ANALYTICAL AND MICROSCOPIC STUDIES

ERICKSON CLAIMS

(Supplement to Beneficiation Studies
Submitted September 8, 1968)

McELROY TOWNSHIP

LARDER LAKE MINING DIVISION

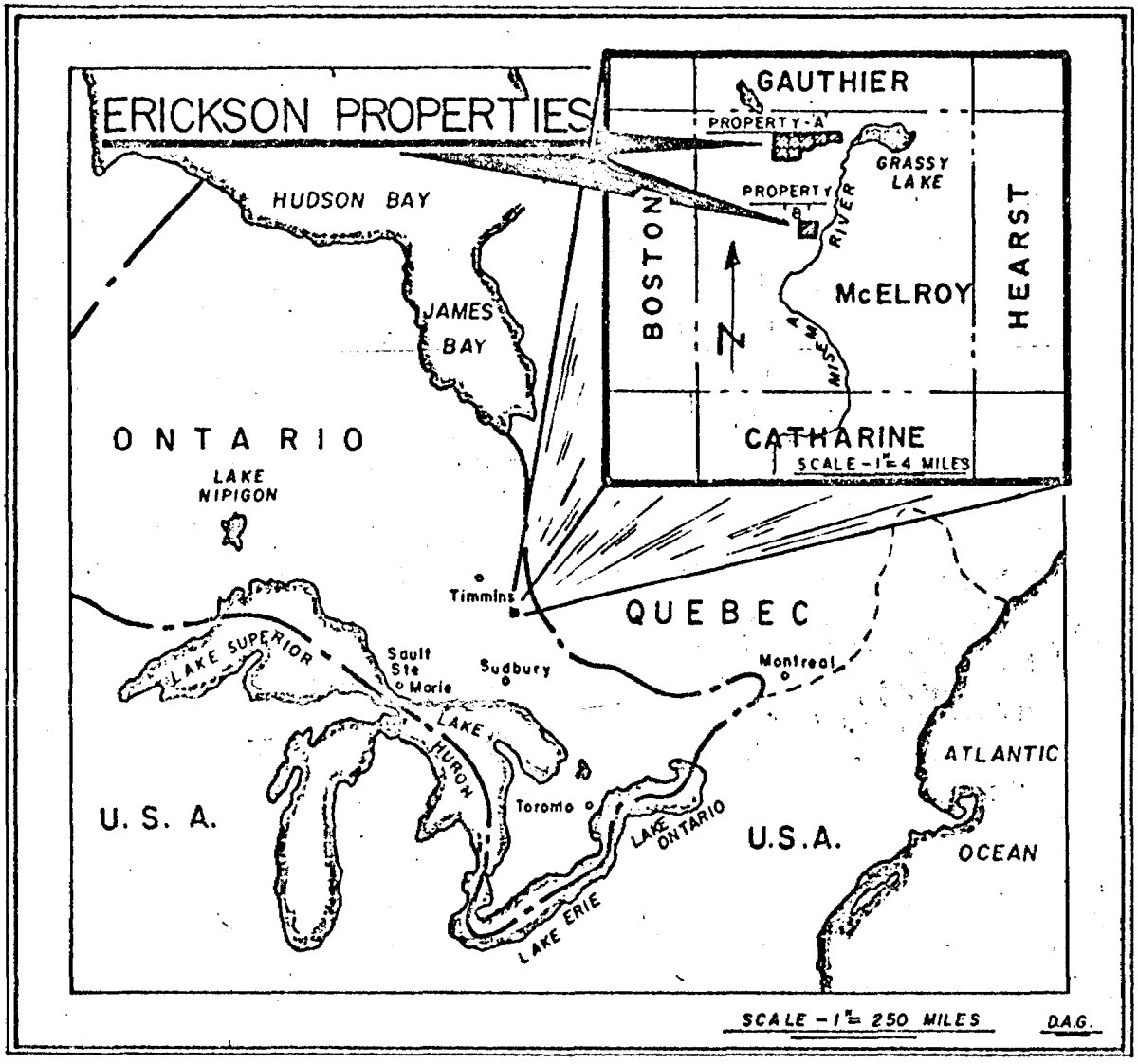
PROVINCE OF ONTARIO

RAYMOND A. ERICKSON (P. ENG.)

KIRKLAND LAKE, ONTARIO

JUNE, 1970

LOCATION MAP



INTRODUCTION

During the Summer of 1968, beneficiation studies were conducted by Mr. Raymond A. Erickson on claims registered in his name in McElroy Township, near Kirkland Lake, Ontario. The purpose of the beneficiation studies was to explore for diamonds as well as for gold. Preparation for such studies was started earlier in the year with the announcement of a large scale diamond search which was made along the Munro esker, which traverses some of the eight claims upon which the studies were made. The beneficiation work was done at five locations on three of the claims and served to prepare seven concentrates of heavy minerals. These seven concentrates have been examined under binocular microscope and analyzed to determine the number of diamond satallite mineral grains present.

This report presents the analytical results obtained upon examination of the heavy mineral concentrates and the conclusions that can be drawn from the results. An earlier report titled "Beneficiation Studies" and dated September 8, 1968, sets forth the program, the sampling equipment and methods employed and the concentration methods used.

PROPERTY AND LOCATION

Eight claims in the name of the author are located in McElroy Township about ten miles east of Kirkland Lake, Ontario, as shown in the map at the back of the report. A single claim, L-86217, (property "B" on the map) is located near the center of McElroy and is reached by driving a car past the Adams Mine to a pump house along the Misema River followed by walking on old logging roads. A 7-claim group, (property "A" on the map) is located in the North-central part of McElroy Township with a turn-off south from Route 66 just east of the Esker Lake Provincial Park turn-off.

The seven claims in this group are:

L-86211

L-86212

L-86214

L-86215

L-86216

L-86218

L-86219

Sampling was done at five locations on three claims - L-86215, L-86216, and L-86217.

BACKGROUND

The claims were staked originally to search for buried placer gold in an ancient river valley system originally defined in a publication written by Hulbert A. Lee (1) and in an article co-authored by A. Grant and G. Hobson (2).

Seismic work done in the summers of 1965 and 1966 established that the depth to bedrock ran from 131 to 312 feet over the surveyed area of the seven-claim group and a depth to bedrock of about 100 feet on the single claim. The seismic survey work was reported for assessment work credit in October, 1965 and September, 1966.

Work during the summer of 1967 consisted of drilling with hand tools to depths of 35 feet. This established the presence of traces of gold after the penetration of a few feet of sand and gravel with one anomalous high gold content of 0.58 ounces per ton. The location of the drilling was on the seven-claim group at 4,000' west and 70' north on the lines cut for seismic work. At this location there is a slow-moving spring flowing out of the esker sands and into the creek which makes a northerly loop through the seven-claim group.

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(1) Lee, Hulbert A. Buried Valleys near Kirkland Lake, Ontario, Geological Survey of Canada, paper 65-14.

(2) Grant, A. and Hobson, G. Tracing Buried Valleys in the Kirkland Lake area by Hammer Seismograph, Canadian Mining Journal, Vol. 85, No. 4.

Work planning for the summer of 1968 was oriented to the press announcements in March, 1968, of the discovery of kimberlite in the Upper Canada Mine and of the possibility of diamonds occurring along a section of the Munro esker which traverses the eight claims in McElroy Township. Sampling of sands and gravels was done on a grid pattern over the claims late in May, 1968. The results of this work were reported along with soil and water testing for geochemical survey credit. One result established a considerable content of garnets (including kimberlite-derived garnets) from the north side of the spring where drilling had been done. Also, chrome diopside grains (another kimberlite indicator mineral) were found. This led to structuring the beneficiation studies of which the sampling procudures were reported in September, 1968. The microscopic examinations and analytical results of the heavy mineral concentrates are the subject of this report.

PROGRAM

The beneficiation studies generally have been directed to obtaining large samples of sand and gravel and to attempt to work out the sampling on a semi-production basis in order to process the large quantities of material desirable for establishing diamond content which can run commercially as low as 1 part per 20,000,000 or more by weight.

The initial program early in July, 1968 was based on the use of large area trough type screens followed by concentration using gravitation in hand-held circular screens. The experience gained from this initial program was used in structuring the later program carried out in the field during the last week in August and the first week in September, 1968.

The program included the selection, design and construction of equipment for use in the field for the continuous removal of sampled material and in-line concentration of the heavy minerals. The continuous removal of material and initial concentration was accomplished for most of the samples by the use of suction dredge powered by a high velocity stream of water on a venturi nozzle following which the water slurry is passed over riffles for recovery of gold and large heavy mineral grains. Heavy minerals were concentrated for most of the samples by rotating on a circular screen having an aperture of 0.5 mm. Fines were concentrated by using a regular hand-held gold pan.

The main thrust of the program was not only to obtain heavy mineral concentrates for analysis for diamond and diamond satallite minerals but to attempt to work out a semi-production method of field sampling useful in further exploration for these minerals.

SAMPLING PROCEDURE

The seven samples obtained at five locations in three claims are identified herein as Samples 1-7 inclusive and the sampling procedure employed in each case is discussed separately below. The sample processing scheme employed for each sample is shown in the Appendix to this report. The equipment used and the concentrating methods have been described in the report titled, "Beneficiation Studies", submitted in September, 1968.

Sample 1

This sample was obtained on the single claim, L86217, at a reference point 700'W along a base line previously established for geophysical work. Approximately 5 cubic feet of original bulk sample was processed over a sluice on which the riffle ladder was covered with a 10 mesh screen. The material through 10 mesh was processed over a hand rotated screen (with an aperture of 0.5 mm.) under water to obtain a bullseye concentrate. Concentrate from the fines through 0.5 mm. was obtained by using a gold pan and this concentrate was combined with the bullseye concentrate.

The total heavy mineral concentrate was split prior to analysis.

Samples 2 & 7

These samples were obtained concurrently in the processing scheme employed at a slow moving spring which was on Claim L86216 about 100'north and 4000' west as measured along a base line previously cut through the seven-claim group for geophysical work. The original bulk sample of about 29.3

cubic feet was obtained by using a "gold-divers" dredge described in the previous report. Dredged material was processed over a riffle ladder covered with a 10 mesh screen. Material through 10 mesh collected on the riffle ladder was processed separately from the material through 10 mesh which tailed off the riffle ladder. A bullseye concentrate of each source of 10 mesh minus material was obtained by rotation under water on a circular screen having a mesh size of 0.500 mm.

This concentrate was split and analyzed as Sample 7. Fines through 0.5 mm. were concentrated with a gold pan and analyzed as Sample 2 after splitting.

Sample 3

About 5 cubic feet of original bulk sample was dry screened through 10 mesh in the field to obtain 1.0 cubic feet of material sized from 1.900-0 mm. Sampling location was on a gravel bar in a creek in Claim L 86215 at a place 5' north and 3350' west along the base line. This was processed to obtain a bullseye concentrate and pan concentrate as described before. The total concentrate was split prior to analysis.

Sample 4

This sample of about 1.88 cubic feet original bulk volume was obtained on a hillside on Claim L86215 at a location 3550' west on the base line for the 7-claim group. This sample

was dry screened through 10 mesh in the field to obtain 654 cubic inches of material sized from 1.900-0mm. Bullseye and pan concentrate were combined into total concentrate which was split prior to analysis.

Sample 5

This sample was obtained at a slow moving spring prior to sampling at the same location to obtain Samples 2 & 7. About 13.1 cubic feet of original bulk sample was shovelled onto an array of V-trough type screens sized at 4, 8, and 16 mesh. Bullseye concentrates of 4.760-2.380 mm. and 2.380-1.190 mm. was combined and rescreened over Tyler screens to obtain 1691 cubic inches of 4.760-1.190 mm. material, a portion of which was sent for analysis.

Sample 6

About 3.25 cubic feet of original bulk sample was removed from the bed of a fast moving spring using a "gold-diver's" dredge. The location was in Claim L 86216 about 100' north and 3900' west on the grid system. Dredged material was put over 10 mesh screen on a sluice box and 10 mesh minus material collected. 10 mesh plus material was also collected and rescreened through 10 mesh to obtain additional 10 minus material. A bullseye concentrate was obtained by rotating a circular screen (aperture of 0.500 mm.) under water. Fines through 0.500 mm. in this case were discarded. The bullseye concentrate was split prior to analysis.

ANALYSES

The 7 samples of heavy mineral concentrate were shipped to The Bureau of Geological and Mining Research (B.R.G.M.) in Orleans, France for investigations of the satellite minerals of diamond. The analytical report by Mr. A. Parfenoff of B.R.G.M. is presented in a separate section following this text both in the original French and the English translation. The analytical report sets forth the manner of making separations based on size, specific gravity and removal of magnetic material and picking out, under a binocular microscope, those grains of magnesium ilmenite, chrome pyrope and chrome diopside likely to have originated in kimberlite. Checks were then made of the particles picked out using microchemistry, optics, X-rays and reflecting power, as shown in the scheme of operations sheet in the analytical report, to positively identify those particles correlating with origin in kimberlite that could be diamondiferous. The counts of satellite minerals are shown in the first table in the analytical report. The other table in the report shows the weights of original sample sent for analysis and the weights of fractions after screening and specific gravity separations.

CALCULATIONS

The calculations made are shown in Table I titled, "CALCULATION SUMMARY" in the Appendix. Data used in the calculations are shown in the section titled "SAMPLE PROCESSING SCHEMES". The calculations were made to determine the results in counts per cubic foot of original screened sample of the satellite minerals of diamond. The use of this parameter to express results is considered to have the most meaning since it eliminates the effects of size distribution variations in the original bulk samples and is a parameter used by other investigators in the field.

RESULTS

The results of the calculations are shown in Table II of the Appendix. Table III shows a summary of samples including the quantities of original bulk samples and of original screened samples.

The text of the analytical report states that no diamonds were found. This does not necessarily mean that no diamonds are present as the total volume of all samples processed is probably far from sufficient to form a definitive conclusion. It is known that one investigator in the area processed on the order of 100 cubic yards of esker sand to obtain enough heavy mineral concentrate upon which to form a definitive conclusion. Source of this esker sand sample was approximately 3 miles upstream on the esker from the middle of Claim L 86216. It is not known publicly if the large bulk sample yielded any diamonds. It is speculative to consider that sampling on a similar large scale could yield diamonds at points farther downstream on the esker.

The statement is made in the text of the analytical report that certain grains and fragments of the satellite minerals made conspicuous present marks of fracture which freshness was quite astonishing. The significance of this statement is not evaluated.

The result for Sample 1 on the single claim shows zero concentration of satellite minerals. This probably could be expected since the sample obtained was not on the esker.

The results for Samples 2, 5, and 7 (all obtained in a slow-moving spring) shows the highest concentration of satellite minerals to be present in the size range of 1.900 - 0.500 mm. An even higher concentration might have been attained by limiting the size range to 1.23 - 0.500 mm. as was done for the Geological Survey of Canada esker sand samples reported for comparison in Table II. The pyrope counts for the G.S.C. samples (1.23 - 0.50 mm.) were 60 and 42 counts per cubic foot immediately upstream and downstream respectively on the esker from Claim L 86216. This is to be compared to 28 and 24 pyrope grains per cubic foot (1.90 - 0.50 mm. size range) at 2 points in Claim L 86216.

The result for Sample 3 obtained from a gravel bar in a creek making a northerly loop through the 7-claim group, shows the highest concentration of satellite minerals in the size range of 1.900 - 0 mm. This could be the effect of the creek sorting out and concentrating the esker sands over a period stretching back to the retreat of the last continental glaciation.

The result for Sample 4 obtained on a hillside shows an interesting concentration of chrome pyrope but is lacking in magnesium ilmenite and chrome diopside.

The result for Sample 6 obtained in a fast-moving spring shows interesting concentrations of satellite minerals more or less comparable in the 1.90 - 0.50 mm. size range to the concentrations obtained in the slow-moving spring about 100 feet away.

The efficiency of the 10 mesh screen used above the riffle ladder can be determined by examining the Sample Processing Scheme for Sample No. 6. 1472 cubic inches of 10 mesh minus material was collected through the approximate 3 foot length of screen. Tailings off the screen were collected and reprocessed through a 10 mesh screen to obtain an additional amount of 278 cubic inches of 10 mesh minus material. The calculated sluice box screen efficiency was 84%. This suggests that an acceptably high screen efficiency could be obtained by doubling or tripling the length of the sluice box with its screen.

The efficiency of the riffle ladder in collecting heavy mineral concentrate can be determined by examining the Sample Processing Scheme for Samples No. 2 and 7. 1382 cubic inches of material collected by the riffles yielded 276 cubic inches of bullseye concentrate. 14,688 cubic inches of material off the riffles yielded 1037 cubic inches of bullseye concentrate. The material collected by the riffles contained about 20% of bullseye concentrate while the material off the riffles contained about 7% of bullseye concentrate. The concentration factor, therefore, was about a factor of 2.8. Also, a considerable loss of concentrate off the riffles was occurring so that a correction of this loss would require that the riffle length be increased by a factor of several times.

CONCLUSIONS

Interesting concentrations of satellite minerals were obtained at several locations along the northerly loop of a creek flowing from west to east through the 7-claim group.

Although no diamonds were found, further work could be undertaken by taking advantage of the ability of the "gold-divers" dredge to move large amounts of material from locations along the creek. The efficiency of the sluice box could be improved by lengthening it considerably and the aperture of the screen above the riffles could be reduced somewhat to obtain more interesting concentrations of satellite minerals.

Various types of equipment were tested and various processing methods were employed as set forth in this report and the Beneficiation Studies submitted in September, 1968. It is believed that the suction dredge and sluice modified as discussed above offers a useful tool for further exploration work.

Respectfully submitted,

Raymond A. Erickson

Raymond A. Erickson, P. Eng.,
Chemical Engineer

B.R.G.M. (Bureau of Geological and Mining Research)
S.G.N.
Department Laboratories
Service of Mineralogy

Study: M 2274/1160
Your letter dated September 25, 1969

S.A.R.E.M.C.I. SAMPLES

by

A. PARFENOFF

B.R.G.M. (Bureau of Geological and Mining Research)
S.G.N.
Department Laboratories
Service of Mineralogy

Study: M 2274/1160

S.A.R.E.M.C.I. SAMPLES

The data represented in the attached tables are in connection with the investigations on satellite minerals of diamond in 7 samples furnished by Mr. DeBelza.

The positive results obtained are in connection with plainly significant aspects. Numerous grains and fragments, particularly in the case of the monoclinic pyroxenes, may possibly come from diamondiferous rock; their detailed study and possible interpretation which might follow are not included in this work.

The following observations are indicated:

No diamond was detected.

Chromite and peridot were observed in a number of samples.

Certain grains and fragments of the satellite minerals made conspicuous present marks of fracture which freshness was quite astonishing.

Orleans, November 7, 1969

(Signed)

A. Parfenoff

(Seal)

Department Laboratories
R. Pierrot
Chief of the Service of Mineralogy

Scheme of the operations followed for the

Investigations of the satellites of diamond

Raw sample

Screen-sized cuts
(0.50 mm, 1.00 mm and 1.40 mm)

(Translator's Note: The attached tables show cuts made at 1.00 mm and 2.00 mm)

Separations
(Magnetic and Specific gravity)

Reserved fractions for the investigation of the diopside

Picking out under binocular microscope of the "pyroxenes" with aspects comparable to those typical of chrome diopside.

Checking by optics and qualitative microchemistry for chromium

Reserved fractions for the investigation of the pyrope

Picking out under binocular microscope of the "garnets" with aspects comparable to those typical of chrome pyrope.

Checking by optics, qualitative microchemistry for chromium and X-rays.

Reserved fractions for the investigation of the ilmenite

Picking out under binocular microscope of the "ilmenite" with aspects comparable to those typical of magnesium ilmenite.

Checking by optics and semi-quantitative determination of MgO by the measurement of the reflecting power.

The results are considered as:

Negative if they are <5% (the ilmenite is considered as negligible).

Dubious if they are $\cong$5% (in the order of 5%: about 4.5 - 5.5%).

Positive if they are >5% (the ilmenite is considered as "magnesium-containing").

INVESTIGATION OF THE SATELLITES OF DIAMOND

Permanent Reference: SAREMCI - SM/MB/JB/3343 Study No. M 2274/1160

Satellites / Sample No.	Magnesium Ilmenite				Chrome Pyrope			Chrome Diopside			Observations
	Sized Fraction-mm.	Grains Picked Out	Verification: Grains Positively Identified	Verification: MgO % (appr.)	Sized Fraction-mm.	Grains Picked Out	Verification: Grains Positively Identified	Sized Fraction-mm.	Grains Picked Out	Verification: Grains Positively Identified	
1	-1	--	---	--	-1	11	---	-1	46	---	1 diopside - doubtful
2	-1	7	---	--	-1	11	8	-1	50	---	8 diopside - doubtful
3	+1	23	10	8-10	+1	25	19	+1	51	1	
3	-1	47			-1	44	17	-1	55	1	+2 diopside - doubtful
4	2-1	2	---	--	2-1	7	5	2-1	88	---	
4	-1	7	---		-1	19	3	-1	15	---	
5	+1	1	1	8	+1	4	3	+1	100	---	1 diopside - doubtful
5	-1	--	---	--	2-1	2	---	-1	21	---	
6	2-1	4	5	8-10	2-1	4	3	2-1	22	---	1 diopside - doubtful
6	-1	6			-1	12	7	-1	41	1	+1 diopside - doubtful
7	+1	1	10	8-10	+1	12	6	+1	>100	1 (?)	+ some diopside - doubtful
7	-1	41			-1	>100	20	-1	>100	8	+ some diopside - doubtful

M 2274/1160

Weight of the Fractions (in grams)

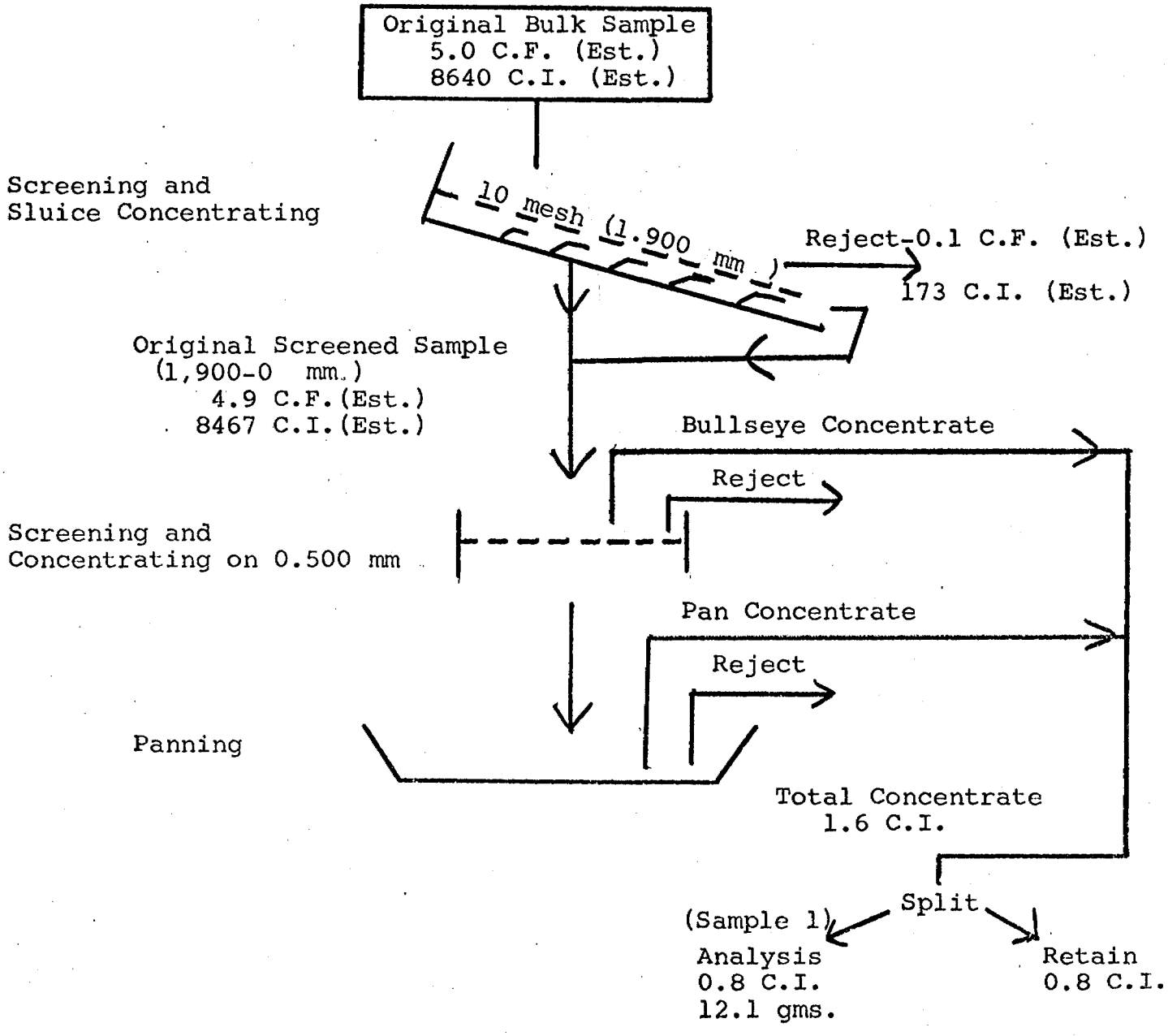
Sample Number	1	2	3		4			5		6			7	
Whole Sample	12.1	25.1	148.5		755.9			2 577.2		520.3			2 133.3	
Sized Fractions	12.1	25.1	+1mm	-1mm	+2mm	1-2mm	-1mm	+1mm	-1mm	+2mm	1-2mm	-1mm	+1mm	-1mm
			119.8	28.7	1.8	300.4	453.7	2497.1	80.1	3.6	456.8	59.9	931.8	1 201.5
Specific Gravity 2.89 < d <3.33	4.93	7.00	89.72	19.15		66.68	62.09	752.77	19.97		199.08	31.63	285.47	273.46
Specific Gravity d> 3.33	0.88	6.58	3.58	3.32		0.38	3.07	2.84	0.27		2.08	1.18	2.37	9.73

SAMPLE PROCESSING SCHEME

SAMPLE NO. 1

Claim Number: L86217

Location: Base Line, 700'W



Abbreviations:

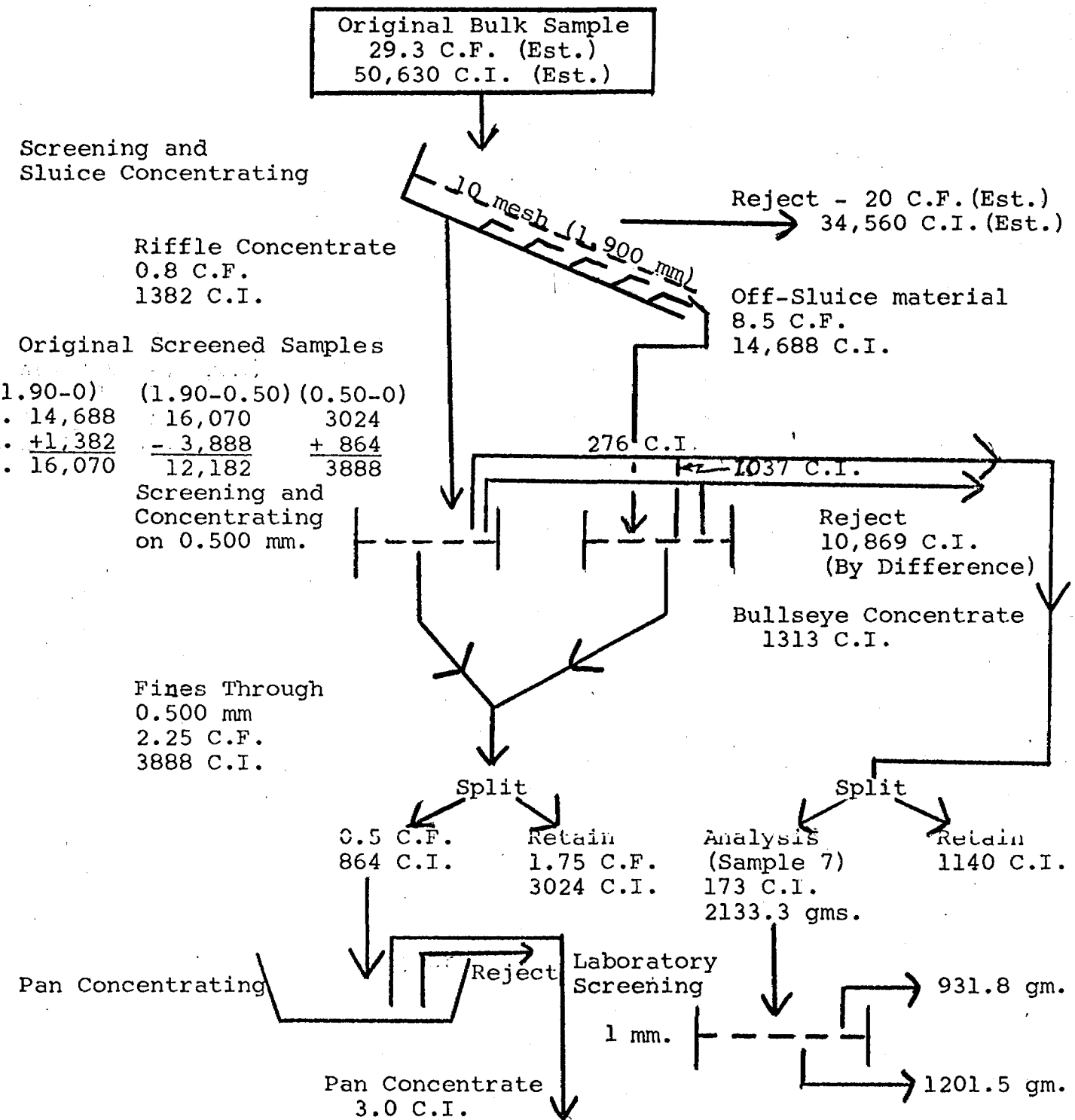
C.F. - Cubic Feet
C.I. - Cubic Inches
Est. - Estimated
mm. - millimeters
gms. - grams

SAMPLE PROCESSING SCHEME

SAMPLES NO. 2 & 7

Claim Number: L86216

Location: 4000'W, 100'N



Abbreviations:

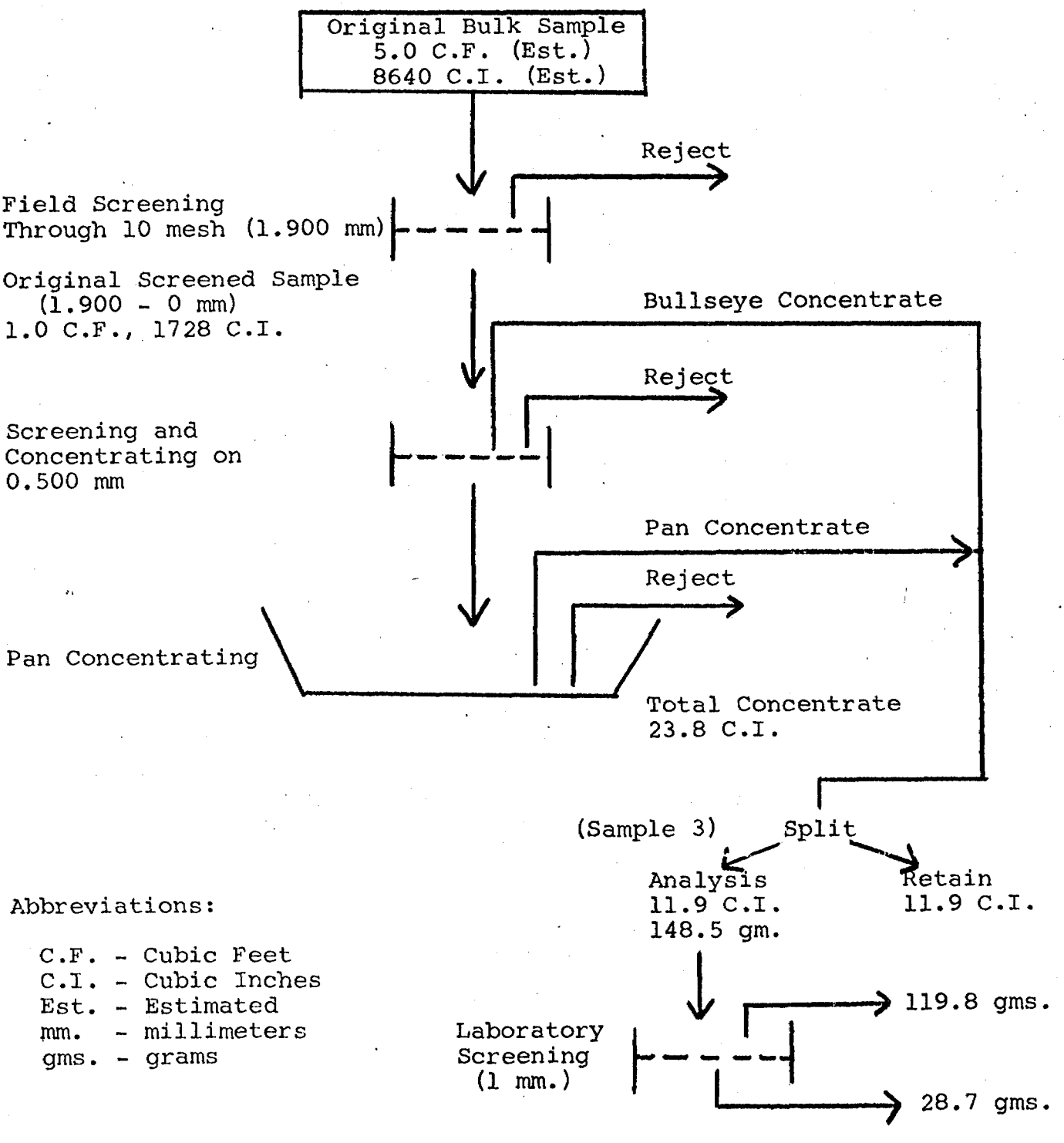
C.F. - Cubic Feet
C.I. - Cubic In.
Est. - Estimated
mm. - millimeters
gms. - grams

SAMPLE PROCESSING SCHEME

SAMPLE NO. 3

Claim Number: L86215

Location: 3350'W, 5'N



Abbreviations:

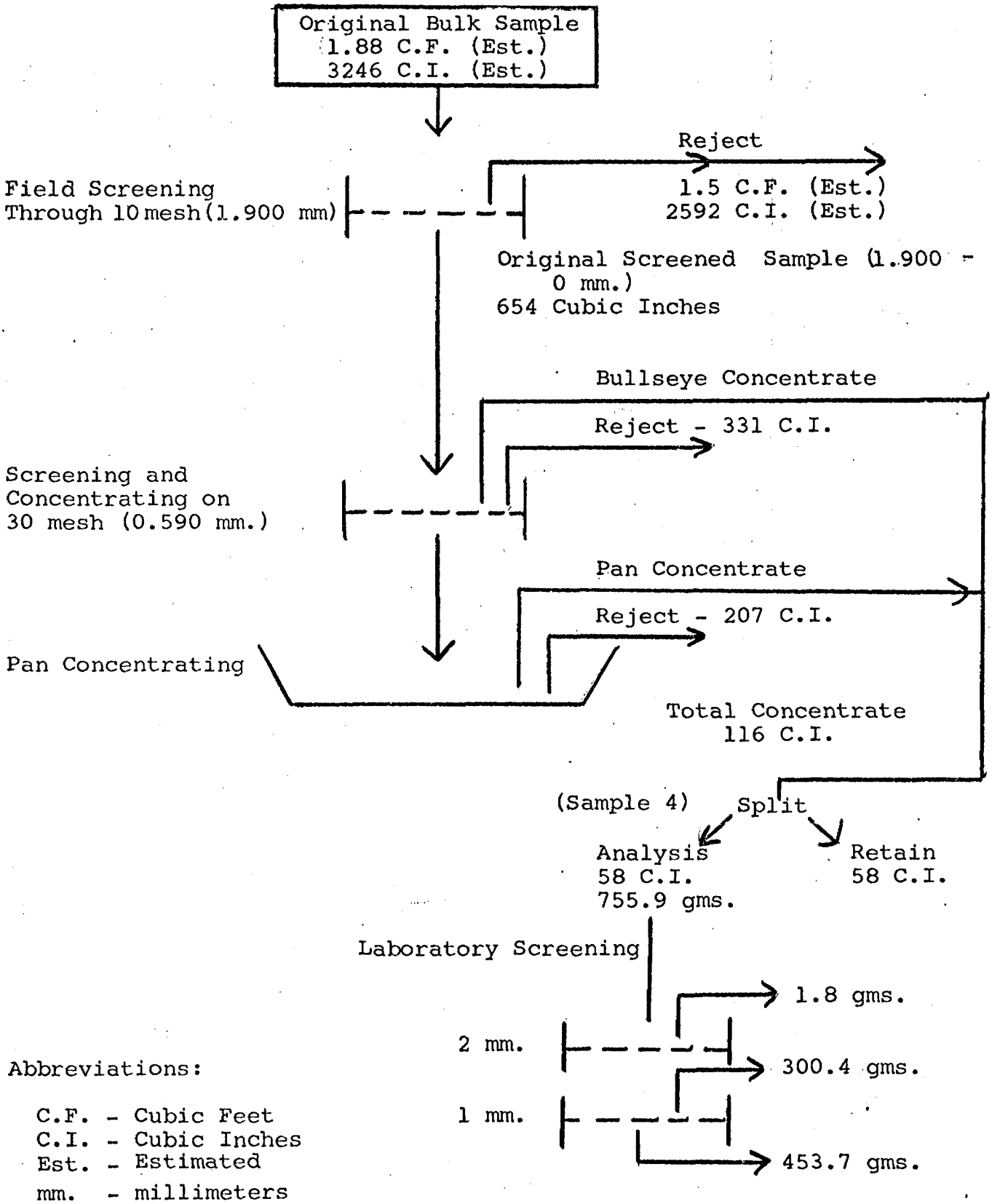
C.F. - Cubic Feet
C.I. - Cubic Inches
Est. - Estimated
mm. - millimeters
gms. - grams

SAMPLE PROCESSING SCHEME

SAMPLE NO. 4

Claim Number: L86215

Location: Base Line, 3550'W



Abbreviations:

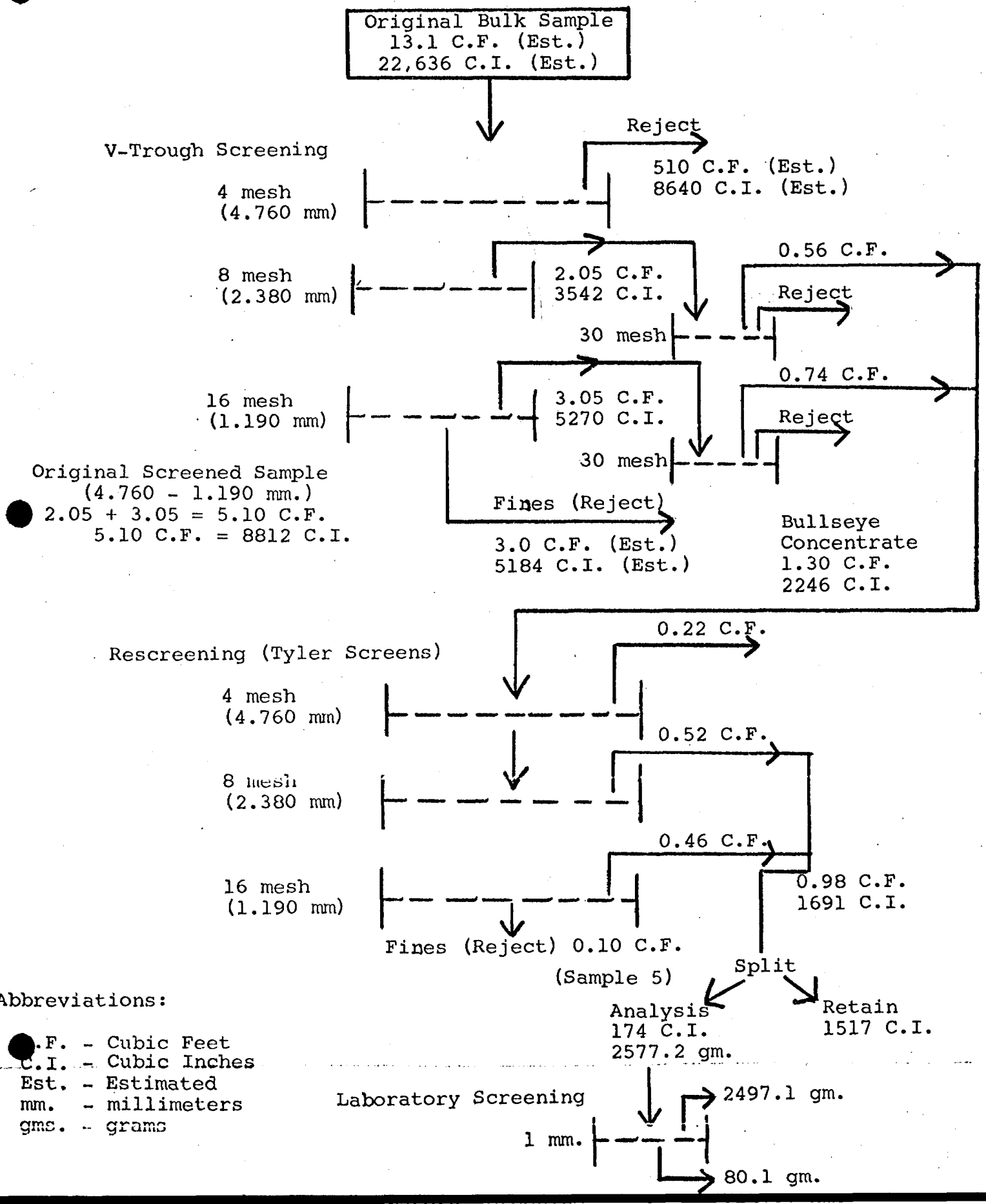
C.F. - Cubic Feet
C.I. - Cubic Inches
Est. - Estimated
mm. - millimeters
gms. - grams

SAMPLE PROCESSING SCHEME

SAMPLE NO. 5

Claim Number: L86216

Location: 4000'W, 100'N



Abbreviations:

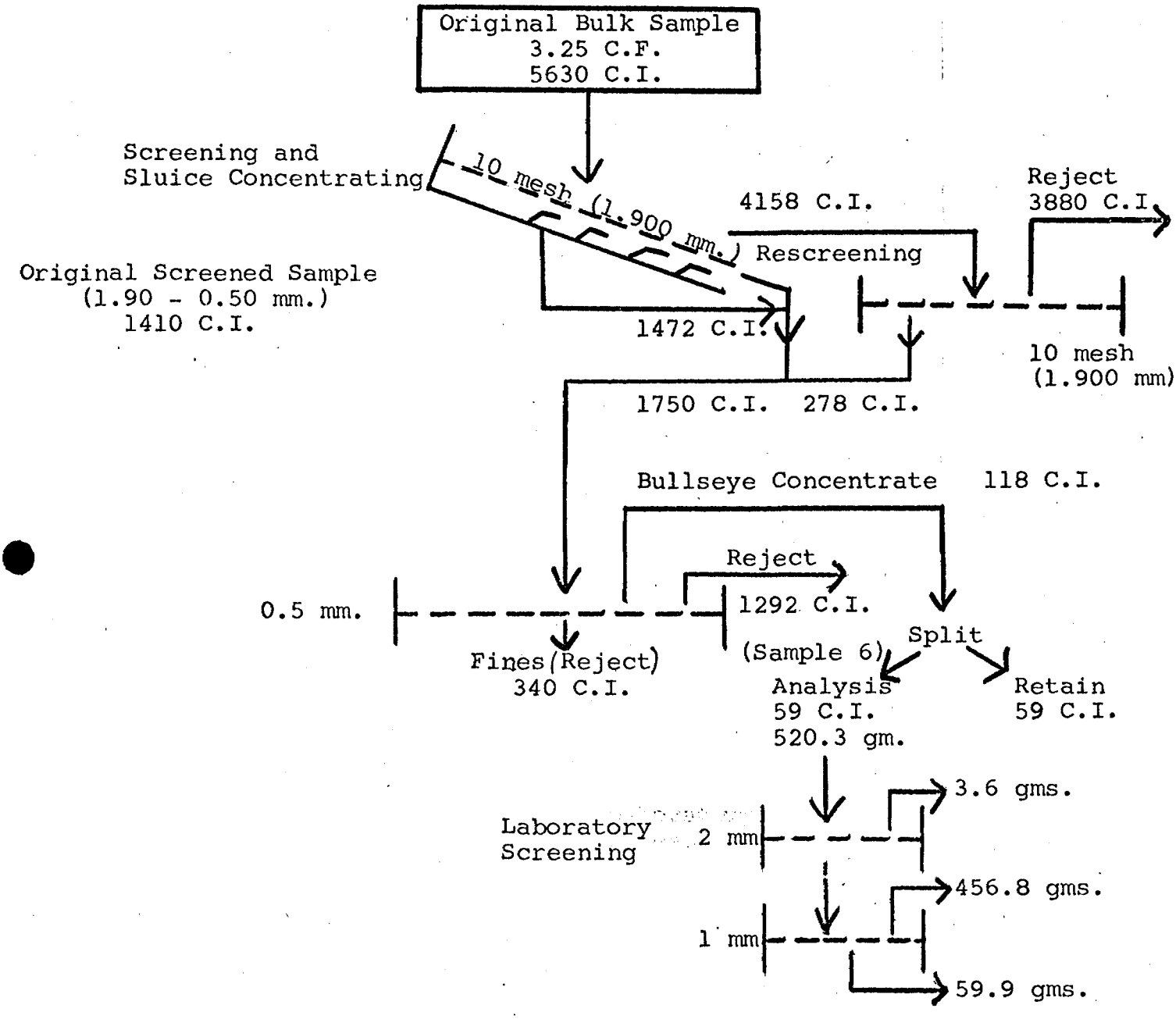
C.F. - Cubic Feet
C.I. - Cubic Inches
Est. - Estimated
mm. - millimeters
gms. - grams

SAMPLE PROCESSING SCHEME

SAMPLE NO. 6

Claim Number: L86216

Location: 3900'W, 100'N



Abbreviations:

C.F. - Cubic Feet
C.I. - Cubic Inches
Est. - Estimated
mm. - millimeters
gms. - grams

TABLE I

CALCULATION SUMMARY

Sample No.	Grams	Cubic Inches	Cubic Feet	Counts Mg Ilmenite	Counts Cr Pyrope	Counts Cr Diopside
1 (L86217, B/L, 700'W) - Middle of Single Claim						
1.900 - 0 mm. Screen Size Total Counts						
Analyzed Sample	12.1	0.8		0	0	0
Total Concentrate		1.6		0	0	0
Original Screened Sample		8467[E]	4.9[E]	0	0	0
Counts per Cubic Foot						
Original Screened Sample			1.0	0	0	0
2 (L86216, 100'N, 4000'W) - Slow Moving Spring						
0.500 - 0 mm. Screen Size Total Counts						
Analyzed Sample	25.1	1.5		0	8	0
Pan Concentrate		3.0		0	16	0
Fines to Pan Concentration		865	0.5	0	16	0
Total Fines (original Screened Sample)		3888	2.25	0	56	0
Counts per Cubic Foot						
Original Screened Sample			1.0	0	25	0

TABLE I (Continued)

	Grams	Cubic Inches	Cubic Feet	Counts: Mg Ilmenite	Counts: Cr Pyrope	Counts: Cr Diopside
7 (L86216, 100'N, 4000'W) - Slow Moving Spring						
1.900 - 0.500 mm. Screen Size Total Counts						
Analyzed Sample	2133.3	173		10	26	9
Bullseye Concentrate		1313		76	198	68
Original Screened Sample		12,182	7.05	76	198	68
Counts per Cubic Foot						
Original Screened Sample			1.0	11	28	10
2 + 7 (L86216, 100'N, 4000'W) - Slow Moving Spring						
1.900 - 0 mm. Screen Size Total Counts						
Original Screened Sample		16,070	9.3	76	254	68
Counts per Cubic Foot						
Original Screened Sample			1.0	8	27	7
3 (L86215, 5'N, 3350'W) - Gravel Bar						
1.900 - 0 mm. Screen Size Total Counts						
Analyzed Sample	148.5	11.9		10	36	2
Total Concentrate		23.8		20	72	4
Original Screened Sample		1728	1.0	20	72	4
Counts per Cubic Foot						
Original Screened Sample			1.0	20	72	4

TABLE I (Continued)

	Grams	Cubic Inches	Cubic Feet	Counts: Mg Ilmenite	Counts: Cr Pyrope	Counts: Cr Diopside
4 (L86215, B/L, 3550'W) - Hillside						
1.900 - 0 mm. Screen Size						
Total Counts						
Analyzed Sample	755.9	58		0	8	0
Total Concentrate		116		0	16	0
Original Screened Sample		654	0.38	0	16	0
Counts per Cubic Foot						
Original Screened Sample			1.0	0	42	0
5 (L86216, 100'N, 4000'W) - Slow Moving Spring						
4.760 - 1.190 mm. Screen Size						
Total Counts						
Analyzed Sample	2577.2	174		1	3	0
Total Concentrate		1691		10	29	0
Original Screened Sample		8812	5.1	10	29	0
Counts per Cubic Foot						
Original Screened Sample			1.0	2	6	0

TABLE I (Continued)

	Grams	Cubic Inches	Cubic Feet	Counts Mg Ilmenite	Counts Cr Pyrope	Counts Cr Diopside
6 (L86216, 100'N, 3900'W) - Fast Moving Spring						
1.900 - 0.500 mm. Screen Size						
Total Counts						
Analyzed Sample	520.3	59		5	10	1
Bullseye Concentrate		118		10	20	2
Original Screened Sample		1410	0.82	10	20	2
Counts per Cubic Foot						
Original Screened Sample			1.0	12	24	2

E - Estimated

TABLE II

SUMMARY OF RESULTS

Original Screened Samples Screen Size - mm.	Counts per Cubic Foot Mg Ilmenite/Cr Pyrope/Cr Diopside 4.76-1.19	1.90-0	1.90-0.50	0.50-0
Sample No.				
1 (L86217, B/L,700'W)		0/0/0		
2,5,&7(L86216, 100'N, 4000'W)	2/6/0	8/27/7	11/28/10	0/25/0
3 (L86215, 5'N,3350'W)		20/72/4		
4 (L86215, B/L,3550'W)		0/42/0		
6 (L86216, 100'N,3900'W)			12/24/2	

Geological Survey of Canada Samples** Screen Size - mm.	Counts per Cubic Foot 1.23 - 0.50
Sample No.	-/Pyrope/-
21 (15.0 Miles Upstream*)	-/0/-
22 (13.5 Miles Upstream*)	-/0/-
23 (10.5 Miles Upstream*)	-/0/-
24 (9.5 Miles Upstream*)	-/12/-
25 (7.0 Miles Upstream*)	-/44/-
26 No results reported	
27 No results reported	
28 (2.0 Miles Upstream*)	-/106/-
29 (0.7 Miles Upstream*)	-/60/-
30 (0.7 Miles Downstream*)	-/42/-
31 (5.0 Miles Downstream*)	-/148/-
32 (8.0 Miles Downstream*)	-/38/-
33 (10.0 Miles Downstream*)	-/54/-
34 (11.5 Miles Downstream*)	-/122/-

* Approximate Distance upstream or downstream along Munro Esker from middle of L86216.

** G.S.C. Paper 65-14, "Investigation of Esker for Mineral Exploration" by Hulbert A. Lee.

TABLE III

SUMMARY OF SAMPLES

SAMPLE NUMBER	SAMPLE LOCATION	SAMPLE STRATA	ORIGINAL BULK SAMPLE CUBIC FEET	ORIGINAL SCREENED SAMPLE CUBIC FEET
1	L 86217 B/L, 600'W	Sand deposited in the past by some stream action.	5.0[E]	4.9[E](1.9-0mm.)
2	L 86216 100'N,4000'W	Sand and gravel in slow moving spring.	29.3[E]	2.25(0.5-0mm.)
3	L 86215 5'N, 3350'W	Gravel bar in creek.	5.0[E]	1.0(1.9-0mm.)
4	L 86215 B/L, 3550'W	Sand and gravel on hillside.	1.88[E]	0.38(1.9-0mm.)
5	L 86216 100'N, 4000'W	Samd and gravel in slow moving spring.	13.1[E]	5.1(4.76-1.19 mm.)
6	L 86216 100'N, 3900'W	Sand and gravel in fast moving spring.	3.25	0.82(1.9-0.5 mm.)
7	L 86216 100'N, 4000'W	Sand and gravel in slow moving spring.	29.3[E]	7.05(1.9-0.5 mm)

E - Estimated

BENEFICIATION STUDIES

ERICKSON CLAIMS

McELROY TOWNSHIP

LARDER LAKE MINING DIVISION

PROVINCE OF ONTARIO

RAYMOND A. ERICKSON

KIRKLAND LAKE, ONTARIO

SEPTEMBER 8, 1968

I N T R O D U C T I O N

During the Summer of 1968, beneficiation studies were conducted by Mr. Raymond A. Erickson on 8 claims registered in his name in McElroy Township, near Kirkland Lake, Ontario. The purpose of the beneficiation studies was to explore for diamonds as well as for gold. Preparation for such studies was started earlier in the year with the announcement of a large scale diamond search now being made along the Munro esker, which traverses the 8 claims upon which the studies were made.

This report presents the current status of the beneficiation studies with regard to the preparation, field work, sampling, sample results thus far and sample examination yet to be accomplished.

PROPERTY AND LOCATION

The 8 claims are located in McElroy Township about 10 miles East of Kirkland Lake, Ontario, as shown in the map at the back of the report. A single claim, L-86217, (property "B" on the map) is located near the center of McElroy and is reached by driving a car past the Adams Mine to a pump house along the Misema River followed by walking on old logging roads. A 7-claim group, (property "A" on the map) is located in the North-central part of McElroy Township with a turn-off along Route 66 just east of the Esker Lake Provincial Park turn-off.

The 7 claims in this group are:

L-86211

L-86212

L-86214

L-86215

L-86216

L-86218

L-86219

B A C K G R O U N D

The claims were staked originally to search for buried placer gold in an ancient river valley system, originally defined in a publication written by Hulbert A. Lee (1) and in an article co-authored by A. Grant and G. Hobson (2).

Seismic work done in the summers of 1965 and 1966 established that the depth to bedrock ran from 131 to 312 feet over the surveyed area of the 7-claim group and a depth to bed-r rock of about 100 feet on the single claim. The seismic survey work was reported for assessment work credit in October, 1965 and September, 1966.

Work during the summer of 1968 consisted of drilling with hand tools to depths of 35 feet. This established the presence of traces of gold after the penetration of a few feet of sand and gravel with one anomalous high gold content of 0.58 ounces per ton. The location of the drilling was on the 7-claim group at 4,000' west and 70' north on the lines cut for seismic work. At this location there is a slow-moving spring flowing out of the esker sands and into the creek which makes a northerly loop through the 7-claim group.

(1) Lee, Hulbert A. Buried Valleys near Kirkland Lake, Ontario, Geological survey of Canada, paper 65-14.
(2) Grant, A. and Hobson, G. Tracing Buried Valleys in the Kirkland Lake area by Hammer Seismograph, Canadian Mining Journal, Vol. 85, No. 4.

Work planning for the summer of 1968 was oriented to the press announcements in March, 1968, of the discovery of kimberlite in the Upper Canada Mine and of the possibility of diamonds occurring along a section of the Munro esker which traverses the 8 claims in McElroy Township. Sampling of sands and gravels was done on a grid pattern over the claims late in May, 1968. The results of this work will be reported along with soil and water testing for geochemical survey credit. One result established a considerable content of garnets (including kimberlite-derived garnets) from the north side of the spring where the drilling had been done. Also, chrome diopside grains (another kimberlite indicator mineral) were found. This led to structuring the beneficiation studies which are the subject of this report.

P R O G R A M

The beneficiation studies generally have been directed to obtaining larger samples of sand and gravel than those originally taken in May and to attempt to work out the sampling on a semi-production basis in order to process the large quantities of material desirable for establishing diamond content which can run commercially as low as 1 part per 20,000,000 or more by weight.

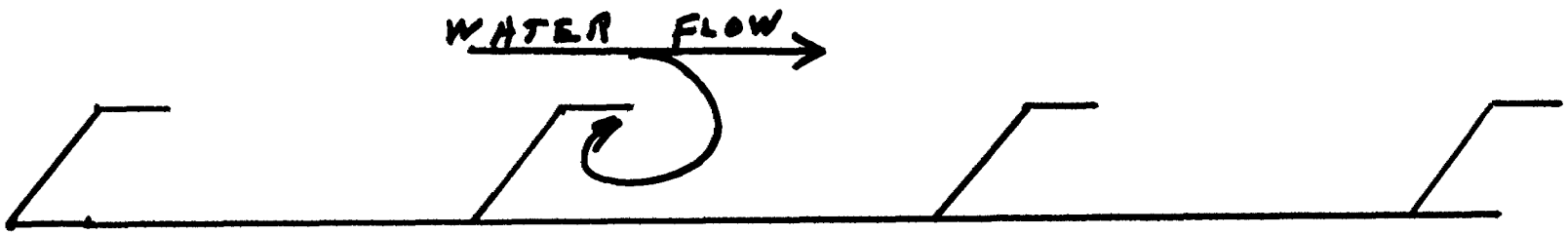
The initial program early in July was based on the use of large area trough type screens followed by concentration using gravitation in hand held circular screens. The experience gained from this initial program was used in structuring the later program carried out in the field during the last week in August and the first week in September.

The program included the selection, design and construction of equipment for use in the field for the continuous removal of sampled material and in-line concentration of the heavy minerals. The continuous removal of material and initial concentration was to be accomplished by the use of suction dredge powered by a high velocity stream of water on a venturi nozzle following which the water slurry is passed over riffles for recovery of gold and large heavy mineral grains. Final concentration was to be accomplished in a 2-compartment Denver-type mineral jig. Surging of the water alternately in the 2 compartments was to be accomplished by the use of 3-way fluidics valve (no moving parts).

SELECTION AND DESIGN OF EQUIPMENT

The screens used in the initial program were constructed of 1" X 2" furring strips in a V-trough design so that the fines through one screen dropped onto the next Three screens were used being sized at 4 mesh, 8 mesh and 16 mesh. Each screen had an area exposure of 1' 8" X 4' 9".

A "gold-divers" dredge (popularized in California) was used for the continuous removal and initial concentration of sample material. Model 2500 was purchased from the Keene Engineering Company of North Hollywood, California. A catalog picture of Model 2500 is shown in the back of the report. Also shown is Model 4550 which shows the manner in which the machine is arranged for placer gold recovery from streams. Model 2500 features a high head (70-80 psig), high volume (100 U.S. gallons/minute) centrifugal pumps powered by a 4 HP gasoline motor. Water output is directed through a hand-hold jet into the elbow of the suction dredge. The suction nozzle in this work was constricted to a 1¼" nominal pipe nipple with an adapter. Suction capacity is rated at 100 U.S. g.p.m. or its equivalent in slurry loading up to a concentration of 70% solids. Slurry and jet water output are directed through a 2½" hose into a velocity breaker box (with feed apron) at the top of a 5' long aluminum sluice. The riffles are constructed like a ladder for quick removal. The Hungarian type riffles have the following profile:



An ozite pad lies under the riffles for trapping fine gold.

Each compartment of the 2-compartment Denver-type mineral jig had a Johnson non-blinding type screen 6" X 8" in size with a slot width of 0.100". 3/16" steel balls were used on top of the screens. The heavy mineral collection cones terminated in a 3/8" gate valve.

It was desired to surge the water available from a portable pump to each compartment alternately. An attempt to do this with a 3-way rotary plug valve failed. It was decided to use a fluidics 3-way valve (no moving parts). A 1" inlet and outlet valve was ordered from Moore Products Co., Spring House, Pa. The water input to the valve can be switched from one outlet to the other by shutting off or opening up the supply of atmospheric air to a control port. This was easily accomplished in the field by dropping a rubber tube from the control port to a water surge pot that responded to the water level in one of the 2 compartments. A cycle rate of once per second was obtained.

During the program conducted early in July, material from the bottom of a slow-moving spring (4,000' W, 100' N. on grid system for 7-claim group) was shovelled onto a 4 mesh screen for rejection of oversize. A total of 2.05 cubic feet of coarse material was collected on the 8 mesh screen. A total of 3.05 cubic feet of fine material was collected on the 16 mesh screen. Heavy minerals from each of these fractions was concentrated by gravitation through hand held 8" circular screens resulting in reducing the volume of coarse material to 0.56 cubic feet and the fine material to 0.74 cubic feet. This was rescreened and recombined to give the following overall results:

Mesh	Cu.Ft.
+4	0.22
+8-4	0.52
+16-8	0.46
+30-16	0.09
-30	0.01
	1.30

This sized material awaits further examination. An interesting result of this work was the discovery of a 1/8" garnet of kimberlitic origin, one of very few garnets of this size found in the region.

The initial processing sequence for the field work starting in late August was the removal of material by the suction dredge, initial concentration over the Hungarian riffles followed by final concentration in the 2-compartment jig. Sampling was done in the same spring as was sampled by July. Photograph "A" in the back of the report shows an overall view of the spot, viewed from where drilling was done the previous summer. Photograph "B" shows the operation of the suction dredge. Photograph "C" shows the initial try-out of the sluice dumping its tailings on the screens previously used in July. The jig with its water pump and 3-way valve (trianguler shaped) is shown in the background. Photograph "D" shows the 2-compartment

jig constructed of plywood with a close-up view of the 3-way valve and the 1¼" pipe with rubber hose inserted that contained a fluctuating water level that controlled the supply of air to the control port.

It was soon found that the sluice riffles became quickly clogged with coarse material up to 1" in size sucked up by the dredge. Also the jig accumulated rocks too readily to be able to operate on the fines.

An attempt was made to screen out rocks at the suction inlet by attaching a Johnson 0.125" slotted well point with all but the bottom inch taped over. This did not work since the slots became plugged quickly. The riffles were covered over with 10 mesh screen elevated about 3/8" above the top of the riffles. This worked very well as a way of rejecting oversize with the screen extending about 6" beyond the end of the sluiceway. Undersize rejected with the oversize was measured on one test and found to be about 15%. With sized feed, the jig operated better but it was too touchy to control under varying field conditions. Control air input into one of the jig compartments was also a complicating factor. After a few days, jig operation was abandoned. Samples were taken of jig concentrate.

When the riffle ladder was removed, it was noted that black sands, garnets and other heavy minerals had accumulated on top of the bed of material remaining in the sluiceway and were readily visible in a straight line just off the trailing edge of each riffle. Samples were taken of the heavy minerals showing up on the top of the jig bed, both by scraping with a spoon and plucking with tweezers. Kimberlite-derived minerals were found in these samples by visual examination.

An attempt was made to substitute a sluice with a Denver rubber mat for the jig for final concentration as shown in photograph "E". The large flow of water was a problem that would require use of some water diversion or dewatering device. Also the 5' sluice used

was not long enough.

Sluice tailings 8.5 cubic feet were saved along with sluice bed material (0.8 cubic feet). Heavy minerals were concentrated by gravitating on a 0.5 millimeter opening screen 17" in diameter in a tub of water and inverting the gravitated material on a flat place to expose the bullse e of heavy minerals for scraping.

A spring with a very large flow of water is located about 100' east of the original sampling spot. This stream bed was sampled as shown in photograph "F". The heavy minerals from the 10 minus mesh material was concentrated by gravitation.

A gravel bar is located in the creek at base line 3350' W, 5' N. This was sampled by shovelling and sifting through a 10 mesh screen.

About 5 cubic feet of material yielded 1.0 cubic feet of sized material. This was concentrated by gravitation of sized material and panning of the fines. The heavy mineral fraction was sized through 8 and 16 mesh screens. The +16-8 fraction yielded 8 purple colored garnets by preliminary count of definite kimberlitic origin. This fraction also contained 24 other garnets, some of possible kimberlitic origin. The 16 minus fraction contained by preliminary count 444 garnets of which 36 are purple garnets of definite kimberlitic origin.

About 5 cubic feet of total sample was obtained from base line 700' west on the single claim. This was screened over the dredge to reject 10 mesh oversize and then concentrated by sizing, gravitating and panning of fines.

An attempt was made to suck up gravel and sand for gold recovery from a layer below 10' of clay penetrated with a 2" casing at the drill site. This attempt failed because the dredge suction was insufficient to lift from this depth.

RESULTS AND CONCLUSION

Results obtained by visual examination to date indicate that kimberlitic minerals are quite easily obtained in an area on a northern loop of a creek running through the claims. Further results depend on the outcome of further processing of the samples which is planned.

Of the equipment tested, the suction dredge and sluice offers the most promise of being a useful development tool. Further work is being directed towards improving riffle action, control of water flow, improvement in the method of screening above the riffles and processing of tailings. It is expected that this tool along with sampling and concentrating techniques acquired will serve usefully in further exploration work.

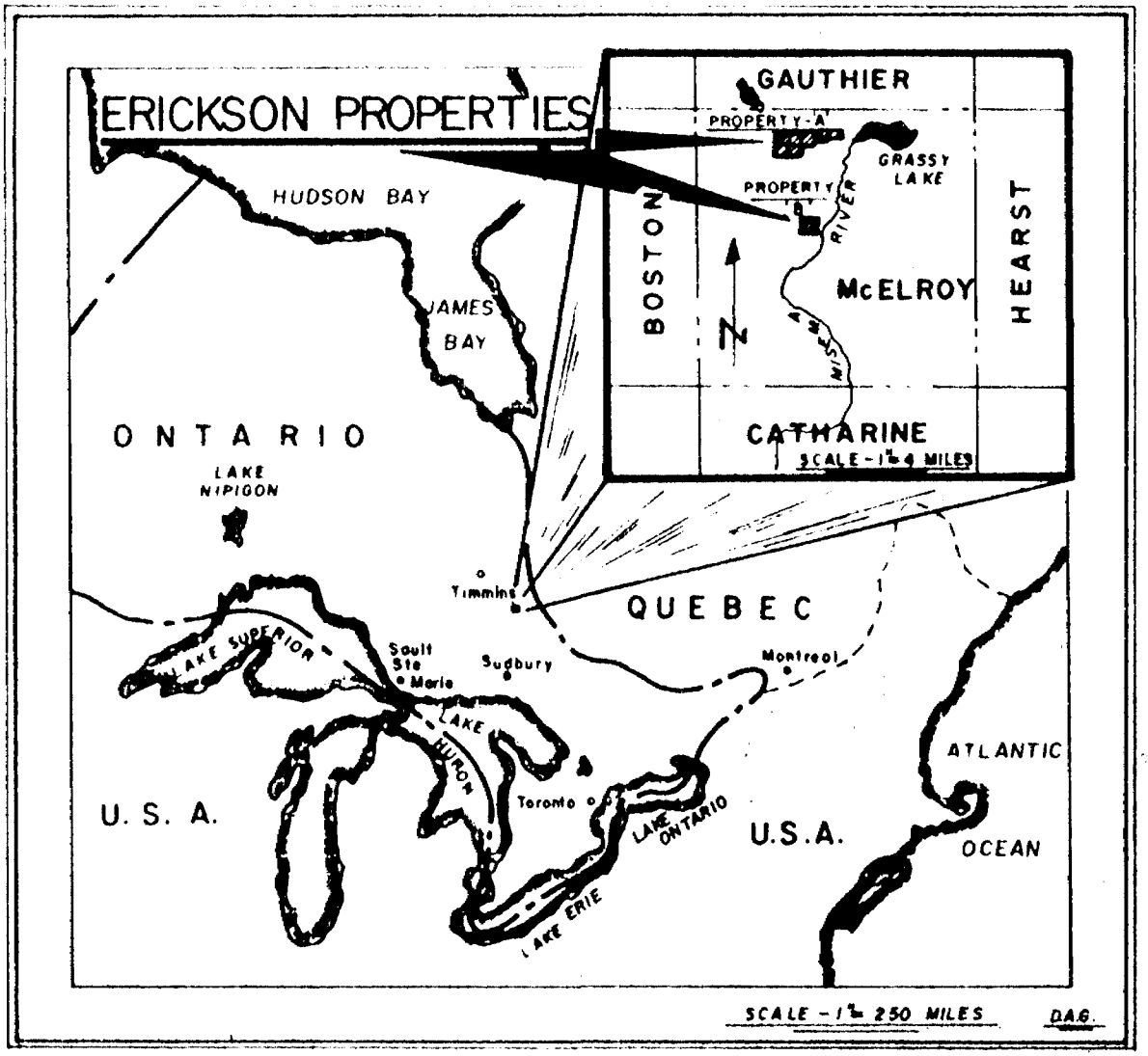
Respectfully submitted,

Raymond A. Erickson, P. Eng.,
Chemical Engineer.

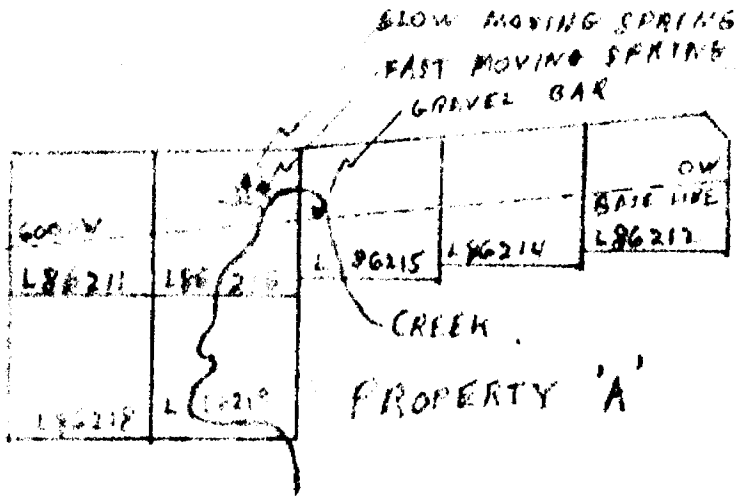
601 S. Burton Place
Arlington Heights, Ill.
USA 60005

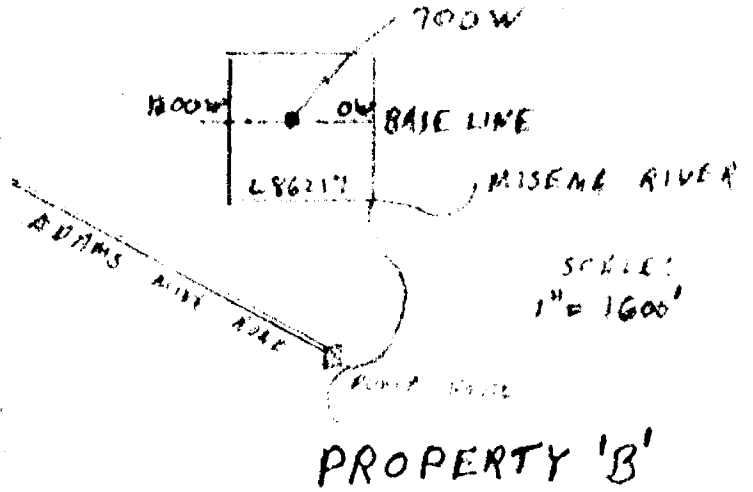
Kirkland Lake, Ontario
September 8, 1968

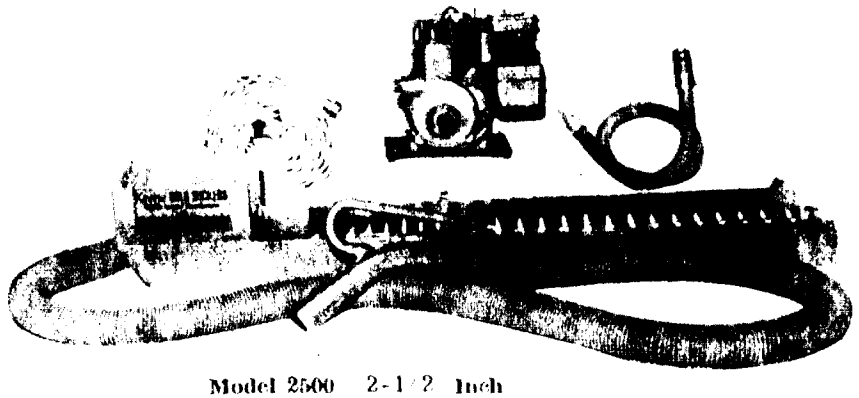
LOCATION MAP



CLAIM SKETCH MAPS
Sample Locations

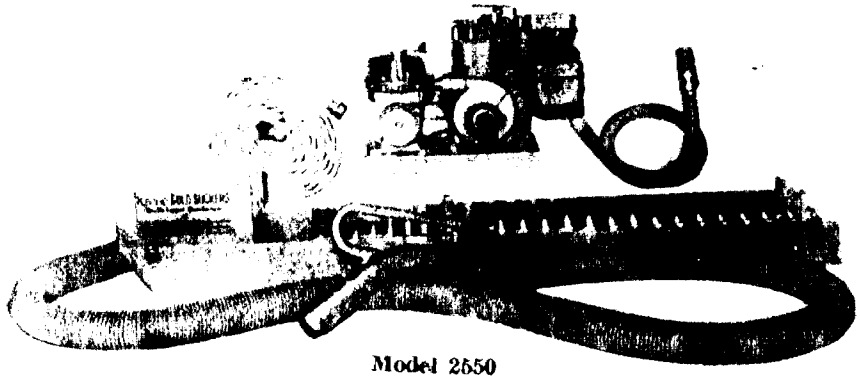






Model 2500 2-1/2 Inch

This ultra lightweight machine is designed for the professional requiring minimum weight, ease of operation and recovery of extra fine flower gold as well as coarse. The extreme flexibility of the suction hose allows the prospector to get at difficult places without the use of diving equipment, such as small streams, creeks, etc. The suction nozzle at the end of the hose serves as a useful probe and tool to loosen hard pack gravel. This machine can be used in very small areas of water. Minimum depth is one inch of water and can be taken to twenty feet by adding extra suction hose. This unit is powered by a four H. P. Briggs and Stratton Engine with recoil Starter and the new P100 aluminum close couple pump. A five foot aluminum sluice box containing deep Hungarian type riffles and oval riffles for filtering out extremely fine flower gold. Both riffle sections are removable by quick release snaps attached to the side of the box. The matting used under the riffles is a new product of Dupont that has proved extremely successful in hold fine mesh gold and will not deteriorate in water. Ten foot of suction hose, 12-1/2 feet of high pressure hose and suction nozzle with a crevis attachment that fits on the nozzle for an extension. This machine has a potential of moving up to four cubic yards of loose pack material per hour. Weight - 70 lbs; Fuel Consumption - 2-1/2 hours per gallon . . . . . Price $299.50



Model 2550

This model comes equipped with the same equipment as Model 2500 and features the adaption of a hookah compressor. The compressor is belt driven from an internal pulley from the pump housing, providing an extremely compact power unit. This compressor will supply air for two divers with the use of reserve tank. Weight - 84 lbs; Fuel Consumption - 2-1/2 hours per gallon . . . . . Price - $359.50

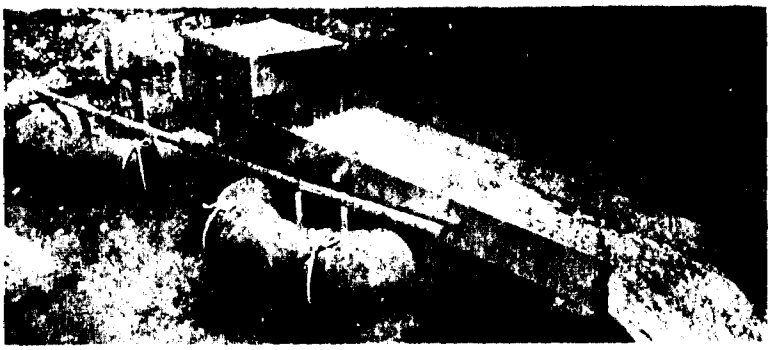
SURFACE SLUICE DREDGES

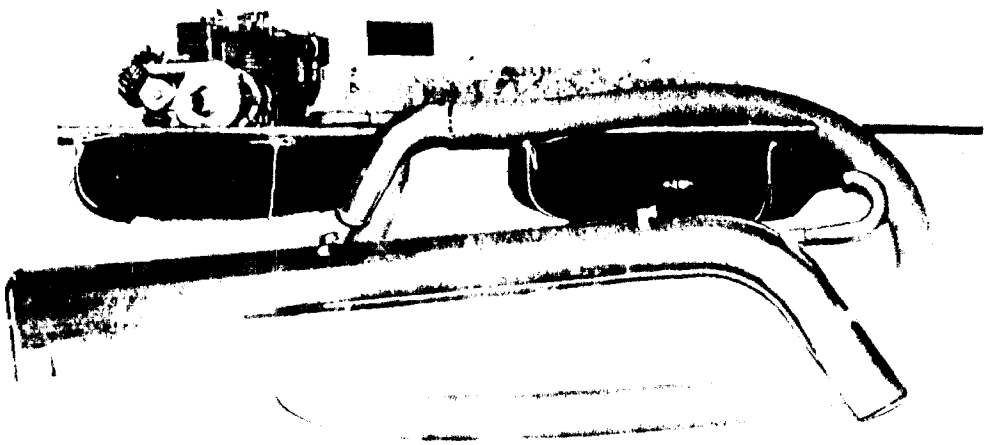
Models 4550, 4552, and 4555 - converted for recovery of alluvial diamonds add $65.00 to list price.

Models 4550 and 4552 can be obtained with horizontal Briggs and Stratton Engine with P-200 Pumps as optional at no additional price.

For depths in excess of 45 feet contact the factory for special quotations for larger power plants.

Model 4550



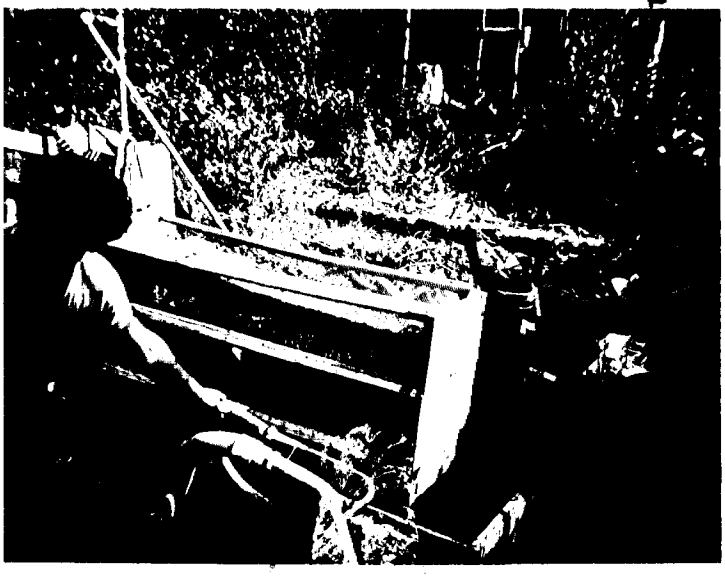


Combination 4 Inch and 6 Inch

This popular combination employs the use of our 6 inch submersible dredge with the 4 inch surface model 4550. This unit is commonly used where portability is the main concern, and the capacity of a 6 inch dredge is needed for moving the top gravel and the four when getting down to better paying gravel. The conversion is made by merely changing the high pressure hose from one nozzle to the other. The total weight of this combination is 200 lbs. ..... Price $695.00

"A"

"B"

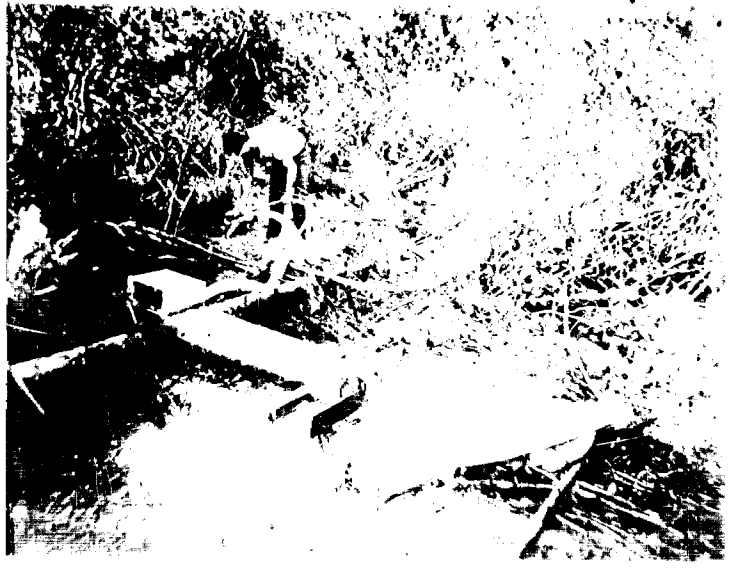


"C"

"D"

"E"

"F"



Upper Canada Signs Exploration Pact In Diamond Search

After weeks of negotiation, Upper Canada Mines and its subsidiary, Queenston Gold Mines, have reached an agreement designed to explore their holdings in the Kirkland Lake area, Northern Ontario, for diamonds and for nickel-platinum deposits. These holdings include some 626 claims acquired (mostly by staking) earlier this year.

Under the agreement, Canadian Rock Co., an exploration affiliate of the De Beers Consolidated Mines of South Africa group of companies, is to mount an exploration program covering an area some 14 miles in a north-south direction and about five miles from east to west. The holdings are located in Morrisette, Arnold, Lebel, Gauthier and McElroy Twps., in the Kirkland Lake-Larder Lake area.

The search for diamonds in this area, known primarily as a source of gold, was prompted by studies carried out over the past four years in the Upper Canada mine area and the Munro esker, an extensive deposit of clays, sands and gravels east of the mine area. These investigations resulted in the identification of kimberlite, both in the esker and underground at Upper Canada. Kimberlite is a rock type with which are associated occurrences of diamonds, particularly in South Africa. (see The Northern Miner, Mar. 7).

Diamond Search

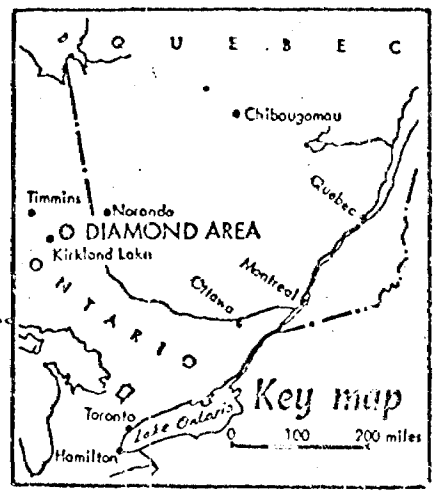
(Continued from Page One)

Under the terms of the agreement with Canadian Rock, Upper Canada and Queenston share in the proceeds that may be earned from discoveries of diamonds, and nickel-platinum occurrences, that may be produced. The agreement covers three possible categories.

Various Categories

Within a designated area of Upper Canada and Queenston workings, these companies are to receive 25% of net profits earned from diamond (and nickel-platinum) deposits that are found during the exploration program but which are to be transferred to Canadian Rock. These designated areas are, briefly, within the general area of existing mine workings. Any other metals discovered in these areas during the program will remain the exclusive property of Upper Canada or Queenston.

Outside of the areas of mine workings, but within the areas covered by the original blocks of claims held by them at Dec. 31, 1967 any deposits of diamonds (and nickel-platinum) discovered by the exploration program will be transferred to Canadian Rock, but 25% of the net profits from production from them is to be received by Upper Canada and Queenston. If other mineral deposits are encountered within these specified areas, ownership will remain with Upper Canada and Queenston but Canadian Rock will be entitled to participate in their development to the extent of 25%.



In what is described as 'New Lands', Upper Canada is to receive 10% of net profits from mining any minerals whatsoever by Canadian Rock on any ground acquired or optioned by it up to Dec. 31, 1970.

To date, the New Lands include some 626 claims staked since the identification of kimberlite. This staking and acquisition created a considerable rush for ground into the area and a number of other companies and individuals hold ground.

The new exploration agreement is expected to result in the De Beers interests carrying out a major and detailed investigational program, with this season's work largely of reconnaissance nature. Depending on its results, a further but detailed and more aggressive program is seen probable next year. It is estimated that to thoroughly explore the areas covered by the new agreement will require the expenditure of several hundreds of thousand dollars.

The agreement provides that Upper Canada will have the right to acquire, cost-free, any of the New Lands which Canadian Rock may no longer wish to hold, while Canadian Rock will have first right of refusal of ground owned by Upper Canada or Queenston.

The agreement is subject (at Canadian Rock's request) to approval of Upper Canada and Queenston shareholders at their forthcoming annual meetings.

Ontario
Ministry of Natural Resources
Hon. James A. C. Auld, Minister
Dr. J. K. Reynolds, Deputy Minister

ONTARIO GEOLOGICAL SURVEY
PRELIMINARY MAP P.2023
KIRKLAND LAKE DATA SERIES

McELROY TOWNSHIP

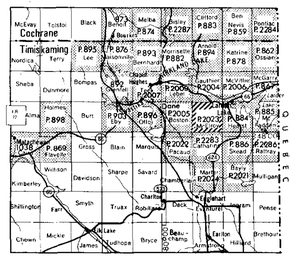
DISTRICT OF TIMISKAMING

Scale: 1:15 840

Mile ¼ 0 ½ ½ Mile
Metres 100 0 0.2 0.4 0.6 0.8 Kilometre

NTS Reference: 32D/4W
ODM-GSC Aeromagnetic Map: 47G
ODM Geological Compilation Series Map: 2205

Rock types indicated in drill hole geology are in numerical sequence only and do not represent abundance or stratigraphic order.



INDEX MAP Scale: 1:1 013 760

Kirkland Lake Data Series maps published in this area

LEGEND

MESOZOIC

17 — 17 Kimberlite

INTRUSIVE CONTACT

PALEOZOIC
LOWER AND MIDDLE SILURIAN

16 — 16a Clinton (Thornloe) Formation: limestone, dolostone, sandstone
16b Wabi Formation: limestone, shale

MIDDLE AND UPPER ORDOVICIAN

15 — 15a Dawson Point Formation: shale
15b Farr Formation: limestone
15c Bucke Formation: limestone, shale
15d Guigues Formation: sandstone

UNCONFORMITY

PRECAMBRIAN
LATE PRECAMBRIAN (PROTEROZOIC)
MAFIC INTRUSIVE ROCKS[g]

14 — 14 Diabase dikes

INTRUSIVE CONTACT

MIDDLE PRECAMBRIAN (PROTEROZOIC)
ALKALIC INTRUSIVE ROCKS[d]

13 — 13 Syenite, nepheline syenite, lamprophyre

MAFIC INTRUSIVE ROCKS[f]

12 — 12 Diabase, transition rock, and granophyre sheets and dikes

INTRUSIVE CONTACT

COBALT GROUP

11 — 11 Lorrain Formation: quartzite, arkose
10 — 10 Gowganda Formation (unsubdivided)
10a Firstbrook Member: argillite, siltstone, wacke, arkose
10b Coleman Member: conglomerate, wacke, quartzite, arkose, argillite

UNCONFORMITY

EARLY PRECAMBRIAN (ARCHEAN)
MAFIC INTRUSIVE ROCKS[e]

9 — 9 Diabase dikes

INTRUSIVE CONTACT

ALKALIC INTRUSIVE ROCKS[d]

8 — 8 Syenite, monzonite, lamprophyre[h]

INTRUSIVE CONTACT

ALKALIC METAVOLCANICS[b]

7 — 7 Trachyte, leucitic trachyte: flows, tuff, breccia

METASEDIMENTS[i]

6 — 6 Conglomerate, wacke, siltstone, slate, argillite, iron formation[b]
5 — 5 Wacke, siltstone, slate, iron formation

FELSIC INTRUSIVE ROCKS[d, i]

4 — 4 Granitic intrusive rocks
4a Quartz porphyry, quartz-feldspar porphyry, feldspar porphyry, granophyre, felsite[h]
4b Trondhjemite, granodiorite, quartz monzonite: simple batholiths and stocks[h]
4c Trondhjemite, granodiorite, quartz monzonite, quartz diorite, aplite, pegmatite, migmatite: complex batholiths

INTRUSIVE CONTACT

FELSIC METAVOLCANICS[a,i]

3 — 3 Unsubdivided
3a Iron formation (mag - chert; gf-py-po; green and brown dolostone)
3b Flows
3c Pyroclastic rocks

INTRUSIVE CONTACT

METAMORPHOSED MAFIC AND ULTRAMAFIC INTRUSIVE ROCKS[c,j]

2 — 2 Unsubdivided
2a Gabbro, diorite
2b Peridotite, dunite, pyroxenite, serpentinite

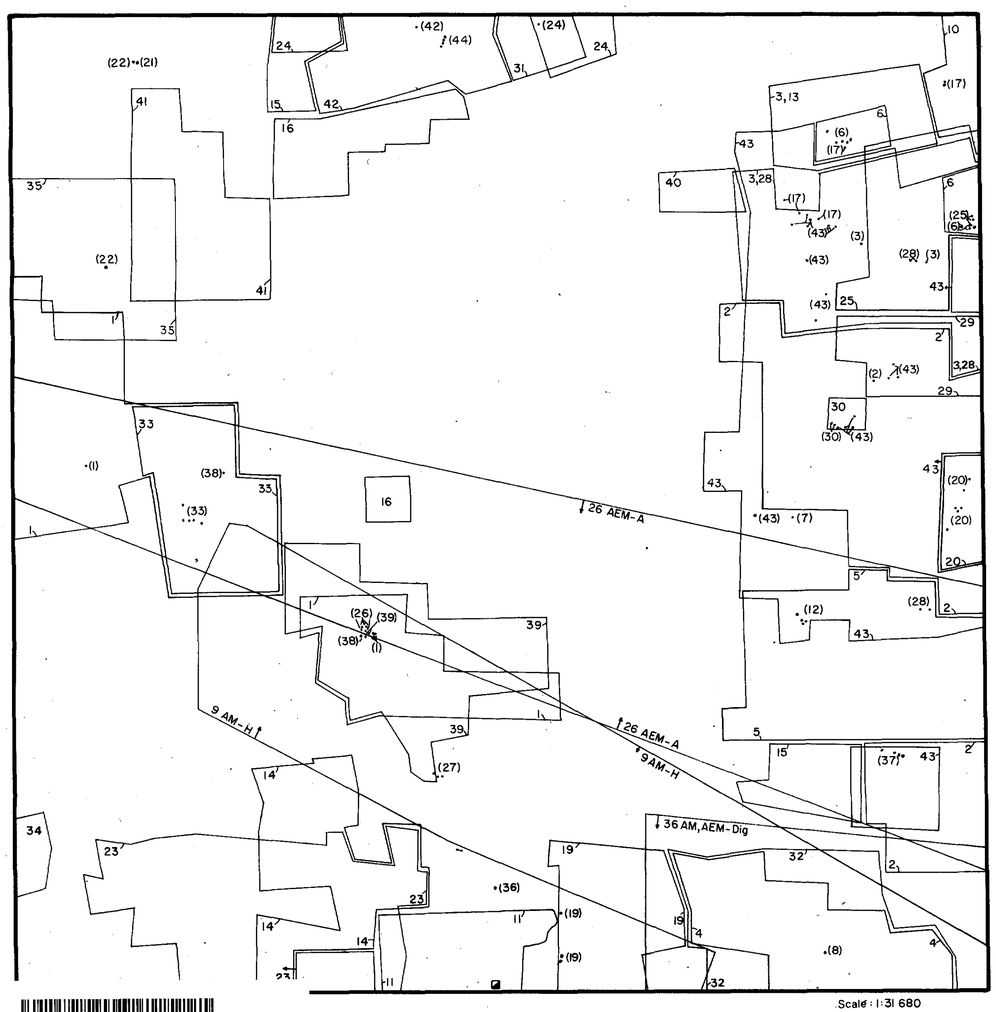
INTRUSIVE CONTACT

INTERMEDIATE TO ULTRAMAFIC METAVOLCANICS[a,j]

1 — 1 Unsubdivided dacite, andesite, and basalt
1a Intermediate flows
1b Intermediate pyroclastic rocks
1c Mafic flows
1d Mafic pyroclastic flows
1e Ultramafic flows

a. Formerly classified as Keewatin.
b. Formerly classified as Timiskaming.
c. Formerly classified as Haileyburian.
d. Formerly classified as Algoman.
e. Includes north-trending dikes of Matachewan swarm.
f. Inlcudes Nipissing and Sudbury types.
g. Includes Keweenawan.
h. Several ages; some units appear to be intrusive equivalents of volcanic formations whereas others postdate volcanism.
j. Rocks in these groups are subdivided lithologically; the order does not necessarily imply age relationship within or among groups.

NOTE: All rock types listed in the Legend do not necessarily appear on the map face.



Scale: 1:31 680

DATA FILED WITH THE RESIDENT GEOLOGIST ONTARIO MINISTRY OF NATURAL RESOURCES

To February 1979

		TYPE OF WORK																				
		GEOLOGICAL	TRENCHING	DIAMOND DRILLING	AIRBORNE MAGNETOMETER	AIRBORNE ELECTROMAG.	GROUND MAGNETOMETER	GROUND ELECTROMAG. VERTICAL LOOP	GROUND ELECTROMAG. HORIZONTAL LOOP	GROUND ELECTROMAG. VERY LOW FREQUENCY	INDUCED POLARIZATION	OTHER GEOPHYSICAL SURVEYS	UNDERGROUND WORK	MISC. REPT. CORRESPOND AND PROSPECTUSES	GEOCHEMICAL	OTHERS
1.	Amax Exploration Inc. "Allerston, R.; Mageau, A.; Newman, R. claims"	69		68*+, 69+			69			69						
2.	Amax Exploration Inc. "Groups 1 and 2"	68		69+			68									
3.	Amax Exploration Inc. "Group 3 and Lowe, D. claims"	68		69+			68	68		68						
4.	Asbestos Corporation Ltd.	50					50									
5.	Barker Mining Syndicate						69			69						
6.	Big Jackpot Mines Ltd.	57		57*			57									
7.	Bonnier, B.			50's												
8.	Boylen, M. J.			68												
9.	Canadian Johns-Manville Co. Ltd.				64											
10.	Cantech Resources Ltd.									72				71, 72		
11.	Cathroy Larder Mines Ltd.												45, 46, 59	46, 47, 48		
12.	Cowan, S.		53	53*												
13.	Croxall, J. E.		76							76						
14.	Deacon, F. W. (see Sylvanite Misc. File)													38		
15.	Diamond Geophysical Inc.						69									69**
16.	Erickson, R. A.						65					65, 68			65	68**
17.	Falconbridge Copper Ltd.		77	77+, 78+												
18.	Friedrich, K. V.		71, 72, 75													
19.	Hartford-MacClure Gold Mines Ltd.			38+, 51+										38, 39		
20.	Hearst Larder Mines Ltd.	51		51+*										52, 55		
21.	Hoshko, P.			56												
22.	International Nickel Co. of Canada Ltd., The			68												
23.	Johnston Option (Mirado Nickel Mines Ltd.)											61				
24.	Kelkirk Mines Ltd.			60			60									
25.	Kidilhawk Mines Ltd.			49*										49		
26.	Knox, W.A.			57*		57										
27.	Kosy, R.			73*												
28.	Lowe, D. (Vitro Minerals option)	66, 69	73, 74, 75	62+*										64, 67	60	
29.	Lowe, D. (Wright-Hargreaves Mines Ltd. option)	52					52									
30.	Lowe, D. and Little, W. (Sylvanite Gold Mines Ltd. option)			54*										54, 55		
31.	Lower Canada Mines Ltd.													47		
32.	MacGregor, R. A.				76	76	72			74						
33.	McElroy Syndicate			65*						66						
34.	Meilleur, A.													45		
35.	Mining Geophysics Co. Ltd.											57				
36.	Mirado Nickel Mines Ltd.			63+												
37.	Newlund Mines Ltd.			73*												
38.	Newman, R.			71, 72												
39.	Philibert claims (Wright-Hargreaves option)			54			51					54				
40.	St. Jean, P.													42		
41.	Selco Exploration Co. Ltd. "Chorzepa option"		71				71	71	71							
42.	Utah Larder Gold Mines Ltd.			50+										38+, 46+, 50		

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		TYPE OF WORK																				
		GEOLOGICAL	TRENCHING	DIAMOND DRILLING	AIRBORNE MAGNETOMETER	AIRBORNE ELECTROMAG.	GROUND MAGNETOMETER	GROUND ELECTROMAG. VERTICAL LOOP	GROUND ELECTROMAG. HORIZONTAL LOOP	GROUND ELECTROMAG. VERY LOW FREQUENCY	INDUCED POLARIZATION	OTHER GEOPHYSICAL SURVEYS	UNDERGROUND WORK	MISC. REPT. CORRESPOND AND PROSPECTUSES	GEOCHEMICAL	OTHERS
43.	Wright-Hargreaves Mines Ltd.	54		54*+, 55			54	53								
44.	Yost, C. A.		69, 70, 71, 72, 77													

\+ Assays
* Multiple diamond drill holes
** Heavy mineral survey (placer diamonds)

Note: The numbers of the above list stand for the year when the work was done, e.g., 66 for 1966. On the accompanying DATA LOCATION MAP, only areas for which work was submitted to the Division are outlined, and thus, a company may hold more ground than indicated here. The numbers on the DATA LOCATION MAP and any circled numbers refer to the company above.

SYMBOLS

- 150' — Shaft; depth in feet (for which there is underground information available).
- ov80' TD204' 2a,3 qcv,py — Drill hole (projected vertically); overburden in feet down hole (ov 80); total depth in feet down hole (TD 204).
- 27 4DH avg ov avg TD — Group of drill holes; property number 27; average (avg).
- Trenching
- XXX AEM-IN — Airborne electromagnetic conductors: Dig. . . . . Dighem; IN . . . . . INPUT; CA . . . . . Canadian Aero Mineral Surveys; Sc. . . . . Scintrex; A . . . . . Aerophysics of Canada Ltd.; H . . . . . Hunting; B . . . . . Barringer; Gx . . . . . Geoterrex
- VEM — Ground electromagnetic conductors: VEM. . . . . vertical loop; HEM. . . horizontal loop; VLF . . very low frequency; JEM . . . . . crone EM-16 TURAM
- M — Ground magnetometer anomaly
- AM — Airborne magnetometer anomaly
- RA — Radiometric anomaly
- ARA — Airborne radiometric anomaly
- R — Resistivity anomaly
- Gr — Gravity anomaly
- IP — Induced polarization conductor
- Gc-Zn — Geochemical anomaly (Zn)

METAL AND MINERAL REFERENCES

Ag	Silver	mag	Magnetite
asb	Asbestos	mar.	Marcasite
asp	Arsenopyrite	mo	Molybdenite
Au	Gold	Ni.	Nickel
bn	Bornite	Pb	Lead
Co	Cobalt	pent	Pentlandite
cp.	Chalcopyrite	po	Pyrrhotite
Cr.	Chromium	Pt.	Platinum
Cu	Copper	py	Pyrite
ep.	Epidote	qcv	Quartz-carbonate vein
Fe	Iron	qv.	Quartz vein
fl	Fluorite	serp	Serpentine
gf	Graphite	sp.	Sphalerite
gn.	Galena	spec	Specularite
gt.	Garnet	talc.	Talc
hem	Hematite	tour	Tourmaline
Hg	Mercury	Zn	Zinc

SOURCES OF INFORMATION

Compiled by F. Ploeger and G. Grabowski, 1978 from data on file at Resident Geologist's office, Ontario Ministry of Natural Resources, Kirkland Lake.

Base-map derived from the Forest Resources Inventory maps, Lands and Waters Group, Ontario Ministry of Natural Resources.

Geology of McElroy and Part of Boston Townships; Ontario Department of Mines Annual Report, Volume 59, 1950, part 6, by E. M. Abraham.

Boston-Skead Gold-Copper Area, District of Timiskaming; Ontario Department of Mines Annual Report, Volume 38, 1929, part 6, by L. V. Bell.

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Kirkland Lake Gold Area (Revised Edition); Ontario Department of Mines Annual Report, Volume 32, 1923, part 4, by A. G. Burrows and P. E. Hopkins.

ODM-GSC High Resolution Aeromagnetic Maps 20,131G and 20,137G. Scale 1:25 000, 1975.

This compilation project is part of the Kirkland Lake Area Incentives Program. It is equally funded by the Federal Department of Regional Economic Expansion and the Ontario Ministry of Northern Affairs under the Community and Rural Resource Development Agreement.

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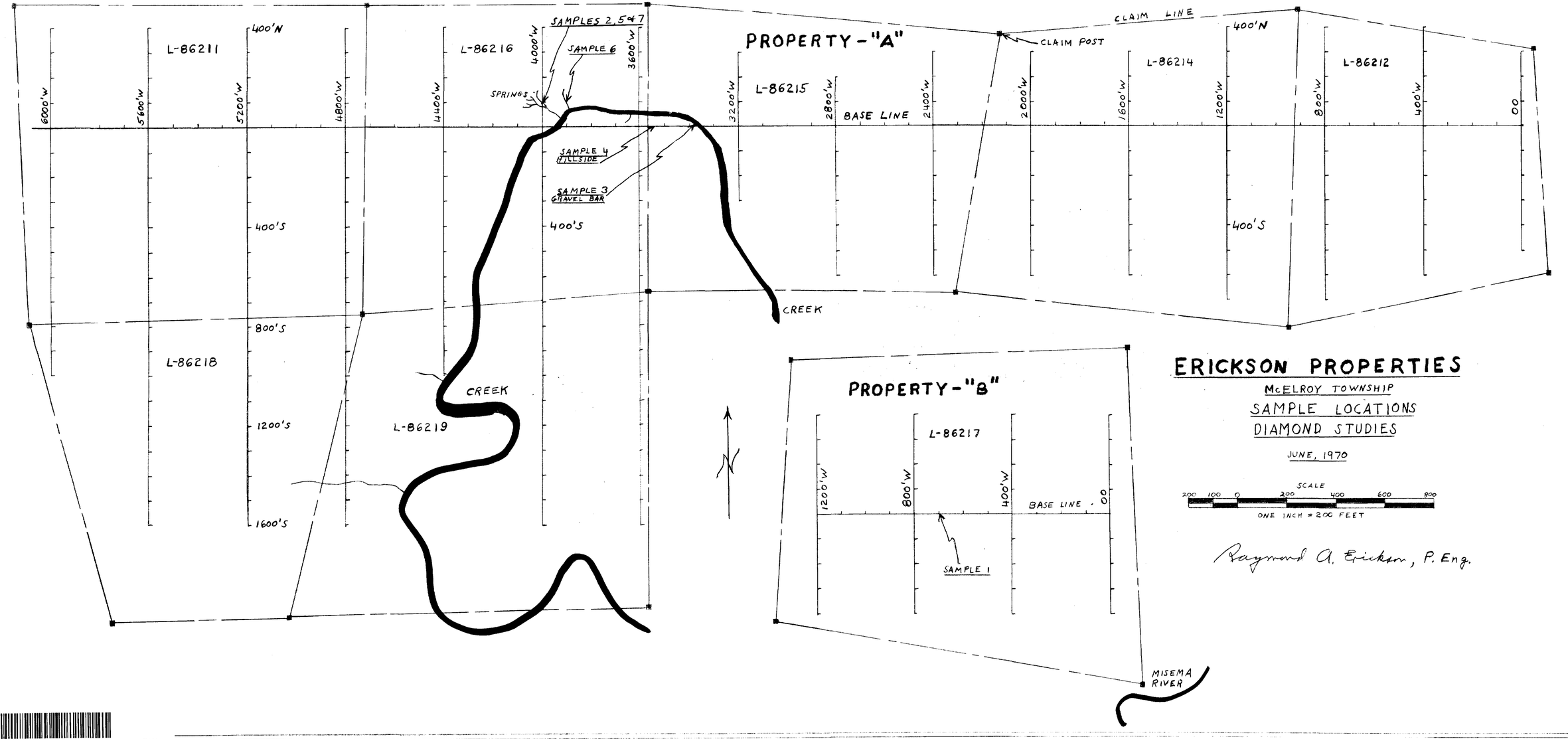
Metric Conversion Factor — 1 foot - 0.3048 m

Issued 1979



ERICKSON PROPERTIES

McELROY TOWNSHIP

SAMPLE LOCATIONS

DIAMOND STUDIES

JUNE, 1970

SCALE

200 100 0 200 400 600 800

ONE INCH = 200 FEET

Raymond A. Erickson, P. Eng.