Kechika, McDame and Earn Groups. (Mainly Limestone with Minor Dolomite and Shale).

- 2 Lower Cambrian Atan Group. (Limestone and Quartzite).

- 1/1a Upper Proterozoic Ingenika Group. (Siltstone, Shale and Metamorphosed Equivalents, 1a - Limestone).

Pb/Zn Showings

- a Sheila.
- b W. Vernon.
- c Vernon
- d Biddy.
- e Crin.
- f Jemima.
- g New.
- h Osi
- i Critter.
- j Carie/PAR
- k Quarry.
- l Regent
- m Beveley
- n Swan.
- o Burn.
- p Rain.



**OSILINKA RIVER AREA
GEOLOGY**

Revised by R. Pegg

(June, 1992)

Approved by: D. Dupre, P. Geol.

Scale: 1:250,000

Date: MAY, 1992

Figure No: 4

STRATIGRAPHY

MINERALIZATION

EARN GROUP
Upper Devonian -
Lower Mississippian

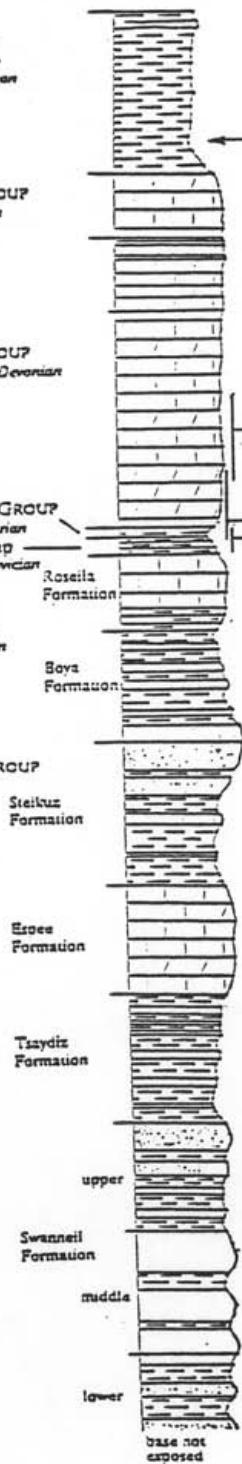
MCDAME GROUP
Middle Devonian

SANDPILE GROUP
Silurian - Lower Devonian

ROAD RIVER GROUP
Oronovian - Silurian
Kaanika Group
Cambrian - Oronovian

ATAN GROUP
Lower Cambrian

INGENIKA GROUP
Proterozoic



Burn Ba lenses

Ba Zn Pb in Dolomite Bx at the Rain, Knoll, Crag and Swan Showings.

Pb Zn geochem anomalies on the E. Swan and below the Knoll Showing.
Cominco's PAR Showing.

Roseila Formation

Boya Formation

Steikuz Formation

Esoes Formation

Tsaydz Formation

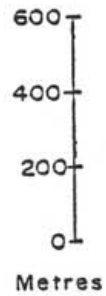
upper

Swanneil Formation

middle

lower

base not exposed



After FERRI and MELVILLE (1990).

- | | | | | | |
|--|------------------------|--|------------------|--|-----------------------------|
| | Limestone | | Siltstone | | Feldspathic wacke |
| | Dolomite | | Shale | | Orthoquartzite |
| | Sandy dolomite | | Calcareous shale | | Impure quartzite, sandstone |
| | Argillaceous limestone | | | | |

**GENERALIZED STRATIGRAPHIC COLUMN
OF THE CASSIAR TERRANE
WITHIN THE
OSILINKA RIVER AREA**

Approved by: D. Dupre, P. Geol.	Scale: See bar scale
Date: May, 1992	Figure No. 5

3.2 Swan Property Geology (Figure 5, Maps 1 & 2)

Most of the Swan property is underlain by northwest trending, west-dipping strata of the Cassiar Terrane. Geological mapping by Roots (GSC, 1954) assigned all the underlying rocks to the Ingenika Group but work done later by Gabrielse (GSC, 1975) and Ferri (BCDM, 1992), indicate that the upper section of this package is of Cambrian to Mississippian in age. This interpretation is supported by discovery by the writer of the Cambrian index fossil archeocyathids and also some Ordovician fossils at the north end of the Swan property on the R 1 - 10 claims.

In detail, the oldest rocks which are exposed along the eastern margin of the R 1 - 10 claims consist of rusty weathered Proterozoic clastic sediments capped by a distinct light grey weathering platy limestone 50 - 100 metres thick. This is, in turn, overlain by a unit of micaceous quartzite and phyllite which probably represents the top of the Proterozoic sequence and the base of the Cambrian. Directly overlying the above is a band of grey weathering limestone (+50 m thick) and a recessive band of tuffaceous phyllite and argillite with disseminated pyrite; these units are believed to be the Rosella Formation and the Kechika/Road River Group respectively.

A large section of cliff-forming limestone/marble (+ 100 m) directly overlies the Kechika Group on the R 1 - 10 claims (probably Sandpile Group). This unit is the host rock to the known mineralization along the length of the Swan property. Locally, in the area of the Knoll and Swan showings, this limestone horizon is capped by a very siliceous dolomite breccia and a siliceous thin banded dolomite which may represent a silica replaced algae-mat reef. The uppermost rocks exposed on the property consist of recessive siliceous black argillites of the Earn Group (Big Creek Group).

3.3 Mineralization (Figure 5, Maps 1 & 2)

Most of the known Pb/Zn/Ba occurrences are located within the dolomitized sections of the Sandpile Group. Local fracturing, brecciation, together with fine grained dolomitization has created the open-space which has been infilled with dolspar, barite-spar and minor amounts of galena and sphalerite. The main showings examined in the field include the following:

a) Rain B Showing (Figure 8, Map 1)

A number of old trenches were found on the R-1 claim, the best of which contained 4 m of coarse barite rubble, with traces of oxidized Pb/Zn sulphides. Barite float was found along the dip-slope of the hill over a 400 - 500 m strike length. Several old drill-pads were also located along this mineralized trend. Assays from several grab samples taken by SEREM in 1973 returned the following results:

- i) 4.53% Pb, 4.20% Zn, 0.91 oz/t Ag, 31% Ba
- ii) 6.88% Pb, 1.04% Zn, 1.56 oz/t Ag, 48.5% Ba

b) Knoll Showing (Figure 6, Map 2)

A vegetation kill zone occurs at the north end of the Knoll-hill, over an area at least 150 m². Mineralization in the exposed cliff consists of coarse barite and calcite breccia fillings with associated weathered Pb/Zn oxide disseminations. Of significance are the geochemical anomalies which straddle the base of the hill over a large areal extent. At the southeast end of Knoll-hill, SEREM located dolomitic float which contained some Pb/Zn sulphides as well. A grab sample by SEREM from one of the above occurrences returned 3.64% Pb, 0.10% Zn, 0.58 oz/t Ag, 1.4% Ba.

c) Crag Showing (Figure 8, Map 2)

Two old trenches are located in this area, the best of which exhibits 4.5 metres of sparry dolomite with minor disseminations and stringers of galena and sphalerite. A grab sample (EOR 1) from this zone returned 0.40% Pb, 1.82% Zn and 10.2 ppm Ag. A grab sample from this showing by SEREM in 1973 returned 5% Pb, 2.8% Zn, 5.5 oz/t Ag, 0.48% Ba.

d) Swan Showing Area (Figure 7, Map 2)

A number of carbonate hosted Pb/Zn showings occur in this area, the best of which is the Swan Main Showing. A number of old trenches were found here, the best of which displays 5.5 m of disseminated and stringer mineralization comprised of galena and yellow brown sphalerite in brecciated sparry dolomite. The base of the mineralized unit is open and covered within the trench. Continuous chip sampling of the above zone returned 0.30% Pb, 0.51% Zn, 6.11 ppm Ag over 5.5 m. Two grab samples from this zone returned:

R002: 0.4% Pb, 1.76% Zn, 7.5 ppm Ag

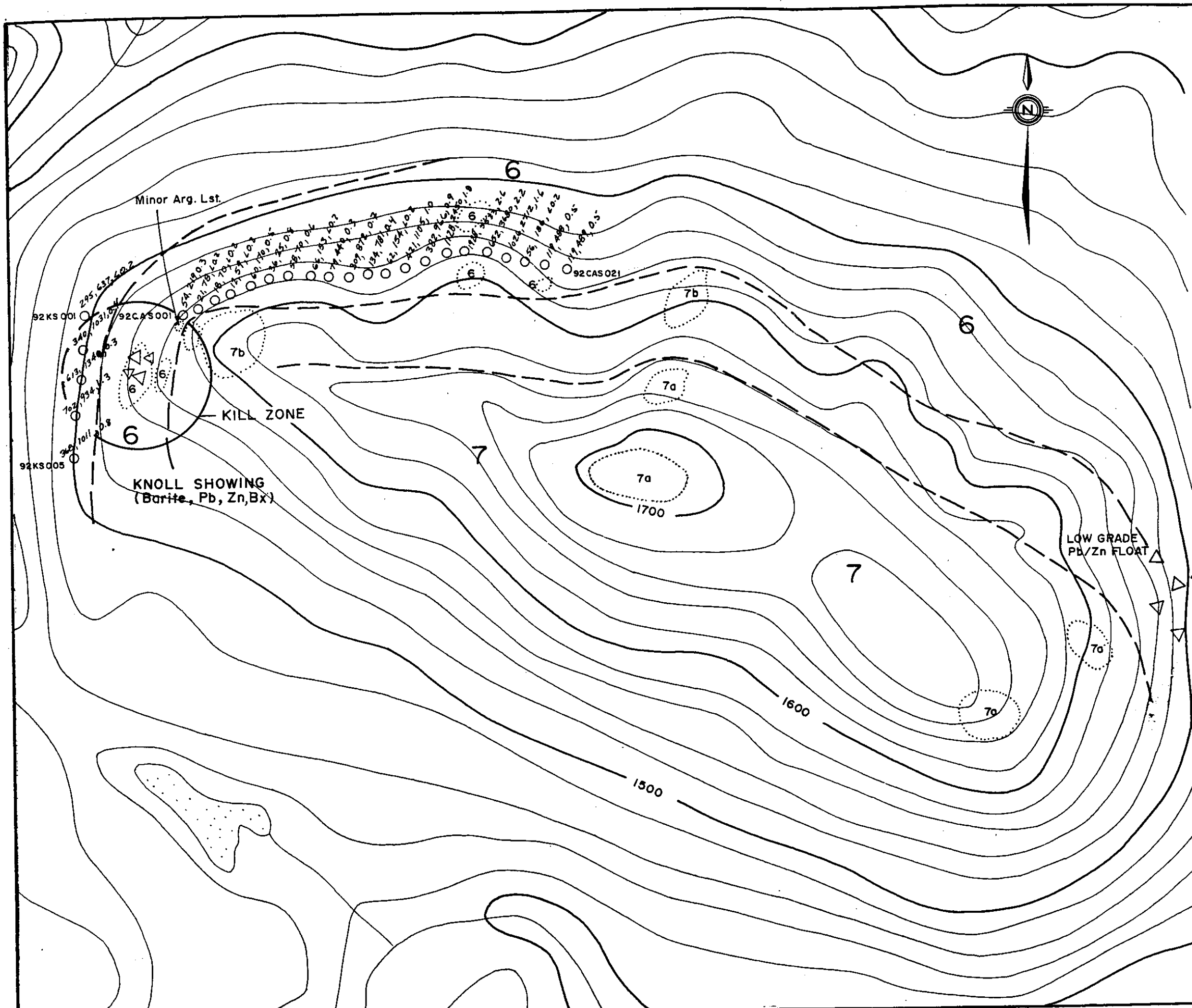
R003: 1.00% Pb, 1.61% Zn, 21.8 ppm Ag

A grab sample by SEREM (1973) returned 2.5% Pb, 9.2% Zn, 1.0 oz/t Ag, 1,000 ppm Ba.

Approximately 400 m to the northeast of the above showing is another mineralized occurrence consisting of coarse barite and light-brown sphalerite in fractured siliceous carbonate (Swan Middle Showing). A grab sample (R007) from the siliceous part of this zone returned 0.4% Pb, 1.82% Zn, 4.3 ppm Ag. A number of trenches occur about 200 m to the northwest (Swan North Showing) which occur in siliceous dolomite host rocks. Only a few traces of galena were found here.

A small gossan occurs 700 m northeast of the Swan Main Showing within the same carbonate stratigraphy. This gossan is about 10 m in diameter; a soil sample collected near this gossan returned 4,963 ppm Pb, 10,993 ppm Zn and 4 ppm Ag. Of more significance is the large Pb/Zn geochemical soil anomaly which extends 500 - 700 m to the northeast of this point.

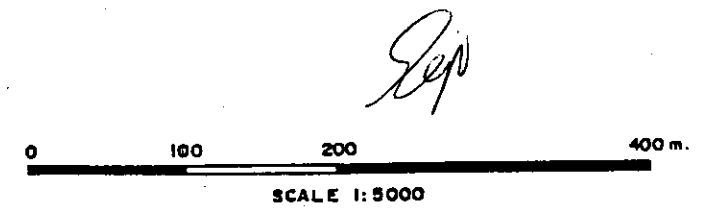
A few other showings occur on the property, namely the Rain A (Pb/Zn) showing, at the north-end of the property and barite lenses in the siliceous black argillite of the Earn Group at the Burn Showing, about 1 km southeast of the Crag



LEGEND

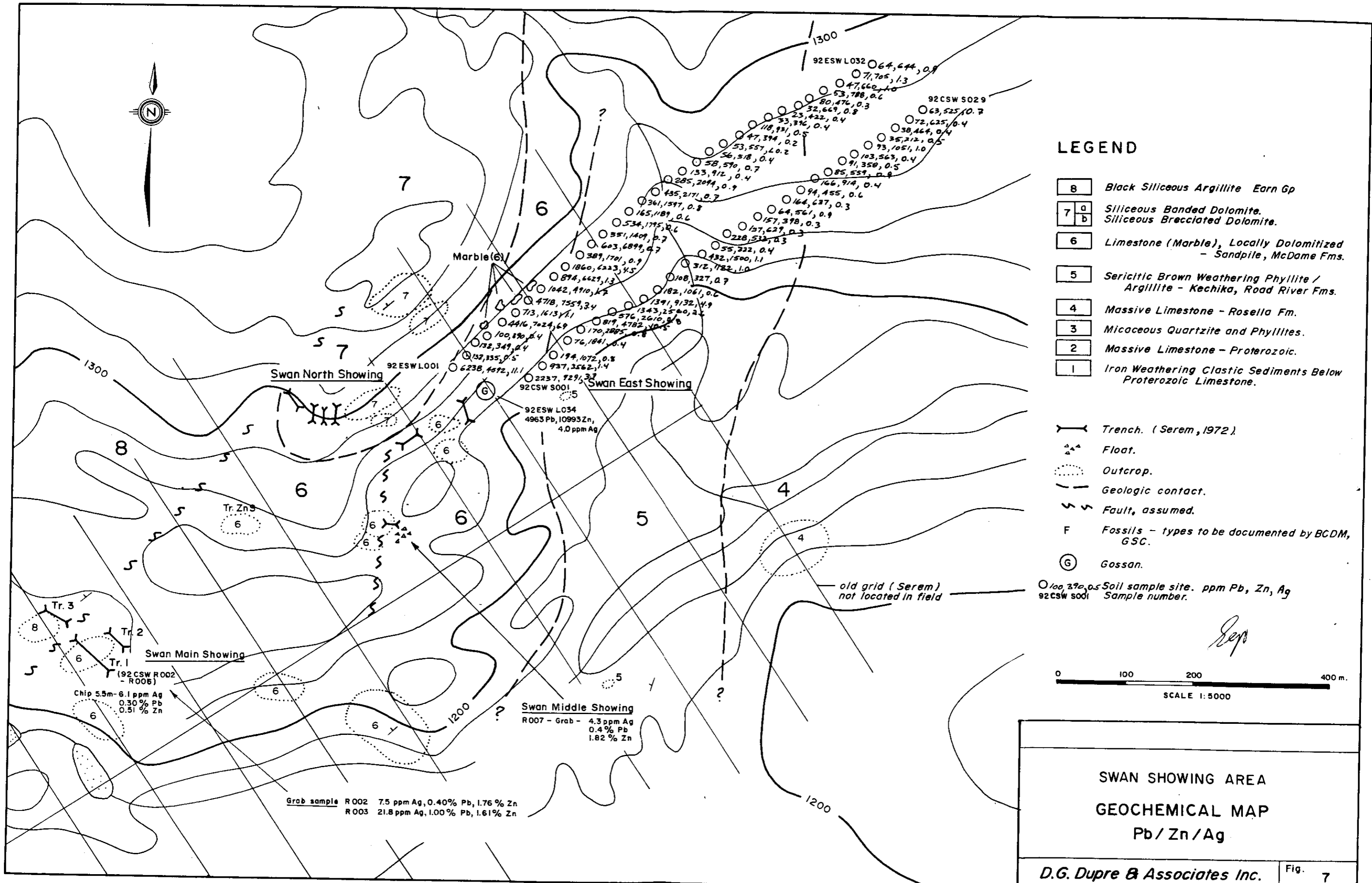
- 8 *Black Siliceous Argillite - Earn Gp.*
- 7 a *Siliceous Banded Dolomite.*
b *Siliceous Brecciated Dolomite.*
- 6 *Limestone (Marble), Locally Dolomitized - Sandpile, McDame Fms.*
- 5 *Sericitic Brown Weathering Phyllite / Argillite - Kechika, Road River Fms.*
- 4 *Massive Limestone - Rosella Fm.*
- 3 *Micaceous Quartzite and Phyllites.*
- 2 *Massive Limestone - Proterozoic.*
- 1 *Iron Weathering Clastic Sediments Below Proterozoic Limestone.*

- Trench (Serem, 1972).*
- Float.*
- Outcrop.*
- Geologic contact.*
- Fault, assumed.*
- F* *Fossils - types to be documented by BCDM, GSC.*
- G *Gossan.*
- O/17,489 *Soil sample site. ppm Pb, Zn, Ag*
92CAS021 *Sample number.*



KNOLL SHOWING AREA
GEOCHEMICAL MAP
Pb / Zn / Ag

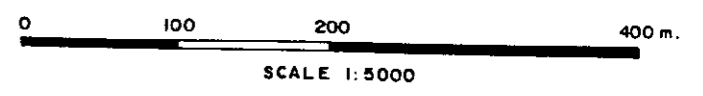
D.G. Dupre & Associates Inc. Fig. 6



LEGEND

- 8 Black Siliceous Argillite Earn Gp
 - 7a Siliceous Banded Dolomite.
 - 7b Siliceous Brecciated Dolomite.
 - 6 Limestone (Marble), Locally Dolomitized - Sandpile, McDame Fms.
 - 5 Sericitic Brown Weathering Phyllite / Argillite - Kechika, Road River Fms.
 - 4 Massive Limestone - Rosella Fm.
 - 3 Micaceous Quartzite and Phyllites.
 - 2 Massive Limestone - Proterozoic.
 - 1 Iron Weathering Clastic Sediments Below Proterozoic Limestone.
- Trench. (Serem, 1972)
 - Float.
 - Outcrop.
 - Geologic contact.
 - Fault, assumed.
 - F Fossils - types to be documented by BCDM, GSC.
 - G Gossan.

○ 100, 390, 0.5 Soil sample site. ppm Pb, Zn, Ag
 92CSW 5001 Sample number.



**SWAN SHOWING AREA
 GEOCHEMICAL MAP
 Pb / Zn / Ag**

D.G. Dupre & Associates Inc.

Fig. 7

Grab sample R002 7.5 ppm Ag, 0.40% Pb, 1.76% Zn
 R003 21.8 ppm Ag, 1.00% Pb, 1.61% Zn

Swan Middle Showing
 R007 - Grab - 4.3 ppm Ag
 0.4% Pb
 1.82% Zn

Swan Main Showing

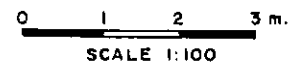
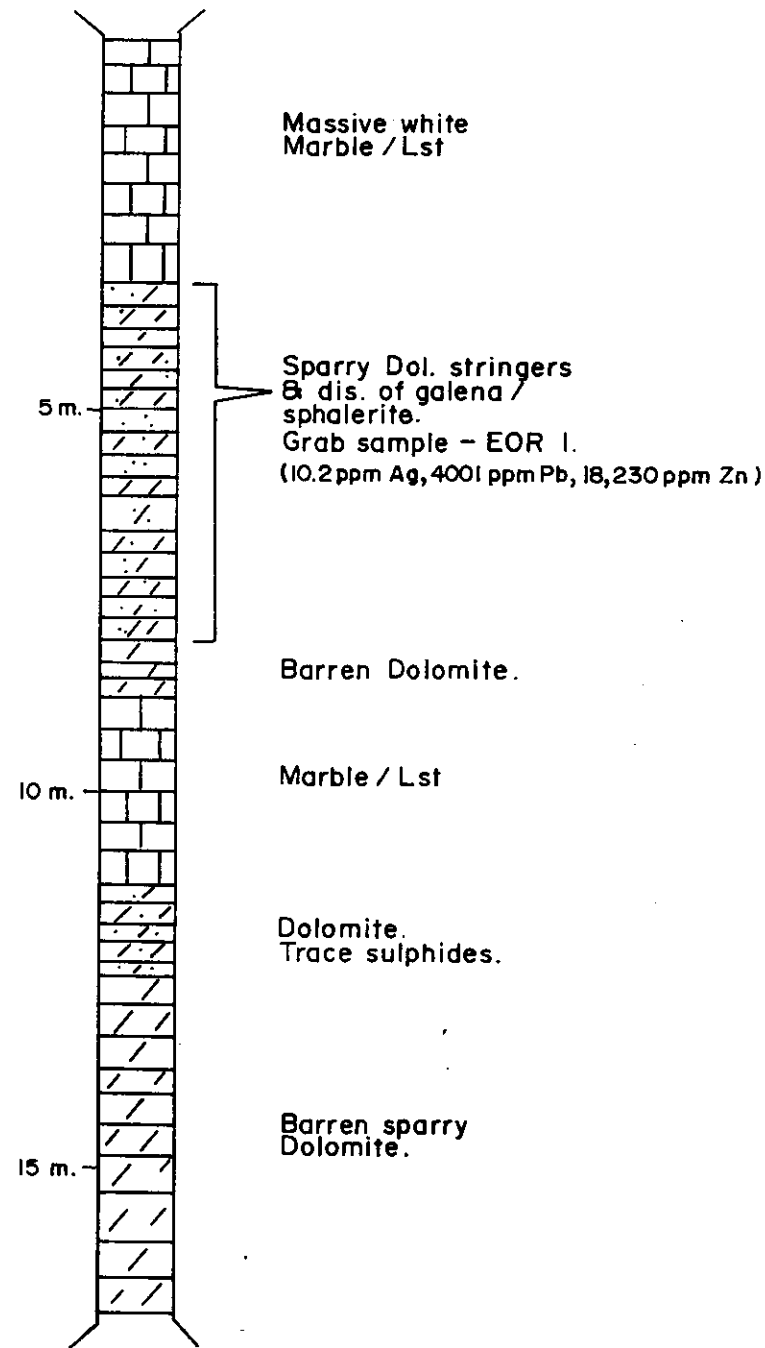
Swan East Showing

Swan North Showing

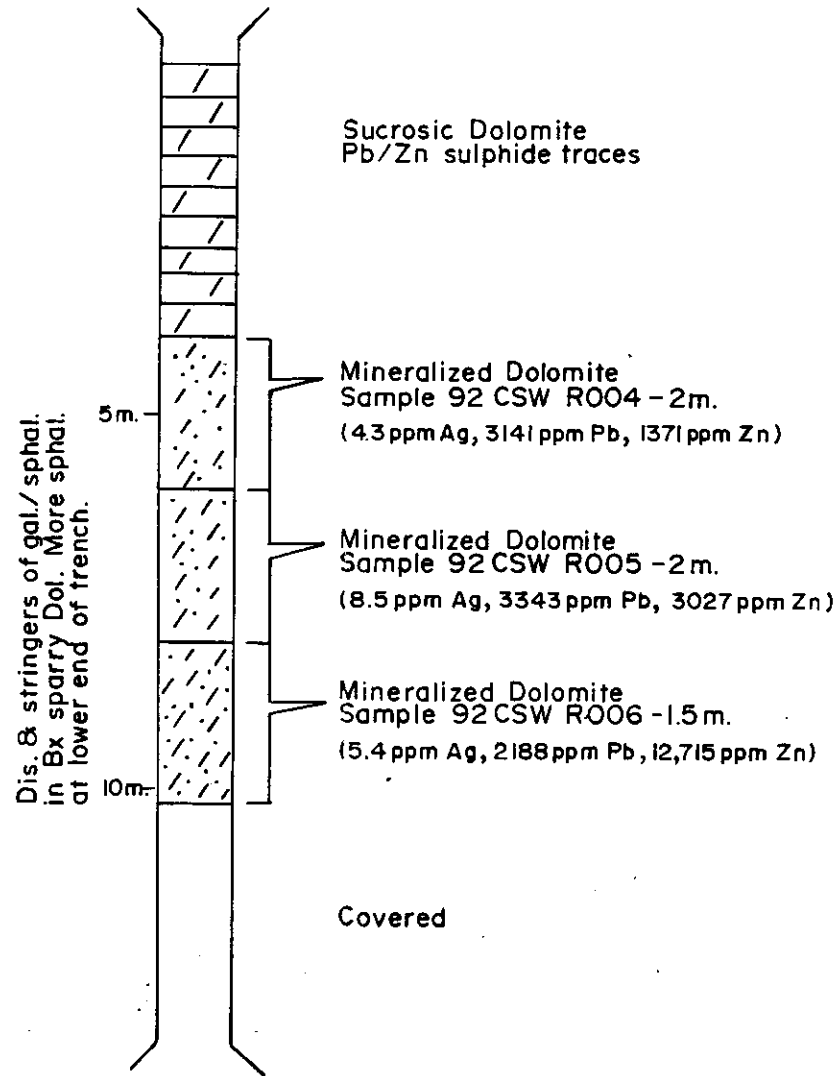
Marble (6)



Main Crag Trench



Main Swan Trench

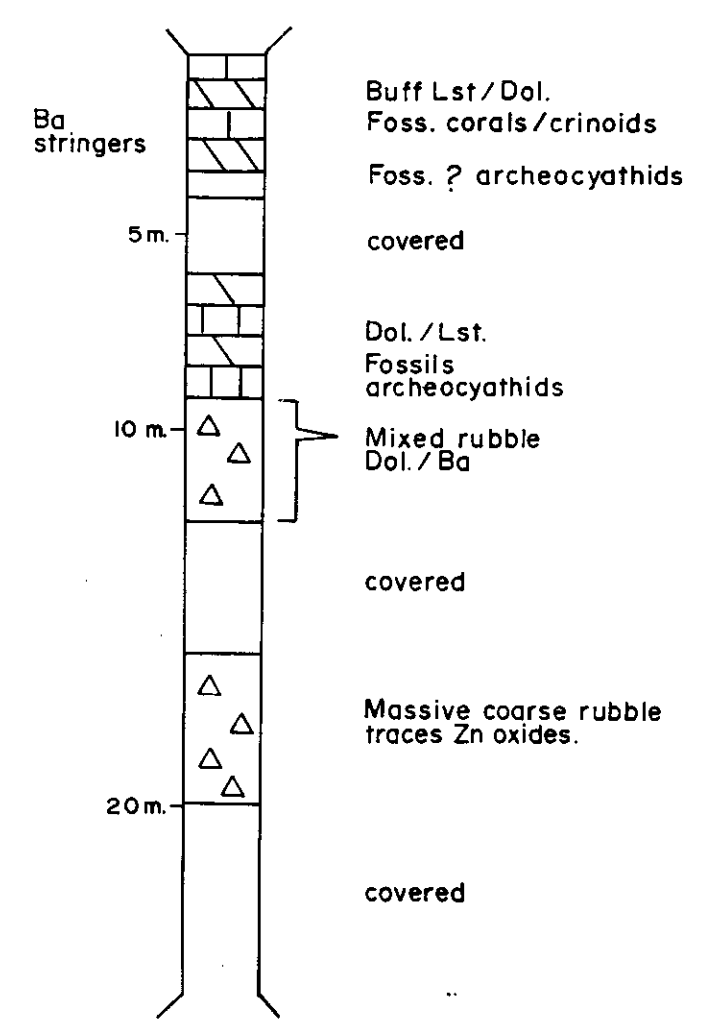


Grab Samples

92 CSW R002 - H. grade lt. br. sphalerite in Dol. spar. (7.5 ppm Ag, 3975 ppm Pb, 17,562 ppm Zn)
92 CSW R003 - Galena rich grab samples in Dol. spar. (21.8 ppm Ag, 9877 ppm Pb, 16088 ppm Zn)



Main Rain B Trench



Dep

CRAG, SWAN & RAIN B SHOWINGS

TRENCH PLAN

D.G. Dupre & Associates Inc.

Figure: 8

Showing. Neither of these were examined in the field but one grab sample by SEREM (1973) from the Rain A Showing returned 0.82% Pb, 3.68% Zn, 0.10 oz/t Ag, 14.5% Ba.

4.0 EXPLORATION PROGRAM

4.1 Research

In June of 1992, Rex Pegg conducted a research of the published government information and mapping done by the G.S.C. and B.C.D.M. in this area. In addition, a number of assessment reports filed by SEREM in 1973 on claim groups presently covered by the Swan property were evaluated. The results of this research is covered in a Summary Report by Rex Pegg.

4.2 Geological Mapping

Reconnaissance mapping was done on a 1:10,000 scale using altimeter, 1:50,000 topographic maps and old geological maps from assessment reports for control.

4.3 Geochemistry

A total of seven rock samples and 88 soil samples were collected and analyzed for Pb, Zn, Ag by Bondar Clegg, using the Atomic absorption method. Rock samples (grabs and chips) were taken from the main known mineralized showings. Contour soil samples were collected from the "B" horizon in two main areas of interest: a) the Knoll Showing area in the north and b) the Swan East mineralized area in the south part of the property. Based on regional studies, anomalous levels have been estimated at 75 ppm Pb and 200 ppm Zn and 1.0 ppm Ag. Silver values tend to correlate with the Pb values.

Knoll Area

Seventeen out of 26 soil samples are anomalous in this area over a distance of 500 to 750 m. The source of the geochemical anomalous values is from minor galena/sphalerite

mineralization within the dolomitized carbonates. Additional anomalous areas occur further downslope as outlined by sampling done by SEREM (1973). These additional areas may be underlain by the Kechika Group.

Swan East

Two contour soil lines cover a length of 700 - 800 metres with sampling at 25 m spacings. All zinc values are anomalous with the highest value of 10,993 ppm; Pb values are anomalous over the western half of the sampled area with the highest value being 6,238 ppm. The anomalous zone is marked by a small gossan and a few carbonate outcrops near the west end of the sampled area; the rest of the Pb/Zn geochemical anomaly is believed to be underlain by the recessive Kechika Group phyllites.

5.0 CONCLUSIONS

1. The Swan property is underlain by the Cassiar Terrane stratigraphy and ranges in age from Late Proterozoic (Ingenika Group) to Devonian-Mississippian (Big Creek - Earn Group). This package is equivalent to the Kechika Trough to the north which hosts economically significant stratiform Pb/Zn deposits, and to the stratigraphic package to the south which hosts the Cominco Par Pb/Zn prospect.
2. Paleozoic fossils including archeocyathids have been found on the property on the R 1-10 claims (BCDM - Ferri, 1992).
3. All the mineralized showings consist of fairly low grade Pb/Zn with varying amounts of barite. They are fairly limited in extent, occurring in localized areas of brecciation and dolomitization within limestone, marble host rocks. One barite occurrence consists of stratabound lenses within the siliceous argillites of the Earn Group (Burn Showing).

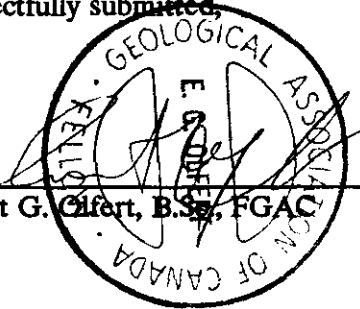
4. Significant Pb/Zn geochemical soil anomalies occur both in the area of the Knoll Showing to the north and in the Swan East showing to the south. The Kechika Group tuffaceous phyllites which were observed in outcrop at the north end of the property on the R 2-4 and 10 claims, partially underlies these anomalous area which are potential targets for stratiform Pb/Zn sulphide deposits.

6.0 RECOMMENDATIONS

The presence of the favourable stratigraphic host rocks together with the presence of outcrop mineralization and unexplained soil geochemical anomalies suggest that the Swan property has an excellent potential for hosting stratabound/strataform Pb/Zn ore bodies. Specifically, the soil geochemical anomalies both at the Knoll and Swan East areas should be trenched. Extensive further soil sampling should be done between the two above anomalies to trace the covered trend of the Kechika Group horizon; this should be supplemented by stratigraphic mapping. Some soil and rock sampling should also be done in potential areas underlain by the siliceous Earn Group argillites especially near the Burn Showing which has stratiform barite lenses.

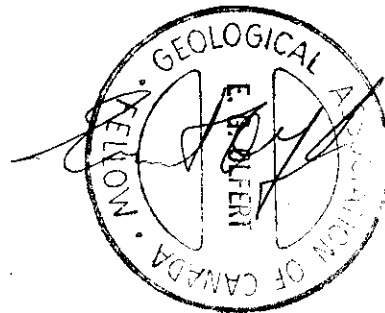
Respectfully submitted,

Ernest G. Olfert, B.Sc., FGAC



7.0 STATEMENT OF EXPENDITURES

Research	\$ 2,244.00
Drafting	1,573.97
Field Work (contract costs)	5,733.29
Geochemistry (lab costs)	1,248.96
Field Expenses	1,058.87
Truck	500.00
Helicopter	1,807.31
Miscellaneous	19.20
Report Writing	2,500.00
Supervision (D. DuPré)	<u>1,625.00</u>
TOTAL:	<u>\$18,310.60</u>
Swan Portion (80%):	\$14,648.48
Rap 1 & 2 Claims (20%):	\$ 3,662.12



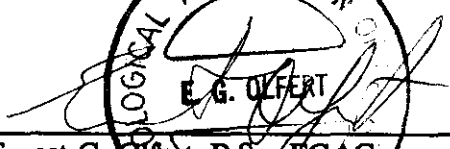
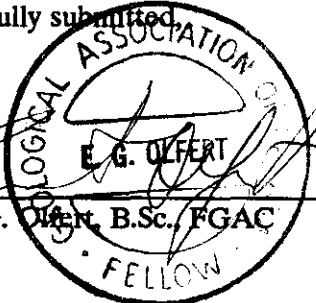
8.0 STATEMENT OF QUALIFICATIONS

I, ERNEST G. OLFERT, of Keewatin Engineering Inc. with a business address of Suite 800 - 900 West Hastings Street, Vancouver, B.C. do hereby certify that:

1. I am a Consulting Geologist registered with the Geological Association of Canada as a Fellow. I am also registered as a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
2. I hold a B.Sc. (Honours) Degree in Geology (1970) from the University of Calgary, Alberta.
3. I have practised my profession as a geologist continuously since 1970, having worked in Canada, Mexico, Greenland and Europe. I have worked for Cominco from 1970 - 1983 and for a number of small public companies from 1983 to 1990 before joining Keewatin Engineering Inc.
4. I have based this report mainly on field work conducted by the author during the 1992 field season, and partly on literature research done by Rex Pegg in the spring of 1992.
5. I have no financial interest in the property described in this report and will receive only standard consulting fees for the preparation of this report.

Dated at Vancouver, British Columbia this 30th day of November 1991.

Respectfully submitted,


Ernest G. Olfert, B.Sc., FGAC


9.0 BIBLIOGRAPHY

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APPENDIX I

Geochemical Lab Report by Bondar-Clegg

Bondar-Clegg & Company Ltd.
 130 Pemberton Avenue
 North Vancouver, B.C.
 V7P 2R5
 Tel: (604) 985-0681
 Fax: (604) 985-1071



Geochemical
 Lab Report

REPORT: V92-00959.0 (COMPLETE)

REFERENCE:

CLIENT: FIRESTEEL RESOURCES
 PROJECT: NONE GIVEN

SUBMITTED BY: UNKNOWN
 DATE PRINTED: 4-SEP-92

ORDER	ELEMENT	NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Ag Silver	164	0.2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
2	Pb Lead	164	2 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA
3	Zn Zinc	164	1 PPM	HCL:HNO3 (3:1)	INDUC. COUP. PLASMA

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
S SOIL	142	1 -80	157	CRUSH/SPLIT <10 LB	7
T STREAM SED, SILT	15	2 -150	7	PULVERIZATION	7
R ROCK	7			DRY, SIEVE -80	157
				DRYING	157

REPORT COPIES TO: MR. DAVE DUPRE

INVOICE TO: MR. DAVE DUPRE

REPORT: V92-00959.0 (COMPLETE)

DATE PRINTED: 4-SEP-92

PROJECT: NONE GIVEN

PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Pb PPM	Zn PPM	SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Pb PPM	Zn PPM
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S1 92CA S003		<0.2	18	70	S1 92CSW S022		0.9	85	559
S1 92CA S004		<0.2	12	59	S1 92CSW S023		0.5	91	358
S1 92CA S005		0.5	60	170	S1 92CSW S024		0.4	103	563
S1 92CA S006		0.8	36	25	S1 92CSW S025		1.0	93	1051
S1 92CA S007		0.6	58	70	S1 92CSW S026		0.5	35	212
S1 92CA S008		<0.2	66	153	S1 92CSW S027		0.4	38	464
S1 92CA S009		0.3	79	440	S1 92CSW S028		0.4	72	625
S1 92CA S010		0.7	309	872	S1 92CSW S029		0.7	63	525
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S1 92CA S016		2.6	1928	5533	S1 92ERAP S012		0.7	5	288
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S1 92CSW S019		0.3	164	637	S1 92ERAP S060		0.3	12	76

Super

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Super

RAP

DATE PRINTED: 4-SEP-92

REPORT: V92-00959.0 (COMPLETE)

PROJECT: NONE GIVEN

PAGE 2

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S1 92ERAP S068		0.3	6	36	S1 92ESW L020		0.7	58	590
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S1 92ERAP S092		0.5	11	106	S1 92ESW L032		0.9	64	644
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S1 92ERAP S0102		0.3	7	68	S1 92K S004		1.3	702	934
S1 92ERAP S0104		0.3	14	77	S1 92K S005		0.8	368	1011
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S1 92ESW L005		6.9	4416	7024	T1 92ERAP T007		0.5	14	434
S1 92ESW L006		1.1	713	1613	T1 92ERAP T008		0.6	17	1060
S1 92ESW L007		3.4	4718	7559	T1 92ERAP T009		0.4	14	103
S1 92ESW L008		1.7	1042	4910	T1 92ERAP T010		0.5	15	91
S1 92ESW L009		1.3	894	6629	T1 92ERAP T011		3.6	33	219
S1 92ESW L010		4.5	1860	6223	T1 92ERAP T012		0.6	12	98
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S1 92ESW L014		0.6	534	1795	R2 92CSW R002		7.5	3975	17562
S1 92ESW L015		0.6	165	1189	R2 92CSW R003		21.8	9877	16088
S1 92ESW L016		0.8	361	1597	R2 92CSW R004		4.3	3141	1371

RAP

Sulfur

RAP

Sulfur

Bondar-Clegg & Company Ltd.
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North Vancouver, B.C.
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PAGE 3

SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Pb PPM	Zn PPM	SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Pb PPM	Zn PPM
R2 92CSW R005		8.5	3343	3027					
R2 92CSW R006		5.4	2188	12715					
R2 92CSW R007		4.3	1057	16118					
R2 EOR1		10.2	4001	18230					

Sheets

Bondar-Clegg & Company Ltd.
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 North Vancouver, B.C.
 V7P 2R5
 Tel: (604) 985-0681
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PROJECT: NONE GIVEN

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STANDARD NAME	ELEMENT UNITS	Ag PPM	Pb PPM	Zn PPM	STANDARD NAME	ELEMENT UNITS	Ag PPM	Pb PPM	Zn PPM
TRACE GEOCHEM STD		0.6	30	243					
TRACE GEOCHEM STD		0.7	28	229					
Number of Analyses		2	2	2					
Mean Value		0.64	29.1	236.1					
Standard Deviation		0.099	1.55	9.31					

Accepted Value		0.5	33	255					
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ANALYTICAL BLANK		-	-	-					
ANALYTICAL BLANK		-	-	-					
ANALYTICAL BLANK		-	-	-					
ANALYTICAL BLANK		-	-	-					
ANALYTICAL BLANK		-	2	10					

Number of Analyses		5	5	5					
Mean Value		0.10	1.2	2.4					
Standard Deviation		-	0.52	4.15					
Accepted Value		0.2	2	1					

GS89-2		6.6	189	447					
GS89-2		7.2	189	478					
Number of Analyses		2	2	2					
Mean Value		6.87	189.2	462.5					
Standard Deviation		0.430	0.32	21.55					

Accepted Value		5.0	250	500					
----------------	--	-----	-----	-----	--	--	--	--	--

GEO TRACE STD1(1989)		31.1	-	57					
Number of Analyses		1	-	1					
Mean Value		31.07	-	56.6					
Standard Deviation		-	-	-					
Accepted Value		34.0	15	62					

Bondar-Clegg & Company Ltd.
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Geochemical
 Lab Report

REPORT: V92-00959.0 (COMPLETE)

DATE PRINTED: 4-SEP-92

PROJECT: NONE GIVEN

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SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Pb PPM	Zn PPM	SAMPLE NUMBER	ELEMENT UNITS	Ag PPM	Pb PPM	Zn PPM
92CA S010 Duplicate		0.7	309	872					
		0.7	304	862					
92CSW S006 Duplicate		10.5	819	4782					
		10.3	817	4795					
92CSW S026 Duplicate		0.5	35	212					
		0.4	36	210					
92ERAP S028 Duplicate		0.6	17	24					
		0.5	17	23					
92ERAP S068 Duplicate		0.3	6	36					
		0.3	6	36					
92ERAP S0102 Duplicate		0.3	7	68					
		0.3	6	70					
92ESW L017 Duplicate		0.7	435	2171					
		0.8	433	2094					
92K S001 Duplicate		<0.2	295	637					
		<0.2	283	620					
92CSW R002 Duplicate		7.5	3975	17562					
		8.0	4070	17395					

APPENDIX II
Sample Descriptions

KEEWATIN ENGINEERING INC.

SOIL SAMPLES

Project: Five steel / Swan

Results Plotted By: _____

Area (Grid): Swan #2 claim

Map: _____ N.T.S.: _____

Collectors: E. OLVERT

Date: _____

Sample Number	Sample Location		Notes	Topography				Vegetation					Soil Data							
	Line	Station		Valley Bottom	Direction of slope	Hill Top	Level Ground	Heavily Wooded	Sparsely Wooded	Burnt	Logged	Grassland	Swampy	Horizon Sampled	Depth to Horizon Sample	Horizon Development		Parent	Material	Colour
																Good	Poor			
92	E SW	L001	Contours 1760 metres		SE								B	4"					red/bv	
		2																	red/bv	
		3																	red/bv	
		4																	red/bv	
		5																	red/bv	
		6																	red/bv	
		7																	red/bv	
		8																	red/bv	
		9																	red/bv	
		10																	red/bv	
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		23																	red/bv	
		24																	red/bv	
		25																	red/bv	
		26																	red/bv	
		27																	red/bv	
		28																	red/bv	
		29																	red/bv	
		30																	red/bv	

old burn

KEEWATIN ENGINEERING INC.

SOIL SAMPLES

Project: FIRESTEEL

Results Plotted By: _____

Area (Grid): SWAN #2 CLAIM 1220m CONTOUR

Map: _____ N.T.S.: _____

Collectors: C. KAUSS

Date: _____

Sample Number	Sample Location		Notes	Topography			Vegetation					Soil Data								
	Line	Station		Valley Bottom	Direction of slope	Hill Top	Level Ground	Heavily Wooded	Sparsely Wooded	Burnt	Logged	Grassland	Swampy	Horizon Sampled	Depth to Horizon Sample	Horizon Development		Parent	Material	Colour
																Good	Poor			
92 CSW	S001	0+00	1220m		SE			✓					B	30	✓			✓	DB	
	002							✓					B	30	✓			✓	DB	
	003												B	30				✓	LB	
	004												B	30				✓	B _r	
	005		10 frag										B	30				✓	LB	
	006												B	30					RP	
	007												B	40					RB	
	008												B	40					B _r	
	009												B	30					LB	
92 CSW	S010	2+25											A	40					RB	
	011												B	30					LB	
	012												B	30					LB	
	013												B	40					LB	
	014												B	40					LB	
	015		15 org.										B	40					RB	
	016												B	30					RB	
	017		20 org. frag										B	30					DB	
	018												B	40					DB	
	019												B	40	↓				RB	
92 CSW	S020	4+75											B	40	✓				RB	
	021												B	40	✓				LB	
	022		15 org 10 frag										A	40		✓			B _r	
	023												B	30	✓				B _r	
	024												B	40	✓				B _r	
	025												B	36	↓				RB	
	026												B	30	↓				RB	
	027							↓					B	30	↓				RB	
	028							✓					B	40	✓			✓	RB	
92 CSW	029	7+00	1260 m		SE			✓					B	40	✓			✓	RB	

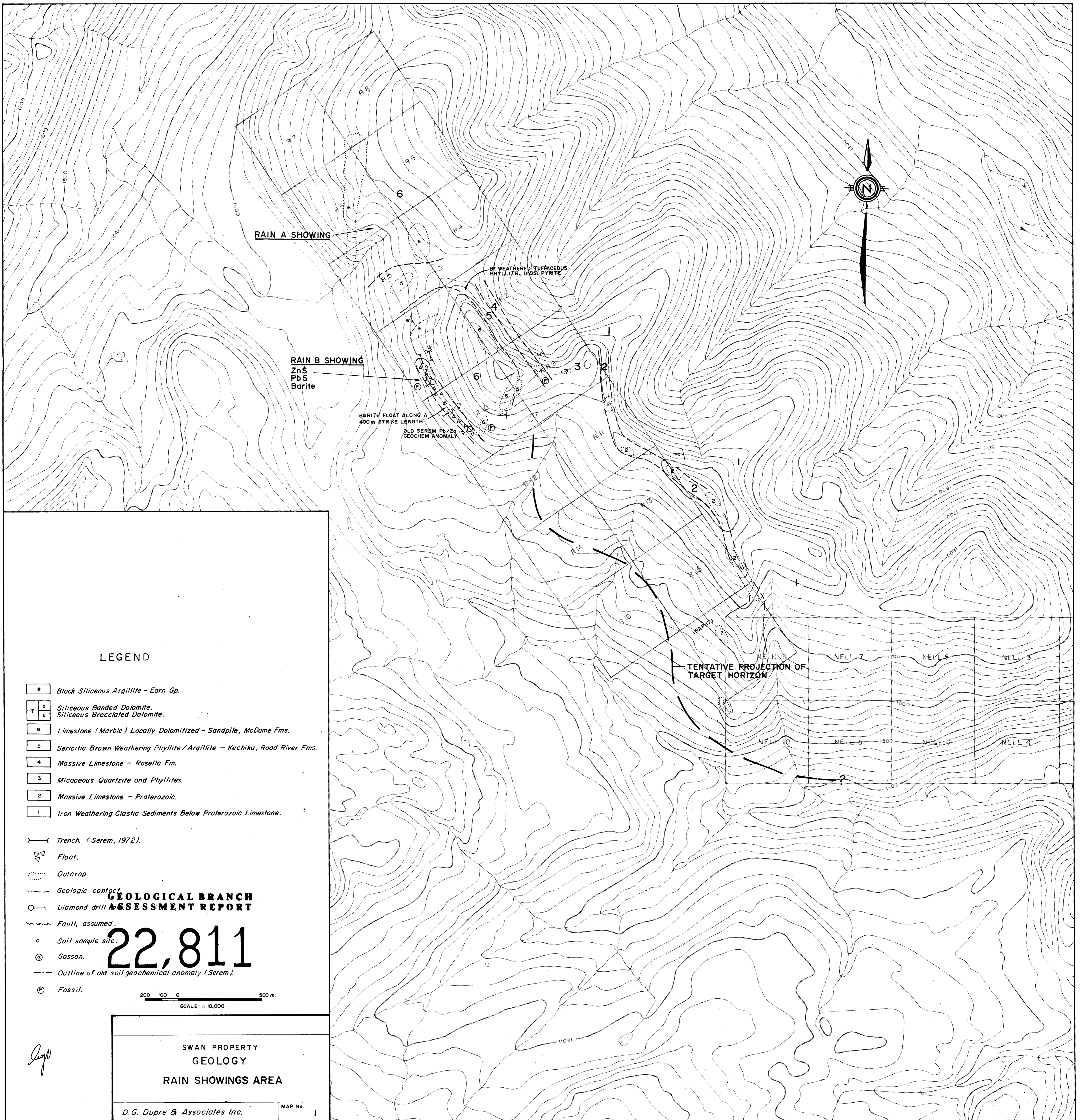
KEEWATIN ENGINEERING INC.

ROCK SAMPLES

Project: Firesteel
 Area (Grid): Swan Claims
 Collectors: E. OLFERT - CURT KAUSS

Results Plotted By: _____
 Map: _____ NTS: _____
 Date: _____ Surface _____ Underground _____

SAMPLE NUMBER	LOCATION	NOTES	REP. SAMPLE NUMBER	SAMPLE TYPE (LENGTH,m)					ROCK TYPE	SAMPLE DESCRIPTION	MAP SHEET / CLAIM
				GRAB	CHIP	CHANNEL	CORE	FLOAT			
EOR #1	Crag Showing Trench			✓					Dolomite	Brecciated Dolomite with stringers and slabs of Galena. Dis. mineralization in trench over $\approx 16'$ or (4.9m).	
92CSW R002	Swan Main Trench Southwest			✓					Dolomite	High-grade sphal. in Brecciated Dolomite with dolospar (Lt Brown fine grained) SWAN MAIN SHOWING	
92CSW R003	Swan Main Trench as R002			✓					Dolomite	High-grade galena slabs and stringers in BX dolomite with sec. Dolospar.	
92CSW R004	Swan Main Trench				✓				Dolomite	2m mineraloid Bt. Dolomite middle of trench Galena / sphal.	
92CSW R005	Swan Main Trench				✓				"	2m adjacent and S.E. of R004 more sphalinite than galena	
92CSW R006	Swan Main Trench				✓				"	1.5m adjacent and S.E. of R005 sphalinite.	
92CSW R007	Swan Central Showing			✓					Silicified Bx. Dal.	grab sample of Lt. colored sphalinite in brittle fractured Brown silicified dolomite Some Galena and brite bit sample for analysis is primarily Zn rich.	



LEGEND

- 8 Black Siliceous Argillite - Earn Gp.
 - 7 a Siliceous Banded Dolomite.
b Siliceous Brecciated Dolomite.
 - 6 Limestone (Marble) Locally Dolomitized - Sandpile, McDome Fms.
 - 5 Sericitic Brown Weathering Phyllite / Argillite - Kechika, Road River Fms.
 - 4 Massive Limestone - Rosella Fm.
 - 3 Micaceous Quartzite and Phyllites.
 - 2 Massive Limestone - Proterozoic.
 - 1 Iron Weathering Clastic Sediments Below Proterozoic Limestone.
- Trench. (Serem, 1972).
 - Float.
 - Outcrop.
 - Geologic contact.
 - Diamond drill
 - Fault, assumed.
 - Soil sample site.
 - Gossan.
 - Outline of old soil geochemical anomaly (Serem).
 - Fossil.

22,811

SCALE 1:10,000

SWAN PROPERTY
GEOLOGY
RAIN SHOWINGS AREA

D.G. Dupre & Associates Inc. MAP No. 1

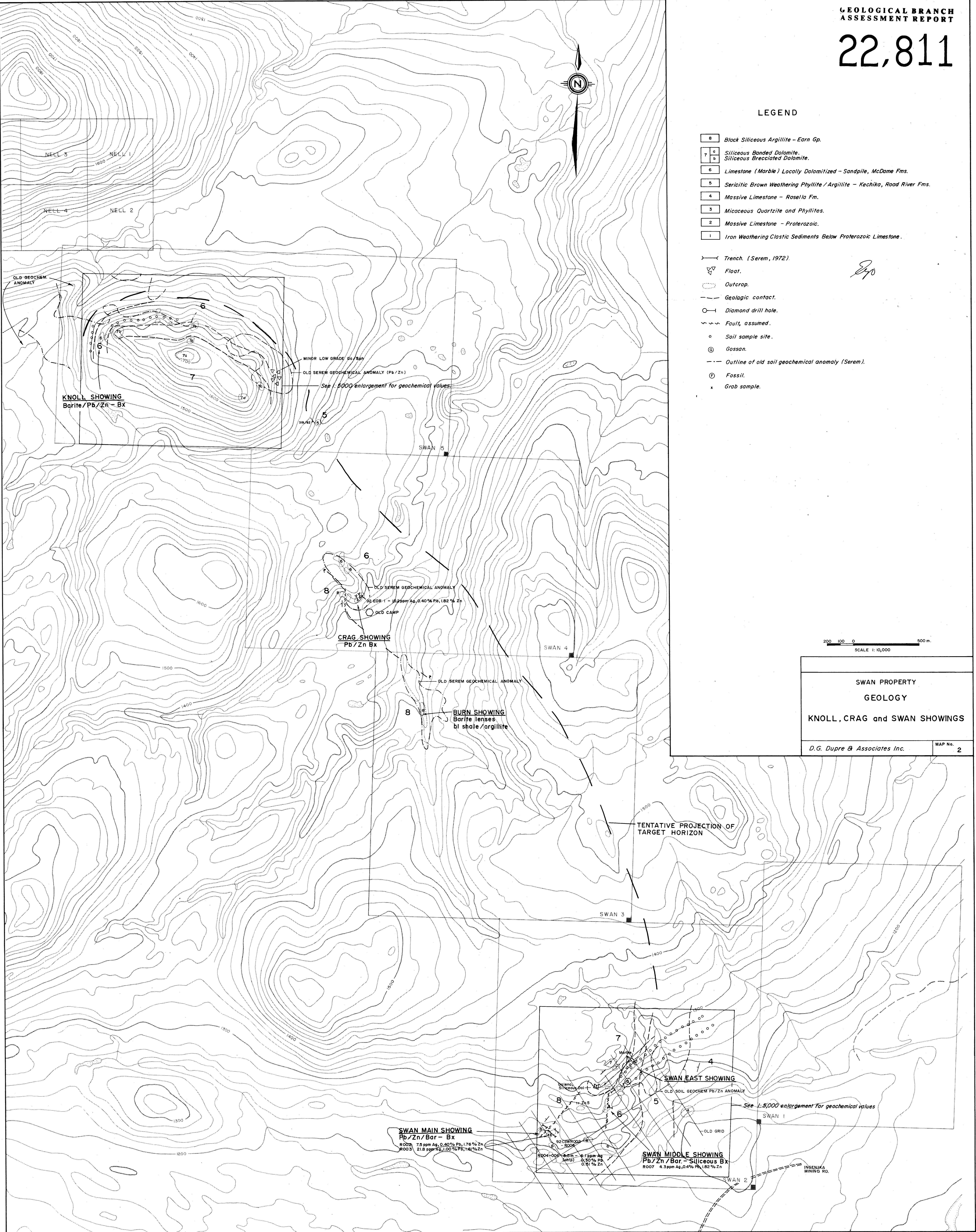
LEGEND

- 8 Black Siliceous Argillite - Earn Gp.
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 - 2 Massive Limestone - Proterozoic.
 - 1 Iron Weathering Clastic Sediments Below Proterozoic Limestone.
-
- Trench. (Serem, 1972)
 - ▽ Float.
 - Outcrop.
 - Geologic contact.
 - Diamond drill hole.
 - Fault, assumed.
 - Soil sample site.
 - ⊙ Gossan.
 - Outline of old soil geochemical anomaly (Serem).
 - ⊕ Fossil.
 - x Grab sample.

Edo

200 100 0 500 m.
SCALE 1:10,000

SWAN PROPERTY
GEOLOGY
KNOLL, CRAG and SWAN SHOWINGS
D.G. Dupre & Associates Inc. MAP No. 2



KNOLL SHOWING
Barite/Pb/Zn - Bx

CRAG SHOWING
Pb/Zn Bx

BURN SHOWING
Barite lenses
bl shale/argillite

SWAN MAIN SHOWING
Pb/Zn/Bar - Bx
R002 7.5 ppm Ag, 0.40% Pb, 1.76% Zn
R003 21.8 ppm Ag, 1.00% Pb, 4.1% Zn

SWAN MIDDLE SHOWING
Pb/Zn/Bar - Siliceous Bx
R007 4.3 ppm Ag, 0.4% Pb, 1.82% Zn

SWAN EAST SHOWING

TENTATIVE PROJECTION OF
TARGET HORIZON

See 1:5,000 enlargement for geochemical values

INGENJKA MINING RD.