SOVEREIGN METALS CORPORATION n.p.l.

PRELIMINARY REPORT

on the

BARITE OCCURRENCES

of the

TAN 1-96 Mineral Claims
Watson Lake Mining District
N.T.S. 105-H-12
61° 36' N 129° 52' W
Yukon Territory

- by -

T. C. Scott, Geologist

090475

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be accepted as representing work to the value of

$ 2,600.00

R. Dubicki
Acting Regional Geologist on July 13/79
Regional Mining Engineer

Considered as representation work under Section 58 (a) Yukon Quartz Mining Act.

S. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

TABLE OF CONTENTS

1.0 INTRODUCTION

The TAN 1-72 mineral claims were staked by Pamicon Development Ltd. and Mountaineer Mines Ltd. in March, 1978 to cover a geochemical anomaly in the Frances Lake area of the southeastern Yukon. The initial reconnaissance geochemical sampling was conducted under the supervision of R. Darney and indicated a number of streams having anomalous values for zinc in sediments. The TAN 73-96 mineral claims were staked adjacent to the northeast corner of the property to cover the barite showings reported by D. Yeager (1978) in the Preliminary Report on the TAN claims.

During the latter part of March and early April, 1979, a D-7E bulldozer was used to construct a tote road from the Campbell Highway to the TAN claims, a distance of 12 miles and expose some of the barite occurrences by means of trenches. On May 2, 1979 the property was visited by the writer for the purpose of sampling the exposed barite veins and to conduct preliminary geological investigations as to their occurrence and distribution. The writer was accompanied by J. Melnychuk of Watson Lake and Mack Lutz of Lower Post. A helicopter on charter from Terr-Air of Ross River, Yukon was used for transportation to and from the property.

This Report has been prepared on behalf of Sovereign Metals Corporation (n.p.l.).

SOVEREIGN METALS CORPORATION n.p.l.

YUKON LOCATION MAP

TAN 1-72 MINERAL CLAIMS

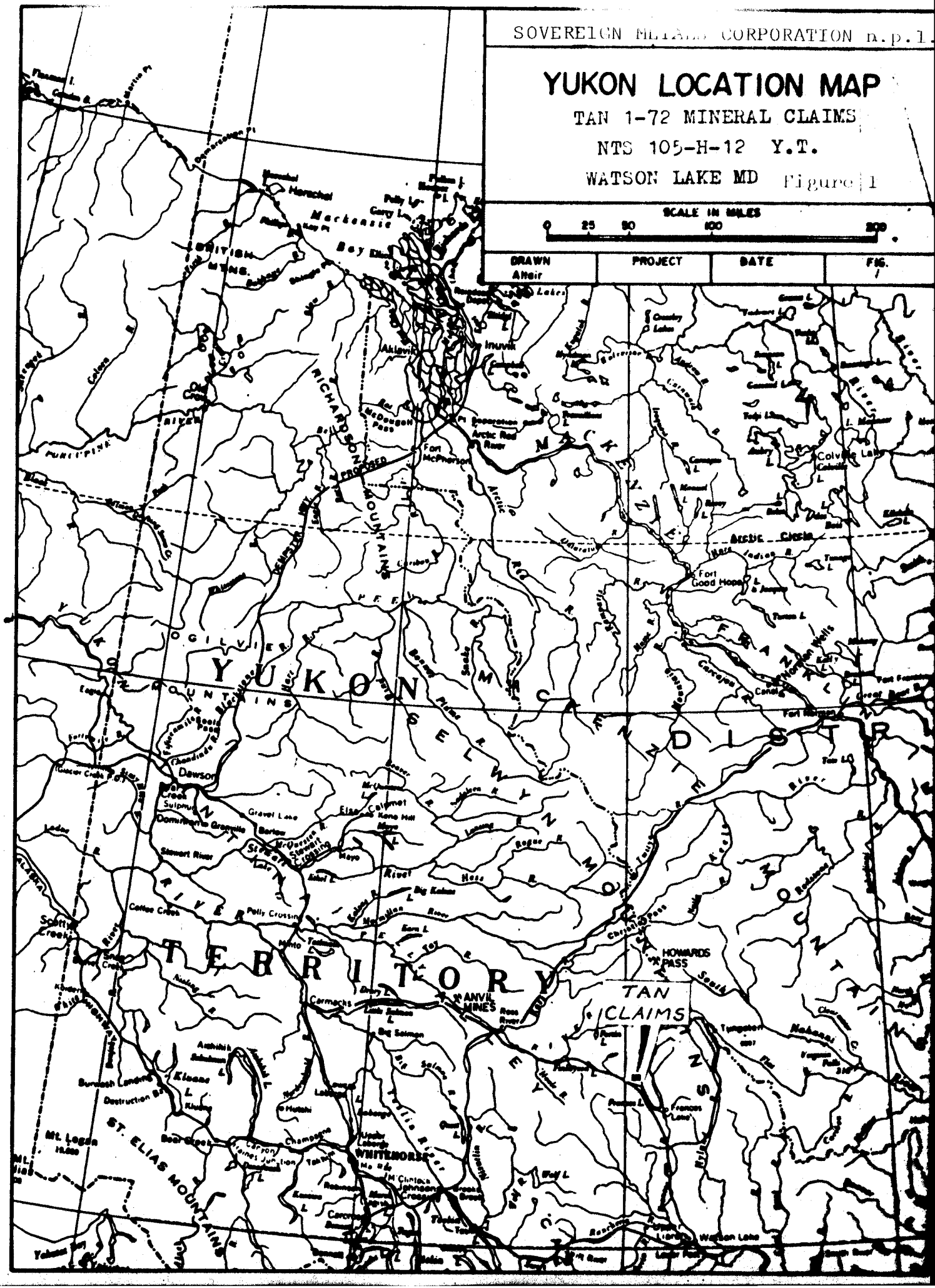
NTS 105-H-12 Y.T.

WATSON LAKE MD Figure 1

SCALE IN MILES

0 25 50 100 200

DRAWN	PROJECT	DATE	FIG.
Altair			1



2.0 LIST OF CLAIMS

Claim Name	Grant No.	Expiry Date
TAN 1 - 72	YA 28319 to YA 28390	April 14, 1980 (Except TAN 9,10,11,33,34,35,57,58,59 which expire April 14/81)
TAN 73 - 96	YA 36029 to YA 36052	March 15, 1980 (Except TAN 77-80 and 89 to 92 which expire March 15/81)

All claims are registered in the names of the stakers and records are maintained at the Mining Recorder's Office in Watson Lake.

Sovereign Metals Corporation (n.p.l.) is understood to hold an exclusive option to purchase all claims covered by this Report.

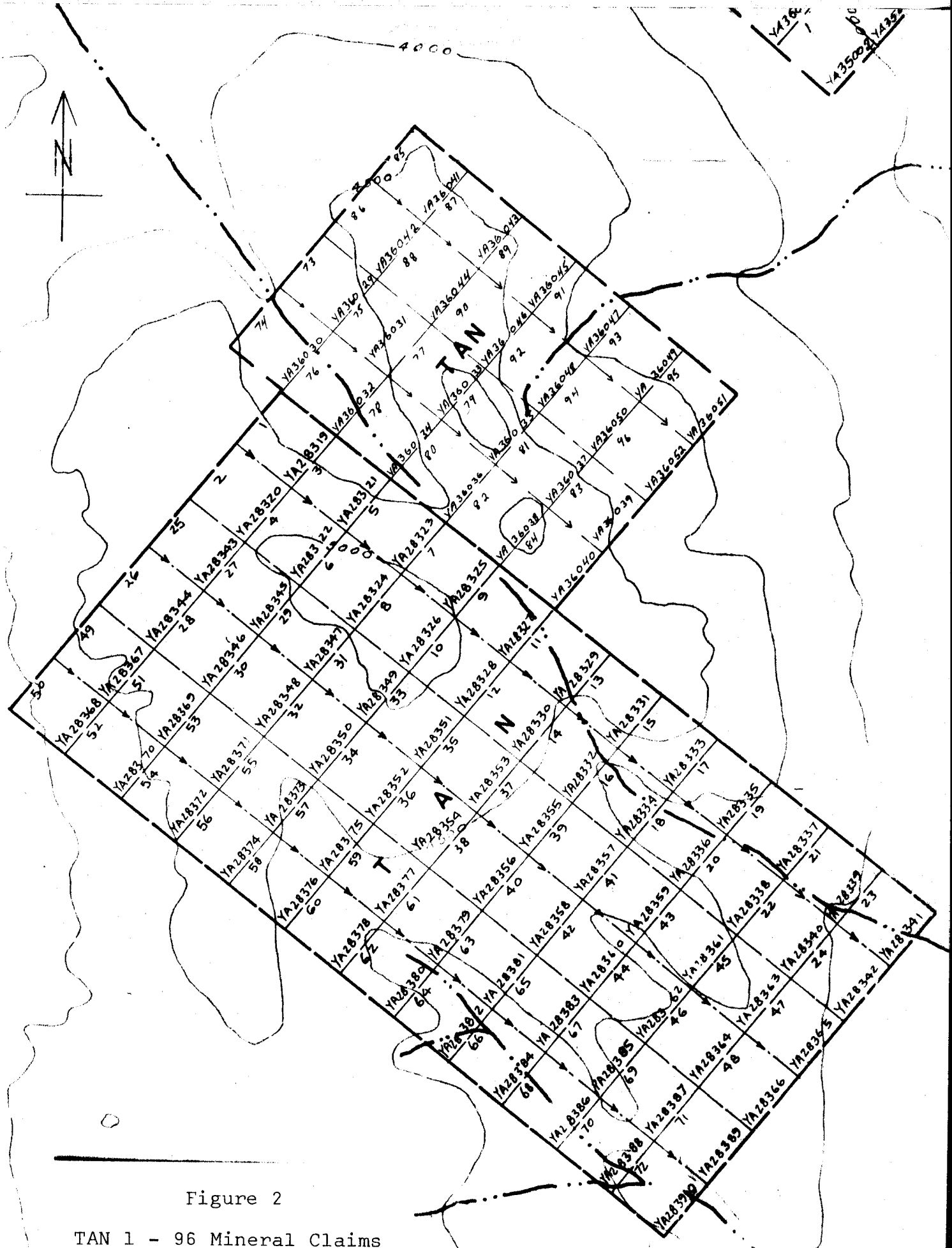


Figure 2

TAN 1 - 96 Mineral Claims
N.T.S. 105-H-12 Y. T.
Watson Lake, M. D.

3.0 LOCATION AND ACCESS

The TAN 1-96 claims are located on N.T.S. Sheet 105-H-12 approximately 5 miles northwest of Frances Lake in the southeastern Yukon Territory. The approximate N.T.S. co-ordinates of the claim group are 61° 36' N latitude and 129° 52' W longtitude.

Access to the property is by helicopter from the Robert Campbell Highway, situated 5 miles to the southwest of its closest point. In addition, a recently constructed tote road, from the Highway to the claims, can be traversed by bulldozer and sloop to facilitate movement of equipment to and from the property - ground conditions permitting.

Both helicopter and fixed wing aircraft, as well as full expediting services are available in Ross River, approximately 88 miles to the west, northwest. Daily jet service and all essential supply services are also available at Watson Lake, some 122 road miles to the south.

Land Use Permit YA 9F411 covers the access route employed in moving equipment to and from the property.

4.0 TOPOGRAPHY AND VEGETATION

The property covers a high, plateau topped mountain on the west side of the Frances Lake Valley and lies between elevations of 3,500 feet and 5,000 seet A.S.L. Topography ranges from gentle to steep. The claims area is cut by a number of deeply incised southeasterly trending creek canyons.

Treeline is at the 4,000 foot elevation level where birch, poplar, and black spruce give way to scattered scrub balsam, lichen and grasses typical of an arctic-alpine environment.

5.0 GENERAL GEOLOGY

The geology of the entire area has been mapped by the Geological Survey of Canada at a scale of 1 inch to 4 miles, and is presented in Map 6 - 1966, Geology of Frances Lake, Yukon Territory and District of Mackenzie, by E. F. Roots (1953), L. H. Green and J. A. Roddick (1960) and S. L. Blusson (1962, 1965).

The general geology is summarized as follows:

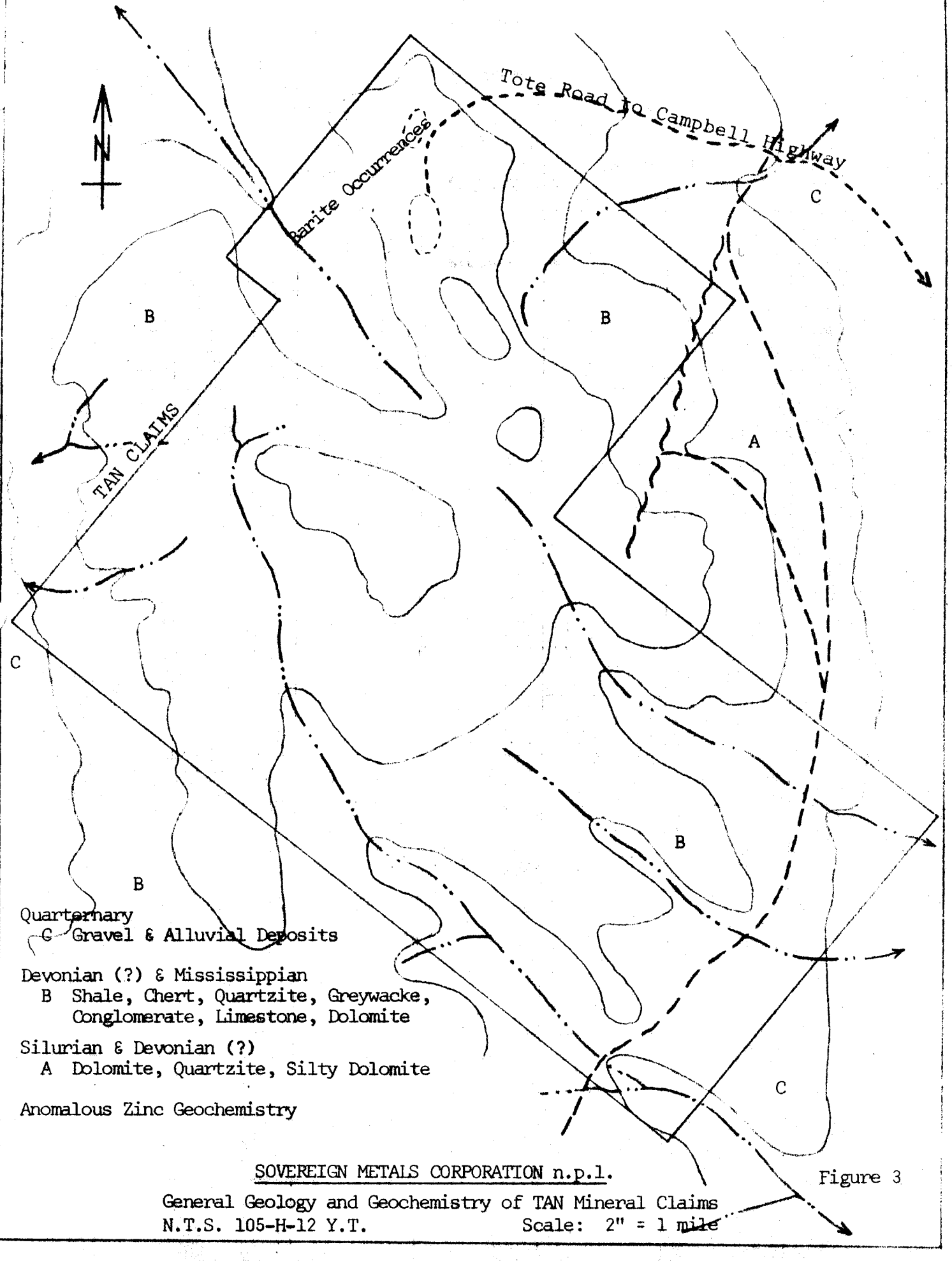
> "The Frances Lake-Finlayson River area is underlain by a thick succession of clastic and carbonate sediments. The TAN claims occur in an area of Devonian to Mississippian shales, certs, quartzites, greywackes, conglomerates, light grey limestones and minor dolomites. These sediments are underlain to the northeast of the property by Silurian to Devonian dolomites, quartzites and silty dolomites."
>
> (after Yeager, 1978)

5.1 PREVIOUS WORK

The presence of barite on ground now covered by the TAN claims was discovered by prospectors employed by Atlas Explorations Ltd. during the late 1960s. The property was examined at that time by T. L. Sadlier-Brown, Geologist.

In 1978 the adjacent drainage was investigated by personnel employed by Pamicon Development Ltd.

A regional stream sediment geochemical survey disclosed the presence of anomalous zinc values occurring over a large area. Approximately one-third of the 91 samples collected in the area were considered anomalous (over 400 p.p.m.) with peak values in the order of 1,000 p.p.m. On the basis



SOVEREIGN METALS CORPORATION n.p.l.

Figure 3

General Geology and Geochemistry of TAN Mineral Claims
N.T.S. 105-H-12 Y.T. Scale: 2" = 1 mile

of these data the TAN 1-72 mineral claims were staked in 1978 by Pamicon Development Ltd. The TAN 73 to 96 claims were added as contiguous claims in March, 1979, in order that the adjacent ground containing barite occurrences be acquired.

Although the geochemical data warrants follow-up investigations, weather conditions have postponed such work. The writer's recent visit to the property was confined to the barite showings and was limited to one day by prevailing weather conditions and rigid time constraints. It does not presently appear that the source of the anomalous base-metal content is directly related to the barite occurrences.

5.2 BARITE OCCURRENCES

In early April, 1979, some of the barite occurrences were trenched using a D7-E bulldozer.

The writer visited the TAN group on May 2, 1979 in order to sample, map and assess the potential of the barite occurrences. Figures 4 and 5 show the locations and local geology of barite veins located to date. A summary of the preliminary potentials is as follows:

Barite: S.G.: 4.3 to 4.7

268 - 293 lbs/cu. ft.

- from this report a specific gravity equal to 250 lbs/cu. ft. has been used for general convenience in the tonnage estimates.

(a) KNOWN OCCURRENCES

Vein A - Although these occurrences are of good
Vein B grade, they are probably too small to be of economic importance at this time.

Vein C - Minimum Dimensions: 5 ft. x 40 ft.

Tons/vert. ft. = 200/8 = 25

Potential for 20 ft. depth (½ strike length)

25 x 20 = 500 tons 500 Tons

Vein D - Minimum Dimensions: 5 ft. x 60 ft.
(Possibly as long as 140 ft.)

Tons/vert. ft. = 300/8 = 37.5

Potential for 30 ft. depth (½ strike length)

37.5 x 30 = 1,125 tons 1,125 Tons

Vein E - Minimum Dimensions: 5 ft. x 40 ft.

Tons/vert. ft. = 200/8 = 25

Potential from 20 ft. depth (½ strike length)

25 x 20 = 500 tons 500 Tons

Vein F - Minimum Dimensions: 5 ft. x 200 ft.

Tons/vert. ft. = 1000/8 = 125

Potential from 100 ft. depth (½ strike length)

125 x 100 = 12,500 tons 12,500 Tons

Total inferred tonnage to date - 14,625 Tons

Minimum inferred tonnage per vertical foot - 212.5

(b) EXPECTED OCCURRENCES

i. Veins C, D, E.

The presence of these veins in close proximity to one another suggests the nature of their occurrence is that of a swarm or stock-work related to local structural events. It is entirely possible that further prospecting in this vicinity will disclose the presence of additional barite bearing veins.

In the above calculations, the inferred lengths of the veins were limited to short distances beyond the outcrops located. Further trenching by hand or mechanical means is expected to increase these lengths and provide continuity between outcrops and float dispersion patterns, with the ultimate result of increasing tonnage potentials.

ii. Vein F.

This vein is located approximately 1,800 feet north, northwest of Veins C, D and E. Nearly continuous outcrops and weathered debris indicate a minimum length of 200 feet and a width of at least 5 feet, swelling to 10 feet in places.

Prospecting and trenching would probably increase the strike length of this vein considerably.

This vein has the largest potential of any found to date on the property. The fact that it occurs 1,800 feet away from the original showings greatly enhances the expectation of veins of similar magnitude occurring in the intervening ground and elsewhere on the property.

iii. Quality

The results of channel samples taken by the writer are contained in Appendix "A". The specific gravity was measured from solid specimens approximately 1" x 2" x 2" in order that the original fabric and porosity would be left intact. Although the barite in Vein "A" is contained within a larger pool of quartz and quartz breccia, the other veins show little evidence of such a relationship and are thus expected to be quite pure, i.e.Vein "C", sample No. 65779. Except for one small part of Vein "A", sulphide metal association with the barite appears negligible. Examination of fresh surfaces from all exposures revealed the barite to be massive, coarsely crystalline and white to near-white in colour.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Several barite veins occur on the TAN group of mineral claims. At this time 4 of the 6 located appear to be of economic importance with a total inferred minimum tonnage potential of about 210 tons per vertical foot. The property warrants further investigation and the following approach is recommended:

(a) Prospecting in the vicinity of and area between Veins A to E and Vein F in order to locate additional barite veins;

(b) Structural analysis of aerial photographs covering the TAN claims;

(c) Geological mapping and sampling of existing and new barite occurrences on the property;

(d) Trenching of all barite occurrences by hand or mechanical means to fully deliniate the veins and subsequently sample them in detail;

(e) Assess the results and produce a revised estimate of the barite tonnage potential for the property;

(f) In formulating future exploration programs on the TAN mineral claims the potential for zinc mineralization and the possibility of the occurrence barite veins within the area of anomalous zinc geochemistry,

should not be overlooked.

Respectfully submitted,

T. C. Scott
May 15th, 1979

Barite vein E

ΔT-16

Tan 80 90 } Rest

ΔT-15

Barite vein F
5' x 200(+) ft

Scale 1" = 40'

Barite vein D

Barite vein C

ΔT-14

Qtz Breccia

ΔT-13

Sample No 65799
(5.6 ft)

Float

Limit of Trench

Sample No 65798
(1.9ft)

ΔT-12

56°

limsile silky brown limestone

barite vein

ΔT-11

Scale: 1" = 10'

ΔT-12

ΔT-4

Trench 4
14' x 150' x 0ft
71 yds moved

Barite vein B

Limit of Trench

barite vein

ΔT-10

Sample No 65797
(0.9ft)

56°

65°

finesle silky brown limestone

30°

Scale 1" = 10'

ΔT-10

ΔT-9

Trench 3
20' x 150' x 0ft
59 yards moved

ΔT-8

Trench 2
76' x 140' x 0ft
32 yards moved

See Accompanying Map

ΔT-1

Barite Vein A

ΔT-2

ΔT-3

ΔT-4

ΔT-5

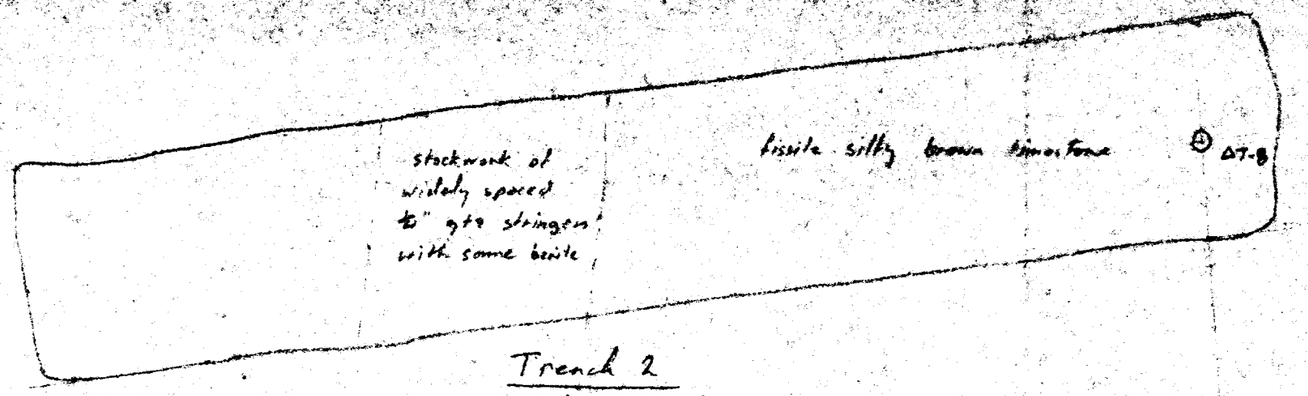
ΔT-6

ΔT-7

Trench 1
approx 0ft x 0ft
90 yards moved

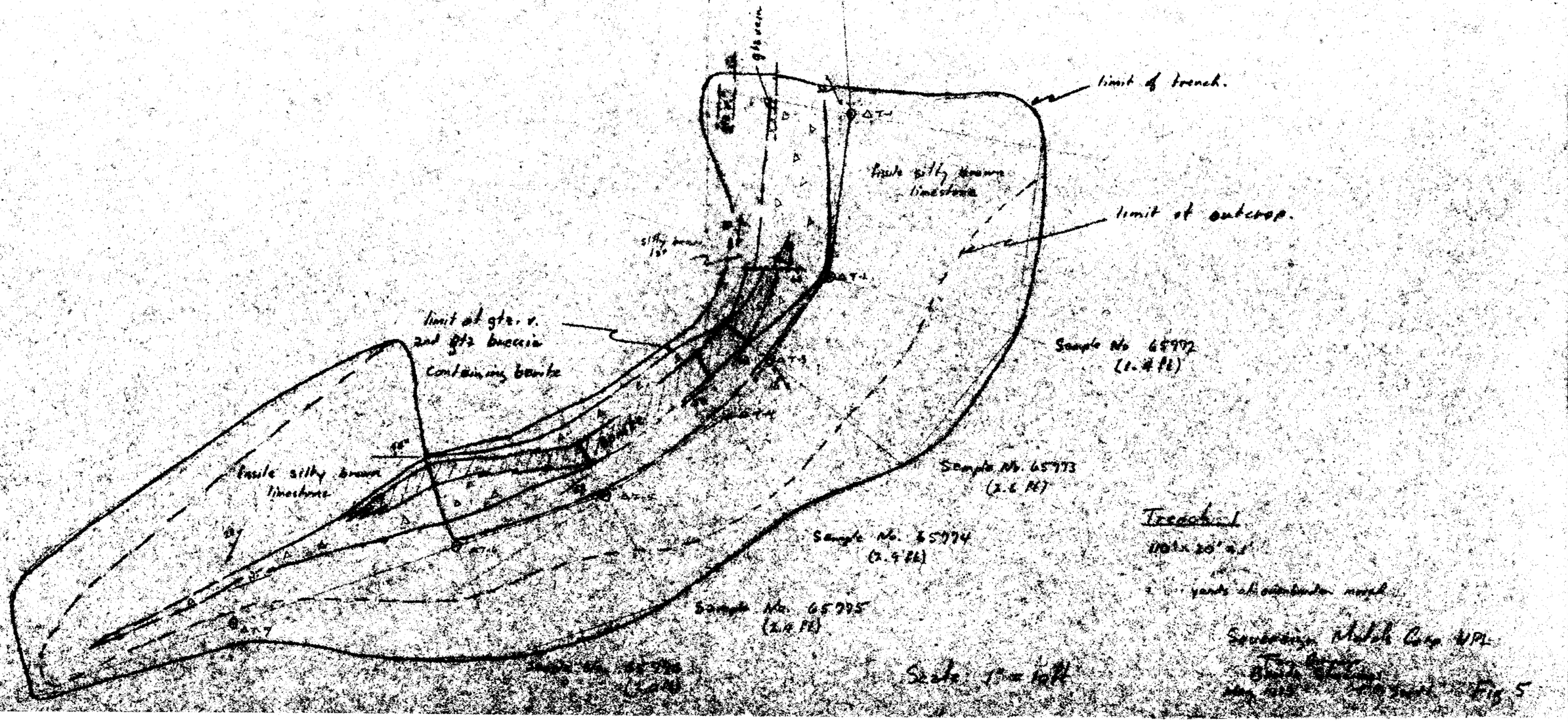
Scale: 1" = 40'

Sacramento Metal Corp MPL



Trench 2

76' x 14' x 1'
= 39 yards of overburden moved



APPENDIX 1

ASSAY RESULTS OF BARITE VEINS SAMPLED

Sample No.	Location	Width	Description	$BaSO_4$%	SiO_2%	CaO%	S.G.
65772	T-2	1.4'	Massive Barite	97.2	0.91	0.03	4.44
65773	T-3	2.6'	Quartz Breccia with Barite	12.8	79.2	0.14	
65774	T-4	2.9'	Barite in Quartz Breccia	89.1	9.14	0.05	
65775	T-5	2.4'	Massive Barite	98.0	0.75	0.04	
65776	T-6	2.0'	Quartz Breccia with Barite	3.08	90.6	0.04	
65777	T-10	0.9'	Barite Vein B	93.7	5.27	0.04	
65778	T-12	1.5'	Barite Vein B	83.7	12.8	0.04	4.41
65779	T-14	5.6'	Barite Vein C	94.8	3.97	0.04	

				$BaSO_4$%	CaO%	Sr%
	TAN 87,88 Post 1	Grab Sample	Barite Vein F	97.3	0.11	0.13

CHEMEX LABS LTD.

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: [redacted] 984-0221
AREA CODE: 604
TELEX 043-52597

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 65210
INVOICE NO. 30266
RECEIVED May 8/79
ANALYSED May 25/79

TO: Sovereign Metals Corp.
305 - 535 Thurlow St.
Vancouver, B.C.
V6E 3L2

ATTN:

CC. T.C. Scott (Pamicon)

SAMPLE NO. :	% $BaSO_4$	% SiO_2	% CaO	Specific Gravity (Bulk density)
65772	97.2	0.91	0.03	4.44
65773	12.8	79.2	0.14	
65774	89.1	9.14	0.05	
65775	98.0	0.57	0.04	
65776	3.08	90.6	0.04	
65777	93.7	5.27	0.04	
65778	83.7	12.8	0.04	4.41
65779	94.8	3.97	0.04	

CTA MEMBER CANADIAN TESTING ASSOCIATION

REGISTERED ASSAYER PROVINCE OF BRITISH COLUMBIA

212 BROOKSBANK AVE.
NORTH VANCOUVER, B.C.
CANADA V7J 2C1
TELEPHONE: 9[redacted] 984-0221
AREA CODE: 604
TELEX: 043 52597

CHEMEX LABS LTD.

• ANALYTICAL CHEMISTS • GEOCHEMISTS • REGISTERED ASSAYERS

CERTIFICATE OF ASSAY

CERTIFICATE NO. 65283

INVOICE NO. 30388

RECEIVED May 29/79

ANALYSED June 4/79

TO: Sovereign Metals Corp.
305 - 535 Thurlow St.,
Vancouver, B.C.
V6E 3L2

ATTN:

SAMPLE NO. :	% $BaSO_4$	% CaO	% Sr
rocks	97.3	0.11	0.13
Barite Vein F near Tan 87, 88 Post 1			

MEMBER
CANADIAN TESTING
ASSOCIATION

REGISTERED ASSAYER, PROVINCE OF BRITISH COLUMBIA

APPENDIX II

SUMMARY OF TRENCHING ON THE TAN MINERAL CLAIMS

Trench 1:	110 ft. x 20 ft. x 1 ft.	=	81.5 yards
Trench 2:	76 ft. x 14 ft. x 1 ft.	=	39.0 yards
Trench 3:	40 ft. x 14 ft. x 2 ft.	=	59.0 yards
Trench 4:	150 ft. x 16 ft. x 0.8 ft.	=	71.0 yards
	Total Overburden Moved		250.5 yards

APPENDIX III

ENGINEER'S CERTIFICATE

I, Charles K. Ikona, of 5 Cowley Court, Port Moody in the Province of British Columbia, do hereby certify that:

1. I am a Consulting Mining Engineer with offices at 208 - 850 West Hastings Street, Vancouver, B.C.
2. I am a graduate of the University of British Columbia with a degree in Mining Engineering.
3. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia.
4. The work reported herein was conducted during a program under my supervision and under the supervision of a geologist, T.C. Scott, whom I have known for a period of years and in whom I have every confidence.

Dated this 5 day of June /79

at VANCOUVER, B. C.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA CHARLES K. IKONA

Charles K. Ikona, P. Eng.

GEOLOGIST'S CERTIFICATE

I, T. Cameron Scott of 1855 West 12th Avenue, Vancouver in the Province of British Columbia, do hereby certify that:

1. I am a geologist with offices at 208 - 350 West Hastings Street, Vancouver, B. C.

2. I am a graduate of the University of British Columbia with a Bachelor of Science Degree (Geology Major).

3. I have been involved in the field of mineral exploration since 1963.

4. This report is based on data gathered by me in the field, while working on behalf of Sovereign Metals Corporation (N.P.L.) on May 2 and May 24, 1979.

Dated this 8 day of June, 1979

at Vancouver, B.C.

T. Cameron Scott, Geologist