

COMINCO LTD.

EXPLORATION DIVISION

WESTERN DISTRICT

DIAMOND DRILLING REPORT

On

GROTTO GROUP

Golden Mining Division

Lat.: N:50°34'

Long.: W:116°21'

N.T.S. 82K/9

Report by

G. L. Webber

Cominco Ltd.

Kootenay Exploration

2450 Cranbrook St.

Cranbrook, B. C.

under the supervision of

D. W. HEDDLE, P. ENG.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 5543 MAP

TABLE OF CONTENTS

	<u>Page</u>
GENERAL STATEMENT	1
INTRODUCTION	1
General	1
Location and Access	2
Statement of Expenditures	3
Declaration	4
Statement of Qualifications	5
Attachments	
Diamond Drilling Logs	
#1 Diamond Drill Location Map	
#2 Claim Location Map	

COMINCO LTD.

EXPLORATION DIVISION

WESTERN DISTRICT

GROTTO GROUP

Golden Mining Division

GENERAL STATEMENT

This report describes the results and expenditures relating to diamond drilling and expenditures on the Grotto Group of claims. Diamond drilling was performed during the period from May 1st to June 1st, 1975 and this material was prepared during June 1975. Total expenditures for this diamond drilling program amounted to \$11,056.00.

It is requested that \$10,400 be applied to the Grotto Group of 26 claims for a total of 52 claim years of assessment credits. Affidavits on application for certificate of work and this report was filed with the Mining Recorder at Cranbrook, B. C. on

INTRODUCTION

General

The geological mapping and diamond drilling was undertaken to evaluate the economic potential of the Grotto Group of claims, and to meet Option Commitments to the Owners, Grotto Silver Mines Ltd., Box 97, Invermere, B.C. Diamond drilling was performed by Elgin Exploration Company Limited of Calgary, Alberta, John V. Kinley, Pres. and Gen. Manager.

The diamond drillers were Vergil Grenkie and Jack Grenkie.

The diamond drill used was a Wesdrill 60 equipped to recover B.Q. core and mounted on a Nodwell.

The field program was under the direction of G.L. Webber and the entire program was supervised by D.W. Heddle, Chief Geologist, Cominco Ltd., Western District and registered B.C. Professional Engineer.

Location and Access

The Grotto Group which consists of 26 Optioned claims held by Cominco Ltd. are located on the north side of the Horsethief Creek, and covering part of the south drainage area of Starbird Ridge for approximately 12,000 feet along the creek and to an elevation of 5,500 feet. Lat. N:50°34' Long. W: 116°21'. Access is provided by good gravel road to the south and east boundaries of the claim group, a distance of 18 miles from the town of Invermere.

EXHIBIT "A"

Statement of Expenditures

Grotto Group of Claims

Golden Mining Division

Diamond Drilling - Indirect

Salaries (field)

✓ G.L. Webber (Geologist) 15 days @ \$55.00	\$ 825.00
D.W. Heddle (Chief Geologist) 2 days @ \$125.00	\$ 250.00

Salaries (office)

G.L. Webber report & map preparation 3 days @ \$55.00	\$ 165.00
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✓ Analyses: core sample assays Ag, Pb, Zn - 54 determinations	\$ 86.00
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Transportation - Ford 3/4 ton 4.4	\$ 500.00
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Diamond Drilling - Direct

Elgin Exploration Company Limited

D.D. Hole G75-1 395' @ \$10.00 foot	\$3950.00
D.D. Hole G75-2 115' @ \$10.00 foot	\$1150.00
D.D. Hole G75-3 261' @ \$10.00 foot	\$2610.00
D.D. Hole G75-4 124' @ \$10.00 foot	\$1240.00

Extra time on moves 8 hours @ \$35.00 per hour	\$ 280.00
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\$11,056.00

Total Expenditures

\$11,056.00

Diamond Drilling - Indirect	\$ 1,826.00
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Diamond Drilling - Direct	\$ 9,230.00
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\$11,056.00

Signed G.L. Webber
G.L. Webber

This Exhibit "A" to the Statutory Declaration of
G.L. Webber declared before me this 5TH
day of Aug 1975

W.D. Carley
A Commissioner for taking Affidavits for
British Columbia

COMINCO LTD.

EXPLORATION DIVISION

WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

G. L. Webber has been involved in various types of mineral exploration work for Cominco Ltd. over the last twenty years.

I consider him well qualified to carry out and report on all phases of geological exploration work.

D. W. Heddle

D. W. Heddle
Chief Geologist, Exploration
Western District

June, 1975

IN THE MATTER OF THE

B.C. MINERAL ACT

AND

IN THE MATTER OF A DIAMOND DRILL PROGRAMME

CARRIED OUT ON THE GROTTO GROUP OF MINERAL CLAIMS

Located on Horsethief Creek

in the Golden Mining Division of the

Province of British Columbia


More Particularly N.T.S. 82K/9

A F F I D A V I T

I, G.L. Webber, of the City of Kimberley in the Province of British Columbia, make oath and say:

1. That I am employed as a Geologist by Cominco Ltd. and, as such, have a personal knowledge of the facts to which I hereinafter depose;
2. That annexed hereto and marked as "Exhibit A" to this my Affidavit is a true copy of expenditures incurred on Diamond Drilling on the Mineral Claims Grotto 1 to 25 and No. 30 Fraction.
3. That the said expenditures were incurred between the 1st day of May, 1975 to the 31st day of May, 1975 for the purpose of mineral exploration on the above noted claims.

Sworn Before Me at the Town
of GOLDEN in the
Province of British Columbia, this
5 day of AUGUST, 1975.


A Commissioner for taking Affidavits
in the Province of British Columbia.


G.L. WEBBER

DRILL DATA FOR DIAMOND DRILL HOLES ON THE GROTTO GROUP

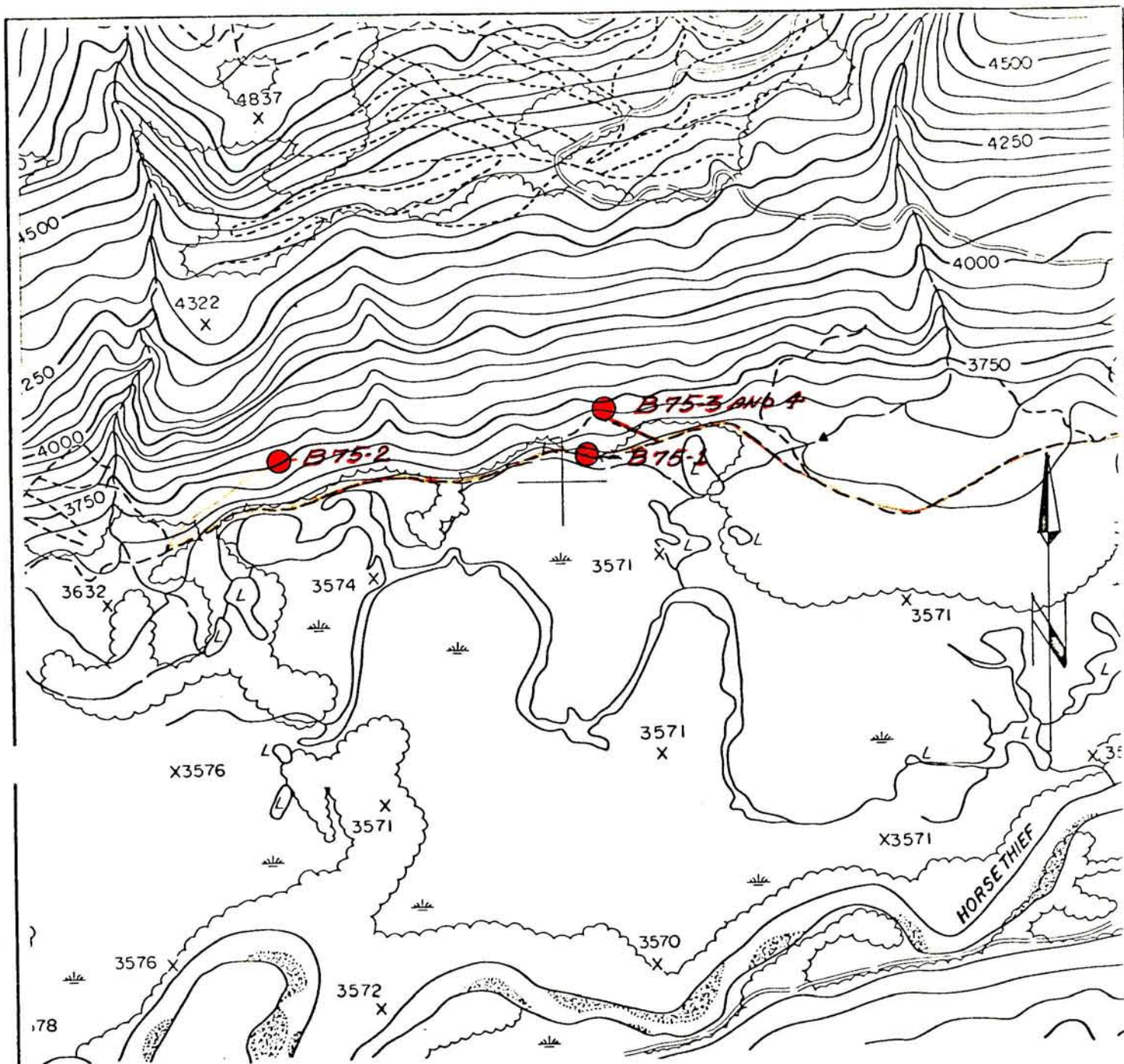
<u>D.D.Hole</u>	<u>Location</u>	<u>Dip</u>	<u>Brng.</u>	<u>Depth</u>	<u>Core Size</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Credit</u>
G75-1	Horsethief Cr.	-45°	320°	395'	B.Q.	\$10.31	4,072	
2	"	-45°	350°	115'	B.Q.	\$10.31	1,185	
3	"	-60°	275°	261'	B.Q.	\$10.31	2,690	
4	"	-60°	298°	124'	B.Q.	\$10.31	1,278	
				Total			8,895'	

All drill cores are stored at Kimberley on the Sullivan Mine Property.

Signed: G. L. Webber
G. L. Webber

Endorsed by: D. W. Heddle
D. W. Heddle, P. Eng.

Approval for Release by: W. T. Irvine
W. T. Irvine, P. Eng.



<u>D. D. HOLE No.</u>	<u>BRNG.</u>	<u>DIP.</u>	<u>DEPTH.</u>
G 75-1	320°	-45°	395'
G 75-2	350°	-45°	115'
G 75-3	275°	-60°	260'
G 75-4	298°	-60°	124'

Department of
 Mines and Petroleum Resources
ASSESSMENT REPORT
 NO. **5543** MAP 1

5543
MAP 1



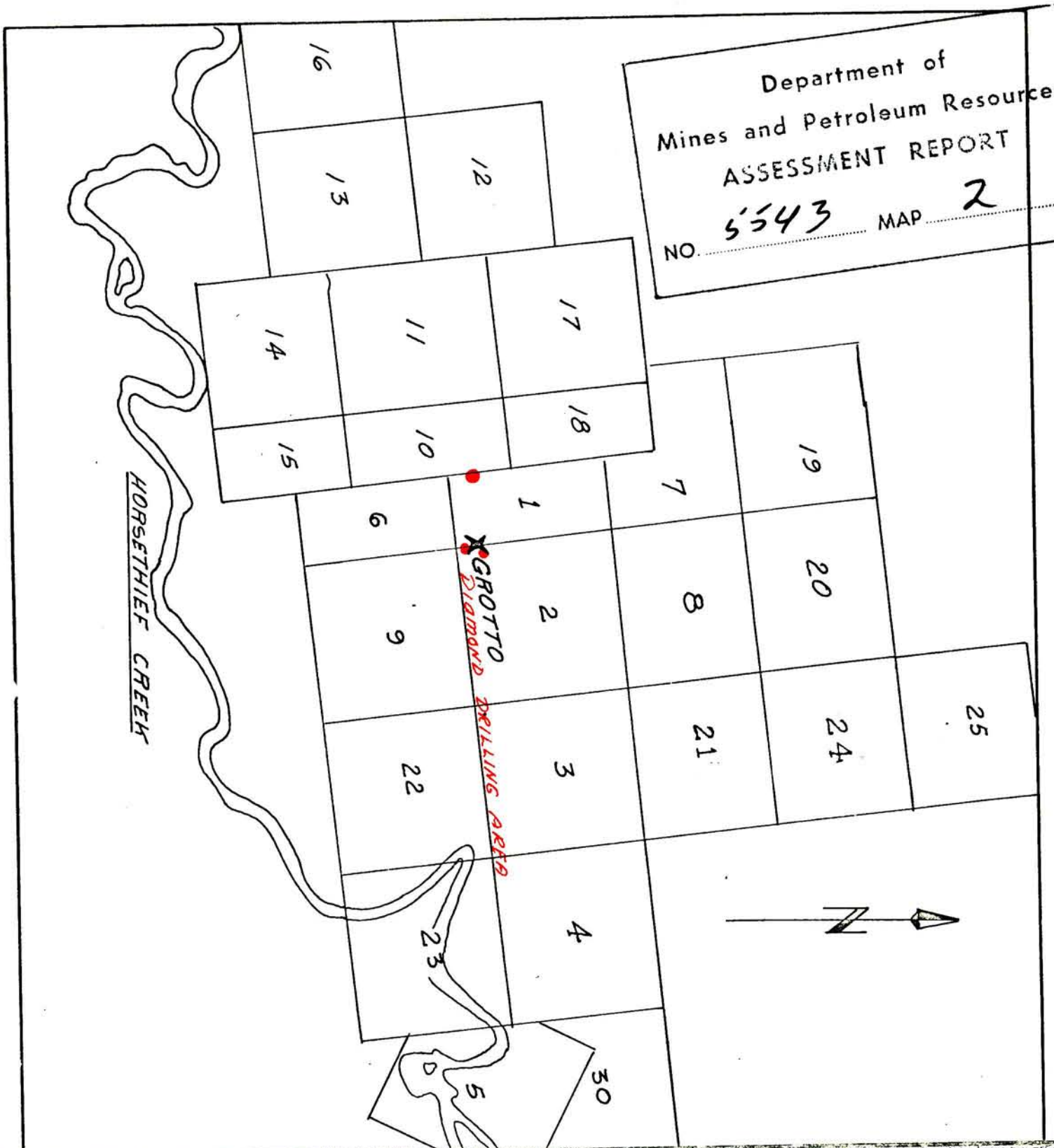
Drawn by: <i>G.L.W.</i>		Traced by:	
Revised by	Date	Revised by	Date

GROTTO GROUP
DIAMOND DRILL HOLE LOCATION MAP

82 K/9

Scale: **1" = 800'** Date: *July 26 /75* Plate:

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. **5543** MAP **2**



5543



Drawn by: CLW	Traced by:
Revised by	Date

GROTTO MAP 2
LOCATION AND CLAIM MAP

82 K/S

Scale: 1" = 2 miles AND 1/4" = 1/2 mile : 1 inch
Date: **May 16 / 74** Plate:

Drill Hole Record



Property	GROTTO	District	Golden M.D.	Hole No.	G75-1
Commenced	May 12	Location	Horsethief Creek	Tests at	Nil
Completed	May 18	Core Size	B. Q.	Corr. Dip	-45°
Co-ordinates		True Brg.	320°	Logged by	G.L. Webber
Objective		% Recov.	95%	Date	June 24, 1975

Claim	T Brg.	Collar Dip	Elev.	Length	Hole No.
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Footage		Description	Sample No.	Length	Analysis					
From	To									
0	10	Overburden								
10	11	Quartz								
11	11.4	Argillite								
11.4	12.4	Greenish Quartzite								
12.4	15	Dolomite								
15	21	Dolomite								
21	32.9	Dolomite								
		Argillaceous. Dolomite) probably overburden								
		Flecks of limonite)								
		Massive mottled white and grey. Core loss from 10-21 feet - 30%.								
		Some pink mottling mixed overburden fragments with core								
		N-7. Massive cryptocrystalline. Badly broken. Some								
		pyrite fractures, some fine crystalline pyrite. At 21 feet								
		fragments of foreign materials including Horsethief								
		conglomerate. Core loss 60%								
32.9		Dolomite								
32.9	50.6	Dolomite								
		Massive. Some interstitial greenish grey mud seams.								
		Styliolitic in part. Styliolites contain fine pyrite,								
		possibly fine galena. At 45 feet 8" of galena in								
		fractures - less than 5% pyrite and 2% lead. 15% core loss.								
		±4" of galena and pyrite in fractures at 44 feet.								
50.6		Dolomite								
50.6	94	Dolomite								
		Cryptocrystalline (N-7). Massive lightly mottled,								
		styliolitic in part. Trace of galena, some pyrite in								
		styliolites and long. fractures. Core has a sandy								
		texture and a very light greenish grey cast.								

Drill Hole Record



Property	District	Hole No.	Claim	T Brg.	Collar Dip	Elev.	Length
Commenced	Location	Tests at	Hor. Comp.				
Completed	Core Size	Corr. Dip	Vert. Comp.				
Co-ordinates		True Brg.	Logged by				
Objective		% Recov.	Date				
Footage From To	Description	Sample No.	Length	Analysis			
94	From 69.8 to 94' core is similar but with numerous tight healed fractures, fewer open fractures, fewer styliolites, less pyrite, no galena or sphalerite observed.						
94 115	Dolomite Massive cryptocrystalline(N-7) (N-6 wet). Interstitial greenish grey argillite. From 96-100, generally mottled from 106-107.4 and around 111 feet. No mineralization.						
115 146	Dolomite Massive cryptocrystalline. Some wispy, some greenish grey fractures healed(5GY61). May contain some remanents of bedding at 121'(45°), no mineralization. Small pits or vugs. Small round 2mm cavities.						
146 156.6	Dolomite N-7. Mottled light brownish grey and pale red (5R62). Interstitial greenish grey argillite, widely scattered styliolites, pyrite filled fractures at 150 feet and in some styliolites.						
156.6 197	Dolomite Massive cryptocrystalline, small open cavities up to 3 mm. Styliolites contain some pyrite and dark grey to greyish black argillite, 6 inches of greyish black argillite at 177 feet. Scattered, healed dolomite fractures. Numerous styliolites with greyish black argillite fillings from 177 to 183 feet. Some tight fractures containing finely crystalline pyrite. At 185 feet ±1/2" open dolspare fracture with several zinc crystals up to 1/4 inch.						

Drill Hole Record



Property	District	Hole No.	
Commenced	Location	Tests at	Hor. Comp.
Completed	Core Size	Corr. Dip	Vert. Comp.
Co-ordinates		True Brg.	Logged by
Objective		% Recov.	Date

Claim	T Brg.	Collar Dip	Elev.	Length	Hole No.	Sheet
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Footage From	To	Description	Sample No.	Length	Analysis
197		Dolomite Massive, cryptocrystalline to fine crystalline (n-7 to N-6). Scattered stylolites with pyrite, average less than .5%. Lightly mottled with white (N-9 to N-8) dolomite. Core badly broken from 226-234.3.			
234.3	273	Dolomite Lightly mottled, massive, similar to above.			
273	274.1	Dolomite Massive (N-7). Cryptocrystalline to crystalline, sandy texture very scattered stylolites with greyish black argillite, only a very few thin pyrite fractures and scattered 2-3 mm cavities and a few greyish red mottled sections.			
274.1	395	Same as above but for one inch olive green mud filled seams at 375.6 mottled and crystallized from 375.6 to 380, 380 to 382 slight colour change to medium grey (N-5) and around 384 to 386 some remnants of wispy bedding with greenish grey argillite, bedding 45°. Only fine pyrite in very fine fractures. One ft. of light brecciations at 388 feet. Few scattered 1-4mm vugs. End of hole			
		NOTE: Upper Jubilee Formation.			
		ALL DRILL CORES ARE STORED ON THE SULLIVAN MINE PROPERTY AT KIMBERLEY, B. C.			

[Handwritten signature]

Drill Hole Record



Property	GROTTO	District	Golden M.D.	Hole No.	G75-2
Commenced	May 19	Location	G75.2	Tests at	Hor. Comp. 81.0'
Completed	May 24	Core Size	B.Q.	Corr. Dip	-45°
Co-ordinates				True Brg.	350°
Objective				% Recov.	
				Date	May 1974

Claim

T Brg.

Collar Dip

Elev.

Length

Hole No. Sheet

Footage		Description	Sample No.	Length	Analysis					
From	To									
0	5	Overburden								
5	32.6	Dolomite Micritic, light grey to medium light grey. (N-7 and N-6) badly broken core. c/L 45%.								
32.6	37	Dolomite Broken ground, mud seams, seams filled with calcium carbonate, less than 1% pyrite, no Pb-Zn observed. Jubilee								
37	46	Dolomite N-6. White dolomite fractures fillings (N-9). Scattered specks of pyrite. Badly broken. 45% core loss. Some iron sulphide. Beaverfoot Brisco McKay Formation.								
46	55	Quartzite Very fine. Massive. Yellowish grey. 5YT 8/1								
55	57.4	Argillite Yellowish grey. Argillite. 5Y 7/2. Concretions of argillaceous. Dolomite pale red purple. 5RP 6/2.								
57.4	64	Argillite Laminated argillite. Colour laminations very light grey N-8 pinkish grey 5Y8I light olive grey. 5Y6I pale red purple, 5RP62 greyish red purple 5RP42. Beds 45°.								
64	75.1	Argillite Light grey N-7. Bedded. Some interformational slumping. Isolated elongated blebs of very fine crystalline pyrite. Less than 1/2 inch by 1/4 inch. Less than 0.5%.								
75.1	101	Argillite Colour change. Light grey to light greenish grey laminated, wispy laminated. Very fine pyrite, following wispy patterns. Dolomite concretions.								

Drill Hole Record



Colour Plot
& Dip

Property	District	Hole No.	
Commenced	Location	Tests at	Hor. Comp.
Completed	Core Size	Corr. Dip	Vert. Comp.
Co-ordinates		True Brg.	Logged by
Objective		% Recov.	Date

Claim	T Brg.	Collar Dip	Elev.	Length	Test No.
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Footage		Description	Sample No.	Length	Analysis					
From	To									
80	101	Bedding becomes contorted last 2 feet plus or minus parallel to the core. Considerable fine pyrite healed dolomite fractures. Pinkish cast to the laminations.								
101	105.5	Dolomite N-7. Some galena and fractured pyrite. Less than 2% Core lost 90%. Probably loss around 105 feet. High pressure water intersected around 5 gallons/sec. Water blown the overshot out. Rods have to be pulled to set the core tube.								
105.5	115	Dolomite Rubble and mud. Recovered. Core loss 90%. Hole stopped because of ground conditions and high pressure water. Considered to be ore zone projected to surface. End of Hole								
		DRILL CORE STORED ON THE SULLIVAN MINE PROPERTY AT KIMBERLEY, B. C.								
		<i>J. L. Sullivan</i>								

Drill Hole Record



Property	GROTTO	District	Golden M.D.	Hole No.	G75-3
Commenced	May 22	Location	No. 3 Grotto	Tests at	Nil
Completed	May 25	Core Size	B.Q.	Corr. Dip	-60°
Co-ordinates		True Brg.	275°	Logged by	G.L. Webber
Objective		% Recov.	Est. 80-85%	Date	June 1975

Claim	T Brg.	Collar Dip	Elev.	Length	Hole No.
					Sheet

Footage		Description	Sample No.	Length	Analysis		
From	To				Ag	Pb	Zn
0.0	15.0	Overburden	14651	17.2 22.0	.07	.08	1.4
15.0	17.5	Dolomite Medium light grey (N-6) cryptocrystalline. Fractures filled with milky white (N-9) secondary dolomite, sparse pyrite and smithsonite in fractures	14652 14653	22.0 31.6 31.6 37.5	.11	.07	.42
17.5	22.0	Dolomite Medium light grey (N-6) Pb, Zn in spary dolomite fractures, stylolitic & in part. Mottled N-7 to N-5 (light grey to medium light grey) lightly (Dolomite breccia) brecciated - matrix, mainly spary dolomite and fine crushed dolomite, fragments are angular. Sparse Pb, Zn and smithsonite	146.54 14655 14656	37.5 51.2 57.0 58.0 65.0	.10	.06	.18
22.0	31.6	Dolomite Some brecciation, fragments are angular and generally not more than 1/2 inch Styolites filled with pyrite and medium dark grey (N-4) filling some scattered sphalerite.	14657 14658	65.0 67.4 67.4 79.5	10	.02	.04
31.6	37.5	Dolomite Massive, stylolitic o - 37' fossiliferous.					
37.7	51.2	Dolomite Medium light grey (N-6) stylotic, with N-9 dolomite, mud, pyrite and sphalerite, numerous milky white harline fractures 41.6 - 44'.	14659 14666	79.7 82.2 82.2 85.2	.60	1.1	6.9
51.2	60.0	Dolomite N-6(brecciated to 56') (56 yo 60) mottled fine partings filled with white dolomite (N-9) brecciation contains fine crystalline pyrite and sparse sphalerite.					
60.0	82.0	Dolomite N-6, brecciated, fine dolspare fractures and partings. Some stylolites and fractures are filled with argillaceous mud (N-4), pyrite and sphalerite - good sphalerite from 80 to 82 feet. Near base of unconformity.					
82.0	103.2	Dolomite Argillite & Conglomerate 82.0-82.6 Argillite - mud, medium dark grey (N-4) scattered dolomite fragments X irregular rounded blebs of pyrite, some sphalerite 82.6-86.0 conglomerate, cryptocrystalline dolomite clasts, pinkish dolomite, sandy fragments, sand					

Scale
Colour Plot
& Dips

Drill Hole Record



Property GROTTO District Golden M.D. Hole No. G75-4
 Commenced May 26 Location Grotto No. 4 Tests at Hor. Comp. 62.5'
 Completed May 27 Core Size B. Q. Corr. Dip -60° Vert. Comp. 107.4
 Co-ordinates True Brg. 298° Logged by G.L. Webber
 Objective % Recov. Date June 1975

Claim
T Brg.
Collar Dip
Elev.
Length
Hole No. Sheet

Footage		Description	Sample No.	Length	Analysis		
From	To				Ag	Pb	Zn
0.0	6.0	Overburden	14667	4.7 25.1	.10	.29	.17
6.0	36.0	Dolomite Breccia, angular fragments, medium light grey (N-6), generally medium grey matrix (N-5) stylonitic in part, white (N-9) dolspare (6'-11'), specks of Pb, Zn, and smithsonite, mainly in stylonites and fractures.	14668	25.1 34.9	.10	.18	.20
			14669	64.6 72.6	.10	.16	.31
			14670	75.0 79.5	.10	.17	.14
36.0	45.6	Dolomite Massive, pseudobreccia, light grey (N-6) to (N-7). Disseminated specks of pyrite, scattered white dolomite filled fractures.	14671	79.5 83.6	.20	.45	.09
			14672	83.6 88.0	.10	.04	.14
45.6	64.0	Dolomite Massive, mottled with brecciated sections. (N-7) (N-6) hairline white dolomite filled fractures and partings, scattered pyrite in fractures.	14673	91.3 98.5	.10	.11	.24
			14674	98.0 104.5	.10	.21	.32
		Brecciated sections - 52.6 to 53.6 and 55 to 56.5.	14675	110.8 118.8	.10	.06	.05
64.0	72.6	Dolomite Cryptocrystalline, massive (N-6) fractures filled with fine crystalline pyrite. Tr. Pb, Zn.					
72.6	78.6	Dolomite Brecciated 72.6 to 75.6 (N-7 to N-6) stylonitic sections 72.6 to 75.6 from 75.6 to 78.6 pyrite filled fractures and some disseminated pyrite isolated specks of Pb, Zn.					
78.6	87.5	Dolomite Cryptocrystalline, stylonitic, pyrite filled fractures, minor disseminated pyrite, some galena and sphalerite in fractures. Galena at 82'. Only scattered dolomite (N-9) filled fractures and partings.					
87.5	95.0	Dolomite Cryptocrystalline, stylonitic, white (N-9) dolspare and dense dolomite filled fractures, numerous healed fractures, gives the rock a pseudo-breccia appearance 87.5 to 91'. Some stylonitic and fractures filled with pyrite from 91 to 97.5'. Trace of galena and sphalerite. Pyrite in fractures and stylonites, massive pyrite with (N-9) dolspare (1" @ 94').					

Colour Plot
& Dips

Drill Hole Record



Property	District	Hole No.	
Commenced	Location	Tests at	Hor. Comp.
Completed	Core Size	Corr. Dip	Vert. Comp.
Co-ordinates		True Brg.	Logged by
Objective		% Recov.	Date

Claim
T Brg.
Collar Dip
Elev.
Length
Hole No.
Sheet

Footage From	To	Description	Sample No.	Length	Analysis
		94 to 95 massive micritic dolomite (N-6).			
95.0	110.6	Dolomite Cryptocrystalline, massive, stylonitic to 104' with pyrite and sphalerite filled fractures, scattered specks of galena. Fossiliferous at 110', probably fossiliferous throughout. Trace of sulphides from 104 to 110.6.			
110.6	124	Dolomite Cryptocrystalline, massive, colour range N-7 to N-6, scattered fine stylonites and fractures with some pyrite, galena, sphalerite. Large fractures contain breccia at 113.6, 115, 118.5 - range 1", 4" and 4". Trace of pyrite from 118 to 124' 1%.			
		NOTE: Beaverfoot Brisco Formation - fossiliferous. No contact intersected.			
		CORE STORED ON THE SULLIVAN MINE PROPERTY AT KIMBERLEY, B. C.			
		<i>J. H. [Signature]</i>			