# 895257

# NETWORK ONE HOLDINGS CORP.

#### **EXECUTIVE SUMMARY**

November, 1996

Suite 700 - 555 West Hastings Street Vancouver, British Columbia V6B 4N5 Telephone: (604) 893-7045 Fax: (604) 893-7001

#### PREAMBLE

This information contained in this Executive Summary is confidential. The Executive Summary has been prepared to assist interested parties in making their own assessment of the Company and its mineral properties and does not purport to contain all of the information that a prospective investor may desire. In all cases, interested parties should conduct their own investigation and analysis of the Company, its assets and the information provided in this Executive Summary. Any and all statements, forecast, projections and estimates contained in this Executive Summary are based on current management's knowledge and no representations or warranty is made as to their accuracy and or reliability.

TOP GUN STRATEGISTS INC. has not independently verified any of the information contained herein. TOP GUN STRATEGISTS INC. makes no representation or warranty as to its accuracy and completeness and shall not be liable to any recipients of this Executive Summary if such information or any part thereof is untrue or misleading or if any information omitted therefrom which is necessary to make any information contained herein not false or misleading in light of the circumstances in which it is presented.

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#### A. THE COMPANY

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NETWORK ONE HOLDINGS CORP. ("NWK1 or, the Company"), is mineral exploration and development company with advance projects that is in the stage of pre-production (bulk sample) of 10,000 tonnes by open-pit mine operation and will immediately follow the full production application of Mine Reviewable Development Certificate (MRDC) to the Government of British Columbia for an increase of 25,000 tonnes per year operation. The primary concentrate of metals to be processed are Copper, Vanadium, Gold, Silver, Manganese. The Copper Cliffs Property is estimated to contain indicate reserve of 3,200,000 tonnes with undiscounted net revenue of \$127,800,000.00 at current metal prices (see "cash flow spread sheets"). The potential geological reserve with known mineralization is plus 50,000,000 tonnes. The other Enviable project is the Golden Eagle Mercury Mine, a past producer with drill proven reserves of 641,703 tonnes. grading 10.21 kilos/tonne. Today's market (Aug.24/96) mercury sells for \$265U.S./FLASK of \$7.69/kilo. The drill proven reserves should contain 6,551,787 kilos recoverable mercury with a gross mineral value of \$50,448,764.75 U.S. The company is currently preparing for prefeasibility study. The company's primary objective is to bring the advance developed mineral properties into full commercial production to take advantage of high metal prices. The company is staffed by well experienced husinessmen, professional engineers and M.B.A.'s. Network One Holdings Corp. trades on the CANADIAN DEALING NETWORK INC. Toronto, Ontario under the symbol NWK1 - CDN. (Canadian Unlisted).

#### B. MINERAL PROPERTIES IN BRITISH COLUMBIA

 Copper Cliffs Property, Quadra Island, B.C. - is located in the south central portion of Quadra Island and extends to the shores of Gowland Harbour. It is composed of 11 mineral claims covering about 1,235 hectares. A total of 154 drill holes (shallow), average depth of 80 feet, with indicated reserves on eight (8) separate mineral deposit. Total reserves indicated is 3.2 million tonnes, grade at 2.44% Copper, 0.14% Vanadium, 0.5 Oz. Silver, 0.018 Oz. Gold and 0.16% Manganese. The deposit is 1 mile long, 350 feet wide and 80 feet in depth. Amenable for open-pit mining operation. Excellent target to increase reserves by aggressive exploration and diamond drilling could be up by +50,000,000 tonnes (Unpublished Geological Summary Report by Robert Adamson, P. Eng. July, 1996). Currently applied for 10,000 tonnes bulk sample and will soon apply for MRDC permit full production of 25,000 tonnes per year. All done by sub-contract mining.

- 2. Alice Lake Property, Vancouver Island, B.C. is located in the southwest end part of Vancouver Island, Nanaimo Mining Division of British Columbia. A Gold-Silver-Lead-Zinc and Magnetite deposit which covers the Big Zinc shows surface mineralization indicating +5,000 tonnes outcrop Ore at +5% Zinc. Geochem & Magnetic Survey results indicate a large anomalous area. The Clancy 1 & Clancy 3 mineral claims covers an area of 650 hectares. The property has an excellent target to discover a medium size high grade polymetalic Ore that is open-pitable. Aggressive exploration work program for this year.
- 3. Golden Eagle (Mercury) Property, Yalakom River, B.C. is located on the east side of the Yalakom River, Lillooet Mining Division. A past producer Mercury Underground Mine. From 1941 1971 more than 59 holes were drilled on the property, 900 feet of underground development work and mined 113 tonnes of Ore. Todate, the drill indicated reserves (measured) is 641,703 tonnes grading at 10.21 kilos per tonne. The metals weekly quoted August 24/96 at \$265 U.S./FLASK or \$7.6U.S./Kilo. The current gross value is \$50,448.764.75 U.S. mineable mercury. The property is anomalous in Ni, Co, Cr. with minor gold and silver. The three mining claims covers about 975 hectares. The company is preparing a pre-feasibility study to develop the property into a full producing mine. The company can initiate to mine 10,000 tonnes for bulk sample. The company is currently in discussion with a sub-contract underground operator to test profitability of the mine at current mercury prices.

#### C. PROGRAM FINANCING

The Company is completing a SPECIAL WARRANTS "A" PRIVATE PLACEMENTS for 1,500,000 units at \$0.50 per unit share purchase warrants of \$0.75 for the first year and a \$1.00 for the second year. The proceeds of \$750,000 will be used to carry out exploration and development and extraction of bulk sample of 10,000 tonnes of Ore on the mineral properties of the Company.

#### D. EXPLORATION & DEVELOPMENT PROGRAM

The proposed program is as follows:

- 1. Copper Cliffs Property Acquisition \$50,000. Work program for the first year extraction of 10,000 tonnes bulk sample and exploration program \$150,000 including the Reclamation Bond to B.C. Government.
- 2. Alice Lake Property Acquisition \$30,000. Work program for the first year exploration is \$50,000 and then \$100,000 for the second year.

3. Golden Eagle (Mercury) Property - Acquisition \$30,000. Program for the first year is \$30,000 pre-feasibility study. Exploration program is \$50,000 the first year. The second year is extracting 10,000 tonnes bulk sample to be sub-contracted.

Total Acquisition Costs	\$ 110,000
Administration & Engineering	<b>\$</b> 40,000
Work Program Exploration	<b>\$</b> 250,000
Contingency	<u>\$ 50,000</u>
Total Program	<u>\$ 450.000</u>
Working Capital	\$ 300,000
TOTAL	<b>\$</b> 750,000

#### E. MARKET STATISTICS

1. SUMMARY MARKET DATA

Exchange:

CANADIAN DEALING NETWORK INC. (CDN)

Symbol: NWKI-CDN

Current Share Price: \$0.20

52 Week High-Low \$0.23 - \$0.12

Primary Shares Outstanding 3,583,848

Fully Diluted Shares: 4,583,848

2. MAJOR SHAREHOLDERS

Directors and Officers 15%

Foreign (Macau, Hong Kong & U.S.) Investors 67%

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#### F. MANAGEMENT

Mr. Wai (Eddy) Chiu Cheng, B. Commerce, President, Secretary and Director. Presently, President and Director of Dorset College, Vancouver, B.C.

Mr. Shao Yeung Jue, M.B.A., Eng., Executive Vice President and Director. Presently, Consultant Strategic Planning and Evaluation of Projects, Vancouver, B.C.

Mr. Bryan A. Slim, M.B.A., P. Eng., Vice President Exploration and Director. Presently, Consulting Mining Engineer, MineStart Mangement Inc., North Vancouver, B.C.

Dr. Ying Bin, Ian He, Ph.D. Mineral Process Engineer, Director. Presently, President & CEO of Spur Ventures Inc. (VSE). Consulting Metallurgy & Mineral Process Engineer, Vancouver, B.C.

Dr. Ron Britten, Ph.D. Geology, Director/Executive Vice President, Geology & Acquisitions. Presently, Vice President of First Point Minerals Corp. (ASE).

Mr. Anthony Tam, M.Sc., P.Eng., C.A., Director & C.FO.

Past President of Galactic Resources (China) Ltd., Past Secretary and Senior Officer of Hedley Gold Mines Ltd. Presently, General Manager, Asia Operations of Donner Resources Ltd. (VSE).

Executive Summary

## **COPPER CLIFFS PROPERTY**

NTS 92K/3W, NANAIMO M.D. QUADRA ISLAND BRITISH COLUMBIA, CANADA

# PROSPECTUS

(M.R.D.C. APPLICATION) SEPTEMBER, 1996

FOR

NETWORK ONE HOLDINGS CORP. 700 - 555 WEST HASTINGS STREET VANCOUVER, B.C. CANADA V6B 4N5

> Prepared by: Felix Reyes B. Sc. Vancouver, B.C.

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General Access and Location

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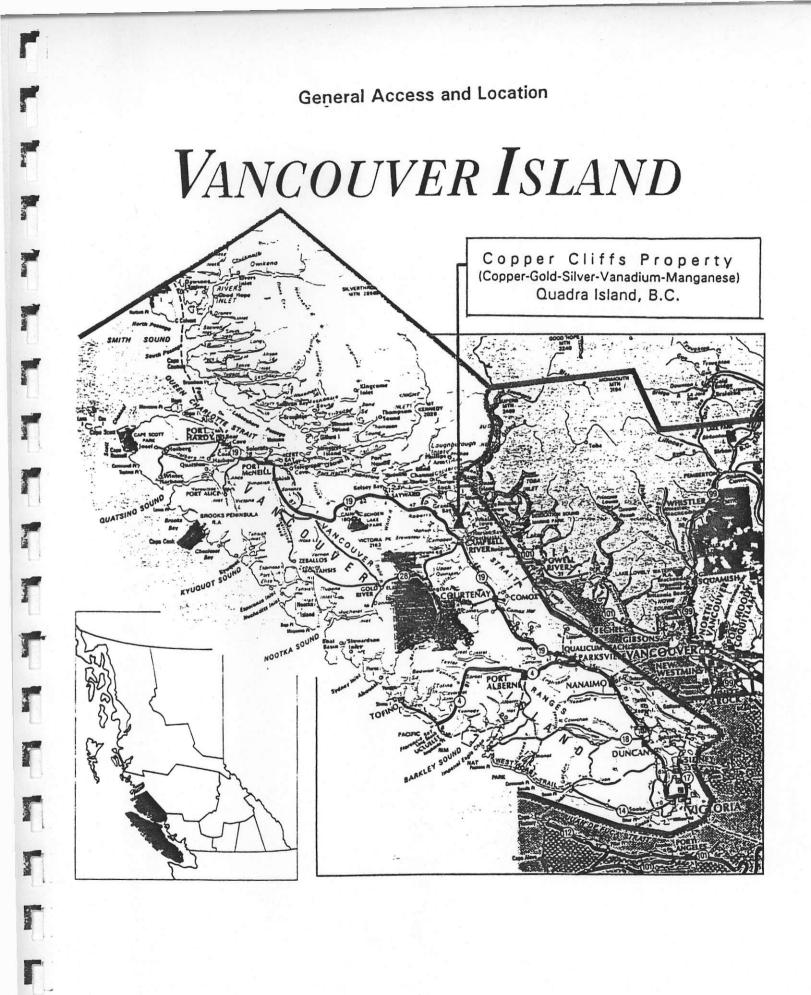
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Property Access and Location Map

Pian 3: 1996-1997 Development Plan

Figure 4-2: Calculated Ore Blocks

Figure 7-1: Project Schedule



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# FACT SHEET

#### PROPERTY DETAILS

Name:	Copper Cliffs Property			
Location:	Lat. 50° 12' Long. 125° 18' (92K/3W) Nanaimo M.D. Quadra Island, B.C.			
Metals:	Copper, Gold, Silver, Vanadium, Manganese			
Mining Method:	Previous underground mining and open-pit operation. 1996 contract mining, see schedule.			
Proposed Production:	Applied for B.C. Government approval to mine 9,990 tonnes bulk sample ore. Then follows (M.R.D.C.) 24,990 tonnes per year mining operation. At least three known deposits have been identified for open-pit mining.			
Process Plant/Mill:	Custom milling is available at Westmin's milling plants at Stewart, B.C. and Campbell River, B.C. Other milling plants are being investigated.			
Mine Life:	Based on minable/measured reserve, more than 10 years at 100,000 tons per year annual production rate.			

#### MINERAL RESERVES/RESOURCES

Reserves/Resources:	Minable/Measured: 1,180,700 tons grading 2.44% copper, 0.14% Vanadium, 0.16%		
	Manganese, 0.5 ounce per ton silver and		
	0.02 ounce per ton gold.		
	Drill indicated: 2,041,500 tons.		
	Geological: +50,000,000 tons.		

Estimated Cost:	\$1,000,000.00 including Reclamation Bond, subcontract payments, administration and engineering.	
Cut-off Grade:	0.3% Copper	
Additional Reserves:	Potential Geological Reserve: Known mineralization area extends up to 3000 metres long and 1000 wide. Known depth of mineralization from sea level to +240 metres above seal level, i.e. 3000 x 1000 x 150 metres. Flat lying ore beds average width is 2.5 metres.	
	<b>Geological Model:</b> Similar to the Sustut Copper Project and is classified as basaltic copper and volcanic red bed copper deposits. Calculated at + 50 million tonnes grading +1.5% copper.	

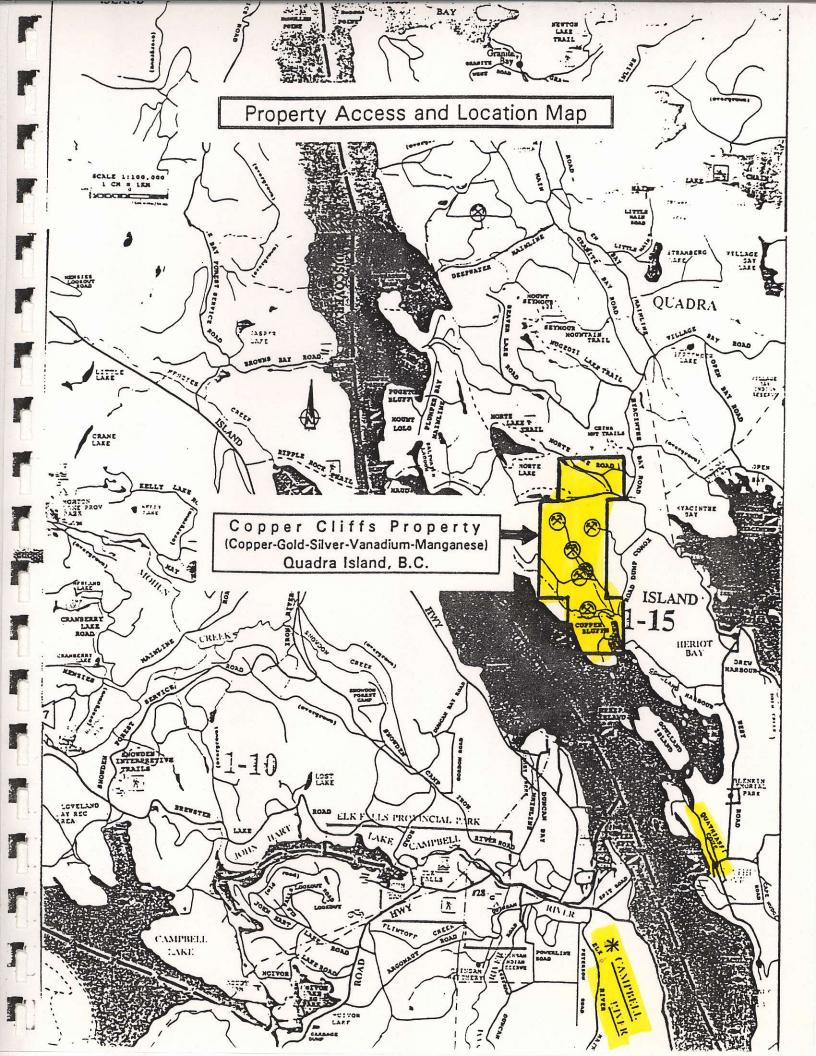
#### ACCESS/TRANSPORTATION

Road:Paved road from Quathiaski Cove to east<br/>end of the property. All known deposits and<br/>claims are easily accessible by all weather<br/>road or gravel road from the main road.Water:A15 minute ferry trip from Campbell River to<br/>at Quathiaski cove. Barge loading facilities<br/>available at Quathiaski cove and Gowlland<br/>Harbour.Air:Commercial jet service to Campbell River<br/>from Vancouver; air charter in Campbell<br/>River.

#### POWER.SUPPLY

Requirement:

Diesel fuel



#### **CONTRACT INFORMATION**

All major works will be sub-contracted for drilling, blasting, crushing and stock-piling for custom milling.

Mining:	A1 Contractor		
Transportation:	A2 Contractor		
Milling:	Westmin's milling plant at Stewart, B.C. and Campbell River, B.C. and others.		
SCHEDULE			
Submission and Approval:	Annual Work Approval Number (NAN-96- 0801054-88) was granted by the District Manager & Engineer of the Ministry of Employment and Investment on July 26, 1996. Amendment to remove 9,990 tonnes bulk sample is in progress.		
Site Preparation:	As soon as possible, after receiving B.C. Government approval of 9,990 tonnes bulk sample.		

M.R.D.C. Production Startup: Upon approval of B.C. Government M.R.D.C. permit, and the completion of financing by Special Warrant "A", Private Placement for a total of \$1,000,000.00.

## 1.0 INTRODUCTION

#### 1.1 Preamble

The Copper Cliffs (CC) Property located on the south-central of Quadra Island, B.C. is owned by Network One Holdings Inc. (NWI). The property is believed to contain sufficient minable reserves to justify mine development (M.R.D.C.) to production rate of 24,990 tonnes per year.

NWI is currently in the process of reviewing the feasibility and design of an open-pit mining operation. This prospectus is being submitted to initiate the approval of the M.R.D.C. application to quarry 24,990 tonnes per year of ore.

#### 1.2 Location and Setting

The Copper Cliffs Property is located in the south-central portion of Quadra Island and extends to the shores of Gowlland Harbour. Its approximate coordinates are latitude 50° 10' and longitude 125° 05' on NTS Map 92K/3W. Quadra Island is located off the east coast of Vancouver Island. From Campbell River on Vancouver Island a ferry leaves at hourly intervals for the 15-minute trip to Quathiaski Cove on Quadra Island. Paved road and good gravel roads on the island make all the claims easily accessible. Campbell River may be reached from Vancouver by commercial airlines or by ferry to Nanaimo, then 150 km north on the paved Island Highway.

The surface of Quadra Island is characterized by sharp scarp faces, where volcanics underline the area. Gentle slopes characterize the areas underlain by Coast Intrusives.

The highest point on the island is Mount Seymour which rises to an elevation of more than 600 metres above sea level. The elevation of the Copper Cliffs Property varies between sea level on the south to over 240 metres on the west side of the property. Major features tend northwesterly. Drainage is generally southwest toward Discovery Passage and southeast toward Gowlland Harbour.

The climate is generally warm to cool in the summer. Snowfalls of short duration during winter months take place in the higher parts of the island while low-lying areas may be clear. Rainfall averages 150 centimetres per year. Year round mining is possible. Water supply is available throughout the year.

#### 1.3 Property

The Copper Cliffs Property consists of 11 mining claims covering approximately 1,235 hectares. The claims are:

<u>Claim Name</u>	<u>Units</u>	Record Number	Expiry Date
V - 1	1	707717	30 May 1997
V - 2	1	707718	30 May 1997
Copper Bell 1	9	233236	30 May 1997
Copper Bell 2	6	233237	30 May 1997
Copper Bell 3	6	233238	30 May 1997
Copper Bell 4	4	215605	26 June 1997
Copper Bell 5	12	215606	26 June 1997
Copper Cliffs 1	4	233233	30 May 1997
Copper Cliffs 2	4	233234	30 May 1997
Copper Cliffs 3	2	233235	30 May 1997
Copper Cliffs 4	2	215607	26 June 1997
	51		

#### 1.4 History

Quadra Island was first explored for minerals before the turn of the century. High grade copper ore was removed from an adit driven from the shoreline on the Copper Cliff 3 claim. During 1952 - 1953, Dodge copper Mines had done extensive exploration work on the large block of claims in the area. The company carried out geological mapping, trenching and test pitting, surface sampling, and diamond drilling. A total of 154 holes (2907 metres) was drilled on eight separate copper occurences.

During 1968 -1969, Quadra Mining mined 5443 tonnes of ore from the open pit mining operation and implemented bacterial heap leaching operation on the Copper Bell 1 claim.

During 1970 -1979, various portions of the property were reported to be held by Western Mines, Prince Stewart Mines, Quadra Mining, and Quadra Bell Mining. In 1972, Prince Stewart mines mined and processed 272 tonnes of ore. Exploration activities, if any, from other companies were not reported.

In recent years, there has been essentially no exploration work done on the area now contained within the Copper Cliffs property. From 1988 to 1990, most of the present property was owned by Mr. David Heyman. From 1991 to 1993, the property was owned by Minteck Resources. during its tenure, the company carried out a photo-linear study of the property. In 1996, the

Copper Cliffs property which contains all the area held by the previous owners, is owned by NWI.

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## 2.0 EXISTING LAND USE

The surface disposition surrounding the property is designated for logging operation (Tree Farm License #2). Proposed mining operation is consistent with past and current land usage of the area where mining, geological mapping and diamond drilling for mineral potential is active.

#### 3.0 GEOLOGY AND RESERVES

#### 3.1 Geology

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The western half of Quadra Island is underlain primarily by andesitic volcanic rocks of the upper Triassic Karmutsen Formation which are overlain and bounded on the east by a northwest trending belt of Upper Triassic Quatsino Formation limestone, both of the Vancouver Group.

The area is underlain by highly fractured and sheared Upper Triassic Karmutsen Formation amygdaloidal andesitic flow rocks interlayered with dense, fine to medium grained andesitic units and minor thin beds of sedimentary and tuffaceous material. The flow rocks dip gently south and southeast and range in thickness from 0.3 to 3.6 metres and more. Many of the flow are highly amygdaloidal with the amygdules filled with calcite, quartz, chlorite, actinolite or prehnite. The rocks are chloritized and cut by numerous stringers and veinlets of quartz, calcite and epidote.

Chalcocite is the most abundant mineral with native copper and chalcopyrite in less amounts. Bornite and pyrite are rare. Malachite, azurite and cuprite are confined to oxidized and weathered surfaces. The distribution of the mineralization is erratic. It is found along fracture plane surfaces and within irregular quartz-calcite velnlets, less commonly it occurs within amygdules or is otherwise locally disseminated. The mineralization tends to be more concentrated where fracture density is high.

#### 3.2 Mineralization

The location and tonnage of the various showings (Sheppard, 1973) are listed below:

Claim Name	Proven	<u>Grade, %</u>	Indicated	<u>Grade, %</u>
Copper Bell 1 (N)	5,000	3.45	50,000	2.40
Copper Bell 1 (S)	216,500	3.67	260,000	3.50
Copper Bell 3	5,000	2.70	17,000	2.70
Copper Bell 3	25,300	2.11	90,000	2.11
Copper Bell 3	972,400	1.22	472,000	1.62
Copper Cliff 1	19,375	1.74	open	
★ Copper Cliff 2	25,125	3.05	112,500	1.70
Copper Cliff 2			40,000	1.40
Copper Cliff 2			300,000	3.05
Copper Bell 2	112,000	2.55	700,000	2.55
-	1,180,700	1.65 (ave)	2,041,500	2.44 (ave)

The deposits are predominately chalcocite, which usually gives over 45% copper in a concentrate.

From the tonnage represented by these showings it would appear that there is sufficient minable ore to support a mining operation of 400-500 tons per day. Ore of higher grade than represented in the Proven blocks can be produced using selective mining.

#### 3.3 Exploration

Robert S. Adamson, P. Eng. who prepared the 1996 Geological Report on the Copper Cliffs Property, recommends a two stage exploration program. Implementation of second stage is contingent upon results of first stage.

#### Estimated Cost of Exploration Program

#### Stage I:

1, Labour (	Soil Sampling	g, Grid Layout,		\$15,000.00
Magnetome	eter Blasting,	etc.)		
2. Geochen	nical Analysis	5		\$7,500.00
3. Assays (	Cu, V, Ag)			\$3,100.00
4. Geophys	-			\$22,000.00
	rtation (Vehic	le Rental)		\$4,000.00
	s Accommod			\$12,000.00
7. Field Sup	oport			\$4,400.00
8. Field Sup	pervision and	Geology		\$18,000.00
9. Project N				\$5,000.00
	•	Su	b-total	\$91,000.00
10. Conting	jencies (15%	)		\$13,650.00
	·	Total (Rounde	ed Off)	\$105,000.00
Stage II				
1 Diamond	Drilling (Con	tract		\$120,000.00
	Drining (Con			
2. Support				\$80,000.00
<ol><li>Contingencies (10%)</li></ol>				<u>\$20,000.00</u>
			Total	\$220,000.00
Totals:	Stage I	\$105,000.00		
	Stage II	\$220,000.00		
		\$325,000.00		

#### 4.0 MINING PLAN

#### 4.1 **Production Rate and Mine Life**

Initially 9,990 tonnes bulk sample will be mined then follows 24,990 tonnes per year mining operation. Annual production rate could easily increase to 100,000 tonnes after 2 to 3 years operation. Based on minable/measured and drill indicated reserves, there is sufficient ore to sustain 25 + years mining operation.

#### 4.2 Mining Method

The open pit mining method is selected to take adavantage the topography and the geology of the Copper Cliffs Property. Plan 3 shows the 1996-1997 Development Plan and Figure 4-2 shows the Calculated Ore Blocks of Copper Cliffs Property.

# 5.0 PROPOSED RECLAMATION PROCESS

As per Ministry of Mines' guideline.

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# 6.0 ENVIRONMENTAL AND SOCIOECONOMIC CONSIDERATIONS

Development of the Copper Cliffs Property will provide a positive economic stimulus to the regional economy. Higher employment and increased economy activity will be resulted from businesses providing goods and services to both the mine and its employees. Environmental impacts associated with weste rock will be addressed by detailed waste management planning. Continue environmental studies will also analyze in detail other potential impacts including those on wildlife populations and land use conflicts.

#### 6.1 Environmental Program

The company will commission a comprehensive environmental program to ensure that development occurs with minimal impact to the natural setting existing at the Copper Cliffs Property. Thus far, the following have been identified as potential environmental issues of principal importance:

- \* handling of waste rock
- \* impacts on local wildlife populations; and
- \* reclamation prior to and following project abandonment.

As no permanent camp will be maintained on site, and since mine operations are expected to affect a relatively small area, the potential impacts on local wildlife populations are anticipated to be minimal. However this must be verified through further studies. Resource mapping analysis, initial reconnaissance level site investigations, and a review of existing government data on wildlife populations, hunting statistics, etc. will be utilized while designing wildlife field surveys. Both provincial and federal government agencies, including Fish and Wildlife Branch (MOEP), will be consulted to ensure that the data collected meet the requirements on the Stage I Assessment - M.R.D.C. (full production permit at 24,990 tonnes per year).

A reclamation program will be developed in conjunction with the environmental planning program to ensure that disturbed areas are returned to an aesthetically acceptable revegetated state following completion of mining operations. Exploration roads, where not further utilized, will be stabilized by ditching, culvert repair and cleanout, re-grooming of cut slopes, and re-seeding of shoulders, cuts and fills.

#### 6.2 Socioeconomic Factors

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Approximately 100 persons, directly and indirectly, will be required annually for the project. It is anticipated that trades and manpower in the region will be benefit from employment during the life of mining operation. Logistical support services will also be mainly obtained from merchants in the region.

At full production, an annual average of 50 persons will be required for project operation. Over an operating period of 10 years, this will generate approximately 500 man-year of employment. A substantial portion of subcontracted mining services and mine expenditures are anticipated to benefit regional supplier companies, professional and trades.

Socioeconomic planning for the project will utilize local skilled and unskilled labour within the regional population. The capacity of neighboring communities to accommodete demands on housing, medical facilities, schools, commercial, retail and other services will be examined. Socioeconomic impacts including those on community infrastructure; direct, indirect and induced employment; mine and mine employee expenditures; tax revenues to city, municipal and provincial governments and other effects associated with economic development will be assessed.

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# 7.0 SCHEDULE

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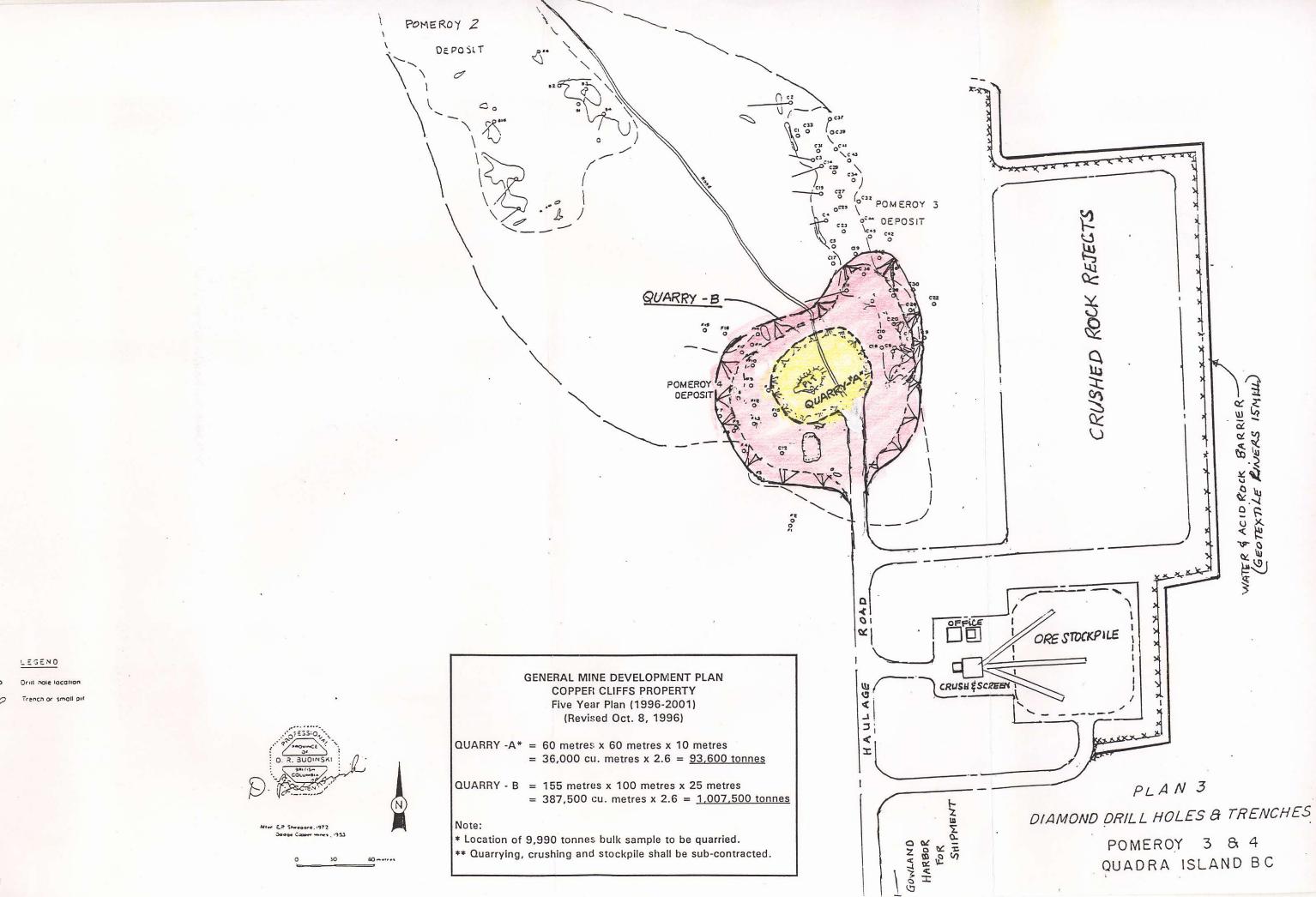
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A preliminary schedule has been established and is shown in Figure 7-1.



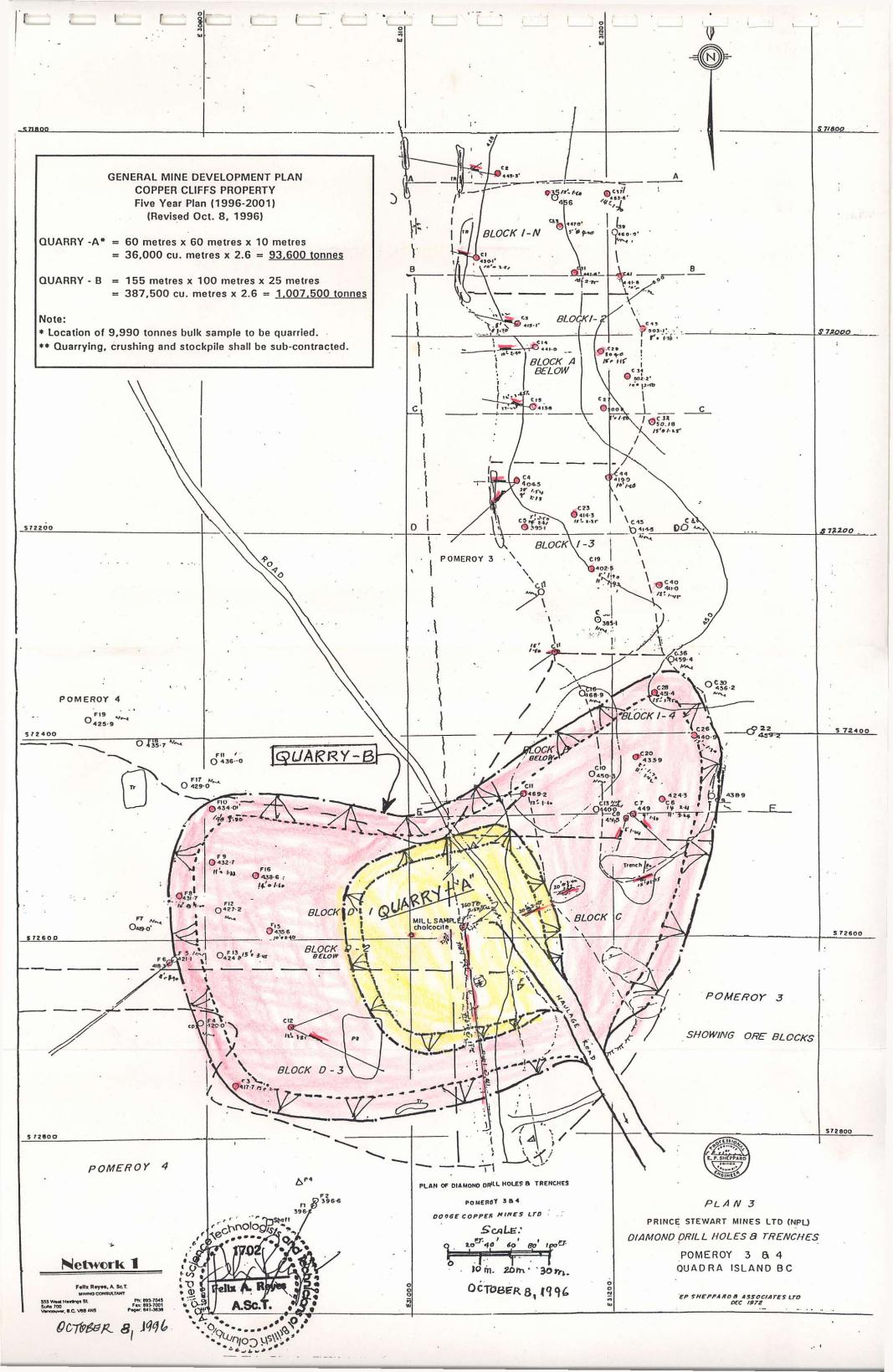
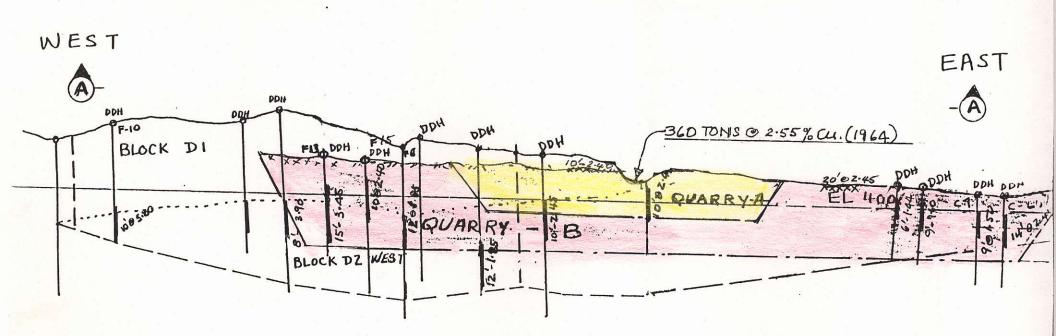


Figure 4-2 COPPER CLIFFS PROPERTY CALCULATED ORE BLOCKS

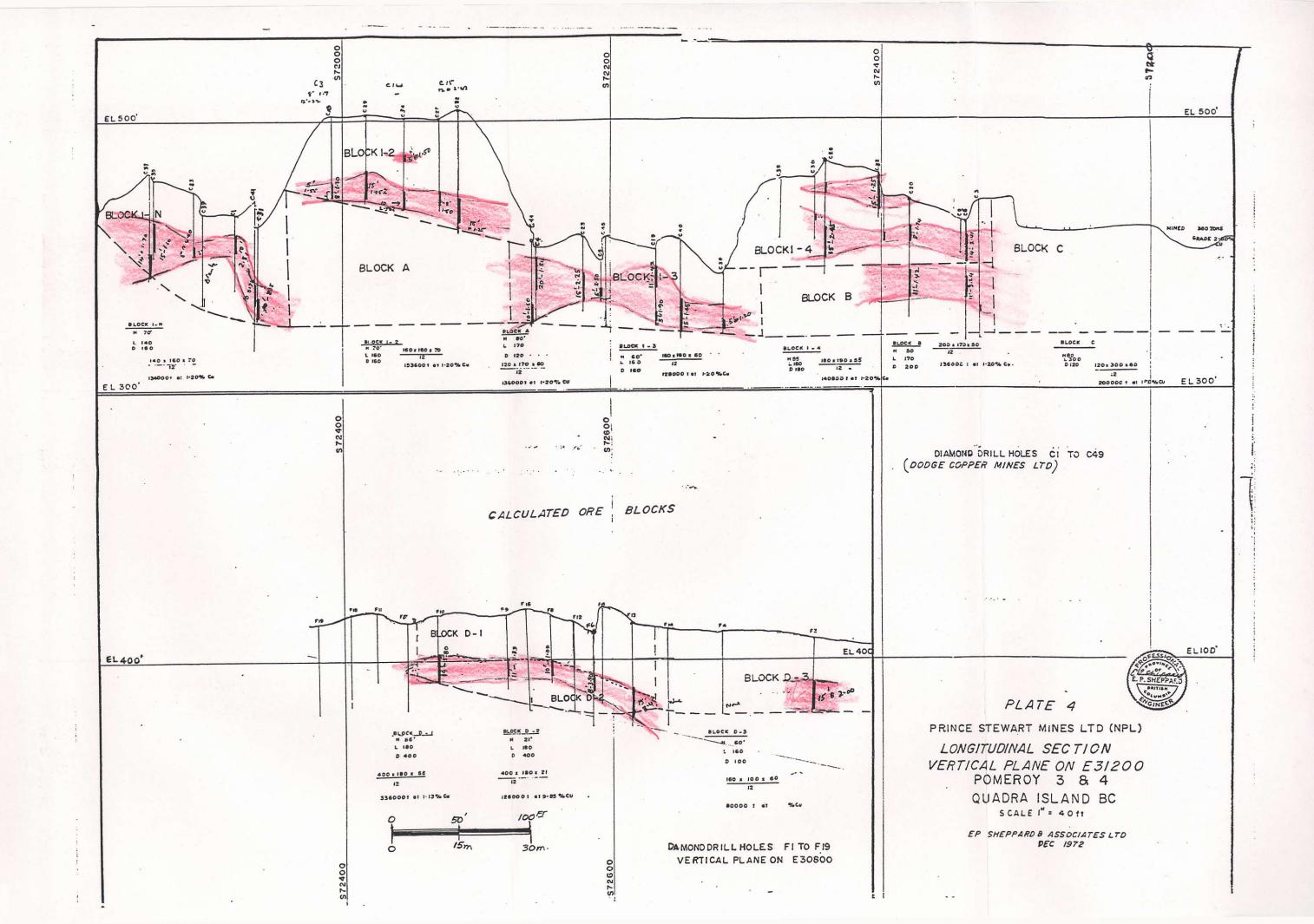


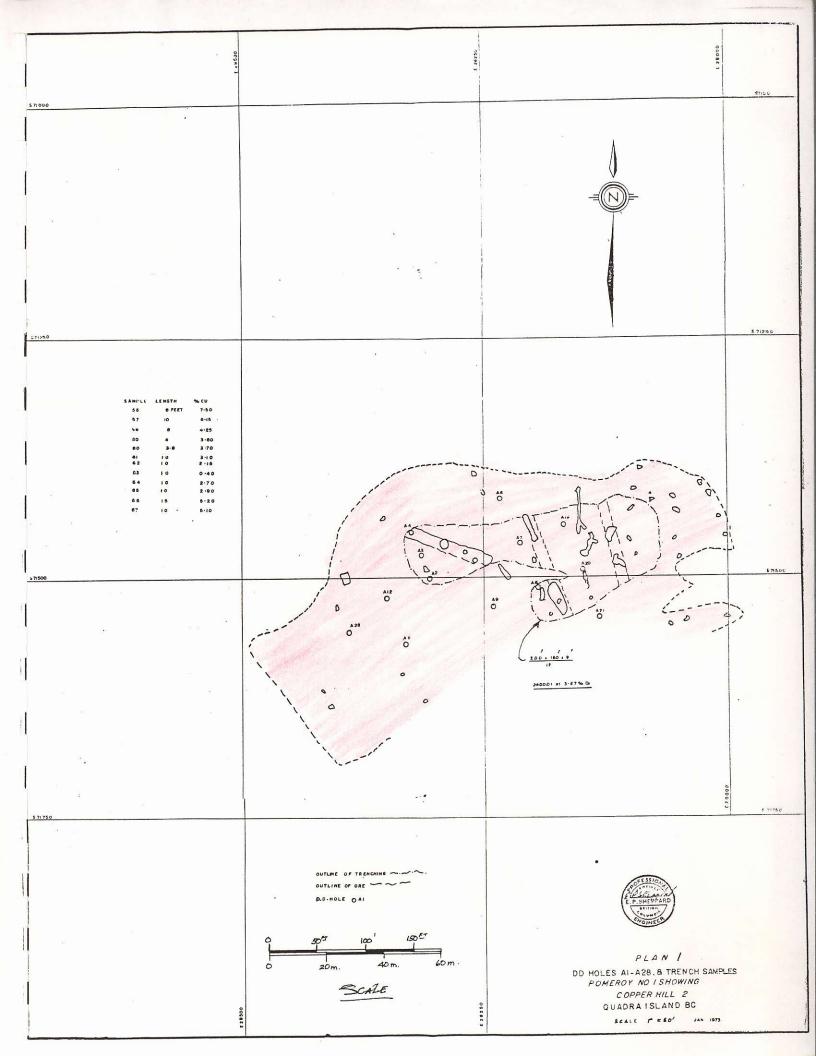


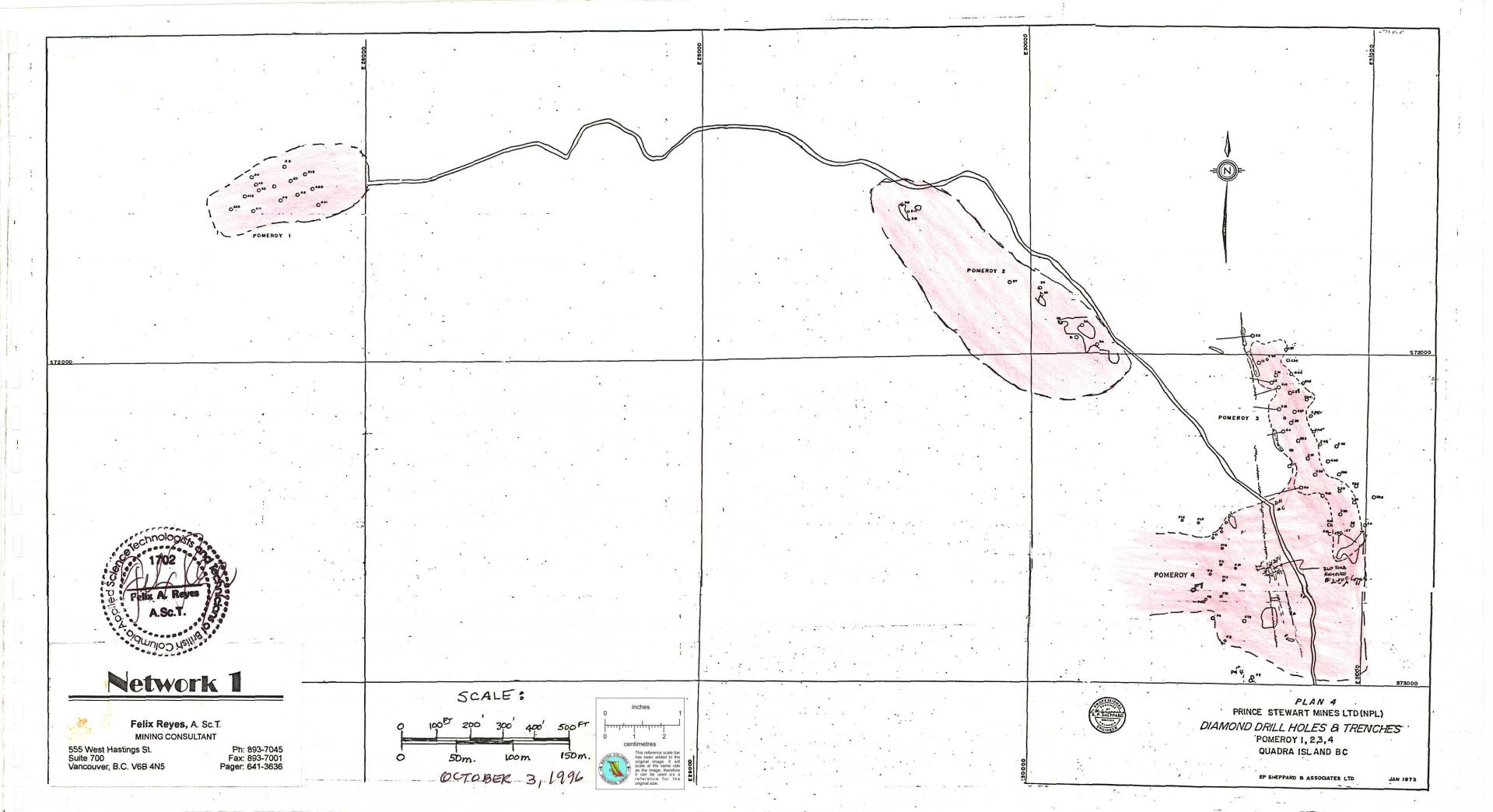
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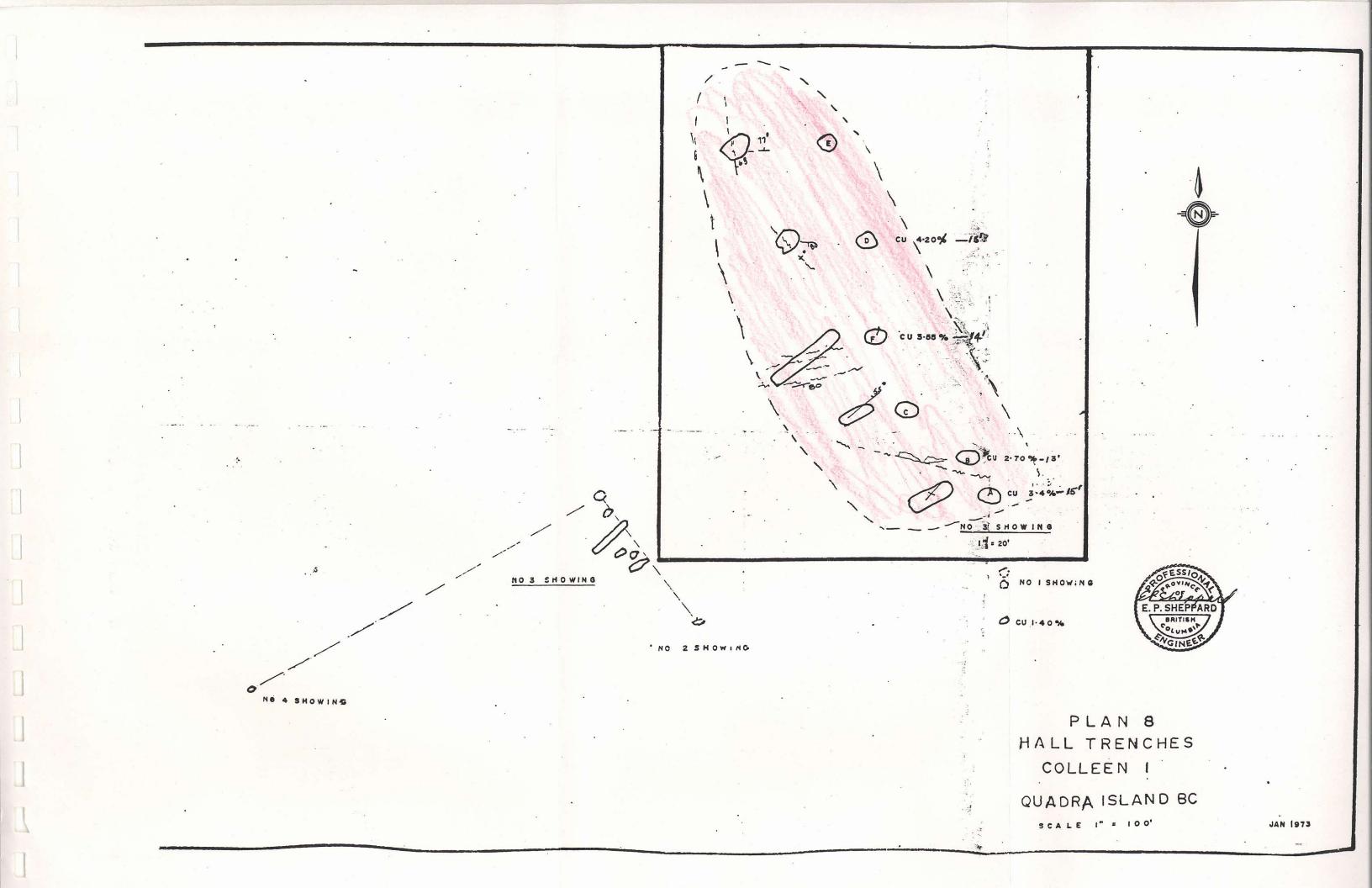
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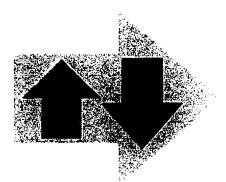
MINFILE 092K 012/052/058/061/071/072/073/074/103/104/105/118/119 Geological Survey Branch - Mineral Resources Division, Ministry of Energy, Mines and Petroleum Resources, Province of British Columbia.

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1996-1997 Development Plan (unpublished), prepared by the management of Network One Holdings Corp., July, 1996.



# COPPER Processing

# INNOVAT

INNOVAT Limited, P.O. Box 61018, Oakville ON L6J 7P5, Canada Tel. 905-469-0505 Fax 905-469-1062 Email innovat.limited@sympatico.ca

# FUNCTIONAL DESCRIPTION OF INNOVAT

#### **Continuous Flow**

The INNOVAT can be described as being an in-ground, concrete swimming pool-like basin, into which ore is fed to form a bed. The ore is mixed with leach solution and made to flow from one end of the vat to the other by intermittently fluidizing the ore bed. This is accomplished by flowing the leach solution up through the bed of ore suddenly and in high volume, such that the entire bed of ore becomes fluid, like quicksand. During such intervals, the fluidization stabilizes any slope created by continuous feed and discharge and the bed moves to form a flat profile. By creating this condition on a frequent basis, the ore bed behaves as though it was continually fluid. Typically, upbursts or pulses last for only 10 - 15 seconds and occur every 3 - 5 minutes.

#### **Leach Kinetics**

Resultant leach kinetics are equivalent to leaching in a series of propeller-agitated tanks, but requiring substantially less power. On average, leaching -6 mm ore is completed within 48 hours, but can take place in as little as 12 hours.

#### **Typical Flow Sheet for Copper**

Referring to the attached schematic, "Typical Copper Circuit", ore can be fed continuously dry by belt conveyor or pumped as a slurry. Leach solution is stored in a head tank, which discharges through a series of strategically drilled pipes located beneath the ore bed. The method of dumping solution is by storing it in a tank-within-a-tank, then rotating the inner tank. This eliminates the need for valves. Filling or recharging the head tank occurs by overflowing solution to a pump, which continuously operates. In the case of a well-draining ore, the solution can be withdrawn from below the ore bed through a French drain. The French drain, which consists of graded stone, and the ore bed act together as a filter, thus allowing circulation of a fairly clear solution.

#### **Copper Extraction**

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Rich solution is bled off the recirculating line or from the French drain to the extraction plant with barren solution flowing to a counter current wash section. Either SX/EW or an iron precipitation system can be used for recovery of copper from solutions.

#### **Ore Discharge**

Very slow turning wheels are used to discharge the ore. Fluidized ore flows into pockets in the wheel. Ore in the pockets drains to better than 80% solids prior to discharge from the reverse side of the wheel to the next stage. Two connected wheels are used, the first of which removes the ore from the leach section to the wash section. The second discharges to tailings.

#### Dry, Stackable Tailings

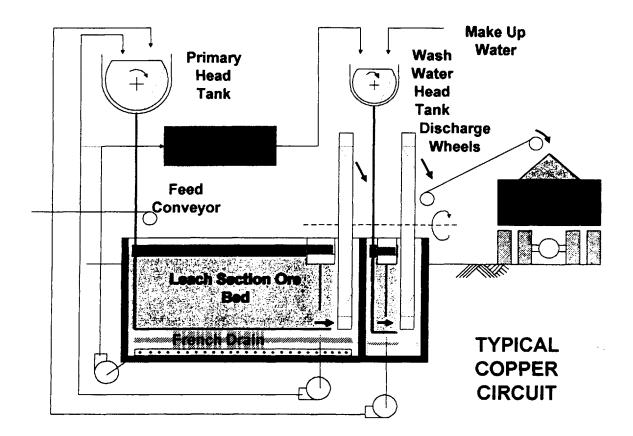
Tailings distharge is quite dry and stackable. For mhus 6 nm ore, the discharge should be less than 10% moisture. This means that ore can be conveyed to tailings disposal or carried in the same trucks that brought the ore to the crusher plants - they never need to run empty. Flexibility in placement of tailings is a decided bonus.

#### **Clay-bearing Ore Treatment**

Several options for handling clay are available, depending upon the type of ore and clay, as well as environmental considerations.

#### Sulfide Ores

Experimental work is being conducted on bio-oxidation, for which INNOVAT is wellsuited. Contact us for developments.



# **TESTING FOR INNOVAT - COPPER**

The basic philosophy of INNOVAT is to have all test work done in authorized laboratories; that is, laboratories that have been trained in INNOVAT's testing techniques. This is to provide the user with an arms-length report of metallurgical expectations. INNOVAT will observe the program and will interpret results.

Initial test work can be done in any good quality laboratory, using standard techniques, however, INNOVAT will insist on follow-up work using INNOVAT techniques prior to committing parameters to design.

In order to know how to size the continuous vat leaching system, INNOVAT needs to know the leach rate of the ore, the size distribution of the ore to be leached, and the specific gravity of the ore. Standard methods are used for initial roughing out of vat sizes, such as Rototap for size distribution, beaker tests for specific gravity, and bottleroll tests for leach rate.

Following determination of initial parameters, ore samples should be tested in jigcolumns, which are available in authorized laboratories. Tests will determine fluidization characteristics of the ore, as well as confirming leach rates and recoveries indicated by bottle-roll tests. Any heap-leach column test work that has been done should be made available to INNOVAT, as this will help in the understanding of the ore to be leached.

Sulfide ores requiring oxidation need to be tested only using INNOVAT techniques. This program is special and requires examination of the best oxidation methods.

Pilot Plant programs are available.

# **ECONOMICS OF INNOVAT - COPPER**

The most common question asked of INNOVAT is "How much does it cost?". As with other methods of leaching, an accurate answer is impossible without knowing the site, the ore, the local construction costs, transportation costs, reagent and power costs, etc. Except for run-of-mine heap leaching, the INNOVAT method is the lowest cost method of leaching in existence for both capital and operating costs, and even in some cases it can be lower than ROM heap leaching. That is, provided that environmental restraints are duly exercised.

## Comparison with Heap Leaching

Studies done for numerous clients who are respected for their compliance with environmental conditions have shown that the INNOVAT method is about 10% less in capital cost than heap leaching. INNOVAT requires crushing to less than 6 mm, however, there is no agglomeration plant needed, and the extraction plant can be as much as 75% smaller than that required for heap leaching. Enormous savings in liners, piping, power supply and water supply can be made in using INNOVAT.

Running costs are more-or-less equal with heap leaching, unless bringing water to the site is a major issue. There is absolutely no nail-biting wait for recovery in the first sixty days of operation - your copper starts coming out in the first hour and is not tied up in inventory. You will know, hour-by-hour, how you are doing. At the end of the mine life, you will know what you got out without guessing.

## Comparison with Agitated Tank Leaching

One look at an INNOVAT plant, as compared with a conventional stirred-tank system should be enough to convince you of the low capital cost of continuous vat leaching. We leach in beds as high as 80% solids, as compared with 25 - 45% solids in normal plants. That extra volume requires enormous tankage and power. But it doesn't stop there. Dry, stackable, detoxified tailings means flexibility of deposition; the perfect set up for back filling the mine, co-mingling with waste, or placement where it suits the terrain and environment best. As far as operating costs are concerned, the INNOVAT system wins hands-down for power conservation, water conservation, and tailings disposal.

# **CONSTRUCTION OF INNOVAT**

Continuous vat leaching is offered from INNOVAT on a turnkey basis. Total responsibility is taken from design engineering through construction management, commissioning, and start-up. This means local constructors and fabricators can be used to maximum benefit, often resulting in enormous savings to the user.

Packages normally include all excavation, concrete work, metal and structural fabrication and erection, feed and discharge conveyors as required, all mechanical equipment such as pumps and compressors, piping, controls and wiring, commissioning and start-up.

The basic vat is constructed of reinforced sulfur concrete, especially formulated to resist acid. Further safety is assured through a peripheral drainage system that can be monitored.

All metal parts are fabricated of stainless and mild steel to Canadian or United States standards. Fabrications are relatively simple, requiring only good welding practices, so that any competent shop can build the parts under INNOVAT supervision. In some cases, where the site is offshore to Canada or the United States, machined parts and bearings may be imported. Piping is of PVC and steel, which can be local or imported.

Pumps, air compressors, air cylinders, bearings, drives, controls, and motors are normally of Canadian, United States, or European manufacture.

# Figure 7-1 COPPER CLIFFS PROPERTY PROJECT SCHEDULE SEPTEMBER 1996 - JUNE 1997

1996 1997 0 M S N D J F M J A

ENVIRONMENTAL STUDIES PROSPECTUS PREPARATION M.R.D.C. 1996 SUBMISSION DRILLING PROGRAM & TEST WORK METALLURGICAL TEST RESERVE UPDATE DESIGN & ENGINEERING SELECT SUB-CONTRACTORS COMMENCE PRODUCTION

FEASIBILITY STUDY

# FAX MESSAGE

Fax no: 893-7001

To: Mr. Felix Reyes Sender: Mr. Shao Yeung Jue Pages : Three pages attached

September 7, 1996

Dear Mr. Reyes,

## RE: Copper Cliffs Property - Economics of Five Year Development Plan

Based on the annual production profile of 9.99k, 24.99k, 24.99k, 100k and 150k tons in the Five Year Development Plan and other assumptions as listed on the attached sheets, the net present values of Net Smelter Revenue from the Plan are;

Discount Rates	NPV
0%	\$14.4M
10%	\$9.7M
15%	\$8.2M
20%	\$6.9M
25%	\$5.9M

Yours truly,

IIA Q\_ S.Y. (

## NETWORK ONE HOLDINGS CORP. Copper Cliffs Property, Quadra Island, B.C.

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CASE 2: 9.99k, 24.99k, 24.99k,	100k, 150	k tons per year				
		Year 1	Year 2	Year 3	Year 4	Year 5
Assumptions:						
1. Prices						
Copper, U.S.\$/Ib	•	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Vanadium, U.S.\$/lb	•	\$3.50	\$3.50	\$3.50	\$3.50	\$3.50
Manganese, U.S.\$/lb	•	\$1.15	\$1.15	\$1.15	\$1.15	\$1.15
Gold, U.S.\$/oz.	•	\$380.00	\$380.00	\$380.00	\$380.00	\$380.00
Silver, U.S.\$/oz.	•	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
2. Exchange Rates						
CAN\$/U.S.\$	•	1.3650	1.3650	1.3650	1.3650	1.3650
3. Unit Cost, CAN\$/ton						
Mining	•	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00
Trucking to Dock	٠	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Barging, Loading & Unloading	<u>ب</u>	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00
Trucking to Mill	٠	\$3.63	\$3.63	\$3.63	\$3.63	\$3.63
Milling	٠	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70
Admin & Other	•	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00 <sup>-</sup>
Contingency	٠	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
		\$39.33	\$39.33	\$39.33	\$39.33	\$39.33
4. Royalty						
% of Net Smelter Return	•	2.50	2.50	2.50	2.50	2.50
5. Factors						
Proven adjustment factor	•	0.98	0.98	0.98	0.98	0.98
Probable adjustment factor	• .	0.80	0.80	0.80	0.80	0.80
Mill Recovery Factor	٠	0.88	0.88	0.88	0.88	0.88
tonne/short ton	•	0.907	0.907	0.907	0.907	0.907
g/troy oz	•	31.10	31.10	31.10	31.10	31.10
g/t to oz/ST	•	34.28	34.28	34.28	34.28	34.28

# NETWORK ONE HOLDINGS CORP. Copper Cliffs Property, Quadra Island, B.C.

### CASE 2: 9.99k, 24.99k, 24.99k, 100k, 150k tons per year

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		Year 1	Year 2	Year 3	Year 4	Year 5
Reserve, tons						
- Minable/Measured	•	1,180,700				
- Drill indicated	•	2,041,500				
Total		3,222,200				
Geological Reserve	*	+ 50,000,000				
Grade						
Copper, %	٠	2.44	2.44	2.44	2.44	2.44
Vanadium, %	٠	0.14	0.14	0.14	0.14	0.14
Manganese, %	•	0.16	0.16	0.16	0.16	0.16
Gold, oz/ton	•	0.02	0.02	0.02	0.02	0.02
Silver, oz/ton	•	0.50	0.50	0.50	0.50	0.50
Gross Value Per Ton						
copper		\$48.80	\$48.80	\$48.80	\$48.80	\$48.80
Vanadium		\$9.80	\$9.80	\$9.80	\$9.80	\$9.80
Manganese		\$3.68	\$3.68	\$3.68	\$3.68	\$3.68
Gold		\$7.60	\$7.60	\$7.60	\$7.60	\$7.60
Silver		\$2.50	\$2.50	\$2.50	\$2.50	\$2.50
Total, U.S.\$/ton		\$72.38	\$72.38	\$72.38	\$72.38	\$72.38
Total CAN\$/ton		\$98.80	\$98.80	\$98.80	\$98.80	\$98.80
Production Profile						
Start of Year		3,222,200	3,212,210	3,187,220	3,162,230	3,062,230
Produced, tons	•	9,990	24,990	24,990	100,000	150,000
Added	•	0	0	0	0	0
End of Year		3,212,210	3,187,220	3,162,230	3,062,230	2,912,230
Gross Mineral Value in CAN\$		\$868,559	\$2,172,702	\$2,172,702	\$8,694,286	\$13,041,428

CASE 2: 9.99k, 24.99k, 24.99k, 100k, 150k tons per year

Year 1	Year 2	Year 3	Year 4	Year 5
\$86.94	\$86.94	\$86.94	\$86.94	\$86.94
\$39.33	\$39.33	\$39.33	\$39.33	\$39.33
\$1.1903	\$1.1903	\$1.1903	\$1.1903	\$1.1903
\$46.42	\$46.42	\$46.42	\$46.42	\$46.42
	\$86.94 \$39.33 \$1.1903	\$86.94 \$86.94 \$39.33 \$39.33 \$1.1903 \$1.1903	\$86.94 \$86.94 \$86.94 \$39.33 \$39.33 \$39.33 \$1.1903 \$1.1903 \$1.1903	\$86.94 \$86.94 \$86.94 \$86.94 \$39.33 \$39.33 \$39.33 \$39.33 \$1.1903 \$1.1903 \$1.1903 \$1.1903

	Year 1	Year 2	Year 3	Year 4	Year 5
IN CAN\$					
Gross Mineral Value	\$868,559	\$2,172,702	\$2,172,702	\$8,694,286	\$13,041,428
Less:					
Operating Costs	\$392,907	\$982,857	\$982,857	\$3,933,000	\$5,899,500
Owner's Royalty	\$11,891	\$29,746	\$29,746	\$119,032	\$178,548
Net Smelter Revenue	\$463,761	\$1,160,099	\$1,160,099	\$4,642,253	\$6,963,380

### Net Present Value of Net Smelter Revenue (5 years)

Discount Rates	NPV
0%	\$14,389,593
10%	\$9,746,393
15%	\$8,159,510
20%	\$6,900,613
25%	\$5,890,671

Note:

1. Total may not add due to rounding.

2. 9,990 tons in Year 1 is bulk sample.

3. \* denotes input/assumption.



July 26, 1996

File: 14675-20

Mr. Mervin Boe 103-7227 Arcola St., Burnaby, B C V5E 1H7

Dear Sir:

### Re: Notice of Work for Quadra Island Group

Approval is hereby granted to proceed with the work program described in the above Notice of Work dated July 5, 1996. This letter and the attached conditions constitute your permit pursuant to Section 10(3) of the Mines Act (1989).

As your proposed work will not result in significant disturbance to the surface of the land, a reclamation bond will not be required at this time. However, you must inform me if you make significant changes to your proposed program.

Enclosed is the Notice of Completion of Work form which is to be completed and returned to this office at the end of the exploration program.

Yours truly,

A. H. Ludwig, P.Eng., District Manager & Engi

AHL/gp

## ANNUAL WORK APPROVAL NUMBER

SAVE THIS SLIP WITH YOUR PERMIT. You may need this slip or number when you record a Statement of Exploration and Development with the Miner: Titles Branch to maintain your title.

Use of this Approval Number will also simplify the completion of future Notices Work and Completion Notices.

NAN-96-0801054-88

enc.

Ministry of Employment and Investment

Phone: (604) 751-7240 FAX: (604) 751-2718 Mailing Address: 1A-3411 Shenton Road Nanaimo, BC V9T 2H1 Location: 1A-3411 Shenton Road

Ministry of Employment and Investment	Geological Survey Branch
FAX	Date: 8/13/96 Number of pages including cover sheet: 9
To: Felix Reyes	From: D Jakobsen
Phone:         (604) 893-7045           Fax phone:         (604) 893-7001           CC:	Phone: (604) 952-0388 Fax phone: (604) 952-0381
REMARKS: Urgent S For your revie TO: MR. DAVID R. BUDINSKI, P.Geol. ORCAN CONSULTANTS FAX: 662-3722	ew <b>Reply ASAP Please comment</b> August 14, 1996 <u>3 Pages</u> .
remove Copper Ore during the tenu	ssued in 1973 for 100,000 tons Unfortunately they were not able to re of the Limited Production Permit. he Asso. Deputy Minister of Mines at

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Dr. Junos T. Fylos,

Aset. Reputy Minister of Mines

September 13th 73

Property file

# Re: LIMITED PRODUCTION PERMIT - QUADRA MINING CO LTD., (97K/34)

The company proposes to mine ore from the Bit #1 and Evelyn #2 mineral claims and to crush it and leach the copper in a plant on the Copper Bell #1 claim.

In 1952 and 1953 the copper showings were extansively explored by Dodge Copper Mines Ltd. At that time, when known as the Pomeroy showings, the company estimated the following townages of one to be present:

92K 114 Pos	mercy #2 North: mercy #2 South:		e 2.071 Cu e 2 2.371 Cu
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(These showings are now on the Evelyn #3 claim)

9:1071	Paneroy #31	50,000 eans @ 2.2% Cu
1	Pomeroy \$4:	10,000 tone @ 2.22 Cu

(These showings are now on the Svelyn #2 claim)

122 73 Beaver #1: 9,000 tons @ 2,0% Cu

(This showing is now on the Bit #1 claim)

Heleod in his 1969 report concurs with the above toncages and grades. It is my interpretation as to their location on the present claims.

This is the only information available here as to the tonnage and grade of material present.

The claims have been explored continuously by the present company since 1968 (see references below). The only record of production is for 1968 when 5,000 tons of ore produced (by in situ leaching) 1,232 pounds of metallic copper. This are case from the Pomeroy #1 some reported to contain 12,000 tons 0 3.5% Cu.

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### Dr. James T. Fyles

### September 13th 1973

Ny interpretation of the submission by W. B. Kitchen for Quadra Mining Co. Ltd., is for permission to continue with the experimental extraction of copper by continuous wat leaching ore mined from the Bit #1 and Evelyn #2 claime.

It is recommended that a limited Production Purmit be granted.

### STUART S. HOLLAND Chief Geologist, Hines Branch

SSEIbg

Referencess

A. R. 1953 p. 163 (Powneroy or Poweroy) A.R. 1968, p.100 (Copper Bell) G.E.M. 1969, p. 212 G.E.M. 1970, p. 280 G.E.M. 1971, p. 314 Property File Report 92K/3W - 71 and 72 by G. H. Holeod, 1969

Att: L.I. 9806 and attachments

PAGE: 17 REPORT: RGEN0100

RUN DATE: 05/30/95 RUN TIME: 15:27:45 MINFILE / pc MASTER REPORT GEOLOGICAL SURVEY BRANCH - MINERAL RESOURCES DIVISION MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

MINFILE NUMBER: 092K 012 NATIONAL MINERAL INVENTORY: 092K3 CLG NAME(S): COPPER CLIFF, COPPER BELL Underground MINING DIVISION: Nanaimo STATUS: Past Producer NTS MAP: 092K03W UTM ZONE: 10 LATITUDE: 50 06 04 LONGITUDE: 125 16 15 NORTHING: 5552125 EASTING: 337600 ELEVATION: 0031 Metres LOCATION ACCURACY: Within 500M COMMENTS: Adit, 4 kilometres west from the village of Heriot Bay, 50 metres east from the shoreline of Discovery Passage (Assessment Report 5076). Silver COMMODITIES: Copper MINERALS SIGNIFICANT: Chalcocite Copper COMMENTS: Mineralization is in amygdules, fractures and disseminated in host rock. ALTERATION: Chlorite Malachite ALTERATION TYPE: Chloritic Oxidation MINERALIZATION AGE: Unknown ISOTOPIC AGE: DATING METHOD: Unknown MATERIAL DATED: DEPOSIT CHARACTER: Disseminated CLASSIFICATION: Volcanogenic Hydrothermal Epigenetic TYPE: Volcanic redbed copper STRIKE/DIP: 140/30S TREND/PLUNGE: DIMENSION: 0002 Metres COMMENTS: Attitude of andesite flows. HOST ROCK DOMINANT HOST ROCK: Volcanic FORMATION IGNEOUS/METAMORPHIC/OTHER STRATIGRAPHIC AGE GROUP Karmutsen Upper Triassic Vancouver LITHOLOGY: Amygdaloidal Andesite GEOLOGICAL SETTING TECTONIC BELT: Insular PHYSIOGRAPHIC AREA: Georgia Depression TERRANE: Wrangell INVENTORY ORE ZONE: COPPER CLIFF YEAR: 1973 CATEGORY: Inferred QUANTITY: 272130 Tonnes GRADE COMMODITY 3.0500 Per cent Copper REFERENCE: Property File - in 092K 071, Sheppard, E.P. (1973). CAPSULE GEOLOGY The western half of Quadra Island is underlain primarily by andesitic volcanic rocks of the Upper Triassic Karmutsen Formation which are overlain and bounded on the east by a northwest trending belt of Upper Triassic Quatsino Formation limestone, both of the Vancouver Group. The area is underlain by highly fractured and sheared Upper Triassic Karmutsen Formation amygdaloidal andesitic flow rocks interlayered with dense, fine to medium grained andesitic units and minor thin beds of sedimentary and tuffaceous material. The flow rocks dip gently south and southeast and range in thickness from 0.3 to 3.6 metres and more. Many of the flows are highly amygdaloidal with the annygdules filled with calcite, quartz, chlorite, actinolite or prehnite. The rocks are chloritized and cut by numerous stringers or prennice. The Pocks are children to the product by humerous stringers and veinlets of quartz, calcite and epidote. Chalcocite is the most abundant mineral with native copper and chalcopyrite in lesser amounts. Bornite and pyrite are rare. Malachite, azurite and cuprite are confined to oxidized and weathered surfaces. The distribution of the mineralization is erratic. It is found elong fracture plane surfaces and within irregular quartzcalcite veinlets, less commonly it occurs within amygdules or is otherwise locally disseminated. The mineralization tends to be more

concentrated where fracture density is high. The Copper Cliff is comprised of chalcocite mineralization within fractured amygdaloidal andesite flows. The chalcocite is predominant within the amygdules but is also irregularly distributed throughout the flow. Chalcocite and occasional native copper also occur along fracture planes. The flows strike 140 degrees and dip 30 degrees

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CAPSULE GEOLOGY			
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BIBLIOGRAPHY	1920-N216; 1922-N A165; 1964-152; 1 EMPR GEM 1971-314; 1 EMPR EXPL 1975-E111, GSC MEM 23, pp. 125- GSC MAP 1386A GSC OF 463; 480 EMR MP CORPFILE (Doc New Ainsworth Mir EMPR ASS RPT 852, *5 EMPR PF (*092K071-Sh Pomeroy Group and Examination and E Company Limited F for Department of	1972-285; *1974-207,208 E112; 1976-E125; 1978-E180; 1979-187,188 127 dge Copper Mines Ltd., Prince Stewart Mines Ltd., nes Ltd.)	
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MINFILE NUMBER:	<u>092K 105</u>	NAT	IONAL MINERAL INVENTORY:	092K3 Cu3
NAME(S):	COPPER BELL 1,2, COPPER QUEEN			
NTS MAP: LATITUDE: LONGITUDE: ELEVATION: LOCATION ACCURACY:	50 07 23 125 15 31 0140 Metres			10 5554525
COMMODITIES:	Copper			
MINERALS SIGNIFICANT: ASSOCIATED: ALTERATION ALTERATION TYPE: MINERALIZATION AGE: ISOTOPIC AGE:	Quartz Chlorite Chloritic Unknown	20: Unknown	- MATERIAL DATED:	
DEPOSIT				
CHARACTER: CLASSIFICATION:		Epigenetic		
HOST ROCK DOMINANT HOST ROCK:	Volcanic			
<u>STRATIGRAPHIC AGE</u> Upper Triassic		ORMATION Carmutsen	IGNEOUS/METAM	ORPHIC/OTHER
LITHOLOGY:	Amygdaloidal Andesite			
GEOLOGICAL SETTING TECTONIC BELT: TERRANE:	Insular Wrangell		PHYSIOGRAPHIC AREA: Geo	rgia Depression
INVENTORY				
ORE ZONE:	COPPER BELL 1,2			
COMMENTS	CATEGORY: Indicated QUANTITY: 101595 Tonnes COMMODITY Copper	GRADE 2.5500 Per cent	R: 1973	
	Reserves based on trenching and Property File - see 092K 071, Sh			
CAPSULE GEOLOGY	The western half of Quadra andesitic volcanic rocks of the which are overlain and bounded of belt of Upper Triassic Quatsino Vancouver Group. The area is underlain by hi Triassic Karmutsen Formation amy interlayered with dense, fine to minor thin beds of sedimentary a rocks dip gently south and south to 3.6 metres and more. Many of with the amygdules filled with of or prehnite. The rocks are chlo and veinlets of guartz, calcite Chalcocite is the most abur chalcopyrite in lesser amounts. Malachite, azurite and cuprite a surfaces. The distribution of found along fracture plane surfa calcite veinlets, less commonly otherwise locally disseminated.	Upper Triassic Karm on the east by a nor Formation limestone ighly fractured and ygdaloidal andesitic benedium grained and and tuffaceous mater heast and range in t f the flows are high calcite, quartz, chloritized and cut by and epidote. of and epidote. The mineral with n Bornite and pyrite are confined to oxid the mineralization i aces and within irre it occurs within am	utsen Formation thwest trending , both of the sheared Upper flow rocks esitic units and ial. The flow hickness from 0.3 ly amygdaloidal orite, actinolite numerous stringers ative copper and are rare. lized and weathered s erratic. It is gular quartz- ygdules or is	

Two hundred and seventy-two tonnes of ore was mined from a surface pit. Indicated reserves are 101,595 tonnes grading 2.55 per cent

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BIBLIOGRAPHY	1920-N216; 1922 A165; 1964-152; EMPR GEM 1971-314; GSC MEM 23, pp. 12 GSC MAP 1386A GSC OF 463; 480 EMR MP CORPFILE (C New Ainsworth N EMPR ASS RPT 852, EMPR PF (*092K071 Pomeroy Group a Examination and Company Limited for Department	Dodge Copper Mines Ltd., Prince Stewart Mines Ltd., Mines Ltd.)	
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PAGE: 171 REPORT: RGEN0100

RUN DATE: 05/30/95 RUN TIME: 15:27:45

MINFILE / pc MASTER REPORT GEOLOGICAL SURVEY BRANCH - MINERAL RESOURCES DIVISION MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

MINFILE NUMBER: 092K 105 NATIONAL MINERAL INVENTORY: 092K3 Cu3 NAME(S): COPPER BELL 1,2, COPPER QUEEN MINING DIVISION: Nanaimo STATUS: Developed Prospect NTS MAP: 092K03W UTM ZONE: 10 LATITUDE: 50 07 23 LONGITUDE: 125 15 31 NORTHING: 5554525 EASTING: 338550 ELEVATION: 0140 Metres LOCATION ACCURACY: Within 500M COMMENTS: Pit, 3.25 kilometres south-southeast from Morte Lake, 4 kilometres north-northwest from the village of Heriot Bay (Assessment Report 5076). COMMODITIES: Copper MINERALS SIGNIFICANT: Chalcocite ASSOCIATED: Quartz ALTERATION: Chlorite ALTERATION TYPE: Chloritic MINERALIZATION AGE: Unknown ISOTOPIC AGE: DATING METHOD: Unknown MATERIAL DATED: DEPOSIT CHARACTER: Vein CLASSIFICATION: Volcanpgenic Hydrothermal Epigenetic TYPE: Volganic redbed copper HOST ROCK DOMINANT HOST ROCK: Volcanio STRATIGRAPHIC AGE FORMATION IGNEOUS/METAMORPHIC/OTHER Upper Triassic Vancouver Karmutsen LITHOLOGY: Amygdaloidal Andesite GEOLOGICAL SETTING TECTONIC BELT: Insular PHYSIOGRAPHIC AREA: Georgia Depression TERRANE: Wrangell INVENTORY ORE ZONE: COPPER BELL 1,2 CATEGORY: Indicated YEAR: 1973 101595 Tonnes QUANTITY: COMMOD I TY GRADE 2.5500 Per cent Соррег COMMENTS: Reserves based on trenching and drill samples. REFERENCE: Property File - see 092K 071, Sheppard, 1973. CAPSULE GEOLOGY The western half of Quadra Island is underlain primarily by andesitic volcanic rocks of the Upper Triassic Karmutsen Formation which are overlain and bounded on the east by a northwest trending belt of Upper Triassic Quatsino Formation limestone, both of the Vancouver Group. The area is underlain by highly fractured and sheared Upper Triassic Karmutsen Formation amygdaloidal andesitic flow rocks interlayered with dense, fine to medium grained andesitic units and minor thin bads of sedimentary and tuffaceous material. The flow rocks dip gently south and southeast and range in thickness from 0.3 to 3.6 metres and more. Many of the flows are highly amygdaloidal with the amygdules filled with calcite, quartz, chlorite, actimolite or prehnite. The rocks are chloritized and cut by numerous stringers and veinlets of quartz, calcite and epidote. <u>Chalcocite is the most abundant mineral with native copper and</u> <u>chalcopyrite in lesser amounts.</u> Bornite and pyrite are rare. <u>Malachite, azurita and cuprite are confined to oxidized and weathered</u> <u>surfaces.</u> The distribution of the mineralization is erratic. It is

found along fracture plane surfaces and within irregular quartzcalcite veinlets, less commonly it occurs within amygdules or is otherwise locally disseminated. The mineralization tends to be more concentrated where fracture density is high.

concentrated where fracture density is high. The Copper Bell is comprised of chalcocite mineralization hosted in fractured chloritic amygdaloidal andesite flows. Quartz veining is associated with the fractures.

Two hundred and seventy-two tonnes of ore was mined from a surface pit.

Indicated reserves are 101,595 tonnes grading 2.55 per cent

RUN DATE: 05/30/95 RUN TIME: 15:27:45

BIBLIOGRAPHY

### MINFILE / pc MASTER REPORT GEOLOGICAL SURVEY BRANCH - MINERAL RESOURCES DIVISION MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

PAGE: 172 REPORT: RGEN0100

CAPSULE GEOLOGY copper. The reserves are based on trenching and drill samples (Property File - see 092K 071, Sheppard, 1973). EMPR AR \*1914-K381-K385; \*1916-K346; \*1918-K270-K274; 1919-N217,N218; 1920-N216; 1922-N240; 1925-A282; 1929-C391; 1930-A306; \*1953-A163-A165; 1964-152; 1968-A53,100,101 EMPR GEN 1971-314; 1972-285; \*1974-207,208 EMPR EXPL 1975-E111,E112; 1976-E125; 1978-E180; 1979-187,188 GSC MEM 23, pp. 125-127 GSC MAP 1386A GSC OF 463; 480 EMR MP CORPFILE (Dodge Copper Mines Ltd., Prince Stewart Mines Ltd., New Ainsworth Mines Ltd.) New Ainsworth Mines Ltd.) EMPR ASS RPT 852, \*5076 EMPR PF (\*092K071-Sheppard, E.P. (1973): Geological Report on the Pomeroy Group and Contact Group, McLeod, G.H. (1969): Report of Examination and Estimates of Production on the Quadra Mining Company Limited Property, Bacon, W.R. (1953): Preliminary Report for Department of Nines' Production; 092K012; 092K101-Sheppard, E.P. (1972): Geological Report on the Contact Claims; 092K General) CODED BY: GO REVISED BY: GO

DATE CODED: 890428 DATE REVISED: 890428

FIELD CHECK: N FIELD CHECK: N

### CERTIFICATION

I, Felix A. Reyes, of the City of Surrey, Province of British Columbia, do certify that:

- 1. I am a Consulting Mining Technologist with my place of business #123, 8655 King George Hwy., Surrey, B.C. V3W 5C4.
- 2. I am a registered member in good standing of the Applied Science Technologist and Technicians in British Columbia. Registration No.1702, as Applied Science Technologist.
- 3. I am a Graduate of Adamson University, Manila, Philippines, with a Bachelor of Science in Mining Engineering, October, 1963.
- 4, I have been a practicing Technologist with 17 years experience in mineral explorations and geological evaluations, mineral development to commercial production for industrial minerals, base and precious metals.
- 5. I am a director of Haines Gypsum Inc. as Consulting Mining Technologist for the Copper Cliffs Project.
- 6. The information contained in this report are as a result of my visit to the Copper Cliffs Property, Quadra Island, B.C. on June 25-27, 1996.
- THAT, I obtained information from the B.C. Ministry of Mines & Petroleum Resources Reports 1963 to 1976. Summary Report by Robert Adamson, P.Eng. (unpublished, July, 1996). And Minfiles from Geological Survey Branch, B.C. Geological Evaluation Report by H. Wahl, P.Eng. PROSPECTUS, 1983, E.P. Sheppard, P.Eng., Geological Report, January, 1973.
- 8. I consent to the use of this report, or as a summary thereof by Network One Holdings Corp. in a prospectus for financing and for Mine Reviewable Development Certificate Application to the B.C. Government.

Dated at Vancouver, B August 26, 1996 Felix Réves,

# CERTIFICATION

I, Shao Yeung Jue, of the City of Vancouver, Province of British Columbia, do certify that:

- 1. I am a Management Consultant with my place of business at 2175 West 32nd Avenue, Vancouver, B.C. V6L 2B1.
- 2. I am a graduate of Sir George Williams University, Montreal, with a Bachelor of Engineering (Mechanical), 1973 and a graduate of McGill University, Montreal, with a Master of Business Administration, 1975.
- 3. I am a registered Engineer in good standing of the Ordre des ingénieurs du Quebec.
- 4. I have about 17 years experience in strategic planning, economic and financial evaluations in utilities, and oil and gas industries in Canada.
- 5. I have reviewed and analyzed the economics of Copper Cliffs Property Project.

Dated at Vancouver, B.C. August 22, 1996

Shao Yeung Jue, Eng. MBA



# ANNUAL WORK APPROVAL NUMBER

SAVE THIS SLIP WITH YOUR PERMIT. You may need this slip or number when you record a Statement of Exploration and Development with the Mineral Titles Branch to maintain your title.

Use of this Approval Number will also simplify the completion of future Notices of Work and Completion Notices.

NAN-96-0801055-89

July 26, 1996

File: 14675-20

Mr. Mervin Boe 103-7227 Arcola St., Burnaby, B C V5E 1H7

Dear Sir:

### Re: Notice of Work for Alice Lake Group

Approval is hereby granted to proceed with the work program described in the above Notice of Work dated July 5, 1996. This letter and the attached conditions constitute your permit pursuant to Section 10(3) of the Mines Act (1989).

As your proposed work will not result in significant disturbance to the surface of the land, a reclamation bond will not be required at this time. However, you must inform me if you make significant changes to your proposed program.

Enclosed is the Notice of Completion of Work form which is to be completed and returned to this office at the end of the exploration program.

Yours truly,

A. H. Ludwig, P.Eng., District Manager & Engineer

AHL/gp

enc.

Ministry of Employment and Investment

Phone: (604) 751-7240 FAX: (604) 751-2718 Mailing Address: 1A-J411 Shenton Road Nanaimo, BC V9T 2H1 Location: 1A-3411 Shenton Road

LOG NO:	0719	RD.
ACTION:		
FILE NO:		
TILE NO.		

GEOCHEMICAL REPORT ON THE ALICE GROUP

LOCATED IN THE NANAIMO MINING DIVISION BRITISH COLUMBIA

SUB-RECORDER	
EEE RECEIVED	
M.R. # \$	

NTS 92L/6W 50°27'N 127°25'W

EQUINOX RESOURCES LTD. SUITE 900, 625 HOWE STREET VANCOUVER, B.C. V6C 2T6

BY ROBERT F. WEICKER, B.Sc.

July 1990



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1.       Claim Map	11.	CERTIFICATE		
2.         Olga Grid	FIGURES			
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The Alice Group consists of a total of 42 located claims in the name of Alice Lake Mines Ltd.. In addition, one production lease and four optioned crown grants are also held by Alice Lake Mines Ltd. in the Alice Lake Area of the Nanaimo Mining Division, British Columbia. Access to the property is by paved road from Port Alice or Port Hardy, and by all weather logging roads which cross the claim area.

Geologically, the claim group covers an area of Quatsino Limestone which is in contact with and cut by intermediate to basic intrusions of the Coast Intrusions. Mineralization consist of pyrrhotite, pyrite, chalcopyrite, galena and sphalerite with gold and silver values. This sulphide mineralization occurs as massive pods hosted in the Quatsino Limestone.

Most of the property has been held since the 1960's by Alice Lake Mines and exploration since then has consisted of aeromagnetic surveys, ground magnetometer surveys, geological work, diamond and percussion drilling, trenching, and stripping. In addition a feasibility study was carried out in 1974 on the P Fraction, which is now held as a production lease. Reserves were calculated to the 51,000 tons of 8.7% zinc proven and 51,000 tons inferred. Known mineralization on the Alice Group includes the Clancy adit where some zinc rich massive sulphide mineralization containing high gold and silver values has been found.

The Alice Group, production lease and crown grants were optioned to Equinox Resources Ltd. by Alice Lake Mines Ltd. in 1988, and Beaty Geological Ltd. was contracted to carry out a program of property evaluation and geochemical surveys. This work was carried out during August and November of 1988, and April of 1989.

The geochemical surveys completed last year identified anomalous values of zinc, lead, silver and arsenic in soils in three specific areas. Additional geochemical sampling was completed in April 1990 to test the extent and reproducibility of the anomalies. The most encouraging results were received over the Olga Grid which lies south east of the old workings known as the Clancy Adit. The geochemical survey over this area should be expanded and the area prospected, mapped, and sampled in detail to determine the source of the mineralization causing the anomalous zinc, silver, and arsenic values in soils. The cost of this program is estimated to be \$80,000 and contingent upon favorable results, a program of trenching and shallow diamond drilling could follow at an estimated cost of \$200,000.

### 2. <u>INTRODUCTION</u>

The Alice Group consists of a total of 42 located claims and four optioned crown grants located in the Alice Lake area of the Nanaimo Mining Division. Most of the property has been held by Alice Lake Mines Ltd. since the 1960's and exploration work since then has been focussed on the lead, zinc, copper and precious metals potential. A wide variety of work has been carried out, including aeromagnetic surveys, ground magnetometer surveys, geological work, diamond and percussion drilling, stripping and trenching. Much of this work was directed at delineating a small ore body which is now held under a production lease. A feasibility study of that ore body in 1974 calculated reserves of 51,000 tons of 8.7% zinc proven plus a similar amount inferred.

The property was optioned to Equinox Resources Ltd. in 1988, and Beaty Geological Ltd. was contracted in August 1988 to carry out a property evaluation which consisted of an examination and appraisal of each of the known showings, prospecting and three small geochemical surveys. In April 1990 limited geochemical sampling was completed on the Olga and ALM grid to determine the extent of the anomalies. This report discusses the results of the latest geochemical surveys.

#### 3. LOCATION, ACCESS AND PHYSIOGRAPHY

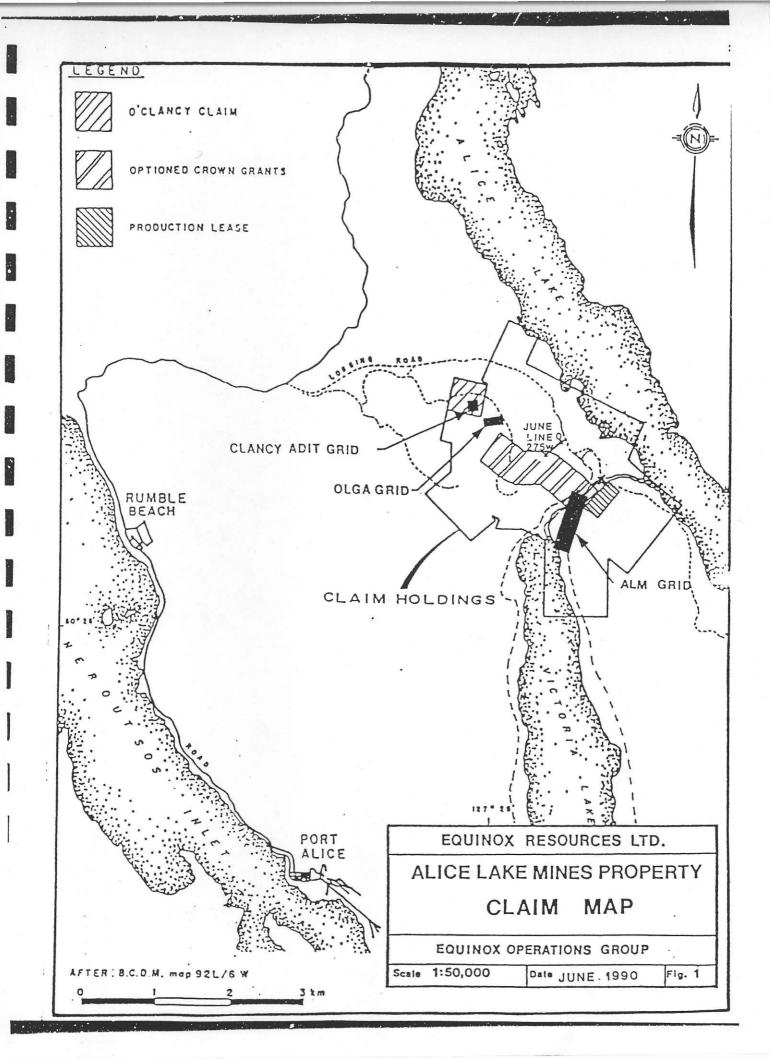
The Alice Group is located at the north end of Victoria Lake and west of Alice Lake in the northern part of Vancouver Island, Nanaimo Mining Division of British Columbia.

Access to the property is good. The property is crossed by several logging roads which branch off the "S.E. MAIN" logging road which is accessed from the paved Alice Lake to Port Hardy road about 10 km north of Alice Lake

The physiography of the area is moderately rugged and elevations on the claim group ranges from 100 m. to 800 m. There is some development of karst topography in the area; drainages are poorly developed, and limited to major streams and rivers. The area is heavily forested and old logged areas are covered by extremely thick second growth forest.

### 4. CLAIM DATA

A total of 42 claims are recorded in the name of Alice Lake Mines Ltd. and have been grouped into the Alice Group and four crown grants optioned from but recorded in the name of Western Forest Products Ltd. In addition, Alice Lake Mines Ltd. holds a production lease over the former P Fraction claim which is valid until 1994. All of the claims, options and leases of Alice Lake Mines Ltd. in this area have been optioned to Equinox Resources Ltd. The claim data is as follows:



#### TABLE I CLAIM DATA

<u>CLAIMS;</u> <u>Claim Name</u>	Record No.	Expiry Date	Registered Owner
ALM #1-#16	574-589	Apr. 17/91	Alice Lake Mines Ltd.
ALM #17-#24	633-640	Apr. 14/91	Alice Lake Mines Ltd.
O'Clancy	16320	Apr. 16/94	Alice Lake Mines Ltd.
AJX #1-#9	28748-28756	Jun. 5/91	Alice Lake Mines Ltd.
AJX #10 Fr.	28758	Jun. 5/91	Alice Lake Mines Ltd.
AJX #11	28757	Jun. 5/92	Alice Lake Mines Ltd.
AJ #1 Fr.	28759	Jun. 5/91	Alice Lake Mines Ltd.
AJ #2 Fr.	28760	Jun. 5/91	Alice Lake Mines Ltd.
AJ #3 Fr.	28761	Jun. 5/91	Alice Lake Mines Ltd.
AJ #4 Fr.	28762	Jun. 5/92	Alice Lake Mines Ltd.
AJX #12 Fr.	28900	Jun. 20/92	Alice Lake Mines Ltd.
Iron Knob	436	Aug. 21/92	Alice Lake Mines Ltd.

#### OPTIONED CROWN GRANTS:

<u>Name</u>	<u>Record Number</u>	<u>Registered Owner</u>
June	L180	Western Forest Products Ltd.
Helen	L181	Western Forest Products Ltd.
Amazon	L182	Western Forest Products Ltd.
Olga	L183	Western Forest Products Ltd.

PRODUCTION LEASE;

<u>Name</u>	Expiry Date	Registered Owner
No. 1	Dec. 20/94	Alice Lake Mines Ltd.

#### 5. <u>HISTORY</u>

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The history of the property has been well documented by J.W. Page in last year's geochemical report on the Alice Group in the following excerpt:

The area has been prospected and explored since the turn of the century and there are frequent references to the area in the Minister of Mines Annual Reports. Exploration over the years has focussed on several different showings that are now all part of the present property: the June Group of crown grants which covers a magnetite skarn with disseminated chalcopyrite, the Clancy adit which was driven into a massive sulphide pod containing gold and silver values, and the production lease which contains a zinc rich massive sulphide body.

The earliest recorded work on the property was on the June Group. Located in 1899, the property was optioned by the Copper Mountain Mining and Development Company of Tacoma who carried out a surface program of open pitting and trenching in 1903. A total of 20 open cuts are reported which identified an area of magnetite-chalcopyrite-bornite mineralization approximately 3,000 feet long, and extending from the June claim through to the Helen claim. Mineralization from the main pit assayed \$1.80 gold. 1 oz. silver and 3.3% copper to a ton, (MMAN, 1903). In 1907, 50 tons of ore was

taken out of the main open pit on the June claim which was reported to have assayed an average 5.95% copper, \$2.50 gold and \$1.60 silver to the ton, (MMAR, 1907). By 1916, an adit, 450 feet long, had been driven below the face of the main open cut, and about 500 tons of magnetite with irregular impregnations of chalcopyrite had been stockpiled. (MMAR, 1916). During 1916, the property was systematically prospected and trenched by N.S. Clarke and Associates of Seattle and a number of new gossans and sulphide showings were discovered. At this time several new claims adjacent to the June Group were also reported on: The Pilgrim claim covering a zinc rich massive sulphide pod north east of the Amazon claim, and the Minerva fraction covering a sulphide occurrence immediately west of the June Group (MMAR, 1916).

In 1924, the Alice Lake Group of claims was recorded by William Clancy and W.D. Kinsey to the northeast of the June Group (MMAR, 1924). Mineralization consisted of lead, zinc, silver and gold rich massive sulphides replacing Quatsino limestone. Initial work consisted of a number of open cuts, and in 1928 an adit was begun on the most promising sulphide body (MMAR, 1928). There after the adit was extended each year until 1932 when it was approximately 100 ft. long. A 200 lb. sample analyzed by the Ore Testing Laboratories of the Mines Department in Ottawa assayed: gold, 0.335 oz. per ton; silver 3.23 oz. per ton; copper, 0.14%; lead, 5.76% and zinc, 6.38% (MMAR, 1932).

In 1928, the June Group was leased by the Coast Copper Company, and during the period 1929 to 1930, they carried out 4,500 ft. of diamond drilling, 640 ft. of drifting and 516 ft. of crosscutting. It is reported that they encountered bodies of pyrrhotite with copper and appreciable values of gold and silver (MMAR, 1930). Elwell (1987) reports that the Cominco level and assay plan of the June Mine, dated November 1929, shows that diamond drill hole #6 contained four consecutive assay sections from 186.5 to 201.0 ft. which averaged 0.21 oz./ton gold, 0.48 oz./ton silver and 0.94 oz./ton copper.

There appears to have been very little work carried out during the 1930's, 40's, and 50's, however, Siega (1974) makes reference to several unpublished reports on the property: "Report on Alice Lake Groups" by A.J. Arland, P. Eng. dated November 14, 1948; report by B. Gerl, P. Eng. dated January 25, 1950; and "Preliminary Report on Alice Lake Claim Groups" by B.W.W. McDougall, P. Eng. dated June 27, 1956. None of these reports were obtained by this author.

In 1963, Consolidated Exploration Ltd. carried out geophysical and geochemical surveys over the Minerva fraction between the Olga and Iron Knob Crown grants. (Hemsworth, 1963). This area is now covered by the AJX 12 Fr. The work consisted of ground magnetometer surveys and field tests of soil samples for copper. The report noted magnetometer anomalies on the Minerva claim but no copper anomalies were found. Zinc mineralization was observed and trenches were dug on the east boundary of the Minerva fraction. They also reported magnetometer and geochemical copper anomalies on the Helen and June Crown grants and copper mineralization exposed in a pit on the Catherine claim.

In 1968, a sampling program was carried out on the Clancy and "L" claims by H.H. Cohen, P. Eng. (Elwell, 1987). Cohen's assay plan of the Clancy adit was reproduced in Elwell's report, and the best of 11 underground samples included

gold values up to 0.376 oz./ton with 7.10 oz./ton silver, 12.05% lead and 12.63% zinc over 1.5 ft.

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An airborne geophysical survey was carried out in 1969 (Cohen, 1969) and consisted of magnetometer, electromagnetic and radioactivity surveys over the Clancy. Big Zine and June mineral claims. The survey predictably identified the previous developments on the property but the sparse sampling density made the report of little use for identifying new prospects. In addition the lack of any ground features makes positioning the geophysical data difficult today. A total of 66 line miles were flown with a spacing of 500 feet between lines (MMAR, 1969).

Ground magnetometer surveys were carried out in 1969 over several grids on the property by Seigel Associates Ltd. (Campbell and Klein, 1970). The survey identified a number of magnetic features and recommended a follow-up drill program to test them. The P Fraction grid yielded large magnetometer anomalies and was recommended for a drill program. This is one of the first indications in the literature of the massive sulphide body on the P Fraction. Two targets were identified on the O'Clancy grid which covered the south half of the O'Clancy claim and the north half of the Iron Knob claim. Neither of these targets was the Clancy adit, which incidentally gave a smaller response. Another target was on the Olga grid which covered the AJX 12 Fr. and portions of the ALM 22, AJ #4 Fr. and Iron Knob claims (the Olga grid should not be confused with the adjacent Olga crown grant). Ground surveys also covered portions of the ALM 17 to 24 and AJX #1 Fr. and AJX #10 Fr. A gravity survey was also attempted at this time, but the terrain was found to be too rugged for the survey.

Seiga (1974) reports that during the period July to December 1969. Alice Lake Mines Ltd. completed 12,065 feet of drilling under the supervision of H.H. Cohen, P. Eng., and later M.K. Lorimer, P. Eng. However, further information on this program has not been found and the results are not known.

An aeromagnetic survey was carried out in 1970 by Seigel Associates Ltd. and covered the whole of the claim group area (Crosby, 1970). The lack of ground reference on the magnetic contour maps makes positioning of anomalies difficult but in any case the survey only identified the massive sulphide body on the P Fraction and an anomaly under Alice Lake to the north.

During 1973 to 1974, the Zeballos Development Co. Ltd. carried out a major development program which included stripping, trenching, magnetometer surveys, a percussion drilling program of 40 holes for a total of 2,500 ft. and a feasibility study (Siega, 1974). Most of this work was focussed on the P Fraction and Katherine crown grants but it also includes some of the surrounding area. The magnetometer survey covered part of the Amazon crown grant (L. 182) and part of the ALM 6 claim, and while the lack of ground control makes positioning of the data uncertain, an anomalous area on the Amazon crown grant was identified in addition to outlining the deposit on the P Fraction. The feasibility study identified an open pittable reserve of 51,000 tons of 8.7% zinc with some cadmium and silver values. This was considered economically viable at the prevailing metal prices and mining costs, and the P Fraction was taken to a production lease status in December, 1974.

In 1982, an underground drill program was carried out in the Clancy adit in which 1,000 ft. of AQ core was drilled in eight holes (Cohen, 1982). A total of eight samples were analyzed, all in hele five. The best intersection was between 12 and 14 feet which returned 0.590 oz./ton gold: 4.06 oz./ton silver. 8.45% lead and 9.18% zinc. However Elwell (1987) notes in his report that these holes were so poorly laid out that they served no useful purpose as far as evaluating the potential of the deposit.

In 1987, J.P. Elwell Engineering Ltd. carried out an appraisal of the property which included limited sampling of the Clancy adit and the June crown grant. The two samples from the Clancy adit returned values of 0.336 oz./ton and 0.406 oz./ton gold. and 4.68 oz./ton and 3.41 oz./ton silver with high lead and zinc values. The best value on the June crown grant was 0.014 oz./ton gold. 0.51 oz./ton silver and 1.35% copper. Elwell recommended a program of detailed sampling, mapping and drilling around the Clancy adit; and mapping, geochemical surveys and sampling of the old adit on the June crown grant. He also recommended that the production lease be maintained as a future asset until such time as it is economically feasible to mine.

#### 6. <u>GEOCHEMICAL SURVEY</u>

### 6.1 Work Carried Out

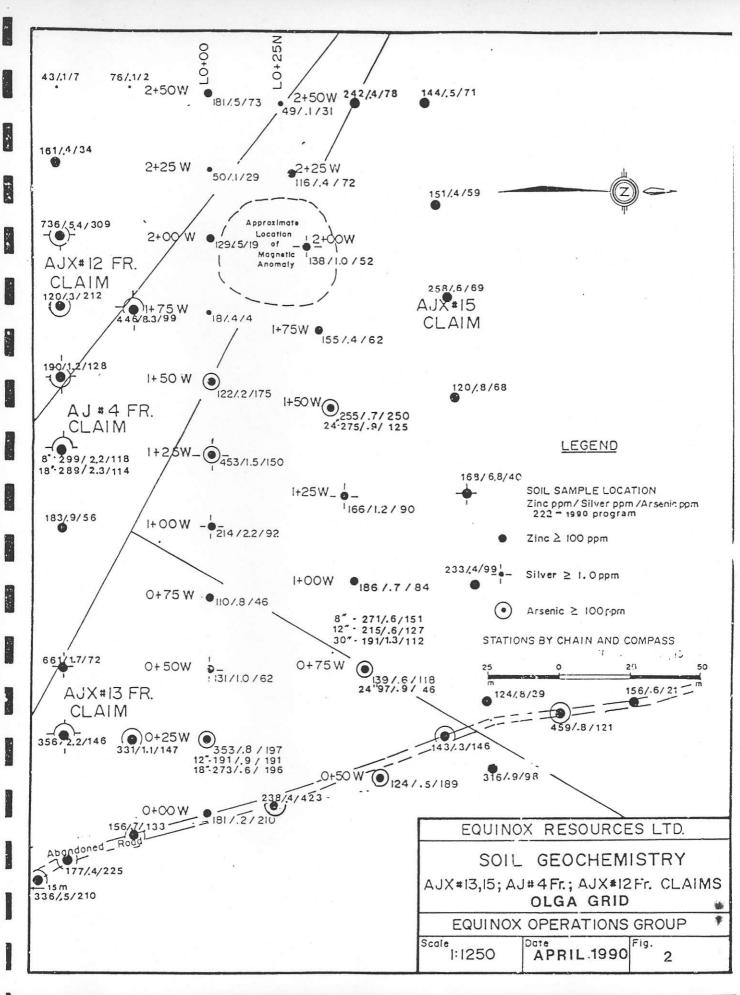
Initial property evaluation work by Beaty Geological Ltd. included visits to the property by two geologists in August and November 1988. Known mineralization was sampled during these visits and its geochemical signature established by base and precious metals analysis. A total of five rock samples of massive sulphide were collected in August which were assayed for copper, lead, zinc, silver and gold. The November visit collected three samples which were analyzed for gold, and 30 elements by ICP, followed by gold and silver assays. All analysis was performed by Acme Analytical Ltd. of 852 East Hastings St., Vancouver, B.C.

In April, 1989, a further examination of the property was carried out by two geologists and included three small geochemical surveys over areas of the Alice Group. A total of 115 soil samples and eight rock samples were collected. Soil samples were taken from 20 cm. depth. All samples were analyzed for 30 elements by ICP, and rocks were also analyzed for gold. In addition, loss-on-ignition was carried out for all soil samples to determine their organic concent. Details of the analysis are presented in Appendix I.

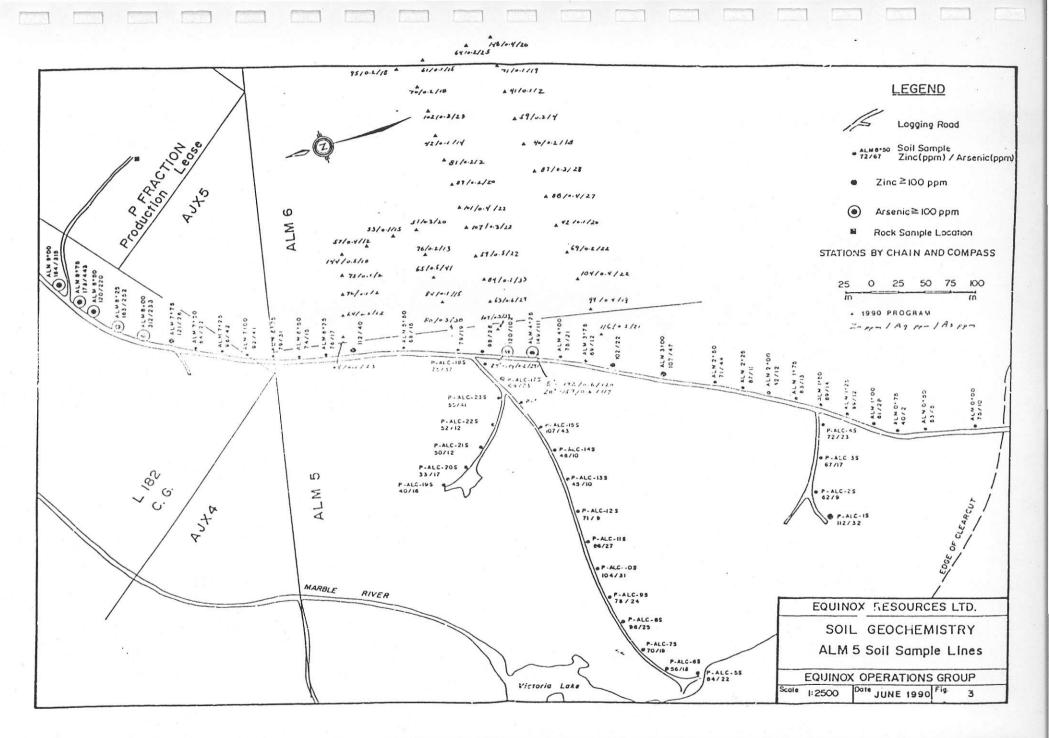
In April 1990, the property was visited by one geologist and additional geochemical sampling was completed over two of the previously established grid areas. All samples were treated and analyzed in a similar manner to the 1989 program by Acme Analytical Ltd. of 852 East Hastings Street, Vancouver, British Columbia. Details of the analysis are presented in Appendix 1.

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### 6.2 Soll Geochemical Surveys

### 6.2.1 <u>Olga Grid</u>

A total of 35 samples were collected on a grid that covers the AJ#4Fr, AJX#12Fr, ALM#13, and the ALM#15 claims. The grid lines extended from an abandoned logging road to the area of a magnetometer anomaly identified in 1969 by Seigel and Associates.

The locations and results of the survey are shown in Figure 2. Several soil profiles were sampled with results generally indicating better metal values in the uppermost portion of the "B" horizon at a depth of 8-12 inches (20-30 cm).

#### 6.2.2 ALM Grid

A total of 42 samples were collected along the offset lines east of the main logging road which extends along the east shore of Victoria Lake. The purpose of the sampling was to indicate the extent and trends of previously outlined anomalies.

#### 6.2.3 June Line

A test geochemical line was established just off the main access road trending roughly at 216' towards the June claim (refer to Figure 1). The purpose of this line was to establish background results in this area which has recently been logged. A total of 13 samples were taken on this test line (refer to Appendix I).

### 7. **RESULTS AND RECOMMENDATIONS**

The objective of further work on this property is to locate open pittable massive sulphide bodies which can provide the additional tonnage needed by the Production Lease to make production economically viable.

Soil geochemistry is an effective exploration tool on this property and any near surface massive sulphide bodies should be effectively located by zinc and arsenic analysis.

The Olga grid returned the most anomalous results particularly in silver where values up to 8.3 ppm or 0.24 oz/t were returned. The geology of the grid area is comprised of intrusive rocks and limestones. The anomalies are likely related to skarn zone mineralization associated with the intrusive/limestone contact. The area should be expanded with detailed geochemical and geophysical surveys followed by trenching and/or drilling if encouraging results are indicated. The Olga grid area appears to be the best target for uncovering a new zone of mineralization on this property.

Results from the ALM Grid were not encouraging, as the previous years' work indicated higher values in zinc and arsenic along the road rather than on the offset lines which were sampled in 1990. Some additional offset lines should be completed in conjunction with a larger geochemical program.

Results from the June Line indicate moderate to high values in zinc and arsenic and one very high value (4407 ppm) in copper as the June claim was approached. Additional geochemical sampling is warranted.

A two phase exploration budget was proposed last year and with encouraging results from two areas indicated this year, this program is recommended. It comprises additional geochemical and ground magnetometer surveys that would require approximately two months time and would cost approximately \$78,000. Contingent upon favorable results a follow-up program of trenching and diamond drilling could be coined out at an estimated cost of \$200,000.

### 8. BUDGET

Phase I	
Grid establishment	\$10,000
Magnetometer survey	10,000
Soil sampling	10,600
Analysis 2,000 samples @ \$8/sample	16,000
Geology, supervision	10,000
Crew maintenance	10,000
Transportation	5.000
Contingencies	7.000
	<u>\$78.000</u>
Phase II	
Trenching, drill pad construction	\$40,000
Diamond drilling 1,000 m.@ \$100/m.	100,000
Crew maintenance	10,000
Transportation	10,000
Assays	10,000
Geology, supervision	10.000
Contingencies	_20,000
	<u>\$200.000</u>

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## 10. COST STATEMENT

## Personnel:

..

R. Weicker - Geologist			
Field: April 2-8		7 days @ \$325/day	\$2,275
Report/Research: April 1	10-12, 16	4 days @ \$324/day	1,300
R. Beaty - Geologist		2 days @ \$400/day	800
			4,375
	Benefits 15%		655
			5,030
Support:			
Truck Rental		7 days @ \$60/day	\$420
Expense Account (food, accomm	iodation, misc.)		420
Transportation (ferry fare, fuel)			165
Supplies			45
Drafting, typing, clericai			60
Analysis - Acme Analytical Labo	ratories		370
Accounting			100
Photocopying and postage			_25
			1,605
	Subtotal		6,635
		ration/Overhead	665
	Total		\$7,300
	i vita		<u></u>

### CERTIFICATE

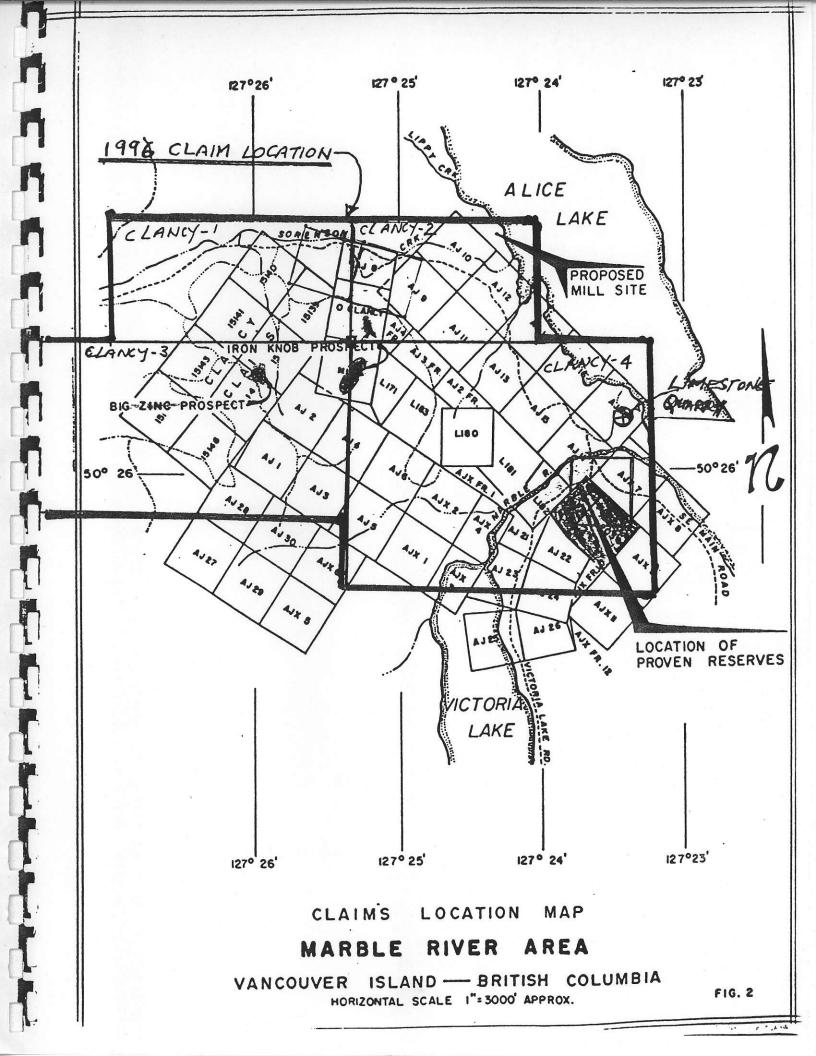
I, Robert Weicker, hereby certify:

- 1. That I am a practicing geologist employed by Equinox Resources Ltd., #900-625 Howe Street, Vancouver, B.C. My position is chief mining geologist.
- 2. That I am a graduate of the University of Waterloo, Waterloo, Ontario in Honours Earth Science (B.Sc. 1977).
- 3. That I have practiced exploration and mining in Canada and the United States since 1977 while employed by Lac Minerals Ltd., Noranda Exploration, Pamour Porcupine Mines and Asarco Exploration.
- 4. That I have personally supervised the work carried out and the observations and opinions expressed herein are based on my personal examinations of the property and on a review of available data and reports.
- 5. That I have no interest in the properties included in this report.

Dated at Vancouver, British Columbia, this 10th day of July, 1990.

of F. alink

Robert F. Weicker, B.Sc.



## INTRODUCTION

The Marble River mining project is a private venture managed by Zeballos Development Company Ltd. Zeballos, a British Columbia company is a wholly owned subsidiary of Ponderay Exploration Company Ltd., an Alberta company with offices in Edmonton, Alberta. Ponderay and its partners have supplied the necessary capital. An examination of this report will show that the present reserves are more than adequate to make the project economically feasible with substantial extensions to the present ore body indicated on the geophysical maps. Additionally, the milling equipment is more than adequate for the purpose and uniquely designed to allow for complete portability. Thus, the steel constructed mill and building can be completely removed when the job is completed.

The unique feature of the mill is its ability to produce dry tailings. The total project has been designed and planned with a modern concept of eliminating environmental damage.

The deposit to be mined is on surface, located on the side of a hill allowing for a bench type pit development. The waste material will be sufficient to refill the pit at the completion of the job. <u>The reserves of proven and probable ore are 102,000 tons averaging 8.7% zinc with</u> additional values in cadmium. Reserves of copper as yet not evaluated occur in the immediate vicinity. <u>Closely spaced magnetometer readings have been surprisingly successful in delineating</u> this zinc are body. These show the possibility of the reserves having three times the quoted figure. <u>Magnetometer surveys continue.</u>

A review of the material included in this report will show that the mill design used is particularly appropriate. The rated capacity of 200 tons per day may be readily increased by adding a re-grinder in the ball mill section thus allowing for 350 tons per day throughput. Additionally, the mill is so designed that both copper and zinc may be recovered with provisions for the addition of two other sets of floatation cells. This feature will allow for the recovery of other metals if necessary, or alternatively, increasing the zinc or copper throughput. The tailings are filtered within the mill using a filter press and vacuum pump thus producing a dry tailing with the water being recycled back through the mill. Thus the mill will only need sufficient water to compensate for evaporation losses. Dry tailings will be disposed of using a land filled concept. The tailings dump is located in a depression and sealed in a properly designed dam. The plan is to cover the tailings and plant grass on the completion of the job.

The mill is so designed that each separate segment of the mill is constructed on a steel frame, each segment small enough to be trucked away. The mill building is made of steel and is easily portable. Thus, the total facility may be moved with ease upon the completion of the job to provide maximum salvage value and complete site clean-up.

We feel that the care and thought that has gone into this project lends itself very well to the mining out of smaller ore deposits with a minimum of environmental damage. Many smaller ore deposits are not attractive to the large international mining companies. We feel that our approach lends itself well to increased economic activity in the Province through the mining out of small and intermediate size ore bodies.

Dated August 20, 1974.

eballos Development Company Ltd. PeterW . Kreutzer, R.I.A., C.A L. Milner, P. Eng.

Head Office:

Zeballos Development Company Ltd. #300, 10612 – 124 Street Edmonton, Alberta

Registered Office:

c/o Crease & Company, Barristers & Solicitors Eighth Floor, 1070 Douglas Street Vancouver, British Columbia Telephone: (403) 482-5551 TWX 610-831-2280

### LOCATION AND ACCESS

The property is located some 200 miles northwest of Vancouver and 36 miles southwest of Port Hardy. The nearest townsite is Port Alice which is located some  $8\frac{1}{2}$  miles distant. From Port Alice to the mining site, one travels 4 miles along a public road and  $4\frac{1}{2}$  miles along the Southeast Main Logging Road. This gravel logging road passes through the claims area between the north end of Victoria Lake and the Marble River Crossing (See Figures 1 and 2).

## EXPLORATION HISTORY

The earliest history on the property dates back to 1903. The pertinent data is as follows:

1.

"Quarry work has exposed an ore body 30 feet wide of nearly solid zinc-blende".

Page H202 by H. Charmichael, Provincial Assayer

### EXPLORATION HISTORY - continued

2.

Report of W. M. Brewer – District Mining Engineer, 1916. Page K342

"The deposit of ore is developed by a deep open cut 27 feet long, which is diagonally across the presumed strike of the ore and is about 10 feet wide. There are about 200 tons of ore on the dump along side the cut, a grab sample of which assayed."

> Gold .02 oz.; Ag. 2 oz.; Cu. - Nil; Zinc 37%; Iron 26.8%.

- 3. It is reported by H. C. Gunning, that Consolidated Mining and Smelting drilled the property and did not achieve satisfactory results at depth.
- 4. During the period July December, 1969, Alice Lake Mines Limited completed 12,065 ft. of drilling under the supervision of H. H. Cohen, P. Eng. and later M. K. Lorimer, P. Eng.
- 5. Seigel Associates Ltd. (January 30 to February 3, 1970) completed an Aeromagnetic survey on portions of the Alice Lake area. Within an area two miles along and one mile wide, a minimum of 15 local anomalies require more detail prospecting and ground magnetometer surveys.
- 6. During the period, October 1, 1973 to date, magnetometer surveys, trenching, and bulldozing has been in progress. Some 40 percussion holes (approximately 2,500 feet) have been drilled. The writer has supervised this program for the Zeballos Development Co. Ltd.

## GENERAL GEOLOGY

The geology and mineral deposits of the Quatsino-Nimpkish area on Vancouver Island have been summarized by H. C. Gunning (G.S.C.

Paper 1929.).

1

### GENERAL GEOLOGY - continued

The claims area is underlain by a series of volcanic rocks, limestones and other sediments of the Vancouver group (early Triassic to late Jurassic) and intruded by stocks, dykes and irregular granitic bodies collectively known as the Coast Intrusives. The mineralization is found commonly as a replacement of limestone in close proximity to stock-like bodies (locally the Victoria Lake stock) of intrusive rocks which vary in composition from gabbro to granodiorite. In general, this entire assemblage trends northwest and although the Quatsino limestones dip gently to the southwest extreme variable attitudes are prevalent. Within the same area, northwest and northeasterly block faulting is marked by topographic lineaments forming streams and gullies. See Figure 4.

### GEOLOGY AND MINERALIZATION

The west half of the "P" Fraction and "Catherine" Crown Grant is predominantly quartz-diorite in contact with northwest trending low dipping skarnified and/or silicified crystalline limestones of the Quatsino formation. A recently completed magnetometer survey outlines this contact coincident with a belt of scattered sulphides some 1,200 feet along the strike and 300 feet wide. A detailed magnetometer survey now being completed is providing excellent information as far as outlining specific zinc-pyrrhotite targets within the forementioned anomalous zone.

### **GEOLOGY AND MINERALIZATION - continued**

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The sphalerite, pyrrhotite and arsenopyrite may be massive, disseminated and/or distinctly banded within the limestones, and less commonly massive zinc will occur on the fringes of concentrations of pyrrhotite and arsenopyrite.

The main showing extends in a folded arc some 350 feet northwest of D.D.H.#13 &#14, to D.D.H.#6 & #8, then dipping northward to D.D.H.'s #7, #18 and #19. A realistic simplified average thickness of the mineralization in the forementioned area would range from 12' to 15' feet. This figure has not been used to calculate the total zinc mineralization. At the south end (Section A-A'), 30 feet of zinc was intersected in a vertical hole.

Here, the zinc mineralization is strongest and is controlled in part by bedding, in a low (10-15°) southeast plunging anticlinal fold. Additionally, the mineralization in this same area is influenced by the intersection of a N.80°E steep dipping fault with an accompanying vertical displacement (estimated 60 feet) as shown in sections of D.D.H's #13, and #14. Faulting, in conjunction with the adjacent Victoria Lake stock, may be the source of the accompanying mineralization. Whether of not these sulphides extend southward or along the fault is not known and additional bulldozing and drilling within the faulted area (now filled with mud and boulders) is necessary. See Figure 6.

5.

### DISCUSSION

1.

Block faulting, dykes, (diorite, feldspar porphry and andesite) bedding in limestone and limestone contacts have influenced the mineralization on the "P" Fraction and "Catherine" Crown Grant. It is difficult to ascertain at this time which of these structural controls is the major influencing factor. (Other than the Victoria Lake stock).

During this recent exploration program the mineralization outcrop between D.D.H.'s #13 and #14, to D.D.H.'s #6, has been stripped. A section 20 feet high, 20 feet deep and 120 feet along the strike has been drilled and blasted.

The results of the material blasted is more encouraging than what drill hole assays have indicated. Pending Government approvals, this material is ready to stockpile at a proposed mill site. In the area of D. D. H. 's #6, #8, #7, #18 and #19, a preliminary estimate of the amount of overburden left to remove would be some 35,000 cubic yards. This would essentially remove all of the overburden on the main mineralization area.

Insofar as developing additional reserves (see Summary) is concerned the writer is confident that continued exploration would at least double the present proven reserves. This statement is based on the following data.

(a) Massive sulphides with zinc mineralization is known to occur some 400 feet northwest of D. D. H. 's #8, #30, and #7.

6.

### DISCUSSION - continued

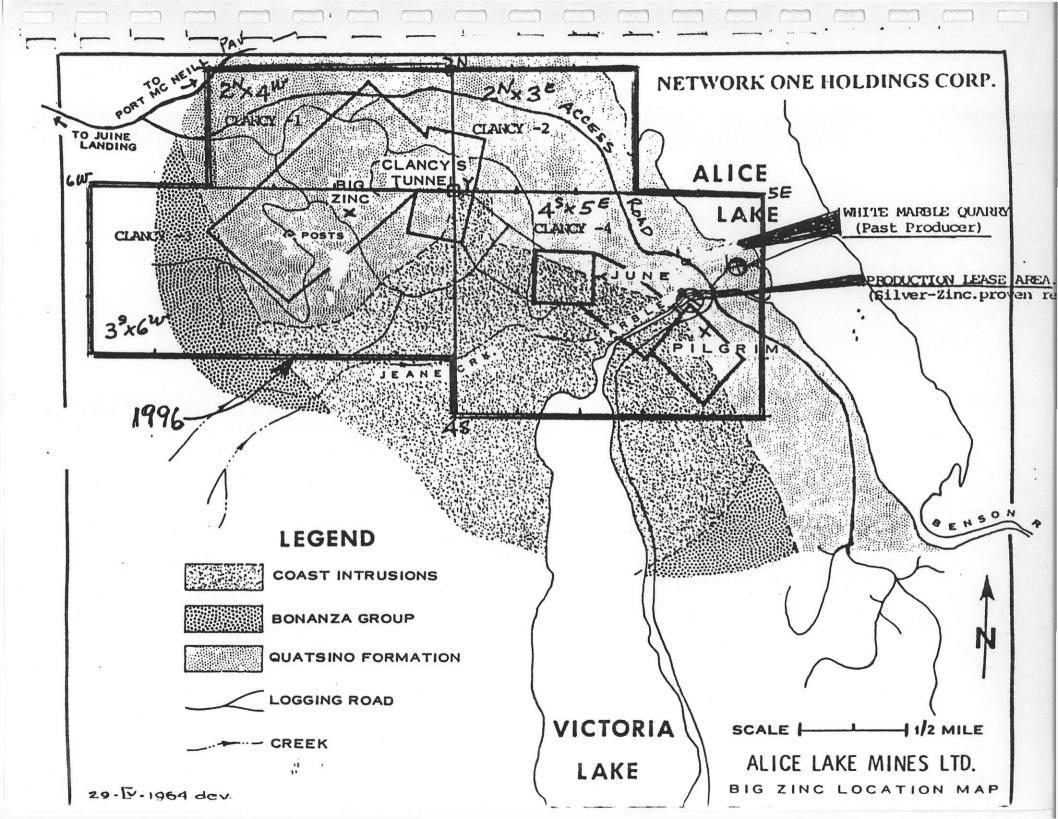
- Minor zinc and sulphides intersected in the area of (Ь) D.D.H.'s #31,#39, #24, and #22 are encouraging. A more critical evaluation of additional drilling and trenching in this area is necessary. Approximately 330' (Brg. 5°) north of D.D.H. #8 another (c) zinc outcrop has been exposed. It is probably an extension of the ore in D.D.H. \$53. Approximately 5,000 tons of zinc mineralization of a lessor 2.} grade (4-5%) is exposed on the "Big Zinc" prospect. See Figure 2. "No Less than eight magnetometer anomalies northwest of 3. the Marble River require detailed magnetometer surveys and drilling. Copper and pinor zinc are known to occur in this area. ("Iron Knob" prospect) See Figure 2. Only a small portion of the "P" Fraction and "Catherine" 4.
  - Crown Grant (1/10) have been explored and detailed magnetometer surveys are proving to be a very effective tool.

L. J. Siega

B. Sc., P. Geol.

7.

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#### VANCOUVER ISLAND

#### B. C.

#### INTRODUCTION

On January 24th, 1966, accompanied by Mr. T.C. McAlpine, an official of Alice Lake Mines, the writer proceeded via Pacific Western Airlines to Port Hardy and via B.C. Airlines to Jeune Landing. A truck and driver were hired and the various showings examined. We returned via Pacific Western Airlines to Vancouver January 25th, 1966.

The purpose of the examination was to acquire all available data on the ground pertaining to each mineral showing and, along with data from previous reports by government, consulting and company engineers, outline an exploration programme deemed most practicable for the discovery of commercial deposits of gold, silver, lead, zinc, copper and iron in the Alice Lake area.

#### LOCATION AND ACCESSIBILITY

The property lies between the southwest end of Alice Lake and the east shoreline of Neroutsos Inlet, Quatsino Sound, Vancouver Island, British Columbia. The precise location is North  $50^{\circ} - 26^{\circ}$  and West  $127^{\circ} - 24^{\circ}$ . The claims are accessible via a network of good logging roads from Jeune Landing. The distribution point for this area is Port Hardy, eighteen miles north of Jeune Landing, and 230 miles northwest of Vancouver.

#### HISTORY

William Clancy, formerly on the exploration staff of the Consolidated Mining and Smelting Company, along with W.D. Kinsey, located the Alice Lake property in 1924. Mr. Clancy built a home on the property and lived there until a few years prior to his death. He set up a small hydro-electric plant and small flotation mill near his home and his Clancy gold-silver-lead-zinc deposit.

In 1954 the property was acquired by the Alice Lake Syndicate, which was subsequently incorporated into Alice Lake Mines Ltd. N.P.L. Assessment work has been carried out and recorded annually.

In 1964 Consolidated Mining and Smelting Corporation of Canada optioned the property and diamond drilled the "Big Zine" deposit. The option lapsed in 1965.

#### TOPOGRAPHI

Irregular ridges and hills lie between the seashore of Quatsino Sound and Alice Lake. Maximum elevation is 2,800 feet above sea level. The showings are between 300 and 1,100 feet above sea level.

Although the Quatsino Sound area is ruggedly mountainous, the Alice Lake section is such that mining and logging operations proceed the year round without difficulty.

#### **GEOLOGY**

The property is underlain by the Vancouver Group of Lower Mesozoic sedimentary and volcanic rocks, intruded by plutonics of the Coast Range Batholith. The predominant member is the Quatsino limestone, composed of finely crystalline light coloured limestone with some interbeds of andesitic, tuffaceous and basaltic material. Locally this is overlain by volcanic rocks of the Bonanza Group. A stock of gabbro and numerous dykes of andesite and felsite have intruded the sedimentary and volcanic rocks.

The mineral deposits are located at and near the contact of the intrusives with the older sediments and volcanic

The general trend of the limestone and volcanic strata is northwesterly, and although there may be local folding, the general dip appears to be southwesterly.

PRODERTY

	PROPERTY	
Claim		Record Number
Clancy		15139
Clancy 2		15140
3		15141
4		15142
5		15143
6		15144
7		15145
8		15146
O Clancy		16320
Lot 184 - held under lo	a se	
L1 - 8 - inclusive		16301 -08 inclusive

#### PAGE 15

### MINERAL SHOWINGS

At three locations on the property mineral deposits were uncovered and partially outlined before the area was logged. These are termed the Clancy, Big Zinc and Rumble Bay areas. Much of the area has since been logged, but little or no detailed prospecting has since been done.

#### The Clancy Showings

On the hillside facing the southwest end of Alice Lake there are a series of fissure veins in light cream colored crystalline limestone. The strata strike northwest and dip 10 to 15 degrees southwest. The fissure veins are parallel to the attitude of the bedding, or nearly so, except for one minor steeply dipping vein.

At the northwest end there are two narrow slips with streaks and bunches of galena, sphalerite and pyrite showing over a length of about eight feet. Samples from these by A.J. Arland, P.Eng., assayed 0.35 ounces gold, 4.8 ounces silver per ton and 18.7% lead and 14.4% zinc. Eighty feet to the southeast a one-inch fissure lying along the footwall of a 10-foot felsite dyke contains streaks of sulphides. A 125-foot cross cut adit, 50 feet below the showing, did not intersect any zones of mineralization. One hundred feet to the southeast, on the southeast side of a large felsite dyke, a fissure vein dips at about 15 degrees southwesterly in to the hillside. A 65-foot tunnel follows this mineralized fissure vein and a shallow winze has been sunk 16 feet down the dip where the vein was stoped for 10 to 15 feet. It reportedly averaged two feet thick and graded 0.5 ounces gold, 4 ounces silver per ton and 4-1/2% lead and 6-1/2% zinc.

These veins are high grade but restricted in size and apparent extent.

#### The Big Zine Showings

These showings lie about 3,300 feet southwest of the Clancy showings.

The main zone, about 150 feet north of a logging road, forms a prominent outcrop on the west side of a small creek. Iron stained lenses of magnetite, pyrrhotite, sphalerite and limonite lie adjacent to and between intersecting dykes and sills of felsite and andesite in Quatsino limestone. These outcrop over a length of 200 feet and a width of 150 feet. Diamong drilling and trenching indicate only shallow, irregular lenses of mineralization. A sample across seven feet of what appears to be the main lense by C.M. & S. engineers assayed 0.6 ounces silver per ton, 6.1% zinc and 0.3% lead. A sample taken by the writer along 35 feet of the main lense assayed, 0.01 ounces gold per ton, 1.80 ounces silver per ton, 7.0% zinc, 0.40% lead, 46.15% iron, and nickel, trace.

In a quarry 800 feet to the northeast there are minor veins of similar iron-zinc mineralization, associated with felsite dykes.

Two hundred and fifty feet south southwest across the road from the main showings there are narrow zones of similar mineralization on each side of a felsite dyke.

Five hundred feet southwest, up the hillside and 350 feet higher, there are two open cuts exposing similar iron-zine mineralization in limestone adjacent to felsite and andesite dykes. These showings are confined to narrow irregular lenses.

Detailed geological mapping, four diamond drill holes, and a magnetometer survey of the main area, by C.M. & S. staff, resulted in the conclusion that the iron-zinc lenses were small, scattered, and in themselves without tonnage potential.

#### The Rumble Bay Showings

Opened up by Wm. Becker and Associates in the 1930's, there are three zones reportedly containing high grade gold-silver-lead-zine mineralization on the easterly slopes above the new townsite being constructed at Rumble Bay, a short distance south of Jeune Landing.

These showings are all covered by logging debris and second growth, hence in the limited time available for the examination, the writer was unable to see them, and the following data is a resume of information from written and verbal reports.

Below the old logging road three open cuts exposed a zone about 10 feet wide and 150 feet long, containing values in gold-silver-lead-zinc which, in 1946, was estimated to be valued at \$12.00 per ton. The elevation was estimated to be 375 feet above sea level.

In a small creck above the road, at probably 450 feet above sea level, a 14-inch vein was opened up by a 40-foot adit tunnel. The vein reportedly assayed 0.36 ounces per ton gold, 80 ounces per ton silver, 8% lead and 20% zinc.

At an elevation of 550 feet above sea level a wide disseminated showing of sphalerite in limestone graded 0.7 ounces per ton silver and 10% zinc.

The writer was told that these showings could be located and made available for examination.

### SUMMARY AND CONCLUSIONS

The property of Alice Lake Mines Ltd. N.P.L. extends from the east shoreline of Neroutsos Inlet, Quatsino Sound, Vancouver Island, to the southwest end of Alice Lake. The Quatsino limestone, a member of the Vancouver Group,

#### PAGE 16

underlies the property. The limestone has been intruded by Coast Range diorite and gabbro and networks of felsite, andesite and basalt dykes. Within the limestone at and near the intrusives, there are mineral deposits of two kinds, namely fissure veins containing gold-silver-lead and zinc, and replacements containing iron-zinc mineralization.

The mineral deposits were prospected and opened up before the area was logged, and little or no work has been done since the timber has been removed.

It is concluded that small showings of mineralization so far discovered, being located in a highly favorable geological environment, point to the possibility of economically important deposits being discovered by the application of detailed and up-to-date prospecting techniques.

### RECOMMENDATIONS

Advantageous for field investigation on the Alice Lake Mines property at this time is the changing local scene brought about by extensive logging operations. The almost impendenable timber and underbrush cover has been largely removed and numerous roads traverse the entire area. Thus, the most formidable problems facing investigators during the 1920's and 1930's have been removed.

It is recommended that surface investigation be centered around the areas of known mineralization, and then where deemed advisable, extended over selected areas. Should positive results be obtained, this work may be followed up by a more extensive programme including diamond drilling.

Scheriule A	Estimated Costs
<ol> <li>Prospect the areas of known showings and clean out the works for detailed examination, particularly the Rumble Bay area</li> </ol>	\$ 2,000.00
2. Make a preliminary map of the geology of the property.	2,000.00
3. Over selected areas conduct soil sampling surveys	1,500.00
4. Engineering, accommodation, transportation and overhead	1,000,00
5. Contingencies	1,000.00 \$ 7,500.00
Schedule B	
1. Over selected areas conduct induced polarization surveys	\$ 10,000,00
2. Trenching and stripping to expose zones of mineralization	3,000.00
3. Diamond drilling	5,000,00
4. Supervision and overhead	2,500.00
5. Contingencies	2,000.00 \$ 22,500.00

The first stage should require two months to complete. Should the work be carried through the second stage, involving a total estimated cost of \$30,000.00, six months will be required, and an estimated field budget of \$5,000.00 per month.

#### Respectfully submitted,

"ALFRED R. ALLEN" Alfred R. Allen, P. Eng.

#### REFERENCES

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Alice Lake Mines Ltd., Geological Report, Big Zinc Property, Consolidated Mining and Smelting Co. of Canada, A.C.W. DeVoogd, January 14, 1965.

#### CERTIFICATE

January 31, 1966

1, Alfred R. Allen, of 519 Granville Street, Vancouver, B.C., certify that:

I am a graduate of the University of British Columbia and hold the following degrees therefrom:

BASc	Geological Engineering	1939
MASc	Geological Engineering	1941

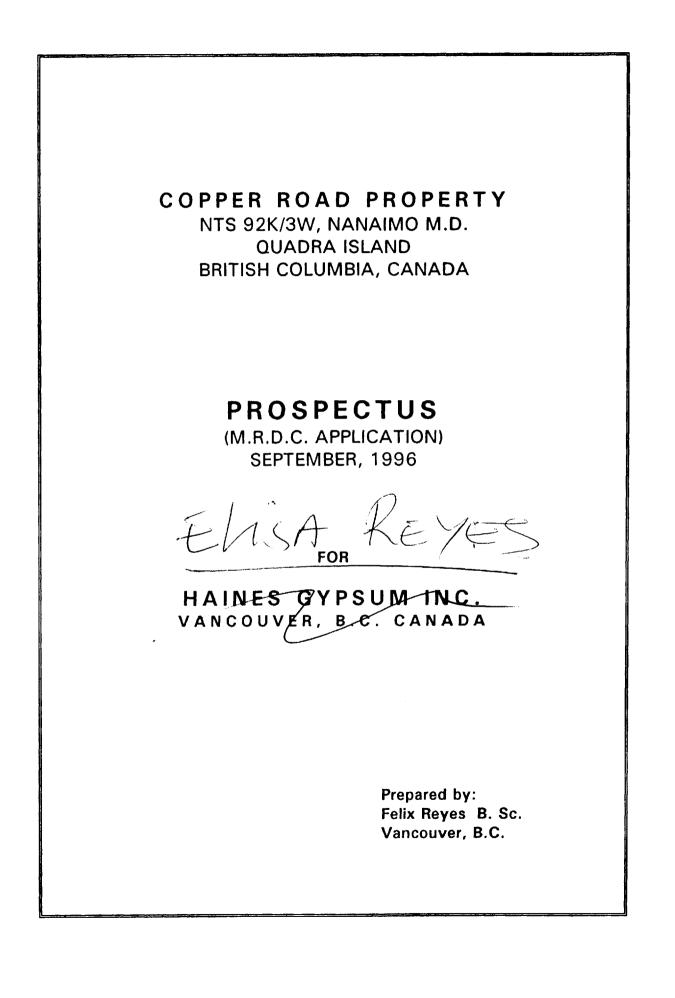
I am a member of the Association of Professional Engineers of the Province of British Columbia, and a member of the Consulting Engineers' Division.

I have practised my profession for the past twenty-three years.

I hold no interest in the properties or securities of Alice Lake Mines Ltd. N.P.L., nor do I expect to receive any directly or indirectly.

My report on the Alice Lake group is based upon field examinations by myself on January 24th, 1966.

"ALFRED R. ALLEN" Alfred R. Allen, P. Eng.



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## LIST OF FIGURES

General Access and Location

Property Access and Location Map

Plan 3: 1996-1997 Development Plan

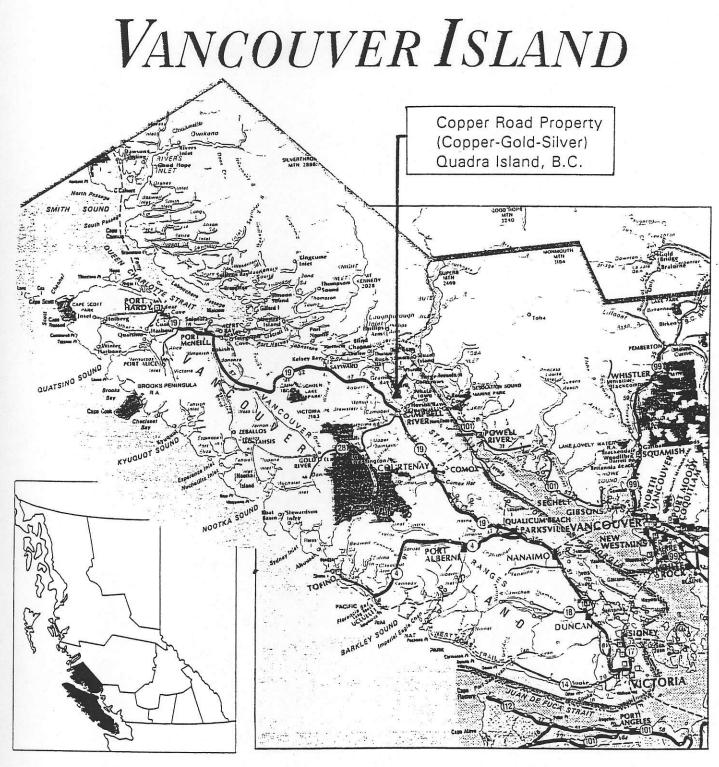
Figure 4-2: Calculated Ore Blocks

Figure 7-1: Project Schedule

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## General Access and Location



## FACT SHEET

## PROPERTY DETAILS

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Name:	Copper Road Property	
Location:	Lat. 50° 12' Long. 125° 18' (92K/3W) Nanaimo M.D. Quadra Island, B.C., 1.5 miles northeast of Deepwater Bay, at 1200 feet elevation.	
Metals:	Copper, Silver, Gold	
Mining Method:	Previous underground mining and open-pit operation. 1996 contract mining, see schedule.	
Proposed Production:	Applied for government approval to mine 9,990 tonnes bulk sample ore. Then follows (M.R.D.C.) 24,990 tonnes/year operation.	
Process Plant/Mill:	Custom milling is available at Westmin's milling plants at Stewart, B.C. and Campbell River, B.C. Other milling plants are being investigated.	
Mine Life:	More than 5 years based on drill indicated reserve. The geological reserve (4500 x 20 x 500 feet) 3.8 million tons will soon be confirmed and will extend the mine life to more than 25 years.	

## MINERAL RESERVES/RESOURCES

Reserves/Resources:	Minable/Measured: 166,848 tons grading
	3.66% copper, 1 ounce per ton silver and
	0.02 ounce per ton gold.
	Drill indicated: (2000 x 20 x 375 feet)
	calculated at 1,250,000 tons.
	Probable: (4500 x 20 x 500 feet) calculated
	at 3,800,000 tons.

Estimated Cost:	\$750,000.00 including Reclamation Bond,
	subcontract advance payments,
	administration and engineering.

Nil

Cut-off Grade:

Additional Reserves: Excellent potential for significant additional reserve as the shear zone drilled to be open at depth. Diamond drill holes from 1963 to 1969 showed dimension of geological reserve could be 4500 feet x 40 feet x 500 feet.

## ACCESS/TRANSPORTATION

Road:	Paved road from Quathiaski Cove to east end of the property. All weather road from Deepwater Bay to the mine site. Shipment loading area is available at Deepwater Bay (Crown Zellerbach logging).
Water:	A15 minute ferry trip from Campbell River to at Quathiaski cove. Barge loading facilities available at Quathiaski cove, Gowlland Harbour, and Deepwater Bay.
Air:	Commercial jet service to Campbell River from Vancouver; air charter in Campbell River.

## POWER SUPPLY

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Requirement: Diesel fuel

## CONTRACT INFORMATION

All major works will be sub-contracted for drilling, blasting, crushing and stockpiling for custom milling.

Mining:	A1 Contractor
Transportation:	A2 Contractor
Milling:	Westmin's milling plant at Stewart, B.C. and Campbell River, B.C. and others.

## SCHEDULE

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Submission and Approval:	Annual Work Approval Number (NAN-96- 0801054-88) was granted by the District Manager & Engineer of the Ministry of Employment and Investment on July 26, 1996. Amendment to remove 9,990 tonnes bulk sample is in progress.
Site Preparation:	As soon as possible, after receiving B.C. Government approval of 9,990 tonnes bulk sample.
M.R.D.C. Production Startup:	Upon approval of B.C. Government M.R.D.C. permit.



## **1.0 INTRODUCTION**

## 1.1 Preamble

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The Copper Road (CR) Property located on the Northwest side of Quadra Island, B.C. is owned by Haines Gypsum Inc. (HGI). Various individuals and companies from 1953 to 1968 had mined and milled 5,222 tons of ore from this property, recovering 2,543 ounces of Silver, 21 ounces of Gold and 402,842 pounds of Copper. Between 1969 and 1975, Western Mines Limited and Univex Mining corp. Ltd. each independently explored, mined and milled from this property.

Drill indicated reserve is 166,848 tons grading 1 ounce per ton silver, 0.02 ounce per ton gold and 3.66 per cent copper. The geological reserve is calculated at 3,800,000 tons. The property is believed to contain sufficient minable reserves to justify mine development (M.R.D.C.) to production rate of 24,990 tonnes per year.

HGI is currently in the process of reviewing the feasibility and design of an underground mining operation. This prospectus is being submitted to initiate the approval of the M.R.D.C. application to mine 24,990 tonnes per year of ore.

## **1.2 Project Location and Setting**

The Copper Road Property is in Nanaimo M.D. Quadra Island, 1.5 miles northeast of Deepwater Bay, at approximately 1200 feet elevation. Its approximate coordinates are latitude 50° 12' and longitude 125° 18' on NTS Map 92K/3W. The property is accessible by paved road from Quathiaski Cove or all weather road from Deepwater Bay. Barge loading is available at both locations.

## 1.3 History

1963

The Anaconda Company (Canada) Ltd.

- completed an induced potential geophysical survey

- 13,000 feet of AX diamond drilling in 28 drill-holes indicating reserves of 115,000 tans grading 2.8% copper and 0.5 ounces of silver.

- shaft deepen from 50 to 150 feet, producing 350 tons of ore

1965-1968 Ribco Leasing Limited

- approximately 5,000 tons of ore was removed to Britannia Mine, grade 3.66% copper, 0.51 oz/ton silver and 0.02 oz/ton gold.

1969-1970 Western Mines Limited

- an induced polarization survey of 1 line-mile was run on Copper Road claims

- nine holes totaling 4,852 feet were diamond drilled.
- surface geological mapping, magnetometer survey, geochemical soil survey
- 1973-1975 Univex Mining Corp. Ltd.

- surface diamond drilling, two holes totaling 537 feet on Copper Road 1

- topography mapped from airphotos

- lay-out map prepared for future underground mining

- Trenching, 11 metres and stripping, 88 square metres on Copper Road 2

1976-1995 Idle

5

1996- HGI took title to the property.

## 2.0 EXISTING LAND USE

The surface disposition surrounding the property is designated for logging operation (Crown Zellerbach, T.F.L. #2). Proposed mining operation is consistent with past and current land usage of the area where mining, geological mapping and diamond drilling for mineral potential is active.

## 3.0 GEOLOGY AND RESERVES

## 3.1 Geology

The Copper Road Zone occurs within basalts and andesites of the Triassic Karmutsen Formation. These rocks are dominantly massive andesite-basalt flows with intermittent amygdaloidal units. To the east, the volcanics are in fault contact with the younger Triassic Quatsino Formation, a well crystallized bluish limestone with occasional white recrystallized zones.

## 3.2 Mineralization

The Copper Road property is a shear zone in basic volcanics which has been determined by diamond drilling and geological mapping for some 4,500 feet. The shear strikes 100 degrees and dips 80 degrees north. The zone of shearing is generally about 20 feet wide and characterized by intense chloritization of the shear basalts. The north of the zone is a clean slip surface, while the footwall is jagged with random quartz sulphide stringers.

This zone of shearing has been impregnated with chalcopyrite and bornite bearing quartz veins, wherein locally rich shoots of massive chalcopyrite and bornite are developed. Copper sulphides are apparently dominant as there is little recorded data on the presence of accompanying pyrite or pyrrhotite.

The drilled potential of the shear to a vertical depth of 576 feet has been fairly well defined by the 36 holes drilled to date. This work has indicated two ore shoots referred to as East and West, but has not defined the downward extension potential of what may be the feeder zone. This could represent a former flat-lying channel in flow tops, which controlled the initial mineralization, and is now tipped on end. Alternatively, it may mark the zone of ingress for hydrothermal quartz-sulphide solutions entering or traversing the already existent vertical shear.

## 3.3 Reserves

Mineral reserves were calculated by two standard methods: the triangular block method and the contour method. In both method, a cut-off grade of 1% copper end a minimum width of 5 feet were used. Since the spacing between drill holes used to calculate tonnage and grade varies 70 to 200 feet, the material estimated should be classified as drill indicated.

The average for the East zone amounted to 1 ounce per ton silver, while 0.53 ounce per ton was the average for the West zone. The only data for

gold was the analysis for the 5,000 DST shipped which graded 0.02 ounce per ton gold.

The East zone is considered the most significant in terms of a potential small scale, higher grade mining operation. Using the contour method, there appears to be a high grade core zone of approximately 14,000 tons grading 6% copper. The grade contours are very suggestive that a feeder zone may extend beyond the present limits of the east zone at depth. Using dimension of 4500 feet x 20 feet x 500 feet, there could exist an ore body of 3,800,000 tons.

## 4.0 MINING PLAN

## 4.1 **Production Rate and Mine Life**

Initially 9,990 tonnes bulk sample will be mined then follows 24,990 tonnes per year mining operation. The geological reserve of 3.8 millions tons will soon be confirmed which will extend the mine life beyond 25 years.

Feed milling ore shall be (fine ore bin) crushed at -¼" diameter or 4 to 5 mesh.

## 4.2 Mining Method

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Underground open stopes and trackless mining method is chosen. The vertical geometry and competent wall rock of the zone should eliminate the need of timbering.

# 7.0 SCHEDULE

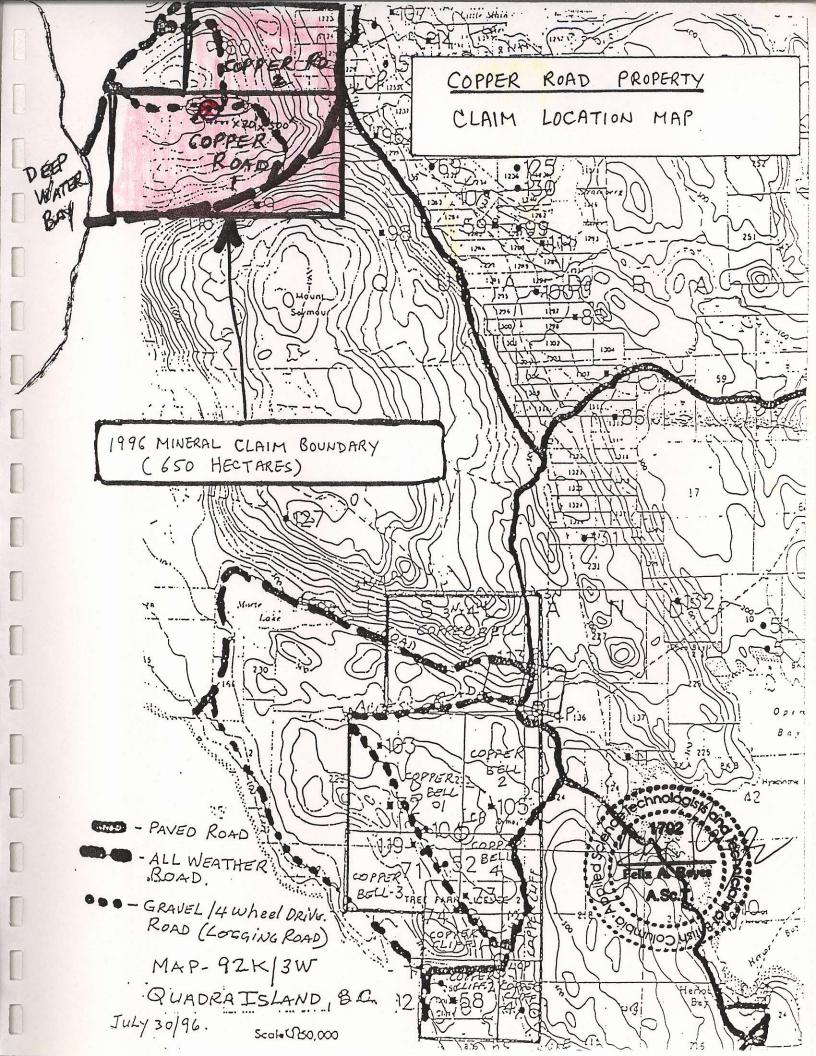
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A preliminary schedule has been established and is shown in Figure 7-1.



## List of References

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- 1. MINFILE 092K 060, Geological Survey Branch Mineral Resources Division, Ministry of Energy, Mines and Petroleum Resources, Province of British Columbia.
- 2. B.C. Ministry of Mines and Petroleum Resources Reports, 1963-1975
- 3. Wahl, H. (1982): Copper Road Property, Black Marlin Corporation Prospectus, October 1983.

Figure 7-1 COPPER ROAD PROPERTY PROJECT SCHEDULE SEPTEMBER 1996 - JUNE 1997

1996 1997 S 0 N F M Α M D J J

FEASIBILITY STUDY ENVIRONMENTAL STUDIES PROSPECTUS PREPARATION M.R.D.C. 1996 SUBMISSION DRILLING PROGRAM & U/G TEST WORK METALLURGICAL TEST RESERVE UPDATE DESIGN & ENGINEERING SELECT SUB-CONTRACTORS COMMENCE PRODUCTION

## FAX MESSAGE

To: Mr. Felix Reyes Fax no: 893-7001 Sender: Mr. Shao Yeung Jue Pages to follow: 6

September 9, 1996

Dear Mr. Reyes,

Re: Copper Road Property - Sensitivities of Mining Costs

The cases are:

Case A: 175 tons per day at \$28.57 per ton Case B: 175 tons per day at \$22.86 per ton The annual production profile for the first five years is 9.99k, 24.99k, 24.99k, 100k and 150k tons respectively.

The following table summarized the effect of mining costs on the NPV of Net Smelter Revenue at indicated discount rates.

	Case A	Case B
0%	\$11.8M	\$13.6M
10%	\$8.0M	\$9.2M
15%	\$6.7M	\$7.7M
20%	\$5.7M	\$6.5M
25%	\$4.8M	\$5.6M

## Net Present Value of Net Smelter Revenue Year 1 through Year 5

Since the five year annual production profiles and other assumptions for both cases are the same, the lowest dollar per ton mining cost will give the highest net present value. Case B has the lowest mining cost at \$22.86 per ton, hence has the highest net present value.

The supporting spreadsheets for the above cases (6 pages) are attached.

Yours truly,

S.Y. The

## Case B: 175 tons per day @ \$22.86 per ton

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	••••	Year 1	Year 2	Year 3	Year 4	Year 5
Assumptions:						
1. Prices						
Copper, U.S.\$/Ib	٠	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Gold, U.S.\$/oz.	٠	\$385.00	\$385.00	\$385.00	\$385.00	\$385.00
Silver, U.S.\$/oz.	•	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
2. Exchange Rates						
CAN\$/U.S.\$	•	1.3765	1.3765	1.3765	1.3765	1.3765
3. Unit Cost, CAN\$/ton						
Mining	•	\$22.86	\$22.86	\$22.86	\$22.86	\$22.86
Trucking to Dock	•	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Barging, Loading & Unloading	•	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00
Trucking to Mill	٠	\$3.63	\$3.63	\$3.63	\$3.63	\$3.63
Milling	•	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70
Admin & Other	•	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Contingency	•	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
	-	\$59.19	\$59.19	\$59.19	\$59.19	\$59.19
4. Royalty						
% of Net Smelter Return	•	2.50	2.50	2.50	2.50	2.50
5. Factors						
Proven adjustment factor	•	0.98	0.98	0.98	0.98	0.98
Probable adjustment factor	•	0.80	0.80	0.80	0.80	0.80
Mill Recovery Factor	•	0.88	0.88	0.88	0.88	0.88
tonne/short ton	•	0.907	0.907	0.907	0.907	0.907
g/troy oz	٠	31.10	31.10	31.10	31.10	31.10
g/t to oz/ST	•	34.28	34.28	34.28	34.28	34.28

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## Case B: 175 tons per day @ \$22.86 per ton

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•••	• • • •	Year 1	Year 2	Year 3	Year 4	Year 5
Reserve, tons						
- Minable/Measured	•	166,848				
- Drilled Indicated	•	1,250,000				
Total		1,416,848				
Geological 4500'x20'x500'	•	3,800,000				
Grade						
Copper, %	٠	3.66	3.66	3.66	3.66	3.66
Gold, oz/ton	•	0.02	0.02	0.02	0.02	0.02
Silver, oz/ton	•	1.00	1.00	1.00	1.00	1.00
Gross Value Per Ton						
copper		\$73.20	\$73.20	\$73.20	\$73.20	\$73.20
Gold		\$7.70	\$7.70	\$7.70	\$7.70	\$7.70
Silver		\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Total, U.S.\$/ton		\$85.90	\$85.90	\$85.90	\$85.90	\$85.90
Total CAN\$/ton		\$118.24	\$118.24	\$118.24	\$118.24	\$118.24
Production Profile						
Start of Year		1,416,848	1,406,858	1,381,868	1,356,878	1,256,878
Produced, tons	٠	9,990	24,990	24,990	100,000	150,000
Added	•	0	0	0	0	0
End of Year		1,406,858	1,381,868	1,356,878	1,256,878	1,106,878
Metal Recovered						
Copper, pounds		643,516	1,609,756	1,609,756	8,441,600	9,662,400
Gold, oz.		176	440	440	1,760	2,640
Silver, oz.		8,791	21,991	21,991	88,000	132,000
Gross Mineral Value in CAN\$		\$1,039,483	\$2,600,269	\$2,600,269	\$10,405,239	\$15,607,85 <b>8</b>

09/09/96

## Case B: 175 tons per day @ \$22.86 per ton

	Year 1	Year 2	Year 3	Year 4	Year 5
CAN\$ PER TON					
Gross Mineral Revenue	\$104.05	\$104.05	\$104.05	\$104.05	\$104.05
Less:					
Operating Costs	\$59.19	\$59.19	\$59.19	\$59.19	\$59.19
Owner's Royalty	\$1.1216	\$1.1216	\$1.1216	\$1.1216	\$1.1216
Net Smelter Revenue	\$43.74	\$43.74	\$43.74	\$43.74	\$43.74

	Year 1	Year 2	Year 3	Year 4	Year 5
IN CAN\$ Gross Mineral Value	\$1,039,483	\$2,600,269	\$2,600,269	\$10,405,239	\$15,607,858
Less: Operating Costs	\$591,308	\$1,479,158	\$1,479,158	\$5,919,000	\$8,878,500
Owner's Royalty	\$11,204	\$28,028	\$28,028	\$112,156	\$168,234
Net Smelter Revenue	\$436,971	\$1,093,083	\$1,093,083	\$4,374,083	\$6,561,124

### Net Present Value of Net Smelter Revenue (5 years)

Discount Rates	NPV
0%	\$13,558,345
10%	\$9,183,370
15%	\$7,688,157
20%	\$6,501,983
25%	\$5,550,382

Note:

1. Total may not add due to rounding.

2. Grade: 1.0 oz/ton Ag, 0.02 oz/ton Au, 3.66% Cu

3. • denotes input/assumption.

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## Case B: 175 tons per day @ \$22.86 per ton

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	·	Year 1	Year 2	Year 3	Year 4	Year 5
Assumptions:						
1. Prices						
Copper, U.S.\$/Ib	٠	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Gold, U.S.\$/oz.	•	\$385.00	\$385.00	\$385.00	\$385.00	\$385.00
Silver, U.S.\$/oz.	•	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
2. Exchange Rates						
CAN\$/U.S.\$	٠	1.3765	1.3765	1.3765	1.3765	1.3765
3. Unit Cost, CAN\$/ton						
Mining	•	\$22.86	\$22.86	\$22.86	\$22.86	\$22.86
Trucking to Dock	٠	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
Barging, Loading & Unloading	٠	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00
Trucking to Mill	٠	\$3.63	\$3.63	\$3.63	\$3.63	\$3.63
Milling	•	\$10.70	\$10.70	\$10.70	\$10.70	\$10.70
Admin & Other	•	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Contingency	٠	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
	·	\$59.19	\$59.19	\$59.19	\$59.19	\$59.19
4. Royalty						
% of Net Smelter Return	•	2.50	2.50	2.50	2.50	2.50
5. Factors						
Proven adjustment factor	٠	0.98	0.98	0.98	0.98	0.98
Probable adjustment factor	٠	0.80	0.80	0.80	0.80	0.80
Mill Recovery Factor	•	0.88	0.88	0.88	0.88	0.88
tonne/short ton	•	0.907	0.907	0.907	0.907	0.907
g/troy oz	•	31.10	31.10	31.10	31.10	31.10
g/t to oz/ST	•	34.28	34.28	34.28	34.28	34.28

## Case B: 175 tons per day @ \$22.86 per ton

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	• • •	Year 1	Year 2	Year 3	Year 4	Year 5
Reserve, tons						
- Minable/Measured	•	166,848				
- Drilled Indicated	•	1,250,000				
Total	•	1,416,848				
Geological 4500'x20'x500'	•	3,800,000				
Grade						
Copper, %	٠	3.66	3.66	3.66	3.66	3.66
Gold, oz/ton	•	0.02	0.02	0.02	0.02	0.02
Silver, oz/ton	•	1.00	1.00	1.00	1.00	1.00
Gross Value Per Ton						
copper		\$73.20	\$73.20	\$73.20	\$73.20	\$73.20
Gold		\$7.70	\$7.70	\$7.70	\$7.70	\$7.70
Silver		\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Total, U.S.\$/ton	•	\$85.90	\$85.90	\$85.90	\$85.90	\$85.90
Total CAN\$/ton		\$118.24	\$118.24	\$118.24	\$118.24	\$118.24
Production Profile						
Start of Year		1,416,848	1,406,858	1,381,868	1,356,878	1,256,878
Produced, tons	•	9,990	24,990	24,990	100,000	150,000
Added	•	0	0	0	0	0
End of Year		1,406,858	1,381,868	1,356,878	1,256,878	1,106,878
Metal Recovered						
Copper, pounds		643,516	1,609,756	1,609,756	6,441,600	9,662,400
Gold, oz.		176	440	440	1,760	2,640
Silver, oz.		8,791	21,991	21,991	88,000	132,000
Gross Mineral Value in CAN\$		\$1,039,483	\$2,600,269	\$2,600,269	\$10,405,239	\$15,607,858

09/09/98

\$953,958

\$3,817,358

### Case A: 175 tons per day @ \$28.57 per ton

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	Year 1	Year 2	Year 3	Year 4	Year 5
CAN\$ PER TON					
Gross Mineral Revenue	\$104.05	\$104.05	\$104.05	\$104.05	\$104.05
Less:					
Operating Costs	\$64.90	\$64.90	\$64.90	\$64.90	\$64.90
Owner's Royalty	\$0.9788	\$0.9788	\$0.9788	\$0.9788	\$0.9788
Net Smelter Revenue	\$38.17	\$38.17	\$38.17	\$38.17	\$38.17
	Year 1	Year 2	Year 3	Year 4	Year 5
IN CAN\$					
Gross Mineral Value	\$1,039,483	\$2,600,269	\$2,600,269	\$10,405,239	\$15,607,858
Less:					
Operating Costs	\$648,351	\$1,621,851	\$1,621,851	\$6,490,000	\$9,735,000
Owner's Royalty	\$9,778	\$24,460	\$24,460	\$97,881	\$146,821

\$953,958

\$381,354

### Net Present Value of Net Smelter Revenue (5 years)

Discount Rates	NPV
0%	\$11,832,664
10%	\$8,014,528
15%	\$6,709,623
20%	\$5,674,423
25%	\$4,843,940

Note:

Net Smelter Revenue

1. Total may not add due to rounding.

2. Grade: 1.0 oz/ton Ag, 0.02 oz/ton Au, 3.66% Cu

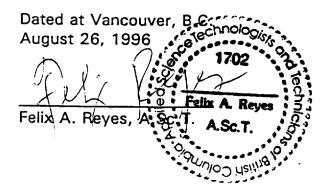
3. • denotes input/assumption.

\$5,726,037

### CERTIFICATION

I, Felix A. Reyes, of the City of Surrey, Province of British Columbia, do certify that:

- I am a Consulting Mining Technologist with my place of business #123, 8655 King George Hwy., Surrey, B.C. V3W 5C4.
- 2. I am a registered member in good standing of the Applied Science Technologist and Technicians in British Columbia. Registration No.1702, as Applied Science Technologist.
- 3. I am a Graduate of Adamson Uuniversity, Manila, Philippines, with a Bachelor of Science in Mining Engineering, October, 1963.
- 4, I have been a practicing Technologist with 17 years experience in mineral explorations and geological evaluations, mineral development to commercial production for industrial minerals, base and precious metals.
- 5. I am a director of Haines Gypsum Inc. as Consulting Mining Technologist for the Copper Road Project.
- 6. The information contained in this report are as a result of my visit to the Copper Road Property, Quadra Island, B.C. on June 25-27, 1996.
- THAT, I obtained information from the B.C. Ministry of Mines & Petroleum Resources Reports 1963 to 1976. Summary Report by Robert Adamson, P.Eng. (unpublished, July, 1996). And Minfiles from Geological Survey Branch, B.C. Geological Evaluation Report by H. Wahl, P.Eng. PROSPECTUS, 1983.
- 8. I consent to the use of this report, or as a summary thereof by Haines Gypsum Inc. in a prospectus for financing and for Mine Reviewable Development Certificate Application to the B.C. Government.



## List of References

- MINFILE 092K 060, Geological Survey Branch Mineral Resources Division, Ministry of Energy, Mines and Petroleum Resources, Province of British Columbia.
- 2. B.C. Ministry of Mines and Petroleum Resources Reports, 1963-1975
- 3. Wahl, H. (1982): Copper Road Property, Black Marlin Corporation Prospectus, October 1983.

RUN DATE: 05/30/95 RUN TIME: 15:27:45 GEOLOGICAL SURVEY 6

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	MINISTRY	OF ENERG	Y, MINES AND PETROLEUM	RESOURCES	
MINFILE NUMBER:	<u>092k 060</u>		NATIO	NAL MINERAL INVENT	ORY: 092K3 Cu4
NAME(S):	COPPER ROAD				
NTS MAP: LATITUDE: LONGITUDE:	50 12 26 125 18 32 0457 Metres		Underground	NORTH	ION: Nanaime ONE: 10 ING: 5564000 ING: 335250
COMMODITIES:	Copper Si	lver	Gold		
MINERALS SIGNIFICANT: ASSOCIATED: ALTERATION: ALTERATION TYPE: MINERALIZATION AGE:	Quartz Ca Malachite Oxidation	alcopyrit: icite	e Copper		
DEPOSIT					
DIMENSION:	Hydrothermal Ep Volcanic redbed copper	ear ligenetic tres	C STRIKE/DIP: 1	u-Ag quartz veins 00/80N Ti	REND/PLUNGE:
HOST ROCK DOMINANT HOST ROCK:	Volcanic				
STRATIGRAPHIC AGE	GROUP Vancouver		FORMATION Karmutsen	IGNEOUS/M	ETAMORPHIC/CTHER
LITHOLOGY:	Andesite				
GEDLOGICAL SETTING TECTONIC BELT: TERRANE:			PI	HYSIOGRAPHIC AREA:	Georgia Depression
INVENTORY					
ORE ZONE:	EAST				
COMMENTS: Reference:	CATEGORY: Indicated OUANTITY: 68114 COMMODITY Silver Copper Drill indicated reserv SMF July 24, 1972-Unive	4 Tonnes es.	YEAR: <u>GRADE</u> 13.7000 Grams per 2.4400 Per cent Corp.Ltd.,A.F. Roberts	tonne	
ORE ZONE:	WEST				
	CATEGORY: Indicated QUANTITY: 8321 COMMODITY Silver Copper Drill indicated reserve SMF July 24, 1972-Unive		YEAR: <u>GRADE</u> 13.7000 Grams per 1 4.1000 Per cent Corp. Ltd., A.F. Ropes	פהחס	
CAPSULE GEOLOGY					
	andesitic lavas of the Group. Amygdaloidal an piace hematite and cha <u>A shear up to 9 mu</u> <u>auartz, calcite, borni</u> The shear strikes 100 d	Upper Tri reas conta loopyrite- etres wide te, chalco degrees ar eserves ar ilver and one are 68 per tonne	ain zeolite and epidoto filled amygdules. e and 1400 metres long powrite, native copper to dips 30 degrees nort West zone are \$3,217 4.1 per cent copper. 3,114 tonnes grading 2. silver (Statement of M	tion, Vancouver a, and in one <u>contains</u> <u>and malachite</u> . th. tonnes grading Drill indicated 44 per cent taterial Facts	
BIELIOGRAPHY					
	EMPR MAP 65 (1989) GCNL Dec.7, 1972; #4, 7 EMPR AR 1953-165; 1956- 1965-225; 1966-71; 7	-A4S; 1961	1-91; #1962-95; #1963-9 1968-100		AINFILE NUMBER: <u>092K (</u>

# 5.0 PROPOSED RECLAMATION PROCESS

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As per Ministry of Mines' guideline.

## CERTIFICATION

I, Shao Yeung Jue, of the City of Vancouver, Province of British Columbia, do certify that:

- 1. I am a Management Consultant with my place of business at 2175 West 32nd Avenue, Vancouver, B.C. V6L 2B1.
- 2. I am a graduate of Sir George Williams University, Montreal, with a Bachelor of Engineering (Mechanical), 1973 and a graduate of McGill University, Montreal, with a Master of Business Administration, 1975.
- 3. I am a registered Engineer in good standing of the Ordre des ingénieurs du Quebec.
- 4. I have about 17 years experience in strategic planning, economic and financial evaluations in utilities, and oil and gas industries in Canada.
- 5. I have reviewed and analyzed the economics of Copper Cliffs Property Project.

Dated at Vancouver, B.C. August 22, 1996

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Shao Yeung Jue, Eng. MBA

## List of References

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- 2. B.C. Ministry of Mines and Petroleum Resources Reports, 1963-1975
- 3. Wahl, H. (1982): Copper Road Property, Black Marlin Corporation Prospectus, October 1983.