GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT ON THE ERIE CREEK PROPERTY SALMO, BRITISH COLUMBIA

LATITUDE: 49°13'20"N
LONGITUDE: 117°21'10"W
NTS: 82F/3W

For

DESERT GOLD RESOURCES INC.
#1201 - 675 West Hastings Street
Vancouver, British Columbia, V6B 1N2

Prepared By

Reginald L. Faulkner, B.Sc., M.A.Sc., F.G.A.C.
Stephen MacDonald, B.Sc.

FAIRBANK ENGINEERING LTD.
Vancouver, B.C.

July, 1990
(Workdates April 27, 1989 to April 27, 1990)

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SUMMARY

An exploration program of geological mapping, soil silt and rock geochemistry and geophysics was conducted on the Erie Creek Claim group between April 27, 1989 and April 27, 1990. Approximately 2.0 line kilometres of grid has been emplaced, an area of about 30 ha geologically mapped, forty-four soil samples, two silt and eight rock samples taken, and 2.0 line kilmetres of total field magnetic and VLF-EM surveying done.

From this program it was found that the property is dominated by Elise Formation volcanics intruded by granitic, dioritic and alkalic rocks. Two adits discovered during prospecting were found in broken and sheared argillite overlain by an andisite flow.

A silt sample above the adits gave a 121 ppb gold anomaly. A grid was placed over the anomaly and adits to facilitate detailed exploration. Soil sampling returned background values, but the magnetic survey provided a significantly anomalous area to the northwest of the adits. This area is characterized by a -1000 gamma low flanked by 1000 and 1058 gamma highs. The VLF-EM survey did not provide any significant information.

1.0 INTRODUCTION

From April 27, 1989 to April 27, 1990 cutting of a two kilometre grid, a total magnetic survey, VLF-EM 16 survey and soil, rock and silt sampling were carried on the Erie Gold Claim Group, Salmo, British Columbia.

This survey was meant to define major geologic structures and to determine target areas for future work.

1.1 Location, Access and Physiography

The two modified grid claims belonging to the Erie Creek Claim Group are found north-west of Salmo, B.C. in the Nelson Mining District. They are centered at a Latitude of 49°13'20" North and Longitude 117°21'10" West on NTS Map Sheet 82F/3W (Figure 1). Access to the Property is via Highway 3 approximately three kilometres west of Salmo. A good gravel road on the west side of Erie Creek leads from the highway to the property, a distance of 4.3 Km. The property is bisected by Erie Creek (Figure 2).

The topography of the area is moderate to steep from a high of 1280 metres above sea level to 823 metre at Erie Creek. Forest cover consists of hemlock, cedar and fir with abundant second growth and brush in the logged areas.

1.2 Erie Creek Property

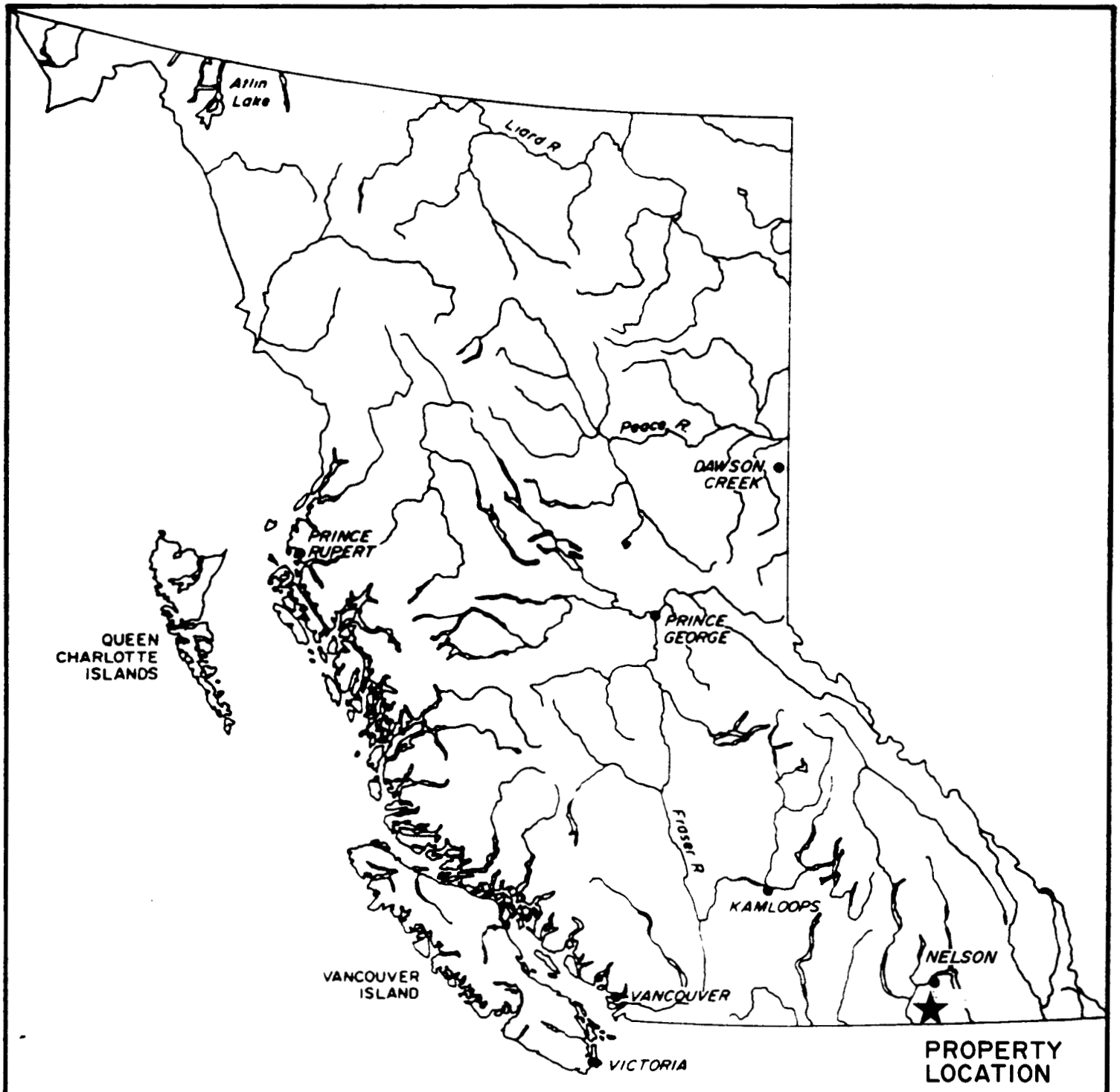
The Erie Creek Group of claims consist of two modified grid claims totaling 32 units in the Nelson Mining Division (Figure 2). TABLE 1 summarizes the pertinent claim information.

TABLE 1: CLAIM INFORMATION

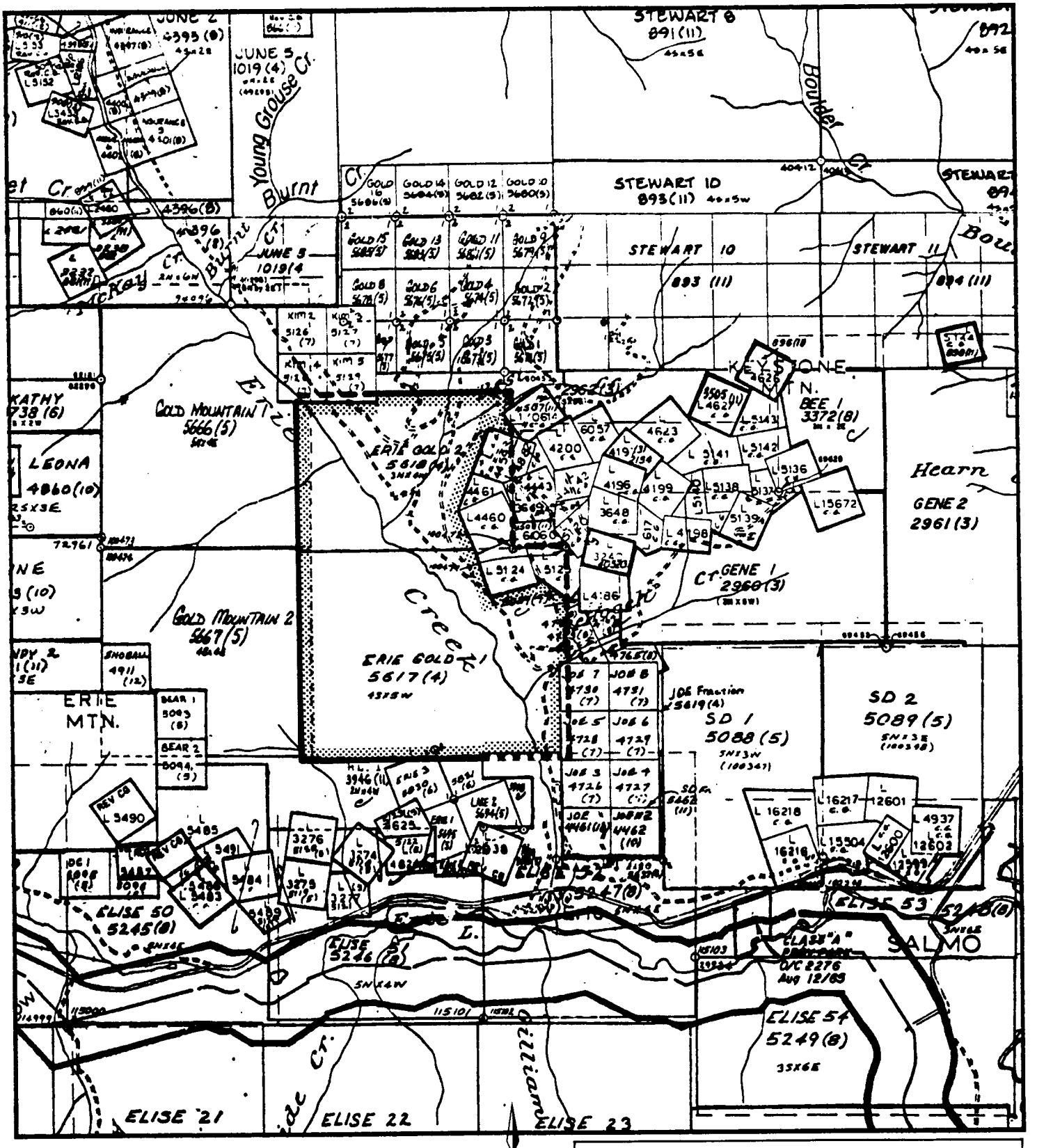
Claim Name	Record Number	Expiry Date	Type	Units
Erie Gold 1	5617	April 27/90	4P	20
Erie Gold 2	5618	April 27/90	4P	12

1.3 History and Work

No record of work on these claims has been found though scattered pits and holes have been noted. After staking the claims April 27, 1990 prospecting located two



DESERT GOLD RESOURCES INC.		
ERIE CREEK PROPERTY		
LOCATION MAP		
NELSON M.D., B.C.		NTS 82 F/3
Scale: As Shown	Date: JUNE 1990	
FAIRBANK ENGINEERING LTD	Proj. No. 186	Fig. No. 1



DESERT GOLD RESOURCES INC.

ERIE CREEK PROPERTY

CLAIM MAP

NELSON M.D., B.C. NTS 82 F/3

Scale: 1:50 000 Date: JUNE 1990

FAIRBANK ENGINEERING LTD | Proj. No. 186 | Fig. No. 2

adits adjacent to a rotted cabin foundation. Based on the cabin remains it appears the adits were dug around the turn of the century.

2.0 GEOLOGY

2.1 Regional Geology

The Erie Creek Property is located within the Kootenay Arc, a narrow belt of folded and faulted rocks trending northwest-north-northeasterly that dominates regional structure (Weissenborn, 1970). The Kootenay Arch was formed in the mid-Jurassic when the Quesnel terrian was accreted onto and in turn driven under the lower Paleozoic continental margin sedimentary wedge of the Kootenay terrain of North America (Archibald, et al, 1983). Granitic rocks of the hornblende biotite suite were emplaced syn- to post-kinematically in both terrains during the middle and late Jurassic. A west verging thrust along the boundary between the Quesnel and Kootenay terrains deformed some of the late Jurassic plutons.

Mid-Cretaceous intrusions of granitic plutons into tectonically dormant regimes were followed by deep eastward-thrusting of the entire block at the end of the Cretaceous. Tectonic activity ended with Paleocene to Oligocene normal faulting, crustal explansion and intrusion of alkalic plutons (Price et. al., 1985; Archibald et. al., 1983).

The lower Jurassic rocks of the Quesnel terrain form the Rossland Group. This group is subdivided into three formations (Little, 1960 and 1986). The oldest of these is the Archibald Formation which consists of siltstones, argillaceous quartzite and minor andesitic lavas and flows. This formation is overlain by andesite and basalt flows, flow breccia, agglomerate, minor siltstone and amphibolite

of the Elise Formation. The Elise Formation is in turn overlain by a series of black argillites, carbonaceous slate, greywackes, shales, and phyllites with local conglomerate belonging to the Hall Formation.

The above stratigraphic sequence is intruded by stocks and batholiths, satellites of granite and granodiorite, and aplite dykes and sills belonging to the Nelson Intrusions (Figure 3).

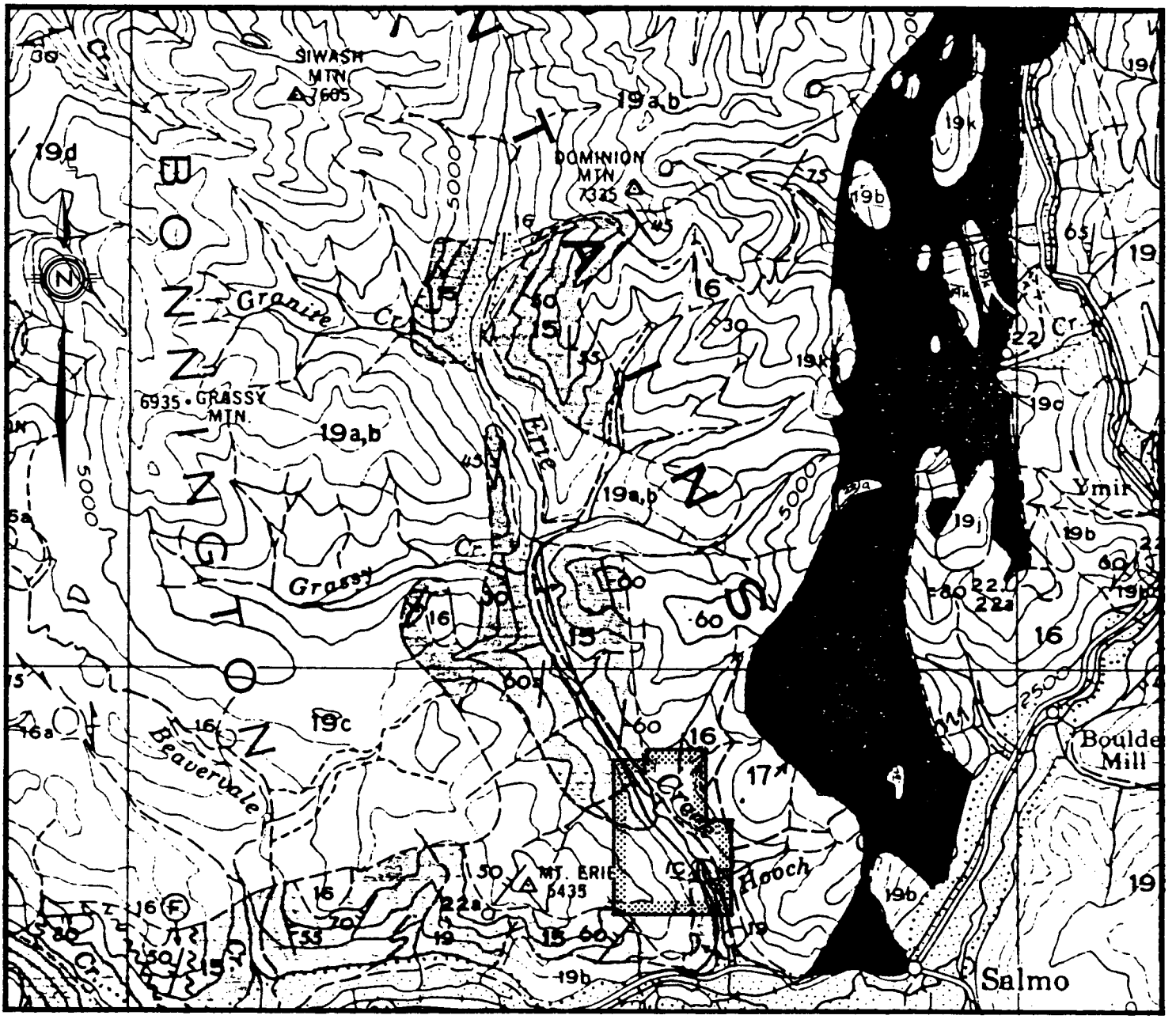
2.2 Property Geology

A geological traverse was conducted along the logging road on the east bank of Erie Creek. This traverse showed the Erie Gold 1 and 2 claims to be underlain by Elise Formation Volcanic rocks intruded by Nelson Plutonic rocks (Figure 4).

Crystal and ashflow tuffs interlayered with andesitic flows appear to trend east-northeast. A granitic intrusion outcrop north of the mouth of Hooch Creek and quartz diorite occurs east of the mouth of Rest Creek.

A shear occurs in a crystal tuff along the southern Gold Mountain 1 Claim boundary. It strikes approximately 070° and dips 69° to the north-northwest. A fault just south of Rest Creek also lies within a crystal tuff and strikes northeast with a southeast dip. Jointing within these rocks is quite variable, but generally have dips greater than 60°.

The two adits (Figure 4) were driven on sheared black argillite. The visible shearing, from twenty to thirty centimetres wide, occurred in a 1.8 metre wide broken zone and contains gouge and locally quartz/carbonate pods. It's



LEGEND

TERTIARY
Eocene(?) or Later

22 CORYELL PLUTONIC ROCKS:
22a, porphyritic augite monzonite

CRETACEOUS(?)
Lower Cretaceous(?)

19 NELSON PLUTONIC ROCKS: 19a, mainly porphyritic granite; 19b, non-porphyritic granite to granodiorite; 19c, granodiorite; 19d, quartz diorite; 19j, pegmatite; 19k, diorite

JURASSIC
Middle and (?) Upper Jurassic

17 HALL FORMATION: argillite, sandstone, and conglomerate

Lower Jurassic

16 ROSSLAND FORMATION: andesite, latite, basalt, flow breccia, augite porphyry, agglomerate, tuff; minor shale; 16a, metamorphosed greenstone (may not be Rossland)

15 SINEMURIAN BEDS: argillite, argillaceous quartzite, slate; minor flows and pyroclastic rocks. May be equivalent to upper parts of 13 and 14

MESOZOIC — CENOZOIC

Geologic Contact: defined, approximate
Bedding
Foliation
Fault
Anticline, Syncline
Property Outline

Map 1090A from the GSC, 1960

DESERT GOLD RESOURCES INC.		
ERIE CREEK PROPERTY		
REGIONAL GEOLOGY		
NELSON M.D., B.C.		NTS 82F-W
Scale: 1:125,000	Date: JUNE 1990	
FAIRBANK ENGINEERING LTD	Proj. No. 186	Fig. No. 3

strike was approximately 170° and dipped about 41° to the east. Pyrrholite was noted in sulphides that were up to one percent of the rock content. Five rock samples RF89002 to RF89006 were taken from the shear zones at the portals of the adits.

Three rock samples SM001, 002 and RF89008 were taken on an alkalic intrusive that may be an Eocence Coryell intrusion (Figure 4).

3.0 GEOCHEMISTRY

To follow up the discovery of the adits and an anomalous 121 ppb gold silt sample, a grid was emplaced above them. This grid consisted of four 500 metre long, north-south lines spaced 100 metres apart. Stations were placed at 50 metre intervals along the lines.

Soil sampling was done on the 50 metre intervals. The rock and silt sampling was sporadic and localized.

3.1 Soil Geochemistry

A total of 44 soil samples were taken from an immature B horizon from depths of twelve to thirty centimetres with a mattock. The samples were placed in craft paper sample bags and send to Min-En Laboratories Ltd., 705 W. 15th Street, North Vancouver, B.C. They were analyzed for gold, silver, copper, lead, zinc, arsenic, and antimony. Methods and procedures are described in Appendix A and analytical results are tabled in Appendix B.

Gold soil geochemistry did not indicate any anomalies (Figure 5). All samples have less than 2.0 ppm silver(Figure 6), 160 ppm copper (Figure 6), 147 ppm lead (Figure 7), 483 ppm zinc (Figure 7), 34 ppm arsenic (Figure 8) and 10 ppm

antimony (Figure 8). The high zinc and antimony values are believed to be from the dispersion of elements from the dumps associated with the adits.

3.2 Rock and Silt Geochemistry

Eight rock samples and two silt samples were taken from the Erie Gold 1 and 2 claims. They were sent to Min-En Laboratories Ltd. and analyzed for gold, silver, copper, lead, zinc, arsenic and antimony.

Methods and procedures are described in Appendix A and analytical results are tabled in Appendix C.

Five of the rock samples, RF89002 to RF89006 were taken from a shear zone associated with the noted adits (Figure 4). Three of the samples have slightly elevated gold values, but generally copied the results of the soil geochemistry. This may indicate the general tone of the trace elements in the country rock (Figure 4).

Three rock samples were taken from what is believed to be an alkalic Corgell intrusion. They gave slightly higher silver and copper values (Figure 4).

Two silt samples RF89001 and 002 were taken from the stream in whose valley the two adits are located. RF89001 was taken upstream from the portals. It returned an anomalous gold value of 121 ppb Au and the other elements gave what could be background results. The other sample RF89002 further upstream returned background values (Figure 4).

4.0 GEOPHYSICS

A total field magnetic survey and VLF-EM survey were conducted over the 2.0 line kilometres of grid. These

surveys were done to detect any structures and associate mineralization.

4.1 Total Field Magnetic Survey

A Geometrics model G-816 proton magnetometer was used to conduct the survey (Appendix D). Data collected at 25 metre intervals ranged from 55,500 gammas to 57,558 gammas. A base level of 56,500 was chosen to provide manageable numbers. Diurnal variations were linearly corrected to a base reading using the standard looping method.

The total field magnetic survey shows a significant anomaly in the magnetic field. A -1000 gamma low occurs adjacent to a 1000 gamma high and in line with a 1058 gamma high on lines 5+05E and 4+50E at stations 21+75N, 21+25N and 22+00N respectively. This significant magnetic low may indicate an area depleted in ferromagnesian minerals (Figure 9).

4.2 VLF-EM Survey

A Geonics EM 16 (Appendix D) using the Seattle, Washington 24.8 khz VLF transmitter station was used to conduct the survey with readings taken at 25 metre intervals. The Seattle transmitter was the strongest and most perpendicular to the grid, thereby allowing maximum induction of the transmitted signal.

The plotted unfiltered VLF-EM data shows very wide swings in values over very short intervals of time and distance. It is suggested that the survey was conducted during a period of sunspot activity (Figure 9). Therefore, the data may not truly reflect the standard environment.

5.0 DISCUSSION AND CONCLUSIONS

The purpose of this program of geology, geochemistry and geophysics was to follow up the discovery of the two adits and anomalous, 121 ppb Au, silt anomaly.

Geological mapping has indicated Elise Formation volcanics dominate the rocks on the property. Granitic, dioritic and alkalic intrusives intrude these volcanics. At the adits a black bedded argillite occurs. Soil and rock geochemistry did not show any significantly anomalous elements. Silt sampling did provide one anomaly of 121 ppb gold in silt above the adits.

The total field magnetic survey did indicate an anomalous area. It is characterized by the lowest magnetic reading of -1000 gammas and the highest reading of 1058 gammas, and occurs in the northwest quadrant of the grid.

No explanation was found for the silt anomaly or the two adits. Resampling silt sample site RF89001 and rock sampling within the adits may provide explanations for their existence.

6.0 BIBLIOGRAPHY

Archibald, D.A., Glover, J.K., Price, R.A., and Farrar, E. and Carmichael, D.M., 1983, Geochronology and Tectonic Implications of Magnetism and Metamorphism, Southern Kootenay Arc and Neighbouring Regions, Southeastern British Columbia. Part I: Jurassic to mid-Cretaceous. Canadian Journal of Earth Sciences, Vol. 20 pp 1891-1913.

Archibald, D.A., Krogh, R.E., Armstrong, R.I. and Farrar, E., 1984, Geochronology and Tectonic Implications of Magnetism and Metamorphism, Southern Kootenay Arc and Neighbouring Regions, Southeastern British Columbia. Part II: Mid-Cretaceous to Eocene, Canadian Journal of Earth Sciences, Vol. 21, pp 567-583.

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Yates, R.G., 1970, "Geologic Background of the Metaline and Northport Mining District, Washington" in Lead-Zinc Deposits in the Kootenay Arc, Northeastern Washington and Adjacent British Columbia. Society of Economic Geologist 1970 Northwest Field Conference Guidebook, edited by A.E. Weissenborn, Washington Div. of Mines and Geol. Bull. No. 61, pp 21-39.

7. STATEMENT OF QUALIFICATIONS

I, Reginald L. Faulkner of #302 - 1475 West 11th Avenue, Vancouver, British Columbia hereby certify that:

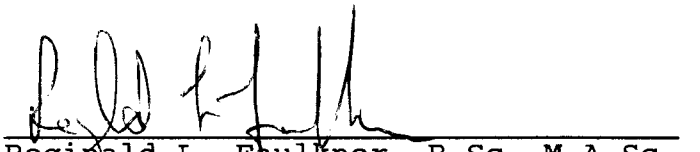
1. I am an exploration geologist and a graduate of the University of British Columbia, with a B.Sc. in Physical Geography/Geology in 1974 with additional course work in Geology in 1977-79 and 1982-83.

2. I obtained a M.A.Sc. from the University of British Columbia in Mining and Mineral Process Engineering in 1988, emphasizing mineral economics.

3. I am a Fellow of the Geological Association of Canada.

4. I have practiced as a geologist since 1979 for companies, including RIOCANEX, Vancouver, B.C.; Denison Mines Limited, Vancouver, B.C., Duval International Corporation, Vancouver, B.C.; Trigg, Woollett, Olsen Consulting Limited, Edmonton, Alberta; Terra Mines Limited, Edmonton, Alberta, and Fairbank Engineering Limited, Vancouver, B.C.

5. The details of this report are based on work done by Fairbank Engineering from April 27, 1989 to April 27, 1990



Reginald L. Faulkner, B.Sc. M.A.Sc.

STATEMENT OF QUALIFICATIONS

I, Stephen L. MacDonald of #406 - 1146 Harwood Street, Vancouver, British Columbia hereby certify that:

1. I am an exploration geologist and a graduate of Acadia University, with a B.Sc., specialization in Geology in 1989 with additional course work in Geology in 1988 - 1989.

2. I have worked for the past three field seasons as a geologist for MPH Consulting Limited, Toronto, Ontario, and Fairbank Engineering Limited, Vancouver, British Columbia.

Stephen L. MacDonald, B.ScS.

8.0 STATEMENT OF COSTS

Wages April 27/89 to April 27/90

R. Faulkner	1 day	@ $368/day	368.00	
D. Schile	1 day	@ $158/day	158.00	
A. Pratt	4.5 days	@ $250/day	1125.00	
S. MacDonald	4.25 days	@ $250/day	1062.50	
			2713.50	
				$2713.50

Room and Board April 27/89 to April 27/90

10.75 man days @ $50.00/man day		$ 537.50

Transportation April 27/89 to April 27/90

Truck	5.5 days @ $70.00/day	385.00	
Fuel		60.00	
		445.00	
			$ 445.00

Rentals April 17 to April 27/90

Magnetometer	min. $240/week	240.00	
VLF-EM	min. $240/week	240.00	
		480.00	
			$ 480.00

Geochemistry

Soils	44 samples	@ $9.75/sample	429.00	
	44 samples	@ $1.00/sample	44.00	
Rocks	8 samples	@ $9.75/sample	78.00	
	8 samples	@ $3.50/sample	28.00	
Silt	2 samples	@ $9.75/sample	19.50	
	2 samples	@ $1.00/sample	2.00	
			600.50	
				$ 600.50

Miscellaneous

Consummable field supplies	35.76	
Communication, freight	15.88	
	51.64	
		$ 51.64
Total		$4828.14

APPENDIX A

PHONE 980-5814

MIN-EN Laboratories Ltd.

Specialists in Mineral Environments

Corner 15th Street and Bewicke
705 WEST 15TH STREET
NORTH VANCOUVER, B.C.
CANADA V7M 1T2

GOLD GEOCHEMICAL ANALYSIS BY MIN-EN LABORATORIES LTD.

Geochemical samples for Gold processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer.

A suitable sample weight 5.0 or 10.0 grams are pretreated with HNO_3 and $HClO_4$ mixture.

After pretreatments the samples are digested with Aqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 0.005 ppm (5ppb).

PHONE: (604) 980-5814 or 988-4524

TELEX: 04-352828

MIN-EN Laboratories Ltd.

Specialists in Mineral Environments

Corner 15th Street and Bewicke
705 WEST 15TH STREET
NORTH VANCOUVER, B.C.
CANADA V7M 1T2

Analytical Procedure Report for Assessment Work

31 Element ICP

Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Sr, Th, U, V, Zn, Ga, Sn, W, Cr

Samples are processed by Min-En Laboratories Ltd., at 705 West 15th Street, North Vancouver, employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed by a jaw crusher and pulverized by ceramic plated pulverizer or ring mill pulverizer.

1.0 gram of the sample is digested for 4 hours with an aqua regia $HClO_4$ mixture.

After cooling samples are diluted to standard volume. The solutions are analysed by computer operated Jarrall Ash 9000 ICAP or Jobin Yvon 70 Type II Inductively Coupled Plasma Spectrometers. Reports are formatted and printed using a dot-matrix printer.

APPENDIX B

COMP: FAIRBANK ENGINEERING LTD.
PROJ: SALMO, B.C.
ATTN: R.FAULKNER

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: OV-0396-SJ1+2
DATE: 90/05/02
• SOIL • (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	CU PPM	PB PPM	SB PPM	ZN PPM	AU PPB
EG 0450E 1750N	1.4	26	34	33	1	251	5
EG 0450E 1800N	1.0	27	30	35	1	193	5
EG 0450E 1850N	.7	26	13	32	1	77	5
EG 0450E 1900N	1.5	26	53	35	1	199	5
EG 0450E 1950N	1.4	19	50	35	1	213	5
EG 0450E 2000N	1.4	9	49	28	1	238	5
EG 0450E 2050N	1.5	34	126	54	1	152	5
EG 0450E 2100N	1.4	30	53	44	1	249	10
EG 0450E 2150N	1.4	33	82	55	1	201	5
EG 0450E 2200N	1.6	20	63	34	1	272	5
EG 0450E 2250N	2.0	18	112	35	1	289	5
EG 0550E 1750N	1.1	32	54	52	1	212	5
EG 0550E 1800N	1.3	33	94	44	1	140	5
EG 0550E 1850N	1.7	28	108	37	1	154	5
EG 0550E 1900N	1.6	20	39	31	1	226	5
EG 0550E 1950N	1.9	29	49	37	1	232	10
EG 0550E 2000N	1.6	32	42	32	1	253	5
EG 0550E 2050N	1.7	24	43	34	1	234	5
EG 0550E 2100N	1.4	16	78	43	1	213	5
EG 0550E 2150N	1.7	8	44	32	1	240	10
EG 0550E 2200N	1.1	19	55	37	1	161	5
EG 0550E 2250N	1.8	13	75	35	1	274	5
EG 0650E 1750N	1.3	20	35	41	1	178	10
EG 0650E 1800N	1.3	18	31	30	1	212	5
EG 0650E 1850N	1.8	15	38	39	1	238	5
EG 0650E 1900N	1.4	18	41	36	1	246	10
EG 0650E 1950N	1.0	29	43	35	1	145	5
EG 0650E 2000N	1.1	29	59	52	1	153	5
EG 0650E 2050N	1.3	18	52	37	1	254	5
EG 0650E 2100N	1.8	18	79	40	1	217	5
EG 0650E 2150N	1.9	10	39	31	1	149	5
EG 0650E 2200N	1.6	16	64	33	1	197	5
EG 0650E 2250N	1.2	19	68	37	1	98	5
EG 0750E 1750N	1.1	6	26	28	1	158	10
EG 0750E 1800N	1.1	11	34	37	1	152	5
EG 0750E 1850N	1.3	21	33	35	1	197	5
EG 0750E 1900N	1.2	24	27	36	1	197	5
EG 0750E 1950N	1.2	40	48	48	1	140	5
EG 0750E 2000N	.8	73	160	147	10	483	5
EG 0750E 2050N	.9	12	15	38	1	119	10
EG 0750E 2100N	1.0	8	13	24	1	73	5
EG 0750E 2150N	.8	9	11	33	1	99	5
EG 0750E 2200N	1.1	22	31	40	1	147	5
EG 0750E 2250N	1.0	3	18	29	1	123	5

APPENDIX C

COMPANY: FAIRBANK ENG. MIN-EN LABS ICP REPORT (ACT:F31) PAGE 1 OF 1
PROJECT NO: ERIE REGIONAL 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 FILE NO: 9/V/0379/S/J/001
ATTENTION: B.FAIRBANK (604)980-5814 OR (604)988-4524 * TYPE SILT GEOCHEM * DATE: 05-30-1989

(VALUES IN PPM)	AG	AS	CU	PB	SB	ZN	AU-PPB
RF89-001	.8	1	55	30	5	110	121
[redacted]							
RF89-011	.6	1	66	27	7	135	4
RF89-012	1.3	10	66	23	7	126	2

COMPANY: FAIRBANK ENG. | MIN-EN LABS ICP REPORT | (ACT:F31) PAGE 1 OF 1

PROJECT NO: ERIE REGIONAL | 705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2 | FILE NO: 9/V/0379/R/J/001

ATTENTION: B.FAIRBANK | (604)980-5814 OR (604)988-4524 | * TYPE ROCK GEOCHEM * | DATE: 05-30-1989

(VALUES IN PPM)	AG	AS	CU	PB	SB	ZN	AU-PPB
RF89-002	1.1	32	59	66	4	193	9
RF89-003	1.9	37	41	108	6	78	21
RF89-004	1.8	29	67	79	5	171	19
RF89-005	1.8	46	77	66	10	215	20
RF89-006	1.6	16	77	51	5	108	2
RF89-008	4.4	41	456	158	5	93	3

COMP: FAIRBANK ENGINEERING LTD.
PROJ: SALMO B.C.
ATTN: R.FAULKNER

MIN-EN LABS — ICP REPORT

705 WEST 15TH ST., NORTH VANCOUVER, B.C. V7M 1T2
(604)980-5814 OR (604)988-4524

FILE NO: OV-0505-RJ1
DATE: 90/05/23
* ROCK * (ACT:F31)

SAMPLE NUMBER	AG PPM	AS PPM	CU PPM	PB PPM	SB PPM	ZN PPM	AU PPB
SM-001	1.3	14	155	50	1	51	5
SM-002	2.2	15	306	51	2	75	5

APPENDIX D

geoMetrics

Instrument Division

PORTABLE PROTON MAGNETOMETER
MODEL G-816

Data Sheet
August 1974

- ★ 1 gamma sensitivity and repeatability
- ★ Very small size and weight: less than 12 lbs complete with batteries and sensor
- ★ Over 10,000 readings per set of alkaline "D" cell (flashlight) batteries
- ★ Provision to attach sensor to carrying harness for use without staff
- ★ Pushbutton operation—numeric display directly in gammas
- ★ Total field measurements—independent of orientation—no calibration—no leveling

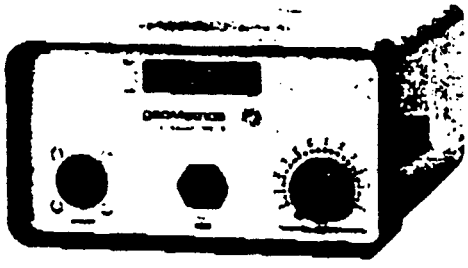
The Model G-816 is a complete portable magnetometer for all man-carry field applications. As an accurate yet simple to operate instrument, it features an outstanding combination of one gamma sensitivity and repeatability, compact size and weight, operation on standard universally available flashlight batteries, ruggedized packaging and very low price.

The G-816 magnetometer allows precise mapping of very small or large amplitude anomalies for ground geophysical surveys, or for detail follow-up to aeromagnetic reconnaissance surveys. It is a rugged, lightweight, and versatile instrument, equally well suited for field studies in geophysics, research programs or other magnetic mapping application where low cost, dependable operation and accurate measurements are required.

For marine, airborne or ground recording systems consider GeoMetrics Models G-801, G-803, and G-826.

"Hands-free" Back Pack Sensor

Based upon the principle of nuclear precession (proton) the G-816 offers absolute drift-free measurements of the total field directly in gammas. (The proton precession method is the officially recognized standard for measurement of the earth's magnetic field.) Operation is worldwide with one gamma sensitivity and repeatability maintained throughout the range. There is no temperature drift, no set-up or leveling required, and no adjustment for orientation, field polarity, or arbitrary reference levels. Operation is very simple with no prior training required. Only 6 seconds are required to obtain a measurement which is always correct to one gamma, regardless of operator experience. Only the Proton Magnetometer offers such repeatability—an important consideration even for 10 gamma survey resolution.



Complete Field Portable System

The model G-816 comes complete, ready for portable field operation and consists of:

1. Electronics console with internally mounted and easily replaced "D" cell battery pack.
2. Proton sensor and signal cable for attachment to carrying harness or staff.
3. Adjustable carrying harness.
4. 8 foot collapsible aluminum staff.
5. Instruction manual, complete set of spare batteries, applications manual, and rugged field suitcase.

Price and lease rates on the G-816 magnetometer are available upon request.

SPECIFICATIONS

Sensitivity: ±1 gamma throughout range

Range: 20,000 to 90,000 gammas (worldwide)

Tuning: Multi-position switch with signal amplitude indicator light on display

Gradient Tolerance: Exceeds 300 gammas/ft (increased gradient tolerance to 800 gammas/ft upon request)

Sampling Rate: Manual push-button, one reading each 6 seconds

Output: 5 digit numeric display with readout directly in gammas

Power Requirements: Twelve self-contained 1.5 volt "D" cell, universally available flashlight-type batteries. Charge state or replacement signified by flashing indicator light on display.

Battery Type	Number of Readings
Alkaline	over 10,000
Premium Carbon Zinc	over 4,000
Standard Flashlight	over 1,500

NOTE: Battery life decreases with low temperature operation.

Temperature Range: Console and sensor: -40° to +85°C

Battery Pack: 0° to +50°C (limited use to -15°C; lower temperature battery belt operation—optional)

Accuracy (Total Field): ±1 gamma through 0° to +50°C temperature range

Sensor: High signal, noise cancelling, interchangeably mounted on separate staff or attached to carrying harness

Size:
Console: 3.5 x 7 x 10.5 inches (9 x 18 x 27 cm)
Sensor: 4.5 x 6 inches (11 x 15 cm)
Staff: 1 inch diameter x 8 ft lenght (3 cm x 2.44 m)

Weight:

	Lbs.	Kgs.
Console (w/batteries):	5.5	2.4
Sensor & signal cable:	4	1.8
Aluminum staff:	2	0.9
Total:	11.5	5.1

All magnetometers and parts are covered by a one year warranty beginning with the date of receipt but not to exceed fifteen months from the shipping date.

Fairpark Equipment

EM16 SPECIFICATIONS

MEASURED QUANTITY	Inphase and quad-phase components of vertical magnetic field as a percentage of horizontal primary field. (i.e. tangent of the tilt angle and ellipticity).
SENSITIVITY	Inphase: ±150% Quad-phase: ± 40%
RESOLUTION	±1%
OUTPUT	Nulling by audio tone. Inphase indication from mechanical inclinometer and quadphase from a graduated dial.
OPERATING FREQUENCY	15-25 kHz (15-30 kHz optional) VLF Radio Band. Station selection done by means of plug-in units.
OPERATOR CONTROLS	ON/OFF switch, battery test push button, station selector switch, audio volume control, quadrature dial, inclinometer.
POWER SUPPLY	6 disposable 'AA' cells.
DIMENSIONS	53 x 21.5 x 28 cm
WEIGHT	Instrument: 1.8 kg Shipping: 8.35 kg

CAUTION:

EM16 inclinometer may be damaged by exposure to temperatures below -30°c. Warranty does not cover inclinometers damaged by such exposure.

Fairb
equip

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OUTPUT	Nulling by audio tone. Inphase indication from mechanical inclinometer and quadphase from a graduated dial.
OPERATING FREQUENCY	15-25 kHz (15-30 kHz optional) VLF Radio Band. Station selection done by means of plug-in units.
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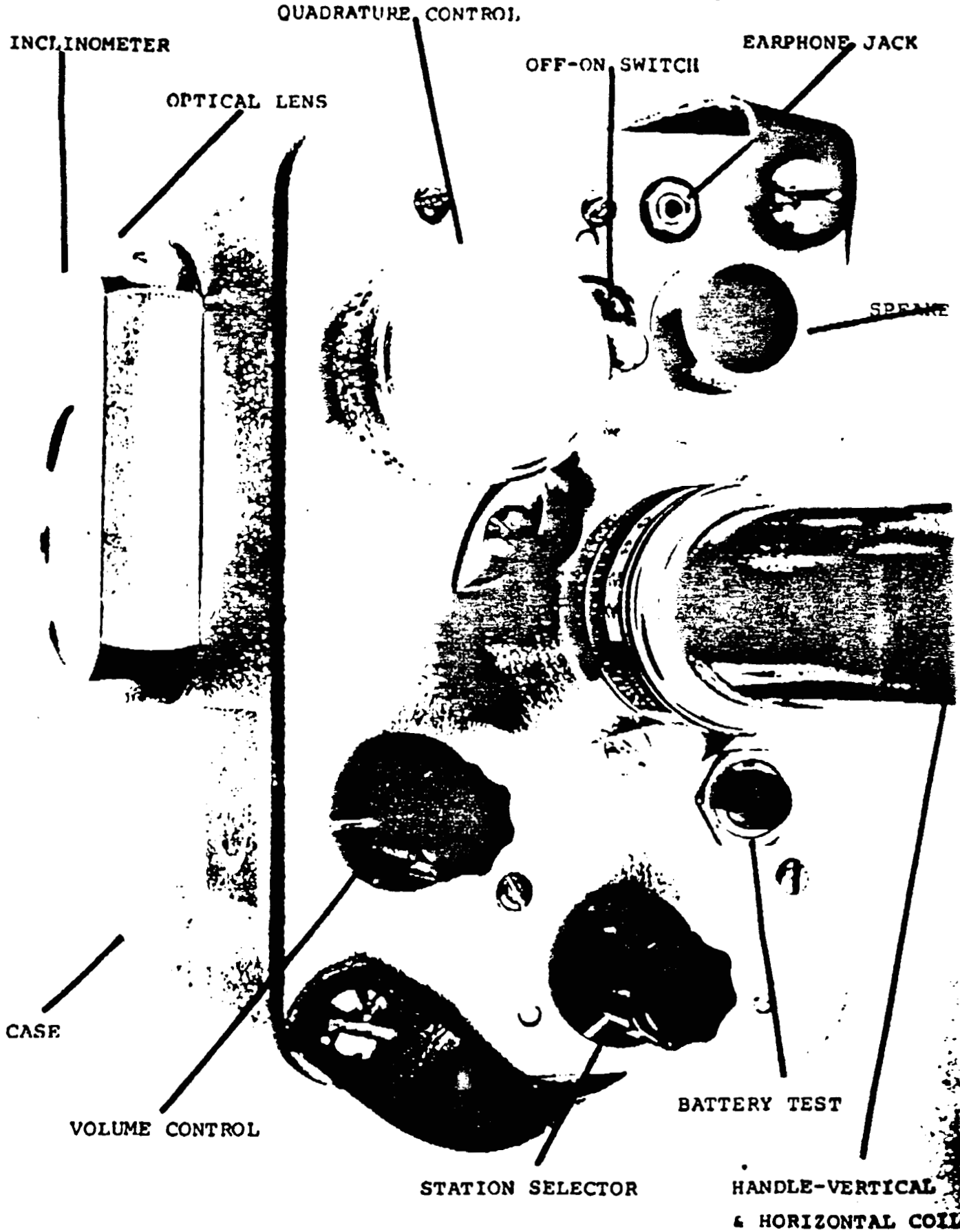
FIG. 1 EM I


QUADRATURE CONTROL
INCLINOMETER
EARPHONE JACK
OFF-ON SWITCH
OPTICAL LENS
SPEAKE
CASE
VOLUME CONTROL
BATTERY TEST
STATION SELECTOR
HANDLE-VERTICAL
& HORIZONTAL COIL

PRINCIPLES OF OPERATION

The VLF-transmitting stations operating for communications with submarines have a vertical antenna. The Antenna current is thus vertical, creating a concentric horizontal magnetic field around them. When these magnetic fields meet conductive bodies in the ground, there will be secondary fields radiating from these bodies. (See Figures 3 & 4). This equipment measures the vertical components of these secondary fields.

The EM16 is simply a sensitive receiver covering the frequency band of the VLF-transmitting stations with means of measuring the vertical field components.

The receiver has two inputs, with two receiving coils built into the instrument. One coil has normally vertical axis and the other is horizontal.

The signal from one of the coils (vertical axis) is first minimized by tilting the instrument. The tilt-angle is calibrated in percentage. The remaining signal in this coil is finally balanced out by a measured percentage of a signal from the other coil, after being shifted by 90^{0}. This coil is normally parallel to the primary field,(See instrument Block Diagram - Figure 2).

Thus, if the secondary signals are small compared to the primary horizontal field, the mechanical tilt-angle is an accurate measure of the vertical real-component, and the compensation $\pi/2$-signal from the horizontal coil is a measure of the quadrature vertical signal.

Some of the properties of the VLF radio wave in the ground are outlined by Figures 4 thru 9.

ACCOMPANYING NOTES FOR FIGURES 2 - 9

FIGURE 2 is the block diagram of the EM16. The diagram is self-explanatory. Both the coils (reference and signal coil) are housed in the lower part of the handle. The directions of the axis of the coils are as follows: The reference coil axis is basically horizontal and is kept more or less parallel to the primary field during measurement. The signal coil is at right angles to the reference coil and its axis is, of course, vertical.

The signal amplifier has the two inputs, one connected to the signal coil and one to the reference channel. By tilting the coils, the operator minimizes the signal from the signal (vertical axis) coil. Any remaining signal is reduced to zero by the quadrature control in the reference channel. The signal amplifier has zero output

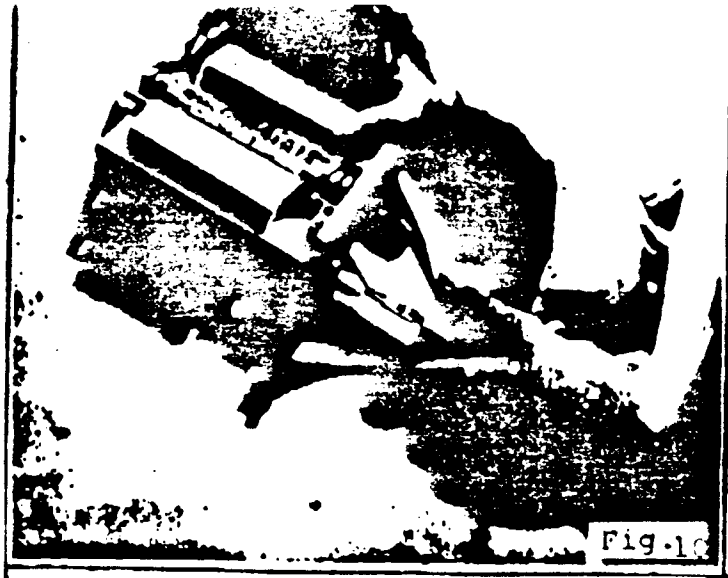


Fig 10

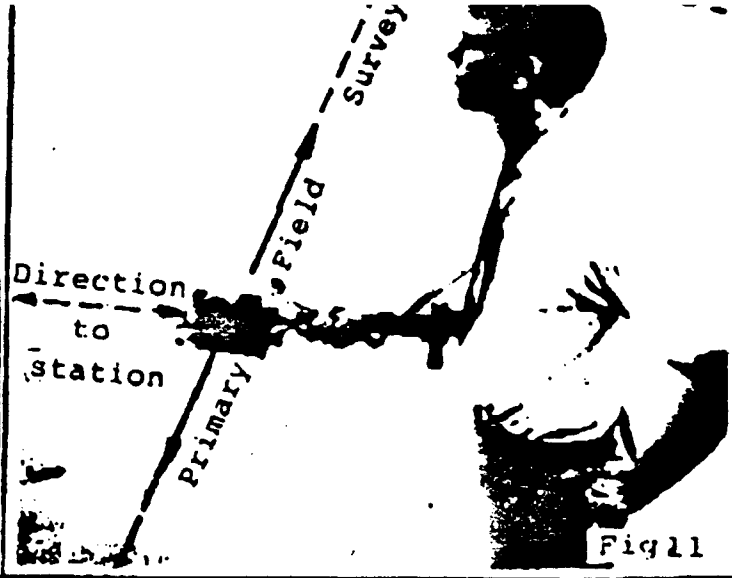


Fig 11

Fig 12

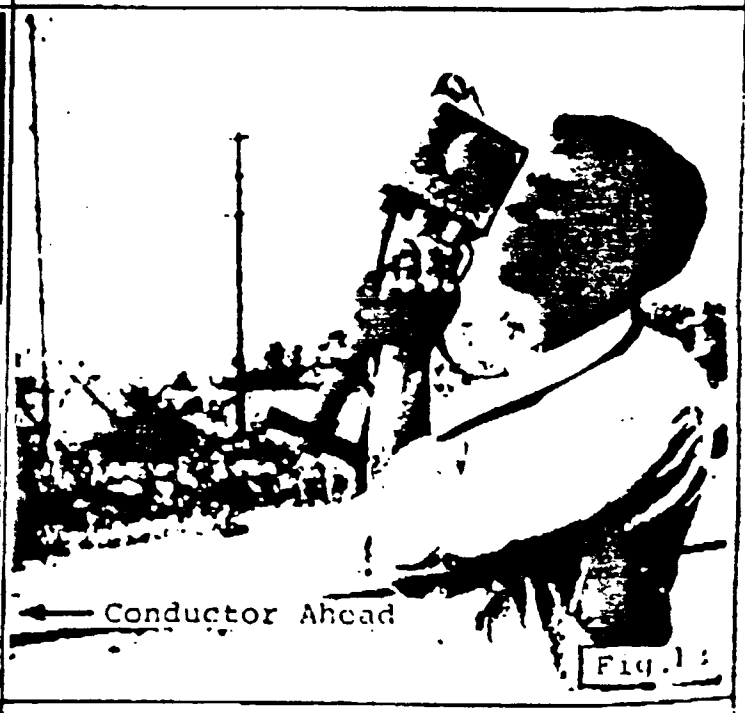
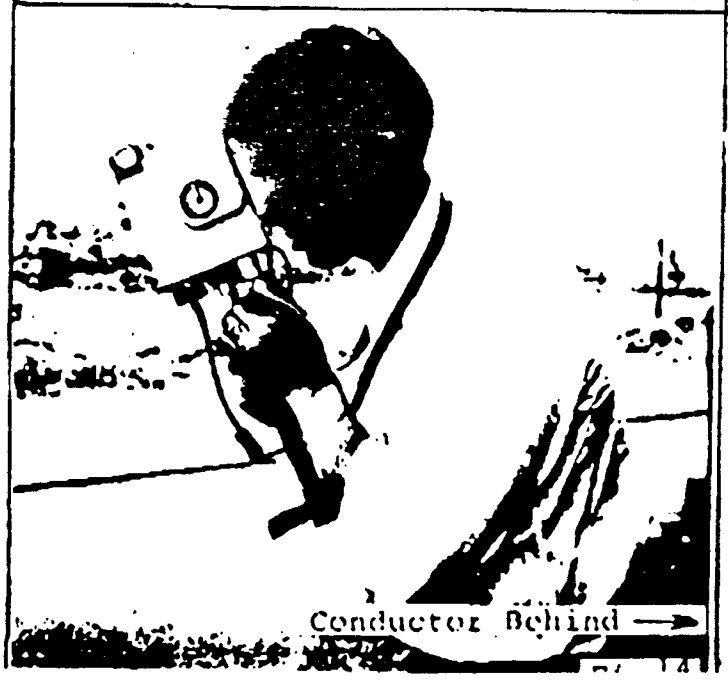


Fig 13



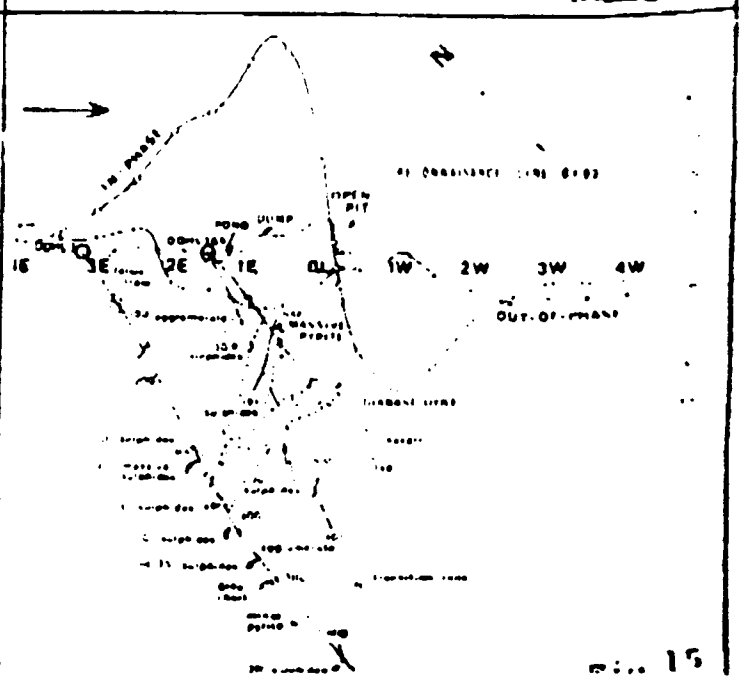


Fig. 15

(1) Open both eyes.

(2) Aim the hairline along the slope to the next station to about your eye level height above ground.

(3) Read on the left scale directly the distance necessary to measure along the slope to advance 100 (ft) horizontally.

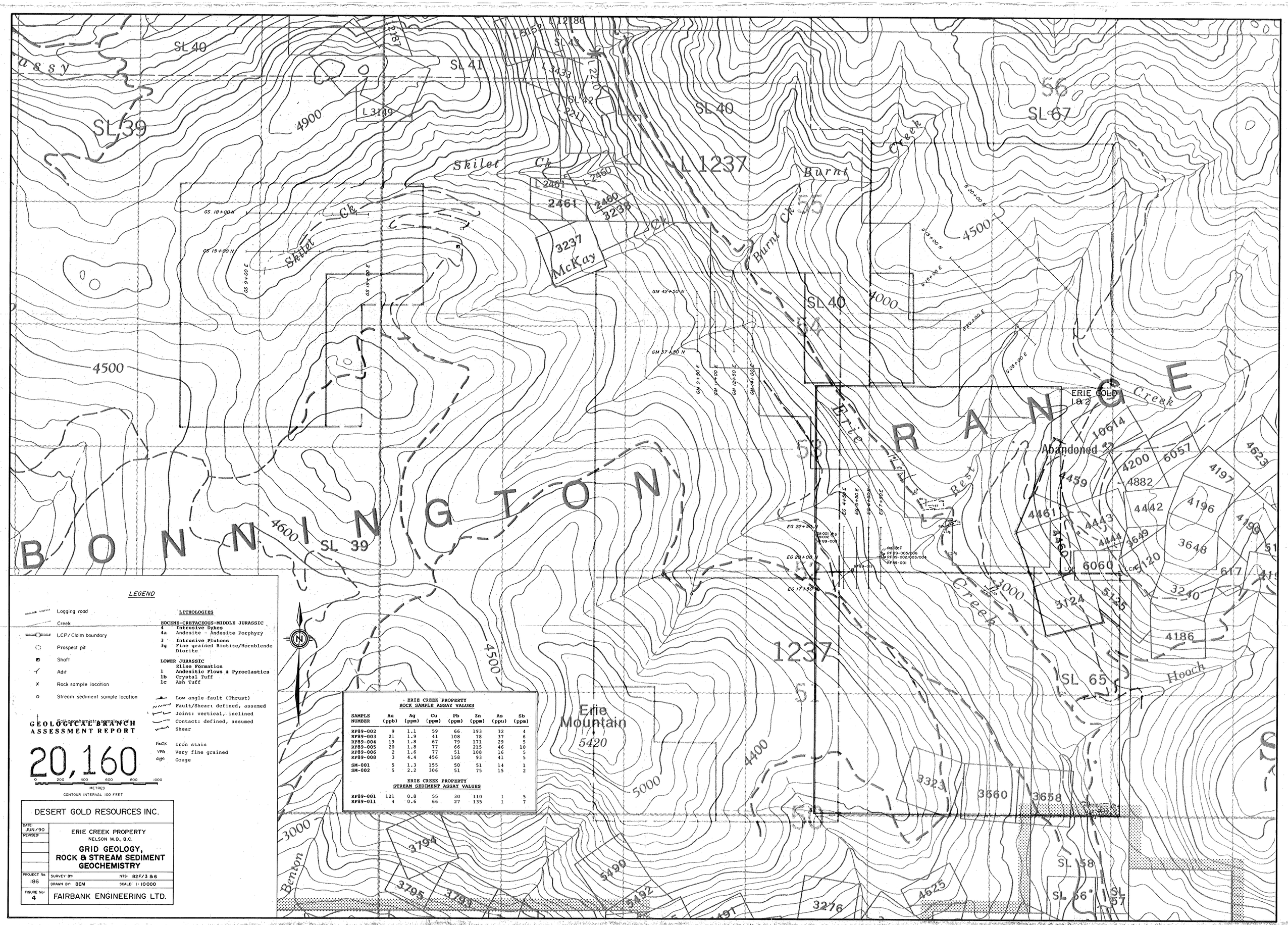
We feel that this will make your reconnaissance work easier. The outside scale on the inclinometer is calibrated in degrees just in case you have use for it.

PLOTTING THE RESULTS

For easy interpretation of the results, it is good practice to plot the actual curves directly on the survey line map using suitable scales for the percentage readings. (Fig.15) The horizontal scale should be the same as your other maps on the area for convenience.

A more convenient form of this data is easily achieved by transforming the zero-crossings into peaks by means of a simple numerical filtering technique. This technique is described by D.C. Fraser in his paper "Contouring of VLF-EM Data", Geophysics, Vol. 34, No. 6. (December 1969)pp958-967. A reprint of this paper is included in this manual for the convenience of the user.

This simple data manipulation procedure which can be implemented in the field produces VLF-EM data which can be contoured and as such provides a significant advantage in the evaluation of this data.



LEGEND

- Logging road
- Creek
- LCP/Claim boundary
- Prospect pit
- Shaft
- Adit
- Rock sample location
- Stream sediment sample location
- Rock geochemistry sample point

LITHOLOGIES

EOCENE-CRETACEOUS-MIDDLE JURASSIC

- 4 Intrusive Dykes
- 4a Andesite - Andesite Porphyry
- 3 Intrusive Plutons
- 3g Fine grained Biotite/Hornblende Diorite

LOWER JURASSIC

Elise Formation

- 1 Andesitic Flows & Pyroclastics
- 1b Crystal Tuff
- 1c Ash Tuff

- Low angle fault (Thrust)
- Fault/Shear: defined, assumed
- Joint: vertical, inclined
- Contact: defined, assumed
- Shear
- FeOx Iron stain
- VFG Very fine grained
- Gouge

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,160

0 200 400 600 800 1000
METRES

CONTOUR INTERVAL 100 FEET

ERIE CREEK PROPERTY
ROCK SAMPLE ASSAY VALUES

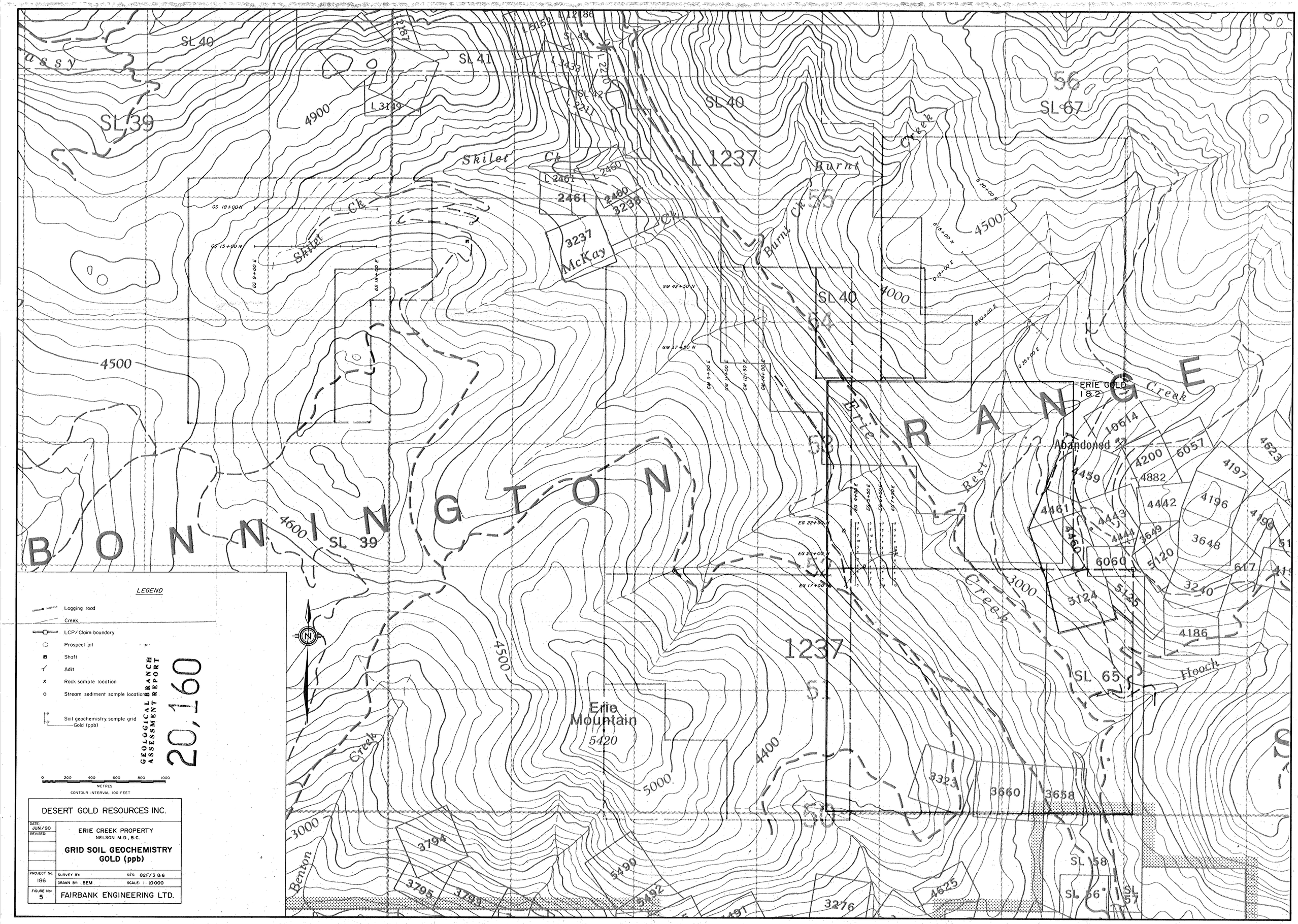
SAMPLE NUMBER	Au (ppb)	Ag (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)	As (ppm)	Sb (ppm)
RF89-002	9	1.1	59	66	193	32	4
RF89-003	21	1.9	41	108	78	37	6
RF89-004	19	1.8	67	79	171	29	5
RF89-005	20	1.8	77	66	215	46	10
RF89-006	2	1.6	77	51	108	16	5
RF89-008	3	4.4	456	158	93	41	5
SM-001	5	1.3	155	50	51	14	1
SM-002	5	2.2	306	51	75	15	2

ERIE CREEK PROPERTY
STREAM SEDIMENT ASSAY VALUES

RF89-001	121	0.8	55	30	110	1	5
RF89-011	4	0.6	66	27	135	1	7

DESERT GOLD RESOURCES INC.	
DATE: JUN/90	ERIE CREEK PROPERTY
REVISED:	NELSON M.D., B.C.
	GRID GEOLOGY, ROCK & STREAM SEDIMENT GEOCHEMISTRY
PROJECT No: 186	SURVEY BY: NTS: 82F/3 & 6
	DRAWN BY: BEM SCALE: 1:10000
FIGURE No: 4	FAIRBANK ENGINEERING LTD.


LEGEND
Logging road
Creek
LCP/Claim boundary
Prospect pit
Shaft
Adit
Rock sample location
Stream sediment sample location
Soil geochemistry sample grid
Mag data: 25.0m stations
Global magnetic field:
- values in gammas
- base level 56,500 gammas
250 gamma contour intervals
VLF Data:
Grid (25.0m stations)
• In-Phase (Inclination)
• Out-of-Phase (Quadrature)
0 -10 % MAGNITUDE
In-Phase and Out-of-Phase components of the vertical magnetic field as a percentage of the horizontal primary field
Seattle Station 24.8 kHz
0 200 400 600 800 1000
METRES
CONTOUR INTERVAL 100 FEET
GEOLOGICAL BRANCH ASSESSMENT REPORT
20,160
DESERT GOLD RESOURCES INC.
DATE: JUN/90
REVISED:
ERIE CREEK PROPERTY
NELSON M.D., B.C.
MAGNETIC & VLF-EM GEOPHYSICAL SURVEYS
PROJECT No. 186
SURVEY BY:
NTS: 82F/3 & 6
DRAWN BY: BEM
SCALE: 1:10000
FIGURE No: 9
FAIRBANK ENGINEERING LTD.
ERIE GOLD 1 & 2
VLF SURVEY
BONNINGTON RANGE
Erie Mountain
5420
Skilet Ck
Burnt Creek
Erie Creek
Rest Creek
Hooch Creek
Benton Creek
McKay
Abandoned
ERIE GOLD 1 & 2
SL 39
SL 40
SL 41
SL 42
SL 65
SL 67
L 1237



LEGEND

- Logging road
- Creek
- LCP / Claim boundary
- Prospect pit
- Shaft
- Adit
- Rock sample location
- Stream sediment sample location
- Soil geochemistry sample grid
  Gold (ppb)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

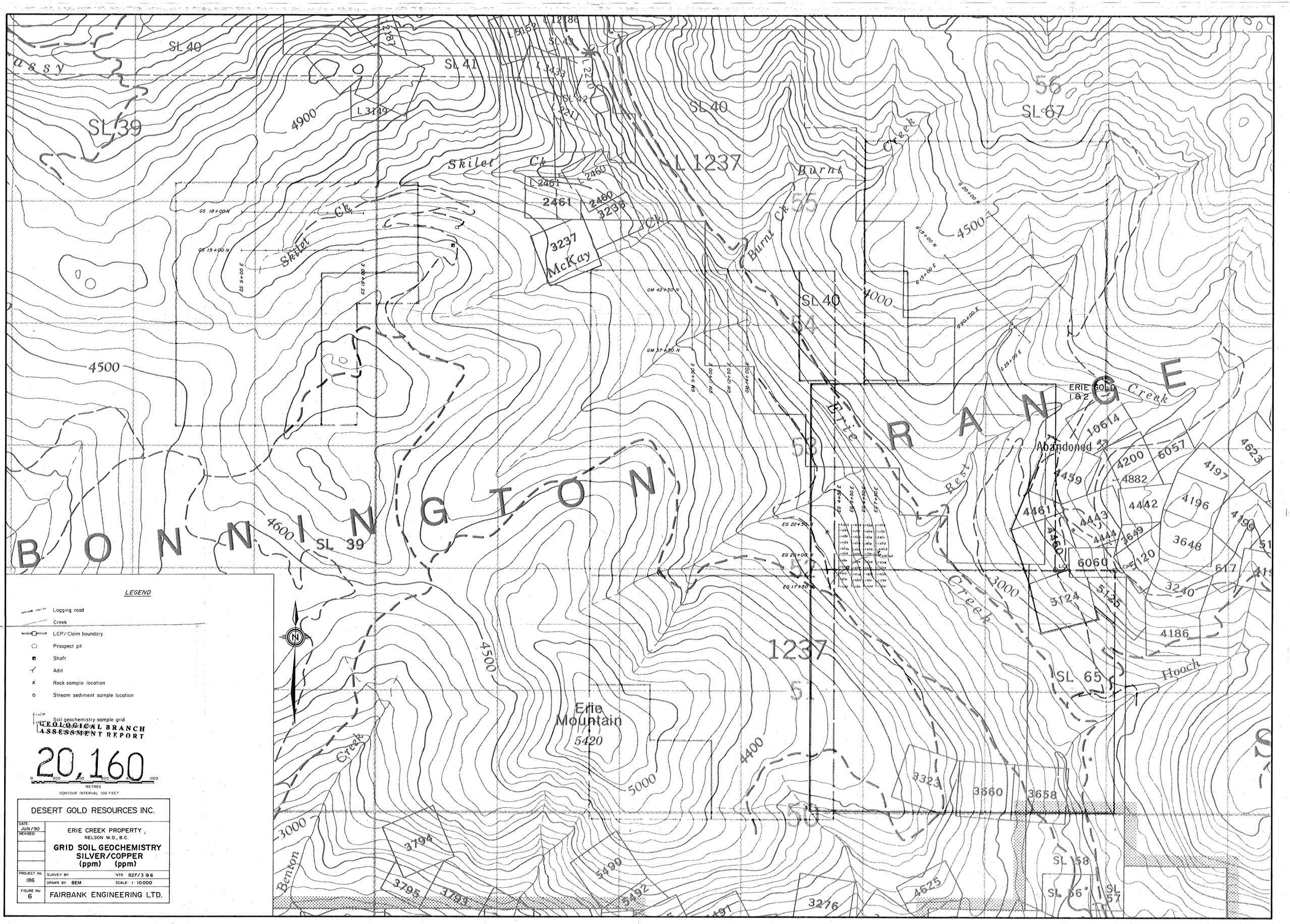
20,160

0 200 400 600 800 1000
METRES

CONTOUR INTERVAL 100 FEET

DESERT GOLD RESOURCES INC.	
DATE: JUN/90	ERIE CREEK PROPERTY
REVISED	NELSON M.D., B.C.
	GRID SOIL GEOCHEMISTRY GOLD (ppb)
PROJECT No: 186	SURVEY BY: NTS: 82F/3 & 6
	DRAWN BY: BEM SCALE: 1:10000
FIGURE No: 5	FAIRBANK ENGINEERING LTD.


LEGEND
Logging road
Creek
LCP/ Claim boundary
Prospect pit
Shaft
Adit
Rock sample location
Stream sediment sample location
Soil geochemistry sample grid
Zinc (ppm)
Lead (ppm)
0 200 400 600 800 1000
METRES
CONTOUR INTERVAL 100 FEET
GEOLOGICAL BRANCH ASSESSMENT REPORT
20,160
DESERT GOLD RESOURCES INC.
DATE: JUN/90
REVISED:
ERIE CREEK PROPERTY
NELSON M.D., B.C.
GRID SOIL GEOCHEMISTRY
LEAD (ppm)/ZINC (ppm)
PROJECT No. 186
SURVEY BY:
NTS: 82F/3 & 6
DRAWN BY: BEM
SCALE: 1:10000
FIGURE No: 8
FAIRBANK ENGINEERING LTD.
BONNINGTON RANGE
Erie Mountain
5420
Skilet Ck
Burnt Ck
Erie Creek
Rest Creek
Hooch
Benton Creek
McKay
ERIE GOLD
Abandoned
L 1237
SL 39
SL 40
SL 41
SL 65
SL 67
4500
4900
5000
4400
4000
3000



LEGEND

- Logging road
- Creek
- LCP/Claim boundary
- Prospect pit
- Shaft
- Adit
- Rock sample location
- Stream sediment sample location
- Soil geochemistry sample grid

GEOLOGICAL BRANCH
ASSESSMENT REPORT

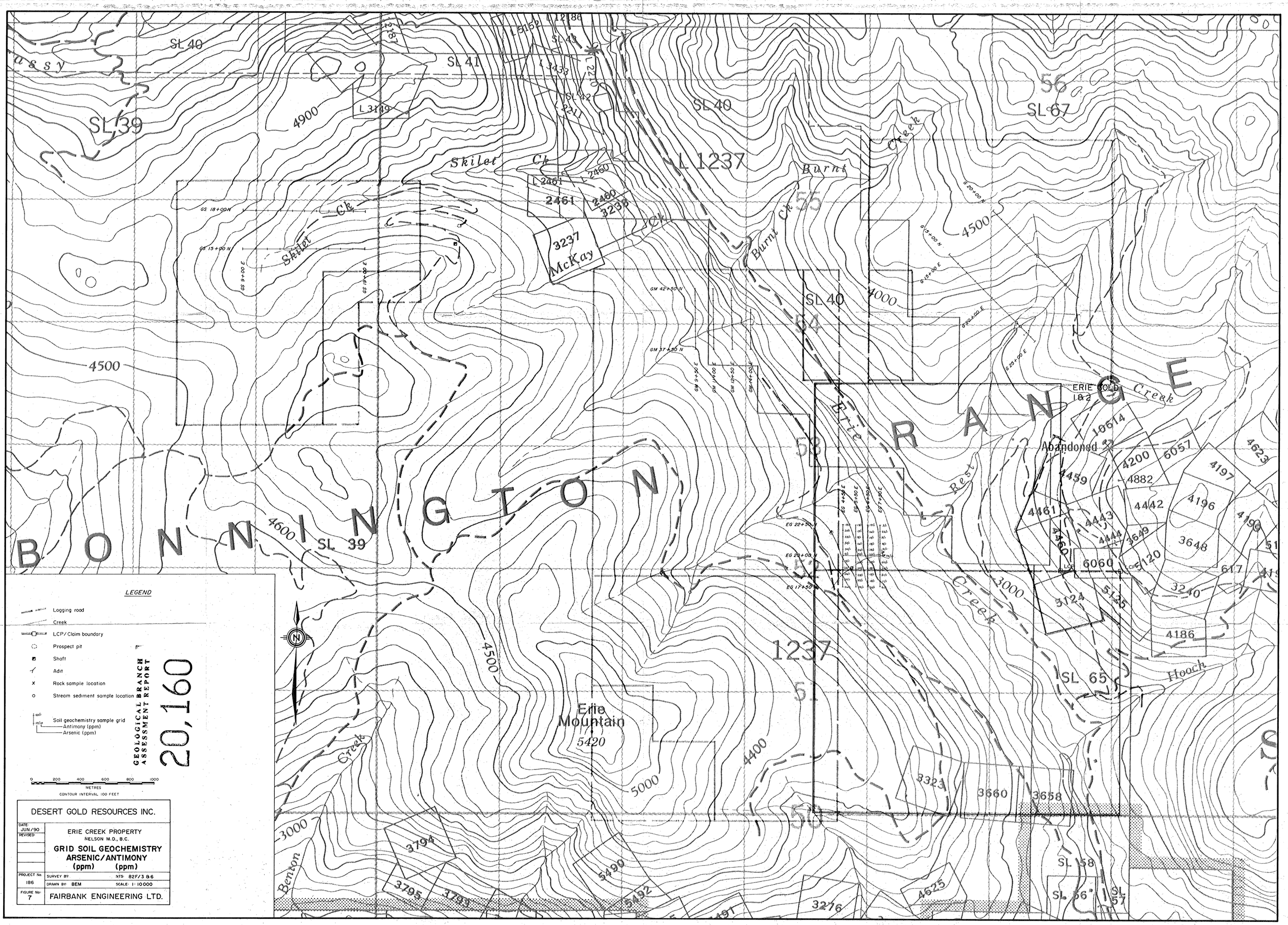
20,160

0 200 400 600 800 1000
METRES

CONTOUR INTERVAL 100 FEET

DESERT GOLD RESOURCES INC.

DATE: JUN/90	ERIE CREEK PROPERTY, NELSON M.D., B.C.
REVISED:	**GRID SOIL GEOCHEMISTRY SILVER/COPPER (ppm) (ppm)**
PROJECT No: 186	SURVEY BY: NTS: 82F/3 & 6
	DRAWN BY: BEM SCALE: 1:10000
FIGURE No: 6	FAIRBANK ENGINEERING LTD.



BONNINGTON RANGE

LEGEND

- Logging road
- Creek
- LCP/Claim boundary
- Prospect pit
- Shaft
- Adit
- Rock sample location
- Stream sediment sample location
- Soil geochemistry sample grid
  - Antimony (ppm)
  - Arsenic (ppm)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

20,160

0 200 400 600 800 1000
METRES
CONTOUR INTERVAL 100 FEET

DESERT GOLD RESOURCES INC.

DATE: JUN/90	ERIE CREEK PROPERTY
REVISED:	NELSON M.D., B.C.
	GRID SOIL GEOCHEMISTRY
	ARSENIC/ANTIMONY
	(ppm) (ppm)
PROJECT No. 186	SURVEY BY: NTS: 82F/3 & 6
	DRAWN BY: BEM SCALE: 1:10000
FIGURE No: 7	FAIRBANK ENGINEERING LTD.