'80-#595-# 8397

GEOCHEMICAL REPORT

ON A

SOIL GEOCHEMISTRY SURVEY

R CLAIM GROUP

HOMFRAY LAKE, KAMLOOPS M.D., B. C.

R CLAIM GROUP	:	36 km S.W. of Kamloops, B.C. on Homfray Lake
	:	50^{o} 120^{o} S.W.
	:	N.T.S. 92I/7E
Written for	:	Thunderbolt Resources Ltd. 509-850 West Hastings Street, Vancouver, B.C.
By	:	David G. Mark GEOTRONICS SURVEYS LTD., 403-750 West Pender Street, Vancouver, B.C.
Dated	:	July 14, 1980

GEOTRONICS SURVEYS LTD.
Engineering & Mining Geophysicists
VANCOUVER, CANADA

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SUMMARY

A soil geochemistry survey was carried out over the R Claim Group during the middle part of April, 1980. The purpose of the survey was to locate zones of copper, zinc, molybdenum and silver mineralization.

The R Claim Group is located 36 km S.W. of Kamloops on the west side of Homfray Lake. Access to much of the property is easily gained by a two-wheel drive vehicle. The terrain consists of mainly gentle to moderate slopes forested with coniferous trees, some underbrush and swamp.

Previous work on the property consists of VLF-EM, magnetic and geological surveys.

The property is mainly underlain by Upper Triassic Nicola Group volcanics. The two main rock types are red and grey volcanics which are separated by a northwest-trending contact zone through the centre of the property. The structural trend on the property is predominantly northwest and secondarily northeast and north. Alteration noted has been epidote, chlorite and carbonate. No mineralization has so far been noted on the claims although much occurs in the general area.

On the soil geochemistry survey, the B horizon was sampled and all samples subsequently analyzed for copper, zinc, molybdenum and silver by the hot acid extraction method. The results were then statistically analyzed, plotted and contoured.

CONCLUSIONS

1. There were six main anomalous zones revealed by the soil geochemistry survey. The two most interesting ones were A and D.

2. A shows economic potential because of the number of anomalous values in copper, zinc and molybdenum. It therefore has length, on top of which it is open to the east. It occurs adjacent to Homfray Lake, and therefore the possibility exists that the anomalous values are due to the metal ions migrating and concentrating near the lake.

3. Anomaly D is a strong but small copper anomaly with correlating zinc values. There is alteration noted in a nearby outcrop and it correlates with a VLF-EM anomaly as well as a fault indicating it is structurally controlled. Nearby Anomaly E has similar features.

RECOMMENDATIONS

Though the results can be considered encouraging, they are not considered exciting. There are very few values that are significantly above background.

The writer recommends continuing with Sookochoff's engineering program, though cautiously. The anomalies should be tested by the IP method, but the writer would say, only if there is an IP crew in the area.

GEOCHEMICAL REPORT

ON A

SOIL GEOCHEMISTRY SURVEY
R CLAIM GROUP

HOMFRAY LAKE, KAMLOOPS M.D., B.C.

INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of data, and the interpretation of a soil geochemistry survey carried out on the R Claims during April, 1980. 11.8 km of survey lines were sampled with the number of samples picked up being 387.

The primary purpose of the survey was to locate potential areas for the occurrence of sulphide mineralization. In the area of the property several prospects contain copper, gold and silver mineralization. Zinc mineralization is found throughout the Nicola rocks, especially near intrusives.

PROPERTY AND OWNERSHIP

The R Claim Group consists of six claims of one unit each staked under the two post system as shown on Figure 2 and as described below:

Claim Name	Total No.Units	Record No.	Expiry Date
R3-R8	6	1266-1271	June 9, 1983

Three additional years have been applied for assessment and if accepted, the new expiry date will be June 9, 1986.

The property is owned by Thunderbolt Resources Ltd. of Vancouver, British Columbia.

LOCATION AND ACCESS

The claims are located 36 km southwest of Kamloops within the Kamloops Mining Division on the south shore of Homfray Lake.

The geographical co-ordinates are 50^{o} 27' N latitude and 120^{o} 42' W longitude.

Access is 48 km south along the Lac le Jeune Road from Highway No. 1 to the Dupont Lake dirt road. The property is found 4 km along the dirt road.

PHYSIOGRAPHY

The R Claims lie in the southern part of the physiographic division known as the Thompson Plateau, which is part of the Interior Plateau System. The terrain is generally that of flat or rolling hills over all of the property. Its trend is southeast-northwest. The elevation varies about 160 m from a low of 1280 m on Homfray Lake to a high of 1440 m on the south edge of the property.

The vegetation is largely fir and spruce with underbrush and some swampland.

Water sources for the property are Homfray Lake on the north-eastern corner of the property as well as a northerly flowing stream through the center of the property that drains into Homfray Lake.

HISTORY OF PREVIOUS WORK

Work of all types has been done in the general area as well as on the property itself before it was staked. Since its staking in April, 1979, geological mapping, a magnetic survey and a VLF-EM survey have been carried out. The results are discussed in two reports by L. Sookochoff.

GEOLOGY

The following is summarized from Sookochoff's mapping of the property.

"The R Claims are located within a 40 km wide arcuate north-south trending band of Upper Triassic sediments and volcanics. This Nicola Group stretches from Princeton in the south through Merritt and beyond Kamloops Lake to the north. Peripheral rocks are predominantly intrusives in addition to Cretaceous and younger sediments and volcanics. Stocks and plugs of intrusives are occassionally evident within the Nicola rocks.

"The claims cover a red and a grey volcanic sequence which are in a northwesterly contact through the central portion of the property. The inferred contact zone correlates with a structural direction as indicated from the VLF-EM survey.

Other parallel structures are indicated which may indicate obscured contact zones.

"The red volcanic sequence occurs to the east of the contact zone. The texture of the flows is of a very fine grained matrix with occasional feldspar phenocrysts. The matrix contains moderate red hematite disseminations which could be a metamorphic derivation from the original volcanic constituents.

"The gray volcanics are comprised of an aphanitic to fine grained matrix with associated moderate feldspar and/or augite phenocrysts.

"A general alteration pattern was not evident although epidote, chlorite and carbonate were obvious.

"The major structure appears to be a northwesterly trending contact zone across the central portion of the claim group. Northerly and more evident (VLF-EM) northeasterly structural directions are indicated.

"The three structure directions are also manifest in topographical expressions and on smaller scale structure such as fault or fractures within outcrops.

"Sulphide mineralization was not evident on the property."

SOIL GEOCHEMISTRY

1. Survey Procedure:

The soil sampling was carried out on a grid previously established by the VLF-EM survey - that is the baseline runs east-west and the survey lines run north-south at intervals of 100 meters.

The samples were picked up on the survey lines at 30-meter centers. The soil horizon sampled was B which was dark brown to reddish-brown colour. The samples were taken at an 8- to 15-cm depth by a mattock and placed in brown, wet-strength paper bags with the grid coordinates marked thereon.

2. Testing Procedure:

All samples were tested by Acme Analytical Laboratories of Burnaby, B.C. The sample is first thoroughly dried and then sifted through a -80 mesh screen. A measured amount of the sifted material is then put into a test tube with subsequent measured additions of hot aqua regia. This mixture is next diluted with water. The parts per million (ppm) copper, zinc, molybdenum and silver was then measured by atomic absorption.

3. Treatment of Data:

The values in ppm copper and zinc were first grouped into a logarithmic interval of 0.1. The cumulative frequency for each interval was then calculated and then plotted against the correlating interval to obtain the logarithmic cumulative frequency graphs as shown in Figure 3. The silver and molybdenum values were not statistically analyzed since the range of their values were severely limited.

The co-efficient of deviations, indicative of the range or spread of values, for copper and zinc were calculated to be 0.22 and 0.10 respectively. These indicate a moderate mobility of the copper and a low mobility of the zinc ions.

The mean background value for each copper and zinc is taken at the 50% level. The sub-anomalous threshold value (a term used by the writer to denote the minimum value that is not considered anomalous but still important as an indicator of mineralization), is taken at one standard deviation from the mean background value which is at the 16% level and the anomalous threshold value is two standard deviations away at the 2½% level.

For the silver and molybdenum values, the above parameters were determined by "eyeballing".

The subsequent parameters for each element are thus as follows:

	Copper	Zinc	Silver	Molybdenum
Mean background value	20	48	0.1	1.0
Sub-anomalous threshold value	34	62	0.2	2.0
Anomalous threshold value	54	76	0.3	3.0

The copper, zinc, silver and molybdenum results were then subsequently plotted on Sheets 1 to 4, respectively, at a scale of 1:3,000(1 cm = 30 m) and then contoured at intervals close to the standard deviations. The sub-anomalous contours

were dashed in and the anomalous contours drawn in solid.

DISCUSSION OF RESULTS

The anomalies of interest have been labelled by the upper case letters A to G. The molybdenum and silver anomalies have been labelled according to their correlation with the copper and zinc anomalies.

The following table gives the basic characteristics of each anomaly:

Anomaly	Strike	Length (m)	Width (m)	Copper High ppm	Zinc High ppm	Silver High ppm	Molybdenum High ppm	VLF-EM Correlation	MAG Correlation
A	S70E	240+	2 parallel Zones 75+	69	106	-	3	None	Flat
B	S70E	200+	30	65	109	-	-	None	Flat
C	?	30+	30	69	68	-	2	None	Flat
D	E?	100?	75	390	99	-	-	Good	Mag high edge
E	N70E	100	30	150	86	-	-	Good	"
F	E	480 but spotty	180 but spotty	158	107	0.3	-	Fair	Fair on Mag high
G	E	100+	100	66	-	-	-	None	Flat

Anomaly A is an interesting zone because of the number of anomalous values in copper and zinc. There is a minor amount of molybdenum as well. There are no rock outcrops correlating with the zone but it probably is underlain by red volcanics.

Anomaly B appears to be open to the east. The zinc and copper anomalies do not directly correlate but parallel each other. The underlying rock-type also appears to be red volcanics.

Anomaly C is also a correlating zinc and copper anomaly with a minor amount of molybdenum. It is at most a two-value anomaly and occurs on the edge of the survey area. Therefore, little can be said about strike, length and width. It's probably underlain by red volcanics.

Though Anomaly D consists of only a few values, it may be the most interesting anomaly. It contains copper values (one very high) correlating with zinc values, with some correlation with a northeasterly-striking VLF-EM anomaly and direct correlation with an assumed northerly-striking fault as mapped by Sookochoff. The causitive source, therefore, appears to be structurally controlled. It also occurs on the edge of a magnetic high. It is underlain by grey volcanics with some calcite, epidote, silica and chlorite alteration noted nearby.

Anomaly E is primarily a copper anomaly with correlation with minor zinc values. It occurs on the northwesterly-striking contact between the red and grey volcanics and a northerly-striking fault as well as correlating with a northeasterly-striking VLF-EM anomaly. It also, therefore, appears to be structurally controlled.

F could be termed more as an anomalous zone. It consists of a broad zinc anomaly of relatively low values that correlate with spotty copper anomalies. It occurs across the red volcanic/grey volcanic contact and has fair correlation with VLF-EM and magnetic anomaly A as labelled by Sookochoff.

Anomaly G is only a copper anomaly that has no correlation with VLF-EM or magnetic results. It appears to be striking westerly across a small swamp and, therefore, has potential of some length, though the values are not that high. It is probably underlain by grey volcanics.

Respectfully submitted,
GEOTRONICS SURVEYS LTD.,

David G. Mark
Geophysicist

July 14, 1980

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Sookochoff, L. Geophysical Report on an EM and Mag Survey for Thunderbolt Resources Ltd., R Claims, Kamloops M. D., B.C. Pan American Consultants Ltd., May 4, 1979.

GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver, in the Province of British Columbia, do hereby certify:

THAT I am a Consulting Geophysicist of Geotronics Surveys Ltd., with offices at 403-750 West Pender Street, Vancouver, British Columbia.

I further certify:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc., degree in Geophysics.

2. I have been practising my profession for the past twelve years and have been active in the mining industry for the past fifteen years.

3. That I am an active member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.

4. This report is compiled from data obtained from a soil geochemistry survey carried out under the supervision of myself during the middle part of April, 1980.

5. I have no direct or indirect interest in Thunderbolt Resources Ltd., nor any of its properties, nor do I expect to receive any interest as a result of writing this report.

David G. Mark
Geophysicist

July 14, 1980

COST BREAKDOWN

2-man crew, 44½ hours at $35/hour		$1,557.50
Board and Room		308.92
Truck rental and gas		248.80
Survey supplies		73.00
Soil sample analysis, 383 samples for copper, zinc and silver		1,149.39
Report		1,200.00
	Say	$4,538.00

The field work was carried out from April 18th to 23rd, 1980.

FIGURE NO.1

GEOTRONICS SURVEYS LTD.

THUNDERBOLT RESOURCES LTD.

R CLAIM GROUP

HOMFRAY LAKE, KAMLOOPS M.D., B.C.

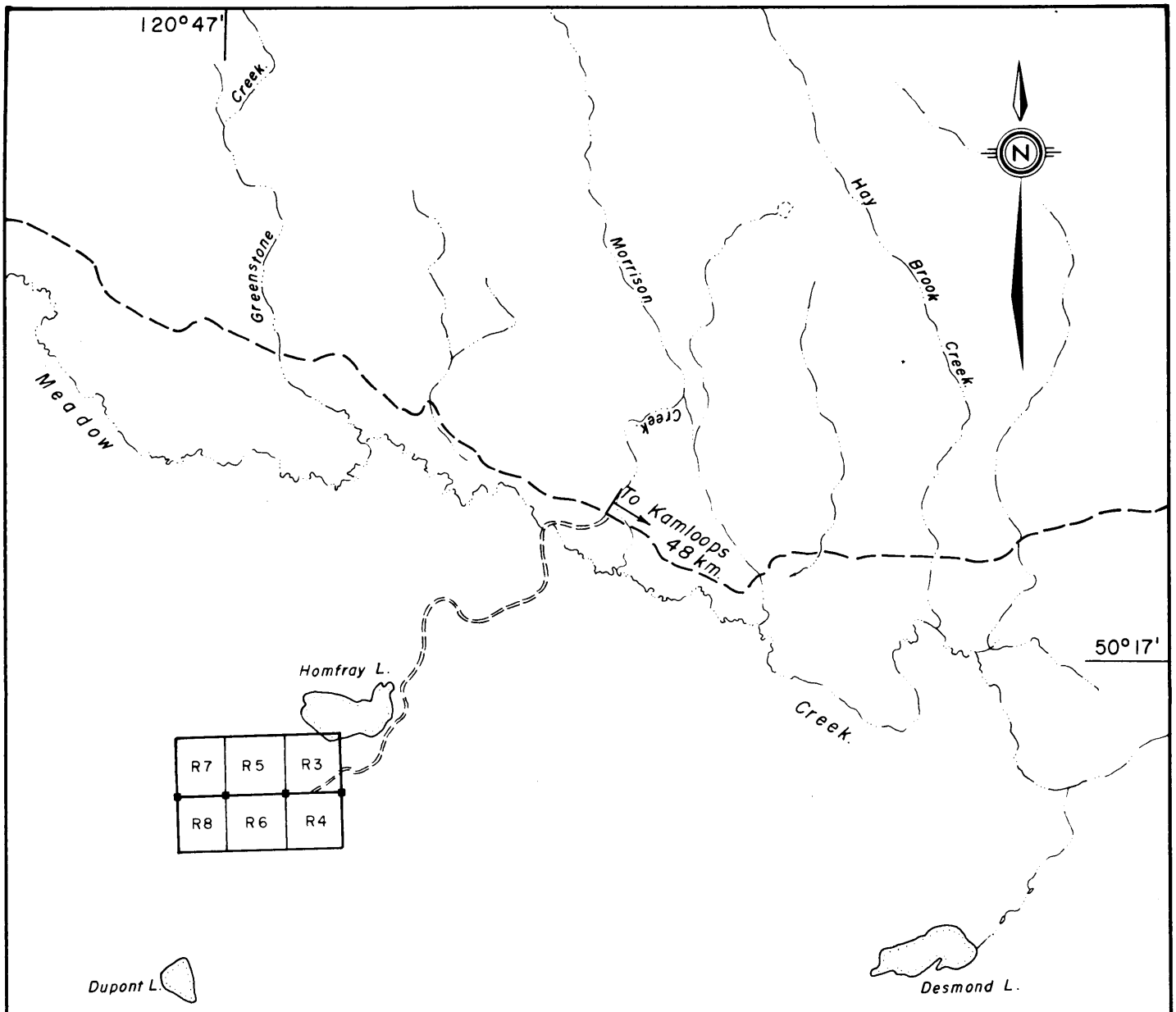
LOCATION MAP

SCALE

Km. 100 50 0 100 200 300 400 Km.

Miles 100 50 0 100 200 Miles

ALTAIR drafting services ltd.



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THUNDERBOLT RESOURCES LTD.

R CLAIM GROUP

HOMFRAY LAKE, KAMLOOPS M.D., B.C.

CLAIM MAP

DRAWN BY	JOB No.	DATE	SCALE	FIGURE No.
	80-27	APRIL, 1980	1:50,000	2

FIGURE NO.3

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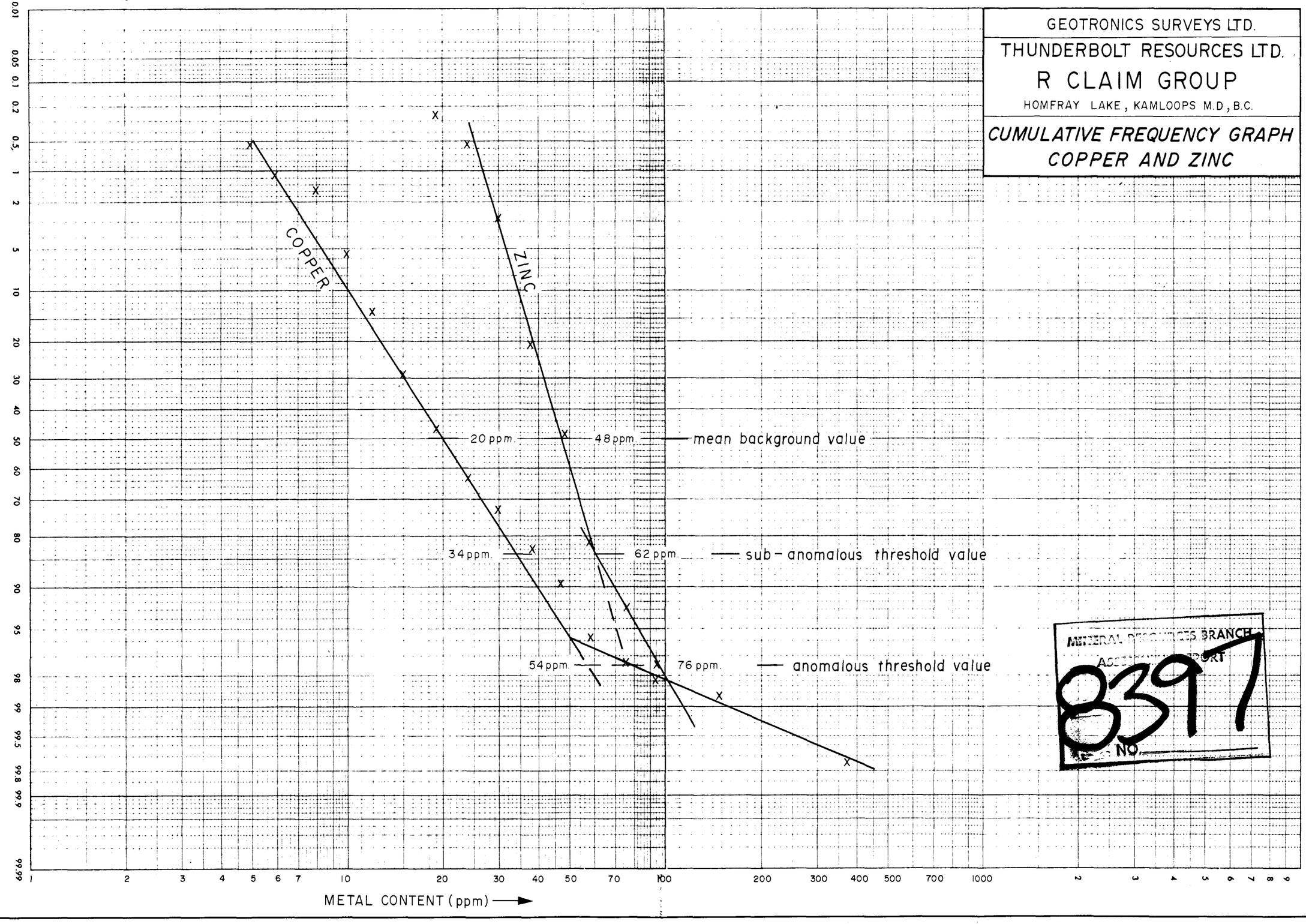
THUNDERBOLT RESOURCES LTD.

R CLAIM GROUP

HOMFRAY LAKE, KAMLOOPS M.D., B.C.

CUMULATIVE FREQUENCY GRAPH
COPPER AND ZINC



1300W. 1200W. 1100W. 1000W. 900W. 800W. 700W. 600W. 500W. 400W. 300W. 200W. 100W.

420 N. 360N. 300 N. 240N. 180N. 120N. 60N. BASELINE 0 60 S. 120 S. 180 S. 240S. 300S. 360S. 420S.

Homfray Lake

ROCK SAMPLE

ROCK SAMPLE

ROCK SAMPLE

ROCK SAMPLE

ROCK SAMPLE

CLAIM POST LOCATED

0 BASELINE

F R7 F F R5 A R3 B G R8 E R6 D R4 C

LEGEND

- CLAIM POST
- ROAD
- SWAMP
- TRENCH
- INTERMITTENT STREAM
- LAKE

PARAMETERS

MEAN BACKGROUND VALUE 20 ppm.

SUB-ANOMALOUS THRESHOLD VALUE 34 ppm.

ANOMALOUS THRESHOLD VALUE 54 ppm.

CONTOURS

CONTOUR INTERVAL

34 ppm.

54, 95, 160, 280 ppm.

SCALE

0 50 100 150 200 M.

To accompany geochemical report by David G. Mark geophysicist dated 14/7, 1980

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THUNDERBOLT RESOURCES LTD.

HOMFRAY LAKE PROPERTY

KAMLOOPS, M.D., B.C.

SOIL GEOCHEMISTRY SURVEY

COPPER

DATA & CONTOURS

DRAWN BY	JOB No.	DATE	SCALE	SHEET No.
D.G.M. & J.M.B.	80-27	APRIL, 1980	1 : 3000	1

1300 W. 1200 W. 1100 W. 1000 W. 900 W. 800 W. 700 W. 600 W. 500 W. 400 W. 300 W. 200 W. 100 W.

420 N. 360 N. 300 N. 240 N. 180 N. 120 N. 60 N. BASELINE 0 60 S. 120 S. 180 S. 240 S. 300 S. 360 S. 420 S.

Homfray Lake.

ROCK SAMPLE

ROCK SAMPLES

ROCK SAMPLES

ROCK SAMPLE

ROCK SAMPLE

ROCK SAMPLE

R7 R8 R6 R5 R4 R3

A B C D E F

CLAIM POST LOCATED

0 BASELINE

LEGEND

- CLAIM POST
- ROAD
- SWAMP
- TRENCH
- INTERMITTENT STREAM
- LAKE

PARAMETERS

MEAN BACKGROUND VALUE 48 ppm.

SUB-ANOMALOUS THRESHOLD VALUE 62 ppm.

ANOMALOUS THRESHOLD VALUE 76 ppm.

CONTOURS

CONTOUR INTERVAL

62 ppm.

76, 96 ppm.

SCALE

0 50 100 150 200 M.

To accompany geochemical report by David G. Mark geophysicist dated 14/7, 1980.

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THUNDERBOLT RESOURCES LTD.

HOMFRAY LAKE PROPERTY

KAMLOOPS, M.D., B.C.

SOIL GEOCHEMISTRY SURVEY
ZINC
DATA & CONTOURS

DRAWN BY	JOB No.	DATE	SCALE	SHEET No.
D.G.M. & J.M.B.	80-27	APRIL, 1980	1:3000	2

1300 W. 1200 W. 1100 W. 1000 W. 900 W. 800 W. 700 W. 600 W. 500 W. 400 W. 300 W. 200 W. 100 W.

420 N. 360 N. 300 N. 240 N. 180 N. 120 N. 60 N. BASELINE 0 60 S. 120 S. 180 S. 240 S. 300 S. 360 S. 420 S.

Homfray Lake.

ROCK SAMPLE

F

R7

R5

R3

R8

R6

R4

ROCK SAMPLE

ROCK SAMPLES

ROCK SAMPLE

ROCK SAMPLE

CLAIM POST LOCATED

0 BASELINE

LEGEND

- CLAIM POST
- ROAD
- SWAMP
- TRENCH
- INTERMITTENT STREAM
- LAKE

PARAMETERS

MEAN BACKGROUND VALUE 0.1 ppm

SUB-ANOMALOUS THRESHOLD VALUE 0.2 ppm

ANOMALOUS THRESHOLD VALUE 0.3 ppm

CONTOURS

CONTOUR INTERVAL 0.1

0.2 ppm

0.3 ppm

SCALE

0 50 100 150 200 M.

To accompany geochemical report by David G. Mark geophysicist dated 14/7, 1980.

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HOMFRAY LAKE PROPERTY

KAMLOOPS, M.D., B.C.

SOIL GEOCHEMISTRY SURVEY
SILVER
DATA & CONTOURS

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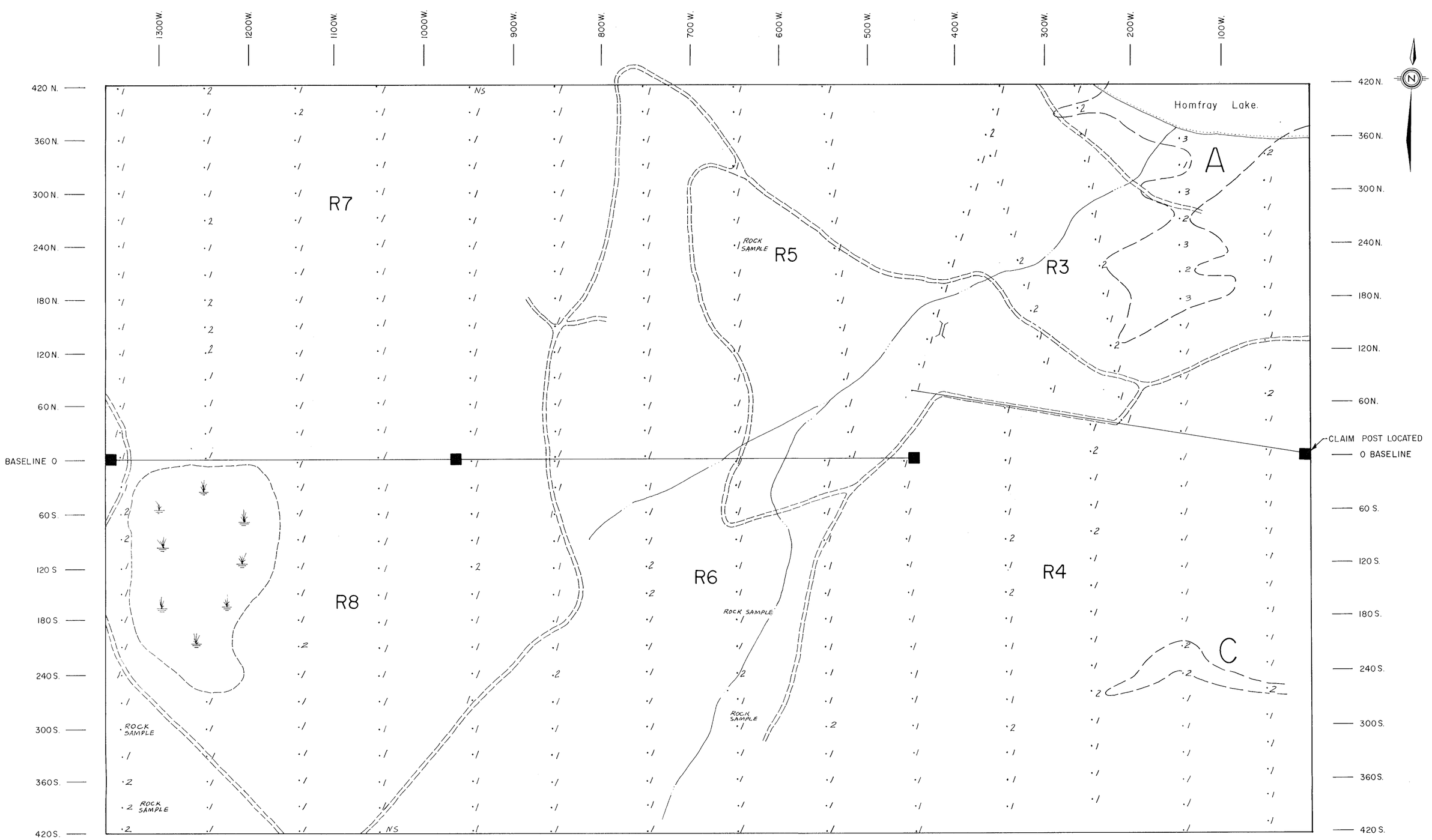

LEGEND

- CLAIM POST
- ROAD
- SWAMP
- TRENCH
- INTERMITTENT STREAM
- LAKE

PARAMETERS

MEAN BACKGROUND VALUE

SUB-ANOMALOUS THRESHOLD VALUE 2 ppm.

ANOMALOUS THRESHOLD VALUE 3 ppm.

CONTOURS

CONTOUR INTERVAL — 1 ppm.

2 ppm.

3 ppm.

SCALE

0 50 100 150 200 M.

To accompany geochemical report by David G. Mark geophysicist dated 14/7, 1980.

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THUNDERBOLT RESOURCES LTD.

HOMFRAY LAKE PROPERTY

KAMLOOPS, M.D., B.C.

SOIL GEOCHEMISTRY SURVEY
MOLYBDENUM
DATA & CONTOURS

DRAWN BY	JOB No.	DATE	SCALE	SHEET No.
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