

YFIP

1996

96-020

**REPORT ON**

**1996 PROSPECTOR'S ASSISTANCE WORK**

by

**Larry W. Carlyle**

## TABLE OF CONTENTS

	<b>Page</b>
Introduction	1
Crawford Showing	1
Thornback	3
Trapper Claims	4
Teslin Mountain	5
Livingstone Creek	8
1996 Statement of Costs	12
Statement of Qualifications	13

### FIGURES

	<b>Following Page</b>
Traverse Map & Sample Location Map (NTS 116 B/9)	2
Traverse Map (NTS 116 B/16)	3
Traverse Map & Sample Location Map (NTS 105 E/2)	6
Traverse Map & Sample Location Map (NTS 105 E/8)	9

### TABLES

	<b>Page</b>
Sample Analyses (Crawford)	2
Sample Analyses (Trapper)	4
Sample Description Table (Teslin Mountain)	7
Sample Description Table (Livingstone Creek)	10

## **APPENDICES**

**Appendix A -- Analytical Certificates**

**Appendix B -- Invoices Supporting Statement of Costs**

**Appendix C -- 1996 Prospector's Assistance Diary**

## **INTRODUCTION:**

In March, 1996, Carlyle submitted a prospecting proposal under the Yukon Mineral Incentives Program.

The proposal put forward a program of prospecting in four areas of the Yukon:

- one was the copper showing called the "Crawford" located on NTS 116 B/9 (originally thought to be on B/10) and called #61 on the Dawson Minfile.
- the second was a coal showing known as the "Thornback" located on NTS 116 B/16 on the Blackstone River near Chapman Lake. This showing had been given the designation of #62 on the Dawson Minfile.
- the third area was at the headwaters of Laurier Creek located just south of Teslin Mountain on NTS 105 E/2 where stream sediment sampling had returned interesting values in gold and arsenic.
- the fourth area was at the headwaters of Livingstone Creek (NTS 105 E/8) where again interesting gold values had been obtained in stream sediment samples. Also, several creeks in the area have been placer mined for nearly 100 years.

The proposal was accepted and given the YMIP File # 96-020. This report has been prepared to describe the results of the prospecting in the above areas.

### **CRAWFORD SHOWING (DAWSON MINFILE #61)**

The showing was apparently found in 1958 by prospectors working for the Yukon Consolidated Gold Corporation Ltd. but was never staked. Carlyle was attracted to the showing by the minfile description of chalcopyrite in quartz float and chalcocite in quartz-siderite float. It was also reported that placer copper located in the headwaters of the Blackstone River may have come from this area.

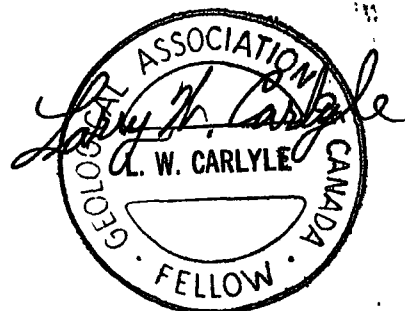
The area was mapped as containing Cambrian or older sediments as well as Ordovician sediments. During prospecting, it was also found to contain basaltic and andesitic volcanic rocks. These rocks were altered and contained strong calcite fracture fillings, limestone

lenses, and red iron oxide staining as well as occasional pillows. One vug in a limestone lense contained some Alaska black diamond (hematite). Most of the rocks seen were arkose and quartz pebble conglomerate which changed toward the west to a dark green andesite with minor shale, slates, and limestone. The shale and slates strike at Azimuth  $250^{\circ}$  and dip at  $75^{\circ}$  northwest.

During the prospecting of most of the outcrops at the head of the creek draining south toward the East Blackstone, a **very small** zone of calcite-quartz stringers containing a few specks of chalcocite and chalcopyrite and weak malachite oxidization was located. The stringers were located in a dark green andesite practically exactly where the #61 was marked on the minfile. The fracture fillings average  $\frac{1}{2}$  - 1 cm. In width and occupy a very restricted area of **at best** 5 metres along the outcrop face. The showing was so insignificant that I didn't even bother to sample it. I think it is very unlikely that the site is the source of the copper float found in the Blackstone River.

Two stream sediment samples (96-SS-1 and 2) were taken at elevations 1575 m. and 1375 m. respectively from the stream draining eastward from the outcrop area (See Sample Location Map).

Sample Number	Au (ppb)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
96-SS-1	6	8	74	15	115
96-SS-2	21	14	67	19	113



79  
78  
77  
76  
40'  
75  
72  
74  
71  
73  
70  
72  
71  
70  
69  
68  
67  
35'  
66

# TRAVERSE MAP

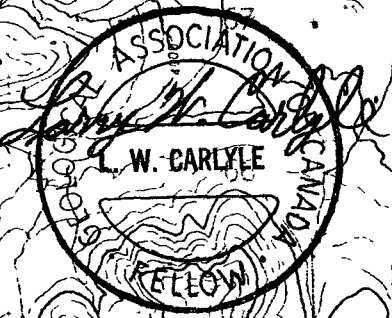
SCALE 1:50,000

PART OF 116 B/9

Joins 116 B/10

Minkite #61

JENSEN  
Camp  
Camp



NORTH

MOUNTAIN

FB

BOUNDARY

40'

35'

66

SAMPLE LOCATION MAP  
SCALE 1:50,000

PART OF 116 B/9

79  
78  
77  
76  
40'  
75  
74  
73  
72  
71  
70  
72  
71  
69  
70  
68  
67  
35'  
66

Joins 116 B/10

O

G

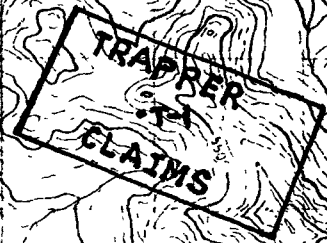
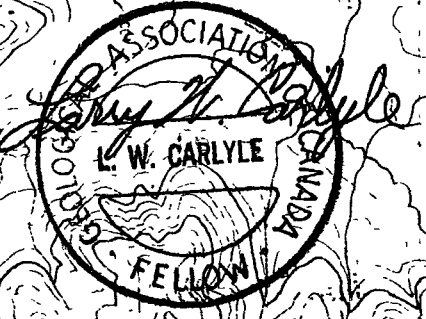
96-55-1  
96-55-2

Camp

F B

F

T B



NORTH

M

O

U

N

T

A

FOOD BY



**THORNBACK ( DAWSON MINFILE #62)**

Carlyle has been investigating Yukon coal occurrences, with an emphasis on those in the Dawson area, for several years. This occurrence was apparently first reported by C.

Thornback, an R.C.M.P. member, in his 1914-1915 diary. The site is also described in the 1994 Coal Inventory (#50) in essentially the same manner.

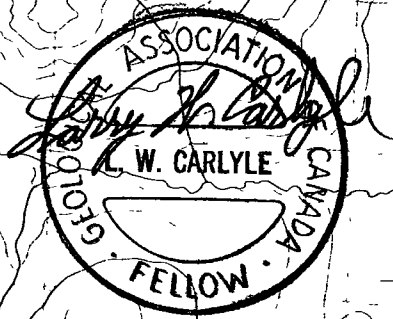
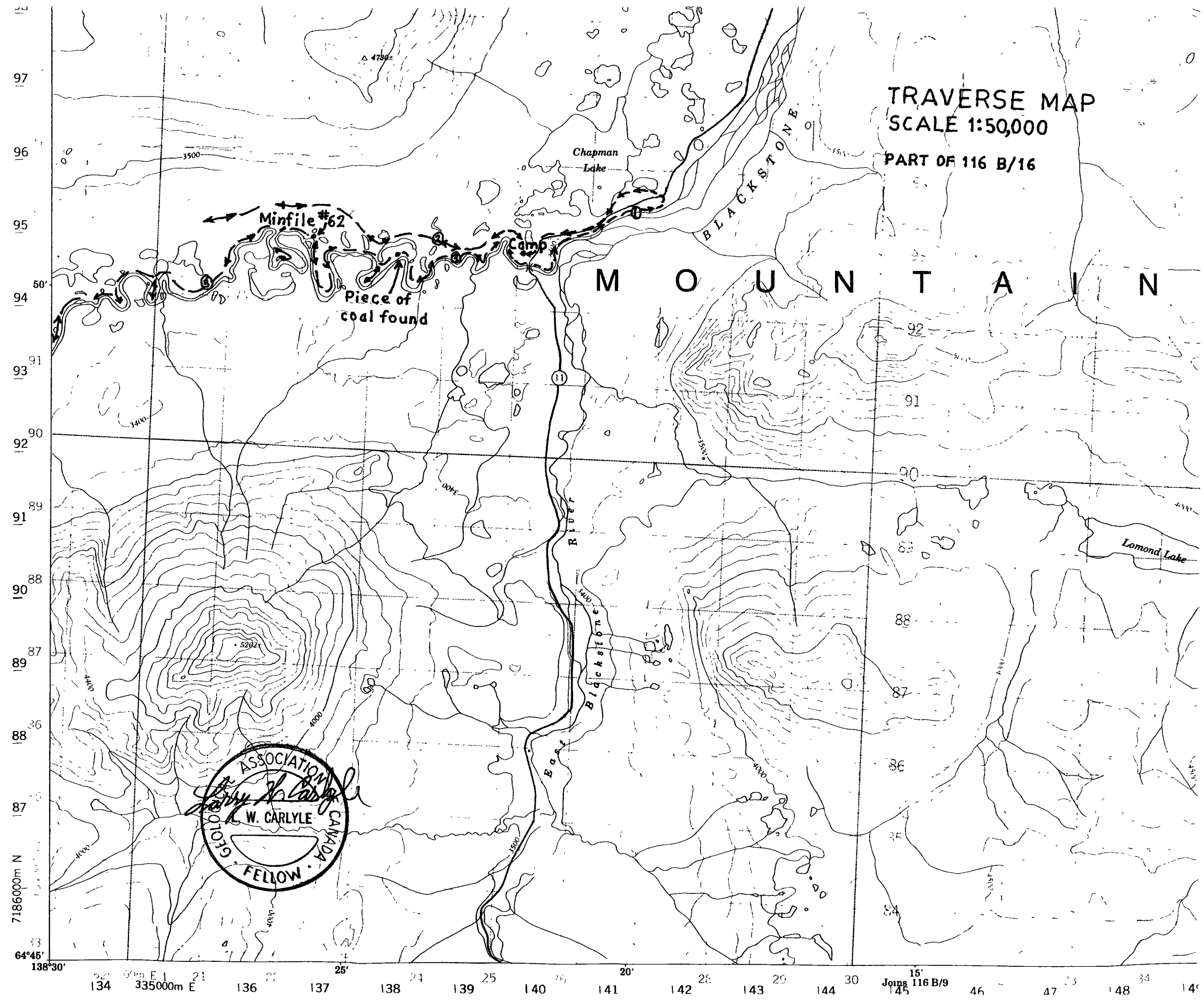
**"Indians named the Blackstone (River) because of the deep, extensive seams of coal on both sides of the canyon. It looked like the land had split, forming a long gorge and deep river bed between high vertical walls 100 ft. apart. Lying upon the river ice were many large lumps of coal recently split away from the cliffs, evidently by frost expansion".**

Two days were spent examining the Blackstone River banks for this coal occurrence. The banks were examined for approximately 3 miles downstream from the bridge where the Dempster Highway crosses the river as well as for at least 5 miles upstream from the bridge. No canyons or outcrop were found. The river banks were all sloughed and frozen.

The river has cut off several oxbows; several of these were examined with no evidence of the canyon mentioned by Thornback having been found. Several pieces of black shale, some of which were highly silicified, were found. These may have seemed to be coal to inexperienced people. One piece of subrounded coal was located. It measured about 1 inch in width and 1 ½ inches in length. It was located on the river bank approximately 1 ½ miles downstream from where the occurrence site is marked on the minfile map (See Traverse Map).

TRAVERSE MAP  
SCALE 1:50,000

PART OF 116 B/16



7186000m N  
64°45'  
138°30' 134 335000m E 21 136 137 25' 138 24 139 25 140 26 141 20' 142 26 143 29 144 30 15' 145 116 B/9 46 47 48 34 14'

## TRAPPER CLAIMS

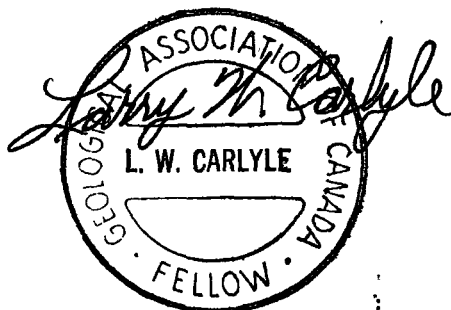
Having apparently exhausted the prospecting possibilities at sites #61 and #62 of the minfile, I thought that, since we were in the area, we should find another location to prospect. The examination of one of two groups of expired claims the "CEC" and "Trapper" seemed feasible during the return trip to Whitehorse. The "CEC" claims have no outcrop, seem to be centred on the river, and probably were staked by an outfitter for more pastureland. The "Trapper" claims, on the other hand, are up on the mountain east of the road and have some significant outcrop (See Traverse and Sample Location Maps, NTS 116 B/9). We decided to investigate the reason for their staking.

During the prospecting, we located outcrops of several rock types; such as slate, sandstone, limestone, and andesitic volcanics. Most of the rocks contained numerous small, vuggy calcite and quartz stringers but having no visible mineralization. We took rock sample, T-1, of orange weathering altered andesite cut by a stockwork of fine quartz stringers but no visible mineralization.

Sample Number	Au (ppb)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
T - 1	7	65	96	49	70

The value of 673 ppm. in strontium obtained for the sample seems to be anomalous.

All three of the sites examined along the Dempster Highway do not warrant further investigation.



## **TESLIN MOUNTAIN (LAURIER CREEK)**

Prospecting was done in the area of the headwaters of Laurier Creek from July 22, 1996 until July 31, 1996. The area was of interest because several tributary streams had returned anomalous gold, arsenic, and copper values in stream sediment samples. There were also several magnetic anomalies associated with them. The lower reaches of the stream had also been placer mined by Erwin and Bernie Kreft for at least two years but their operations have ceased.

The geological mapping of the area done by Cockfield indicated that the area was underlain by Cretaceous basalt, andesite and quartz dacite. His mapping also indicated that the area just north of our camp (See Sample Location Map) had been intruded by a plug of Cretaceous granodiorite and monzonite porphyry. Prospecting in the area showed that the area was underlain by a fine-grained black basalt which occasionally contained pillows. It resembles the Mt. Joe volcanics seen at my Mt. Byng property. The basalt is cut by a number of strong northwest striking faults which appear to have steep dips. Rhyo-dacite dykes (?) having 2 - 4 m. widths occasionally seem to follow the faults. In areas where there are coincident faults and dykes, the basalt is gossaned and contains slightly vuggy quartz-calcite stringers having between 1 - 2% pyrite and arsenopyrite as well as trace amounts of pyrrhotite and chalcopyrite. Gossaned areas frequently demonstrated epidote alteration of the basalt in addition to the mineralization; samples of only the most strongly mineralized and altered sites were taken. It is believed that the dykes post date the basalt; however, there is some uncertainty. At one location, the dyke contained sub-rounded fragments of the basalt up to 10 cm. in diameter; at another, sub-rounded fragments of rhyo-dacite from 10-12 cm. and smaller fragments of other rock types were contained in the basalt over a 20-30 metre width.

The plug of Cretaceous granodiorite and monzonite porphyry mapped by Cockfield is believed to be a rhyo-dacite dyke by the writer. The dyke appears to be up to 10 metres wide and follows a fault which runs E-W from the south side of the main Teslin Mountain peak westward to the gully just north of sample LA-4. The basalt in places appears to have a fine-grained, green-grey, and silicified (conchoidal fracture) alteration with minor calcite fracture fillings and pyrite near the contact. Further east, the basalt seems to have been recrystallized into a coarser form with chlorite and 1% pyrite (+ arsenopyrite ?) near the dyke contact.

The "Slime" claims located in the area were not examined; however, a brief examination was made of the "Tess" claims. The showing consists of a strong orange weathering shear zone having an approximately E-W strike and a moderate to steep north dip which the creek follows for about 100 feet. Sample 96-LA-3 was taken from the shear and consists of orange weathering iron oxide stained rhyolite, chalcedony, and clay altered feldspars with no visible mineralization.

An area where Cockfield had mapped the contact between the basalt and a large granodiorite intrusive was also investigated (See Sample Location Map). The chill margin seems to be approximately 30 feet wide with rocks on both sides of the contact being altered and recrystallized as finer-grained equivalents. The granodiorite has fine black biotite. It also contains some quartz stringers up to 2 inches wide with 3/4 inch hornblende (beryl ?) crystals having a dark green hue.

LONG 901:  
LAKE

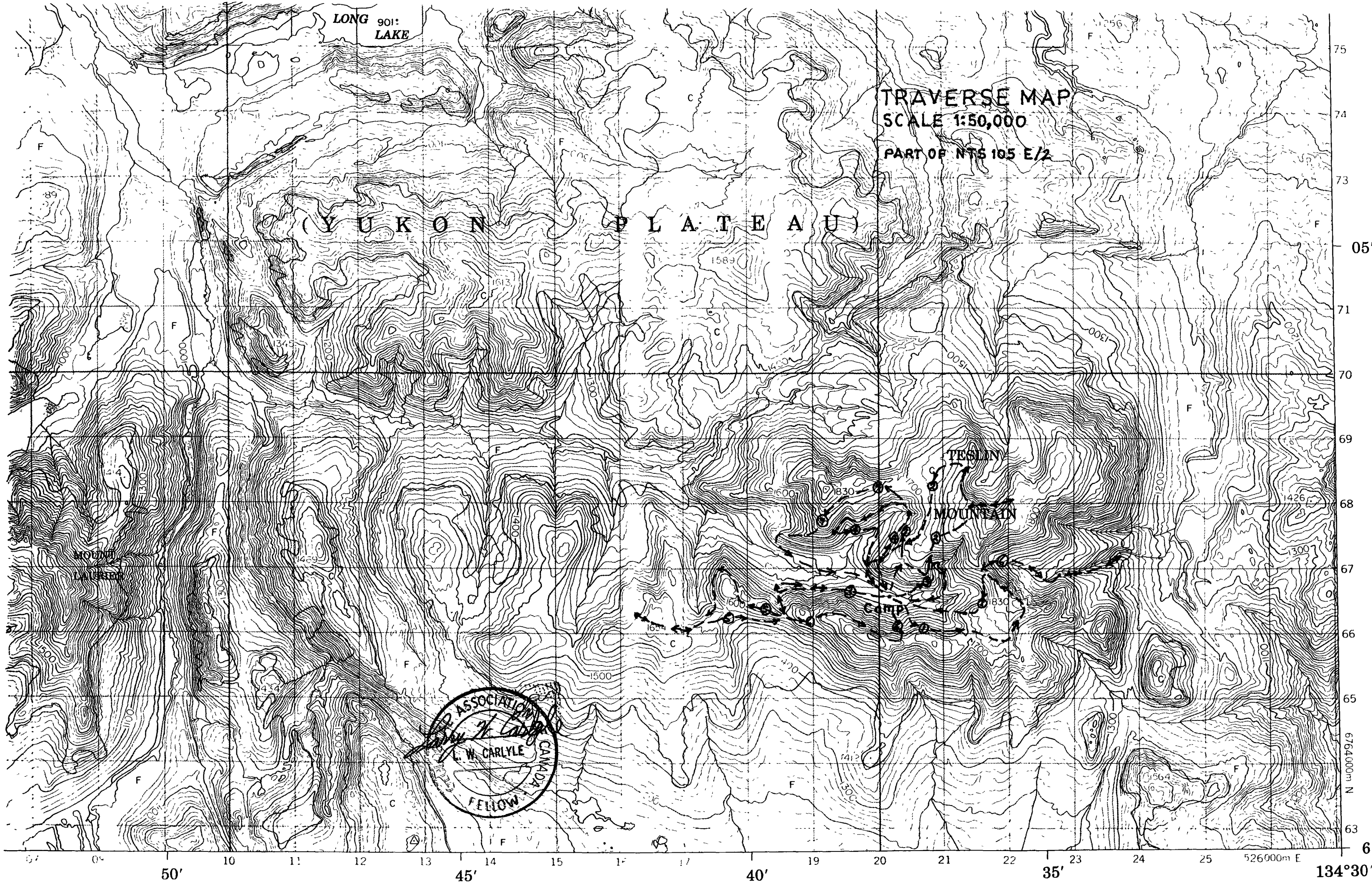
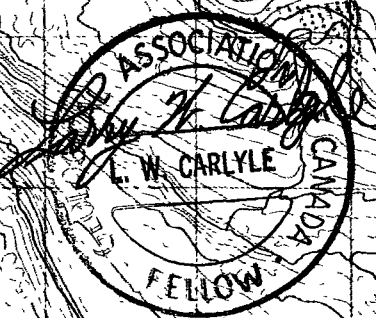
TRAVERSE MAP  
SCALE 1:50,000  
PART OF NTS 105 E/2

(YUKON PLATEAU)

TESLIN

MOUNTAIN

CAMP



50'

45'

40'

35'

134°30'

6

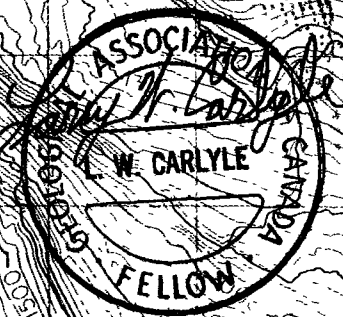
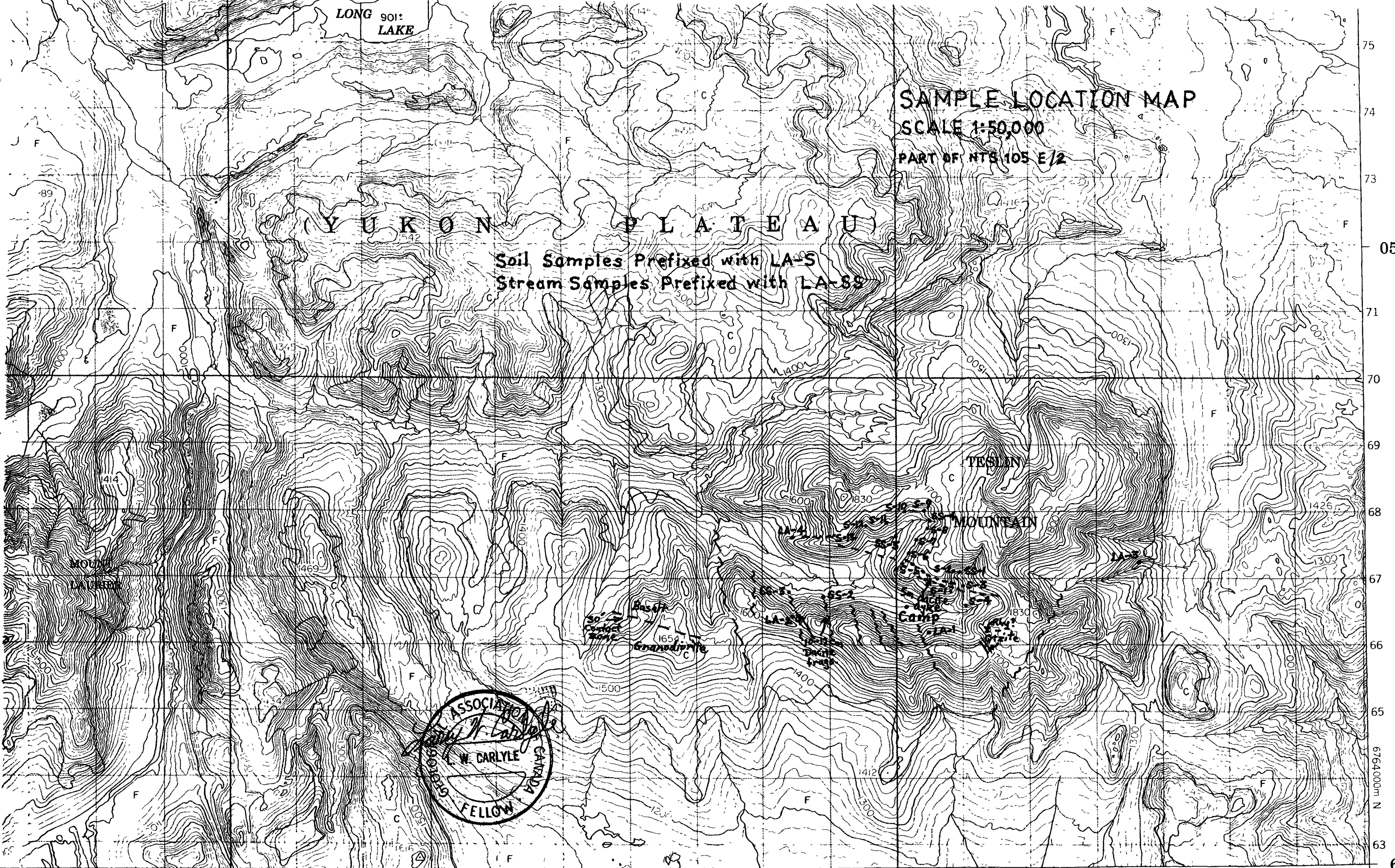


LONG 901:  
LAKE

SAMPLE LOCATION MAP  
SCALE 1:50,000  
PART OF NTS 105 E/2

(YUKON PLATEAU)

Soil Samples Prefixed with LA-S  
Stream Samples Prefixed with LA-SS



**SAMPLE DESCRIPTION TABLE****Rock Samples**

Sample Number	Au (ppb)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
---------------	----------	----------	----------	----------	----------

LA-1	< 5	24	108	561	27
------	-----	----	-----	-----	----

Highly gossaned fine-grained black basalt (Mt. Joe ?). Weakly vuggy quartz stringers with up to 2% pyrite, trace arsenopyrite (+ pyrrhotite & chalcopyrite ?).

LA-2	8	13	108	63	46
------	---	----	-----	----	----

Strongly iron and manganese gossaned fine-grained black basalt. 1 +% pyrite (+ arsenopyrite ?)

LA-3	< 5	< 5	14	74	41
------	-----	-----	----	----	----

Sample from Tess showing. Orange weathering iron oxide stained rhyolite with chalcedony fracture fillings and clay altered feldspars. No visible mineralization.

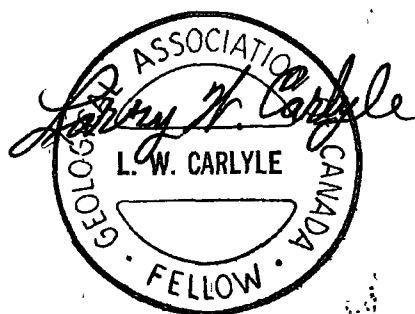
LA-4	7	21	119	20	33
------	---	----	-----	----	----

Highly iron and manganese gossaned andesite with < 1% pyrite (+ arsenopyrite ?).

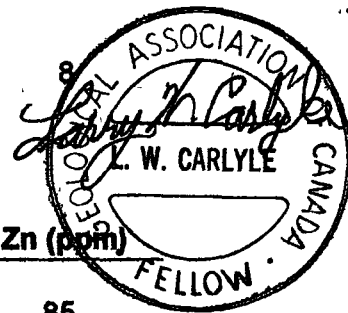
**Contour Soil Samples**

Sample Number	Au (ppb)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
---------------	----------	----------	----------	----------	----------

LA-S-1	< 5	5	15	4	20
LA-S-2	9	18	36	10	65
LA-S-3	255	13	40	14	43
LA-S-4	8	28	34	12	53
LA-S-5	24	21	34	15	48
LA-S-6	< 5	26	40	13	83
LA-S-7	< 5	40	50	13	79
LA-S-8	< 5	45	39	11	89
LA-S-9	6	22	21	11	71
LA-S-10	< 5	22	31	8	84
LA-S-11	5	12	25	9	52
LA-S-12	5	41	47	8	75
LA-S-13	< 5	38	44	9	65







### Stream Sediment Samples

Sample Number	Au (ppb)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
LA-SS-1	22	41	53	10	85
LA-SS-2	< 5	25	42	10	60
LA-SS-3	< 5	18	64	8	90
LA-SS-4	5	31	55	9	94
LA-SS-5	< 5	32	39	8	84

The elevated gold values obtained from contour soil samples S-3 and 5 confirm the values obtained during the regional program which attracted the writer to the area. The proximity of these samples to the location of the large rhyo-dacite dyke would suggest their existence resulted from the dyke intrusion. It is unknown why a poor value was obtained from sample S-1 since it is as close to the dyke as the other samples. The elevated gold and copper values obtained from several of the above samples suggest that more detailed work may be warranted in the area.

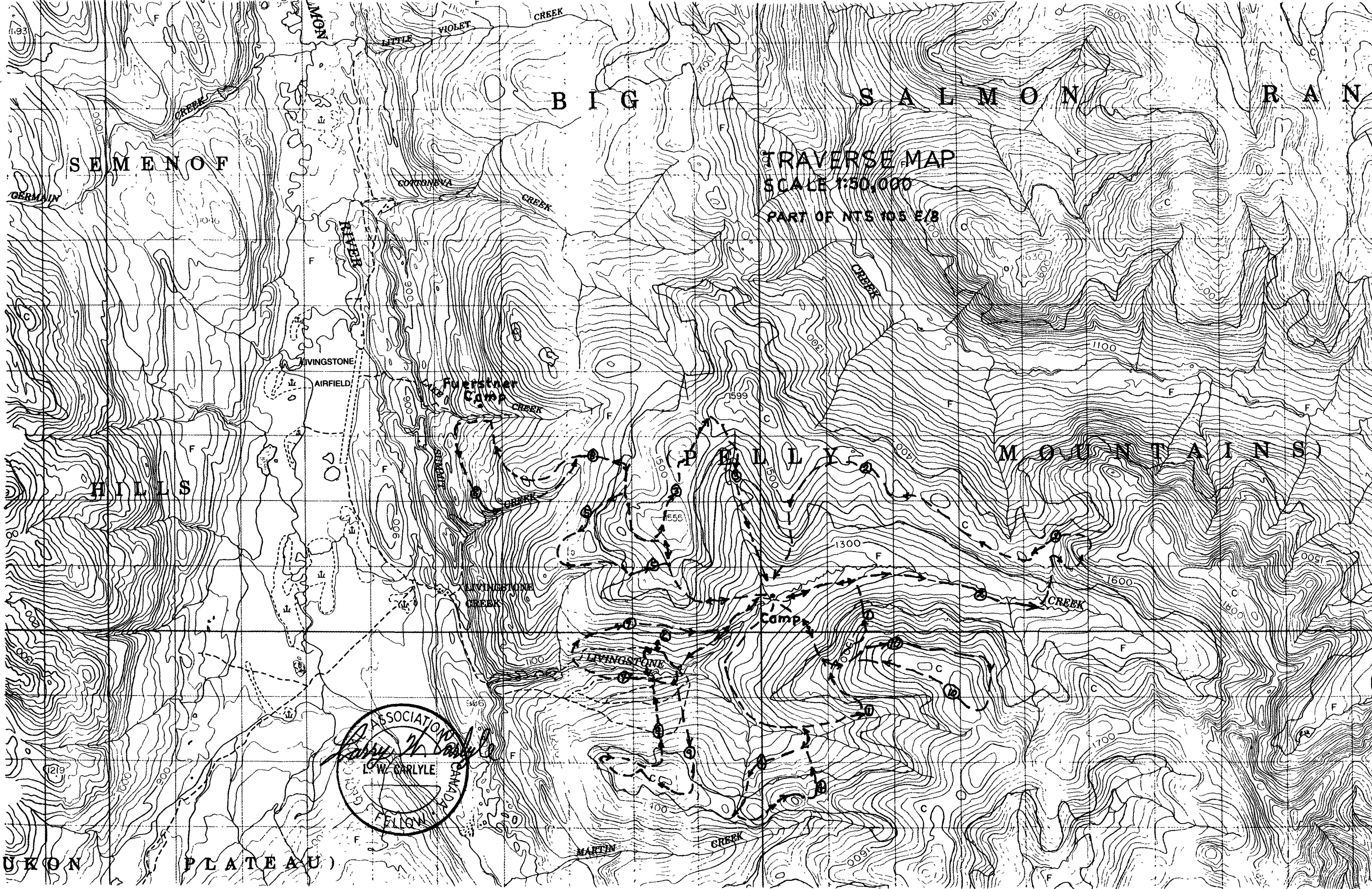
### LIVINGSTONE CREEK

Prospecting was carried out in the area of the headwaters of Livingstone, Summit, Lake, and Martin Creeks from August 5, 1996 until August 15, 1996. The area was of interest because of several stream sediment samples which were anomalous in gold, copper, and arsenic. These values were also associated with magnetic anomalies and interesting geology. In addition, several of the creeks in the area have been placer mined for nearly 100 years. Placer gold obtained from the creeks is normally of large size and high purity; suggesting that it has not been transported far from its source.

Two large blocks of claims had been staked in the area ("Deet" and "Brenda") but very little information exists from work done on them. It was surprising to the writer that so little hard rock exploration had been done in an area with such an extensive placer mining history where the source for the gold is so likely to be nearby.

Prospecting was severely hampered by a lack of outcrop. Rock exposure was restricted to ridge tops and in tight gullies which generally contained the creeks or were approximately at right angles to the creeks. It was quite clear from the shape of the ridges and glacial till deposition within the creeks that the glaciers which covered the area moved over it from the south or southeast. The till cover seems to be thickest in the middle of the creeks examined with it getting shallower near the headwaters and as the South Big Salmon River was approached. The till was thick along the south side and thinner along the north side of the creeks investigated.

The most common rock found in the area is quartz-biotite schist having a northwest-southeast strike and a southwest dip of approximately  $35^{\circ}$ . The schist contains quartzite and limestone lenses or members as well as being frequently folded, contorted and variably altered. The folding and contortion of the rocks is most likely a result of a subduction zone existing along the South Big Salmon River paralleling that of the Teslin Suture further west. A western plate is probably being thrust under the eastern plate on which the creeks rest. The subduction appears to give rise to steep faulting having an azimuth between  $310^{\circ}$  and  $340^{\circ}$ . Faults seem to be closely spaced along the east side of the South Big Salmon and more widely spaced further toward the east. The existence of a fault is evidenced by increased alteration of the biotite from chlorite to sericite as the fault is approached as well as strong shearing and light brown iron oxide within the fault.



SEMENOF

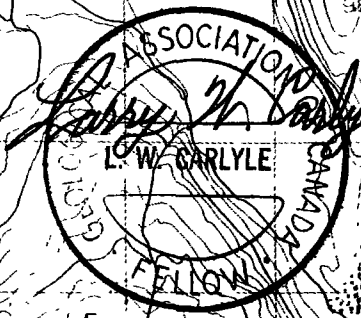
BIG SALMON MOUNTAIN RANGE

TRAVERSE MAP  
SCALE 1:50,000  
PART OF NTS 105 E/8

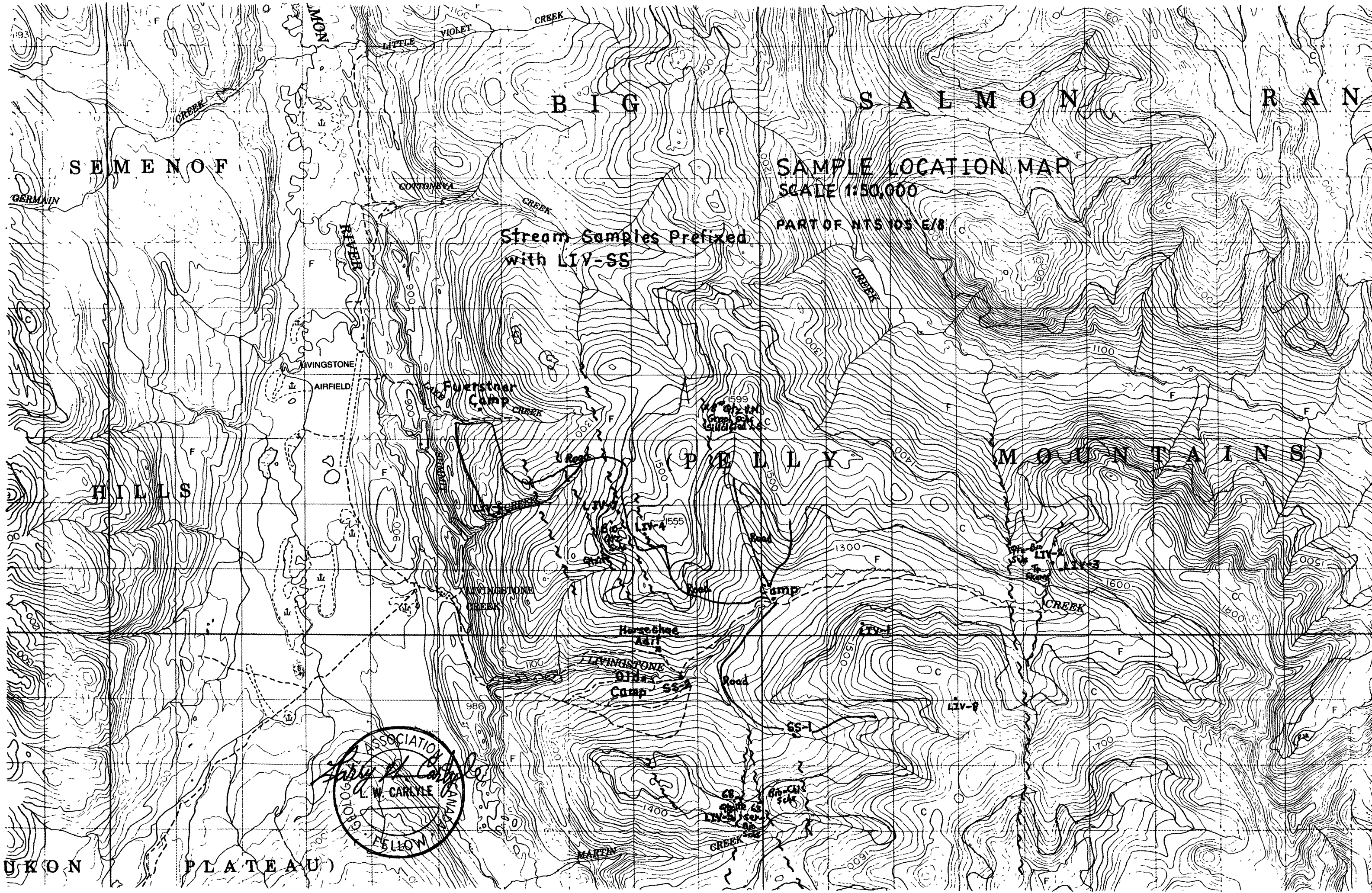
HILLS

PELLEY MOUNTAINS

UKON PLATEAU







SEMENOV

BIG SALMON MOUNTAINS

SAMPLE LOCATION MAP  
SCALE 1:50,000

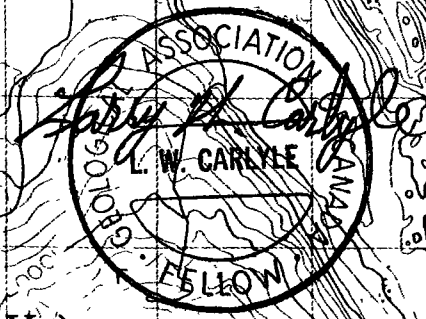
PART OF NTS 105 E/8

Stream Samples Prefixed  
with LIV-SS

HILLS

PULLY MOUNTAINS

YUKON PLATEAU



Prominent white bull quartz veins having widths from 4 inches to 4 feet, but most commonly 1 to 2 feet thick, were usually located within faults having a strike about  $320^{\circ}$ . A very few quartz veins were located having a northeast strike. Very little mineralization other than trace oxidized pyrite was seen in any of the veins exposed on surface. Better gold and copper values seem to come from samples (LIV-4 & 6) which have strong iron and manganese staining and/or the presence of graphitic material in them. Strong pyrite, galena, and copper and silver sulphides are not present on the ridges and in the gullies. This mineralization only seems to be present in vein quartz from the Horseshoe Adit (located, but not sampled since it has been adequately sampled by earlier workers) and from placer workings. This suggests that the mineralization was concentrated by some means below a certain elevation; possibly a paleo-watertable. This watertable appears to now have the same elevation as the Horseshoe Adit at approximately 1200 metres.

### SAMPLE DESCRIPTION TABLE

#### Rock Samples

Sample Number	Au (ppb)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
LIV-1	< 5	19	34	36	15

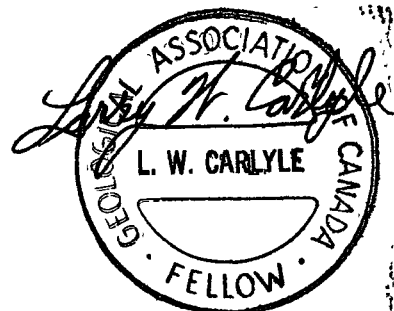
Blocky white bull quartz vein (lenses ?) up to 1 foot thick. Minor limonite & muscovite with no visible sulphides in quartz-biotite-muscovite schist. Strike  $354^{\circ}$  Az, Dip  $59^{\circ}$  W.

LIV-2	< 5	10	15	22	11
-------	-----	----	----	----	----

Apparently barren quartz lenses in highly contorted & folded chlorite-sericite schist in N-S, steep W dipping fault? Listwanite (?). Limy bands, some blocky recrystallized limestone lenses. Skarn ?

LIV-3	< 5	11	34	10	31
-------	-----	----	----	----	----

Iron hydroxide stained & sheared quartz-sericite schist. Limy ? <1% pyrite (some oxidized) Trace tetrahedrite and arsenopyrite ?



LIV-4                    50                    59                    142                    144                    34

Vuggy, iron and manganese oxide stained quartz in a narrow zone of graphite schist in a N-S striking fault. Trace oxidized pyrite. Cat trenched for ~ 80 ft. along strike. 2 foot barren quartz vein material exposed ~800 ft. further north along strike. Steep dip.

LIV-5                    < 5                    370                    15                    18                    17

Vuggy, limonite and manganese stained banded quartzite with small white quartz stringers. No visible sulphides.

LIV-6                    24                    29                    144                    27                    50

Crushed 4-6" east dipping quartz-limonite fault material. No visible sulphides.

LIV-7                    < 5                    8                    11                    14                    5

Large (2-3' wide) bull quartz vein. Has N-S strike and appears to have ~ 35° west dip. Iron oxide and muscovite developed on fractures. No visible sulphides.

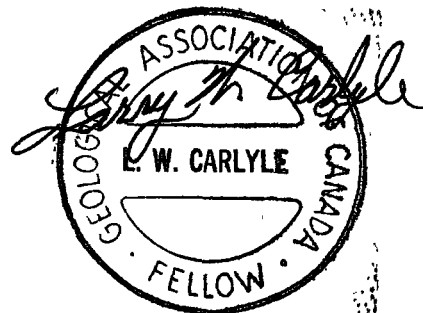
LIV-8                    < 5                    < 5                    11                    6                    14

4 foot wide, white, blocky, bull quartz vein with weak limonite and sericite on fractures. No visible sulphides.

#### Stream Sediment Samples

Sample Number	Au (ppb)	As (ppm)	Cu (ppm)	Pb (ppm)	Zn (ppm)
LIV-SS-1	35	41	31	13	117
LIV-SS-2	392	13	19	9	52

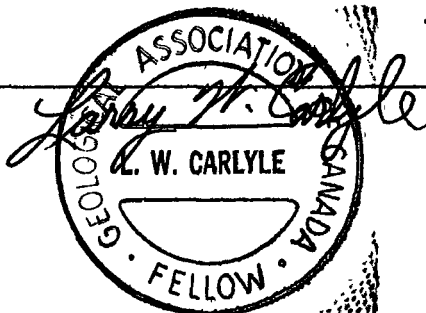
The first of the above stream sediments was taken from the south branch of Livingstone Creek at elevation 1295 m. This creek is believed to follow a fault which is considered to be the upper limit of the gold mineralization. The second stream sediment sample was taken from the main branch of Livingstone Creek just below its confluence with the south branch. It is also on the fault mentioned above but is considered to most likely represent a placer concentration.



The writer believes it should be possible to locate areas near the lower reaches of Livingstone, Summit, Lake, and possibly Cottoneva Creeks where the faults are closely enough spaced and a sufficient number of them contain mineralized quartz veins to permit diamond drilling to delineate ore reserves.

**1996 STATEMENT OF COSTS: (See Appendix B for invoices)**

Vehicle kilometerage (1277 km @ \$.15) [Dempster Highway prospecting]	\$ 191.55
ATV Rental (S.T.M. Recreation) [Invoice submitted July 18/96]	\$ 856.00
Field Assistant - Gross Wages (June 23 - 29) Carlyle paid Benefits	\$ 700.00 \$ 78.35
Gross Wages Field Assistant (July 22-31) Carlyle paid Benefits	\$ 950.00 \$ 65.22
Gross Wages Field Assistant (August 5-15) Carlyle paid Benefits	\$1100.00 \$ 71.74
Holiday Pay Field Assistant	\$ 160.00
Workers Compensation Board Payment [Invoice submitted July 18/96]	\$ 150.00
Satellite Telephone Communication [Invoice submitted July 18/96]	\$ 329.34
Room and Board (28 days @ \$70/day)	\$1960.00
Helicopter (Teslin Mountain & return)	\$1002.91
Helicopter (Livingstone Creek & return)	\$1435.94
Assaying	\$ 589.83
Report Writing (4 days @ \$150/day)	\$ 600.00
Topographic Maps	\$ 51.04
Field Supplies	\$ 22.95
Diary [Invoice submitted July 18/96]	\$ 7.76
Office Supplies & Photo Copying	\$ 32.37
	<b>Total</b>
	<b>\$10,355.00</b>
Prospector's Allowance Advance	- \$2500.00
July 18/96 Invoice Advance	- \$4199.60
August 20/96 Invoice Advance	- \$ 800.40
	<b>Subtotal</b>
	<b>\$7500.00</b>
	<b>Total Contribution</b>
	<b>\$10,000.00</b>
	<b>Advances</b>
	<b>\$ 7,500.00</b>
	<b>Balance</b>
	<b>\$ 2,500.00</b>



**STATEMENT OF QUALIFICATIONS**

I, LARRY W. CARLYLE, do certify:

That I am a professional geologist resident at 74 Tamarack Drive, Whitehorse, Yukon Y1A 4Y6.

That I hold a B. Sc. Degree in geology from the University of British Columbia (1970).

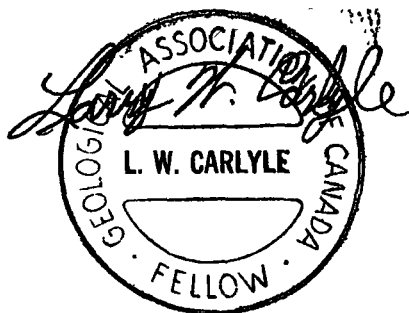
That I am a Fellow of the Geological Association of Canada (F - 4355).

That I am a Registered Professional Geologist in the Association of Professional Engineers, Geologists and Geophysicists of the Province of Alberta (41097).

That I have practised my profession as a mine and exploration geologist for nineteen years.

The conclusions and recommendations in the attached report are based on work I performed on the properties and on a review of available private and public reports on the properties.

DATED at Whitehorse, Yukon this 14<sup>th</sup> day of November, 1996.





**APPENDIX A**  
**ANALYTICAL CERTIFICATES**

08/07/96


Assay Certificate

Page 1

Larry Carlyle

WO#10353

Sample #	Au ppb
T - 1	7
96-SS -1	6
96-SS -2	21

Certified by 

16/07/96

ICP Certificate

Page 1

Larry Carlyle

WO#10353

Sample #	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
T-1	0.2	96	49	70	65	5	<	4	<	<	0.7	9	13	37	<	85	27	1030	34	673	11	4	0.01	0.22	6.86	3.32	2.29	0.06	0.05	0.32
96-SS-1	0.2	74	15	115	8	5	<	4	<	<	<	53	229	286	<	485	203	989	36	114	10	9	0.36	3.52	1.90	6.62	5.09	0.08	0.02	0.27
96-SS-2	0.1	67	19	113	14	<	<	3	<	<	<	39	154	320	<	293	153	738	30	82	7	9	0.27	2.68	2.13	5.19	3.00	0.10	0.02	0.19
Min Limit	0.1	1	2	1	5	5	3	1	10	2	0.1	1	1	2	5	1	2	1	2	1	1	1	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Max Reported	99.9	20000	20000	20000	9999	9999	9999	9999	999	999	99.9	999	999	9999	999	9999	999	9999	9999	9999	999	99	1.00	9.99	9.99	9.99	9.99	9.99	5.00	5.00

03/09/96

Assay Certificate

Page 1

Larry Carlyle

WO# 10458

Sample #	Au ppb
96 LA - 1	<5
96 LA - 2	8
96 LA - 3	<5
96 LA - 4	7
LA - S - 1	<5
LA - S - 2	9
LA - S - 3	255
LA - S - 4	8
LA - S - 5	24
LA - S - 6	<5
LA - S - 7	<5
LA - S - 8	<5
LA - S - 9	6
LA - S - 10	<5
LA - S - 11	5
LA - S - 12	5
LA - S - 13	<5
LA - SS - 1	22
LA - SS - 2	<5
LA - SS - 3	<5
LA - SS - 4	5
LA - SS - 5	<5

Certified by



INTERNATIONAL PLASMA LABORATORY LTD

# CERTIFICATE OF ANALYSIS

## iPL 96I0844

2036 Columbia Street  
 Vancouver, B C  
 Canada V5Y 3E1  
 Phone (604) 879-7878  
 Fax (604) 879-7898

Client: Northern Analytical Laboratories  
 Project: W.O. 10458 22 Pulp

iPL: 96I0844

Out: Sep 10, 1996  
 In: Sep 05, 1996

Page 1 of 1  
 [084415:10:45:69091096]

Section 1 of 1  
 Certified BC Assayer: David Chiu

Sample Name	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
96-LA-1	4.5	108	561	27	24	8	<	5	<	6	<	21	30	36	<	89	63	251	<	18	3	5	0.14	1.05	0.87	4.11	0.55	0.11	0.17	0.04
96-LA-2	0.5	108	63	46	13	16	<	8	<	<	<	40	42	30	<	54	113	215	2	47	2	8	0.10	1.35	1.17	5.02	0.65	0.09	0.23	0.09
96-LA-3	0.6	14	74	41	<	10	<	3	<	<	0.2	6	6	604	<	38	28	434	23	20	5	4	0.01	0.38	3.11	1.66	0.32	0.07	0.02	0.05
96-LA-4	0.2	119	20	33	21	11	<	3	<	<	<	27	14	42	<	26	189	402	3	6	5	13	0.20	1.37	0.55	6.31	1.14	0.01	0.05	0.10
LA-S-1	<	15	4	20	5	7	<	1	<	<	<	4	4	22	<	7	38	97	2	6	1	<	0.04	0.57	0.07	1.24	0.12	0.02	0.02	0.03
LA-S-2	<	36	10	65	18	8	<	1	<	<	<	21	23	77	<	32	102	655	14	20	2	6	0.11	1.44	0.52	3.94	0.83	0.05	0.03	0.10
LA-S-3	<	40	14	43	13	8	<	2	<	<	0.3	21	24	94	<	37	71	512	18	17	1	4	0.07	1.13	0.43	2.85	0.61	0.06	0.03	0.08
LA-S-4	<	34	12	53	28	7	<	2	<	<	0.4	15	27	77	<	39	67	465	9	11	<	1	0.04	1.93	0.25	2.80	0.62	0.05	0.03	0.10
LA-S-5	<	34	15	48	21	6	<	2	<	<	0.1	13	24	132	<	35	69	416	9	13	1	2	0.04	1.53	0.24	2.69	0.57	0.05	0.03	0.05
LA-S-6	<	40	13	83	26	7	<	2	<	<	0.5	16	24	80	<	37	71	676	9	12	1	3	0.05	1.59	0.20	2.74	0.66	0.05	0.02	0.05
LA-S-7	<	50	13	79	40	6	<	3	<	<	<	21	34	99	<	45	91	731	13	15	1	4	0.07	2.12	0.32	3.57	1.01	0.06	0.03	0.07
LA-S-8	<	39	11	89	45	12	<	2	<	<	<	20	32	78	<	46	96	766	12	12	1	5	0.10	2.32	0.24	3.61	0.87	0.06	0.03	0.07
LA-S-9	<	21	11	71	22	6	<	2	<	<	0.4	13	20	85	<	34	65	997	8	13	<	2	0.04	1.53	0.27	2.55	0.55	0.07	0.02	0.18
LA-S-10	<	31	8	84	22	5	<	2	<	<	0.3	13	29	107	<	40	70	650	10	20	<	4	0.05	1.78	0.46	2.90	0.69	0.07	0.02	0.06
LA-S-11	<	25	9	52	12	6	<	1	<	<	0.4	13	24	83	<	41	77	395	12	13	1	3	0.07	1.26	0.31	2.94	0.64	0.06	0.03	0.06
LA-S-12	0.1	47	8	75	41	9	<	1	<	<	<	15	28	114	<	44	90	726	14	15	<	4	0.05	2.30	0.33	3.35	0.86	0.06	0.03	0.11
LA-S-13	<	44	9	65	38	5	<	3	<	<	<	29	28	86	<	44	108	1041	11	14	1	6	0.09	2.42	0.34	4.04	1.03	0.06	0.02	0.05
LA-SS-1	<	53	10	85	41	10	<	2	<	<	<	31	41	77	<	52	127	693	11	19	2	8	0.11	1.68	0.66	4.72	0.96	0.05	0.03	0.09
LA-SS-2	<	42	10	60	25	6	<	1	<	<	<	20	26	72	<	36	89	631	10	9	1	5	0.07	1.48	0.24	3.16	0.61	0.08	0.04	0.10
LA-SS-3	<	64	8	90	18	6	<	3	<	<	<	35	41	130	<	43	110	967	11	16	1	7	0.08	1.63	0.44	4.08	0.96	0.12	0.04	0.09
LA-SS-4	0.2	55	9	94	31	6	<	2	<	<	<	23	36	97	<	45	103	922	12	18	1	8	0.09	2.03	0.51	3.99	0.95	0.07	0.02	0.08
LA-SS-5	0.1	39	8	84	32	8	<	2	<	<	<	16	33	103	<	50	88	547	17	20	1	6	0.09	1.56	0.56	3.28	0.85	0.07	0.03	0.08

Min Limit 0.1 1 2 1 5 5 3 1 10 2 0.1 1 1 2 5 1 2 1 2 1 1 1 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01  
 Max Reported\* 99.9 20000 20000 20000 9999 9999 9999 9999 999 999 99.9 999 999 9999 999 9999 999 9999 9999 9999 9999 999 99 1.00 9.99 9.99 9.99 9.99 9.99 5.00 5.00  
 Method ICP  
 ---No Test ins=Insufficient Sample S=Soil R=Rock C=Core L=Silt P=Pulp U=Undefined m=Estimate/1000 %=Estimate % Max=No Estimate

30/08/96

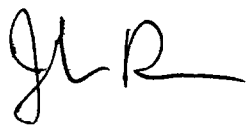
Assay Certificate

Page 1

Larry Carlyle

WO# 07023

Sample #	Au ppb
LIV SS 1	35
LIV SS 2	392
LIV 1	<5
LIV 2	<5
LIV 3	<5
LIV 4	50
LIV 5	<5
LIV 6	24
LIV 7	<5
LIV 8	<5

Certified by 



INTERNATIONAL PLASMA LABORATORY LTD

# CERTIFICATE OF ANALYSIS

## iPL 96H0826

2036 Columbia Street  
Vancouver, B.C.  
Canada V5Y 3E1  
Phone (604) 879-7878  
Fax (604) 879-7898

Client: Northern Analytical Laboratories  
Project: W.O. 07023 10 Pulp

iPL: 96H0826

Out: Sep 10, 1996  
In: Aug 30, 1996

Page 1 of 1  
[082614:43:53:69091096]

Section 1 of 1  
Certified BC Assayer: David Chiu

Sample Name	Ag ppm	Cu ppm	Pb ppm	Zn ppm	As ppm	Sb ppm	Hg ppm	Mo ppm	Tl ppm	Bi ppm	Cd ppm	Co ppm	Ni ppm	Ba ppm	W ppm	Cr ppm	V ppm	Mn ppm	La ppm	Sr ppm	Zr ppm	Sc ppm	Ti %	Al %	Ca %	Fe %	Mg %	K %	Na %	P %
LIV 1	0.5	34	36	15	19	9	<	3	<	<	0.5	2	4	8	<	128	4	43	<	2	1	<	<	0.04	0.05	0.22	0.02	0.01	0.01	0.01
LIV 2	<	15	22	11	10	5	<	3	<	<	1.4	3	2	2010	<	75	3	362	3	344	1	<	<	0.06	10%	0.17	0.17	0.01	0.01	0.01
LIV 3	<	34	10	31	11	12	<	4	<	<	0.7	5	11	289	<	54	15	901	2	42	2	2	<	0.15	9.11	1.91	2.41	0.02	0.01	0.03
LIV 4	2.0	142	144	34	59	11	<	66	<	<	0.5	4	18	150	<	143	26	64	5	10	1	1	<	0.13	0.17	1.97	0.04	0.03	0.01	0.04
LIV 5	0.2	15	18	17	370	98	<	5	<	<	0.2	2	6	1178	<	142	3	45	<	31	1	<	<	0.05	0.12	0.87	0.03	0.01	0.01	0.02
LIV 6	0.1	144	27	50	29	11	<	55	<	<	<	17	117	280	<	237	14	943	4	31	6	3	<	0.59	1.51	3.29	0.09	0.08	0.02	0.16
LIV 7	0.2	11	14	5	8	6	<	4	<	<	0.2	1	5	14	<	180	2	49	<	1	1	<	<	0.01	0.04	0.27	0.01	0.01	0.01	<
LIV 8	0.1	11	6	14	<	<	<	2	<	<	<	3	3	309	<	66	4	229	7	23	1	1	<	0.12	0.46	0.64	0.02	0.04	0.05	<
LIV SS 1	<	31	13	117	41	<	<	3	<	<	0.7	15	24	382	<	25	29	2271	31	42	1	2	0.02	1.27	0.78	2.41	0.60	0.10	0.02	0.11
LIV SS 2	<	19	9	52	13	<	<	2	<	<	0.2	11	39	115	<	46	35	432	12	23	1	2	0.04	0.70	0.57	2.03	0.61	0.07	0.02	0.15

Min Limit 0.1 1 2 1 5 5 3 1 10 2 0.1 1 1 2 5 1 2 1 2 1 1 1 1 0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01

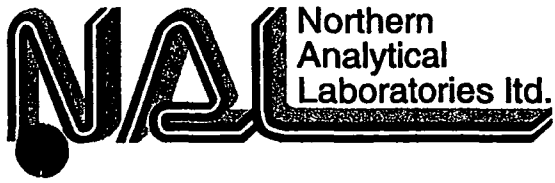
Max Reported\* 99.9 20000 20000 20000 9999 9999 9999 9999 999 999 99.9 999 999 9999 999 9999 999 9999 9999 9999 9999 999 99 1.00 9.99 9.99 9.99 9.99 9.99 5.00 5.00

Method ICP

---No Test ins=Insufficient Sample S=Soil R=Rock C=Core L=Silt P=Pulp U=Undefined m=Estimate/1000 % =Estimate % Max=No Estimate

**APPENDIX B**  
**INVOICES SUPPORTING**  
**STATEMENT OF COSTS**





105 Copper Road  
 Whitehorse, Yukon  
 Y1A 2Z7  
 Ph: (403) 668-4968  
 Fax: (403) 668-4890

Invoice for Analytical Services

To:

Larry Carlyle

Invoice Date: 26/08/96

WO# 10458

QTY	DESCRIPTION	UNIT PRICE	AMOUNT
4	Sample Preparation: Rock/D.C. Sample Preparation	5.00	20.00
18	Soil/Sediment Sample Preparation	2.00	36.00
22	Analyses: Au + 30	16.00	352.00

Subtotal 408.00  
 GST @ 7% (R 121285662) 28.56

Total due on receipt of invoice **\$436.56**

2% per month charged on overdue accounts

4 ASSAY COUPONS

(42.00)

PAID CK# 862 (10)

\$394.56



105 Copper Road  
Whitehorse, Yukon  
Y1A 2Z7  
Ph: (403) 668-4968  
Fax: (403) 668-4890

Invoice for Analytical Services

To:

Larry Carlyle

Invoice Date: 30/08/96

WO# 07023

QTY	DESCRIPTION	UNIT PRICE	AMOUNT
8	Sample Preparation: Rock/D.C. Sample Preparation	5.00	40.00
2	Soil/Sediment Sample Preparation	2.00	4.00
10	Analyses: Au + 30	16.00	160.00
Subtotal			204.00
GST @7% (R 121285662)			14.28
Assay Coupons			(\$84.00)
Total due on receipt of invoice			<b>\$134.28</b>

2% per month charged on overdue accounts

PAID CK# 862  
JR

Larry Carlyle, Geologist  
74 Tamarack Drive  
Whitehorse, Yukon  
Y1A 4Y6  
604-633-6310

**REVENUE CANADA - DEDUCTIONS REMITTANCE - JULY 96**

Employee: Will Skitmore  
Gross Salary for Period Worked of June 23 - July 13/96: \$1700.00

*Prospector's Assistance  
June 23 - 29*

	Employee:	Employer:	Total:
CPP	\$ 41.72	\$ 41.72	\$ 83.44
UIC	\$ 50.15	\$ 70.21	\$120.36
TAX	\$346.35	0.00	\$346.35
<b>AMOUNT TO PAY</b>			<b>\$550.15</b>

Cheque #851, August 12, 1996

**REVENUE CANADA - DEDUCTIONS REMITTANCE - AUGUST 96**

Employee: Will Skitmore  
Gross Salary for Period Worked of July 14 - July 31/96 \$1200.00  
Aug. 5 - Aug. 15/96 \$1100.00

*Prospector's Assistance  
July 22 - Aug. 15*

	Employee:	Employer:	Total:
CPP	\$ 55.00	\$ 55.00	\$110.00
UIC	\$ 67.86	\$ 95.00	\$162.86
TAX	\$388.15	0.00	\$388.15
<b>AMOUNT TO PAY</b>			<b>\$661.01</b>

Cheque #870, September 12, 1996

Larry Carlyle, Geologist  
74 Tamarack Drive  
Whitehorse, Yukon  
Y1A 4Y6  
403-633-3910

**REVENUE CANADA - DEDUCTIONS REMITTANCE - SEPTEMBER 96**

Employee: Will Skitmore -- Holiday Pay  
Period of June 6 to August 15/96: 4% of \$4000.00 \$ 160.00

Employee: Kelsey Brenton  
Gross Salary for Period Worked of Aug. 21 - Sept. 1/96 \$1250.00  
Holiday Pay: 4% of \$1250.00 \$ 50.00 \$1300.00

	Employees:	Employer:	Total:
CPP	\$ 33.24	\$ 33.24	\$ 66.48
UIC	\$ 43.07	\$ 60.30	\$103.37
TAX	\$ 3.45	0.00	\$ 3.45

**AMOUNT TO PAY \$173.30**

Cheque #880, October 14, 1996

1. The Chief Geologist  
 2. Technical Director  
 3. Assistant Director  
 4. Chief Clerk  
 5. Chief of Office

6. Chief of Bureau  
 7. Chief of Division  
 8. Chief of Section  
 9. Chief of Sub-section  
 10. Chief of Unit

11. Chief of Branch  
 12. Chief of Office  
 13. Chief of Section  
 14. Chief of Sub-section  
 15. Chief of Unit

16. Chief of Bureau  
 17. Chief of Division  
 18. Chief of Section  
 19. Chief of Sub-section  
 20. Chief of Unit

21. Chief of Bureau  
 22. Chief of Division  
 23. Chief of Section  
 24. Chief of Sub-section  
 25. Chief of Unit

26. Chief of Bureau  
 27. Chief of Division  
 28. Chief of Section  
 29. Chief of Sub-section  
 30. Chief of Unit

31. Chief of Bureau  
 32. Chief of Division  
 33. Chief of Section  
 34. Chief of Sub-section  
 35. Chief of Unit

3106.S.1

Larry Carlyle, Geologist  
74 Tamarack Drive  
Whitehorse, Yukon  
Y1A 4Y6  
403-633-3910

**EMPLOYEES PAYROLL SUMMARY FOR 1996 SEASON**

Gross Salary (Holiday Pay incl.):	Will Skitmore	\$4160.00	
	Kelsey Brenton	\$1300.00	
<b>Total Gross Salary:</b>			<b>\$5460.00</b>
Employer's Payroll Contributions:			
CPP		\$ 129.96	
UIC		\$ 225.51	
<b>Total Employer's Payroll Contributions:</b>			<b>\$ 355.47</b>
<b>Total Employees Salary for 1996 Season as of October 15/96</b>			<b>\$5815.47</b>

**FIELD SUPPLY INVOICE**  
**FROM CARLYLE INVENTORY**

Flagging (2 @ \$2.40 ea.)	\$ 4.80
Topofil Twine (2 @ \$4.20 ea.)	\$ 8.40
Felt Marking Pens (1 @ \$1.00 ea.)	\$ 1.00
Plastic Sample Bags (13 @ \$0.25 ea.)	\$ 3.25
Soil Sample Bags (22 @ \$0.25 ea.)	\$ 5.50
<hr/>	
Total	\$ 22.95

## REPORT WRITING INVOICE

Rental of Computer and Printer  
Drafting Materials  
Paper and other materials

4 days @ \$150/day

\$ 600.00



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667-2210  
R105778385

10-21-96  
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No 0006

52 Q  
•0-09 @  
1 •4-68 I  
7 Q  
•0-20 @  
13 •1-40 I  
•6-08 TX I  
•0-43 TX I  
•6-51 CA

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10-16-96  
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No 0004

8 Q  
•0-20 @  
13 •1-60 I  
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•0-30 CC

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No 0031

12 Q  
•0-09 @  
1 •1-08 I  
•1-08 TX I  
•0-08 TX I  
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•0-10 CC

Copy Copy  
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R105778385

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No 0012

24 Q  
•0-09 @  
1 •2-16 I  
4 Q  
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7 •0-52 I  
•2-68 TX I  
•0-19 TX I  
•2-87 ST  
•20-00 CA AT  
•17-13 CC

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R105778385

10-09-96  
10:21  
No 0005

76 Q  
•0-09 @  
1 •6-84 I  
•6-84 TX I  
•0-48 TX I  
•7-32 TX

Jim's

0 16-16  
2 17  
2  
7 50  
1 50  
1 1 TX  
17-01  
2 1 CA  
3 00 CC  
100-24

T 19293

YUKON OFFICE SUPPLIES (1990)  
103 ELLIOTT STREET  
WHITEHORSE YUKON  
Y1A 1Z9  
(403) 633-7575

Sep 12 96

VISA

SALES PERSON JUDY

GST# R105669790

	EACH	EXT
3 HILROY DUOTANGS ASST HI-DU-06247	0.60	1.80
16 PHOTOCOPIES 8.5x11 PH-CP-	0.15	2.40
2 11 X 17 PHOTOCOPIES PH-CP-11 X 17	0.25	0.50
	SUB TOTAL	4.70
	GST	0.34
	TOTAL	5.04
	TENDEPED	5.04
	CHANGE	0.00

PAID BY VISA

REF# 92779

THANK YOU WE DO APPRECIATE YOUR BUSINESS

T 19298

YUKON OFFICE SUPPLIES (1990)  
103 ELLIOTT STREET  
WHITEHORSE YUKON  
Y1A 1Z9  
(403) 633-7575

Sep 12 96

CASH SALES

SALES PERSON SHIRL

GST# R105669790

	EACH	EXT
2 PHOTOCOPIES 8.5x11 PH-CP-	0.15	0.30
2 11 X 17 PHOTOCOPIES PH-CP-11 X 17	0.25	0.50
	SUB TOTAL	0.80
	GST	0.06
	TOTAL	0.86
	TENDEPED	1.00
	CHANGE	0.14

PAID BY CA

REF# 92794

THANK YOU WE DO APPRECIATE YOUR BUSINESS

T 19297

YUKON OFFICE SUPPLIES (1990)  
103 ELLIOTT STREET  
WHITEHORSE YUKON  
Y1A 1Z9  
(403) 633-7575

Sep 12 96

CASH SALES

SALES PERSON LIRAME

GST# R105669790

	EACH	EXT
5 ACCO SHEET PROTECTOR AP-CH-11790	1.20	6.00
	sub total	6.00
	GST	0.48
	TOTAL	6.48
	TENDEPED	6.48
	CHANGE	0.00

PAID BY CA

REF# 92793

THANK YOU WE DO APPRECIATE YOUR BUSINESS

**APPENDIX C**

**1996 PROSPECTOR'S ASSISTANCE DIARY**

## 1996 PROSPECTOR'S ASSISTANCE DIARY

Larry W. Carlyle

**June 23, 1996**      Sunny, Warm, Light Wind

Met with field assistant at Extra Foods at 10:00 A.M. Did shopping for trip. Dropped off the van he was using; then went to my house to complete packing. Left Whitehorse at 1:00 P.M. after gassing up.

Arrived at Dawson at 7:00 P.M. Had supper at the Eldorado. Arrived at Dempster Highway at 10:30 P.M. Drove to about kilometre 20 before we found a campsite. Set up camp and got to bed just before midnight.

**June 24, 1996**      Sunny, Hot, Gusty SW Wind

Left camp @ 9:00 A.M.; continued to drive up Dempster Highway. Had difficulty locating site which we wanted to prospect. It seems I did not have the correct 50,000 scale topo map, I was successful at locating the correct location from the minfile map. Set up camp a short distance from the Jensen outfitting camp located on the highway. Aurum Geological apparently working out of the camp with the aid of a helicopter. They seem to be doing work for Homestake.

Set up camp and had lunch. At about 1 PM, we left camp to do a short traverse over the flats and along the hillside to the SW of camp. Rocks seen were altered basalt or andesite; highly fracture filled with calcite and limestone lenses. Red iron oxide staining common. Found some Alaska black diamond (hematite) in a vug in limestone. Volcanics had pillows and hornblende (?) phenocrysts. Back at 6 PM. Had supper then put silicone on the tent fly. Will is an excellent cook.

**June 25, 1996**      Cool, Strong Gusty Southeast Winds, Smoke, Minor Showers

Left Camp @ 9AM. Climbed up gully where showing was indicated to be. Climbed up left (south) ridge and looked at the pedestals. Most of the rocks seen were arkose and quartz pebble conglomerate which change toward the west to a dark green andesite with minor shale, slates and limestone. Followed ridge around to the saddle. We followed the base of the north ridge down where most of the rocks were arkose and quartz pebble conglomerate with some volcanic, shale and limestone. Shale and slates strike at Azimuth 250° and dip at 75° northwest.

On descent took stream sediment sample 96-SS-1 at elevation 1575 m. from stream draining the saddle toward the east. Took a second stream sediment sample from the same creek at elevation 1375 m.

**June 26, 1996**

Sunny with clouds, Gusty Winds

Rained from 1 AM until 9 AM. Left camp @ 10:30 AM. Will took the ATV with our packs across the flats to the base of the gully. I found it much easier to walk over the thick moss and niggerheads without my pack. The climb up the gully was very difficult for me since I am so out of shape and have a large blister under my right big toe.

Prospected most of the outcrops at head of drainage running south into East Blackstone. Located a very small zone of calcite-quartz stringers in dark green andesite at site marked as #61 on the Minfile. On the Minfile, the site is called "Crawford" (Cu-vein) and has been postulated to be the source for copper found in the East Blackstone. I think this is not very likely since the fractures have a very restricted area of at best 5 metres along the outcrop face. The fractures are ½ - 1 cm. wide and contain a few specks of chalcocite and chalcopyrite with weak malachite oxidization.

Back at road at 6 PM. Raining at 8:30 PM.

**June 27, 1996**

Cool, Cloudy, Gusty Wind

Tore down and loaded truck for move to Blackstone River where it crosses the Dempster Highway. Arrived at Blackstone at ~ 10:30 AM. Will left at 11:30 on the ATV to investigate the valley upstream. I investigated the river valley downstream to Chapman Lake. I found no canyons, or outcrop. The river banks seem to be sloughed and frozen. Will returned at 3 PM. and left shortly after to investigate another route upstream.

While I waited, I set up camp, got water, and eventually prepared supper. Will returned at 8 PM. He said he had not located any cliffs or coal exposures. He did bring back several pieces of black shale, some of which were highly silicified which may have seemed to be coal to inexperienced people.

**June 28, 1996**

**Cool, Cloudy and Windy**

Left camp at 10:30 AM. Will and I walked upstream along the river bank for approximately 5 miles to ensure we had not missed the #62 site marked on the Minfile. The site is called "Thornback" and was supposed to contain quite large thickness' of coal in a 30 metre wide canyon. We located one small piece of water worn coal approximately 1 inch wide and 1 ½ inch long at the location marked on the Minfile map.

We seem to have exhausted the possibilities for prospecting at sites #61 and # 62 of the Minfile. We have the opportunity to spend another day prospecting in the area. I did some research on the location of the "CEC" Claims. The claim map indicated that there was another group of claims called the "Trapper" practically across the highway from the "CEC". We decided that we would investigate one of them on the way back to Whitehorse the next day.

**June 29, 1996**

**Cloudy, Cool, Strong Gusty Winds, Some Sun**

Had breakfast and phoned my daughter on the satellite telephone for her birthday. Will and I took down camp and started down the road to check out the 2 claim blocks. The "CEC" Claims have no outcrop, seem to be centered on the river, and probably were staked by an outfitter for more pastureland. The "Trapper" Claims, on the other hand, are up on the mountain east of the road and have some significant outcrop. We decided to investigate why they had been staked.

We left the road at 11 AM. And got to the top at ~ 12:30 PM. We located outcrops containing a number of rock types. We found slate, sandstone, limestone, and andesitic volcanic rocks. Most of the rocks contained lots of small vuggy calcite and quartz stringers but having no visible mineralization. Took rock sample T - 1 of orange weathering altered andesite cut by a stockwork of fine quartz stringers. No visible mineralization.

Back down to road @ 4PM. Drove to Tombstone Campground for a wash. Decided to drive into Whitehorse. Stopped at McCabe Creek (former location of Midway Lodge) for supper @ 8:30 PM. Back on road @ 9:30 PM. Arrived back in Whitehorse @ 12:45 AM.

**July 22, 1996**

**Cloudy, Light Wind, Some Sun**

Heli-Dynamics busy until 3 PM. Will and I did our shopping from 10 AM. To noon. He had some things he had to do so I left him in town and returned home to pack the groceries and other things.

Picked Will up at Kanoe People just after 3 PM. then went to Heli-Dynamics pad. Left Whitehorse at 4 PM. and were dropped off at the headwaters of Laurier Creek at 4:35 PM. Set up camp and had supper. Finished @ 8:30 PM.

**July 23, 1996**

Very low cloud with continuous rain until 2 PM.  
Rain started again @ 4PM. Finally cleared @ 6:30 PM.

Stayed in camp. During break in rain between 2 and 4 PM. we cut a couple of poles to make a lean-to from my orange tarp for a cooking area ~ 200 feet from the tent. When this was done, we had supper and were finished @ 7:30 PM.

Camp is at ~ 1480 m. elevation.

**July 24, 1996**

Sunny, Warm, Some Cloud, Gusty SE Wind

Left camp @ 9:30 AM. Climbed along hillside SE of camp. Took rock sample 96-LA-1 of strongly gossaned fine-grained black basalt (Mt. Joe Volcanics?) with vuggy quartz stringers with up to 2% pyrite, trace arsenopyrite, pyrrhotite, and chalcopyrite. Saw several similarly gossaned volcanic areas but none were as strong so did not sample. Also saw several fine-grained quartzite (?) or porphyritic white dykes cutting the volcanics. One of which was 5 - 8 m. wide. Several orange weathering rhyolite or tuff dykes were also seen.

When we got back to camp, the wind had blown the tarp down. We repaired it and it was blown down again almost immediately so we decided to leave it down.

**July 25, 1996**

Sunny, Warm, Some Cloud, Strong Gusting S Winds

Left camp @ 9:30 AM. Decided to climb hill north of camp to investigate, if possible, contact areas between quartz porphyry and basalt as mapped by Cockfield, Lees, and Bostock between 1929 and 1934. Basalt is generally fine-grained to medium-grained and black. In areas thought to be near the porphyry contact, the basalt becomes green-grey, silicified (conchoidal fracture) and fine-grained. Minor calcite fracture fillings and pyrite seen. Believe that the porphyry may not be a plug but a dyke up to 10 metres wide following a fault which runs E-W from south side of the main peak of Teslin Mountain to the north side of the bluff NW of camp.

Saw many 2-4 m. wide rhyo-dacite dykes cutting basalt. Most seemed to have a generally N-S strike. Some had minor pyrite in dyke and adjacent basalt.

**July 26, 1996**

**Sunny, Warm, Some Clouds and S. Winds**

Left camp @ 9:30 AM. Climbed up to creek NE of camp. Took 4 samples @ 300 m. spacings along 1600 m. contour. Also took a stream sediment sample from the stream @ this elevation. Called them LA-S-1 to 4 and LA-SS-1. Some pillows seen in the basalt exposed in the creek. Gossans in the basalt are the result of < 1% pyrite as well as trace epidote and calcite fracture fillings.

Finished @ 1 PM so Will and I went downstream from camp to examine the creek which had a 12 ppb Au value. We were not sure which creek it was on since the maps had different contours and shapes for the creeks. Being unsure we took stream sediment samples from the 2 most likely creeks. Called them LA-SS-2 and 3. Returned to camp @ 4:30 PM.

**July 27, 1996**

**Sunny, Hot, Some Clouds and Light Wind**

Left camp @ 9:30 AM. Will and I went downstream to the creek draining from the north just west of camp. We took contour soil samples LA-S-5 to 13 along the 1600 m. contour. Also took stream sediment samples @ 1600 m and 1510 m. elevations; these were called LA-SS-4 and 5 respectively.

**July 28, 1996**

**Sunny, Hot, Strong Gusty E Winds**

Went down valley approx. 1 ½ miles then climbed up gorge (probably a NW striking fault). Took rock sample 96-LA-2 of highly gossaned (iron and manganese stained) volcanic with 1% pyrite (arsenopyrite ?). A small zone of sub-rounded fragments of basalt up to 10 cm. in diameter were observed near a dacite dyke which seems to follow a fault. A few other gossans seen but only contained minor pyrite.

Walked over to where Cockfield had mapped the contact between the basalt and a large granodiorite intrusive. The chill margin seems to be about 30 feet wide. Rocks on both sides of the contact seem to be altered and fine-grained. The granodiorite has fine black biotite. Some quartz stringers up to 2" wide were located near the contact with ¾" hornblende (beryl ?) crystals.



**July 29, 1996**

**Sunny, Hot, Strong Gusty E Wind**

Prospected ridge south of camp from fault gully climbed yesterday to top of creek above camp. Most of rock is boring black basalt with some epidote fracture fillings. Observed an area of large (10-12 cm.) sub-rounded dacite fragments and other smaller pieces of other rock included in the basalt over a 20-30 m. width @ the top of a fault which forms the headwaters of the creek sampled with sample LA-SS-2. Several other gossans seen along the cliff face but were not sampled; generally contain < 1% pyrite (+ arsenopyrite ?). Gossans are normally close to the several NW striking, steeply west (?) dipping faults. Some are also near dacite dykes up to 4 m. wide.

In late afternoon, we climbed over hill to NE of camp to examine and sample the showing described as existing on the Tess Claims. The showing is a strong orange weathering shear zone having an approximately E-W strike and a moderate to steep north dip which the creek follows for approximately 100 feet. Sample from showing called 96-LA-3 and contains orange weathering iron oxide stained rhyolite, chalcedony, and clay altered feldspars. No visible sulphides seen.

**July 30, 1996**

**Cool, Cloudy, Some Sunny Periods, Gusty E Winds**

Climbed back up hill north of camp to re-examine the granodiorite porphyry plug and basalt contacts that Cockfield had mapped. I believe it is a rhyo-dacite dyke which follows a steeply dipping E-W fault. The basalt seems to be recrystallized in a coarser form with chlorite and 1% pyrite (+arsenopyrite ?) near the dyke contact.

Also examined the basalt in the area of the 1830 m. peak NW of camp. Took sample 96-LA-4 of gossaned basalt with < 1% pyrite from its SW ridge. This gossan may be near a fault cutting through the mountain.

**July 31, 1996**

**Cloudy, Showers, Moderate W Winds**

Stayed in camp. Cold and wet.

**August 1, 1996**

**Cloudy, Cool, Showers**

Helicopter arrived @ 8:30 AM. We had not had a chance to complete tearing down. Left @ ~ 9:30 AM; arrived in Whitehorse @ 10 AM.

Dropped Will off. Took samples to assay lab.

**August 5, 1996**      Cloudy, Showers, Only a few breaks

Arrived at Heli-Dynamics pad @ 9:30 AM. For departure to Livingstone Creek. Arrived @ Livingstone Creek @ ~ 10:45 AM. Set up tent and cooking tarp in the rain at an old abandoned placer mining camp. Lunch @ 1 PM. There was a brief stop in rain @ 2 AM. So we did a short walk to locate ourselves. Supper @ 7 PM.

**August 6, 1996**      Cloudy, Some Wind, Periods of Rain

Got up @ 10:30 AM because the rain was continuing. Had breakfast, then walked along old cat road which runs beside the south branch of Livingstone Creek. Not much seen due to overburden. Rocks seen in road considered to be float. Climbed up and over the hill between the creek and camp. Took rock sample LIV-1 of blocky white bull quartz vein up to 1 foot thick. The quartz contains minor sericite and limonite but no visible sulphides. The vein is in an outcrop of quartz-biotite-muscovite schist.

**August 7, 1996**      Cloudy, Periods of Rain and Wind

Walked up swampy cat road from camp to near headwaters of the north branch of Livingstone Creek. Crossed the creek and climbed up a fault gully running N-S. Located a highly contorted and folded quartz-sericite schist (some listwanite?). Sampled a white quartz lense of this material as LIV-2. Took sample LIV-3 of iron oxide stained and crushed sericite-quartz schist which contains < 1% oxidized pyrite, (chalcocite, and arsenopyrite?).

Returned to camp along ridge on north side of Livingstone Creek. Very minimal outcrop present. What there was is biotite-sericite-quartz schist having some minor chlorite alteration.

**August 8, 1996**      Cloudy, Periods of Rain and Wind

Walked downstream along road. Noticed that there is a placer operation ~ 2 miles downstream from camp. Road led uphill away from the creek. On the top of the hill we found an area approximately 300 feet north of the road where cat trenching has exposed a quartz vein of about 2 ft. thick for a distance of approximately 80 feet along strike. The quartz vein has trace pyrite and is strongly iron and manganese stained with large vugs. The quartz vein is in a zone of graphite schist in a N-S fault having a steep W dip. The country rock is sericite-quartz-biotite schist. Sampled vein material as LIV-4. The same vein is probably exposed again as a blocky, unmineralized quartz vein approximately 500 feet north of the trenching.

Located a 6-8" quartz vein in a fault gully at the top of the creek draining south toward camp. This quartz vein also has some graphite schist and limestone lenses near it.

**August 9, 1996**      Cloudy, Windy, Some Showers and Sun

Walked up old cat road and crossed the south branch of Livingstone to investigate the fault proposed by Stroink and Friedrich which is supposed to cross the valley @ the confluence of the north and south branches of Livingstone and go over the hill. There is a major fault on the hill having a strike of  $330^{\circ}$  Az, a dip of  $68^{\circ}$  west. The east side of fault has weakly folded sericite-quartz schist with some graphitic zones and strong limonite in fractures. The west side has a vuggy, limonite and manganese stained banded quartzite. Sampled quartzite as LIV-5. Took stream sediment sample LIV-SS-1 from south branch @ 1295 m. elevation.

Two other strong faults cross the hillside E of the fault described earlier. These faults contain biotite-chlorite schist as well as some sericite schist and bull quartz lenses up to 5 inches thick. These faults have the same strike and dip as the large one and may cross the north branch of Livingstone.

**August 10, 1996**      Sunny, Strong S Winds, Cloud in PM

Walked up road again. Located another large bull quartz vein west of the vein examined on August 8. It appears to be barren, is 2-3 ft. wide, has a N-S strike, and approximately a  $35^{\circ}$  W dip (bedding). Sampled on August 13, as sample LIV-7.

While investigating the hillsides further to the west, we discovered another fault having an approximate N-S strike. Located a small zone of quartzite near the top of the fault which resembled the quartzite seen on the ridge at the top of the south branch of Livingstone.

**August 11, 1996** Cloudy, Minor S Winds, Showers in PM.

Walked down cat trail to placer operation ~ 2 miles downstream from camp. It is not in operation. It belongs to Max Fuerstner who is now working on Lake Creek. While we were there Alma Robertson's son and his girl friend arrived on a motor cycle. We had a brief chat.

On the way down the trail, we located the old "Horseshoe" adit just above the trail. I saw galena and tennantite in quartz fragments located around the old adit. There was also some limonite and pyrite, but no chalcopyrite. There is strong sericite schist in the area of the adit which is probably a result of alteration of the country rock. The old adit has been ripped up with the use of a cat, only a few collapsed timbers remain. I did not bother sampling the vein material since it has been sampled many times and its grade is well known.

**August 12, 1996** Cloudy, S Winds, Some Sun and Showers

Examined the areas along both the north and south sides of Livingstone Creek which had not been prospected before. Very little outcrop and too much vegetation but did locate what seems to be a gate mechanism on Livingstone Creek just below the confluence with the south branch. There is a very heavily overgrown ditch which runs downstream from the gate toward the Max Fuerstner operation. In later conversations with him, we learned it had been used to supply water to a monitor for overburden removal. It has not been used for a great number of years. Took a stream sediment sample from the gate site called LIV-SS-2.

**August 13, 1996** Sunny, Warm, Clouds and Showers in evening

Left camp @ 10:15 AM. Walked along road to Max Fuerstner's newly established operation on Lake Creek. He confirmed my suspicions that glaciers moved from south or southeast toward the northwest filling the narrow creek valleys but not scouring them. He, Stroink and Freidrich, and I all agree that the gold comes from quartz veins, veinlets and stringers in NNW striking faults.

Left them @ 3 PM. Walked down and around to Summit Creek. Impressive rock exposures on N side of creek and much fill on S side. Hell of a climb up creek. Took sample LIV-6 of crushed 4-6" E dipping quartz-limonite fault material @ elevation 1180 m. Got back to camp @ ~ 6:30 PM.

**August 14, 1996** Sunny, Warm, Weak Wind, A Few Showers

Left camp @ 10:15 AM. Walked down trail along N side of Livingstone Creek to old gate and crossed creek. Slogged up hillside in dense vegetation to ridge south of creek. Saw several more faults and quartz stringers containing only minor oxidized pyrite. Faults have the ~ 320° Azimuth strike of the others seen. A prominent knob on the ridge is composed of highly contorted chlorite schist with quartz and/or feldspar eyes (greenstone?). Descended hill to cleared area of placer operation. Encountered Max and another man at the camp; had a brief conversation. They left; Will and I followed the trail back upstream to our camp.

**August 15, 1996** Sunny, Warm, Weak N Wind

Left camp @ 10:30 AM. Crossed creek and climbed ridge on S side of north branch of Livingstone. Followed the ridge E above location where sample LIV-1 had been taken. Went all the way around to where the strong N-S fault visited on August 7<sup>th</sup> seems to separate schists from amphibolite. We only found float which I would consider to be amphibolite. Did not cross fault but turned south and explored over to headwaters of south branch of Livingstone Creek before returning along ridge to camp. On the ridge near the headwaters of the south branch located a large (~ 4 ft. wide) quartz vein with limonite and sericite, no visible sulphides. Sampled as LIV-8.

Got back to camp @ ~ 4 PM. Tried to call for helicopter to come for us tomorrow instead of Saturday since we have accomplished all we can.

**August 16, 1996** Cloud, Overcast with Showers

Helicopter arrived to pick us up @ ~ 10 AM. Back in Whitehorse @ noon. Dropped Will off. Dropped samples off at assay lab in PM.