

GEOCHEMICAL REPORT  
B.B. CLAIMS, MEADOW CREEK AREA  
KAMLOOPS M.D., B.C.  
50°120° S.W. and N.W.  
FOR  
TOWER MINES LTD. (N.P.L.)  
July 2, to August 17, 1969

No DEPOSIT  
50° 29' - 31'  
120° 44' - 45'

92I/7E, 7W, 10E, 10W

S. S. Tan, B.Sc., E.I.T. & L. J. Manning, P.Eng.  
L. J. Manning & Associates Ltd.  
610 - 890 West Pender Street,  
Vancouver 1, B. C.

February 16, 1970  
File No. 92 I/SE, 69-2  
Roll File 114.

CONTENTS

Introduction	Page 1
Property	Page 1
Location and Access	Page 1
Topography and Vegetation	Page 2
General Geology	Page 2
Survey Control	Page 2
Soil Sampling Procedure	Page 2
Sample Preparation and Laboratory Analysis	Page 3
Results and Interpretation	Page 3
Conclusions	Page 3

MAPS

#1 1. Claim Location Map and Grid	In Pocket
#2 2. Geochemical Soil Survey - B.B. Claims	In Pocket

APPENDIX

Geochemical Lab Report--Bondar-Clegg & Co.	At rear
--	---------

Department of  
Mines and Petroleum Resources  
ASSESSMENT REPORT  
NO. 2252 MAP

# L. J. MANNING & ASSOCIATES LTD.

CONSULTING MINING ENGINEERS

610-890 WEST PENDER STREET

VANCOUVER 1, B.C.

OFFICE PHONE:  
683-5861

RESIDENTIAL PHONE:  
L. J. MANNING - 985-5690

## INTRODUCTION:

The following report is based on results of a geochemical soil sampling programme conducted on the B.B. claims, between July 2nd and August 17th, 1969, under the supervision of S. S. Tan, Geologist.

## PROPERTY:

The property consists of 64 contiguous mineral claims in the Kamloops Mining Division. Tower Mines Ltd. (N.P.L.), by Bill of Sale from E. E. North, is the recorded owner of the claims.

<u>Claim Name</u>	<u>No. of Claims</u>	<u>Record Number</u>	<u>Expiry Date</u>
B.B. 1-64	64	76821-76884	March 5, 1970

## LOCATION AND ACCESS:

Approximate Co-ordinates: Longitude 120°44'W  
(Center of Property) Latitude 50°30'N

Ref. N.T.S. Sheet 92 I/SE, Merritt, B. C.

The property lies to the north of Meadow Creek in the Kamloops Mining Division. The south property boundary is adjacent to the Mammit Lake--Kamloops all-weather gravel road. Kamloops and Mammit Lake are 28 miles and 12 miles respectively by road from the property.

TOPOGRAPHY AND VEGETATION:

Elevation ranges from 3,900 feet a.m.s.l. to 4,800 feet a.m.s.l. The terrain is undulating, but is interrupted by ridges having positive local relief of up to 200 feet. Southerly flowing tributaries of Meadow Creek drain the area.

Spruce, Jackpine and meadows are scattered over the property.

GENERAL GEOLOGY:

G.S.C. map 886A indicates Triassic Nicola Volcanic rocks underlie the property. Outcrops examined are all andesitic and basaltic lava flows. The only copper showing occurs in basalt flow top and consists of chalcocite dissemination and stringers.

SURVEY CONTROL:

An east-west brunton compass surveyed and chained base line was established along the center of the property. Cut and flagged north-south lines were turned off at 400 foot spacing. Local topographic features, creeks, lakes, etc., the main road, and claim posts were tied into the grid. Twelve claims on the north-west side of the property were not covered by the grid.

SOIL SAMPLING PROCEDURE:

Soil samples were taken on a line grid basis. Samples were taken at 400 foot picket stations on grid lines except in the vicinity of the showing where 200-foot stations were used (see map). A shovel was used to reach the "B" horizon. This horizon varies from poorly to well developed and is from 2 inches to 6 inches thick. 30 - 40 grams of the "B" horizon soil was placed in a standard 4" x 9" soil sample envelope. Drainage, slope, swamp, etc. were marked on the envelope of each corresponding sample location and later transferred to record sheets.

Samples were partially air-dried and shipped to Bondar-Clegg & Company, Geochemist, North Vancouver, for analysis:

SAMPLE PREPARATION AND LABORATORY ANALYSIS:

Bondar-Clegg treated the samples as follows:

- Drying
- Visual determination of soil type and organic content
- Sieve to -80 mesh fraction
- Hot extraction by Aqua Regia ( $\text{HNO}_3\text{HCl}$ )
- Atomic absorption analysis for copper in parts per million.

RESULTS AND INTERPRETATION:

A total of 706 soil samples were taken in the survey. Calculated threshold value is 80 ppm Cu, which is double the median. Values in excess of 80 ppm are considered to be probably anomalous. Laboratory determination of organic content of samples eliminates the spurious anomalies resulting from incorrect sampling of the "A" soil horizon. Several zones of copper anomalies are indicated by the survey (see map).

CONCLUSIONS:

The soil anomaly over the copper showing is localized and of limited areal extent. However, three other larger anomalies of the same order of copper concentration in soil, i.e. greater than 100 ppm are present in the area, viz:

- ( i) Centered at 16 + 00W, 24 + 00S, trending northeasterly for 2,500 feet.
- ( ii) Between Line 0 + 00 and Line 4 + 00W at 16 + 00N, trending east-west.
- (iii) At the north end of lines 40 + 00W and 44 + 00N.

All three anomalies could reflect underlying mineralization of a similar type as that encountered in the showing. The north-south linear anomalies at the south end of Line 12 + 00W and north of the beginning of Line 60 + 00W are also noteworthy.

Respectfully submitted,

L. J. MANNING & ASSOCIATES LTD.

*S. S. Tan*

\_\_\_\_\_  
S. S. Tan, B.Sc., E.I.T.

*L. J. Manning*

\_\_\_\_\_  
L. J. Manning, P.Eng.

SST:mjb

CERTIFICATE

I, Siak S. Tan, residing at 310 - 1965 West 8th Avenue, in the City of Vancouver, Province of British Columbia, hereby certify that:

1. I am employed as a geologist by L. J. Manning and Associates Ltd., with offices at 610 - 890 West Pender Street, Vancouver, B. C.
2. I am a graduate of Carleton University, Ottawa, Ontario, B.Sc. (Geology) in 1964, and have practiced my profession since that time.
3. I have successfully completed, by examination, the academic requirements for admission to membership of the Association of Professional Engineers of British Columbia, and am presently enrolled as an Engineer-in-Training.
4. I have no interest, direct or indirect, in the properties or securities of Tower Mines Ltd. (N.P.L.) or any of its affiliates, nor do I expect to receive any such interest.
5. that the report on the B.B. Claims of Tower Mines Ltd. is based on results of a geochemical soil sampling program conducted on these claims between July 2nd and August 17th, 1969 under my supervision.

DATED at Vancouver, British Columbia this 16th day of February 1970.

*S. S. Tan*

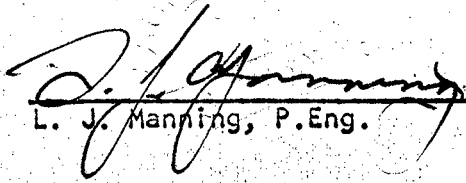
\_\_\_\_\_  
S. S. Tan, B.Sc., E.I.T.

CERTIFICATE OF QUALIFICATIONS

I, Luard J. Manning, P.Eng., Mining, of 945 Belvedere Drive, North Vancouver, B. C. certify as follows:

1. That I am a graduate of the University of British Columbia and hold a Bachelor of Applied Science degree in Mining Engineering.
2. That I have been a member of the Association of Professional Engineers of Ontario since 1959 and a member of the Association of Professional Engineers of British Columbia since April, 1966.
3. That I have been engaged in the profession of mining engineering for over 15 years.
4. That I was a member of the engineering and supervisory staff of the Taxco Unit of the American Smelting and Refining Co. Ltd. from 1951 to 1953.
5. That in 1953 I joined the staff as chief engineer of Giant Mascot Mines Ltd., Spillimacheen, B. C. and remained there until 1955.
6. That from 1955 to 1957 I was employed by Rix Athabasca Uranium Mines Ltd. as chief engineer and assistant manager.
7. That from 1957 to 1965 I was employed at the Pronto Division of Rio Algom Mines Ltd. in various capacities at both the uranium mine and the copper mine.
8. That from August to December 1965 I was Resident Manager at Orecan Mines Ltd.
9. That from January 1966 I have been involved in general exploration and consulting work.
10. That I am, at present, the principal in the firm of L. J. Manning & Associates Ltd. of Vancouver, a firm of consulting mining engineers.
11. That I concur with the conclusions of the report by S. S. Tan, Geologist of this firm on the B. B. Claims of Tower Mines Ltd., the basis of which is the results of a geochemical soil sampling program done under his supervision between July 2nd and August 17th, 1969.
12. That I do not hold any financial or other interest in the properties or stock of Tower Mines Ltd. (N.P.L.) or any of its affiliates nor do I expect to do so in the future.

Dated at Vancouver, B. C. this 16th day of February, 1970.

  
L. J. Manning, P.Eng.





## BONDAR-CLEGG &amp; COMPANY LTD.

1500 PEMBERTON AVENUE, NORTH VANCOUVER, B.C.

PHONE 988-5315

## GEOCHEMICAL LAB REPORT

No. 29-310

*run this 13*Extraction.....  $\text{HNO}_3$  -HCl

From..... L. J. Manning &amp; Associates, Ltd.

Method..... Atomic Absorption

Date..... August 25 1969

Fraction Used..... -80 mesh

Analyst..... D.M.

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT 69 489	66	BT 69 519	46	ND - Not Detected
490	63	520	27	
491	75	521	30	Copies To:
492	75	522	32	1. S. S. Tan
493	30	523	60	Ashcroft, B.C.
494	32	524	39	2. L. J. Manning
495	25	525	35	Vancouver, B.C.
496	3	526	24	
497	41	527	30	503* (STN 8+00S)
498	25	528	43	503 (STN 12+00S)
499	27	529	48	
500	33	530	47	
501	28	531	40	
502	25	532	44	
503*	49	533	55	
503	48	534	44	
504	56	535	35	
505	35	536	55	
506	40	537	44	
507	45	538	25	
508	36	539	72	
509	74	540	48	
510	39	541	31	
511	17	542	40	
512	29	543	53	
513	33	544	46	
514	47	545	31	
515	44	546	34	
516	25	547	36	
517	30	548	51	
518	74	549	37	

RECEIVED AUG 28 1969

**GEOCHEMICAL LAB REPORT**

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT 69 550	155	BT 69 586	33	
551	27	587	40	
552	35	588	32	
553	72	589	41	
554	50	590	27	
555	44	591	33	
556	51	592	27	
557	41	593	20	
558	33	594	23	
559	40	595	33	
560	30	596	60	
561	30	597	30	
562	25	598	28	
563	29	599	30	
564	37	600	35	
565	33	601	35	
566	44	602	35	
567	50	603	52	
568	30	604	35	
569	60	605	25	
570	60	606	41	
571	20	607	36	
572	18	608	57	
573	25	609	34	
574	41	610	34	
575	26	611	35	
576	28	612	27	
577	32	613	25	
578	32	614	24	
579	40	615	25	
580	30	616	29	
581	48	617	34	
582	35	618	20	
583	30	619	23	
584	33	620	32	
585	31	621	33	

**GEOCHEMICAL LAB REPORT**

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT 69 622	29	BT 69 658	42	
623	44	659	45	
624	53	660	48	
625	27	661	44	
626	57	662	69	
627	67	663	34	
628	35	664	35	
629	35	665	30	
630	35	666	51	
631	50	667	53	
632	25	668	17	
633	52	669	15	
634	33	670	30	
635	22	671	15	
636	32	672	25	
637	30	673	39	
638	34	674	27	
639	24	675	10	
640	105	676	48	
641	108	677	41	
642	29	678	35	
643	32	679	28	
644	25	680	60	
645	30	681	32	
646	24	682	37	
647	40	683	20	
648	35	684	30	
649	35	685	29	
650	46	686	37	
651	29	687	32	
652	34	688	57	
653	33	689	43	
654	36	690	25	
655	75	691	44	
656	30	692	68	
657	60	693	36	

**GEOCHEMICAL LAB REPORT**

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT 69 694	35	BT 69 730	66	
695	50	731	38	
696	45	732	35	
697	75	733	35	
698	17	734	47	
699	17	735	57	
700	20	736	40	
701	68	737	38	
702	71	738	37	
703	33	739	53	
704	27	740	65	
705	25	741	73	
706	35	742	46	
707	61	743	60	
708	60	744	60	
709	53	745	60	
710	70	746	59	
711	65	747	57	
712	31	748	75	
713	32	749	74	
714	34	750	45	
715	43	751	40	
716	30	752	45	
717	29	753	50	
718	30	754	45	
719	29	755	35	
720	24	756	34	
721	25	757	33	
722	30	758	40	
723	67	759	40	
724	70	760	35	
725	36	761	39	
726	43	762	33	
727	25	763	34	
728	29	764	51	
729	66	765	56	

**GEOCHEMICAL LAB REPORT**

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT 69 766	30	BT 69 802	123	
767	41	803	60	
768	33	804	43	
769	52	805	54	
770	40			
771	70			
772	70			
773	55			
774	47			
775	74			
776	44			
777	50			
778	60			
779	125			
780	23			
781	43			
782	38			
783	38			
784	38			
785	36			
786	46			
787	54			
788	53			
789	64			
790	43			
791	36			
792	30			
793	25			
794	36			
795	35			
796	47			
797	45			
798	33			
799	42			
800	66			
801	55			

**GEOCHEMICAL LAB REPORT**

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT69 452	43	BT69 488	45	* Out of Order
453	20	069*	10	
454	10			
455	106 /			
456	48			
457	33			
458	29			
459	27			
460	30			
461	40			
462	55			
463	51			
464	60 /			
465	32			
466	34			
467	90 /			
468	60 /			
469	50			
470	35			
471	26			
472	42			
473	81 /			
474	22			
475	24			
476	44			
477	25			
478	22			
479	31			
480	66			
481	55			
482	35			
483	20			
484	34			
485	41			
486	34			
487	30			

end of Line 22

## GEOCHEMICAL LAB REPORT

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT69 380	23	BT69 416	15	
381	20	417	25	
382	60 /	418	15	
383	19	419	20	
384	19	420	30	
385	34	421	25	
386	30	422	20	
387	34	423	64 /	
388	50	424	16	
389	86 /	425	15	
390	45	426	46	
391	45	427	25	
392	35	428	32	
393	32	429	15	
394	18	430	34	
395	31	431	30	
396	45	432	15	
397	35	433	20	
398	32	434	33	
399	30	435	20	
400	10	436	40	
401	40	437	26	
402	28	438	52	
403	45	439	37	
404	26	440	23	
405	28	441	30	
406	23	442	65 /	
407	34	443	100 /	
408	15	444	35	
409	18	445	25	
410	23	446	69 /	
411	23	447	42	
412	15	448	29	
413	17	449	43	
414	23	450	42	
415	36	451	34	

**GEOCHEMICAL LAB REPORT**

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT69 308	26	BT69 344	10	
309	40	345	15	
310	18	346	25	
311	18	347	65	
312	18	348	28	
313	13	349	45	
314	22	350	10	
315	20	351	25	
316	14	352	28	
317	15	353	30	
318	17	354	42	
319	28	355	30	
320	35	356	45	
321	27	357	30	
322	23	358	35	
323	50	359	25	
324	40	360	49	
325	42	361	32	
326	10	362	57	
327	25	363	43	
328	45	364	41	
329	43	365	35	
330	41	366	34	
331	20	367	25	
332	27	368	40	
333	33	369	26	
334	34	370	31	
335	34	371	10	
336	35	372	18	
337	33	373	15	
338	28	374	10	
339	15	375	14	
340	10	376	45	
341	17	377	25	
342	20	378	18	
343	15	379	25	



**GEOCHEMICAL LAB REPORT**

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT69 216	40	BT69 263	18	* Out of Order on
218	54	264	30	this page
219	38	265	57	
220	43	266	40	
221	41	267	42	
222	40	268	43	
223	40	270	47	
224	33	272	46	
225	30	274	40	
226	53	276	21	
227	53	278	45	
228	43	280	34	
230	39	282	20	
232	33	284	23	
234	18	286	25	
236	25	287	30	
238	40	288	25	
240	15	289	20	
242	25	290	28	
244	32	291	15	
248	46	292	45	
249	53	293	40	
250	49	294	54	
251	49	295	30	
252	26	296	45	
253	37	297	40	
254	30	298	53	
255	18	299	44	
256	45	300	15	
257	45	301	27	
258	50	302	38	
259	34	303	26	
260	34	304	50	
261	22	306 <sup>a</sup>	25	
262	20	306 <sup>b</sup>	50	
229 *	60	307	40	

**GEOCHEMICAL LAB REPORT**

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT69 102	40	BT69 159	22	
104	25	161	27	
106	22	163	35	
108	45	165	17	
110	26	167	37	
112	34	169	29	
113	60 ✓	170	55	
114	30	171	43	
115	50	172	45	
116	28	173	41	
117	22	174	29	
118	48	175	49	
119	52	176	27	
120	46	177	41	
121	40	178	51	
122	22	180	35	
123	30	182	25	
124	105 ✓	184	18	
125	60 ✓	186	20	
126	34	188	14	
127	49	190	30	
128	30	192	30	
129	48	194	35	
131	22	196	45	
133	15	197	35	
138	18	198	37	
140	22	199	60 ✓	
142	22	200	38	
144	15	201	18	
146	26	203	62 ✓	
148	37	205	25	
150	34	207	25	
151	43	209	25	
153	35	211	10	
155	34	212	15	
157	34	214	46	

BT level  
coil

RECEIVED AUG 13 1969  
BONDAR GLEGG & COMPANY LTD.

geologists • geochemists • analysts

1500 PEMBERTON AVENUE, NORTH VANCOUVER, B.C.

PHONE 988-5315

**GEOCHEMICAL LAB REPORT**

No. 29-259

Extraction HNO<sub>3</sub> - HCl

From L. J. Manning & Associates

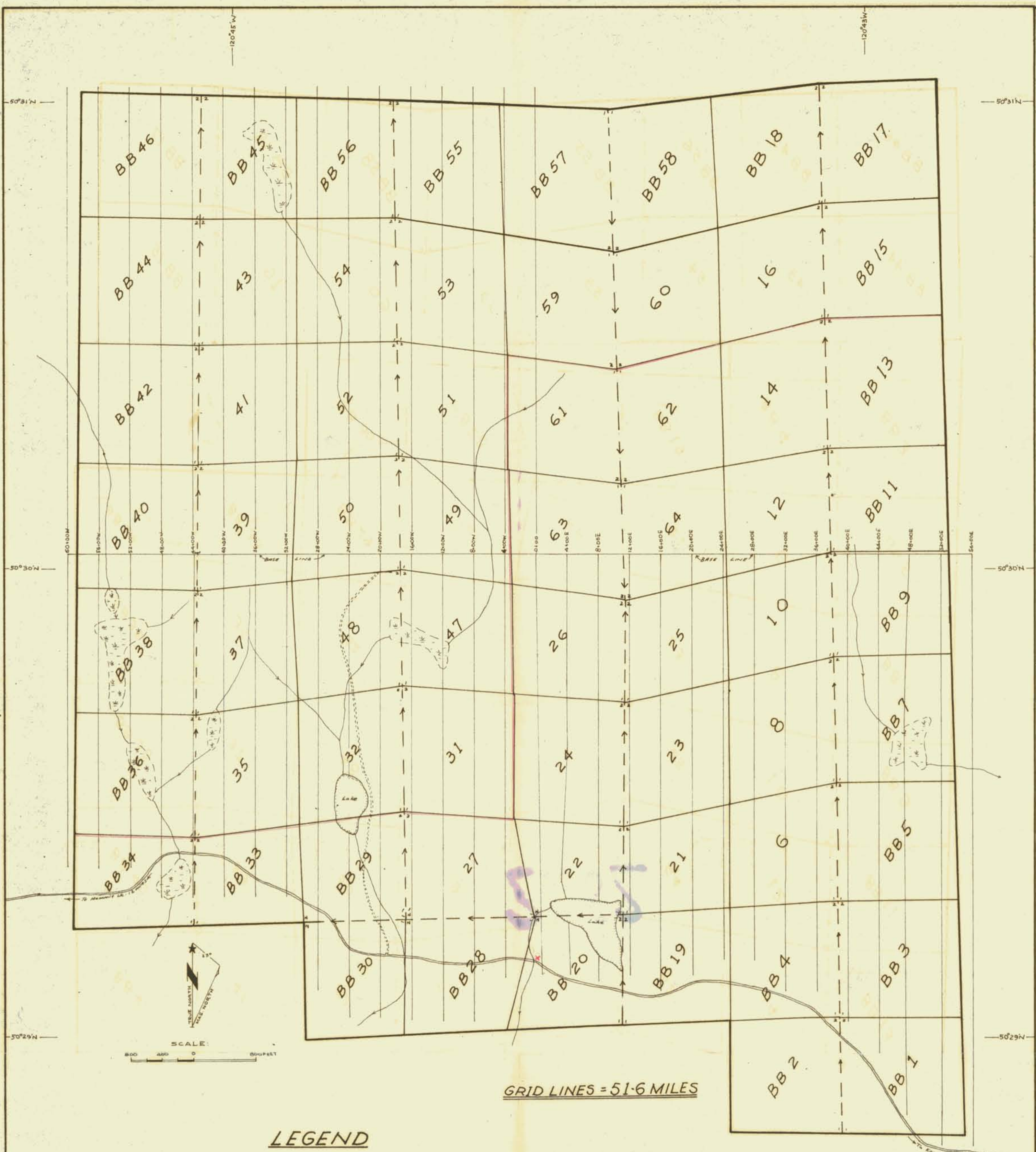
Method Atomic Absorption

Date August 12 1969

Fraction Used -80 mesh

Analyst D. M. D. R.

SAMPLE NO.	Cu ppm	SAMPLE NO.	Cu ppm	REMARKS
BT69 001	65	BT69 057	94	ND - Not Detected
003	95 ✓	058	71	Copies to:
005	110 ✓	059	100	1. L. J. Manning
007	60 ✓	060	65	Van. Office
009	96 ✓	062	109	2. Mr. S. S. Tan
011	65 ✓	061	71	Ashcroft, B. C.
013	90 ✓	063	34	
015	92 ✓	065	45	
017	42	067	51	
019	60 ✓	071	18	
021	60 ✓	073	20	
023	50	075	40	
025	35	077	25	
027	35	079	29	
029	51	081	40	
031	80 ✓	082	68	
032	33	083	10	
034	64 ✓	084	15	
036	90 ✓	085	17	
040	79 ✓	086	39	
042	115 ✓	087	30	
044	25	088	29	
046	60 ✓	089	37	
048	60 ✓	090	50	
050	45	091	35	
051	42	092	39	
052	46	093	39	
053	37	094	43	
054	70 ✓	096	65	
055	82 ✓	098	18	
056	95 ✓	100	26	



GRID LINES = 51.6 MILES

**LEGEND**

- LOCATION LINE & DIRECTION .....
- CLAIM BOUNDARY .....
- INITIAL POST, FINAL POST .....
- CLAIM NAME .....
- BASE LINE .....
- GRID LINES .....
- ROAD .....
- LAKE .....
- CREEK .....
- SWAMP .....

**2252**

TOWER MINES LTD.(N.P.L.)	
<b>CLAIMS LOCATION &amp; GRID LINES</b>	
<b>BB CLAIMS</b>	
MEADOW CREEK AREA, KAMLOOPS M.D., B.C.	
L.J. MANNING & ASSOCIATES LTD. CONSULTING ENGINEERS VANCOUVER, B.C.	
DRAWN BY: - S.S. Tan	CHECKED BY: -
SURVEYED BY: - S. Tan, K.L. St.	FILE NO. - 114
DATE: - Feb. 16 - 1970	DTS. No. - 2

*S.S. Tan*  
Feb. 16, 1970

To accompany: Geochemical report by S.S. Tan, B.Sc. E.I.T., on the BB claims, Meadow Creek area, Kamloops M.D. dated Feb. 16/1970.

TOWER MINES LTD. (N.P.L.)  
**GEOCHEMICAL SOIL SURVEY**  
 [COPPER - P.P.M.]  
 B.B. CLAIM GROUP, MEADOW CR. AREA  
 KAMLOOPS M.D., BRITISH COLUMBIA.

— CONSULTING ENGINEERS —  
 L.J. MANNING & ASSOCIATES LTD.  
 VANCOUVER, B.C.

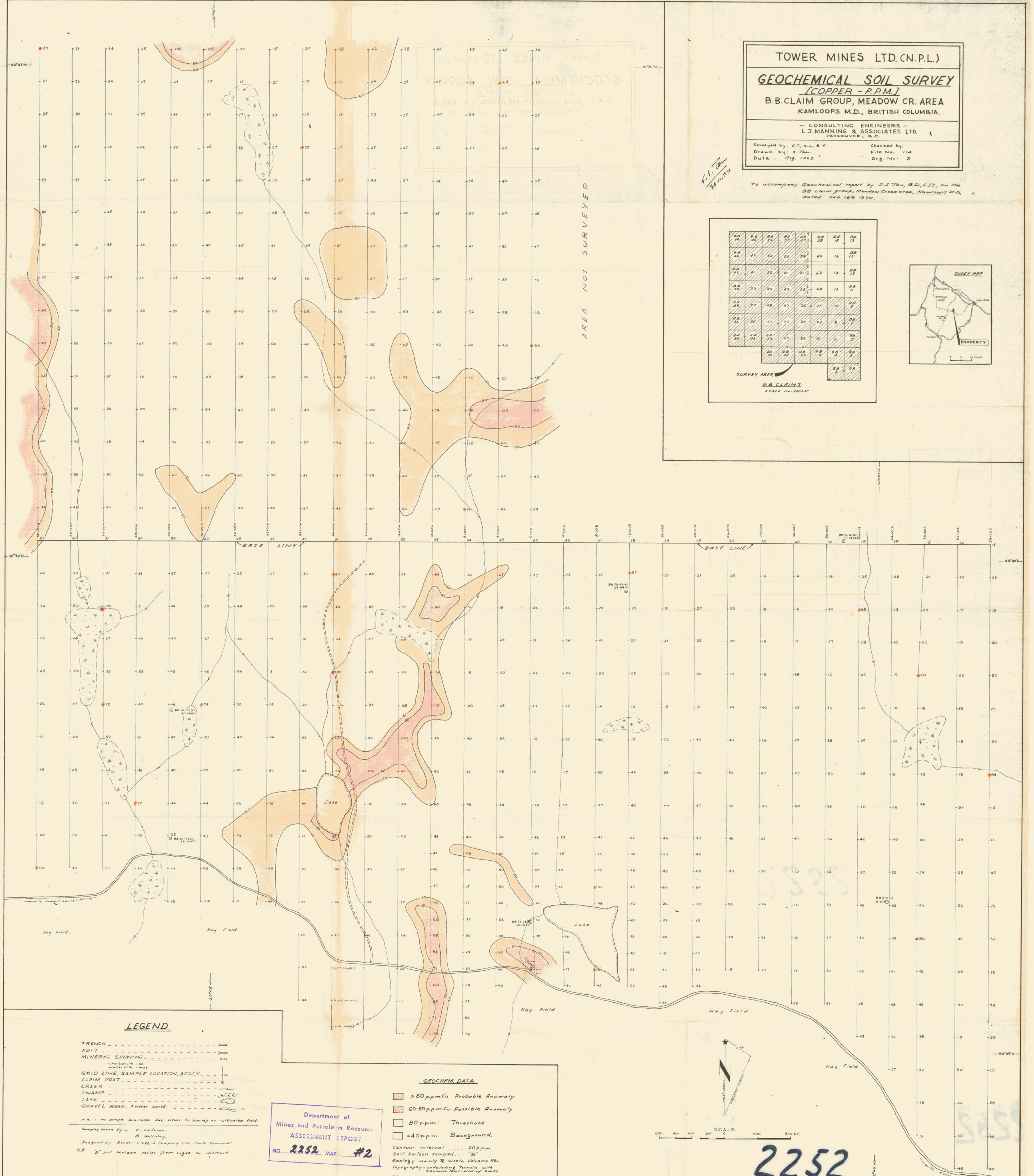
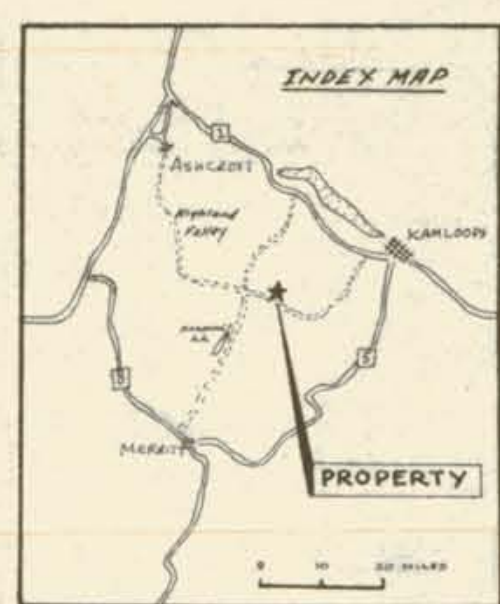
Surveyed by: S.T., E.L., B.H. Checked by:  
 Drawn by: S.T. File No: 114  
 Date: Aug. 1969. Drg. No: 2

To accompany Geochemical report by S.T. Tan, B.Sc., E.I.T., on the  
 BB claim group, Meadow Creek area, Kamloops M.D.,  
 dated Feb. 16<sup>th</sup> 1970.

5.5  
7/11/70

BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53
BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53
BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53
BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53
BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53
BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53
BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53
BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53
BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53
BB 44	BB 45	BB 46	BB 47	BB 48	BB 49	BB 50	BB 51	BB 52	BB 53

SURVEY AREA  
 BB CLAIMS  
 SCALE 1:10000



AREA NOT SURVEYED

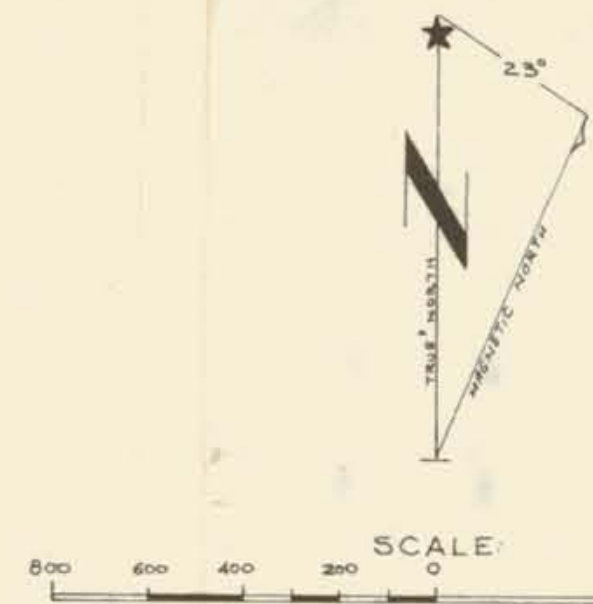
**LEGEND**

- TRENCH ————
  - ADIT ————
  - MINERAL SHOWING ————
  - GRID LINE, SAMPLE LOCATION, ASSAY ————
  - CLAIM POST ————
  - CREEK ————
  - SWAMP ————
  - LAKE ————
  - GRAVEL ROAD, 4 meters wide ————
- A.A. = No sample available due either to swamp or cultivated field.  
 Samples taken by: K. LaFever  
 B. Halliday  
 Inspected by: Bender-Clegg & Company Ltd., North Vancouver.  
 "B" soil horizon varies from vague to distinct.

**GEOCHEM DATA**

- >80ppm Cu Probable Anomaly
  - 60-80ppm Cu Possible Anomaly
  - 80ppm Threshold
  - <40ppm Background
- Contour interval ..... 20ppm.  
 Soil horizon sampled: "B"  
 Geology mainly Nicola Volcanic Rk.  
 Topography undulating terrain with  
 maximum elevation of 2000 ft.  
 Flora - meadow grass, spruce, jack pine.

Department of  
 Mines and Petroleum Resources  
**ASSESSMENT REPORT**  
 NO. 2252 MAP #2



SCALE 1:10000

2252