

672029

**GEOLOGICAL REPORT**

**ON THE**

**EAGL CLAIM GROUP  
LIARD MINING DIVISION, B.C.  
N.T.S. 104P/3W**

**LATITUDE 59°04' N  
LONGITUDE 129° 28'W**

**For**

**CASAU EXPLORATION LTD.  
1458 RUPERT STREET  
NORTH VANCOUVER, B.C.  
V7J 1G1**

**By**

**JAMES J. McDOUGALL, P.Eng.  
J.J. MCDUGALL & ASSOCIATES LTD.  
7720 SUNNYDENE ROAD  
RICHMOND, B.C.  
V6Y 1H1**

**DECEMBER 7, 1984**

## TABLE OF CONTENTS

	<u>Page</u>
Introduction and Summary	1
Location, Access and Topography	1
Property and Ownership	2
History and Development	3
Regional Geology	5
Property Geology	6
(a) Stratigraphy	6
(b) Structure	8
(c) Mineralization	8
Assays and Reserves	10
Surveys	10
(a) Geological	10
(b) Geophysical	11
(c) Geochemical	11
Conclusions	12
Recommendations	12
Proposed Work Program	15
Statement of Qualifications	17
References	18

## LIST OF ILLUSTRATIONS

<u>Figure</u>	<u>Title</u>	<u>Scale</u>	<u>Following Page</u>
1	Location Map	1:200,000	1
2	Claim Map	1:100,000	2
3	Regional Geology (after GSC)	1:1,000,000	4
4	Local Geology (including assays, proposed work areas)	1:20,000	7

## INTRODUCTION AND SUMMARY

The 40 unit Eagl claim group, located in the Cassiar area of northern B.C., was staked in 1983 to cover weakly mineralized quartz veins related to extensive silica-iron carbonate alteration zones associated with strong lineaments within volcanic or minor sedimentary rocks of the Sylvester Group. The rock unit also hosts the Erickson-McDame Creek gold deposits about 15 km to the north.

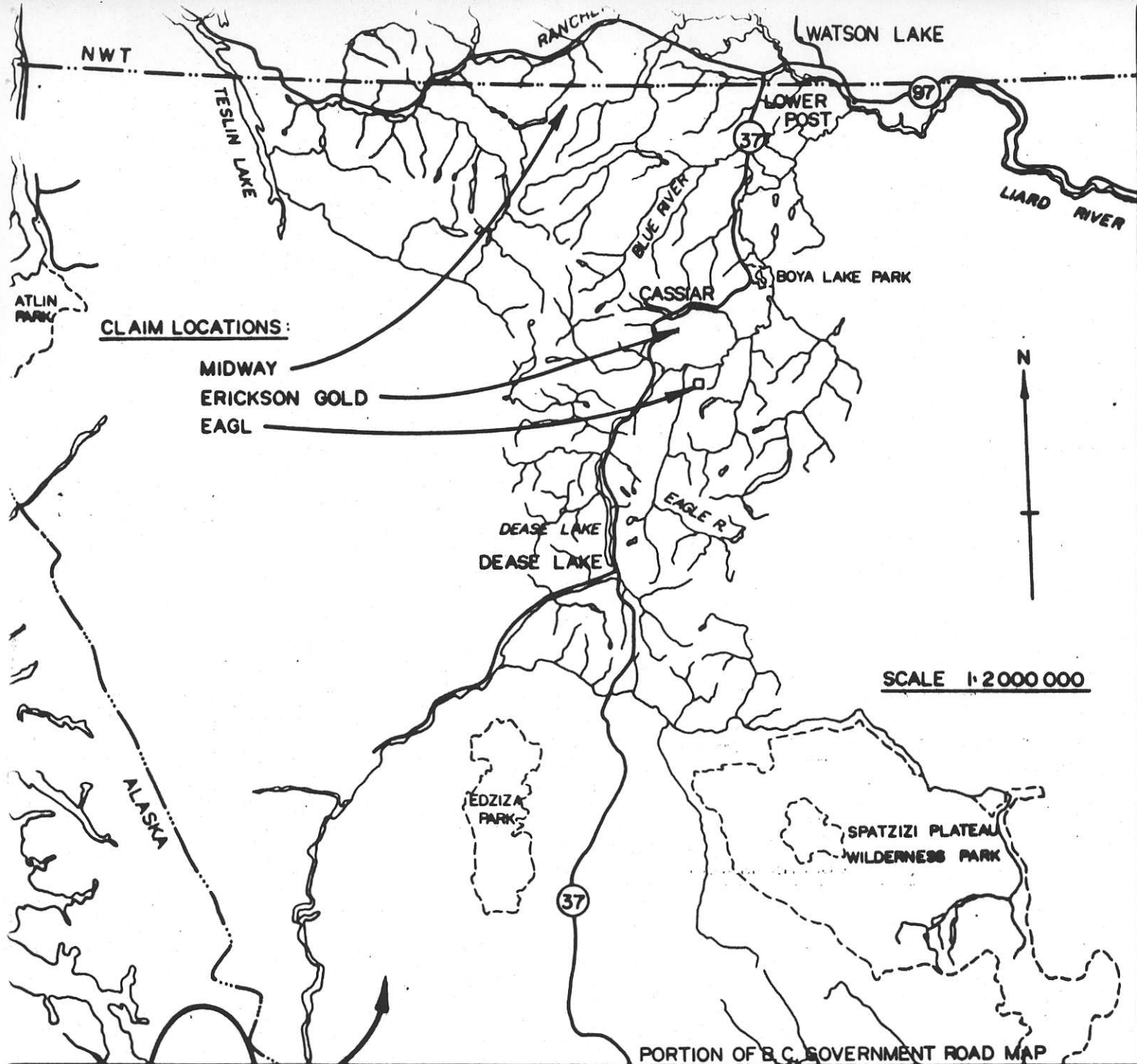
A program of geological and geochemical mapping in 1983 resulted in float and in-place samples carrying interesting amounts of precious and base metals, and geochemical surveys suggested larger areas of mineralization present. A follow-up program in 1984, including geophysics and trenching, resulted in the discovery of additional weakly mineralized quartz veins and massive sulphide float of possible "shale-hosted" origin. Most vein structures discovered occur in debris-filled depressions and their true extent is difficult or impossible to ascertain without more extensive trenching or drilling. The latter is recommended in a two stage program presented.

The writer was asked to prepare this report on the Eagl property by J.C. Stephen, president of J.C. Stephen Explorations Ltd. and Casau Exploration Ltd., a proposed public company whose intention is to acquire the Eagl Prospect.

The writers involvement with the property includes ground traverses in the Eagle Mountain area while employed as an assistant geologist with the GSC (Gabrielse 1963) and numerous local mineral prospect examinations and reconnaissance work in this portion of the Cassiar Range since that time, the most recent of the latter being in August of 1984.

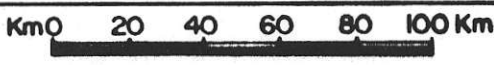
## LOCATION, ACCESS AND TOPOGRAPHY

The Eagl claim group is located in the Liard Mining Division, B.C. Latitude 59°04'N, Longitude 129°28'W, N.T.S. Map designation 104P/3W. It is some 35 air kilometres south-southeast of Cassiar B.C., as shown in Figure 1. The junction of the Eagle River with the Dease River lies 5 kilometres northwest of the property.



CASAU EXPLORATION LTD.  
LIARD MINING DIVISION, B.C.

EAGL CLAIM GROUP  
LOCATION MAP



J. J. McDOUGALL AND ASSOCIATES LTD.

Date: DECEMBER 1984

Figure: I

Access to the claims has been by helicopter from the closest ferrying site on the Stewart-Cassiar Highway 15 air kilometres west of the claims. Helicopter bases are located at Dease Lake, B.C., and Watson Lake, Y.T.

Elevations on the property range from 4600 feet (1400 metres) to 5900 feet (1800 metres). The claim area is on a gently rolling, grassy plateau-like ridge. Small ponds are numerous. Scrubby timber is present in the northerly draining creek valleys which cut the plateau. Several suitable camp sites are present along these creeks or near the ponds.

Much of the area has a thin mantle of glacial drift but small "roche moutonee" outcrops and frost-heaved subcrop or felsenmeer are common. Low-lying depressions and gullies are filled with glacial boulders. Bedrock outcrop on the claim group approximates 10%.

Average annual precipitation is about 17 inches (43 cm) which includes about 77 inches (195 cm) snow, the latter commencing in October and remaining in the upland areas until June. Gulleys on the Eagl Group were snow-filled during most of July during the 1984 season. Average summer temperature is about 65° F. Winter temperatures have recorded lows of -60° F.

#### **PROPERTY AND OWNERSHIP**

The property consists of two contiguous 20 unit mineral claims located under the Modified Grid System in the Liard Mining Division (Fig. 2).

These include:

1. Eagl 1 (20 units) - Record No. 2912(7)  
Recorded July 25, 1983
2. Eagl 2 (20 units) Record No. 2917(9)  
Recorded September 2, 1983.

CASSIAR

ERICKSON GOLD

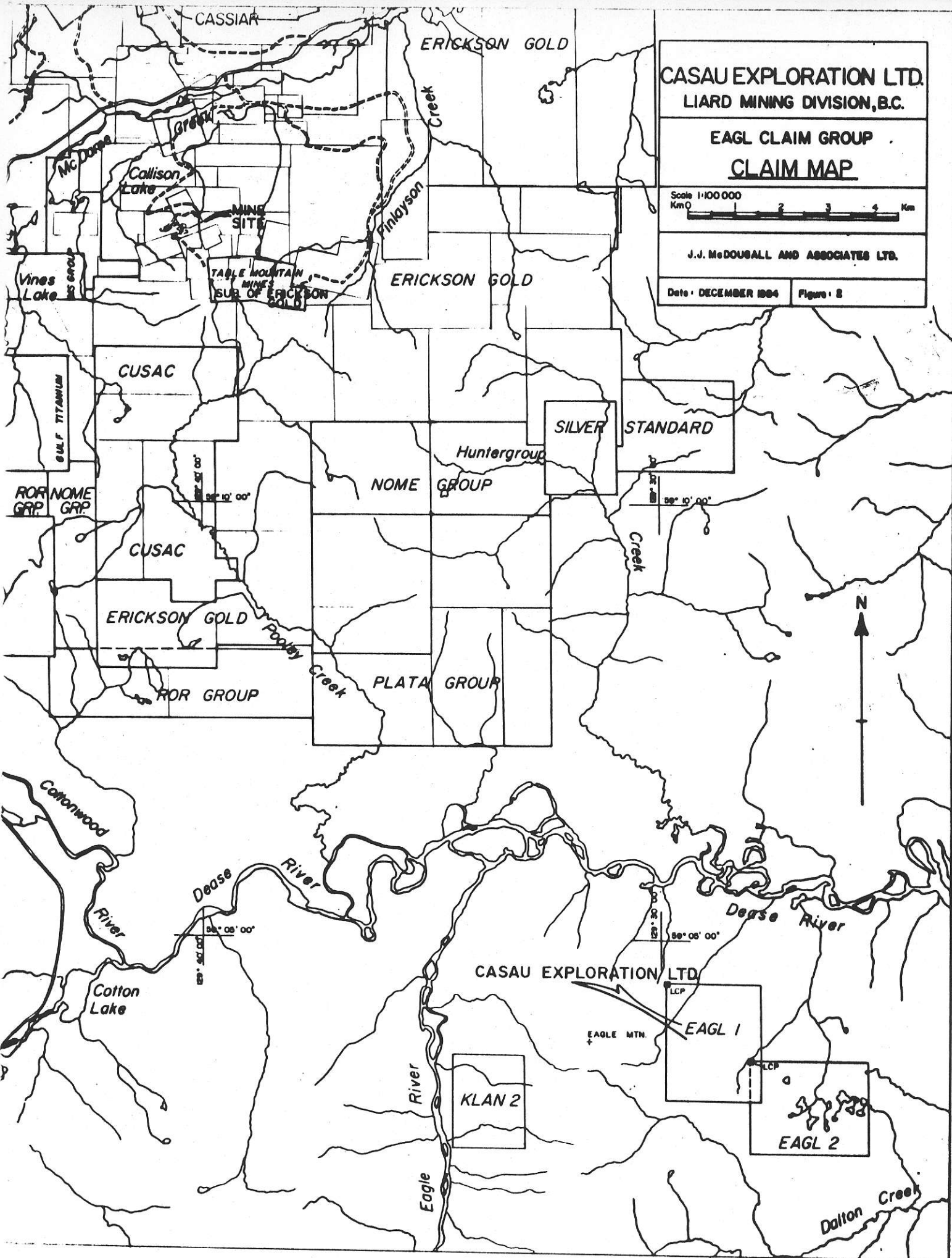
CASAU EXPLORATION LTD.  
LIARD MINING DIVISION, B.C.

EAGL CLAIM GROUP  
**CLAIM MAP**

Scale 1:100 000  
Km 0 1 2 3 4

J.J. McDOUGALL AND ASSOCIATES LTD.

Date: DECEMBER 1984 Figure: B



The claims are not "Grouped" for assessment purposes. Assessment work is recorded ahead to July 25, 1987 (expiry date) on the Eagl 1 and September 2, 1988, on the Eagl 2.

The claims are currently registered in the name of Newmont Exploration of Canada Limited and are currently being transferred to Casau Exploration Ltd. (100% ownership).

There are no other claims located adjacent to the Eagl Group and there have been no recorded conflicts as to quality or location. The locations of the Legal Corner posts have been closely identified by survey grids established. A minor overlap (subject to definitive survey) may occur involving the southeast corner of the Eagl 1 and the northwest corner of Eagl 2 which could reduce the areal holdings to about 39 units (areal equivalent) instead of 40, but this is of little significance. Due to heavy current snowfall and the relatively remote location, the claim posts have not been inspected on the ground by the writer. However, the undisputed acceptance by the Mining Recorder 2 years ago, and the experience of the locators as well known to the writer, appear a sufficient alternative at this time.

## **HISTORY AND DEVELOPMENT**

Gold placers were discovered in the McDame Creek area in the mid-1870's and lode gold deposits in the McDame Creek-Erickson Creek area were investigated, largely by Consolidated Mining and Smelting, during the 1930's. The area was first opened up to road travel in 1949 when Mocassin Mines built a road from the Alaska Highway to McDame Creek. This road accelerated geological mapping by the Geological Survey of Canada whose personnel reported, in 1949, the presence of an asbestos deposit near the head of McDame Creek. The value of the deposit, now Cassiar Asbestos, was first recognized by W.V. Smitheringale of Conwest Explorations while the writer was exploring the discovery in September, 1950.

Numerous mineral showings were discovered in the period 1930 to present, but with the exception of Cassiar Asbestos the only reasonably successful mining operation has been that of Erickson Gold Mines Ltd., under D. Ross, within rocks of the Sylvester Group about 10 km south of Cassiar.

An exploration proposal for a portion of the Cassiar area was made by J.C. Stephen in a letter dated February 28, 1983. This proposal noted that "East of the Cassiar batholith a eugeosynclinal structure composed of Lower Cambrian rocks (Atan and Good Hope Groups) and Devono-Mississippian (Sylvester Group) rocks is intruded by Mississippian (?) peridotite, serpentinite, etc. This assemblage hosts the three major mineral deposits of the area, Cassiar Asbestos, Erickson Gold Mines and the Midway Ag, Pb, Zn, Ba prospects. ---

"The vein gold deposits in the McDarne Lake area occur in a portion of the synclinal structure which contains a relatively large proportion of volcanic material. --- It is proposed that the Sylvester Group be reconnoitered (locally), for areas of volcanism and that those areas be prospected closely for gold, possibly in deposits other than quartz veins."

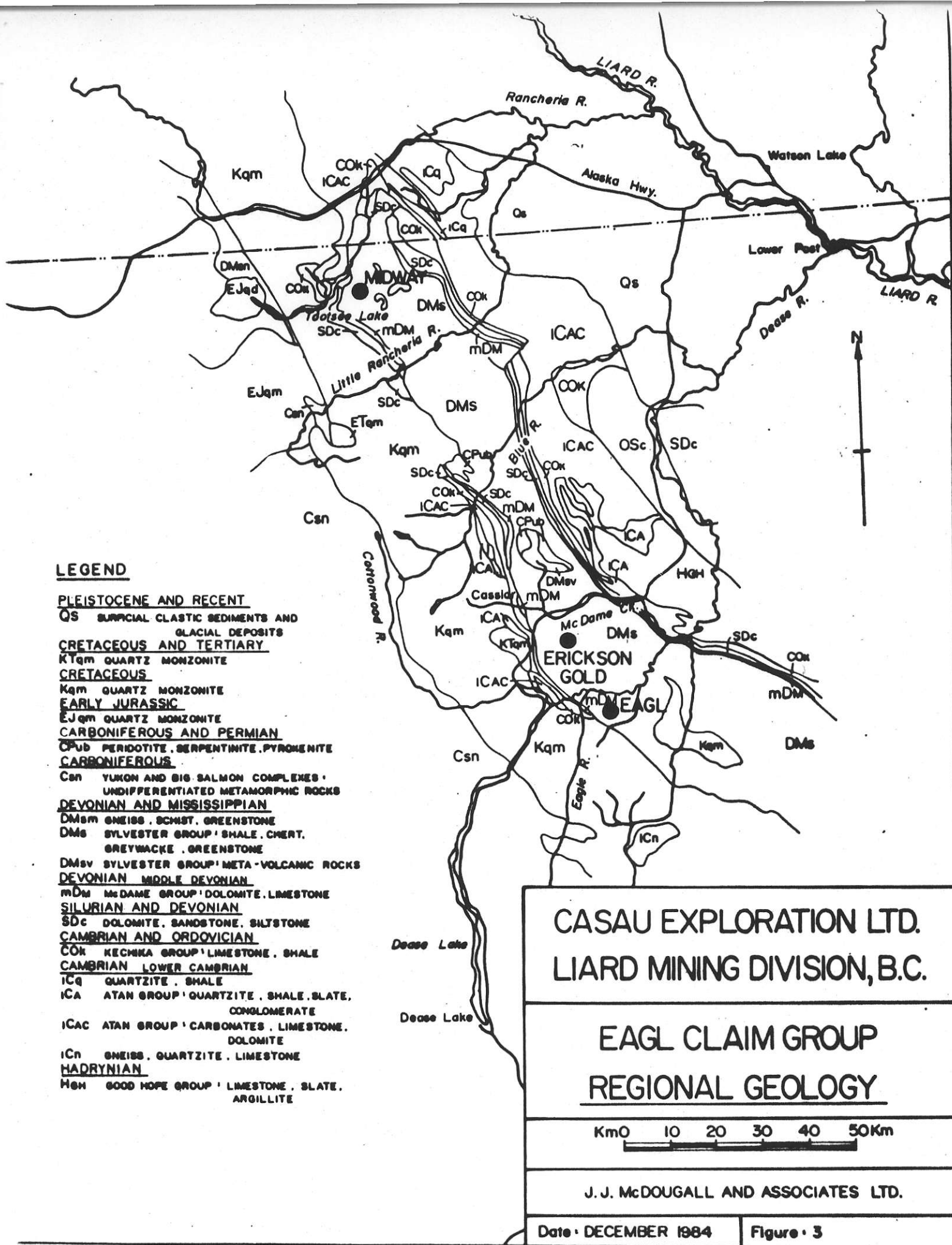
The exploration proposal was accepted and financed by Newmont Exploration of Canada Limited.

Base metal mineralization on Eagle Mountain was first discovered by A. Heagy, geologist with J.C. Stephen Explorations Ltd., and the EAGL mineral claims were recorded in July and September of 1983 as a direct result of this exploration program.

Additional property work was conducted during 1984 within an area measuring 4 kilometres east-west by 2 kilometres north-south and included gridding of most of the area followed by geological, geophysical and geochemical surveys.

Accounts of expenditure were examined to determine the value of the technical and physical work performed on the EAGL claim group area. The following is a tabulation of those expenditures.





**LEGEND**

**PLEISTOCENE AND RECENT**

Qs SURFICIAL CLASTIC SEDIMENTS AND GLACIAL DEPOSITS

**CRETACEOUS AND TERTIARY**

KTem QUARTZ MONZONITE

**CRETACEOUS**

Kqm QUARTZ MONZONITE

**EARLY JURASSIC**

EJqm QUARTZ MONZONITE

**CARBONIFEROUS AND PERMIAN**

CPub PERIDOTITE, SERPENTINITE, PYROMENITE

**CARBONIFEROUS**

Csn YUKON AND BIG SALMON COMPLEXES, UNDIFFERENTIATED METAMORPHIC ROCKS

**DEVONIAN AND MISSISSIPPIAN**

DMsm GNEISS, SCHIST, GREENSTONE

Dms SYLVESTER GROUP, SHALE, CHERT, GREYWACKE, GREENSTONE

DMsv SYLVESTER GROUP, META-VOLCANIC ROCKS

**DEVONIAN MIDDLE DEVONIAN**

mDm McDAME GROUP, DOLOMITE, LIMESTONE

**SILURIAN AND DEVONIAN**

SDc DOLOMITE, SANDSTONE, SILTSTONE

**CAMBRIAN AND ORDOVICIAN**

COk KECHIKA GROUP, LIMESTONE, SHALE

**CAMBRIAN LOWER CAMBRIAN**

ICq QUARTZITE, SHALE

ICa ATAN GROUP, QUARTZITE, SHALE, SLATE, CONGLOMERATE

ICAC ATAN GROUP, CARBONATES, LIMESTONE, DOLOMITE

ICn GNEISS, QUARTZITE, LIMESTONE

**HADRYNIAN**

HgH GOOD HOPE GROUP, LIMESTONE, SLATE, ARGILLITE

CASAU EXPLORATION LTD.  
LIARD MINING DIVISION, B.C.

EAGL CLAIM GROUP  
REGIONAL GEOLOGY

Km 0 10 20 30 40 50 Km

J. J. McDOUGALL AND ASSOCIATES LTD.

Date: DECEMBER 1984

Figure: 3

<u>ITEM</u>	<u>VALUE</u>
Salaries and benefits	\$31,195.00 (1)
Aircraft rental	9,578.75
J.C. Stephen Explorations services	5,902.50 (2)
Assays and geochemistry	3,624.41
Tools and camp supplies	3,575.86
Overhead and office expense	2,381.96
Travel expenses	1,585.24
Vehicle rental and operation	1,576.90
Claim recording and fees	1,500.00
Drafting and air photos	586.46
Express, freight, storage	<u>358.03</u>
<b>TOTAL</b>	<b>\$61,865.11</b>

(1) Based on the following commercially competitive rates:

Senior geologist	\$200/day
Assistant geologist	\$150/day
Technicians	\$100/day

(2) Based on fees of \$250/day as project manager.

## REGIONAL GEOLOGY

The regional geology as shown in Figure 3 was taken from GSC Map 1110A (Gabrielse, 1963), which accompanies Memoir 316 (McDane), and from GSC Map 29-1962 ("Cry Lake"), which were recently incorporated into a 1:1,000,000 scale map GSC#1418A (Iskut River).

The Eagl claims lie entirely within Gabrielse's Unit 8, the Sylvester Group, consisting of Upper Devonian to Mississippian greenstone, chert arenite, chert, argillite, slate and quartzite. This package is now considered to be an allocthonous oceanic terrane which has been thrust onto the late Precambrian to Devonian platformal carbonate and clastic rocks (Monger, 1977). Updating, based largely on Conodont collections and

more detailed mapping to the north, subdivides the group into thrust fault-bounded packages dating from Mississippian to Upper Triassic. The flat thrusting occurred before the whole group was thrust in from the west (Pers. Comm. H. Gabrielse, 1984).

A small, rusty weathering pyritic felsic porphyry stock of uncertain age outcrops in Dalton Creek just east of the Eagl 2 claim.

The geological setting of the Eagl claims is similar to that of the lode gold deposits in the Cassiar (McDame) gold mining camp located twenty kilometres to the north but it has not as yet been subdivided into the thrust-fault bounded "plates" evident at the latter. These flat faults may prove of economic significance. The Sylvester Group also hosts several other precious metal and base metal prospects, including the Midway deposit.

## PROPERTY GEOLOGY

### (a) Stratigraphy

Mappable units represented in the Eagl 1 & 2 claims are similar to those described as occurring in the Sylvester Group (Gabrielse, 1963). These include: 1) andesite tuffs and 2) iron-carbonate present as alteration zones or discrete units within the tuffs. Minor amounts of 3) serpentinite and 4) chert have been recognized as have 5) highly silicified zones.

As described by Heagy (1983) "the andesitic tuffs, which comprise over 95% of the bedrock exposed in the claim area, are "a light-brown weathering, gray-green fragmental volcanic rock of andesitic (and/or basaltic or dacitic) composition. They typically appear poorly sorted and range from fine to coarse grained, often containing large angular fragments of similar composition and texture. Flow breccias are occasionally suggested. Finely banded siliceous blue-gray components occasionally noted may represent dacitic flows or tuffaceous chert. Small pods or irregular nodules of grey limestone occur within some of the volcanic rocks exposed on the Eagl 1 claim. The rocks may be weakly foliated, but are generally massive with individual beds or flows being 2 to 30(?) metres thick. Alteration, exclusive of the iron-carbonate, consists of epidotization, chloritization and ubiquitous albitization." The degree of

alteration within the volcanics is suggestive of the "greenschist facies" alteration rating.

"The chert unit is rare and confined to the southwest area of the claim group. It appears black to light grey but is light weathering. It is difficult to distinguish from silicified argillites or volcanics also present. Subdivisions within the chert group include dark chert-quartz arenite and light gray sericite schist which occur as single outcrops near the western edge of the property. The sericite schist is unusual and may be an exhalative horizon or an altered felsic flow or tuff.


"The serpentinite occurs only in a few small outcrops on the Eagl 1 claim. It appears as a highly sheared serpentine generally found associated with a characteristic talc or talc-carbonate mariposite schist."


The writer's experience in the area and elsewhere would suggest that much of the iron carbonate-silica alteration rock as mapped in the Eagl area is more than a mere and random alteration of country rock, but rather a well defined and world-wide unit more specifically termed "listwanite". As such it is found only where deep seated structure exists and although associated with serpentinites, within which it should be included, areally it is a deuteric alteration product related to complicated serpentine derivation itself rather than being a late stage alteration affect as most commonly supposed. It is a common wallrock "alteration" near gold-bearing veins in the Sylvester Group and elsewhere from Southern California to the Aleutians. Although the Russians (who have contributed the name) recognize two types (one being gold-related), in the writer's experience samples from widely spaced intervals along 4,000 miles of western North America are indistinguishable even to the average percentage composition of the minerals present. The constituents are always magnesium, calcium and iron-rich carbonates, the latter accounting for the orange oxidation color which is deep reddish orange when the rock is converted to laterite. The silica content, although variable, is always high - consisting of interstitial material or multi-age, fine grained quartz or silica present as veins or a diffused boxwork network. Mariposite or chrome mica may be present. The importance of the rock in gold exploration has been appreciated more by prospectors than by geologists. In the writer's opinion, most North American placer deposits owe their origin to this rock. Direct evidence is extremely difficult to obtain in glaciated areas but startlingly clear in California. The fact that many placer areas occur along serpentinite belts is not a coincidence.

**LEGEND**

AIR PHOTO LINEARS \_\_\_\_\_

OUTCROP AREAS \_\_\_\_\_

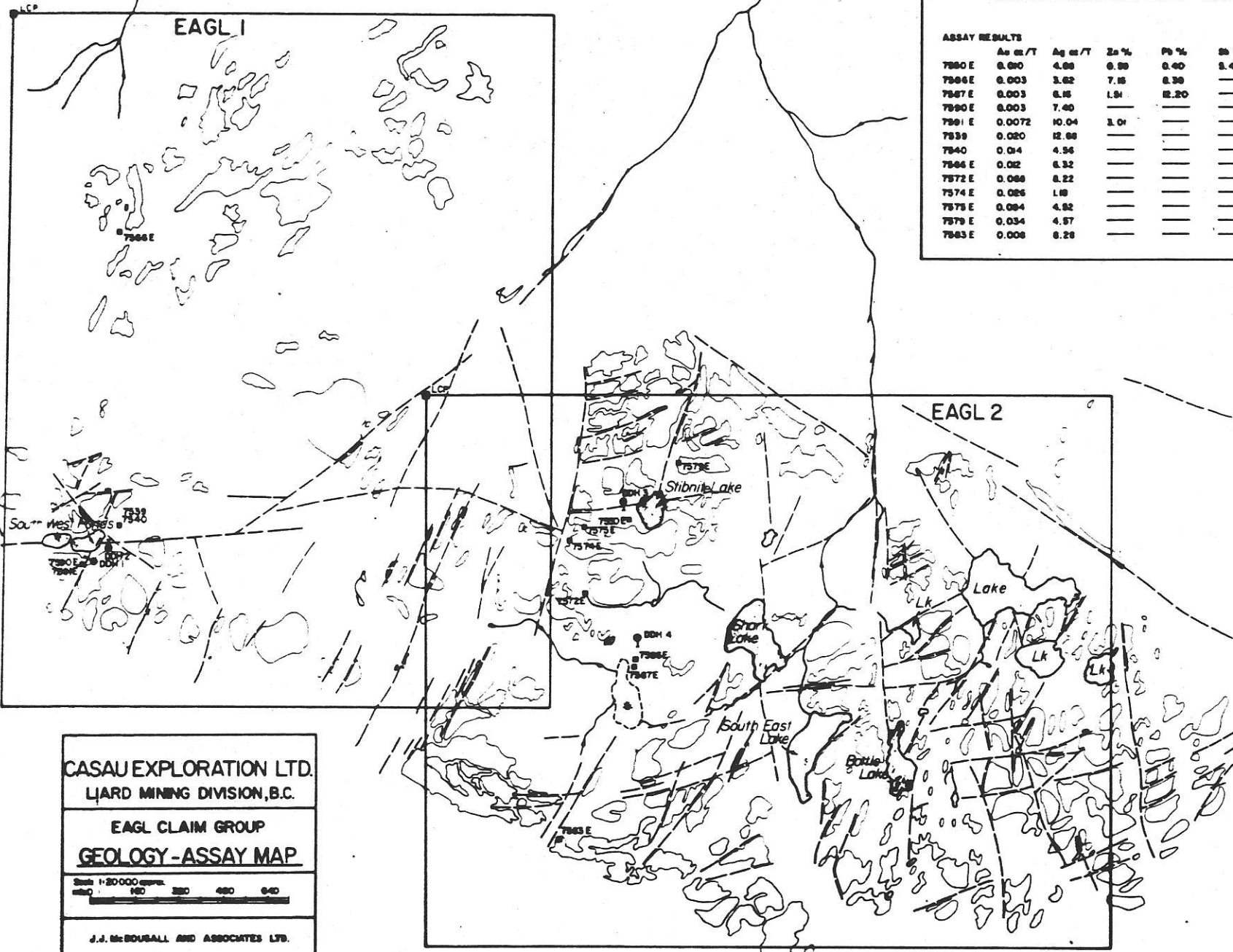
PROPOSED DIAMOND DRILL HOLES  DDH 1

SAMPLE LOCATIONS  7384 E

**ASSAY RESULTS**

	As g/t	Ag g/t	Zn %	Pb %	Cu %
7380 E	0.090	4.88	0.98	0.40	5.42
7386 E	0.003	3.62	7.15	0.30	---
7387 E	0.003	0.15	1.94	0.20	---
7390 E	0.003	7.40	---	---	---
7391 E	0.0072	10.04	3.01	---	---
7339	0.020	12.88	---	---	---
7340	0.014	4.96	---	---	---
7366 E	0.02	6.32	---	---	---
7372 E	0.088	6.22	---	---	---
7374 E	0.025	1.88	---	---	---
7375 E	0.084	4.92	---	---	---
7379 E	0.034	4.57	---	---	---
7383 E	0.008	6.28	---	---	---



**CASAU EXPLORATION LTD.**  
 LIARD MINING DIVISION, B.C.

**EAGL CLAIM GROUP**  
**GEOLOGY-ASSAY MAP**

Scale 1:20000 approx.  
 0 100 200 400 600

J.J. McBOUSALL AND ASSOCIATES LTD.

Date: DECEMBER 1984 Figure 4

Although not necessarily directly connected with that portion of a vein in which the gold accumulation now occurs, the common association with listwanite in the same zone is the important feature and may serve as a guide to the better portions of the Eagl quartz vein system. It is common near the Erickson gold property to the north and is associated with recent high grade gold discoveries near Atlin, B.C.

**(b) Structure**

The Eagl property is located immediately west of the axial trace of the southeast plunging McDame Synclinorium. Bedding attitudes are difficult to decipher due to the massive character of the volcanics. Although numerous lineaments are present, the debris-filled depressions, which are the ground expression producing the lineaments, are usually only short segments in which no meaningful dip observations can be made. Flat thrust faults, common to the north, may be present.

The clearest bedding attitudes occur in the fine grained tuff horizons where strikes of N 20° W to N 70° W are recorded. Dips vary from 35° to 50° to the northeast. Weak foliation in the volcanics parallels this bedding. Joint or fracture sets are better developed than bedding, the strongest of which trends easterly or northeasterly and is near-vertical. Barren quartz veins favour this trend.

Linear structures trend in the following directions:

- 1) N 55° W; some fractures and listwanite trend in this direction.
- 2) N 05-15° W; also a prominent fracture trend containing most precious metal mineralization and listwanite.
- 3) N 75-85° E; contain some values within fractures in south area.
- 4) N 15-30° E; some mineralization.

**(c) Mineralization**

At least two distinct and separate mineral associations are present as follows: a) lead, zinc and antimony mineralization with silver and gold values associated with listwanite in fault zones; b) lead, zinc and silver mineralization associated with shale and quartzite. The following descriptions are taken mostly from the 1983 and 1984 reports



and maps prepared by the company and follow an examination of the specimen suites collected.

Mineral showings discovered in 1983 (Fig. 4) include:

1) Stibnite Lake Vein

Massive, coarse-grained stibnite (antimony sulphide) vein found in a manganese-stained, up to 2 metres wide drusy quartz-pyrite vein traceable for approximately 50 metres. The vein contains 1-3% black sphalerite (zinc sulphide) and minor arsenopyrite, pyrite, galena and chalcopyrite. Listwanite, including barren quartz veins, occurs as wallrock on either side of the mineralized vein. Manganese, common in various minerals in the Cassiars - including magnetite (up to 10% Mn), rhodonite, manganiferous siderite, and the rare manganese sulphide alabandite, which resembles sphalerite, (McDougall, 1954) - contributes to the formation of various black secondary hydrous manganese-oxides which reflect associated mineralization and are easily traceable.

2) The Shark Lake Showings

Poorly exposed mineralization similar to the Stibnite Lake Vein occupying frost heaved areas of 10 to 15 square metres.

3) The Breccia Showing

Consisting of a manganese-stained rubble area measuring 5m x 10m and containing both breccia fragments and a cemented groundmass but consisting of sphalerite and galena plus listwanite (iron carbonate). Several additional manganese-stained areas were noted.

4) Quartz Veins

Quartz veins and accumulations associated with listwanite are common and, as usual, occasionally contain traces of pyrite, chalcopyrite, galena and sphalerite. Discontinuous veins up to a few metres in width are common but seldom exceed 25 metres in length.

5) Bedrock Units

Silicified on occasion and may contain minor amounts of pyrite, pyrrhotite and arsenopyrite. Systematic mapping and prospecting in 1984 were thwarted by unusual snow accumulations covering some of the mineralized material noted in 1983, preventing new observations in depression areas. The most significant new mineralization found was massive sulphide float (pyrite, sphalerite, galena) in a swampy area accompanied by possibly frost-heaved black shale float, the situation suggestive of a shale-hosted deposit. Its origin was not determined.

## ASSAYS AND RESERVES

Assays obtained from 16 mineralized rock samples collected throughout the claims in 1983 ranged from 80 (0.0025 oz) to 1080 (0.035 oz) ppb gold and averaged 34 ppb (0.01 oz/ton). Silver value returns from only a few samples analyzed ranged to 100 ppm (3 oz), and lead and zinc each to 10,000 ppm (1%).

As a result of the 1984 program, 73 rock samples plus 13 soil and talus samples plus 13 silt samples were collected and assayed. Values ranged to 3,250 ppb gold (approx. 0.10 oz) in float, 12.6 oz silver across 3.2 m in trench #6, 5.42% antimony, and 4,600 ppm (0.46%) arsenic in other veins. Massive sulphide float assayed 8.38 to 12.20% lead, 1.51 - 7.16% Zn, 3.62 - 6.16 oz/ton silver, and 0.003 oz/ton gold. A sample of pyritic shale from the same area ran 42 ppm lead, +10,000 ppm zinc, 4.0 ppm silver and 55 ppb gold, suggesting a source to which the float may be related.

The more significant assays obtained are shown on Fig. 4 with some discussion under "geochemistry".

## SURVEYS

(a) Geological

As with the accompanying surveys, geological observations were made and recorded on a 2 x 4 kilometer grid at 1:2,000 scale.



A composite map, Figure 4, also notes sample locations and prospecting data.

**(b) Geophysical**

A VLF-EM16-2 station survey involving about 18 line kilometers with northwesterly oriented lines 100 meters apart and readings at 50 meter intervals indicated several well defined but broad northwesterly trending crossover anomalies (Seattle) and several equally broad but less well defined northeasterly trending ones (Cutler). Although a general interpretation with some positive correlations has been achieved, it is obvious that the better northwest conductors coincide with lake occupied areas, possible depressions related to faulting, and with stream drainage. Although major structures can probably be interpolated, the survey was not definitive enough to outline the known vein-type deposits.

Areas of significant silica flooding or quartz veining might be identified by the resistivity measuring attachment now available on EM16 equipment.

**(c) Geochemical**

No detailed soil sampling on grid has been attempted except along a one kilometer line traverse. Most geochemical work has been classed as "rock geochemistry" (202 samples), with the highlights being discussed under "Assays and Reserves" and plotted on Fig. 4. A total of 61 soil and 28 silt samples were collected and analyzed for gold, arsenic, zinc and copper. A few were assayed for antimony, silver and lead. One of the highest samples ran 270 ppb gold, another 60 ppm silver, another 2600 ppm arsenic, another 54 ppm antimony and another 92 ppm copper. Most of these were correlated with areas of known mineralization.

No significant gold values were present in the stream silts collected. Arsenic values ranged to 125 ppm and 20 samples analyzed for zinc ranged between 53 and 250 ppm.

## CONCLUSIONS

Widespread quartz-sulphide mineralization is present on the Eagl prospect as veins related to fracturing and to listwanite alteration zones within the geologically favourable Sylvester Group. The veins are traceable only with difficulty due to extensive overburden and do not respond to wide-spaced electromagnetic surveys. Massive sulphide float may represent a shale-hosted deposit present on the property.

## RECOMMENDATIONS

It is recommended that in lieu of heavy equipment, which might normally be utilized to trace the individual veins or zones in overburdened areas possessing easier access, a program involving more discriminate and detailed geophysical and geochemical work plus shallow exploratory drilling should be enacted. A series of drill holes can explore and hopefully extend known mineral zones, particularly those in the South Grid area, and additional drilling should be allocated for zonal extensions expected following better definition by geochemical and geophysical programs. Closer spaced soil samples should be taken in mineralized areas than was done previously, and the local sampling should be done on grid. At least gold, silver, manganese (due to association with most known mineralization, and its role as a "collector") and the common base metals should be analyzed for. Geophysics should center around closer spaced and more local EM work--possibly utilizing pulsating EM and/or the recent resistivity meter additions to the VLF-EM16 instrument, the latter of probable value where large non-conductive deposits such as quartz veins are a target.

### Geophysics

The following geophysical surveys are recommended:

- (1) A detailed magnetometer survey using the presently established grid with extensions to that grid being made in the vicinity of the shale-massive sulphide zone, and to the west of the Stibnite Lake grid. Readings should be at 20 or 25 metre intervals on lines 100 metres apart running northeasterly.

- (2) A VLF-EM survey should be conducted on the same grid spacing as the magnetometer survey. The current survey results do not cover all areas of interest and station spacing is too wide.
- (3) Consideration should be given to use of the Newmont EMP survey system to detail the shale-massive sulphide, Stibnite Lake and South Plateau areas. Limited availability, high cost and delays in receipt of geophysical interpretation may limit the use of this method.
- (4) Assuming the Newmont EMP system is not used, it is recommended that a modern system generally comparable to the older McPhar large vertical loop EM system be used. This system can (a) be specifically oriented to explore specific linear fracture systems; (b) provide significant power for deep penetration; (c) explore relatively large areas from a single setup; and (d) provide data amenable to field interpretations.

### **Diamond Drilling**

Further trenching on the mineralization located south and east of the small lake between lines 10E and 11E is essentially impractical. Diamond drilling is recommended to test these zones, as indicated on Figure 4.

No. 1 hole is intended to cut the north-south trending linear with associated float mineralization assaying up to 0.072 oz Au and 10.04 oz Ag per ton. The hole should pass from east to west below the float location and trench 4 and test the full width of the linear depression. To ensure the least problem with setting casing, this hole should be collared in outcrop and be drilled at  $-50^{\circ}$  directly across the linear structure. Depth of this hole is expected to be 150 feet.

No. 2 hole should be collared in the vicinity of Trench 6, east of the lake, where assays up to 0.020 oz Au and 12.68 oz Ag were obtained. This hole should be collared in the most solid material available, preferably outcrop, and be directed north across the east-trending linear at  $-50^{\circ}$ . Intersecting linear zones indicate relatively large widths of favourable ground. This hole should be continued so long as alteration, veining and fracturing appear promising. Suggested depth is approximately 350 feet.

No. 3 drill hole is intended to test the east trending linear zone through Stibnite Lake in the vicinity of sample 7575E which ran 0.084 oz Au and 4.52 oz Ag per ton. Although these assays are obtained from quartz float material, the visible linear structure and coincident EM-16 anomaly provide a relatively well defined target area. Actual location of sample 7575E is reportedly not well indicated on the maps and the site geologist should be given sufficient latitude as to the location of this hole so that detailed examination of float fragments and alteration zones may be taken into account. In general, it is suggested the hole should be collared in outcrop on the north side of the linear structure and be directed south across the linear at  $-50^{\circ}$ . Depth is intended to be 250 feet.

Concurrent with drilling of holes 1, 2 and 3, detailed geophysical work should be done in the massive sulphide float area. Sulphide-bearing float samples assayed up to 12.2% lead, 1.5% zinc and 6.16 oz silver. Indications of shale fragments and nature of the mineralization suggest a possible sedimentary host rock. Regional dip is noted to be approximately  $40^{\circ}$  to the north. A generally east-trending, north-dipping zone may be expected, but location and direction of a test drill hole should be based on geophysical results since it is possible the mineralized float may be from linear structures oriented differently. If no definite geophysical target is outlined, drilling may better be directed to further test whichever mineralization is most promising in drill holes 1, 2 or 3.

The above proposed drill holes total 1000 feet of drilling. Proposed financing allows for an additional 1000 feet of drilling if warranted by initial results.

It is recommended that a Hydra-wink diamond drill be used in view of the short holes required and the necessity of helicopter mobilization. It is imperative that mud mixtures and chemical additives be used from the inception of drilling to ensure the best possible core recovery. Consideration should be given to possible use of thin wall, BQ outside diameter, drill rod equipment to provide larger core while keeping drill equipment, casing, etc. light for helicopter mobilization.

**PROPOSED WORK PROGRAM**

**(a) Cost Estimates**

Stage I Program

Diamond Drilling - Four holes at 250 feet each.

Mob/Demob	\$ 4,500.00
1000 feet BQ core at \$30 per foot	30,000.00
Assaying - estimate 60 samples run for Pb, Zn, Ag, Au at \$24 per sample	1,440.00
Core logging, sampling, drill supervision	5,000.00

Detailed Geophysics - Cost based on Newmont EMP  
survey experience:

Three principal areas at \$9,000 per square kilometer	27,000.00
---	-----------

Geochemical Fill-In

Collection costs	2,000.00
Assays - 100 samples at \$10.00 (ICP)	1,000.00

Support Costs

Camp, accomodation, supplies	4,800.00
Transportation	2,500.00
Helicopter charter plus fuel 40 hours at \$525 per hour	21,000.00
Engineering, supervision, reporting	2,500.00
Consulting, geophysical interpretation	<u>3,500.00</u>

TOTAL ESTIMATE \$105,240.00

Stage II Program

Dependent on results of Stage I, additional diamond drilling may be warranted. Due to the high cost of mobilization in this area, particularly helicopter access from the Cassiar highway 15 kilometres west of the property, an allowance should be made within original budgets to continue further drilling if initial results are encouraging. An additional 1000 feet of drilling could be accomplished without significant additional cost for helicopter transportation or mobilization, accomodation, etc. Costs for this additional drilling are estimated as follows:

1000 feet BQ core at \$30 per foot	\$ 30,000.00
Assaying 60 samples at \$24	1,440.00
Core logging, sampling, supervision	<u>5,000.00</u>
TOTAL	\$ 36,440.00
 TOTAL 1985 BUDGET PROPOSED	 \$ 141,680.00

Timing will be restricted to the June-October period, dependent on snow and temperature conditions.

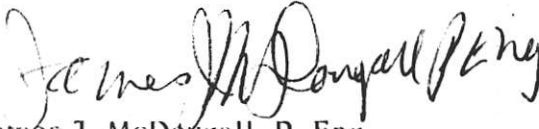


### CERTIFICATE

I, James J. McDougall, Do Hereby Certify:

- 1) That I am a consulting geologist with a business office at 7720 Sunnyside Road, Richmond, B.C. V6Y 1H1 and President of J.J. McDougall & Associates Ltd., Consulting Geologists.
- 2) That I am a graduate in geology of University of British Columbia (M.Sc. 1954).
- 3) That I am a Registered Professional Engineer (Geological) in good standing with the Association of Professional Engineers of the Province of British Columbia.
- 4) That I have practiced my profession as a geologist for the past thirty-three years.
- 5) That the information, opinions and recommendations in the attached report are based on studies of the available literature on the area occupied by the Eagle Claim Group and on ground observations carried out by me in this South Cassiar region on numerous occasions.
- 6) That I own no interest in Casau Exploration Ltd. or in the Eagle Claim Group mineral claims, nor do I expect to receive any such interest.
- 7) This report may be used for any prospectus or statement of material fact.

Dated at Vancouver, B.C., this December 7, 1984.

  
James J. McDougall, P. Eng.

REFERENCES

- Gabrielse H. (1963), "McDame Map Area, B.C." Memoir 319, Geological Survey of Canada".
- Heagy A.E. (1983), "Geological and Geochemical Report on the Eagl Claim Group", Unpublished report prepared for J.C. Stephen Explorations Ltd., September 1983.
- Heagy A.E., J.C. Stephen (1984) "Geological and Sampling Report on the Eagl Claim Group", Unpublished report prepared for J.C Stephen Explorations Ltd., August, 1984.
- Monger (Iskut River Map Area), GSC Map 1418A, 1:1,000,000 Scale.
- McDougall, J.J. (1954), "The Telescoped Silver-Lead-Zinc Deposits of the Contact Group Mineral Claims, McDame Map area, B.C.", McSc. Thesis, U.B.C., 1954.