

820253

HANNA GOLD MINES LTD.  
CASSIAR, BRITISH COLUMBIA  
104-P  
LIARD MINING DIVISION

104/P

R E P O R T

o n

H A N N A   G O L D   M I N E S   L T O .

C A S S I A R ,   B R I T I S H   C O L U M B I A

104-P

b y

W . M . S I R O L A

August 15th, 1961.

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S U M M A R Y

- (1) A total of 20 quartz veins with an average width of 1' - 4' occur on the property. Of these, two veins known as 6 East (formerly Vein No. 1) and 4 East (formerly Vein No. 2) appear to have possibilities.
  
- (2) Vein 6 East gave an average value of 0.66 ozs. of Au. (uncut) over a width of 15". The sampled length (exposed in a 69' adit) was 55'. The total length of this vein to date is 130', but only that portion exposed in the adit carries values.
  
- (3) Approximately 100 tons of vein material were put through a small Gibson Mill by Hanna Gold Mines Ltd. in 1960 and the mint returns from this work amounted to \$6,372.84, or \$63.72 per ton. The actual mining grade, therefore, is considerably higher than the sampled grade if all the tonnage put through the Gibson Mill came from the No. 6 vein and not some other source.
  
- (4) Vein No. 4 East (formerly Vein No. 2) would appear to be the most promising on the property. The existing adit on the vein has a total length of 65' but we were able to find the vein only in the last 30' of the adit. We have excluded the last sample, No. H. 20, from the calculations because it does not appear to represent the full width of the vein (See Sheet No. 3). The remaining 25' of length averaged 0.62 ozs. of Au. (uncut) over a width of 56".

The vein has been exposed at points 109', 130' and 265' East of the adit, but the trench at 265' has caved. At 109' and at 130' no values were found in the vein but the vein varied from 30" to 60" in width.

Vein No. 2 West (See Sheet No. 1) could be a westerly extension of Vein 4 East and this could give the vein a total length of 400'. Since surface sampling does not indicate commercial values it would appear that drifting would be required to determine it's true potential.
  
- (5) The most optimistic picture which can be drawn in the light of present knowledge would be that Vein No. 4 East has a length/



of 400' and an average width of 4', and possibly an average grade of 0.62 ozs. per ton. This would provide 133 tons of ore per vertical foot. Clearly, this tonnage would be of interest only to someone interested in operating the type of plant which has been used previously on the property: This is a five-ton amalgamation unit known as a Gibson Mill. The other alternative would be to undertake a systematic stripping and bulk sampling programme on all of the veins in the hope that in the aggregate they would provide sufficient ore for a 100 ton per day operation, such as is operated by Leitch Gold Mines at Beardmore, Ontario. The veins at Leitch average 1 oz. across a width of 18" and ore is mined at the rate of 100 tons per day.

## INTRODUCTION

A brief study of this property was carried out by the Writer on August 5th - 6th, 1961. All the surface veins were examined, the more important ones were sampled, and two veins on which short adits had been driven were sampled in detail. Diamond drill core was examined but unfortunately all of the vein material had been removed for assay purposes. Mr. W. Craigie Hood Jnr. accompanied the Writer and took duplicate samples of the veins.

Available previous reports on the property have been written by J. M. Black - 1947, A. P. Fawley - 1961, and W. Craigie Hood Jnr. - 1961.

Such aspects of the property as History, Location, Corporate Structure, Capitalization, Topography and Geology, etc. are well covered in the accompanying reports by Fawley and Hood and consequently are not uselessly reported by the Writer. It should, however, be noted that since Hood's Report was written, 250,000 shares of Hanna Gold Mines have been issued to a Mr. Frost of Montreal for an undisclosed sum.

SCHEDULE OF ACCOMPANYING MAPS & REPORTS

Key Map - Hanna Gold Mines Ltd.  
Scale: 1" = 120 miles.

Sheet No. 1 - Plan of veins, locations, assays  
and diamond drill holes.  
Scale: 1" = 100'

Sheet No. 2 - Vein No. 6 East Assay. Plan  
Scale: 1" = 10'

Sheet No. 3 - Vein No. 4 East Assay. Plan  
Scale: 1" = 10'

Report on Hanna Gold Mines Ltd.  
by W. Craigie Hood Jnr.

Report on Hanna Gold Mines Ltd.  
by Alan P. Fawley.

Sampling for Kerr-Addison Gold Mines,  
by William M. Sirola.

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### GENERAL DESCRIPTION OF VEINS

A total of 20 steeply dipping quartz veins have been exposed on the property by trenching. The veins strike East/West, are sub-parallel and vary in width from 3" - 6.5'. The average width would be 12" - 48". They consist of a white quartz containing occasional stringers of friable pyrite, minor arseno pyrite and a very minor amount of tetrahedrite. On the surface exposed the pyrite has been leached, leaving cavities which often contain free gold. Occasionally, visible gold occurs in small fractures adjacent to the pyrite, but none was seen remote from the pyrite. It is quite possible that some visible gold could be found in all the veins.

### SAMPLING PROCEDURE

Vein No. 6 East (formerly No. 1) and Vein No. 4 East (formerly No. 2) have been opened up by adits and consequently were sampled in detail. Other veins exposed in trenches were sampled only where prior sampling had shown some encouragement. In each case a chip sample was taken across the vein. The one exception was the most easterly extension of Vein No. 4 East - here the trench had caved and the sample had to be taken from a pile of rusty quartz. Sheet No. 1 shows the location of all the veins and the samples.

#### VEIN No. 6 EAST (formerly No. 1):

A 69' adit was driven on this vein by Hanna Gold Mines somewhere in the interval September 1960 - January 1961. A small, 5 ton (?) Gibson Mill was installed for treating the ore. The total tonnage put through this plant is unknown, but was probably in the order of 100 tons. Mint returns seen by the Writer amounted to \$6,372.84. If these returns represent only ore that came from the 6 East adit, then the average grade was 1.82 ozs. per ton. Most of the mining, however, was done in an oxidized portion of the vein and results could well be higher than they would be in deeper parts of the vein. The Writer was able to sample a length of 55' of the adit, but was unable to sample the first 14' because it was covered by timber. In the 55' adit sampled, the average width was 15" and the grade was 0.66 ozs. of Au. (uncut - see Sheet No. 2 for details.

It had been previously intimated by both Hood and Fawley that the wall rock adjacent to the vein carried mineable values over total/

widths of 4' - 6'. This was not borne out in the four samples of wall rock taken by the Writer - the average of these four samples was 0.06 across a width of 18".

The vein is exposed by trenching at a point 114' East of the adit and at a point 130' East of the adit. Free gold has been found at both these locations, but a sample cut across 24" at the first location gave 0.02 ozs. and a sample across 32" at the second location gave 0.04 ozs. of Au.

Two conclusions would appear to be possible from this sampling: a) That the vein must be opened up by drifting to provide a proper evaluation, or b) That the distribution of gold within the vein is quite erratic.

It is not known if Vein No. 6 East extends to the East beyond the known limits. This will presumably be determined in the near future by bulldozing.

#### VEIN No. 4 EAST (formerly No. 2):

Vein No. 4 East appears to be by far the most promising on the property to date. This belief arises from the fact that widths of up to 78" were seen, and from the fact that the vein could have a length of 400' and possibly much more. Last, but not least, the average grade obtained by detailed sampling of the adit was 0.62 ozs. (uncut) across 56". Another intriguing feature of the vein is that it contains in places up to 10% fine pyrite. The gold values appear to be proportional to the pyrite content. The detailed sampling results are shown on Sheet No. 3.

Three surface samples, located at 114', 130' and 265' East of the adit, were taken. The first of these gave 0.01 ozs. across 30", the second gave 0.08 ozs. across 60" and the third was a grab sample from a pile of rusty quartz. The trench at this location was caved and the width of the vein could not be determined.

In the case of this vein, as with No. 6 East, one wonders if drifting is essential for a true evaluation of grade.

#### OTHER VEINS:

Of the 18 other veins shown on Black's diagram (Sheet No. 1), only those veins were sampled by the Writer which had given some encouragement in the past.

For the sake of the record, however, all of the known sampling on these other veins is listed herewith.

<u>VEIN NO:</u>	<u>SAMPLED BY:</u>	<u>WIDTH:</u>	<u>OZS. of AU:</u>
2 W.	Black Fowley Sirola	18"	1.04 0.08 0.02
0 W.	Black Fowley	19"	0.40 Tr.
1 W.	Black Fowley Syberg (a Vendor)	18"	0.03 0.14 1.12
5 W.	Hood Sirola	24" 18"	1.12 0.02
2 E.	Black	30"	0.13
0 E.	Black	15"	0.01
3 E.	Black	22"	0.02
7 E.	Black	19"	0.18

It is obvious that occasional free gold does occur in most of the veins, but on the other hand, surface sampling does not indicate that the veins have much merit. They could not safely be written off, however, without a certain amount of test pitting and bulk sampling.

### GOLD/SILVER RATIOS

The amount of silver contained in the veins is very small. The highest value found was 0.3 ozs. occurring with 2.64 ozs. of gold in sample No. H-9. This high ratio of gold/silver could be construed as indicating that gold deposition would persist to depth in these veins.

### ORE RESERVES

If we assign a maximum length of 400' (by assuming that 2 West is the westerly extension of 4 East) and a width of 4' to Vein No. 4 East, the tons per vertical foot would be:

$$\frac{400 \times 4}{12} = 133$$

Vein No. 6 East can only be assigned a total length of 130' and a width of 15". Tons per vertical foot would be:

$$130 \times \frac{15}{12} \times \frac{1}{12} = 14$$

Patently, only a very small operation could be maintained on this vein alone. Consequently it would be necessary to develop numerous other veins to permit say a 100 ton per day operation.

The average grade of the two veins, as determined by chip sampling, is 0.64 ozs. per ton or \$22.40 per ton (gold at \$35.00 per oz.)

Since the terrain slopes to the West, it would be necessary to find westerly extensions of the veins to obtain any amount of mining height by adit development. Otherwise, the property would have to be developed by shaft sinking and cross cutting.

There is a section shown in Hood's Report as Sketch No. 6 which intimates that gold values persist to a vertical depth of 250', but it is not known how this section correlates with the surface plan. Consequently, the drilling data, as shown on this section, are of little value in estimating reserves.



CONCLUSIONS & RECOMMENDATIONS

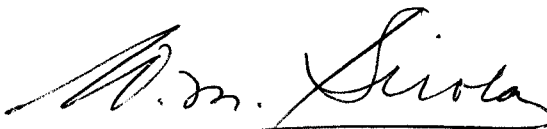
If a situation existed whereby Kerr-Addison could undertake a programme of drifting on Veins 6 East and 4 East, together with a stripping and sampling programme, without the necessity of making a large initial down payment, then a limited amount of this work would be recommended. The main purpose of the work would be to determine:

a) Whether or not a mineable length exists on Veins 6 East and 4 East,

and

b) Whether or not the other veins would respond to bulk sampling in the same manner. Diamond drilling would probably not be very helpful because of the erratic nature of the values.

Further work or study is recommended only if any funds expended could go directly into the ground, and if the nature of the programme could be decided by Kerr-Addison. It is felt that the average grade of the veins would have to approach 1 oz. per ton in order to be mineable. Mr. Hood has intimated that Hanna Gold Mines has sufficient funds to carry on indefinitely and it is therefore unlikely that they would accept such a proposal. Due allowance would, of course, have to be made for the fact that sufficient mining equipment has been purchased by Hanna Gold Mines to carry out the type of development we would envision.

  
WILLIAM. M. SIROLA.

## HANNA GOLD MINES

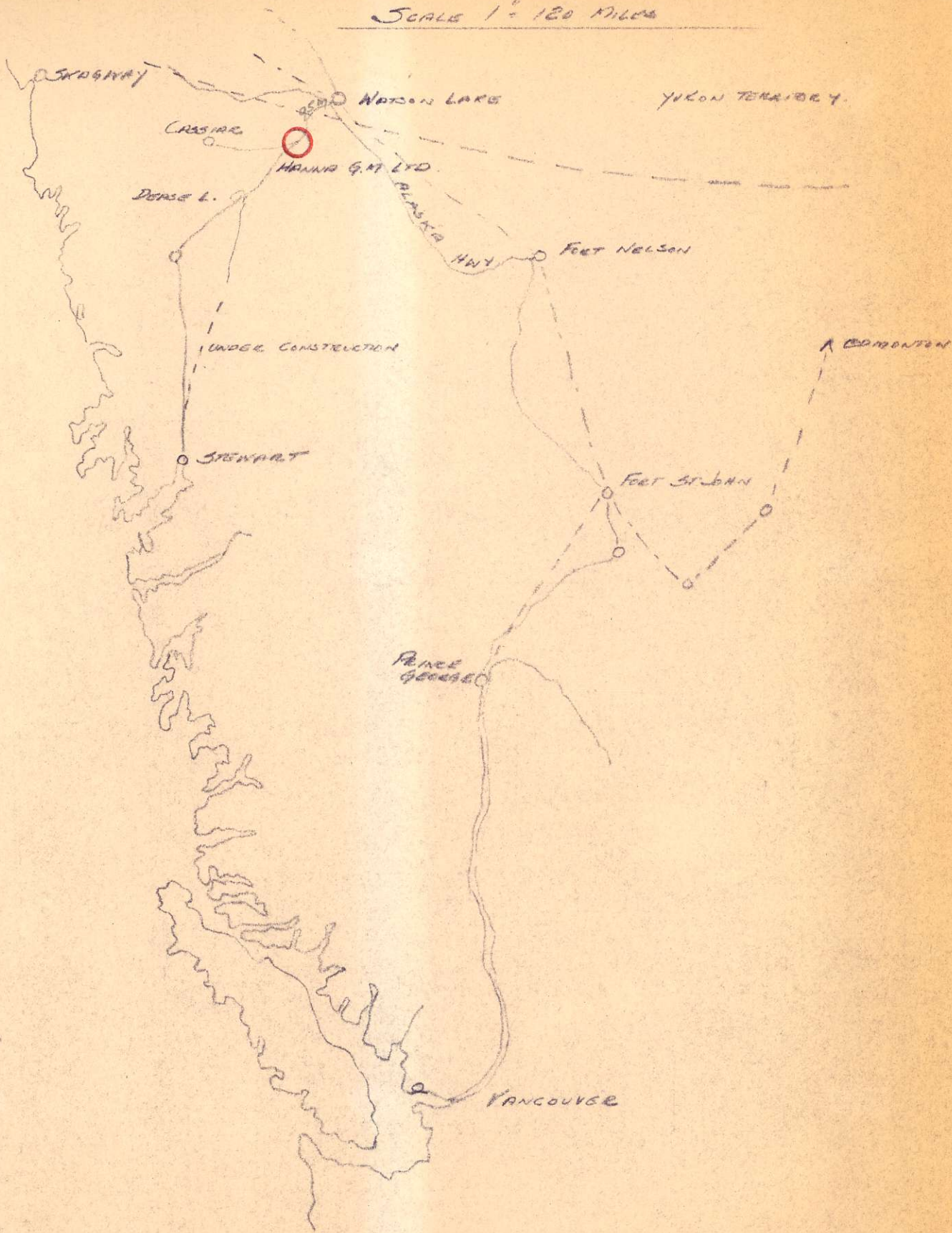
## SAMPLING FOR KERR-ADDISON GOLD MINES BY W. M. SIROLA

August 5/61

<u>NO.</u>	<u>WIDTH:</u>	<u>OZS. AU.</u>	<u>OZS. AG.</u>	<u>LOCATION</u>	<u>REMARKS</u>
H-1	18"	0.02	Tr.	Vein 5-W - Surface	Chip Sampling - no Sulphides
H-2	16"	0.68	0.1	6E-Face-69'-H.W. Side	Qtz. Vein - Pyritic
H-3	18"	0.04	Tr.	6E-Face-69'-F.W. Rock	Andesite - Pyritic
H-4	18"	0.16	Tr.	6E-60' - Back & Floor	Qtz. Vein - Pyritic
H-5	18"	0.02	Tr.	6E-60' - F.W. Rock	Andesite - Minor Pyrite
H-6	10"	0.15	Tr.	6E-55' - Back	Qtz. Vein - Minor Pyrite
H-7	15"	0.65	0.1	6E-40' - Floor	Qtz. Vein - Pyritic
H-8	18"	0.09	Tr.	6E-40' - Floor	F.W. Rock
H-9	11"	2.64	0.3	6E-30' - Floor	Qtz. Vein - Pyritic
H-10	16"	0.12	0.1	6E-30' - Floor	H.W. Rock - Minor Qtz. & Sulph.
H-11	16"	0.57	0.1	4E Adit Face - 59' H.W. Vein	Qtz. Vein - Pyritic
H-12	18"	0.19	Tr.	4E Adit Face - 59' C.L. Face	Andesite-Pyritic-Minor Qtz.
H-13	36"	2.44	0.3	4E Adit Face - 59' F.W. Vein	Pyritic, Rusty, Shattered Qtz.
H-14	78"	0.67	0.1	4E-54' - Floor Qtz. Vein	5-1" Bands of Fine Pyrite
H-15	36"	0.22	0.1	4E-49'-Floor-H.W.	Qtz. Vein - Pyritic
H-16	36"	1.12	0.2	4E-49'-Floor-F.W.	Qtz. Vein - Pyritic
H-17	53"	0.14	Tr.	4E-44'-Floor-Split Vein	41" Pyr. Qtz. & 12" Andesite
H-18	26"	0.03	0.1	4E-39' - Floor	Qtz. Vein - Pyritic
H-19	40"	0.06	0.1	4E-34' - Floor	Qtz. Vein
H-20	8"	0.08	Tr.	4E-29' - Floor	Qtz. Vein
H-21	30"	0.01	Tr.	4E-109'E. of Portal-Surface	Rusty Qtz. - No Sulph.
H-22	24"	0.02	Tr.	6E-114'E. of Portal-Surface	Rusty Qtz.
H-23	32"	0.04	0.1	6E-131'E. of Portal-Surface	Rusty Qtz. Pyritic Box-Work.
H-24	10"	0.98	0.1	6E-Adit-24' From Portal-Floor	Vuggy Qtz. Vein
H-25	17"	0.33	0.1	6E-Adit 15' From Portal-Floor	Rusty Qtz.
H-26	20"	0.02	Tr.	Vein 2W.-Surface	Rusty Qtz.
H-27	60"	0.08	Tr.	Vein 4E-130' From Portal-Surface	Qtz. Vein - Slightly Vuggy
H-28	Grab	0.02	Tr.	Vein 4E (?) 265' From Portal	Representative Sample From pile of Hard to Vuggy Qtz. Trench caved.

KEY MAP

SCALE 1" = 120 MILES





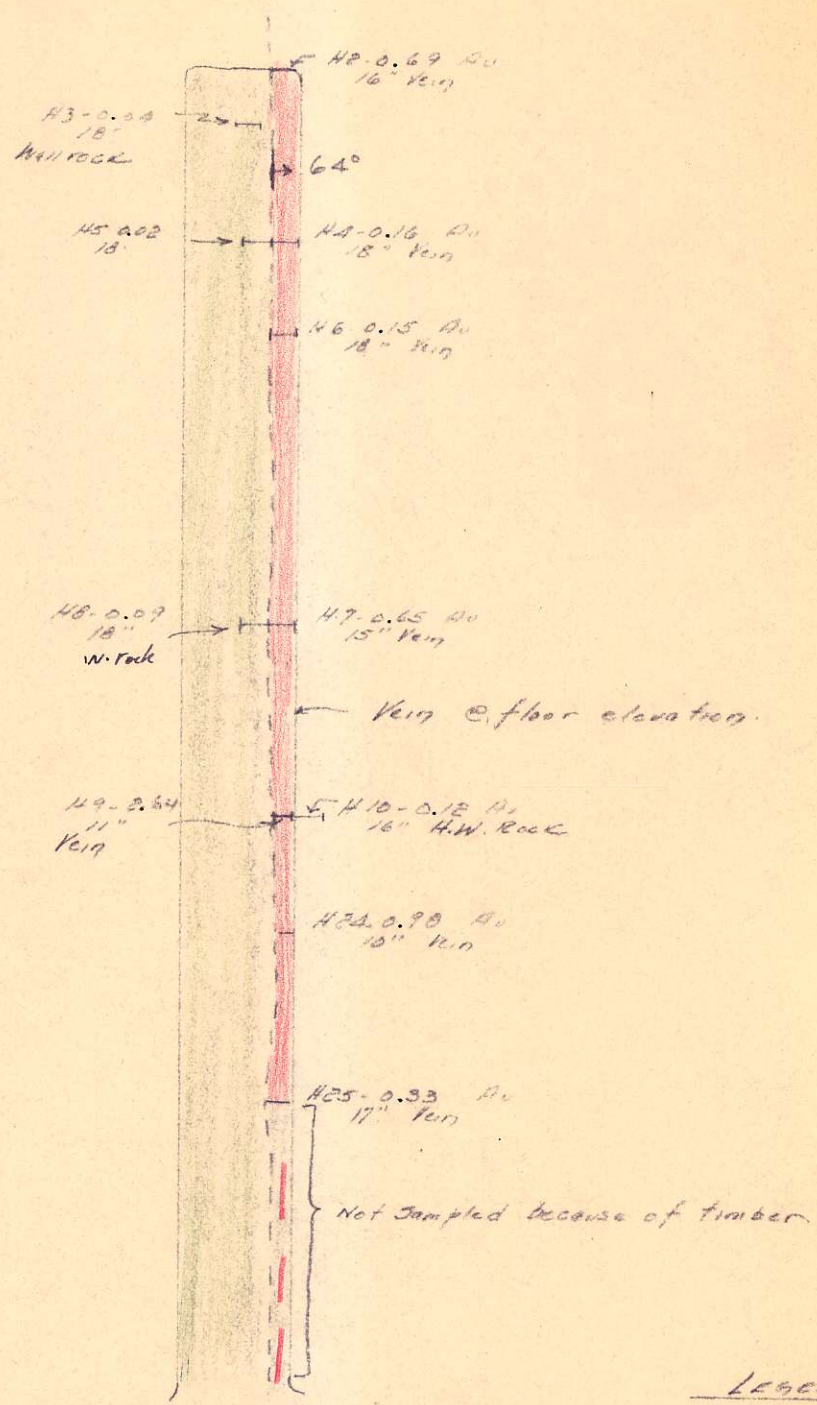




HANNA GOLD MINES LTD

VEIN 6E (Benchley Vein No. 1)

SCALE 1" = 10'



Sampled length = 55'  
 Width = 15"  
 Grade = 0.66 Au. (Uncut), 0.52 ozs (cut)  
 At grade of Wall rock = 0.07 Au

- LEGEND
- H - chip Sample
  - Red line - Qtz. Vein
  - Green line - andesite

AUG. 11, 1961

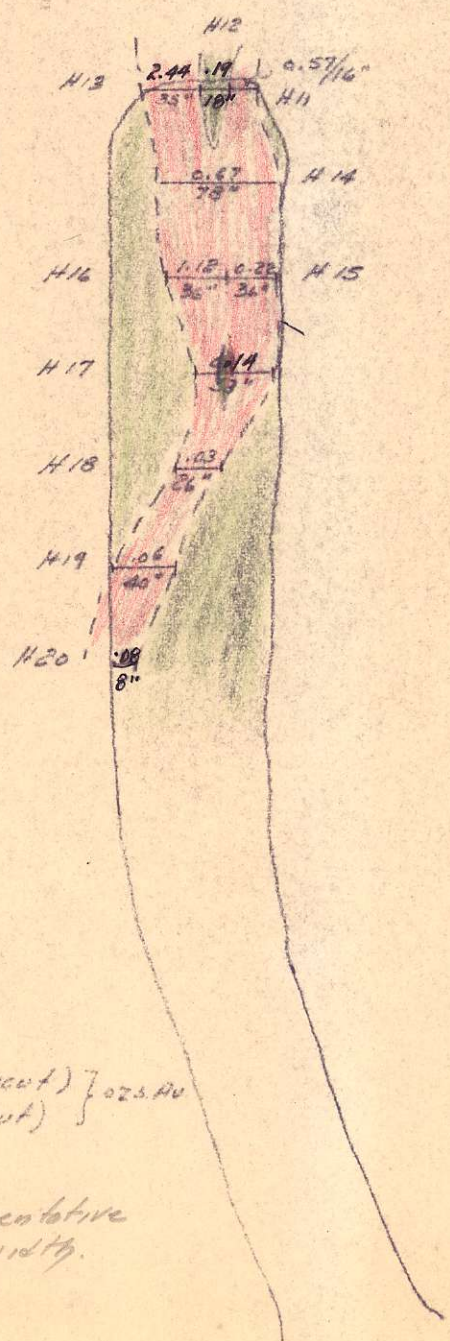
M. M. Serda



HANNA GOLD MINES LTD.

VEIN 48 (formerly No. 2)

Scale 1" = 10'



- Legend
- H - Chip Sample
  - [Red Box] Qtz. vein
  - [Green Box] andesite

Sample length - 30'  
 width - 56"  
 \* grade = 0.68 (uncut) } ozs. Au  
           0.50 (cut) }

\* H-20 excluded - not representative of true width.

Aug 11, 1961  
 W. M. Swola



Kenn Addison

HANNA GOLD MINES LIMITED

9.5.61.

Forward:

The following is a short resume of Hanna Gold Mines Limited proposed future development plans with descriptive notes as to location, transportation, etc. Included in this brief are references to various reports and publications which are in the author's possession and can be examined at any time. It is to be understood that this is a confidential report and is to be handled as such.

Benroy Gold Mines, the original owner who did the diamond drilling on the property, spent over \$100,000 in bringing the property to its present stage of development.

\*  
The drill logs are not available at this time, but representation is being made to Mr. Ben. O. Ericson of Seattle, one of the directors of Benroy, to see if these are still in existence and, if so, can be obtained.

Hanna Gold Mines now has the option to purchase the claims surrounding its property.

\* Hood States Benroy asking \$10,000 plus Fee logs. W3/



OFFICERS AND DIRECTORS

HANNA GOLD MINES LIMITED

(No Personal Liability)

President (Provisional)

Dr. James A. Hanna  
Businessman - Mining and Development  
Supervisor,  
Whitehorse, Yukon Territory.

Managing Director

Craigie Hood Jr.  
Geologist - Mining Operator  
Cassiar, B.C.

Director

James Couture  
Prospector - Commercial Pilot  
Vancouver, B.C.

Director

John R. Lakes,  
Barrister & Solicitor  
Escrow Agent, Hanna Gold  
Mines,  
Vancouver, B.C.

Secretary - Treasurer

T. W. Connell  
Accountant & Business Manager,  
F.I.A.C.  
Vancouver, B.C.

Head Office (Provisional)

Suite 401,  
470 Granville Street,  
Rogers Building,  
Vancouver 2, B.C.

Field Office

Hanna Gold Mines Limited,  
Cassiar Post Office,  
Cassiar, B.C.

HANNA GOLD MINES LIMITED (PRIVATE)

No Personal Liability.

Incorporated as a mining company under the British Columbia Companies Act.

Capitalization.

Authorized Capital (.50 par value) .....	3,000,000	shares
Incorporators Shares Issued for Cash.....	2	"
Free Shares Issued for Properties, Equipment and Cash.....	180,000	"
Escrowed Shares Issued for Properties, Equipment and Cash.....	500,000	"
Shares Held on Option to Buy.....	270,000	"
Shares in the Treasury.....	2,049,998	"

*250,000 to Foot*

*Hood, Hannah & Kurvan 60,000 each. (180,000)*

*500,000 { 250,000 - Copeland Contine - reserved  
250,000 - 150,000 Kurvan, 50,000 Hannah (reserved)  
50,000 Hood ( " )*

*Hannah Hood has option on Kurvan 60,000 + 150,000 = 210,000*

*270,000 option { 250,000 - Copeland Contine have this option for 3 years.  
20,000 - James R. Rutherford - one year.*

*Options - Kurvan - 400,000 of which 180,000 issued.  
- Copeland etc 250,000.  
Rutherford 20,000  
670,000 Shares.*

*Total Stock Issued = 670,000.  
500,000.  
250,000.*

*Remaining in treasury = 1,580,000 Shares.*

HANNA GOLD MINES LIMITED

Description and Location of Property: (See Sketches Nos 1, 2, & 3)

Hanna Gold Mines Limited property is situated at approximately  $59^{\circ} 17'$  Lat.  $129^{\circ} 40'$  Long.

It consists of ten mineral claims; six Copco claims - Copco 1 - 6, Record No. 8213-8218, and four Cote claims - Cote 1 - 4, Record No. 8294-8297.

These claims lie  $5\frac{1}{2}$  miles east of Cassiar Asbestos mine, McDame area, Liard Mining Division, B.C.

The two most southerly claims, Copco 3 and 4, are cut by the Cassiar - Watson Lake all weather highway.

The property is bounded to the east by Quartz Rock Creek which flows into Troutline Creek just below the southern most boundary of the claims.

The townsite of Cassiar has a branch of the Royal Bank of Canada, a general store, and a post office, and is only a short fifteen minute drive from the Hanna property.

Watson Lake, Yukon Territory, which lies ninety five road miles north of the property, is a main C.P.A. terminal with daily flights both North to Whitehorse, and South to Vancouver and Edmonton.

Accessibility: (See Sketch No. 1)

The property is best reached by C.P.A. flights from Vancouver and Edmonton to Watson Lake, Yukon Territory, and thence by car 95 miles on the Watson Lake - Cassiar all weather highway.

Float or wheel charter aircraft are available in Watson Lake for a one hour flight to the mine. There is a summer airstrip for wheeled aircraft at Cassiar and Vines Lake serves as the float plane base. Both the strip and the lake are serviced by good all weather roads.

Topography: (See Sketches Nos. 3, 4, 5 & 2.)

The topography of the property is a rolling slope in a sheltered basin. Elevation of the main gold bearing veins is about 3,750 feet. To the north east of the property, Mt. Robertson rises to a height of 6,000 feet. To the south west lies the basin of the confluence of Quartzrock and Troutline Creeks. The valley of Snowy Creek lies to the east and the valley of Quartzrock Creek to the west.

Troutline Creek, one and one half miles to the West, is capable of supplying approximately one thousand horse power of hydro-electric potential. (1947 Benroy brochure). Good timber of spruce, pine and balsam for most mining purposes is available on the property.

Equipment:

Hanna Gold Mines has on the property at present the following equipment:

- (a) One log cabin 12' x 24' with bunks for five persons, and one 10' x 8' powder magazine, and one 8' x 7' oil and gasoline shed.
- (b) A three ton <sup>(now dismantled)</sup> pilot mill, air leg and jack hammer, compressor, pumps, one army four wheel drive, three ton truck and other mining and construction tools.

Most of this equipment is in poor repair and will be disposed of in the near future. *In July the Company purchased complete mining equipment & bunkhouses for a 20 man operation. One 34 ton 1954 4W.D. International*

Geology: *Truck was included in this equipment. A complete inventory is now being completed.*

The general geologic horizon in which the auriferous veins occur is classified under the general term "greenstones". These greenstones are mainly altered green grey andesites. These andesites contain a few cherty and argillaceous interbeds. "The bedding cannot be seen in the surface exposures probably because of the development of a rude schistosity which strikes north-westerly and which dips eastward at moderate angles." (B.C. Minister of Mines Report 1947; Page A70; Benroy Gold Mines Limited, para. 3; by J.M. Black).

In addition to the predominant andesite formation there appears to be a minor quartzite horizon.

A greenish-brown diorite dike, up to 15' wide, with coarse feldspar crystals at the centre and striking in an easterly direction almost parallel to the veins, intrudes the greenstone formation in the area of the largest concentration of quartz veins. See Sketch No. 5.

Although the structural picture is not yet complete, extensive shearing in a N.N. Westerly direction has been observed by the author. This shearing may have provided the structural control for the deposition of the free gold and gold bearing sulphides in the quartz veins and andesite host rock.

Numerous gold bearing quartz veins striking from N 60° E (T) to due east (T) and dipping steeply to the S.E. and South, cut the greenstones in what appears to be an echelon fashion. Fifteen such veins up to four feet wide are reported on the property. Assays on some of these veins run as high as 2.12 ozs. (1947 B.C. Annual Report). See Sketch No. 5 for location.

The previous owners, Messrs. Copeland and Couture, carried out their high grade mining operation on the 18" vein (vein No. 1, Sketch No. 5). The accompanying assay sheet (No. 1) is self explanatory. All the samples on this sheet with the exception of No. 1, which was taken from the four foot vein, (vein No. 2, Sketch No. 5) thirty feet to the south, were taken in and around the above mentioned 18" vein (Vein No. 1). Assays from the four foot vein (vein No. 2) run 0.44 oz. Au and 0.20 oz. Au.

Frequent visible free gold is found closely associated with pyrite and tetrahedrite in the quartz veins. The veins generally consist of white and rusty quartz with minor amounts of blue quartz. Pyrite and tetrahedrite are found both in the veins and in the surrounding wallrock. Sulphide mineralization was found to occur in the altered 30' andesite zone between veins Nos. 1 and 2 (Sketch No. 5). The veins are marked by fracturing with much of the sulphide leached out in the surface exposures and in the zone of oxidation. This leaching has left the quartz with a vuggy appearance and it is in these cavities that much of the free gold is to be seen.

Shearing is evident in the wall rock around veins No. 1 and No. 2, strikes S 80° E and dips nearly vertically. The observed veins (Nos. 1 and 2) are strong and



persistent, vein No. 1 assayed mineable gold values as evidenced by the immediately previous mining operation.

Previous Development:

Between the months of September 1960 and January 1961, Hanna Gold Mines Ltd. was operated as a small high grade proposition.

During this period an adit was driven into the side of the hill, following the above mentioned No. 1 vein. Total distance from portal to face was 65' with an average height and width of 10' and 3' respectively. (See Sketch No. 7).

Calculations, derived from the tonnage removed and the mint returns, reveal a \$6,372.84 return on 177<sup>(?)</sup> tons of ore mined. This is equivalent to \$35.89 per ton, when quartz is taken at 11 cu.ft./ton. This tonnage provides an excellent bulk sample.

Only the vein material was removed and run through the mill. The wall rock was dumped as waste. This waste dump material runs 0.75 ozs. gold. With the footwall channel sample across 3' running 0.76 ozs. Au. and the hanging wall channel samples across 3' running 1.34 ozs. Au., (see assay sheet No. 1) this indicates that the auriferous wall rock is economically mineable for at least 3' on either side of the vein. Total mineable width in this one vein alone therefore is 7 plus feet. ???

It should be stated here that gold bearing quartz veins are usually erratic, irregular and variable, and it is only with continual channel sampling, bulk sampling and detailed sampling at various stages in the milling operation that an accurate picture of the overall gold values of the property can be determined.

All the work performed by the present owners has been concentrated on and around the two northerly veins, veins Nos. 1 and 2 (see Sketch No. 5). This work has consisted of detailed sampling and stripping with D-8 and TD-14 bulldozers. The other veins shown on the map with the accompanying values were examined and plotted by previous investigators, notably J.M. Black of the B.C. Geological survey and Alex. Smith, formerly of Rideway R. Wilson and Associates, Mining Engineers.

The diamond drilling was done by the Benroy people and all the information available at this time is shown on Sketches Nos. 4 and 6. The Benroy Brochure, January 1947, reports 5000' of diamond drilling accomplished in 1946 with fourteen holes drilled to a maximum inclined depth of 525 feet. They suggest that the three northern most veins may converge at depth. From observed surface indications, there may be some merit to this hypothesis. Black reports that because of fracturing in and near the veins, core-recovery of the vein materials was low and that much of the sludge was not recovered. This sketchy information is of little, if any, value. The drill logs, if obtainable, would be an invaluable guide to any contemplated future drilling programme.

History:

McDame Creek, the locale of Hanna Gold Mines Limited, was the scene of the 1847 gold rush. This immediate area is officially credited with an estimated placer gold yield of \$4,886,069.00 with gold valued at \$18.00 an ounce. These figures are in all probability quite low as a large portion of the gold recovered never found its way to the official government calculations as coming from McDame. Wages were paid with it, balances with the trader were settled with it, and during those days it was squandered over the bar.

The biggest nugget ever found in British Columbia was taken from McDame Creek in 1877. It was valued at \$1,300.00.

The Klondyke rush in '98 literally halted placer operation in the McDame area until today. Larger placer mining companies are moving into the area this summer. One such company now has one D-9 on its property with plans to bring in two more, plus monitors, drag line and other placer mining equipment. Hanna Gold Mines Limited will be watching this operation with interest.

The property now held by Hanna Gold Mines Limited was first staked in 1934 by Mr. John C. Simpson - now deceased. The claims were originally known as the Cornucopia Group and were staked, after an extensive lifetime examination of the entire



area, in the belief that lode gold or the "mother lode", as it is more popularly known, of the placer gold recovered from McDame Creek lay within his claim boundaries.

Lode gold mining on any great scale has never been carried out in the area and it would appear to be spectacularly productive with present day mining and recovery methods.

Simpson's reasons for staking this ground were backed up by published optimistic opinions of such men as Dr. George M. Dawson; (1887) Geologic Survey of Canada. "Quartz (Lode) Mining will ere long be inaugerated and will afford a more permanent basis of prosperity than alluvial (placer) mining, however rich."; and A St. Clair Brindle (1936) "Without going into detail of geological data (McDame Creek Area), I can only repeat that it is one of the best I know and I am of the opinion myself that some day that area will be a great producer.

Both Dawson's and Brindle's optimistic regard for the area have proved accurate as shown by the Cassiar Asbestos deposit. The entire eastern marginal phases of the Cassiar Asbestos batholith, which includes Hanna Gold Mines, Cassiar Asbestos, Comincos' copper group of claims, the Cottonwood River lead zinc silver deposits (now under sale negotiations) and the Fort Reliance Molybdenum deposits, is obviously extensively mineralized. (See Sketch No. 3). The intensity of the tremendous alteration processes in these phases has created excellent conditions for the deposition of commercial ore deposits.

Between 1935 and 1944 Mr. Simpson spent approximately \$12,000 developing his claims. This development included stripping, trenching, sampling and the construction of a cabin. This information proved so promising that Benroy Gold Mines optioned the property from him. The new owners diamond drilled the property in 1946 (see Sketch No. 6) spending upwards of \$71,000. They then suspended operations but kept up the assessment payments pending the developments at Cassiar Asbestos. They were apparently awaiting the construction of the Watson Lake - Cassiar Highway in order to cut their own development costs. They were also attempting to retrench financially.

In April 1959 they were one day late in filing their payment in lieu of actual assessment work on their property. The claims fell open and Messrs. Couture and Copeland immediately staked the ground. After violent protests from Benroy, the Minister of Mines awarded full rights to the property to Copeland and Couture. These two prospectors started their small high grade mining operation (see paragraph on Development) in the summer of 1960 and continued until February 1961 when R.R. Kirwan opened negotiations for the purchase of the claims. In May 1961 Kirwan transferred all rights and titles to Hanna Gold Mines Limited and the first meeting of the board of directors was held.

Future Development:

The following is a breakdown of the proposed future plan of operations in chronological order with estimated costs for the year ending December 31, 1961.

Immediate: July - August, 1961.

1. (a) Detailed plane table geologic survey of entire property with emphasis on the area of the greatest concentration of quartz veins. Time - on to two months - July - August, 1961. *Now underway.* Cost \$2,500.00
- (b) Proper channel sampling and assaying of all veins and detailed sampling at 5' intervals of Au. bearing veins. Sampling and assay of host rock where indicated by sulphide mineralization. Bulk sampling where indicated. July - August, 1961. *Having completion assay results included in next report. Mostly extremely promising.* \$4,500.00
2. In conjunction with the geologic and sampling survey a properly planned and executed stripping operation under the supervision of the resident geologist - This stripping to uncover the surface length and width of the auriferous quartz veins. Time two months - July - August, 1961. *Now underway with one TD 24 & one D-8.* \$3,200.00
3. Survey of claims by British Columbia Land Survey. To be completed at earliest possible date. *Awaiting surveyors arrival.* \$2,500.00

4. Construction of office and living quarters for the geologist in charge of operations. Permanent building located so as to serve for

future assay office. Fully equipped - \$6,500.00

*Seven buildings bought outright including, refrigeration unit, two bunkhouses, one warehouse, one office living quarters, one kitchen & one dining room. A root house has since been constructed.*

Total \$ 19,200.00

1. Maintaining Vancouver Office, Legal fees, transportation

and expenses - wages and salaries for 8 months. \$25,000.00

2. Field Office - Hanna Gold Mines Limited for 8 months.

Operating expenses, vehicles and salaries. \$18,900.00

Total \$ 43,900.00

Future:

1. Consulting mining engineer to lay out full and detailed plans of (a) mining operation (pending the results of (1 & 2), (b) size, site, type and construction of mill, (c) mine dry and offices, (d) site and layout of townsite :-: all pending the results of 1, 2 and 3.

To take over once shaft sinking is recommended as General Superintendent. Salary for 8 months. \$8,000.00

2. (a) Pending the results of (1 and 2) diamond drilling programme if advisable. Approx. 10,000 ft. at \$7.00 per foot.

Geologist salary and assay costs. \$76,000.00

(b) If diamond drilling is not recommended and shaft and exploration cross cuts and drifts more advisable pending

(1 and 2). Initial costs. \$76,000.00

either (a) or (b)

3. Purchase and renovation of a new pilot mill. Not the one now on the property. Operating and maintenance expense of mill for 8 months at \$500.00 per month. \$4,500.00

4. Purchase of surrounding claims. Option on claims to be taken as soon as possible.	\$25,000.00
5. Second payment, option agreement due December 15, 1961.	\$ 4,500.00
6. Repair, maintenance and snow removal of Mine Road for year ending December 31, 1961.	\$ 2,500.00
Total	\$ 125,000.00
Grand Total	\$ 188,100.00

Summary and Conclusions:

From the foregoing resume all indications point to a very promising future gold producer. There is no question that Hanna Gold Mines Limited has at the very least a good high grade proposition and from the minimal calculation at least 24,500 tons running greater than 1 oz. gold per ton. Valued at \$34.00 a ton, this would give a gross return of \$883,000. (See mint returns). This tonnage would be solely derived from vein No. 1. Results to date, however, indicate far greater tonnage at somewhat lower grades, but still offering a most lucrative proposition. From vein No. 1 and No. 2 alone, the above tonnage is over ten times greater. As sulphide mineralization has been observed in the 30' section of andesite host rock between these two veins, it is conceivable that this zone may be economically extractable.

It is also of significance that only scant information is available on the other 13 quartz veins in the area. Reported assays running over 2 Ozs. gold in some cases, would indicate a highly detailed examination is warranted.

The size of the eventual mining operation will depend on what the immediate geologic and sampling survey reveal. Pending those results, if favorable, the author would suggest an exploratory shaft with accompanying drifting and cross cutting. (See Sketch No. 6). Detailed, efficient and extensive sampling is essential in all phases of this development work. The results from the previous diamond drilling are

inconclusive due to factors outlined in the body of this report and, a future drilling programme would best be conducted underground below the zone of oxidation. The author feels that further surface diamond drilling could conceivably prove inconclusive and would represent considerable cash outlay for indeterminate results at best.

With the values returned to date on the actual mining operation, it would appear that even with mining costs running as high as \$20.00/ton, this property can be operated with an excellent return to the investor.

An important factor which cannot be stressed too highly is the easy access to the property. Hanna Gold Mines Limited is in a most favorable location for supplies and equipment. Road construction, and maintenance costs are practically negligible. The main telephone line runs parallel to the highway both of which cut the southern section of the claims.

The extensive mineralization throughout the eastern fringes of the Cassiar batholith which includes such a wide variety of economic minerals is another indication of the very favorable promise of Hanna Gold Mines Limited.

The author feels that Hanna Gold Mines Limited has a very promising property which warrants extensive future development.

Respectfully submitted,



Craigie Hood Jr.,  
Managing Director.



COPY

J. R. WILLIAMS & SON LIMITED

Mutual 5-5821

Provincial Assayers

580 Nelson Street

Vancouver 2, B.C.

April 10th, 1961

Assay Sheet No. 1

Results of Assay made on samples of ore submitted by: Messrs. Cooper & Hood.

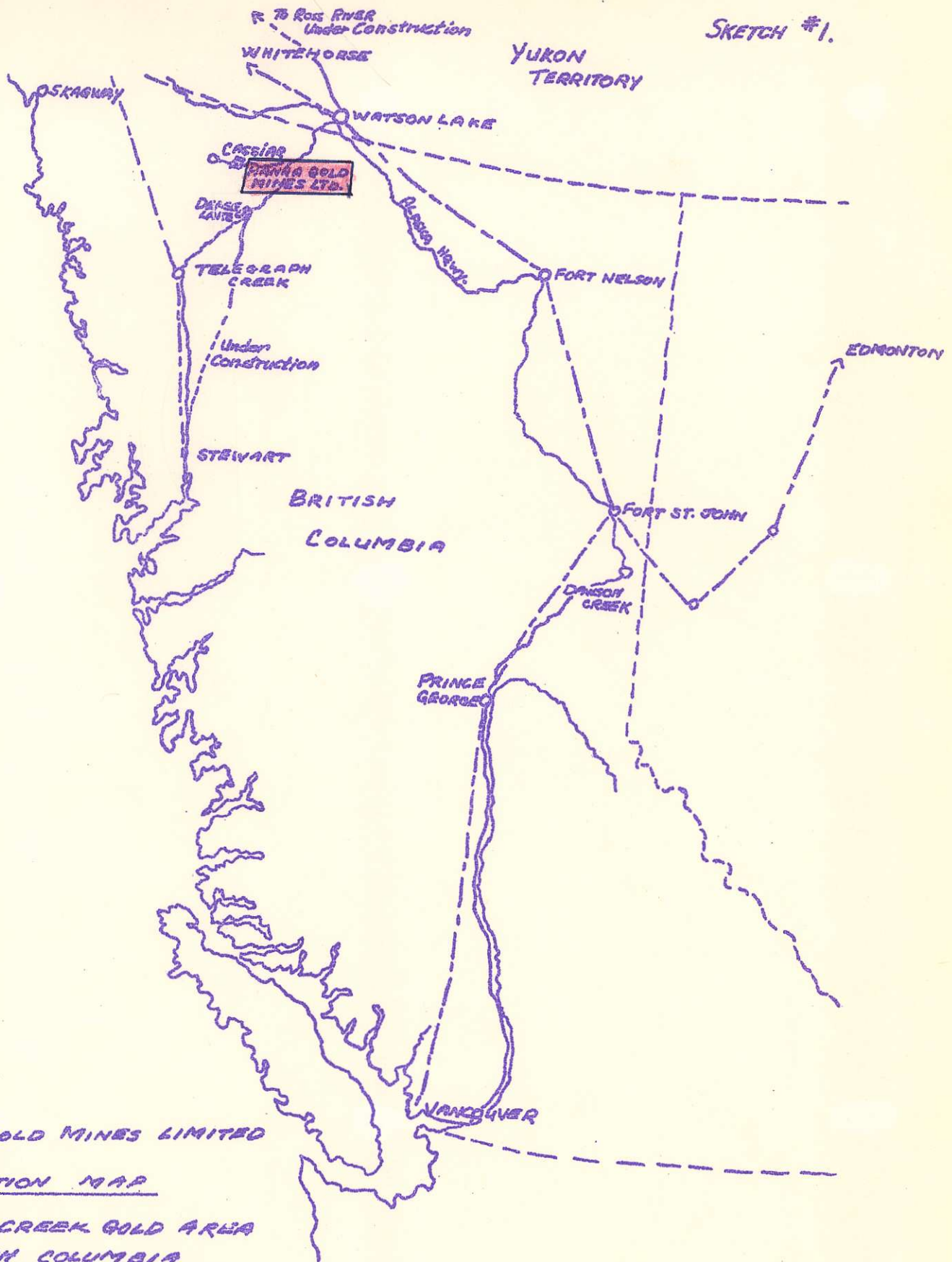
<u>Mark</u>	<u>Gold</u> <u>Ozs.</u>	<u>Silver</u> <u>Ozs.</u>
#1 Vein #2 across 4' <i>VEIN 4E</i>	0.44	Trace
#2 Vein #1 channel at face - 18"	1.12	Trace
#3 F.W. Vein #1 channel at face - 3'	0.76	Trace
#4-Tailings Old up to December, 1960.	0.35	Trace
#5-New Tailings for December 1960 and January 1961	0.30	Trace No tailings since Jan. 1961
#6-Bin Feed	0.94	0.15
#7-Waste Dump, mainly F. W.	0.755	0.15
#8-Quartz Vein 16" <i>#1 VEIN - 6E</i>	1.85	0.10
#9-Hanging Wall General - <i>6E</i>	1.34	0.20
#10-Grab at face vein material - 67'	0.55	0.25

*Recent sampling results*

<i>Vein #2</i>	<i>Au</i>	<i>Ag</i>	} <i>5' width</i> <i>Vein</i>
<i>Face</i>	<i>1.16</i>	<i>0.12</i>	
<i>Picked Sulphides</i>	<i>2.70</i>	<i>0.26</i>	
<i>5' - 36.5'</i>	<i>0.52</i>	<i>0.02</i>	
<i>Picked Sulphides</i>	<i>0.76</i>	<i>0.08</i>	

<i>Vein #1</i>	<i>Au</i>	<i>Ag</i>	
<i>18' @ face @ 69'</i>	<i>0.84</i>	<i>0.14</i>	<i>- 18"</i>
<i>Vein #5N</i>	<i>1.12</i>	<i>0.12</i>	<i>- 2'</i>
<i>Vein #2W</i>	<i>0.54</i>	<i>0.14</i>	<i>- 18"</i>

SKETCH #1.



HANNA GOLD MINES LIMITED

LOCATION MAP

MADAME CREEK GOLD AREA

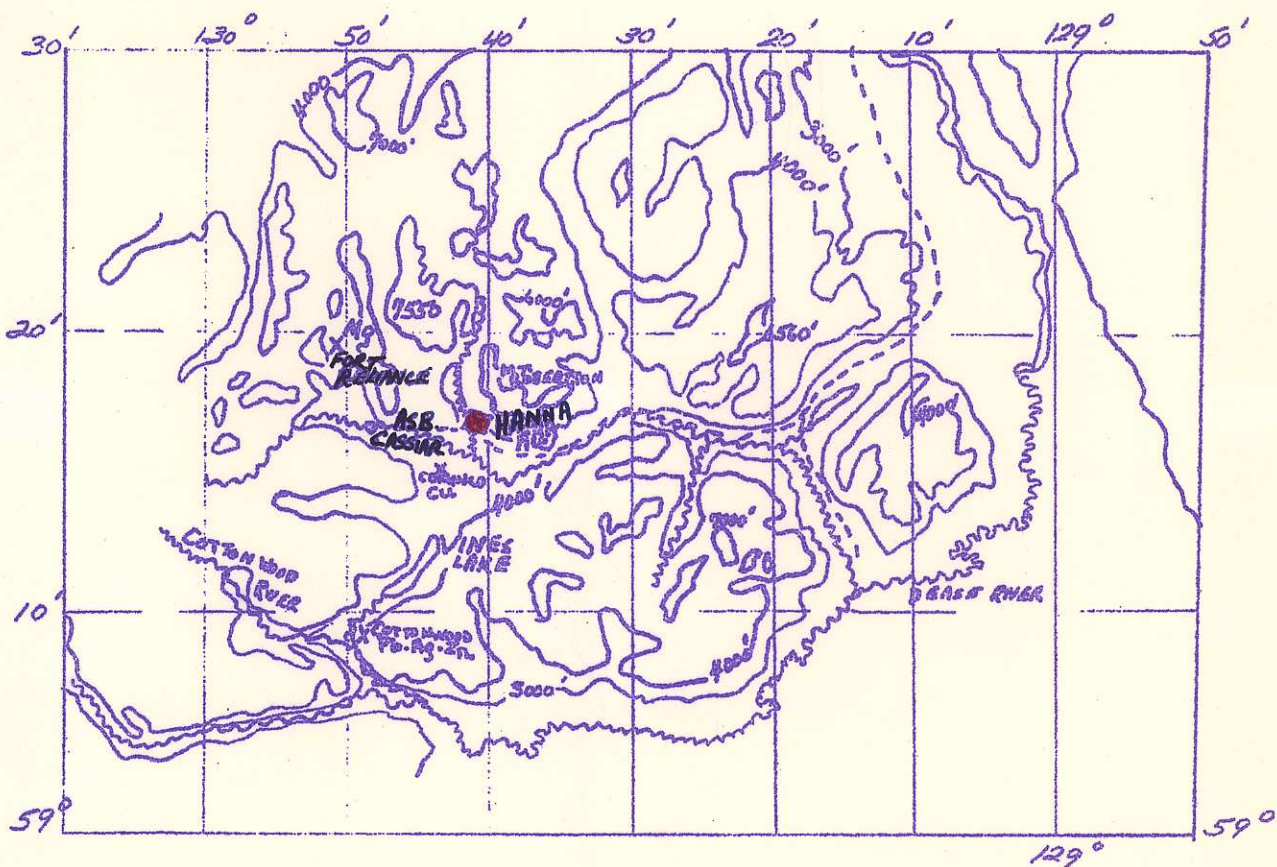
BRITISH COLUMBIA

0 25 50 75 100 125 150 MILES

----- AIRWAYS  
————— ROAD







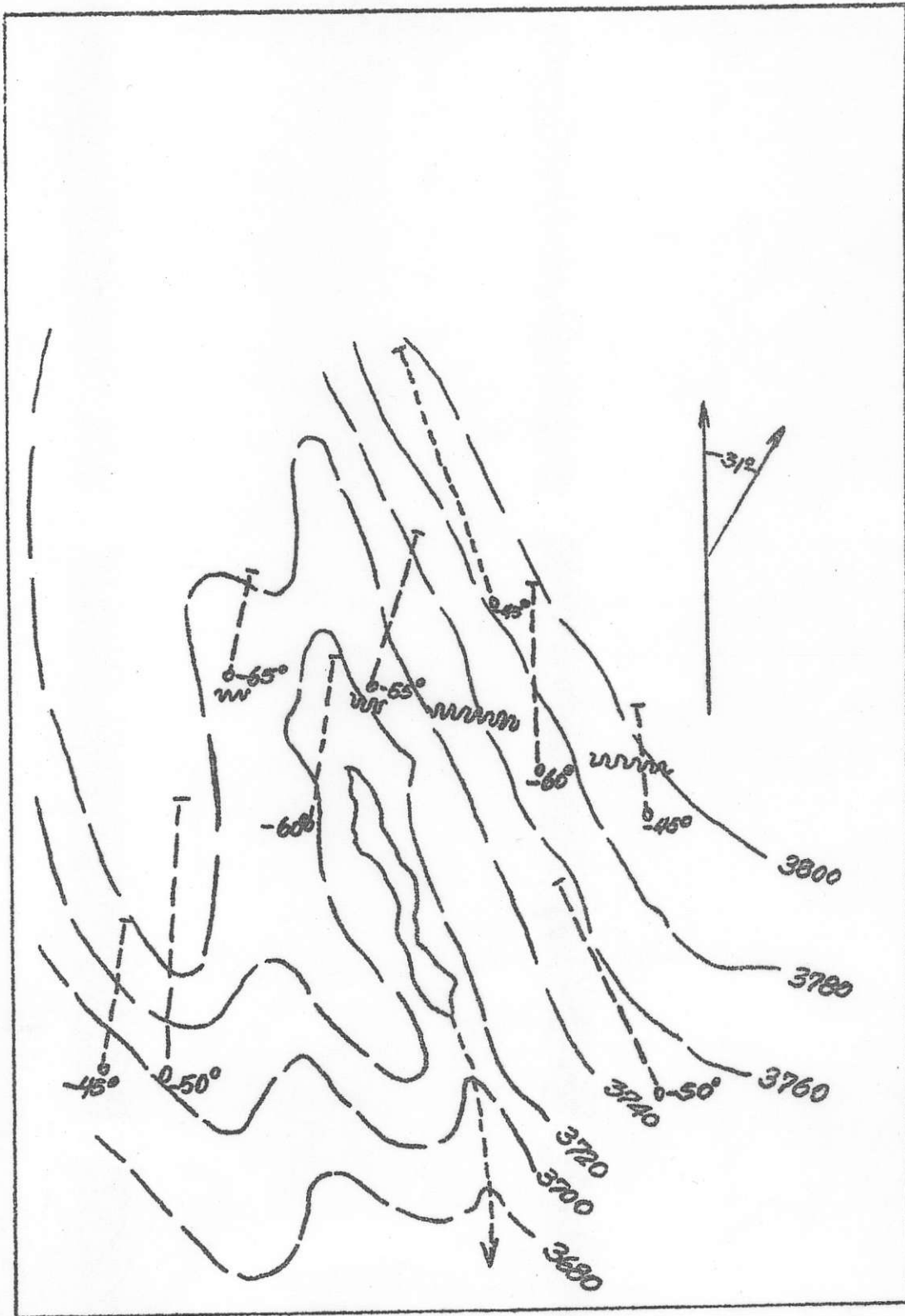
HANNA GOLD MINES LTD.

TOPOGRAPHIC MAP

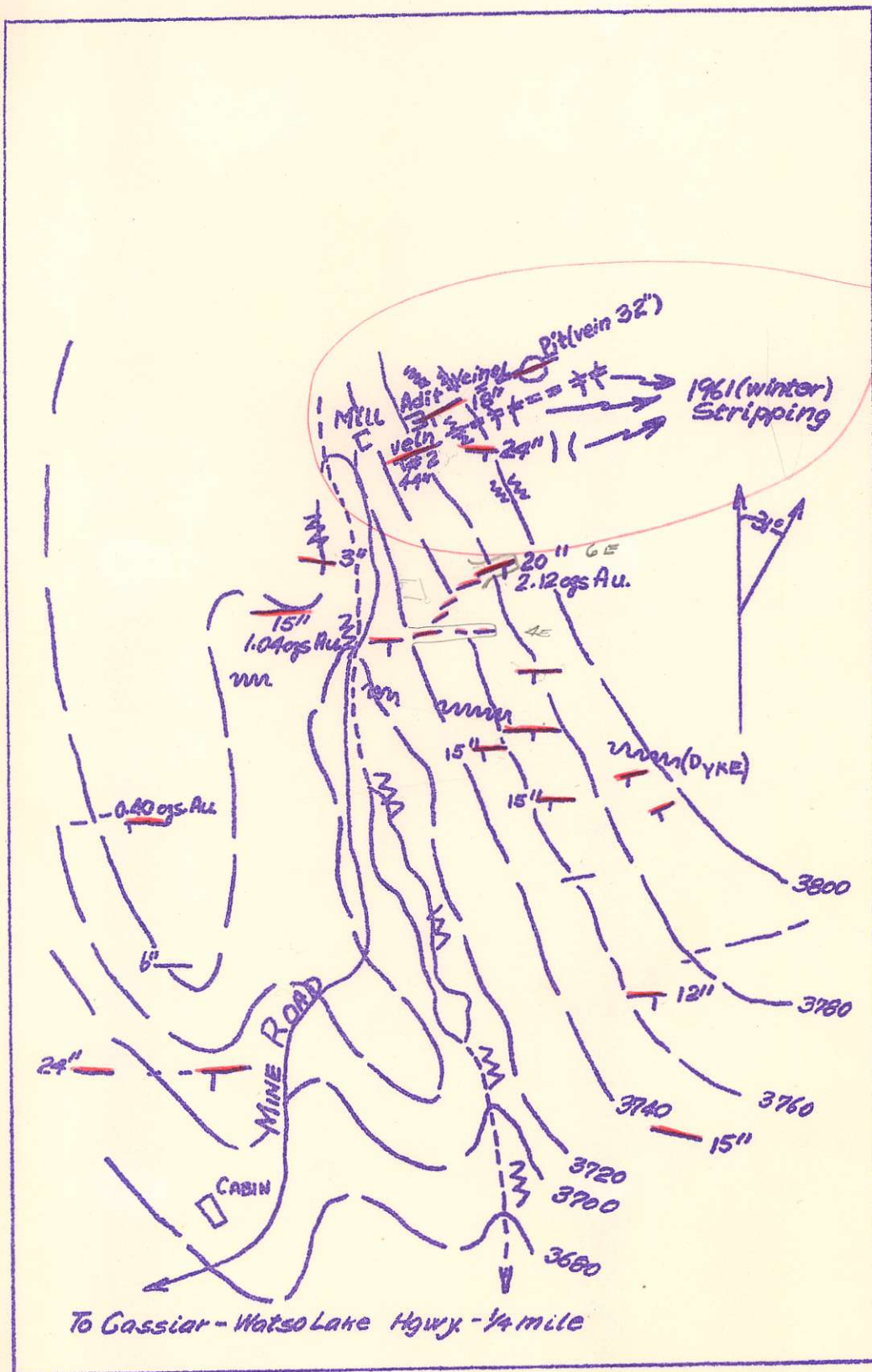
SCALE 8 MILES TO 1 INCH

- ROAD
- ~~~~~ RIVER
- HANNA GOLD MINES LTD.
- CASSIAR
- X OTHER MINING COMPANIES.





HANNA GOLD MINES  
 LIMITED  
 CONTOUR MAP  
 SHOWING DIAMOND DRILL HOLES  
 CONTOUR INTERVAL 20'  
 Wavy line - DYKE  
 -68 - DIAMOND DRILL HOLE SHOWING DIP  
 - - - CREEK  
 SCALE - 100' = 1 1/2 INCHES



Wrong numbers  
on veins - 9/50 Scale  
Should be 1" = 100'  
LWS

To Cassiar - Watson Lake Hwy. - 1/4 mile

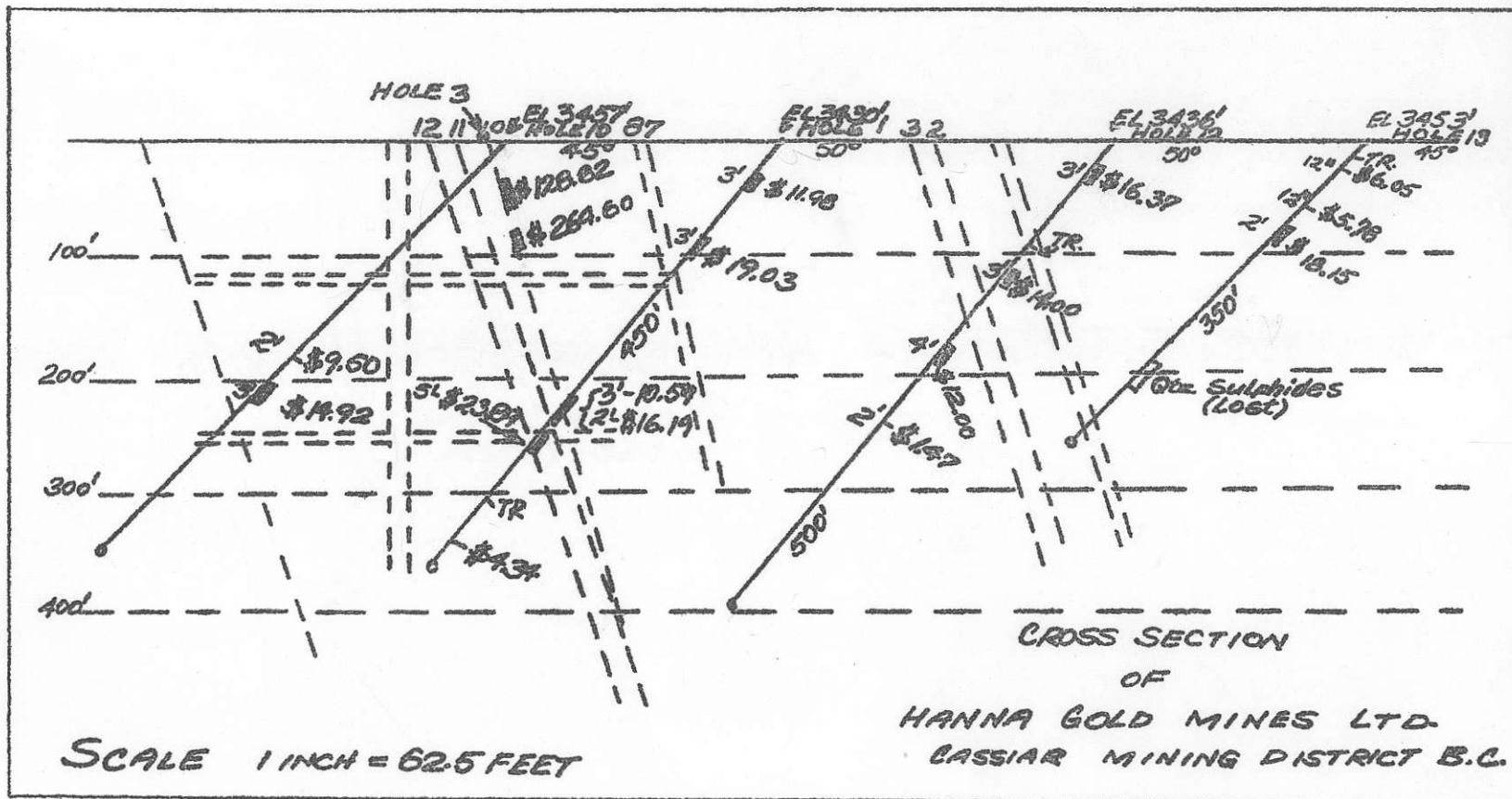
HANNA GOLD MINES  
LIMITED

CONTOUR MAP  
SHOWING VEINS

- 6" VEIN SHOWING WIDTH AND DIP
- ~ ~ ~ CONTOUR - INTERVAL 20 FEET
- CREEK

SCALE: 100' = 1.6 INCHES

- MINE ROAD
- BUILDINGS
- └ - Adit
- ===== Vein Projection.
- )( - Stripping; Resent: wwn Diorite dyke.
- ww - Fault zone probable

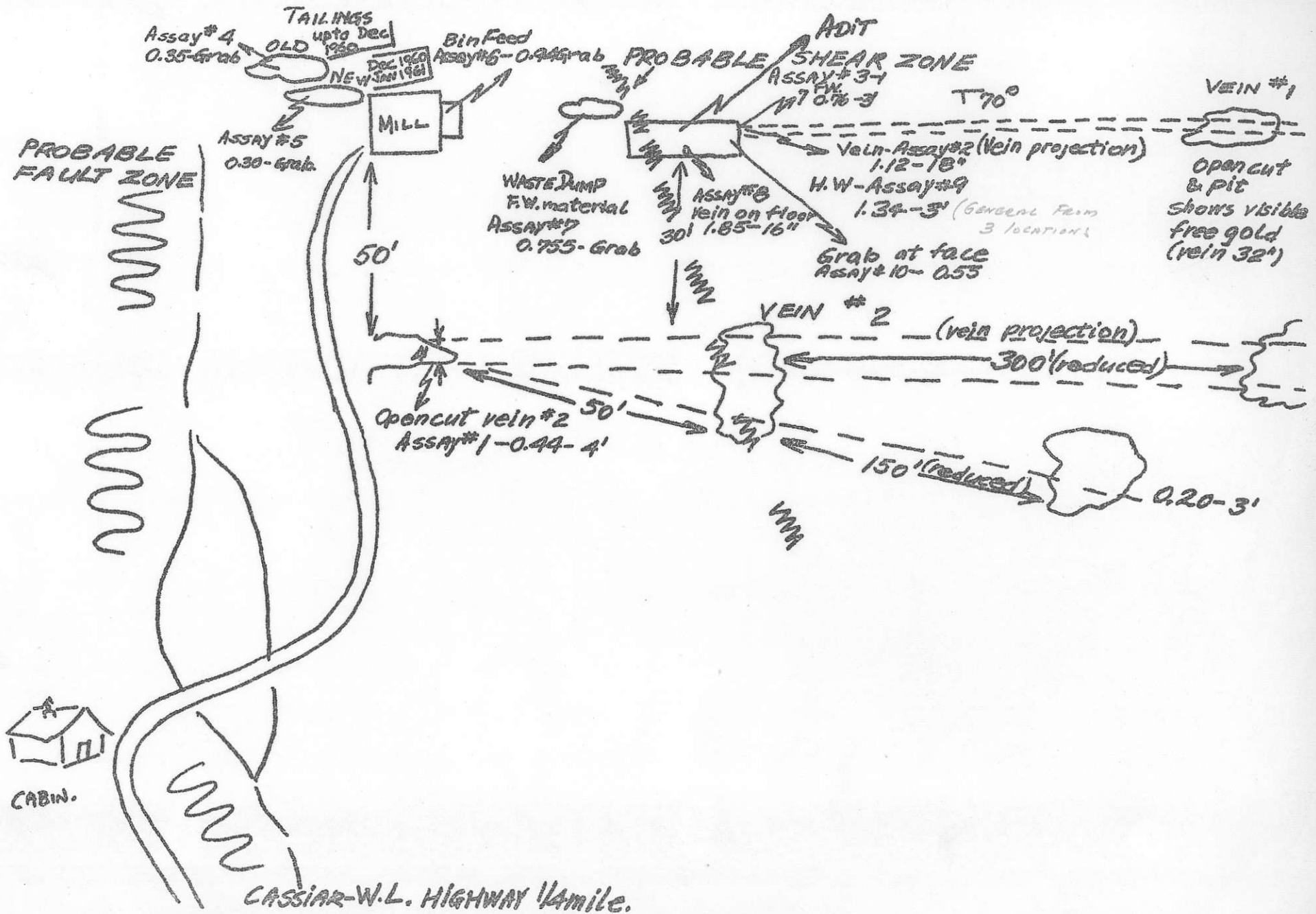


HANNA GOLD MINES LTD.

SKETCH #7

FOR CORRELATION OF ASSAYS - SEE ASSAY SHEET #1 - #193184/193

Not to Scale.

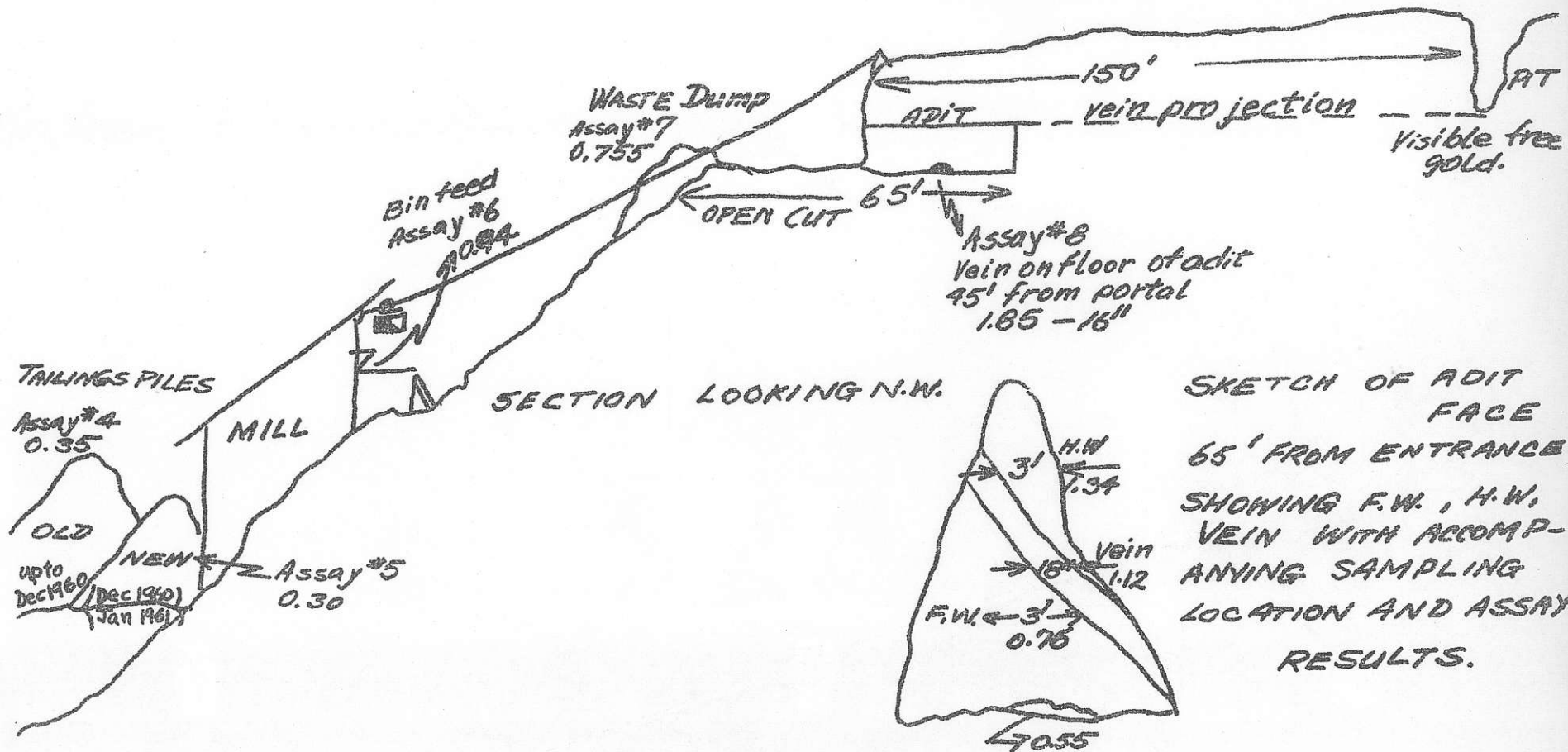




HANNA GOLD MINES LIMITED - SKETCH #8

NOT TO SCALE

VERTICAL SCALE EXAGGERATED.



REPORT ON HANNA GOLD MINES LIMITED

Cassiar, British Columbia

By Allan P. Fawley, Ph.D., P. Eng.

INTRODUCTION

This report is based on an examination during June 8th and June 10th, 1960 of the main mineral showings on the property of Hanna Gold Mines Limited. The writer was accompanied by Dr. W. B. Eno, Mr. Craigie Hood, Jr., and Mr. F. J. R. Syberg during most of the examination.

The claims of Hanna Gold Mines cover a large area; only a small part has, as yet, been prospected in detail by the present owners, and most of the former trenching and drilling was confined to the small area shown on the enclosed map. As most of the claims are underlain by geological formations favorable for ore deposits, there is still a great deal of exploration and development work to be done.

PROPERTY AND ACCESS

Hanna Gold Mines, which comprises about 38 claims, is approximately 6 miles east of Cassiar and the main showings are 1/4 mile from the Watson Lake - Cassiar road. The mine is 93 miles by road from Watson Lake, which is on the Alaska Highway. A road is under construction to Stewart, on the coast of British Columbia, and when completed this road will enable transportation costs to the area to be considerably reduced.

HISTORY

Gold was first discovered in the vicinity of McDame Creek in 1874, and the largest gold nugget ever found in British Columbia, weighing 72 ounces, was found in McDame Creek in 1877.



Hanna Gold Mines Limited owns the area of the former Cornucopia Mines which were held by J. C. Simpson until sold to the Benroy Gold Mines Limited in 1946, and held the property until recently by either assessment work or by paying cash in 1949, 1950 and 1955 in lieu of assessment work; in 1957 Benroy Mines took out a retention lease.

In 1960 a small group from Cassiar set up a Gibson mill, rated at 3-1/2 tons per 24 hours, on the property and started production in August 1960. Returns to February 1961 were almost \$7,000 from about 100 tons of ore treated. = <sup>6</sup>70/ton

In June 1961, four men were employed on the property and work underway consisted of preparations to continue underground exploration of the No. 1 vein.

#### GEOLOGY AND TOPOGRAPHY

The mine is in the rugged Cassiar Mountains but the more important veins found so far are at an elevation of about 3,700 ft. on the lower rolling slopes of one of the smaller mountains. The topography in the vicinity of the mill is illustrated by the enclosed photograph. Timber line is at about 4,500 ft. above sea level.

Rocks in the mine area, according to Price and Gabrielse (G.S.C., map 54-10, 1955) belong to the Sylvester Group, of Devonian and Mississippian age, which include lava, tuff, agglomerate, argillite, greywacke, quartzite, limestone and ribbon chert. Folds and faults are reported to trend north-westerly and faults to dip steeply with, generally, the northeast side downthrown relative to the southwest.

In the vicinity of the gold-bearing veins at Hanna Gold Mines that have been diamond-drilled the rocks are predominantly dark to light grey volcanics, probably ranging from andesite to rhyolite, with minor amounts of argillaceous, carbonaceous and cherty interbeds. An examination of the drill core shows alternating layers of the light and dark volcanic rocks; the light-coloured volcanic rocks commonly

contain small pyrite crystals and weather a rusty colour. No distinctive bedding was noted but shearing which may be parallel to the formations generally strikes about 340 degrees and dips vertically or steeply to the northeast. Isoclinal folding is suspected. Diamond-drilling to a vertical depth of about 350 ft. indicated no change in the formations (andesites, etc. continue) to the greatest depth penetrated.

A fine-grained dioritic dyke, with what appears to be inclusions of pebbles and boulders of pegmatite and other rocks, trends northwesterly across the vein area.

The quartz veins generally strike about 080 and dip about 75 degrees south, they follow faults (though the more pronounced faults in the district are reported to trend northwesterly). Movement along the veins is indicated by gouge and shatter zones and has probably taken place at several different times. Veins in the area drilled range in thickness from a few inches to about 4 to 5 ft., but a vein beside Quartzrock Creek has a thickness of 15 ft. Small northwesterly faults with steep dips were noted at both No. 1 and No. 2 veins and the veins may have been offset along these faults. Joints in the volcanic rocks are at a different angle to the quartz veins. A draw with a small creek (shown on the enclosed map) may indicate a northerly trending fault.

#### MINERAL DEPOSITS

About 20 east-west trending veins with a thickness of 1 to 4 ft. have been found in a zone 1,000 ft. wide, and all of them, according to F.J.R. Syberg, contain free gold. Besides the above veins, most of which are shown on the enclosed map. Syberg states that other veins, also containing free gold, continue to occur for another 1,500 ft. to the south.

The free gold is generally associated with sulphides but is also found as flakes, to 1/16 in. and more in diameter, in pure white quartz.

The veins are white quartz with minor amounts of sulphide, mostly pyrite but with some tetrahedrite. The veins are almost pure white where exposed by weathering at the surface but are generally rusty coloured along fractures and in trenches and adits. Copper staining occurs in a few places. Numerous specimens of free gold were seen.

A description of the veins by J. M. Black (B.C. Minister of Mines Rept. 1947) is as follows:

"The width of veins varies from a few inches to 3-1/2 feet, and the veins strike from north 60 degrees east to south 80 degrees east, with a generally steep dip to the south. They consist of white and rusty quartz, some bluish quartz, and small amount of pyrite, generally near the walls. They are marked by fracturing; much of the pyrite has been leached from the surface exposures, leaving small cavities containing a small amount of limonite, and the wallrock itself has been sheared and pyritized. Drill-cores show that replacement by coarse pyrite crystals, accompanied by some quartz stringers, extends for several feet from some of the veins."

Thirteen samples, taken by Black from surface exposures, assayed as shown on the accompanying map which has been taken from Black's report.

"The higher assays represented samples which contained pyrite, while the lower assays represented samples which contained little or no pyrite and were from veins that appeared to be barren or devoid of cavities. Results thus indicate that much of the gold content is associated with the pyrite."

"Positions, approximate directions, and length of the drill-holes are indicated on the accompanying map. Vein-sections from the cores were removed for assay, and it is not known whether these sections contained more pyrite than did the surface exposures. It is reported that, because of the fracturing in and near the veins, core-recovery of the veins was low and that much of the sludge was not recovered."

Work done on the property to date comprises about 5,000 ft. of diamond-drilling, considerable trenching, and a small amount of underground mining,

All the main veins were examined but until the area is remapped and the veins are numbered it is difficult to designate and describe individual veins in detail;

however, some of the veins that were sampled are described in the next section on ore reserves.

#### ORE RESERVES

On present information, ore reserves cannot be given but an attempt to estimate the ore potential is given below.

Logs of the 5,000 or so ft. of diamond-drill core are unfortunately not available to the writer though the core, except for the vein intersections, is stored beside the drill holes. The core is Ex size, 7/8 in. in diameter. From the nature of these veins (a mixture of gouge, friable quartz, and hard massive quartz) the core recovery would almost certainly be poor except from the hard massive quartz sections, and as the massive quartz is generally low grade, the assays would probably also be low and hence misleading.

Full water recovery from the drill holes is necessary to get true sludge samples, and to obtain full water return in this ground would probably entail an additional casing expense.

The veins should continue to depth as no change in structure or formation is indicated by the drilling or by a geological examination at the surface; also, the high ratio of gold to silver within the gold itself is strongly indicative of a deep-seated hypothermal or mesothermal origin. (In the deeper, high temperature and pressure, zones silver no matter how concentrated will not form a low-grade alloy with gold.)

The greatest length of vein continuously exposed is only about 130 ft., but a probable extension of the No. 2 vein has been exposed by a bulldozer 265 ft. to the east. If the southern veins are continuous across the draw to the west (see map) they will have a length of at least 400 ft. The veins have an average width

of only about 2 ft. but <sup>\*</sup>recent sampling of the hanging and footwall rocks of No. 1 vein have given surprisingly high results and indicate ore values for a width of 4 ft. or more. *Controversial!*  
*\* Done by Hood - too limited + not representative*  
*My sampling does not indicate mineable wall rock WS/*  
Assuming a length of 400 ft. and a width of 4 ft. then reserves would be 130 tons per ft. of depth and as there are over 200 veins in the area the potential tonnage is high; however, it should be noted that gold veins are very seldom payable throughout their entire length, generally gold occurs in shoots or lenses and much of the vein between the ore shoots may be barren, also the apparent large number of veins on the property may be partly due to faulting (i.e., one vein may be faulted 3 or more sections). Most of the veins appear strong and may have a length of well over 400 ft.

Regular sampling of vein and wall rock must be done to obtain the average grade, sampling to date only gives an indication of what may be expected. On present assays, the grade of No. 1 vein including wall rock over a width of 4 ft. appears to be about 1 oz. gold per ton; and the No. 2 vein appears to have an average grade of 0.27 oz. per ton over 4 ft. The other veins in the area have not been sufficiently sampled to calculate their grade, but some encouraging assays have been obtained. The veins are discussed in more detail below.

*16-18' includes WS/*

#### No. 1 Vein (directly east of mill)

This vein was mined and milled during part of 1960 and 1961. The vein averages about 18 inches wide and only the vein material was milled. Syberg estimates that about 100 tons of ore was treated by crushing, grinding and amalgamating, and a recovery of almost \$7,000 was obtained (from the Royal Canadian Mint). The exact tonnage treated is not known but certainly over 1 oz. gold per ton was recovered and assays of the tailings dump show the dump still contains 1/3 oz. per ton; hence the grade was a minimum of 1-1/3 oz. and may have been over 2 ozs. per ton.



An adit has been driven on No. 1 vein for a distance of 69 ft. and a total of 130 ft. of the vein has been exposed by the adit plus surface work. The west end of the vein is cut off by a fault with a strike of 120 degrees and dip 80 degrees northeast; the vein is probably only offset but no continuation has yet been searched for.

\* *Not seen W/S*

Assays of the No. 1 vein, wall rock and dumps follow. All samples taken by the writer for No. 1 and the other veins, were large ones because of the suspected erratic free gold content. Samples brought to Vancouver and assayed by G.S. Eldridge and Co. averaged 4 lbs. each, and some of the samples were reduced to that weight by quartering in the field.

<u>Location and Type of Sample</u>	<u>Gold oz/ton</u>	<u>Silver oz/ton</u>	<u>Sampler</u>	<u>Remarks</u>
16 in. channel 69 ft. in adit	2.80	-	A.P. Fawley	
Grab sample, 67 ft. in adit	0.55	0.25	Craigie Hood	
18 in. channel, 65 ft. in adit	1.12	Tr	F.J.R. Syberg	
16 in. channel, 45 ft. in adit	1.85	0.10	F.J.R. Syberg	Floor sample
16 in. channel, surface	2.12	0.01	J.M. Black	
36 in. channel, F.W.	0.76	Tr	F.J.R. Syberg	No quartz noted
12 in. channel, F.W. at 42 ft.	0.20	-	A.P. Fawley	No quartz noted
12 in. channel, H.W. at 33 ft.	0.06	-	A.P. Fawley	No quartz noted
30 in. channel, H.W.	1.34	0.20	Craigie Hood	
Waste dump	0.76	0.15	Craigie Hood	Mainly F.W.
Waste dump	1.48	-	A.P. Fawley	Mainly H.W.
Mill feed from ore bin	0.94	0.15	Craigie Hood	
Old Tailings	0.33	Tr	Craigie Hood	
Tailings dump	0.28	-	A.P. Fawley	

An arithmetical average of six assays of the vein (including the mill feed) is 1.69 oz. gold per ton; and six assays of the wall rock and waste dump average a surprising 0.77 oz. per ton. Stringers of quartz penetrate the wall rock in places but during channel sampling of the foot and hanging wall these places were avoided; however, the quartz stringers would be included in sampling the waste dump.

Abundant free gold occurs in this vein near the surface 130 ft. from the portal (the most easterly part of the vein exposed) and it is probable that the entire 130 ft. section of No. 1 vein will average over 1-1/2 oz. per ton, and if further sampling of the wall rock confirms the above results then a grade of about 1 oz. per ton may be

obtained over a width of 4 ft. - *Not borne out by my Sampling.*

No. 2 Vein (about 50 ft. south of mill)

An adit has been started on this vein and has exposed the vein for a length of about 25 ft. and shown it to have a width of 4 ft. A bulldozer trench 265 ft. east of the adit entrance has uncovered a 5 ft. vein that is approximately along the line of strike of the No. 2 vein. Assays of the No. 2 vein and its probable extension are as follows:

<u>Location and Type of Sample</u>	<u>Gold oz/ton</u>	<u>Silver oz/ton</u>	<u>Sampler</u>	<u>Remarks</u>
48 in. channel at adit	0.44	Tr	F.J.R. Syberg	
24 in. channel surface	0.13	Tr	J.M. Black	Prob. No. 2 vein
18 in. channel surface	0.22	Tr	J.M. Black	Prob. No. 2 vein
60 in. channel at adit	0.36	0.2	A.P. Fawley	Including wall rock
Dump at extension	0.24	-	A.P. Fawley	
36" channel at extension	0.20	0.3	Craigie Hood	

These six samples indicate an average grade of 0.27 oz. gold per ton and if the extension is part of No. 2 vein then the minimum length is 265 ft. The vein exposures at both ends are strong.

Veins on West Side of Draw

Several strong veins are on the west side of the draw, they are probably continuations of those on the east side, though faulting along the draw may have offset the veins or altered their relative elevations. Considerable trenching and blasting has been done on the veins and their true width is now difficult to determine, but several appear to be about 2 to 3 ft. wide. Assays are as follows:

<u>Location and Type of Sample</u>	<u>Gold oz/ton</u>	<u>Silver oz/ton</u>	<u>Sampler</u>	<u>Remarks</u>
18 in. channel, vein W. of mill	1.04	Tr	J.M. Black	
Chip sample, vein west of mill	0.08	0.1	A.P. Fawley	No fines taken
Chip sample, vein S.W. of mill	0.12	Tr	A.P. Fawley	No fines taken
20 in. channel, vein S.W. of mill	Tr	Tr	J.M. Black )	Several veins

<u>Location and Type of Sample</u>	<u>Gold oz/ton</u>	<u>Silver oz/ton</u>	<u>Sampler</u>	<u>Remarks</u>
19 in. channel, vein S.W. of mill	0.40	Tr	J.M. Black )	Several veins
16 in. channel, vein S.W. of mill	0.03	Tr	J.M. Black )	Several veins
Chip sample vein near cabin	0.14	Tr	A.P. Fawley	No fines taken

These results are encouraging and further sampling and trenching of these veins is warranted.

Veins South of No. 2 Vein

Several veins occur south of No. 2 vein, one of them is reported to have been "high-graded" in the past (i.e., the vein was illegally mined by individuals, and free gold sections were crushed and panned for gold). Black sampled four veins in this area and obtained values ranging from 0.01 to 0.18 oz. gold per ton. I sampled a vein 110 ft. south of No. 2 vein, the sample was taken across 36 inches including 6 inches of the hanging wall and the assay was 0.18 oz. per ton (\$6.30). These veins, like those to the west of the draw, warrant further exploration and sampling.

Vein by Quartzrock Creek

Two strong quartz veins, 6 ft. and 15 ft. wide, were examined about 1 mile northwest of the mill. The veins outcrop at the edge of Quartzrock Creek and strike 080 and dip 75 degrees south. They are almost entirely white, glassy "bull" quartz but are slightly mineralized with pyrite or rust stained in places. Some vugs in the quartz with quartz crystals growing into them indicate deposition at comparatively low pressure.

A chip sample (no fines taken) assay 0.02 oz. gold and 0.70 oz. silver per ton.

This sample is not encouraging but veins of this type occasionally contain rich shoots, especially if they are intersected by secondary veins.



### SUMMARY AND RECOMMENDATIONS

Over 20 steep-dipping east-west veins occur in folded and esite-rhyolite volcanic rocks with some chert, argillite and probably calcareous interbeds. No bedding was noted but shearing that may be parallel to the formations trends northwest and dips steeply.

The veins are generally 1 to 3 ft. wide, their full length is not exposed due to overburden but many of them probably have a length of over 400 ft., and they may be much longer although faults may offset the veins in places. The veins are white quartz with minor amounts of sulphides, mostly pyrite with some tetrahedrite. The quartz is white on weathered surfaces but is generally rusty coloured along fractures and where exposed by trenching or adits. Free gold is of common occurrence in some of the veins and is reported to be found in nearly all of them.

No. 1 vein averages 18 inches wide and has been exposed for a length of 130 ft. and to a depth of about 30 ft. Milling and sampling results indicate that the average value of the vein is more than 1-1/2 oz. gold per ton and sampling of the wall rock and waste dump at this vein average 0.77 oz. per ton.

No. 2 vein is 4 ft. wide and probably extends for a minimum distance of 265 ft. with a grade of about 0.27 oz. gold per ton.

Other veins in the area have not been sampled thoroughly enough to estimate their grade, but assays are generally lower than those from No. 1 or No. 2 veins.

Gold values in the veins should persist to depth as the fineness of the gold indicates deposition under high temperature and pressure conditions, and drilling showed no change in the volcanic formations.

The diamond-drilling results (logs not available to writer) could not have been particularly encouraging or underground development would have been started years ago,

but they were encouraging enough for the former owners to continue to hold the claims by assessment or to pay cash in lieu of assessment work for more than 10 years. Also, as noted in previous sections, the drill core recovery is reported to have been low and so the drilling could, and probably did, yield misleading assay results.

Present development and sampling at this property have not been sufficient to prove a mine, but they are very encouraging and indicate a reasonable chance that the property can be developed into an economic moderate-sized low to medium-grade gold mine, or at least into a small high-grade mine.

I recommend the following preliminary programme (part of which is already underway):

1. Survey and geologically map the area of the main veins in detail on a scale of 1 inch = 20 ft. Number or name all veins and paint the number or name beside the vein.
2. Continue driving the adit on the No. 1 vein and sample across the full face after every drilling round (at about 5 ft. intervals). Sample the vein, hanging wall and footwall separately.
3. Take bulk samples (minimum weight of 100 lbs.) of all veins and adjoining wall rock in the area, then crush and quarter the samples down to 3- 4 lbs. for assaying. Sample the veins and wall rock separately.
4. Try and trace extensions of the known veins by shallow trenching (by hand or by a bulldozer) or with a small diamond drill. Concentrate on the richer veins found by sampling ("3" above).
5. If the adit on No. 1 vein continues to yield satisfactory results, drive another adit on No. 2 vein or some other vein. (Adits have the advantage over trenching or drilling in that more reliable samples and more geological information can be obtained from them, and if results are successful the adits can be used for mining. Except at the draw, the ground slopes fairly steeply to the west so adits

will develop a considerable tonnage above them if the veins continue for a thousand feet or so).

6. The ore has a simple mineralogical composition and should be easy to treat to obtain a high gold recovery. Mill tests could be started now but more reliable results will be derived when a composite ore sample can be obtained from several adits.

In conclusion, the Hanna Gold Mine property is definitely worth further exploration and development.

Respectfully submitted

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