



GEOLOGICAL and GEOCHEMICAL REPORT

on the

CEM 1-30 and CEM 32-91

MINERAL CLAIMS

Whitehorse Mining District

N.T.S. 115 G/5

Latitude $61^{\circ}25'N$

Longitude $139^{\circ}54'W$

Regional Manager, Exploration and
Geological Services for Commission
of Yukon Territory

Owner/Operator: Noranda Exploration Company, Limited
(No Personal Liability)

By: Michael Savell

December 1984

091608

DATE DUE

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This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mining Act and is allowed as
representation work in the amount
of \$ 15,000.00.

D. D. Emmond

for Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

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SUMMARY

The CEM claims were staked by Noranda in November 1984 to secure ground surrounding the MAR claims thought to have favourable lode gold potential. The MAR claims were optioned from G. Frieburgs after a property exam by Noranda in August 1984. The CEM claims are underlain by Tertiary sediments, volcanics, and associated felsic intrusives. A detailed stream sediment program uncovered only one anomalous stream. Here, a value of 4300 ppb Au was obtained in a panned concentrate. The mapping and prospecting program located only minor mineralization, including an isolated showing of chalcopyrite (0.527% Cu) in a siliceous, rhyolite breccia and rare pods of disseminated wisps of pyrite in sandstones. A few thin coal seams (less than 1 metre) were observed in the sandstones but these were not explored in detail. In conclusion, the potential for this property hosting a major Au deposit is considered low. The stream anomalous in Au may be worthy of further detailed follow-up work.

CHAPTER ONE: INTRODUCTION

1-1: INTRODUCTORY STATEMENT

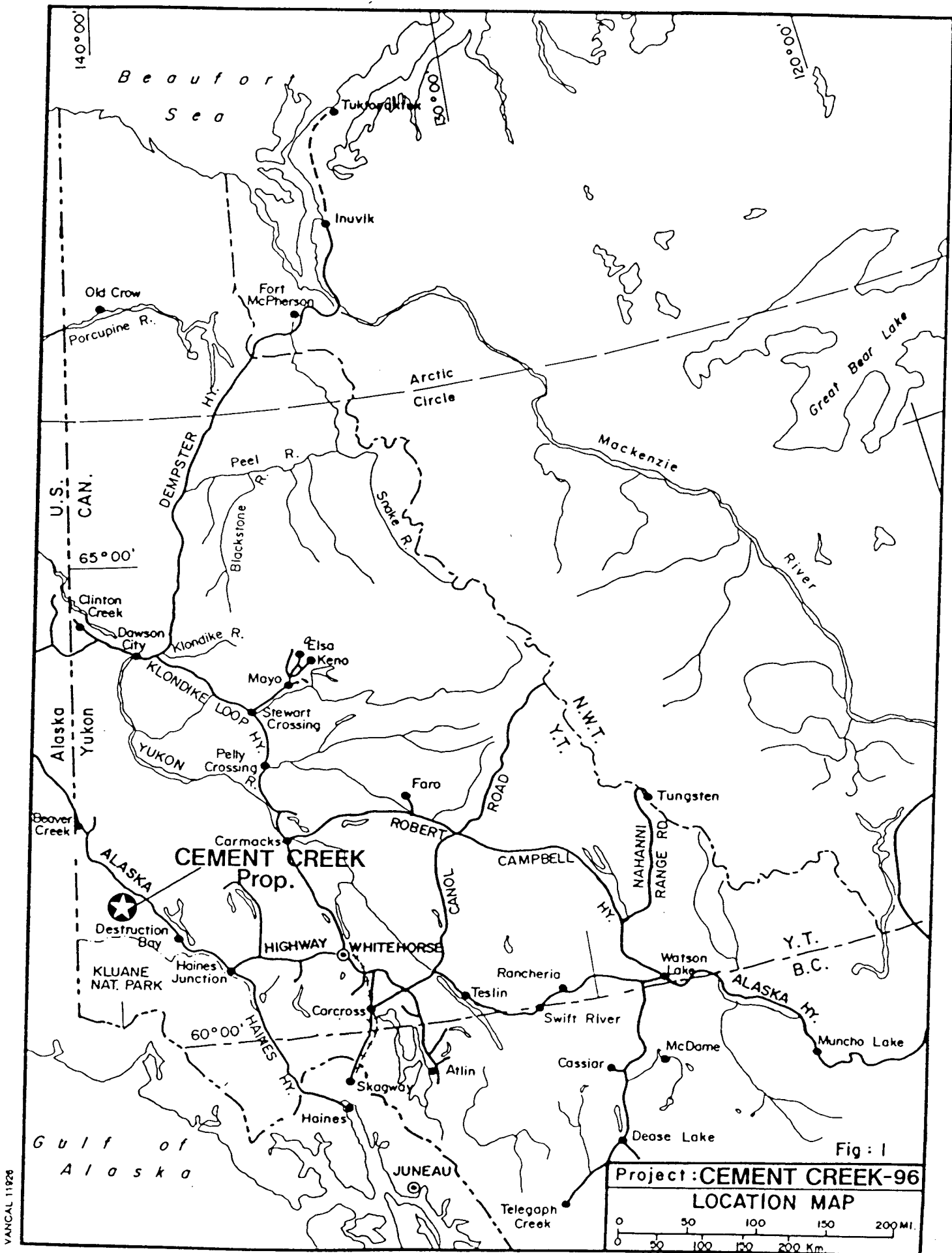
This report describes the results of a geological and geochemical survey carried out from July 1 to July 10, 1984 on the CEM 1-30, 32-91 mineral claims (Cement Creek Property), Whitehorse Mining District, Yukon Territory.

The claims were staked for Noranda Exploration Company, Limited of Whitehorse, Y.T. in November 1983 to secure ground thought to be a favourable host for Au deposits. The work described in this report was carried out by employees of Noranda.

1-2: LOCATION and ACCESS

The claims are located within claim sheet number 115 G/5, approximately 30 miles west of Burwash Landing on the Alaska Highway.

Access to the property was made by helicopter. Gravel roads on Burwash and Quill Creeks come to within 12 miles of the area. A lake forming behind a large earth and rock slide, which occurred in the summer of 1984, may provide float plane access to Cement Creek in the future.



Project: CEMENT CREEK-96
 LOCATION MAP
 0 50 100 150 200 MI.
 0 50 100 150 200 Km.

VANCAL 11926

1-3: CLAIMS and OWNERSHIP

The property consists of the following claims:

CLAIM	TAG NO.	RECORD DATE	OWNER
CEM 1-30	YA81032-81061	December 6/83	Noranda Exploration Co., Ltd. (No Personal Liability)
CEM 32-91	YA81062-81121	December 6/83	Noranda Exploration Co., Ltd. (No Personal Liability)

EXPIRY DATES

CEM 1-20, 23-30, 32-36, 39-50 52, 54, 58, 60, 62, 64, 66, 68,
70, 80-84, 90: 6 December 1986

CEM 21, 22, 37, 38, 51, 53, 55-57, 59, 61, 63, 65, 67, 69,
71-79, 85-89, 91: 6 December 1985

1-4: TOPOGRAPHY and VEGETATION

The area lies within the Kluane Ranges of the St. Elias Mountains, between the Shakwak Valley and the Duke Depression. Elevation on the property ranges from about 4600 to 7700 feet. The claims are cut by two northwest trending steep canyons which empty into Cement Creek to the south. Parts of the

property are made inaccessible by steep cliffs and pillars (hoodoos).

The relatively gentle and stable slopes on the property are covered by typical alpine shrubs, mosses, and grasses. Parts of the lower canyons are covered by dwarf birch and stunted black spruce.

1-5: PREVIOUS EXPLORATION

There is no public record of any systematic exploration having been done in the area of the claims. Placer claims are held on Cement Creek a few miles to the south. Prospecting in the area of the MAR claims by Mr. G. Friebergs in the summer of 1983 led to staking later that summer, and were later optioned to Noranda. The "North C" claims were staked by AGIP during the same summer.

1-6: WORK PROGRAM

A brief reconnaissance stream sediment program was conducted by Noranda in the area during the summer of 1983. A property exam of the MAR claims (see Figure 2) by R. Rogers and D. Cross led to an option agreement with G. Friebergs, owner of the MAR claims. The CEM claims were staked to cover favourable ground around the MAR claims.

The 1984 program consisted of detailed prospecting, geological mapping at 1:10,000 scale, and collecting 111 silt and talus fine samples, 33 soil samples, 32 rock samples, and 17 panned concentrates. The work was performed from July 1 to July 10, 1984, along with work on the MAR claims (see Geological and Geochemical Report on the MAR 1-4 Mineral Claims). Personnel are listed in Appendix 1. A total of 30 mandays was spent on the CEM claims. Helicopter support was provided by Trans North Air of Haines Junction, Y.T.

CHAPTER TWO: GEOLOGY

2-1: REGIONAL GEOLOGY

The area was worked during the 1970's by the G.S.C. under "Operation Saint Elias", and a compilation of that work is available as openfile map No. 829. Earlier work by J.E. Muller, 1967, was published as G.S.C. Memoir 340.

In general, the G.S.C. have divided the area into a number of distinct, possibly allochthonous geologic terranes, separated by major, northwest trending fault systems. The CEM claims occur within the "Wrangellia (W2) Terrane", which is bounded by the Denali Fault System to the north and the Duke River Fault to the south. In the vicinity of the CEM claims, the prominent lithologies are massive volcanic greenstones of the Pennsylvanian to Permian Station Creek Formation, which are unconformably overlain by Tertiary non-marine conglomerates, sandstones, and coal of the Amphitheatre Formation which is separated by a minor unconformity from the basaltic andesite flows and pillow lavas, ash flows, basaltic flows, and volcanic conglomerates of the Wrangell Lavas. These rocks are intruded by sub-volcanic domes, dykes, and sills of porphyritic rhyolite, dacite, and felsite (Wrangell Intrusions-Miocene).

2-2: PROPERTY GEOLOGY

The property was mapped at a scale of 1:10,000, and the results have been plotted on Figure 3. Outcrop locations were plotted using 1:50,000 scale topo maps and air photos, and blow-ups of same for control purposes. The maps used in this report were prepared from blow-ups of published 1:50,000 scale topo maps.

Mapping was performed, along with prospecting and sampling, during traverses originating at two fly camps set up on the property. Many exposures are made inaccessible by steep cliffs, thus some areas were mapped visually and by examining boulders in talus slopes.

1. LITHOLOGIES

Unit No. 1: These are basement rocks of the Station Creek Formation and are exposed in several areas. They appear mainly to consist of massive greenstone volcanic flows and minor pyroclastics.

Unit No. 2: Sedimentary rocks of the Amphitheatre Formation have been sub-divided into three sub-units which reflect a fining upward succession of non-marine, fluviatile sands and gravels which were deposited in a system of braided and meandering streams in an environment very similar to the nearby Donjek River.

Sub-Unit No. 2a: Pale brown to creamy brown bedded sandstones interbedded with black coaly shales, sometimes nearly pure coal up to about 1 metre thick. Plant fragments are common in the sandstones.

Sub-Unit No. 2b: Brown sandstones, grits, and pebble conglomerates. Clasts are well rounded and consist mainly of quartz, argillite, greenstone, and granite in a clayey-carbonate matrix. Cross bedding is ubiquitous.

Sub-Unit No. 2c: Basal cobble conglomerate. Clasts are mainly rounded boulders of Station Creek volcanics, giving the unit a greenish colour. This unit lies unconformably over Unit No. 1.

Unit No. 3: These are volcanics of the Wrangell lavas. Two main types were observed.

Sub-Unit No. 3a: Pale grey-white, fine-grained acid tuff or ash flow. Pinches out to east of property.

Sub-Unit No. 3b: Red-brown to black basalt to andesite flows. Quartz and calcite lined vugs are fairly common. Separated by minor unconformity from underlying Amphitheatre Formation sediments.

Unit No. 4: These are sub-volcanic intrusives associated with the Wrangell Lavas. They consist of feldspar-hornblende-biotite rhyolite to dacite porphyries occurring as domes and dykes or sills.

Unit No. 5: These are later stage dark, mafic dykes which have cut Unit No. 4 and are of unknown composition.

Unit No. 6: This consists of a resistant, hard, orange-buff coloured aphanitic felsite, which occasionally shows fine phenocrysts of quartz and feldspar. In a few places lenticular, calcite-filled amygdules were observed. The felsite usually occurs as sills, from one to four metres thick, which are conformable to the host sediments. In a few places, the felsite occurs as dykes which crosscut the sediments. The felsite is assumed to be associated with Unit No. 4.

2. STRUCTURE

Basement rocks of the Station Creek Formation generally dip to the south where exposed. Amphitheatre Formation rocks exhibit gentle folding, trending northwest-southeast, which becomes disrupted near contacts with the Station Creek Formation and the rhyolite porphyry domes. The overlying Wrangell Lavas are generally flat lying on the property.

North trending faults appear to be associated with doming effects of the rhyolite porphyry. A major east-west trending fault cuts the property and is marked by topographic depressions. This fault may be an offshoot or splay of the Duke River Fault.

TABLE OF FORMATIONS

AGE	FORMATION	UNIT #	LITHOLOGY
Miocene	Wrangell Intrusions	6	Orange-buff aphanitic felsite sills, dykes.
		5	Mafic dykes.
		4	Grey rhyolite to dacite porphyry domes and sills.
Miocene to Pliocene	Wrangell Lavas	3a	Acid tuffs or ash flows.
		3b	Brown to black basalt, andesite flows.
Oligocene	Amphitheatre Formation	2a	Sandstone, coaly shale, coal.
		2b	Sandstone, grits, pebble conglomerates.
		2c	Basal cobble conglomerates.
Pennsylvanian to E. Permian	Station Creek Formation	1	Greenstone volcanic flows.

3. ALTERATION

The east-west trending fault mentioned above is also marked by a zone of extremely clay-rich overburden, which is a pale grey-green, sticky, viscous material very difficult to walk in. This may be a wide, water-saturated fault gouge and/or a hydrothermal altered zone associated with the fault and rhyolitic intrusion. This was difficult to determine due to the nature of its exposure.

4. MINERALIZATION

The only sulphide mineralization observed was pyrite in sandstones as small pods of disseminated grains and thin wisps at only a few locations, and one sample of brecciated rhyolite with minor disseminated chalcopyrite. None of the 32 rocks analyzed contain any appreciable gold or base metal values.

CHAPTER THREE

GEOCHEMISTRY

In addition to the geological mapping, a geochemical survey was undertaken. A total of 32 rocks, 33 soils, 111 silts and talus fines, and 17 panned concentrates were collected and analyzed.

3-1: STREAM SEDIMENTS, SOILS, TALUS FINES

Sampling Method: The standard method of collection for silts and soils was used. The talus fines were collected where fine detritus accumulates at the base of steep slopes or cliffs. The panned concentrates were heavy mineral concentrates panned from 9 litre samples of stream gravels. Sample sites were marked with fluorescent ribbon on which the sample number was marked. The locations have been plotted on Figure 4.

The samples were later analyzed for Cu, Zn, Pb, Mo, As, Ag, and Au in the geochem lab of Noranda Exploration Company, Ltd. at 1050 Davie Street, Vancouver, B.C.

Analytical Method: The samples are first dried in a drying cabinet for a period of 24 to 48 hours. They are then screened and sifted to obtain a -80 mesh fraction.

To determine the amount of total extractable As, Ag, Cu, Zn, Pb, and Mo in each sample, the following procedure is employed:

A small amount of the -80 mesh material, 0.200 grams, is digested in 2 ml of HClO_5 and 0.5 ml HNO_3 for approximately four hours. Following digestion, each sample is diluted to 5 ml with demineralized H_2O . A Varian Techtron Model AA-5 atomic absorption spectrophotometer is used to ascertain the content, in parts per million, of each element.

To determine the amount of total extractable Au in each sample, the following procedure is employed:

Ten grams of the -80 mesh material (or less, if 10 grams not available) is roasted at 580 degrees C for 1.5 hours and then digested with aqua regia. Au is ascertained by diluting this solution to 200 ml with demineralized H_2O and extracting the Au with 10 ml of MIBK. An aliquot of this solution is then read on a Varian Techtron Model AA-5 atomic absorption spectrophotometer and a value in ppb is obtained. (Note that with the panned concentrates, the entire concentrate is digested.)

Results: These have been listed in Appendices 4(i), (ii), and (iii). The only anomalous values were pan concentrates No. 71892 and No. 71895 which ran 790 and 4300 ppb Au respectively. Sample No. 71892 was collected downstream of No. 71895 and probably has the same source. No obvious explanation for these results was found.

3-2: ROCKS

Sampling Method: A total of 32 rock chip samples were collected and analyzed, primarily as a check for precious metal values. They were samples of rocks thought most likely to be Au-bearing, and weighed between 1 and 4 kilograms. Locations were marked as with other samples and plotted on Figure 3. Sample descriptions are listed in Appendix 5.

Analytical Methods: The samples were shipped to the geochem labs of Rossbacher Laboratory Ltd., Burnaby, B.C. Here, they are crushed, pulverized, and analyzed using the method of atomic absorption.

Results: Certificates of analysis are provided in Appendix 4(iv). As can be seen, results are disappointing, with all Au values being very near or below the detectable limits. Sample No. 45809 ran 0.527% Cu, and was the only significant base metal result.

CHAPTER FOUR

CONCLUSIONS and RECOMMENDATIONS

Results of this survey indicate that the potential for significant Au mineralization being hosted by this property is low. Any further work in the area should be restricted to the watershed of the anomalous pan concentrate results.

APPENDIX 1

PERSONNEL

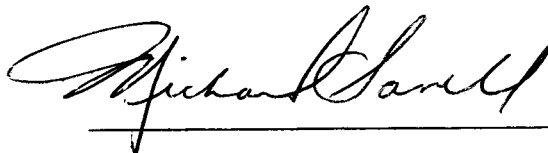
APPENDIX 2

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Michael Savell, of the City of Whitehorse, Yukon Territory,
do hereby certify that:

1. I have been an employee of Noranda Exploration Company, Limited
(No Personal Liability) since May 1980.
2. I am a graduate of Dalhousie University with a Bachelor of
Science degree in Geology.
3. I am a member of the Geological Association of Canada, the
Canadian Institute of Mining and Metallurgy, the Prospector's
and Developers Association, and the B.C./Yukon Chamber of Mines.



Michael Savell
Project Geologist
Noranda Exploration Company, Limited
(No Personal Liability)

APPENDIX 3

STATEMENT OF COSTS

NORANDA EXPLORATION COMPANY, LIMITED

STATEMENT OF COST

PROJECT: Cem Claims
TYPE OF REPORT Geological and Geochemical Surveys

a) Wages:		
No. of Days	30	
Rate per Day	\$ 112.936	
Dates From:	July 2 - 8, 1984	
Total Wages	30 x \$112.936	\$ 3,388.08
b) Food and Accommodation:		
No. of Days	30	
Rate per day	\$65.00	
Total Cost	30 x \$65.00	1,950.00
c) Transportation:		
No. of days	30	
Rate per day	\$250.00	
Total Cost	30 x \$250.00	7,500.00
d) Instrument Rental:	None	
f) Analysis		
See attached schedule		1,907.00
g) Cost of preparation of Report		337.29
		<hr/>
	TOTAL COST	<u>\$15,082.37</u>

NORANDA EXPLORATION COMPANY, LIMITED
(WESTERN DIVISION)

DETAILS OF ANALYSES COSTS

PROJECT ; Cem Claims

<u>ELEMENT</u>	<u>NO. OF DETERMINATIONS</u>	<u>COST PER DETERMINATION</u>	<u>TOTAL</u>
Au	154	1.60	246.40
Zn	154	.60	92.40
Pb	154	.60	92.40
Ag	154	.60	92.40
Mo	154	.60	92.40
Au	154	3.50	539.00
As	154	1.50	231.00
	154 Sample Prep.	.50	77.00
Au	28	1.60	44.80
Zn	28	.60	16.80
Pb	28	.60	16.80
Ag	28	.60	16.80
Mo	28	.60	16.80
Au	28	3.50	98.00
As	28	1.50	42.00
	28 Rock Sample Prep	2.00	56.00
Au	16	1.60	25.60
Zn	16	.60	9.60
Pb	16	.60	9.60
Ag	16	.60	9.60
Mo	16	.60	9.60
Au	16	3.50	56.00
	16 Pan Con Prep	1.00	16.00
			\$1,907.00

APPENDIX 4 (i)
SILTS, TALUS FINES
GEOCHEM RESULTS

NORANDA GEOCHEM LABORATORY

LOCATION Cement Cr PROJECT 96 COLLECTOR _____ DATE RECEIVED July / 12 / 84 CODE 8407-020 SHEET 1 of 6
 MATERIAL Silt + Talus Fine DATE ANALYSED July / 24 / 84 ANALYST NF
 REMARKS Cu Zn Pb Ag Mo As Au in ppm Au in g/g

SAMPLE NO.	Cu	Zn	Pb	Ag	Mo	As	Au							
45788	54	74	4	0.2	< 2	6	10							
45789	16	68	2	0.2	< 2	< 2	10							
45790	14	68	2	0.2	< 2	< 2	10							
45791	28	70	2	0.2	< 2	< 2	10							
45792	18	60	2	0.2	< 2	< 2	10							
45793	18	64	2	0.2	< 2	< 2	10							
CHECK NL-5	22	60	68	1.2	8	52	—							
45794	18	70	2	0.2	< 2	< 2	10							
45795	28	100	2	0.2	< 2	< 2	10	(5.0)						
45796	14	78	2	0.2	< 2	< 2	10	(5.0)						
45810	16	74	2	0.2	< 2	< 2	10							
45812	16	70	2	0.2	< 2	< 2	10							
45814	14	72	2	0.2	< 2	< 2	10							
45815	28	74	2	0.2	< 2	< 2	10							
45818	36	84	6	0.2	< 2	< 2	10							
45819	40	94	10	0.2	< 2	2	10							
45820	20	82	2	0.2	< 2	< 2	10							
47127	14	72	2	0.2	< 2	< 2	10							
47128	22	80	6	0.2	< 2	< 2	10							
CHECK NL-5	24	64	70	1.8	8	54	—							
47129	32	76	12	0.2	< 2	< 2	10							
47130	22	84	4	0.2	< 2	< 2	10							

NORANDA GEOCHEM LABORATORY

i

LOCATION Cement Cr PROJECT 96 COLLECTOR _____ DATE RECEIVED July / 12 / 89 CODE 8907-075 SHEET 2 of 6
 MATERIAL Silt + Talus Fine DATE ANALYSED July / 24 / 89 ANALYST RF
 REMARKS Cu Zn Pb Ag Mo As in ppm Au in ppb

SAMPLE NO.	Cu	Zn	Pb	Ag	Mo	As	Au							
47132	28	94	4	0.2	< 2	< 2	10							
47134	44	86	4	0.2	< 2	6	10							
47139	36	82	6	0.2	< 2	4	10							
47140	28	84	2	0.2	< 2	< 2	10							
47141	24	74	2	0.2	< 2	< 2	10							
47142	24	84	2	0.2	< 2	< 2	10							
47144	20	98	6	0.2	< 2	< 2	10							
47145	30	76	2	0.2	< 2	< 2	10							
47147	20	60	2	0.2	< 2	< 2	10							
47149	18	74	2	0.2	< 2	< 2	10							
71394	38	84	8	0.2	< 2	< 2	10							
71395	22	84	2	0.2	< 2	< 2	10							
71396	36	90	4	0.2	< 2	8	10							
71397	36	86	12	0.2	< 2	< 2	10							
71398	46	92	12	0.2	< 2	2	10							
71399	34	86	8	0.2	< 2	4	10							
71400	38	90	10	0.2	< 2	< 2	10							
71751	40	84	10	0.2	< 2	< 2	10							
52	30	78	8	0.2	< 2	< 2	10							
53	36	92	10	0.2	< 2	< 2	10							
54	42	96	10	0.2	< 2	< 2	10							
55	36	88	8	0.2	< 2	< 2	10							

NORANDA GEOCHEM LABORATORY

1

LOCATION Cement Cr PROJECT 96 COLLECTOR _____ DATE RECEIVED July 12 / 84 CODE 8407-040 SHEET 3 of 6
 MATERIAL Silt + Talus Fine DATE ANALYSED July 24 / 84 ANALYST RF
 REMARKS Cu Zn Pb Ag Mo As Au in ppm Au in ppb

SAMPLE NO.	Cu	Zn	Pb	Ag	Mo	As	Au							
71756	30	86	8	0.2	< 2	< 2	10							
71757	38	92	10	0.2	< 2	2	10							
71758	34	88	8	0.2	< 2	< 2	10							
71759	16	88	2	0.2	< 2	< 2	10							
71760	22	78	2	0.2	< 2	< 2	10							
71761	24	64	6	0.2	< 2	< 2	10							
71762	22	80	8	0.2	< 2	2	10							
71763	16	92	2	0.2	< 2	< 2	10							
71764	10	94	2	0.2	< 2	< 2	10							
71765	10	82	2	0.2	< 2	< 2	10							
71766	16	68	2	0.2	< 2	< 2	10							
71767	8	86	2	0.2	2	< 2	10							
71768	6	92	2	0.2	4	4	10							
71769	32	70	2	0.2	< 2	< 2	10							
71770	34	64	2	0.2	< 2	< 2	10							
71771	22	74	2	0.2	< 2	< 2	10							
71772	20	78	2	0.2	< 2	< 2	10							
71773	18	78	2	0.2	< 2	< 2	10							
71774	18	78	2	0.2	< 2	< 2	10							
71775	130	60	2	0.2	< 2	18	10							
71776	38	90	10	0.2	< 2	< 2	10							
71777	44	86	8	0.2	< 2	< 2	10							

NORANDA GEOCHEM LABORATORY

i

LOCATION Cement Cr PROJECT 96 COLLECTOR _____ DATE RECEIVED July / 12 / 84 CODE 8407-095 SHEET 4 of 6
 MATERIAL silt + Talus Fine DATE ANALYSED July / 29 / 84 ANALYST RF
 REMARKS Cu Zn Pb Ag Mo As in ppm Au in ppb

SAMPLE NO.	Cu	Zn	Pb	Ag	Mo	As	Au							
71778	48	100	12	0.2	< 2	< 2	10							
71779	42	100	14	0.2	< 2	2	10							
71780	62	90	8	0.2	< 2	< 2	10							
71851	32	140	2	0.2	4	4	10							
71852	4	86	2	0.2	2	< 2	10							
71853	6	76	2	0.2	< 2	< 2	10							
71854	18	88	2	0.2	< 2	< 2	10							
71855	18	80	2	0.2	< 2	< 2	10							
71856	20	84	2	0.2	< 2	< 2	10							
71857	16	86	2	0.2	< 2	< 2	10							
71858	28	82	2	0.2	< 2	< 2	10							
71859	22	76	2	0.2	< 2	< 2	10							
71860	34	86	10	0.2	< 2	< 2	10							
71861	24	78	2	0.2	< 2	< 2	10							
71862	26	86	2	0.2	< 2	< 2	10							
71863	24	88	2	0.2	< 2	< 2	10							
71864	20	76	2	0.2	< 2	< 2	10							
71865	20	74	4	0.2	< 2	< 2	10							
71866	22	76	2	0.2	< 2	< 2	10							
71867	28	74	2	0.2	< 2	< 2	10							
71868	22	74	2	0.2	< 2	< 2	10							
71869	10	82	4	0.2	< 2	< 2	10							
71870	28	74	8	0.2	< 2	< 2	10							

NORANDA GEOCHEM LABORATORY

i

LOCATION CEMENT CR. PROJECT 96 COLLECTOR _____ DATE RECEIVED July / 16 / 84 CODE 3407019 SHEET 5 of 6
 MATERIAL SILT + Talus Fine DATE ANALYSED July / 24 / 84 ANALYST IF
 REMARKS Cu, Zn, Pb, Ag, Mo, As in ppm. Au in ppb.
0.2 g / 2ml HClO₄:H₂O₂ → 5 ml 10 g / Aqua-regia H₁Cl / H₂O

SAMPLE NO.	Cu	Zn	Pb	Ag	Mo	As	Au							
71871	14	72	4	0.2	< 2	4	10							
72	20	74	4	0.2	< 2	< 2	10							
73	14	80	2	0.2	< 2	< 2	10							
74	26	70	6	0.2	< 2	< 2	10							
75	36	64	4	0.2	< 2	< 2	10							
76	34	90	8	0.2	< 2	2	10							
77	28	82	4	0.2	< 2	< 2	10							
78	24	120	2	0.2	< 2	< 2	10							
79	12	140	2	0.2	< 2	< 2	10							
80	12	88	2	0.2	< 2	< 2	10							
71881	30	86	6	0.2	< 2	2	10							
82	34	78	4	0.2	< 2	4	10							
83	30	84	4	0.2	< 2	2	10							
84	40	84	6	0.2	< 2	< 2	10							
85	20	70	2	0.2	< 2	< 2	10							
86	24	74	2	0.2	< 2	< 2	10							
87	22	90	2	0.2	< 2	< 2	10							
88	24	82	2	0.2	< 2	< 2	10							
93	22	68	2	0.2	< 2	< 2	10							
71894	18	70	2	0.2	< 2	< 2	10							

NORANDA GEOCHEM LABORATORY

LOCATION Cement Cr PROJECT 96 COLLECTOR _____ DATE RECEIVED July / 12 / 84 CODE S407-045 SHEET 6 of 6
 MATERIAL Silt + Talus Fine DATE ANALYSED July / 24 / 84 ANALYST RF
 REMARKS Cu Zn Pb Ag Mo As in ppm Au in ppb

SAMPLE NO.	Cu	Zn	Pb	Ag	Mo	As	Au						
71926	58	94	6	0.2	< 2	< 2	10						
71927	42	86	6	0.2	< 2	2	10						
71928	42	94	8	0.2	< 2	2	10	(S.C)					
71929	26	100	4	0.2	2	4	10						
71930	42	84	10	0.2	< 2	< 2	10						
71931	48	84	8	0.2	< 2	2	10						
71932	34	82	8	0.2	< 2	2	10						
71951	38	78	10	0.2	< 2	< 2	10						
71952	42	92	10	0.2	< 2	< 2	10						
71953	40	110	10	0.2	< 2	< 2	10						

APPENDIX 4 (ii)

SOILS

GEOCHEM RESULTS

NORANDA GEOCHEM LABORATORY

LOCATION Cement Cr PROJECT 96 COLLECTOR _____ DATE RECEIVED July / 12 / 84 CODE 8407-649 SHEET 1 of 2
 MATERIAL Soil DATE ANALYSED July / 24 / 84 ANALYST RF
 REMARKS Cu Zn Pb Ag Mo As in ppm Au in ppb

SAMPLE NO	Cu	Zn	Pb	Ag	Mo	As	Au							
45797	14	90	2	0.2	< 2	< 2	10	(5.0)						
45798	4	74	2	0.2	< 2	< 2	10	(9.9)						
45799	4	74	2	0.2	< 2	< 2	10							
45800	6	38	2	0.2	< 2	< 2	10							
45811	14	88	2	0.2	< 2	< 2	10	(4.3)						
45813	6	120	2	0.2	< 2	< 2	10	(3.2)						
45821	26	46	2	0.2	< 2	< 2	10							
47133	50	24	2	0.2	< 2	6	10							
47138	14	66	2	0.2	< 2	< 2	10							
47143	32	66	2	0.2	< 2	< 2	10							
47146	22	230	14	0.2	< 2	< 2	10							
47148	30	64	2	0.2	< 2	< 2	10							
71847	38	84	6	0.2	< 2	2	10							
71848	50	84	6	0.2	< 2	< 2	10							
71849	28	72	6	0.2	< 2	< 2	10							
71850	24	78	2	0.2	< 2	< 2	10							
71887	22	56	2	0.2	< 2	< 2	10							
71890	3	68	4	0.2	< 2	< 2	10							
72176	26	82	2	0.2	< 2	< 2	10							

NORANDA GEOCHEM LABORATORY

LOCATION Cement Cr PROJECT 96 COLLECTOR _____ DATE RECEIVED July / 12 / 84 CODE 8407-045 SHEET 2012
 MATERIAL Soil DATE ANALYSED July / 24 / 84 ANALYST RF
 REMARKS Cu Zn Pb Ag Mo As in ppm Au in ppb

SAMPLE NO.	Cu	Zn	Pb	Ag	Mo	As	Au							
72177	24	88	6	0.2	< 2	2	10							
72178	26	120	6	0.2	< 2	10	10							
72179	28	66	6	0.2	< 2	10	10	(3.9)						
72180	36	52	4	0.2	< 2	4	10	(1.1)						
72181	26	72	8	0.2	< 2	< 2	10	(1.6)						
72182	24	110	8	0.2	< 2	< 2	10	(2.7)						
72183	32	58	6	0.2	< 2	4	10							
72184	28	86	6	0.2	2	4	10							
72185	24	86	4	0.2	< 2	< 2	10	(1.8)						
72186	32	62	4	0.2	< 2	< 2	10	(1.1)						
72187	30	66	4	0.2	< 2	< 2	10	(1.6)						
72188	20	60	6	0.2	< 2	6	10							
72189	22	68	6	0.2	< 2	< 2	10	(4.2)						
72190	22	70	4	0.2	< 2	2	10	(2.0)						
72191	30	58	4	0.2	< 2	< 2	10	(2.2)						
72192	28	120	6	0.2	< 2	8	10	(5.0)						
72193	28	64	2	0.2	< 2	< 2	I.S.							

APPENDIX 4 (iii)

PANNED CONCENTRATES

GEOCHEM RESULTS

APPENDIX 4 (iv)

ROCK GEOCHEM RESULTS

ROSSBACHER LABORATORY LTD.

CERTIFICATE OF ANALYSIS

2225 SOUTH SPRINGER AVENUE
BURNABY, B.C. V5B 3N1
TEL: (604) 299-6910

TO: NORANDA EXPLORATION LTD.
1050 DAVIE STREET
VANCOUVER B.C.

CERTIFICATE NO. : 84258- 2

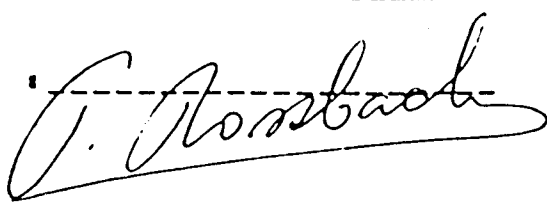
INVOICE NO. : 4270

PROJECT: 96 8407-54

DATE ANALYSED : JULY 26 1984

SAMPLE#	PPM	PPM	PPM	PPM	PPM	PPB	PPM
	Mo	Cu	Ag	Zn	Pb	Au	As
A 72001	7	78	0.4	66	10	10	14
A 72002	1	26	0.6	58	6	10	2
A 72003	1	12	0.6	44	4	10	2
A 72006	1	14	0.4	50	8	10	10
A 72055	1	6	0.2	32	14	10	14
A 72101	1	20	0.2	40	10	10	10
A 72102	1	14	0.2	86	10	10	2
A 72103	1	6	0.2	120	6	10	2
A 72104	1	34	0.2	74	8	10	2
A 72105	2	4	0.2	106	2	10	2
A 72106	5	2	0.2	24	4	10	128
A 72107	5	4	0.2	12	4	10	2
A 72108	2	4	0.2	50	6	10	2
A 72109	1	8	0.2	60	2	10	2
A 72110	1	18	0.2	170	2	10	2
A 72111	3	10	0.2	168	10	10	2
A 72112	1	6	0.2	116	4	10	2
A 72113	1	10	0.2	64	6	10	2
A 72114	1	28	0.2	60	8	10	6
A 72115	1	28	0.2	50	8	10	16
A 72116	1	16	0.2	116	4	10	6
A 72117	2	26	0.2	96	22	10	52
A 45786	1	6	0.2	14	4	10	12
A 47126	12	328	2.0	98	80	10	120
A 47131	1	68	0.2	14	8	10	10
A 47135	1	20	0.2	64	4	10	8
A 47136	20	80	0.2	116	36	10	180
A 47137	1	18	0.2	88	6	10	6
A 45808	1	362	0.2	62	6	10	26
A 45809	5	5200	1.4	30	4	40	120
A 45816	1	46	0.2	236	20	10	24
A 45817	1	32	0.2	12	6	40	34

CERTIFIED BY :



APPENDIX 5

ROCK SAMPLE DESCRIPTIONS

CEM CLAIMS

ROCK SAMPLE DESCRIPTIONS

<u>SAMPLE #</u>	<u>TYPE</u>	<u>WIDTH</u>	<u>DESCRIPTION</u>
45786	float	-	Sandstone
45808	grab	-	Tan-orange weathered, med.-grained sstn, with patches of disseminated pyrite.
45809	grab	-	Siliceous, rhyolitic breccia (may be fault breccia) with fine disseminated chalcopryite, minor pyrite, malachite
45816	float	-	Fine grained, white limestone, trace pyrite
45817	grab	-	Quartz-carbonate vein, 15 cm wide, limonite on surface and fractures. Shows bluish tinge. Trace chalcopryite.
47126	float	-	Greenstone
47131	float	-	Sandstone
47135	float	-	Sandstone
47136	float	-	Greenstone
47137	float	-	Sandstone
72001	chip	5 m	Rusty weathered, creamy white sandstone (sstn) with clayey matrix, abundant plant fragments, limonite specks
72002	chip	3 m	Olive-green sstn, well lithified, close to fault contact with porphyry intrusive
72003	chip	5 m	As for 72001
72006	chip	2 m	Carbonaceous sstn and grit, adjacent to fault with porphyry
72055	chip	3 m	Rusty, poorly lithified, pebble conglomerate (cgl)
72101	grab	-	Sandstone; orange-brown-grey weathered, with coaly shale interbeds, slightly calcareous
72102	grab	-	Felsite; orange-buff, brown weathered, with narrow calcite veinlets throughout
72103	float	-	Rhyolitic porphyry; grey, unaltered

<u>SAMPLE #</u>	<u>TYPE</u>	<u>WIDTH</u>	<u>DESCRIPTION</u>
72104	float	-	Conglomerate; red-brown, clasts of volcanics, chert and quartz
72105	float	-	Rhyolitic porphyry; grey, unaltered
72106	float	-	Rhyolitic porphyry; yellow-orange limonitic staining throughout
72107	float	-	Rhyolitic porphyry; bleached white throughout
72108	float	-	Sandstone; brown-white, silicified
72109	grab	-	Quartz vein; with hematitic staining, in basalt host, from 8 cm wide cavity
72110	grab	-	Basalt; brown, some hematite staining, quartz amygdules
72111	grab	-	Sandstone; white-orange, minor biotite, clay alteration, near contact with basalts
72112	grab	-	Sandstone; yellow-white-orange throughout, poorly lithified, clay altered, near contact with basalts
72113	grab	-	Conglomerate; red-brown, near contact with felsite dyke
72114	grab	-	Conglomerate; red-brown, a few inches above felsite dyke
72115	grab	-	As for 72114
72116	grab	-	Felsite dyke; orange-buff, ½ m wide, blocky fracturing
72117	chip	3 m	Conglomerate; red-brown, Fe-stained, above basal conglomerate

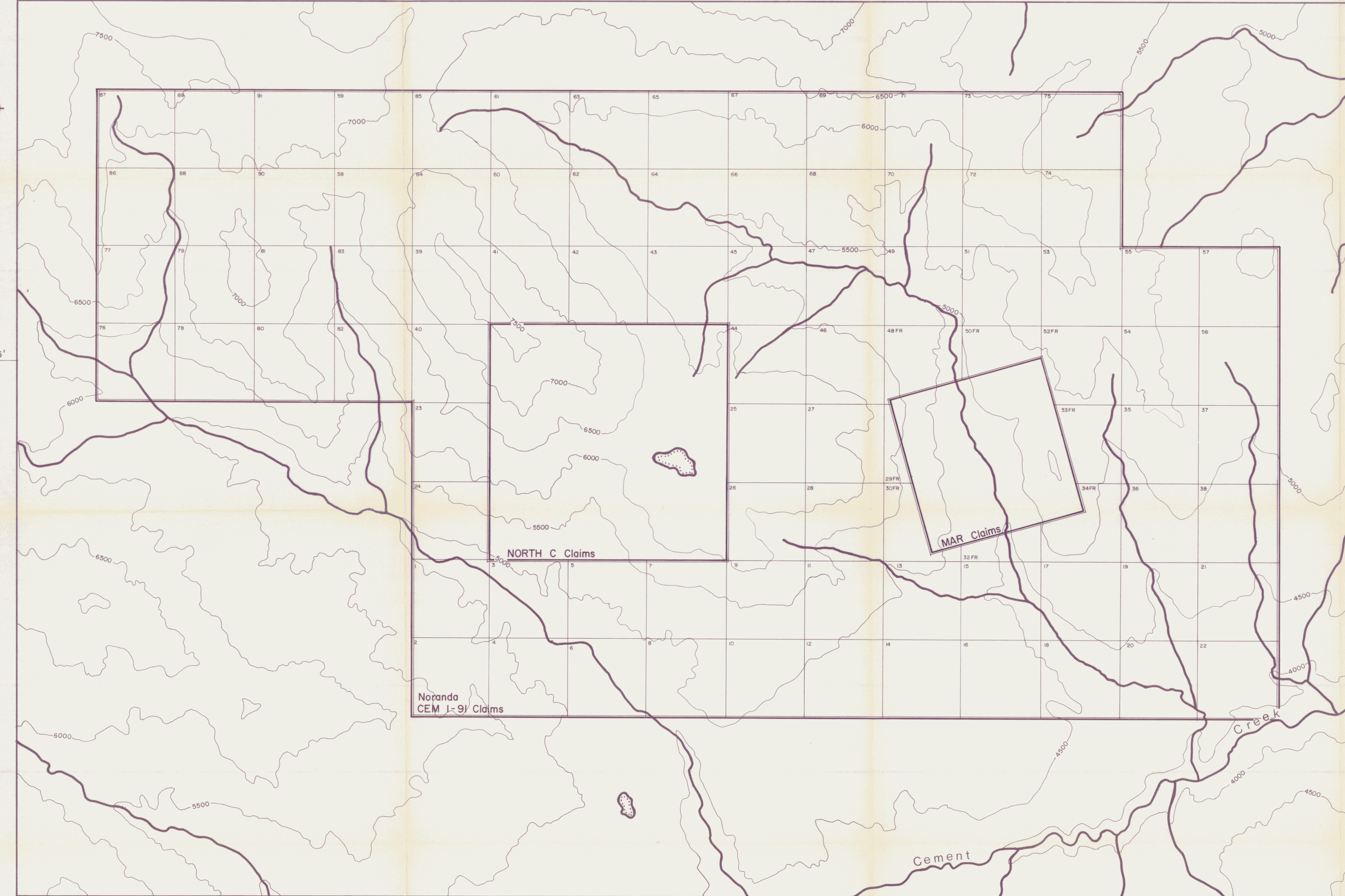


140° 00'

139° 55'

61° 25'

61° 25'



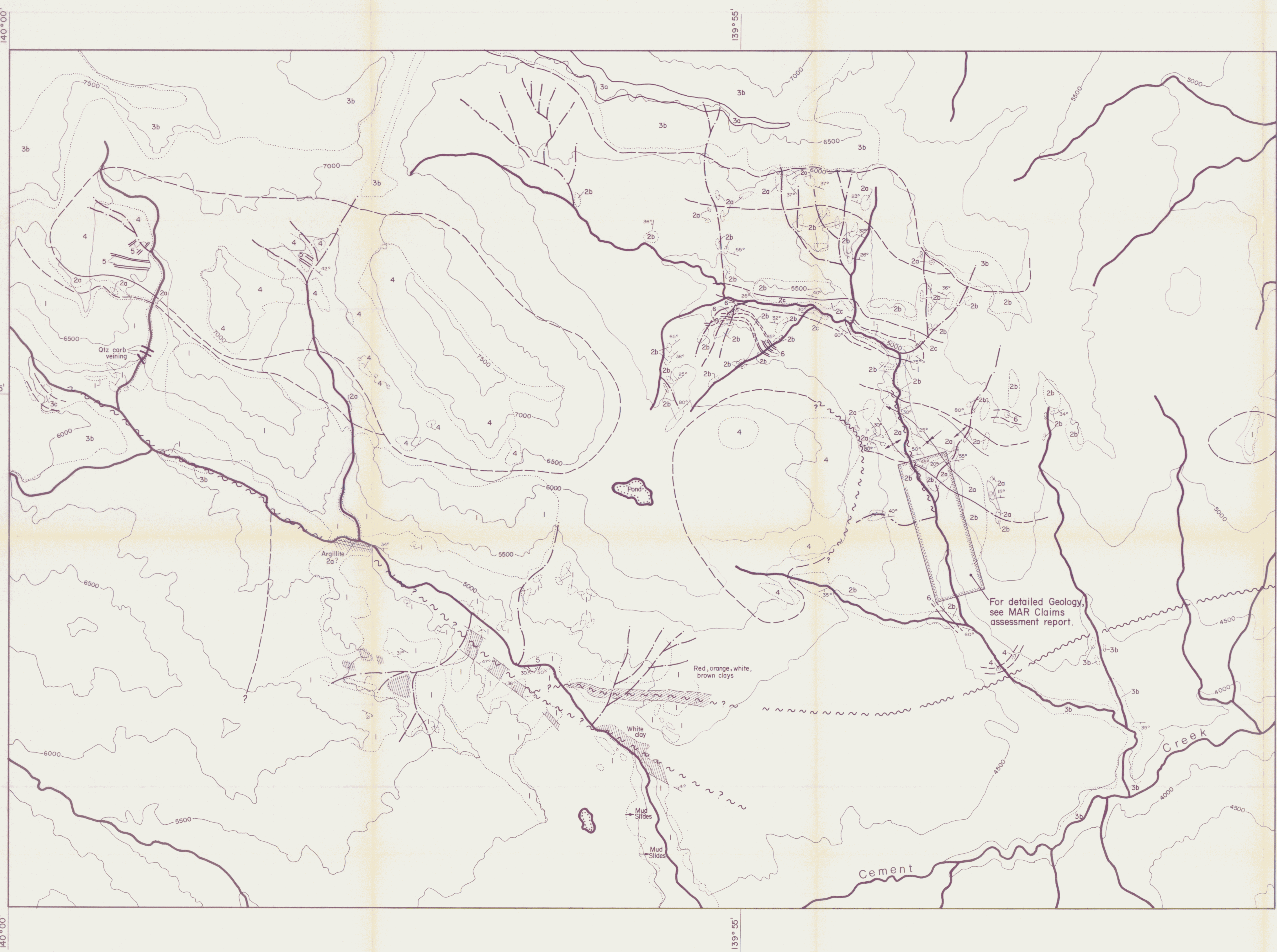
140° 00'

139° 55'

Fig. : 2

REVISED	CEMENT CREEK (CEM Claims)	
	Claim Location Map	
	091608	
PROJ. No. 96	SURVEY BY: ... AI	DATE: ...
N.T.S. 1:10,000	DRAWN BY: ... AI	SCALE: 1:10,000 (approx.)
DWG No.	NORANDA EXPLORATION Whitehorse OFFICE	





Legend

TERTIARY

WRANGELL INTRUSIVES

- 6 Buff weathered aphanitic felsite sills, dykes.
- 5 Dark, mafic sills, dykes.
- 4 Grey, rhyolite to dacite porphyry.

WRANGELL LAVAS

- 3a Acid tuff or ash flow.
- 3b Basalt and andesite flows.

AMPHITHEATRE FORMATION

- 2a Interbedded pale brown sandstone and coaly shales.
- 2b Sandstone, grit, pebble conglomerate.
- 2c Basal cobble conglomerate.

PRE-TERTIARY
STATION CREEK FORMATION

- 1 Greenstone volcanic flows.

Symbols

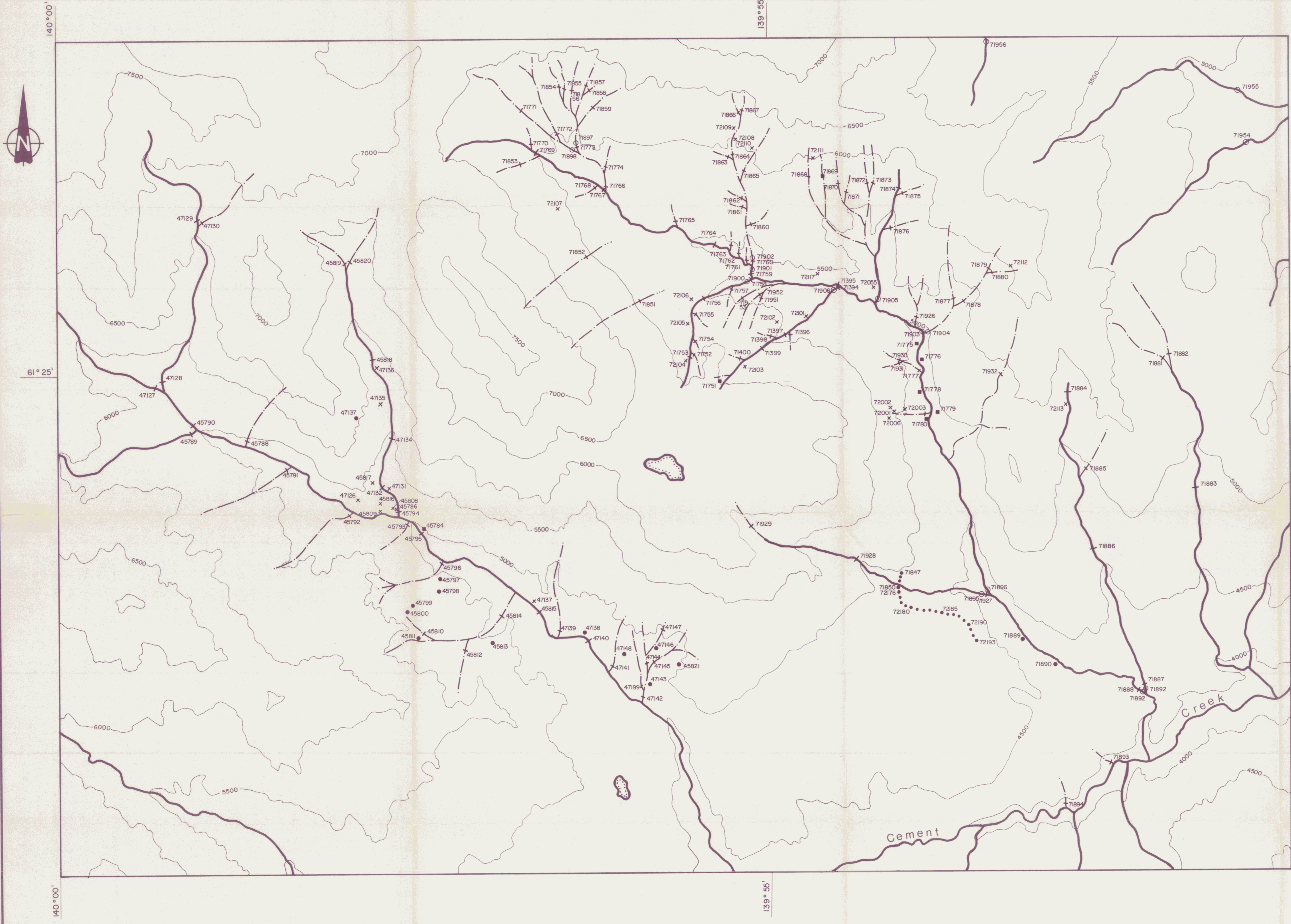
- Limit of outcrop
- Contact; defined, assumed
- Fault; defined, assumed
- Bedding; strike & dip
- Foliation; strike & dip
- Anticline, syncline
- Stream
- Strong clayey zone (altered?) at surface

For detailed Geology, see MAR Claims assessment report.

Fig. 3

REVISED	CEMENT CREEK (CEM Claims)	
	Geology 091608	
PROJ. No. 96	SURVEY BY: MW, MS	DATE: DEC 84
N.T.S. 1:50,000	DRAWN BY: AI	SCALE: 1:10,000 (approx.)
DWG. No.	NORANDA EXPLORATION OFFICE: Whitehorse	





- ∕ Silt
- Pan concentrate
- Talus fine
- × Rock
- Soil

Fig : 4

REVISED	CEMENT CREEK (CEM Claims)	
	Geochem Sample Location	
	091608	
PROJ. No. 96	SURVEY BY: A1	DATE: JUL - DEC 84
N.T.S. 1:50,000	DRAWN BY: A1	SCALE: 1:10,000 (approx)
DWG. No.	NORANDA EXPLORATION	
	OFFICE: Whitehorse	

