

NTS 92 L/3 W, TRIM 092L.014

LAT. 50 09' 22" N

LONG. 127 19 02" W

GEOLOGICAL AND GEOCHEMICAL  
REPORT ON MINERAL TENURES 501873 & 501945  
WOOD COVE MARBLE DEPOSIT  
KASHUTL INLET, KYUQUOT SOUND, B.C.

GEOLOGICAL SURVEY BRANCH

2014

Alberni Mining Division

by

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V0S 1N0

Dec. 15, 2006

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## 1.0 INTRODUCTION

This report summarizes geological and geochemical surveys carried out between November 18-20, 2006 on mineral tenures 501873 and 501945. The purpose of the surveys are to locate and define limits of high calcium limestone and interpret the relation between geology and rock/soil geochemistry and petrographic descriptions.

## 2.0 LOCATION, ACCESS AND PHYSIOGRAPHY (FIG. 2)

Mineral tenures 501873 & 501945 are located 35 km northwest of Zeballos, B.C. The 'high-calcium limestone' beds are located on the west shore of Kashutl Inlet within Kyuquot Sound. The property is within the Alberni Mining Division on N.T.S. 92 L/3 W (Digital TRIM 092L.014), latitude 50 09' 22" N, longitude 127 19' 02" W.

Elevations on the claim group range from 0-350 meters (1,150 feet) above sea level. Slopes are moderate and get steeper to the west portion of the claims where some cliffs are exposed between 175-350 m (575-1,150 ft) elevation. There are mature fir, hemlock, cedar and spruce trees throughout the claim area.

The claim group is accessed by driving from Zeballos to Fair Harbour and 12 km by boat to Kashutl Inlet. Fair Harbour is accessible by an all weather gravel road from Zeballos, B.C. There are no roads or development on the claims. There was an active helicopter logging in the area directly west of Wood Cove in 1999.

## 3.0 PROPERTY STATUS

Claim 501873 and 501945 are contiguous mineral tenures, and were originally staked as 2-post mineral claims (Kash 1 & 2) by Andris A. Kikauka January 5, 2000 and converted to cells in January 2005. Details of the claims are as follows:

Claim Name	Tenure No.	Hectares	Record Date	Expiry Date
	501873	82.834	Jan. 5, 2000	Jan. 5, 2012*
	501945	41.412	Jan. 5, 2000	Jan. 5, 2012*
		Total= 124.246		

Mineral tenures 501873 and 501945 are adjoining and covers an area of 124.246 hectares. Fieldwork carried out by the author has extended the expiry dates\*.

#### **4.0 AREA HISTORY**

Major mineral deposits in the area include the Island Copper Cu-Mo deposit located on east Holberg Inlet. Utah Mines Ltd developed and mined the Island Copper deposit which produced 257,000,000 tonnes @ 0.52% Cu and 0.017% Mo.

Boliden Resources owns the Myra Falls mine site which has produced approximately 8,000,000 tonnes @ 0.06 opt Au, 3.3 opt Ag, 1.5% Cu, 1.1% Pb, 7.6% Zn. The massive sulphide ore is hosted in Permian/Carboniferous Sicker Group mafic/felsic volcanics underlain by a pyrite stringer zone.

The Zeballos mining camp consists of high grade quartz-sulphide veins associated with a Tertiary stock intruding Jurassic volcanic rocks of the Bonanza Group and some limestones of the Late Triassic Quatsino Fm. Production and reserves are approximately 1,078,936 tonnes grading about 12 g/t Au (0.35 opt Au) coming from Spud Valley and New Privateer. The productive veins are generally less than 30 cm in width but they are continuous and display little lateral or vertical variation in width or grade. They mostly strike northeast and are found along the contact zone between Eocene intrusive and Jurassic volcanic/carbonate. Quartz-sulphide veins cut Eocene and Jurassic host rocks.

The Monteith quartz-pyrophyllite occurrence is located 4 km south of the Kashutl Inlet High-Calcium Limestone. Several hundred tonnes of quartz-phyllite was extracted between 1910-1914 and mixed with shale to be used as a refractory for sewer pipe and fireproofing material. It was also used as polishing powder, soap and cleanser. Further testing of the quartz-pyrophyllite determined it to be a satisfactory ingredient of whiteware batches for both slip-cast and clay process tiles (BCMin EM&PR, Minfile 092L117).

## 5.0 WOOD COVE PROPERTY HISTORY

The Wood Cove marble occurrence has been mapped and sampled by Dolmage Campbell & Associates Ltd., Vancouver, B.C. in 1973. The high calcium limestone deposit is comprised of two marble beds separated by 30-45 m of argillite, which is overlain by Lower Jurassic Bonanza Formation amygdaloidal andesite/dacite. This sequence has been subject to low grade metamorphism by a lower middle Jurassic granite/quartz diorite /granodiorite intrusive complex located immediately to the north of the marble beds. The marble beds strike northeast and dips 30-60 degrees south. The upper (southern) bed is approximately 46 m thick while the lower bed is approximately 61 m thick. The carbonate beds consist of massive, pearl grey to white, medium to coarse grained limestone (marble). Three samples from comprised of chips taken at 4.6 m intervals across accessible outcrops of the upper bed assayed as follows:

Sample	CaCO <sub>3</sub>	Acid Insol.	MgO	Fe <sub>2</sub> O <sub>3</sub>	Al <sub>2</sub> O <sub>3</sub>	undeter.
K1	98.26 %	0.60 %	0.30 %	0.34 %	0.36 %	0.14 %
K2	98.01 %	1.01 %	0.20 %	0.32 %	0.30 %	0.16 %
K3	97.84 %	1.20 %	0.30 %	0.25 %	0.31 %	0.10 %

Probable (indicated) reserves are calculated at 7.6 million tonnes of limestone (marble) that can be readily quarried and loaded onto barges or ships. The tonnage reserve estimate is based on a density of 12.5 cubic feet/ton and assuming a strike length of 180 m for each bed, and a down dip extension of 150 m. The deposit is estimated to contain a total potential reserve of at least 27 million tonnes (Campbell, D.D., 73). A rough production estimate of 410,000 tons per year (i.e. about 1,370 tons per day) using an air track mounted pneumatic drill (3 inch diameter holes to a depth of 44 feet using 8 X 9 foot drilling pattern) to break the marble, a 4 cubic yard front end loader is required to transport broken quarry rock to the proposed stockpile sites located near shore for loading on barges with a conveyor system.

In May, 2000 the author took 3-4 meter wide rock chip composite samples of the upper and lower marble bed. The marble that was sampled is described as coarsely crystalline, massive and pearl grey to white coloured.

A summary of the rock chip samples taken in 2000 by the writer are listed as follows:

Sample No.	Width	Description	% CaO
104831	4.0 m	Bleached white silicified, medium grained marble	38.14
104832	4.0 m	Pearl grey, coarse grained marble	53.21
104833	4.0 m	Pearl grey to white, coarse & medium grained marble	50.65
104834	4.0 m	Pearl grey to white, coarse & medium grained marble	55.23
104835	4.0 m	Pearl grey to white, coarse & medium grained marble	55.58
104836	4.0 m	Pearl grey to white, coarse & medium grained marble	56.18
104837	4.0 m	Pearl grey to white, coarse & medium grained marble	56.07
104838	4.0 m	Pearl grey to white, coarse & medium grained marble	53.79
104839	4.0 m	Pearl grey to white, coarse & medium grained marble	55.65
104840	4.0 m	Pearl grey to white, coarse & medium grained marble	55.29
104841	3.0 m	Pearl grey to white, coarse grained marble	55.62
104842	3.0 m	Pearl grey to white, coarse grained marble	55.48
104843	3.0 m	Pearl grey to white, coarse & medium grained marble	53.56
104844	3.0 m	Pearl grey to white, coarse & medium grained marble	55.58
104845	3.0 m	Pearl grey to white, coarse & medium grained marble	55.16
104846	3.0 m	White silica with coarse & medium grained marble	1.05

Rock samples were taken in four groups as continuous chip channel samples which are described by the following table:

Sample Number Series	Individual Sample Width	Combined width & average % CaO (combined %CaO & LOI)	Upper or Lower Marble Bed
104831	4.0 m	4.0 m 38.14 % (62.34 %)	Upper
104832- 104833	4.0 m	8.0 m 51.93 % (87.93 %)	Upper
104834-104837	4.0 m	16.0 m 55.76 % (98.99 %)	Upper
104838- 104840	4.0 m	12.0 m 54.91 % (97.38 %)	Upper
104841- 104842	3.0 m	6.0 m 55.55 % (98.6 %)	Lower
104843-104845	3.0 m	9.0 m 54.77 % (97.0 %)	Upper
104846	3.0 m	3.0 m 1.05 % (24.4 %)	Upper

Sampling the lower and upper bed exposed in the creek bed has identified zones of high calcium limestone (i.e. greater than 97.5% CaO + LOI). The purest limestone is situated in the middle portion of the 'Upper Bed' and the 6.0 m exposure of the 'Lower Bed'. The high silica samples (104831 and 104846) were taken on the upper and lower contact of the 'Upper Bed' (Kikauka, 2000).

## 6.0 GENERAL GEOLOGY

The Lower Jurassic Bonanza Formation andesite-rhyodacite flows and tuffs underlie the southern portion of Kashutl Inlet, which includes the Wood Cove marble prospect. The marble beds are within the Bonanza Group sequence. There are massive 300 m thick outcroppings of Upper Triassic Quatsino limestone in Brooks Bay and Quatsino Inlet (to the north), but this limestone has not proven to be favourable for quarries because of chemical impurities such as iron and aluminum. The best chemical grade limestone that have been found on Vancouver Island are in relatively thin, (100-500 ft) local beds of limestone. The Kashutl Inlet deposit consists of two relatively narrow beds isolated within the Bonanza Group volcanics.



The north end of Kashutl Inlet is cut by a 4 X 8 km elliptically shaped intrusive body of Mid-Jurassic age composed of quartz diorite, quartz monzonite, granodiorite and quartz porphyry. In the vicinity of Wood Cove, the contact with the Bonanza Group volcanics and the Island Intrusion trends roughly east-west and dips sub-vertical. The Bonanza Group is weakly metamorphosed with chlorite-prehnite-epidote-calcite assemblages and trace-3% pyrite which is disseminated throughout the sequence. Local concentrations of quartz and sulphide mineralization suggest there may be base and precious metal potential in the Bonanza Group in the Kashutl Inlet area, but no significant deposits of base or precious metal bearing minerals are known in this area.

The limestone beds present on mineral tenures 501873 and 501945 are metasomatically altered and re-crystallized, thus their technical geological reference is 'marble beds'. Due to the high-calcium level of the this marble, industrial mineral experts refer to this as 'high-calcium limestone', as it is suitable for numerous industrial applications that include: ballast, aggregate, agricultural, chemical, and metallurgical applications, as well as fillers, extenders, whiting material, acid-water treatment, and dimension stone.

## **7.0 2006 FIELD PROGRAM**

### **7.1 METHODS AND PROCEDURES**

A maul and mallet were used to take 2 rock chip samples. Approximately 3 kg of 1-3 cm sized rock chips were collected from 3 meter wide channel cuts in the bedrock exposures from the largest creek that cuts the south portion of mineral tenure 501945. All rock chip samples were dried and shipped to Pioneer Labs, Richmond, B.C. for multi element ICP & whole rock chemical analysis and loss on ignition. One kilogram samples of marble were selected from sample sites AR-1 (upper bed) and AR-2 (lower bed), and submitted to Vancouver Petrographics Ltd., Langley, BC for petrographic descriptions.

A total of 7 soils samples were taken at 50 meter spacing along a 300 meter long east west line located about 15 meters south of and parallel to the boundary between mineral tenure 501873 and 501945, and approximately 100-400 meters from tidewater. The 300 meter east-west oriented grid line was surveyed with GPS (Garmin MAPGPS 60 Cx), Silva compass and hip chain. Sample locations are marked with black marker on flagging tape tied to tree branches. Horizontal distance corrections were made using a clinometer. Slope varies from 12 to 32 degrees (steeper further up slope to the west). Soil samples were taken with a grubhoe from a depth of 30-50 cm ('B' soil horizon) and placed in marked kraft envelopes and shipped to Pioneer Labs, Richmond, B.C. for multi element ICP geochemical analysis.

Geological mapping was carried out over an 500 X 800 m area (40 Ha), at a scale of 1:1,000.

## 7.2 PROPERTY GEOLOGY

The claims are underlain by Lower Jurassic Bonanza Group andesitic to rhyodacitic composition, amygdaloidal flows and tuffs with minor breccia. These Bonanza Group volcanics are weakly metamorphosed by a large Jurassic quartz diorite to quartz monzonite composition intrusive complex. The intrusion outcrops in the north part of the claim group and appears to be quartz monzonite composition from the abundance of salmon pink colour K-feldspar, however the overall composition of the Jurassic Island intrusions range from quartz diorite/granodiorite to quartz feldspar porphyry (Muller, J.E., 1973). The portion of the Bonanza Fm volcanics/sediments adjacent to the Island intrusion are characterized by weak, pervasive secondary epidote-pyrite-chlorite (propylitic) alteration, suggesting the Island intrusive deformed and chemically altered the Bonanza Fm.

The large east-west trending creek on mineral tenure 501945 forms an impassible slot canyon 300 m from tidewater. This increase in steepness marks the upper contact of the upper marble bed with the indurated Bonanza Group volcanics. The same dramatic increase in grade occurs in the large creek in the north part of mineral tenure 501873 where Bonanza Group dacitic to andesitic tuffs and flows outcrop in the base of the slot canyon about 430 m from tidewater. The abrupt change in slope follows the upper contact of the upper bed, but no limestone outcrops on the creek cutting claim. The main exposure of the two 40-60 m thick marble beds is in the creek which runs through the south edge of mineral tenure 501945. This exposure was mapped and sampled. The marble consists of two 40-60 m wide beds forming sharp contacts with the 30-50 m wide argillaceous siltstone which occurs between the two marble beds. This contact between the marble and argillaceous siltstone was not observed in the creek or elsewhere, but the upper marble beds upper contact with indurated Bonanza Group volcanics was sharp and difficult to trace because of the steep terrain, but the apparent trend of the marble-volcanic contact is in a northeast direction with a moderate southeast dip.

Rock sampling of the marble beds was confined to a creek gully located 170 to 300 meters from tidewater on the south portion of mineral tenure 501945. The main exposure of the upper marble bed is between 235 to 300 meters from tidewater. There is some karst near the upper contact about 290 meters from tidewater where a cave system has developed underground water movement through the marble bed.

Rock chip sample AR-1 was taken from the upper marble bed near the location of 104837 and AR-2 was taken near from the lower marble bed near the location of sample 104841 (see 5.0 Wood Cove Property History). A compilation of analytical results from rock chip sampling are presented in the following table:

Sample Number (zone)	Width (specific gravity)	Easting NAD 83	Northing NAD 83	% SiO <sub>2</sub>	% Al <sub>2</sub> O <sub>3</sub>	% Fe <sub>2</sub> O <sub>3</sub>	% CaO	LOI
AR-1 (upper bed)	3.0 meters (s.g. = 2.57)	620433	5557655	0.18	0.03	0.12	56.00	43.3
AR-2 (lower bed)	3.0 meters (s.g. = 2.62)	620539	5557639	0.35	0.10	0.24	55.55	43.2

The sample from the upper bed (AR-1) has 0.15% combined aluminum and iron oxide content, whereas the lower bed sample (AR-2) contains 0.34% combined aluminum and iron oxide. For industrial mineral applications, the values obtained from rock chip sampling indicate that AR-1 & 2 are acceptable for classification as 'high-calcium limestone'.

### 7.3 SOIL GEOCHEMISTRY

A compilation of analytical results from soil samples taken at 50 meter spacing along a 300 meter long east-west oriented grid line are presented in the following table:

Sample Number	Easting NAD 83	Northing NAD 83	Depth	% Mg	% Fe	% Al	% P	% Ca
WC-06-AS-1	620300	5557545	30 cm	1.66	4.04	3.19	.214	2.84
WC-06-AS-2	620350	5557545	30 cm	2.02	4.53	3.51	.152	4.81
WC-06-AS-3	620400	5557545	25 cm	0.96	3.15	2.48	.170	6.49
WC-06-AS-4	620450	5557545	25 cm	1.13	2.74	1.97	.127	14.05
WC-06-AS-5	620500	5557545	30 cm	1.07	2.43	1.77	.085	14.73
WC-06-AS-6	620550	5557545	30 cm	1.06	2.48	1.81	.079	14.29
WC-06-AS-7	620600	5557545	35 cm	1.07	2.48	1.84	.082	14.42

The first 3 soil samples (AS-1 to AS-3) were taken on altered and weakly pyritic Bonanza Group volcanic rocks. The first 3 samples show relative increases in Fe, Al, and P. AS-1 to AS-3 also show a relative decrease in Ca compared to samples AS-4 to AS-7 which are located on or adjacent to the marble beds. Soils sampling suggests there is a lithological contact between AS-3 and AS-4. The > 100% increase in Ca content is likely the indication of marble bedrock in this area of overburden.

## **7.4 PETROGRAPHIC DESCRIPTIONS**

A technical description of thin section and photomicrograph is presented in Appendix B. The subtle re-crystallization and deformation of calcite twin lamellae suggests that the Wood Cove marble beds were subject to a modest degree of heat and pressure during presumed Jurassic age metasomatic alteration and low-grade metamorphism. It would be useful to figure out what the opaque minerals are since it is assumed that they are pyrite.

## **8.0 DISCUSSION OF RESULTS**

The area of the claims were logged shortly before Dolmage Campbell & Associates Ltd mapped the marble beds in 1973. This gave good exposure of bedrock, but currently there is thick second growth vegetation over the bedrock areas mapped as limestone by Dolmage Campbell in 1973. No outcroppings of marble were found by the author anywhere else on the claim except in the large creek on mineral tenure 501945. The soils survey shows an increase in %Ca located approximately 125-275 meters from tidewater along the east-west trending survey line, and this correlates with previous mapping of the trace of the limestone beds south of the exposure in the creek located on the south portion of mineral tenure 501945.

It is probable that the sharp increase in slope 300 meters to 420 meters from tidewater in both east-west trending creeks that cut through mineral tenures 501873 and 501945 respectively, marking the contact with the upper contact of the upper limestone bed with Bonanza Group volcanics. The creek that cut through the north portion of mineral tenure 501873 does not have any outcroppings until the start of a steep canyon, thus it is assumed that the marble beds occur under the overburden just below the sharp break in slope.

The brightness grade of the marble has not been tested, but it is likely that this is variable throughout and may be related to texture and/or bedding planes within the marble bed. In order to test the brightness of the marble, a program of core drilling and/or trenching is recommended.

## **9.0 CONCLUSION**

The Kashutl Inlet, Wood Cove marble occurrence has the potential to contain economic mineralization based on the following facts:

- 1) There is a demand for pure high calcium limestone (with low content of iron and aluminum) and based on geological mapping and geochemical sampling, Wood Cove marble deposit contains several million tonnes of readily accessible material.
- 2) The close proximity to tidewater and waterway transportation.
- 3) Barge ships with payloads of approximately 50,000 tonnes can be loaded a short distance from shore.

Results from sampling and mapping suggest that a program of approximately 14 diamond drill holes (200 feet (60 m) deep vertical holes at 50 m centers), be located near the lower contact of both marble beds. The cost of this drill program with support would be approximately \$250,000.

The purpose of the program would be to develop drill indicated tonnage and grade to evaluate the economics of shipping high calcium limestone.

## **REFERENCES**

EMPR Open File 1992-18, pp. 46-47

EMPR Private File (Geology Report- Kashutl Inlet Limestone by Campbell, D.D., 1973)

GSC Bulletin 242

GSC Map 4-1974; 225A; 1552A

GSC Open File 9; 170; 463 (Sheet 2)

Muller, J.E., 1973

GSC Paper 69-1A; 70-1A; 74-8; 79-30

## CERTIFICATE

I, Andris Kikauka, of Sooke, B.C., hereby certify that;

1. I am a graduate of Brock University, St. Catharines, Ont., with an Honours Bachelor of Science Degree in Geological Sciences, 1980.
2. I am a Fellow in good standing with the Geological Association of Canada.
3. I am registered in the Province of British Columbia as a Professional Geoscientist.
4. I have practiced my profession for twenty years in precious and base metal exploration in the Cordillera of Western Canada, U.S.A., South America, and for three years in uranium exploration in the Canadian Shield.
5. The information, opinions, and recommendations in this report are based on fieldwork carried out in my presence on the subject property.
6. I have a direct interest in the subject claims and this report is not intended for the purpose of statement of material facts and/or related public financing. This report is intended to fulfill the requirements of assessment work carried out on the subject mineral tenures.

Andris Kikauka, P. Geo.,

A handwritten signature in cursive script that reads "Andris Kikauka". The signature is written in black ink and is positioned below the typed name.

December 15, 2006

**ITEMIZED COST STATEMENT-  
WOOD COVE MINERAL TENURES 501945, 501873  
FIELDWORK PERFORMED NOV. 18-20, 2006,  
WORK PERFORMED ON MINERAL TENURES 501945 AND 501873  
ALBERNI MINING DIVISION, NTS 104 P/5 W (TRIM 104P 031)**

**FIELD CREW:**

**A. Kikauka (Geologist) 3 days (surveying, mapping)      \$    1,272.50**

**FIELD COSTS:**

<b>Mob/demob/preparation</b>	<b>130.70</b>
<b>Meals and accommodations</b>	<b>155.00</b>
<b>Truck mileage &amp; fuel</b>	<b>488.00</b>
<b>Whole Rock Analysis and specific gravity (2 rocks)</b>	<b>44.00</b>
<b>ICP 30 element geochemical analysis (7 soil, 2 rock samples)</b>	<b>145.00</b>
<b>Petrographic reports</b>	<b>245.00</b>
<b>Report</b>	<b>575.00</b>

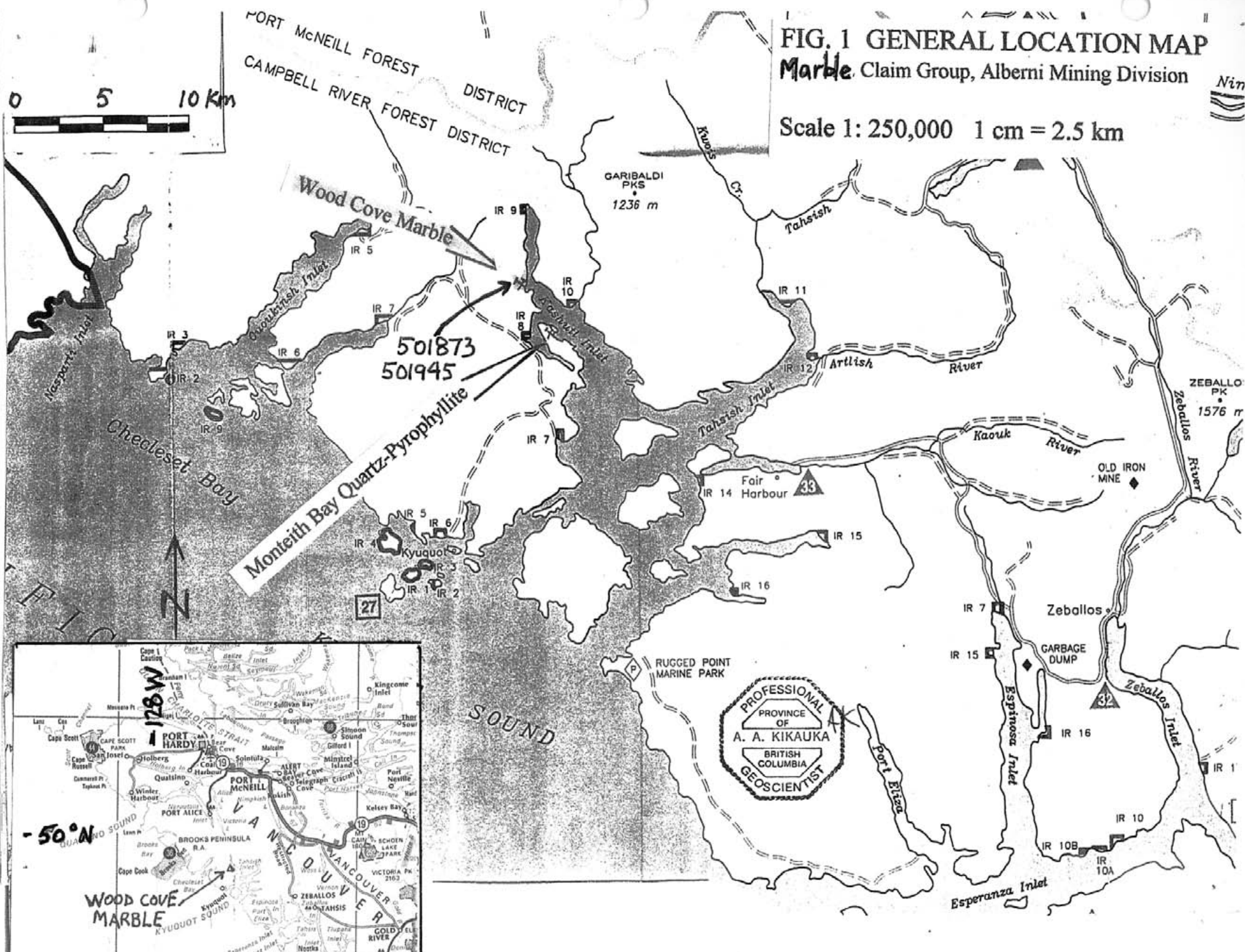
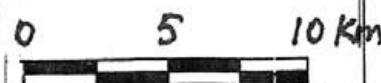
**Total=      \$    3,055.20**

FIG. 1 GENERAL LOCATION MAP

Marble Claim Group, Alberni Mining Division

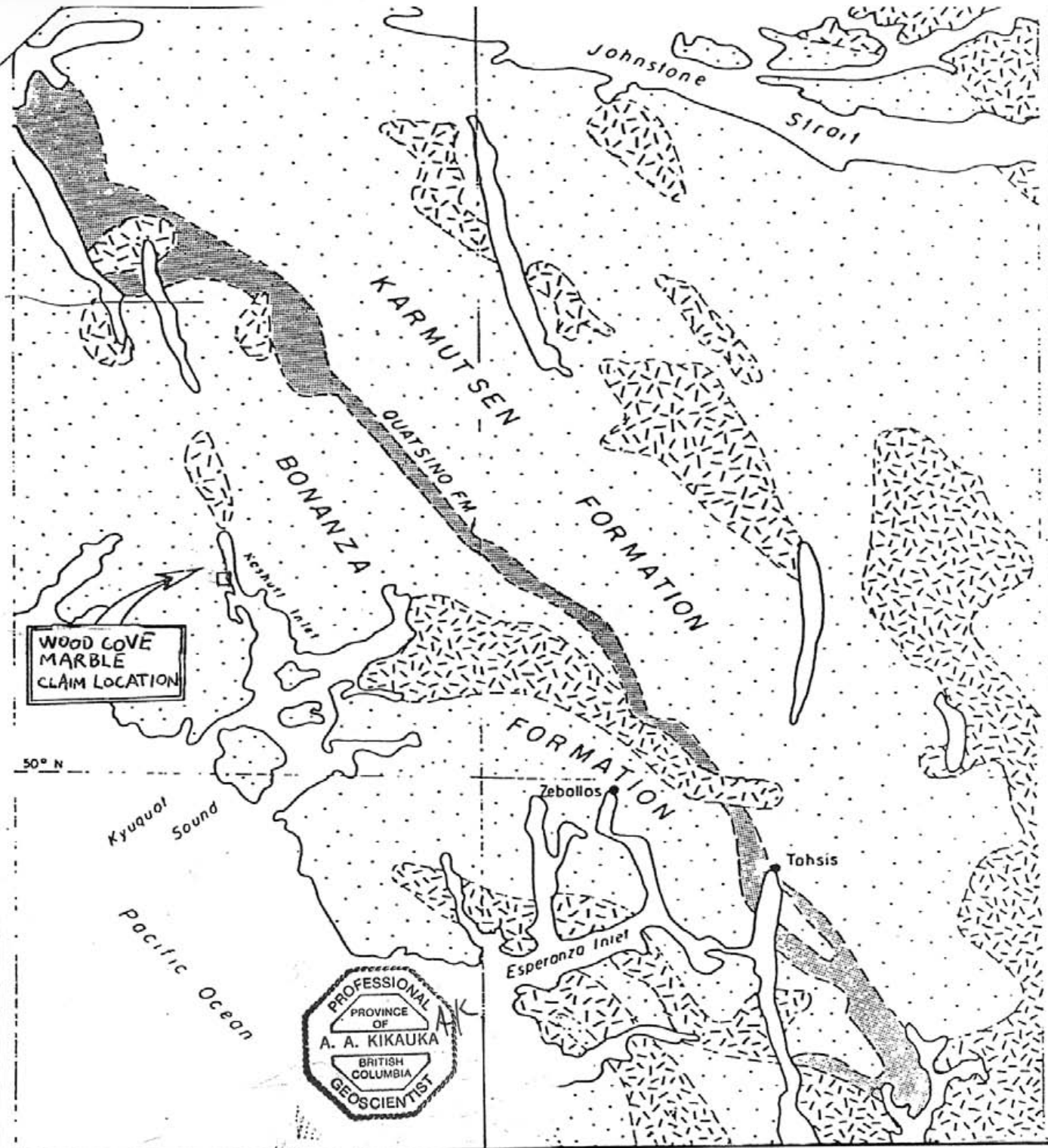


Scale 1: 250,000 1 cm = 2.5 km

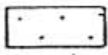

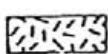


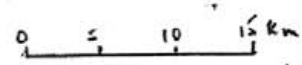
PROFESSIONAL  
PROVINCE OF  
A. A. KIKAUKA  
BRITISH  
COLUMBIA  
GEOSCIENTIST





**LEGEND**

-  VOLCANIC FORMATIONS
-  LIMESTONE
-  COAST RANGE INTRUSIVES



**FIG. 2 (after Dolmage Campbell, 1972)**

KASHUTL INLET LIMESTONE

**GEOLOGICAL SETTING**

NORTHERN VANCOUVER ISLAND

SCALE 1" = 8 miles  
1:506,880

# Exploration Assistant

## Mineral Inventory Layers

- ✕ ... ▲ **MINFILE status**  
✕ Developed Prospect  
◊ Past Producer  
✕ Producer  
▲ Prospect  
▲ Showing  
■ All Others

## Mineral Titles Layers

- ...  **MTO Mineral Claim Outlines**  
 Mineral

## Topographic Layers

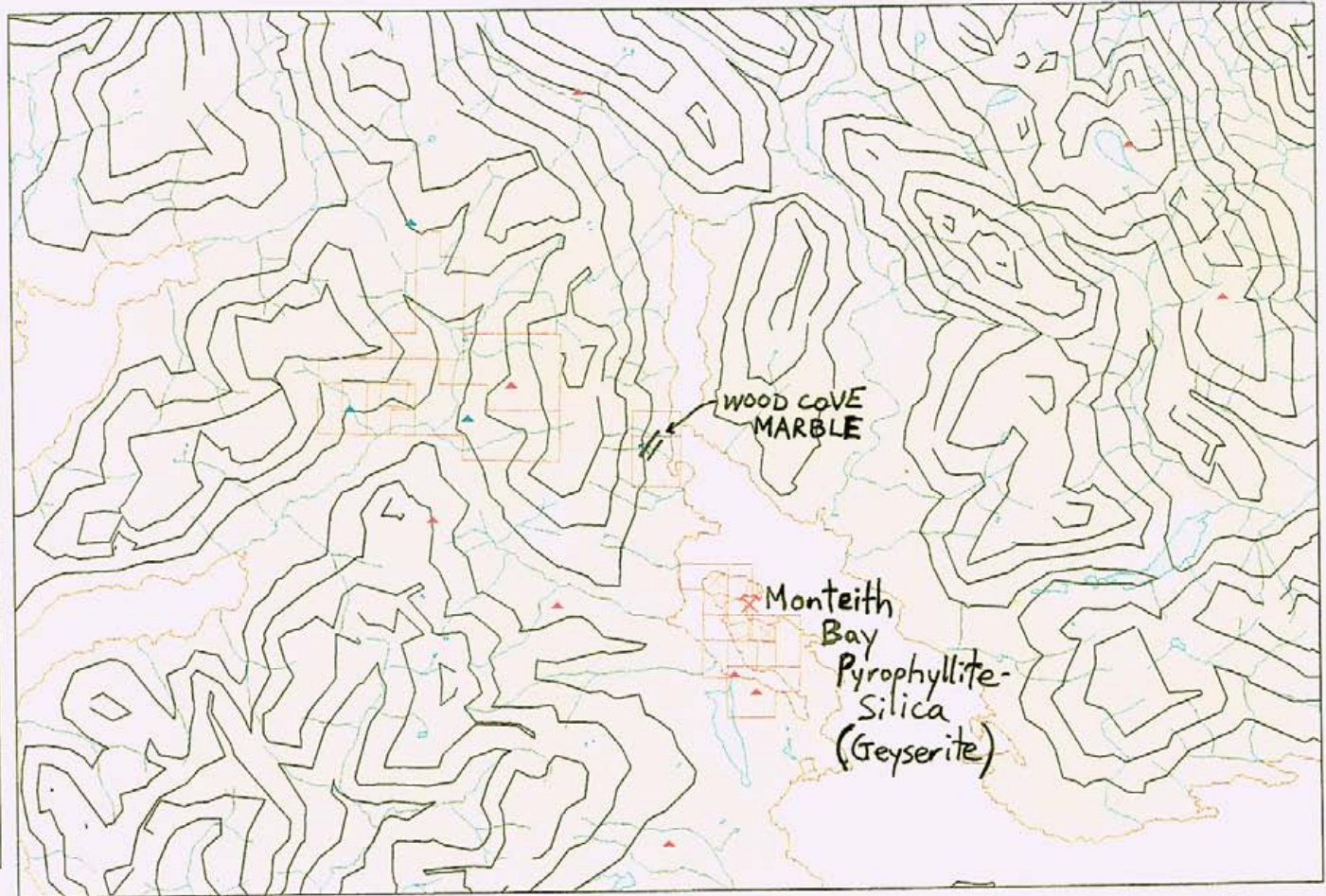
- Coast 1:20K (<1M)**  
 **Contours 1:250K (<2M)**  
 **Lakes 1:50K (<300K)**  
 **Rivers 1:50K (<300K)**  
 **Border line 1:250K (<2M)**

## Grid Layers

- Grid 1:250K maps - outline**

## BC Border Layers

- BC Border 1:50K (<200K)**

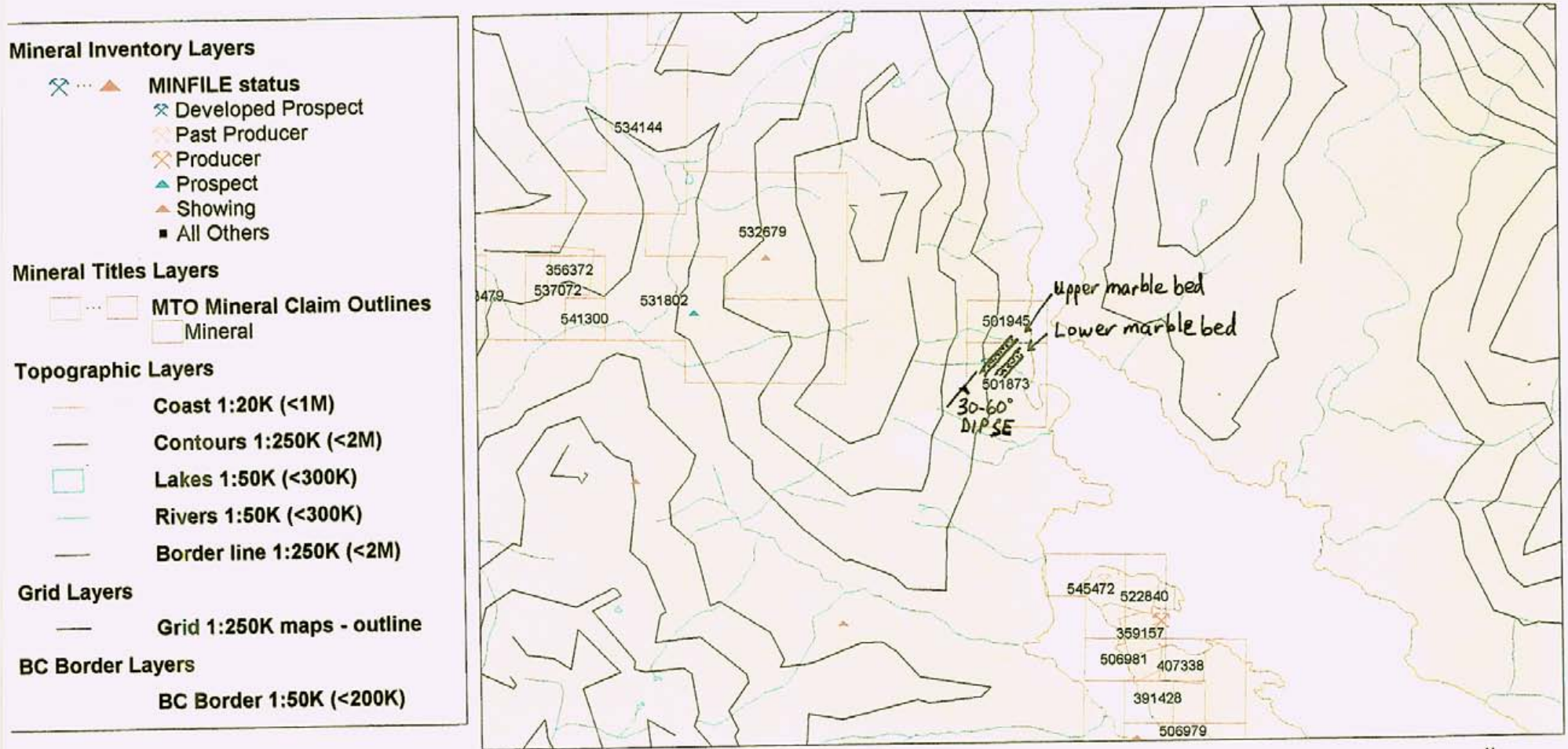


SCALE 1 : 131,169

Fig.3 Regional MINFILE and Mineral Tenure Location Map



# Exploration Assistant



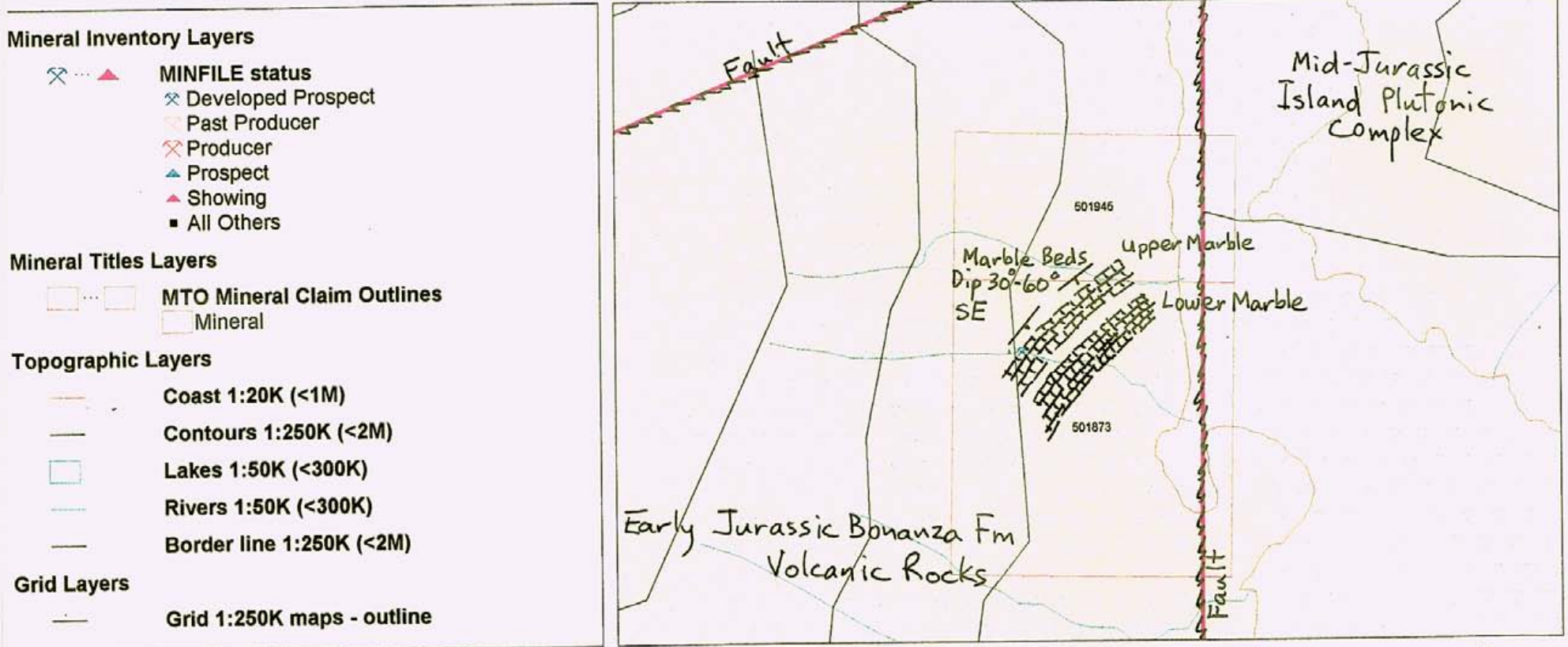
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Fig. 4 MINFILE and Mineral Tenure Location Map



# Exploration Assistant



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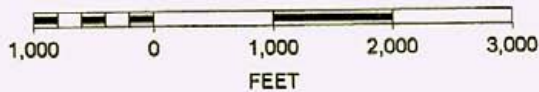


Fig. 5 Geology and Mineral Tenure Location Map



PIONEER LABORATORIES INC.

#103-2691 VISCOUNT WAY RICHMOND, BC CANADA V6V 2R5

TELEPHONE (604) 231-8165

GEOCHEMICAL WHOLE ROCK ANALYSIS

MR. ANDRIS KIKAUKA

Project: WC Marble

Sample Type: Rocks

0.20 gram sample is fused with LiBO2, dissolved in 100 ml 5% HNO3 and is finished by ICP/ES.

Analyst RSW

Report No. 2069450

Date: December 11, 2006

SAMPLE#	SiO2	Al2O3	Fe2O3	MgO	CaO	Na2O	K2O	TiO2	P2O5	MnO	Cr2O3	Ba	Ni	Sr	Zr	Y	Nb	Sc	LOI	TOT/C	TOT/S	SUM
	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	%	%
AR-1	.18	.03	.12	.26	56.00	.02	<.04	<.01	.02	.06	.002	13	<5	179	<5	<5	<5	<1	43.3	12.00	.12	100.03
AR-2	.35	.10	.24	.37	55.55	.01	<.04	<.01	<.01	.09	.001	<5	5	244	<5	<5	5	<1	43.2	12.19	.12	99.95

PIONEER LABORATORIES INC.

#103-2691 VISCOUNT WAY RICHMOND, BC CANADA V6V 2R5

TELEPHONE (604) 231-816

GEOCHEMICAL ANALYSIS CERTIFICATE

MR. ANDRIS KIKAUKA

Project: WC Marble

Sample Type: Soils

Multi-element ICP Analysis - .500 gram sample is digested with 3 ml of aqua regia, diluted to 10 ml with water. This leach is partial for Mn, Fe, Ca, P, La, Cr, Mg, Ba, Tl, B, W and limited for Na, K and Al. Detection Limit for Au is 3 ppm.

Analyst R. Sells

Report No. 2069410

Date: December 04, 2006

ELEMENT	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Tl	B	Al	Na	K	W
SAMPLE	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	%	%	%	%	ppm
06-WC-AS-1	1	70	15	108	.3	36	19	1925	4.04	26	8	ND	2	31	1.6	3	3	104	2.84	.214	38	67	1.66	117	.07	7	3.19	.05	.07	2
06-WC-AS-2	1	74	12	77	.3	39	25	1158	4.53	23	8	ND	5	44	.8	3	3	130	4.81	.152	22	94	2.02	94	.08	10	3.51	.06	.02	2
06-WC-AS-3	1	40	19	93	.3	32	13	1678	3.15	18	8	ND	4	46	1.0	3	3	76	6.49	.170	28	41	.96	102	.08	11	2.48	.03	.02	2
06-WC-AS-4	1	35	9	75	.3	47	13	1121	2.74	35	8	ND	3	77	.6	3	3	72	14.05	.127	26	71	1.13	69	.07	8	1.97	.03	.04	2
06-WC-AS-5	1	32	13	56	.5	50	12	836	2.43	31	8	ND	2	86	.6	3	3	67	14.73	.085	20	42	1.07	56	.08	3	1.77	.02	.04	2
06-WC-AS-6	1	33	9	55	.4	47	14	804	2.48	34	8	ND	3	85	.5	3	3	72	14.29	.079	17	46	1.06	56	.09	4	1.81	.05	.06	2
06-WC-AS-7	1	33	16	57	.3	53	15	816	2.48	35	8	ND	2	87	.5	3	3	72	14.42	.082	18	50	1.10	58	.09	3	1.84	.01	.03	2
AR-1	8	2	15	91	.4	1	1	577	.12	16	9	ND	2	220	.9	3	3	8	>40	.017	2	5	.14	19	.01	9	.03	.01	.01	2
AR-2	1	11	9	16	.3	1	1	887	.14	21	8	ND	2	300	.5	3	3	3	>40	.003	1	4	.19	31	.01	3	.04	.01	.06	2

PIONEER LABORATORIES INC #103-2691 VISCOUNT WAY RICHMOND, BC CANADA V6V 2F

GEOCHEMICAL ANALYSIS CERTIFICATE

Specific Gravity

MR. ANDRIS KIKAUKA  
Project: Wood Cove Marble  
Report No. 2069453  
Sample Type: Rocks  
Date: December 18, 2008

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SAMPLE	SG
AR-1	2.57
AR-2	2.62

PETROGRAPHIC REPORT ON 2 THIN SECTIONS FROM WOOD COVE MARBLE DEPOSIT,  
KYUQUOT, NW VANCOUVER ISLAND

Report for: Andris Kikauka  
406-4901 East Sooke Road  
Sooke, B.C.  
V0S 1N0 (250) 514-7802

Invoice 060997

Dec. 7, 2006.

SUMMARY:

Capsule descriptions are as follows:

AR-1: marble composed of massive, granular, interlocking, somewhat recrystallized medium- to coarse-grained calcite crystals, with traces of opaque (pyrite?), partly oxidized to limonite, disseminated and along stylolitic grain boundaries and microfractures.

AR-2: also marble composed of massive, granular, interlocking, somewhat recrystallized medium- to locally coarse-grained calcite crystals, with traces of opaque (pyrite?), partly oxidized to limonite, disseminated and along stylolitic grain boundaries and microfractures.

Detailed petrographic descriptions and photomicrographs are appended (on CD). If you have any questions regarding the petrography, please do not hesitate to contact me.

Craig H.B. Leitch, Ph.D., P. Eng. (250) 653-9158 [craig.leitch@gmail.com](mailto:craig.leitch@gmail.com)  
492 Isabella Point Road, Salt Spring Island, B.C. Canada V8K 1V4



**AR-1: MARBLE (MASSIVE CALCITE; TRACE PYRITE, LIMONITE ALONG STYLOLITIC MICROFRACTURES)**

Hand specimen is massive, relatively coarse grained, pale grey-white marble with traces of orange-brown limonite stain along microfractures, likely emanating from oxidation of traces of sulfide (pyrite?) as rare scattered disseminated cubic crystals. The rock is not magnetic, but shows intense reaction to cold dilute HCl, and complete red stain for calcite in the etched offcut. Modal mineralogy in thin section (excepting plucked areas that are now filled with epoxy) is approximately as follows:

Carbonate (likely entirely calcite)	99%
Limonite	<1%
Opaque (mainly pyrite?)	<1%

Part of the thin section has been affected by plucking during section preparation, likely starting from and extending around a fracture system. This has removed about 10% of the section area, leaving voids that are now partly filled with epoxy.

Carbonate, likely entirely calcite, forms somewhat rounded, subhedral to euhedral crystals up to about 0.5 cm in diameter. Strain is indicated by generally undulose extinction, minor sub-grain development near major crystal boundaries, and local suturing of grain boundaries. However, twin lamellae are generally only slightly deformed. Most crystals show minor to moderate microfracturing (somewhat stylolitic where present along grain boundaries).

The only impurities visible optically are opaques, including traces of limonite and rare cubic crystals, likely pyrite. The limonite is mainly found along microfractures as brownish stains of amorphous, likely transported material that may be in part related to oxidation of the traces of sulfide. The sulfide forms rare, scattered euhedral crystals up to 0.2 mm in diameter either disseminated in the calcite, or locally connected along microfractures, commonly with traces of limonite spreading out from them along microfractures or stylolitic microfractures.

In summary, this is a marble composed of massive, granular, interlocking, somewhat recrystallized medium- to coarse-grained calcite crystals, with traces of opaque (pyrite?), partly oxidized to limonite, disseminated and along stylolitic grain boundaries and microfractures.

**AR-2: MARBLE (MASSIVE CALCITE; TRACE PYRITE, LIMONITE ALONG STYLOLITIC MICROFRACTURES)**

Hand specimen is medium-grained, grey massive marble, with rare disseminated sulfides (likely pyrite?) and local stylolitic fractures along which traces of brownish limonite are developed, likely as a result of oxidation of pyrite. The rock is not magnetic, but shows intense reaction to cold dilute HCl, and complete red stain for calcite in the etched offcut. Modal mineralogy in thin section is approximately:

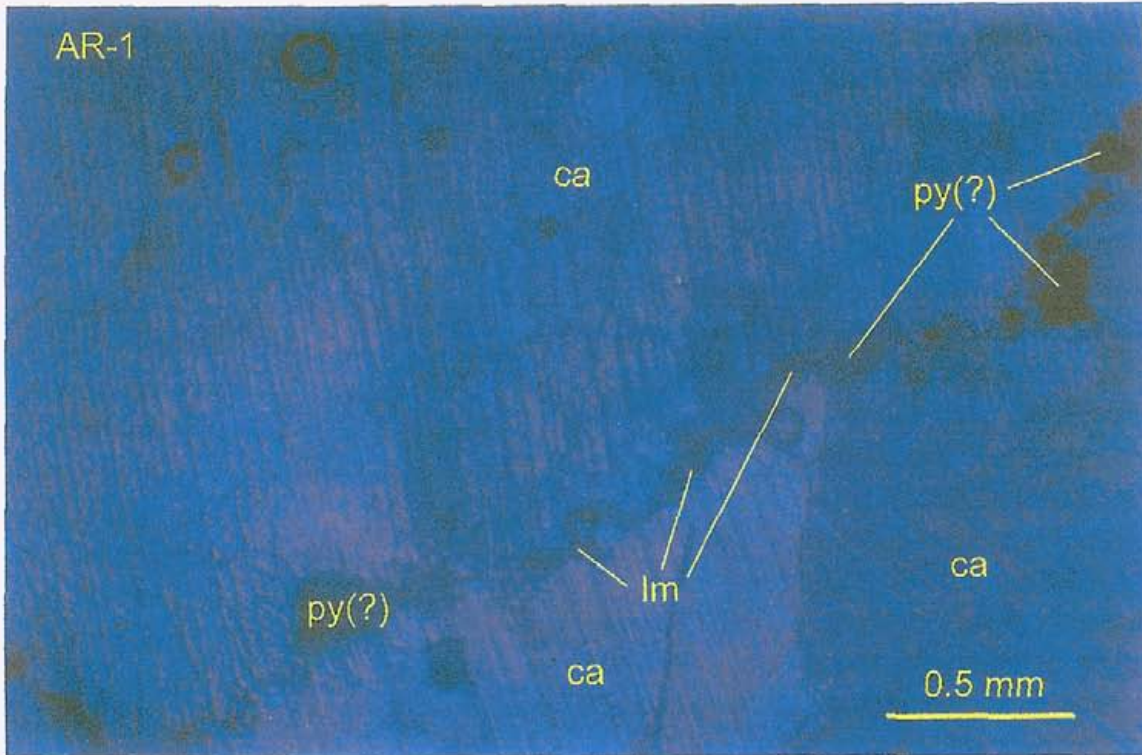
Carbonate (calcite)	98%
Opaque (likely pyrite?)	1%
Limonite (transported)	1%

This sample is virtually identical to AR-1, composed of granular calcite with traces of opaque (likely pyrite), partly oxidized to limonite. However, it is less fractured and correspondingly less plucked out during section preparation.

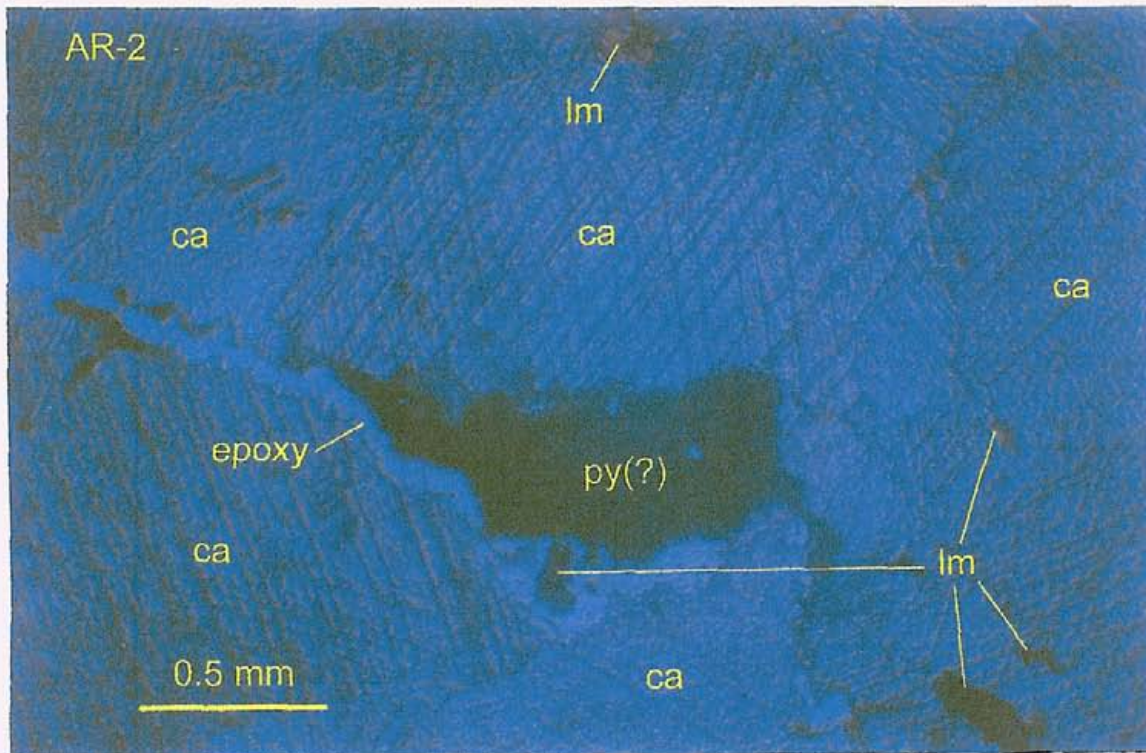
Carbonate forms subhedral to subrounded, interlocking granular crystals that are locally optically continuous for up to 8 mm, but are commonly recrystallized to smaller sub-domains of 1-2 mm diameter. Evidence of strain is found in weakly undulose extinction, sub-grain development, and minor suturing of grain boundaries. Twin lamellae are generally only slightly bent (deformed). Microfractures, especially along grain boundaries, are common.

Traces of opaque (likely mostly pyrite?), forming aggregates up to 0.35 mm across composed of small cubic euhedra mostly <75 microns in diameter, are concentrated along grain boundaries or microfractures (locally stylolitic in character). Traces of yellow-brown to orange-brown (jarositic to goethitic?) limonite, mostly as transported, cryptocrystalline to amorphous material, are also concentrated along the same and other microfractures or stylolites, suggesting derivation by partial oxidation of the pyrite.

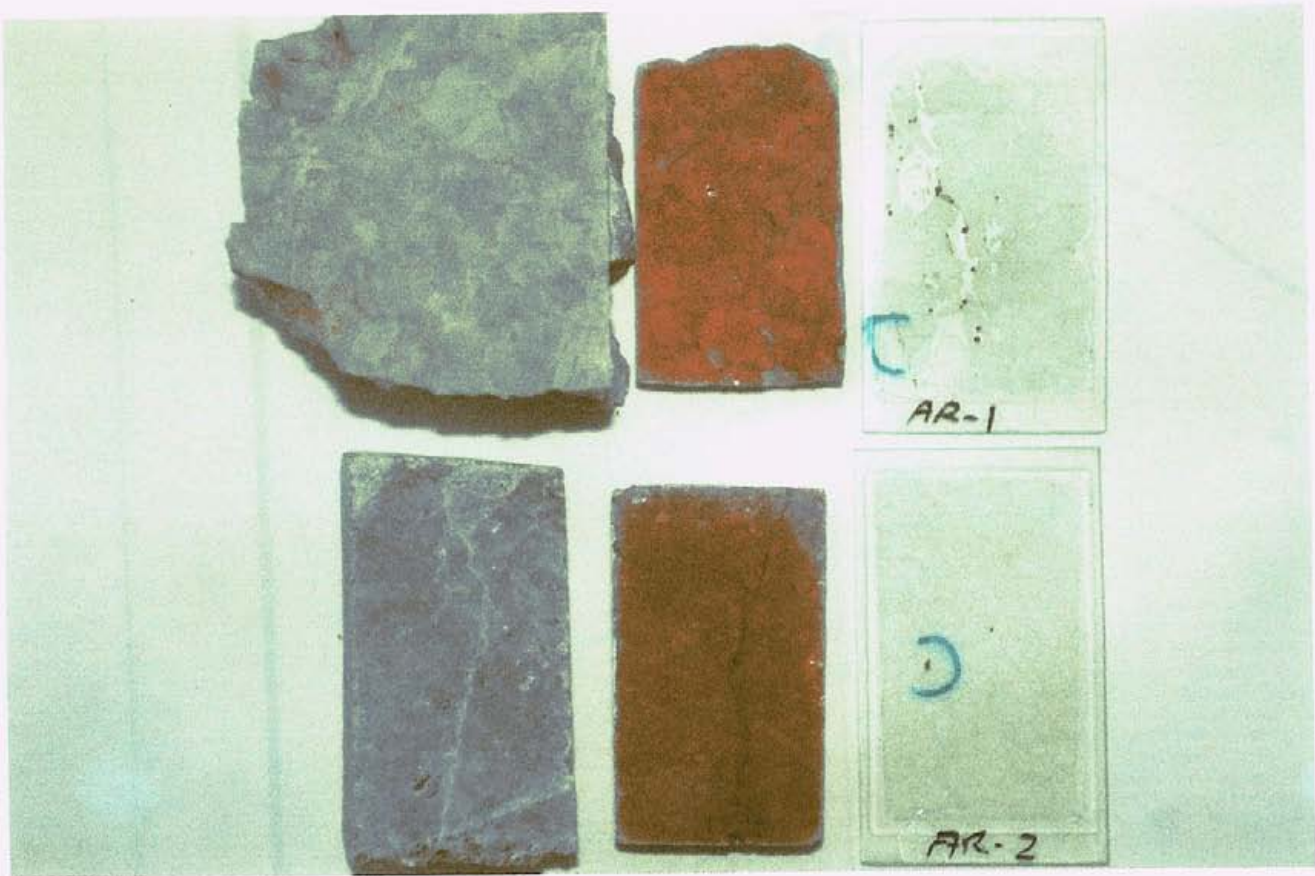
In summary, this is also a marble, composed of massive, granular, interlocking, somewhat recrystallized medium- to locally coarse-grained calcite crystals, with traces of opaque (pyrite?), partly oxidized to limonite, disseminated and along stylolitic grain boundaries and microfractures.



AR-1: Coarse-grained carbonate (mainly calcite, ca) with slightly deformed twin lamellae, slightly recrystallized along grain boundary which also shows stylolitic microfracture containing blebs of opaque (likely mostly pyrite, py?) that are partly oxidized to limonite (lm). Transmitted light, crossed polars, field of view 3 mm wide.



AR-2: Somewhat recrystallized carbonate (mainly calcite, ca) very slightly deformed twin lamellae, containing aggregates of fine-grained opaque (pyrite, py?) that are partly oxidized at rims to limonite (lm) along and near partly stylolitic fracture or grain boundary that is partly filled with epoxy. Transmitted plane light, field of view 3 mm wide.



Overview of all offcuts (stained red for calcite) and thin sections (green semi-circles mark locations of photomicrographs).

ROCK CHIP SAMPLES, 2000

Sample No	Width	Description	% CaO
104831	4.0 m	Bleached white silicified, medium grained marble	38.14
104832	4.0 m	Pearl grey, coarse grained marble	53.21
104833	4.0 m	Pearl grey to white, coarse & medium grained marble	50.65
104834	4.0 m	Pearl grey to white, coarse & medium grained marble	55.23
104835	4.0 m	Pearl grey to white, coarse & medium grained marble	55.58
104836	4.0 m	Pearl grey to white, coarse & medium grained marble	56.18
104837	4.0 m	Pearl grey to white, coarse & medium grained marble	56.07
104838	4.0 m	Pearl grey to white, coarse & medium grained marble	53.79
104839	4.0 m	Pearl grey to white, coarse & medium grained marble	55.65
104840	4.0 m	Pearl grey to white, coarse & medium grained marble	55.29
104841	3.0 m	Pearl grey to white, coarse grained marble	55.62
104842	3.0 m	Pearl grey to white, coarse grained marble	55.48
104843	3.0 m	Pearl grey to white, coarse & medium grained marble	53.56
104844	3.0 m	Pearl grey to white, coarse & medium grained marble	55.58
104845	3.0 m	Pearl grey to white, coarse & medium grained marble	55.16
104846	3.0 m	White silica with coarse & medium grained marble	1.05

Fig. 6 Property Geology, Rock Chip, Petrographic, and Soil Location Map

MARBLE CLAIM GROUP  
ALBERNI MINING DIVISION

JURASSIC

- JG ISLAND INTRUSION, QTZ. MONZONITE, GRANITE
- BV BONANZA VOLCANICS, ANDESITE-RHYODACITE FLOWS, TUFFS, BRECCIA
- MB MARBLE BED, MASSIVE, COARSE GRAINED
- AS ARGILLACEOUS SILTSTONE

104841 ROCK SAMPLE NO. (2000)

DIP & STRIKE OF MARBLE

CREEK

300' CONTOUR IN FEET

OUTLINE OF OUTCROP

FAULT

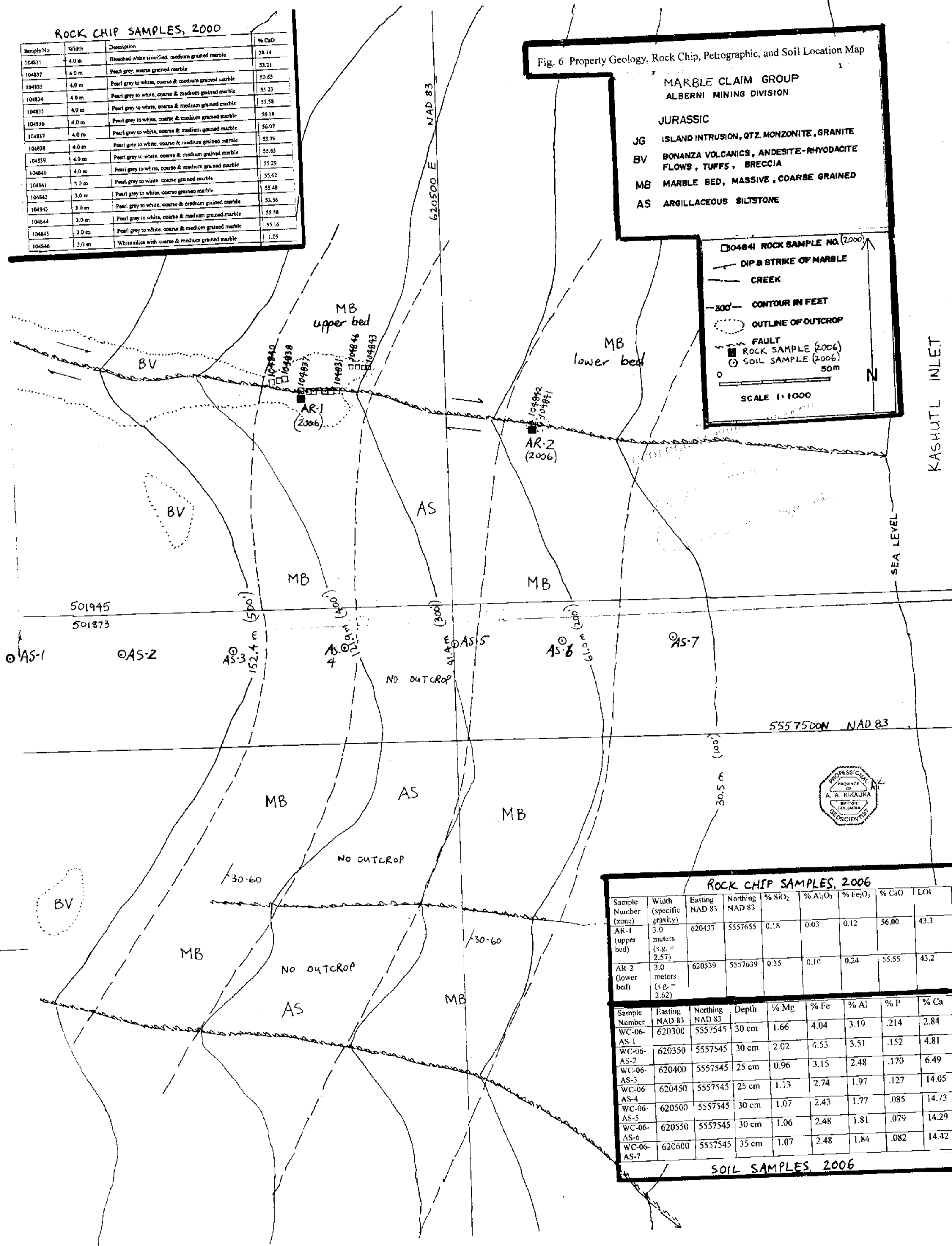
ROCK SAMPLE (2006)

SOIL SAMPLE (2006)

50m

SCALE 1:1000

N



ROCK CHIP SAMPLES, 2006

Sample Number (zone)	Width (specific gravity)	Easting NAD 83	Northing NAD 83	% SiO <sub>2</sub>	% Al <sub>2</sub> O <sub>3</sub>	% Fe <sub>2</sub> O <sub>3</sub>	% CaO	LOI
AR-1 (upper bed)	3.0 meters (s.g. = 2.57)	620433	5557655	0.18	0.03	0.12	56.00	43.3
AR-2 (lower bed)	3.0 meters (s.g. = 2.62)	620539	5557639	0.35	0.10	0.24	55.55	43.2

Sample Number	Easting NAD 83	Northing NAD 83	Depth	% Mg	% Fe	% Al	% P	% Ca
WC-06-AS-1	620300	5557545	30 cm	1.66	4.04	3.19	.214	2.84
WC-06-AS-2	620350	5557545	30 cm	2.02	4.53	3.51	.152	4.81
WC-06-AS-3	620400	5557545	25 cm	0.96	3.15	2.48	.170	6.49
WC-06-AS-4	620450	5557545	25 cm	1.13	2.74	1.97	.127	14.05
WC-06-AS-5	620500	5557545	30 cm	1.07	2.43	1.77	.085	14.73
WC-06-AS-6	620550	5557545	30 cm	1.06	2.48	1.81	.079	14.29
WC-06-AS-7	620600	5557545	35 cm	1.07	2.48	1.84	.082	14.42

SOIL SAMPLES, 2006