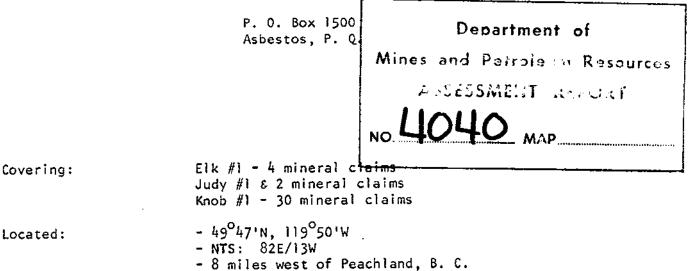


KNOBLAUCH PROPERTY

OSOYOOS MINING DIVISION, B. C.

- for -

CANADIAN JOHNS-MANVILLE CO. LTD.



Prepared by

John R. Kerr, P. Eng.

KERR, DAWSON & ASSOCIATES LTD.

#6 - 219 Victoria Street Kamloops, B. C.

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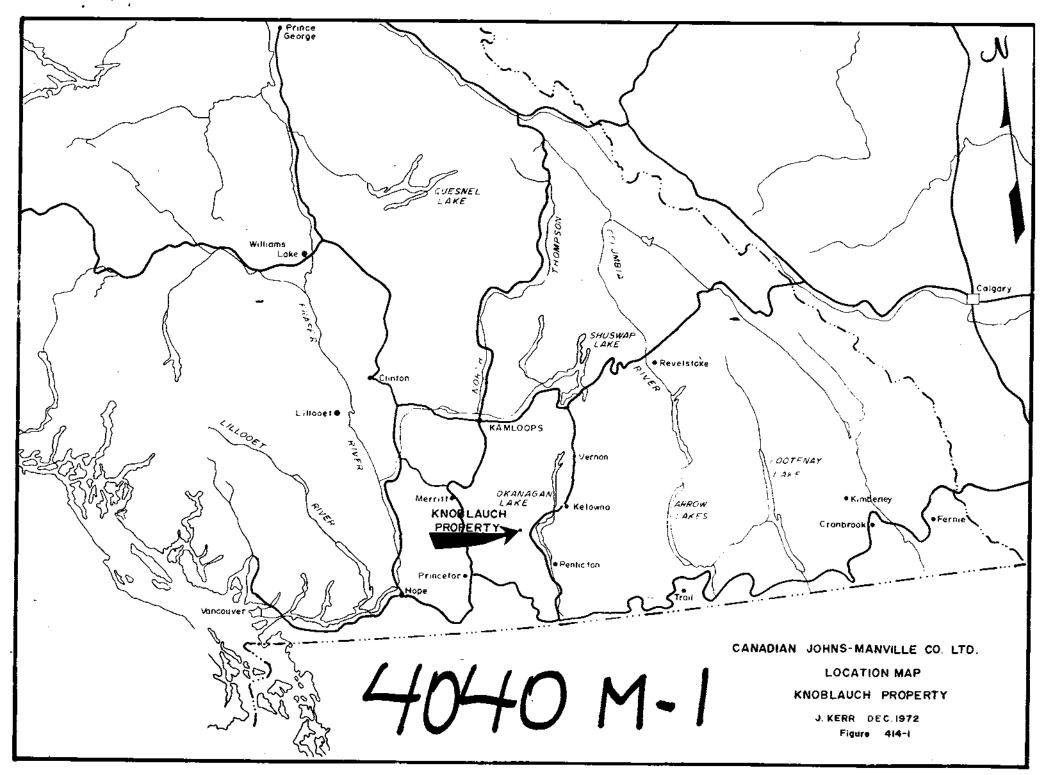
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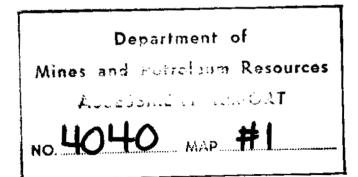
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SUMMARY & CONCLUSIONS

During the period July - November, 1972, crews of Canadian Johns-Manville Co. Ltd. completed reconnaissance and detailed geochemistry, geological mapping and a magnetic survey over a block of 35 claims located 8 miles west of Peachland, B. C. in the Osoyoos Mining Division. Six original claims were optioned from a syndicate of four prospectors from Peachland, and an additional 29 claims were staked by employees of Canadian Johns-Manville. The original six claims covered lenticular pods of skarn-type chalcopyrite, sphalerite, galena, pyrite, pyrrhotite and magnetite mineralization in favourable limestone bands of a sedimentary horizon of the Nicola Group of rocks.

Results of sampling and detailed mapping indicate that the known showings as exposed on surface are uneconomic. The geochemical survey has delineated two anomalies, one directly associated with the main showings. This anomaly shows an overall possible strike length of 2000 ft., however, values of the sample results show no improvement of metal content. The second zone suggests a large low-grade enrichment of copper and zinc, however, values again are low, and possible correlation to metal content in rock would indicate an uneconomic zone. Several eratic geochemical anomalies have been delineated from the reconnaissance sampling over the remainder of the claim area. Further detailed sampling of these zones is required to test the strength and extent of the anomalies.

The fact that the surface showings appear uneconomic and that geochemical values in soil are relatively low, the probability of uncovering an economic ore deposit on the Knoblauch property is considered quite remote. Therefore, recommendations for further work are given a low priority.

RECOMMENDATIONS

- 1) Detailed electromagnetic surveys over the entire grid area.
- Detailed induced polarization surveys over known surface showings and delineated geochemical anomalies.
- Detailed soil investigations over reconnaissance geochemical targets in the western portion of the grid.
- Limited bulldozing over known showing areas and geochemical anomalies on the main grid.
- 5) 1000 2000 ft. of diamond drilling would be contingent upon results of above mentioned surveys.

INTRODUCTION

General Statement

In July, 1972, Canadian Johns-Manville Co. Ltd. negotiated an agreement to option six claims covering small skarny lenses of massive sulphides in the Peachland area of British Columbia. The claims were optioned from a syndicate of four prospectors: Mr. Clarence Knoblauch, Mr. Stanley Mitchell, Mr. J. E. Ehlers and Mr. T. Miller, all of Peachland. During July, 1972 an additional 29 claims were staked and reconnaissance geochemistry and geological mapping were completed over the claim block. During October, 1972 a detailed grid was established over the area of the main showings. Detailed geochemistry and a magnetic survey were completed on the grid. This report summarizes the results of the above programmes.

Location & Access

The property is located approximately eight miles northwest of Peachland, B. C. Peachland is on the west shore of Okanagan Lake, 16 miles south of Kelowna and 22 miles north of Penticton, on Provincial Highway #97.

Access into the property is possible via the Brenda Mines Road leaving Highway #97 at Peachland and travelling 8 miles to the west. The southwest corner of the claim block is traversed by this

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road. At the time of the October sampling programme, this road was in the process of being paved.

Topography and Vegetation

The claims are situated within the rolling hill terraine of the Interior Plateau. Relief within the claim block is in the order of 1400 ft., ranging from 2800 ft. a.s.l. in the south to 4200 ft. a.s.l. in the northeast corner. Peachland creek flows southeast, through the southern portion of the claims, and the rather steep-walled canyon of the creek is, in part, very precipitous.

The Peachland area is in the semi-arid climatic belt of the Interior of British Columbia. Vegetation at the lower elevations between 1000 - 3000 ft. a.s.l. is mainly ponderosa pine and sagebrush. Above 3000 ft. a.s.l., light forest cover of jackpine, hemlock, fir and spruce exists.

Soil cover is quite extensive over the claim area, varying from 2 ft. to over 20 ft. deep. Fluvial gravel deposits occur along the valley walls of Peachland Creek. One rather large deposit, at the south end of the claims, contains a high content of magnetite, estimated 10 - 20%, and magnetic readings taken over the deposit indicates/magnetic variation of 8000 gammas. Other gravel deposits in the area were tested magnetically, however, all were found to contain low magnetite. The reason and origin of this one local magnetite rich gravel deposit is unknown.

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History of Work

The history of mining and prospecting in the Peachland area dates back to the late nineteenth century. Several old quartz veins containing gold and silver were explored, and reports indicate very limited production. The discovery of Brenda Mines Ltd., 10 miles west of the property, in the late 1950's and subsequent development to production in the 1960's, led to a flurry of staking activity and exploration in the entire area. Most of this ground has since lapsed.

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It is unknown when mineralization on the Knoblauch property was initially discovered. An old adit is reported to have been completed in the 1930's, however, this has since been covered by construction of the Brenda Mines access road. Surface exposures have been trenched and blasted by owners of the property. In 1964, Quinalta Petroleum of Calgary are reported to have drilled two short x-ray holes into the mineralized showings, however, no record of these holes or evidence of location on the ground is available.

Claims

The property consists of 32 full-sized claims and 3 fractional claims, as follows:

<u>Claim Name</u>	Record No.	Recorded Owner
Judy #1 & 2	26909/10	Stanley Mitchell
Elk #1 - 4	25442/45	Clarence Knoblauch
Knob #1 - 28	29296/322	Canadian Johns-Manville Co. Ltd.
Knob #29 Fr	29379	Canadian Johns-Manville Co. Ltd.

In an agreement dated August 11, 1972, Canadian Johns-Manville Co. Ltd. have the right to work and explore the six Elk and Judy claims. All claims are in good standing until July and September, 1973. 7

GEOLOGY

The general geology of the Peachland area is documented by the G. S. C. Map Sheet 15-1961, Geology of the Kettle River (West Half). Volcanic and calcareous sedimentary rocks of the Nicola Group have been intruded by granodiorite, quartz diorite, quartz monzonite and diorite of the Nelson and Valhalla Intrusions. In the area of the claims, the Nicola Group is represented by a 10 mile long by 2 - 4 mile wide roof pendant, surrounded on all sides by the later intrusive rocks. Late remnant pods of Tertiary volcanics cover all rock types and are found to the northeast of the claims.

The claim area was mapped in part to 1":1000' scale detail by C. I. Choi, geologist with Canadian Johns-Manville. Outcrop areas and interpretation of contacts are shown on Figure 414-3.

The oldest and most dominant rock types underlying the claim group are rocks of the Nicola Group. Choi has divided the Nicola Group into two subdivisions:

> 1 a) Mainly calcareous argillites and limestone. A band approximately
> 1000 - 1500 ft. wide trending North to N 30° E, and dipping 30° E to
> vertical is located in the central portion of the claim block. Bands

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of recrystallized buff coloured limestone up to 6 ft. wide exist within the rock, and are the host rock of sulphide mineralization. Near the contacts of intrusive rock, the sediments are thermally altered and are described as a hornfels. These hornfels rocks are very gradational with the less altered sediments, and thermal metamorphic limits have not been defined.9

1 b) Mainly dark green chloritized andesite. In part, this rock shows a strong foliation and has been described as a schist. Alteration is intense near the contact of the batholith, with secondary calcite, chlorite and epidote.

The above rocks are intruded by numerous basic dykes, some in part quite coarsely crystalline, and described as hornblendite.

The southwest corner of the claim group is underlain by the Nelson Batholith. Very little of these rocks were actually mapped, however, are described as a pink to grey,

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medium coarse-grained granodiorite or quartz monzonite. Twenty to thirty percent of the rock is orthoclase and mafic minerals are biotite and hornblende.

At the high point of land at the northeast corner of the claims, rocks of Tertiary volcanics were mapped. They unconformably overlie all other rocks in the area.

The best economic mineralization found to date are lenses and pods of massive sulphides as total replacement along preferential beds of the limestone. Mineralization includes pyrite, pyrrhotite, chalcopyrite, sphalerite and magnetite. The largest pod of mineralization is approximately 10 ft. wide by 15 ft. long. An assay across 10 ft. indicates the pod to contain:

> 0.18% Cu 3.75% Zn 0.18 oz Ag/T 0.01 oz Au/T

Other rock analysis from the surface showings are much lower. It is very doubtful if these surface showings could be considered an economic ore deposit.

Mineralization, mainly pyrite with traces of chalcopyrite, galena, and sphalerite, have been found as fracture fillings and coatings associated with secondary calcite. Crosscutting shears and fault zones, in a general east-west direction, appear to be control for mineralized pods in the limestone. These east-west faults have been delineated by magnetics.

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GEOCHEMISTRY

During the period July 29 to November 3, 1972, a total of 753 soil samples were collected from the Knoblauch claims. Of the 753 samples, 387 were collected by reconnaissance chain and compass methods from the entire claim area, and 366 were collected from a detailed grid over the main showing area.

Field Methods

The reconnaissance samples were collected at 200 ft. intervals along lines spaced at 750 ft. and 1500 ft. All sample stations were flagged and coded with sample numbers. Location of samples are shown on Figure 414-4 and 5. The detailed soil samples were collected off a detailed grid at 100 ft. intervals, with lines spaced at 200 ft. The grid was established by chain and picket methods, with pickets placed at each 100 ft. interval. Samples were identified with coordinate coding for each sample.

Soil samples were all collected from the "B" Horizon where possible. Some intermixing of soil horizons was encountered and questionable horizons were identified as such on the data sheets. Other data recorded at the sample site were colour, texture, depth of soil, drainage and general physiography.

Samples were collected by C. I. Choi, geologist with 15 years of field experience, J. E. Binnie, senior field assistant with 10 years of field experience, and A. Gussen, field assistant with 4 years of field experience.

Analytical Techniques

All samples were sent to the Vancouver laboratories of Bondar-Clegg & Co. Ltd. to be analyzed geochemically for copper and zinc. The samples were dried at 40° - 50° C. in infra-red ovens, and sieved to -80 mesh in Tyler screens. An aliquot of the -80 mesh fraction was digested in hot aqua regia to extract the metals, and the metal content of each sample was determined by atomic absorption methods at a detection limit of 1 ppm.

Classification of Data

A statistical analysis was completed treating all samples as one population. A cumulative frequency diagram was plotted on probability log paper, and the best-fit straight line was drawn for each element.

It is noted that for the copper diagram most sample points fall within a reasonable distance from the drawn line, except for a small percentage (less than 2%) at the higher metal concentrations. This line may reflect a slight effect of contamination of some samples collected in the main showing area. The zinc diagram indicates a wider variation from the straight line, possibly indicating two or more distinct populations for zinc. There is no immediate answer to the bimodal population, except that there is a greater concentration of collected samples from areas of known mineralization. For each element, the sample data was classified into the following anomalous categories:

Cu

Zn

Negative	0 - b	0 - 25 ppm	0 - 134 ppm
Possibly Anomalous	b - (b + s)	26 - 55 ppm	135 - 229 ppm
Probably Anomalous	(b + s) - t	56 - 122 ppm	230 - 390 ppm
Definitely Anomalous	>t	▶122 ppm .	>390 ppm

on cumulative frequency distribution

Presentation of Data

The geochemical results were plotted at each sample station on separate map sheets for each element, and for both reconnaissance and detailed grid samples. Anomalous categories for each sample was represented by colour, as follows:

> Possibly anomalous - blue Probably anomalous - red Definitely anomalous - orange

Regional Samples

Figure 414-4	Copper	1":1000'
Figure 414-5	Zinc	1":1000'

Detailed Samples

Figure 414-6	Copper	1":200'
Figure 414-7	Zinc	1":2001

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MAGNETIC SURVEY

A magnetometer survey was completed over the detailed grid, readings taken every 100 ft. along all established lines. A McPhar M~700 reconnaissance magnetometer was used for the entire survey. A magnetometer base station was established at the initial post of Judy #1 and #2 (off the mapsheet) and readings were taken at least three times daily to check for any abnormal diurnal variations. Readings were taken by Mr. J. Binnie, an experienced senior field assistant. Diurnal variations were such that appropriate corrections were necessary only on two days of traverses, and these variations were only 20 gammas and 50 gammas respectively.

The McPhar M-700 magnetometer is such that readings are taken directly in gammas, on one of five scales in both negative and positive polarity. During the course of the survey, most readings were taken on the 3K scale of sensitivity, best used to an accuracy of 20 gammas. With the M-700 magnetometer, it is unnecessary to apply day-to-day corrections to readings, as the scale can be adjusted to the base reading at the beginning of each day.

All readings were plotted on a l":200 ft. scale plan of the grid (Figure 414-8), and lines of equal magnetic intensity were drawn to indicate zones of high and low magnetic intensity

DISCUSSION OF RESULTS

The objective of the geochemical and magnetic surveys was to delineate hidden zones or continuations of zones of massive Cu-Zn-Pb-Ag sulphides in a skarn type of environment within the Nicola Group of rocks. The known zones exposed on surface have been mapped in detail and sampled. Results of the sampling and extent of the mineralization as seen on surface, indicate that these zones are too small and lenticular to be considered economic. Very detailed magnetics completed over the surface showings indicate that the zones have no continuation down dip or with depth.

Over the detailed grid area, two distinct anomalous targets were delineated. The main anomaly, associated with the showing area, indicates a zone of at least 2000 ft. long by 500 ft. wide. Correlation of zinc and copper values is extremely good. Lack of samples taken directly over the showing (due to contamination) and over the road area makes definite interpretation of anomalous boundaries rather difficult. The strength of sample results appears to be greatest near the surface showings and undoubtedly reflect mineralization directly from the showing. Due to the topography it is doubtful that the full length of the anomaly could be explained as dispersion from the known showings. It is more likely to assume that the anomaly reflects an overall high background of metals in rock underlying the entire anomalous

area, or several small lenticular pods of massive sulphides along the general strike of the main showing. As the soil values are low at the extremities of the anomaly, it is likely to assume that any podes of massive sulphides would be as small as or smaller than those exposed on surface.

The second anomaly is on the base line and is approximately 1500 ft. long and up to 400 ft. wide, extending from L28+00N to L42+00N. Values within the anomaly are very eratic, with very little correlation of copper and zinc. A few old test pits and trenches have been dug into a rusty and leached siliceous limestone. Minor pyrite with traces of sphalerite and chalcopyrite have been found in one of the trenches. There are definite indications of leached sulphides within some of the rusty rock.

In contrast to the pods of massive sulphides observed on surface in the main showing area, the mineralization in this area is apparently replacement along fracture faces. From the size of the anomalous zone, this would suggest that mineralization is widespread, however, as the anomalous values are generally low, and as the surface mineralization noted does not appear to be economic, it is very likely that any mineralization encountered would be too low to be considered economic.

The magnetometer survey did not delineate any targets that can be considered strong magnetic anomalies reflecting massive sulphide zones. The contoured plan of the magnetic readings indicate two troughs of magnetic lows extending across

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the grid in a general east-west direction. The southernmost trough coincides with east-west shearing at the main showing on L20+00N. The northernmost trough on L36+00N corresponds to the high copper anomalies, and also to an apparent offsetting of the zinc anomaly in this area.

Over the detailed grid area, further work is suggested, however, is given a low priority. A recommended programme should consist of detailed electromagnetic and induced polarization surveys with possibly some limited buildozer trenching over geochemical anomalies.

From the reconnaissance geochemical picture, there are several eratic anomalies in the western portion of the claims, and are shown on accompanying maps. Further detailed soil investigations should be completed over these zones to test the size and shape of the anomalies.

Respectfully Submitted By:

John R. Kerr, P. Eng.

December, 1972

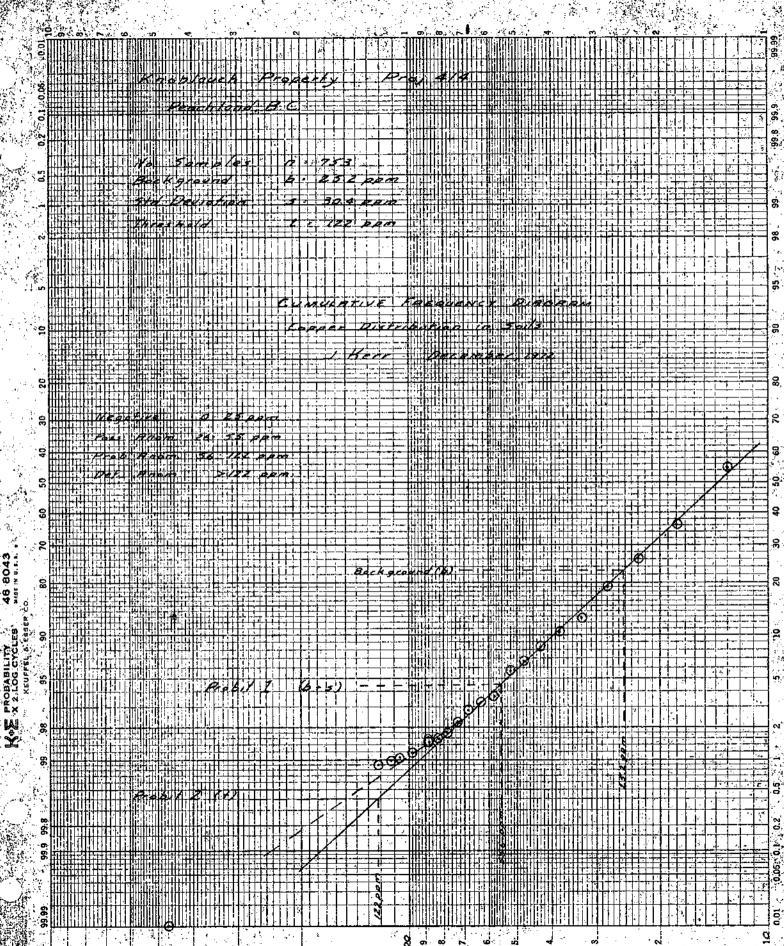
APPENDIX A

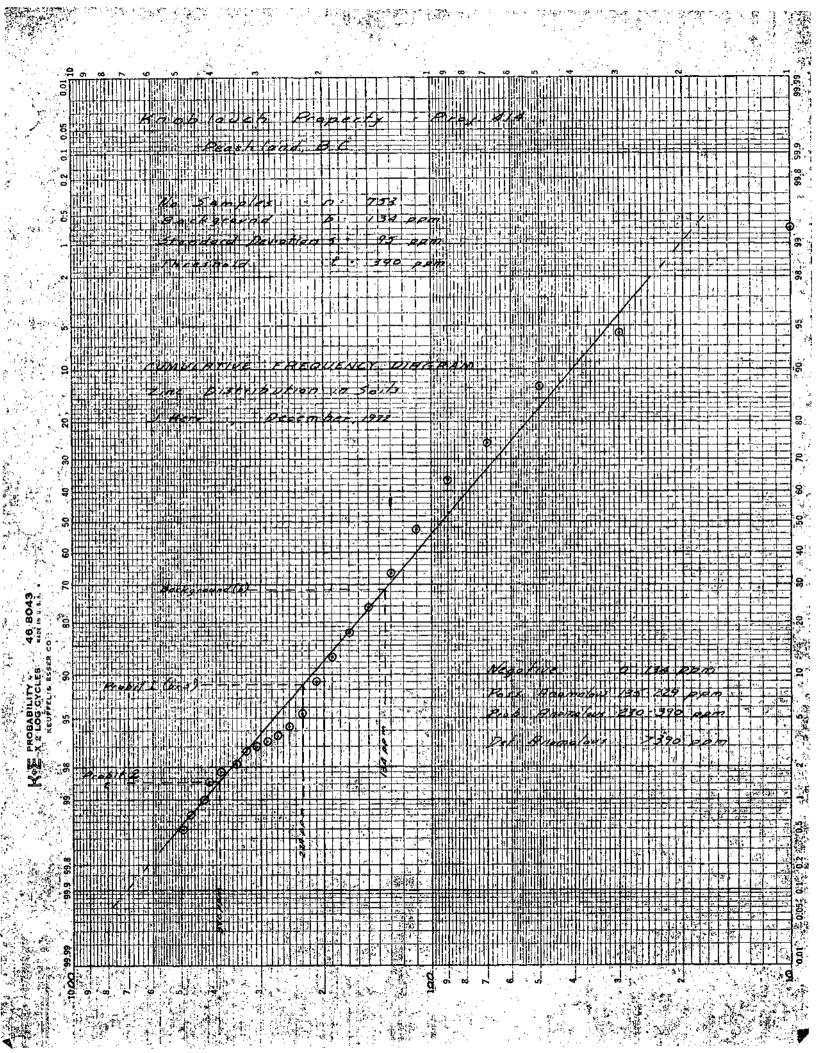
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Cumulative Frequency Diagrams





APPENDIX B

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Writer's Certificate

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WRITER'S CERTIFICATE

I, JOHN R. KERR, OF KAMLOOPS, B. C., HEREBY CERTIFY THAT:

- I am a member of the Association of Professional Engineers in the Province of British Columbia, and a Fellow of the Geological Association of Canada.
- I am employed by Kerr, Dawson & Associates Ltd., with my office at #9 - 219 Victoria Street, Kamloops.
- 3) I have practiced as a geologist for 8½ years since graduation from the University of British Columbia in 1964 with a BA.Sc. in Geological Engineering.
- 4) I have no direct interest or holdings of securities of Canadian Johns-Manville Co. Ltd., or in the Knob, Judy and Elk claims described in this report.
- 5) The work described in this report was completed in two periods, July 28 - August 17, 1972, and September 4 - November 4, 1972, and was supervised directly by myself.
- 6) The costs, as shown in Appendix C of this report, are to the best of my knowledge correct.
- 7) This report is based on published and unpublished data, my own personal knowledge of the area, and the field data collected during the field programme.

Ρ. ohn R. Kerr. Eng

December, 1972

APPENDIX C

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Cost Statement

COST STATEMENT

1) LABOUR

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	July 28 - August	17, 1972			
	C. Choi Ge	eologist 19	days @ 35.00/day =	\$665.00	
	D. Hilton As	sistant 14	days @ 20.00/day =	280.00	
	J. Kerr, P. Eng. Su	upervision l	day @ 100.00/day ≃	100.00	
	<u>September 4 - Nov</u>	vember 4, 1972 (i	ntermittant)		
	J. Binnie Sr. Fi		days @ 35.00/day =	910.00	
	A. Gussen Field	Assistant 18	days @ 26.25/day =	472.50	
	8. Dykeman Field	Assistant 8	days @ 25.00/day =	200.00	
	J. Kerr, P.Eng. Superv	vision 2	days @100.00/day =	200.00	
		т	TAL LABOUR		\$2,847.50
2)	TRUCK RENTAL - 4×4	3/4 Ton			
	45 days @ 20.00/0	lay			\$ 900.00
3)	SAMPLE ANALYSIS				
	753 samples @ 1.;	70/sample			\$1,280.10
4)	ROOM & BOARD	,			
	28 man days @ 12	.00/man/day =		\$336.00	
	18 man days @ 6.0	00/man/day =		108.00	
		Т	OTAL		\$ 444.00

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5) INTERPRETATION & REPORT PREPARATION

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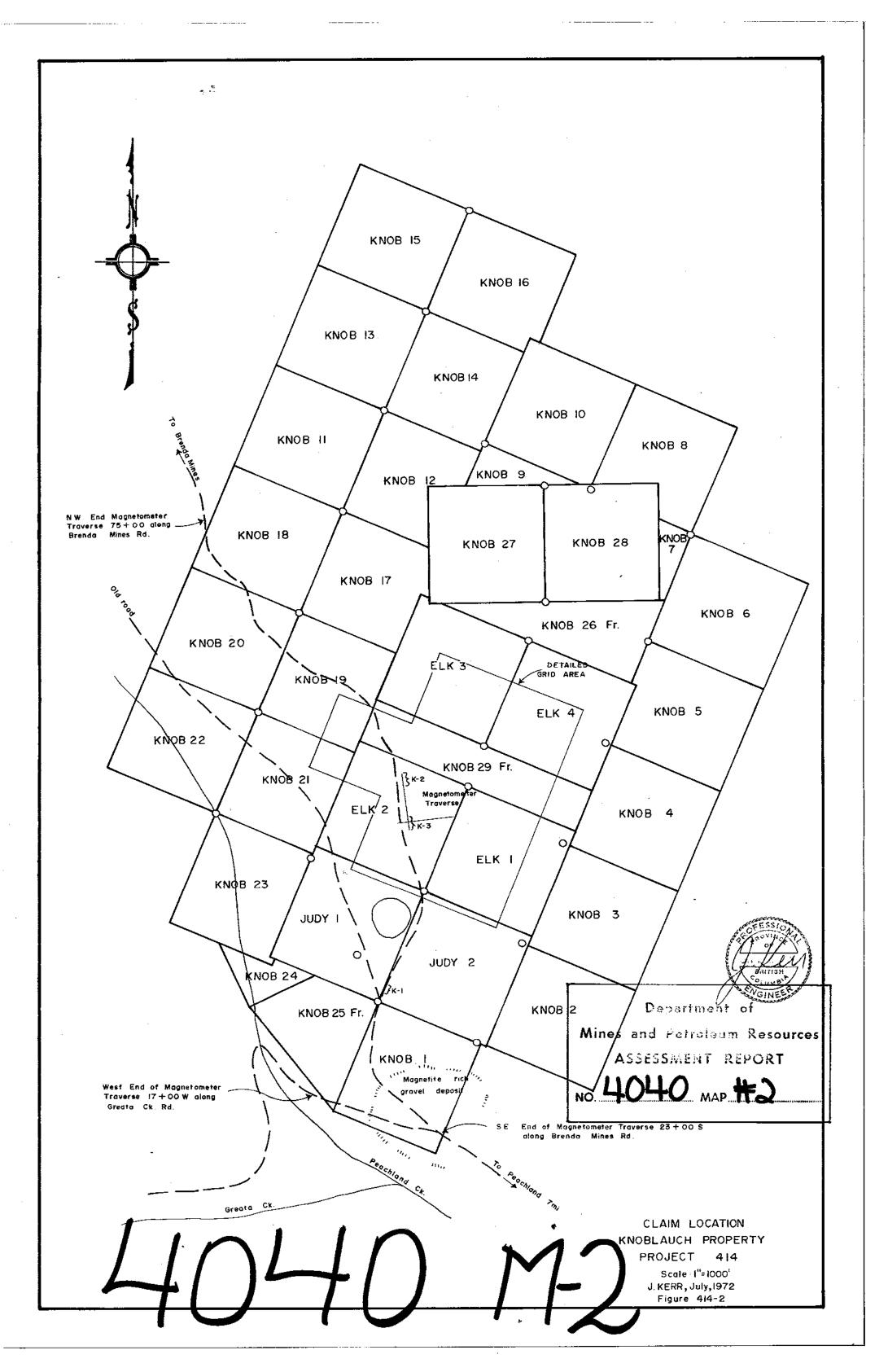
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J. Kerr, P. Eng.		\$600.00
Contract Drafting		120.00
Photocopying & Reproduction		50.00
Secretarial		30.00
	TOTAL	\$800.00
	GRAND TOTAL	\$6,271.60

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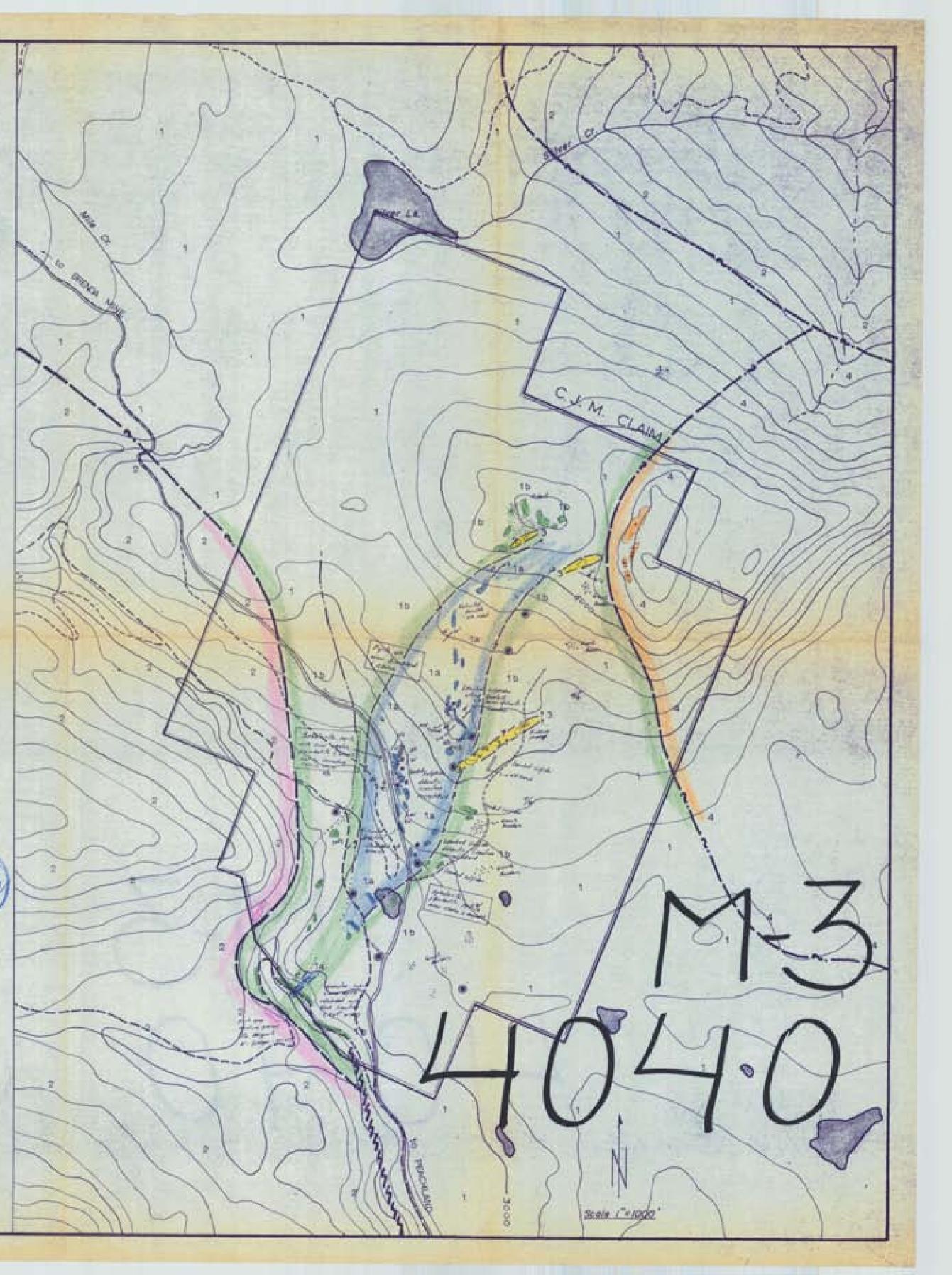
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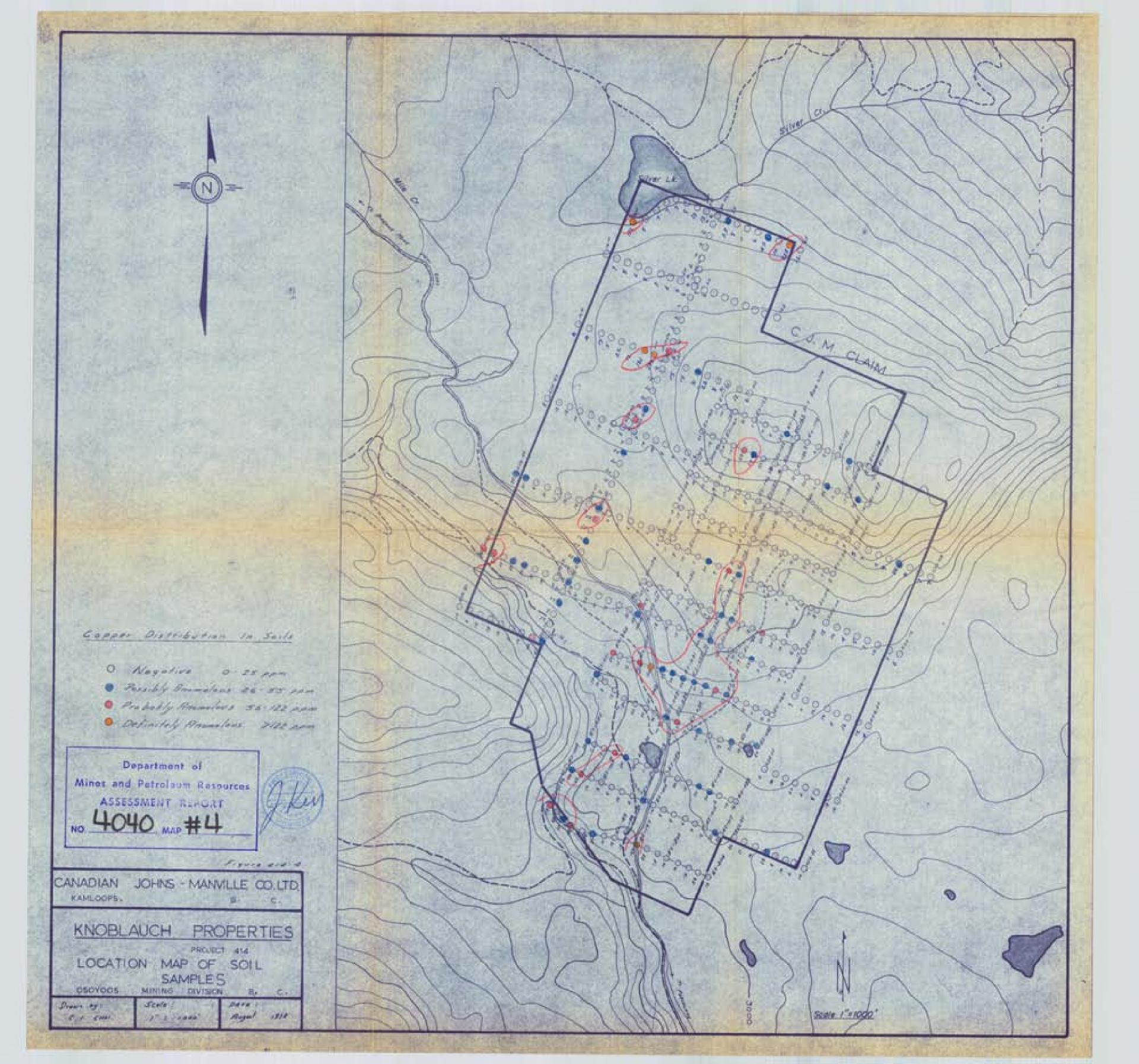
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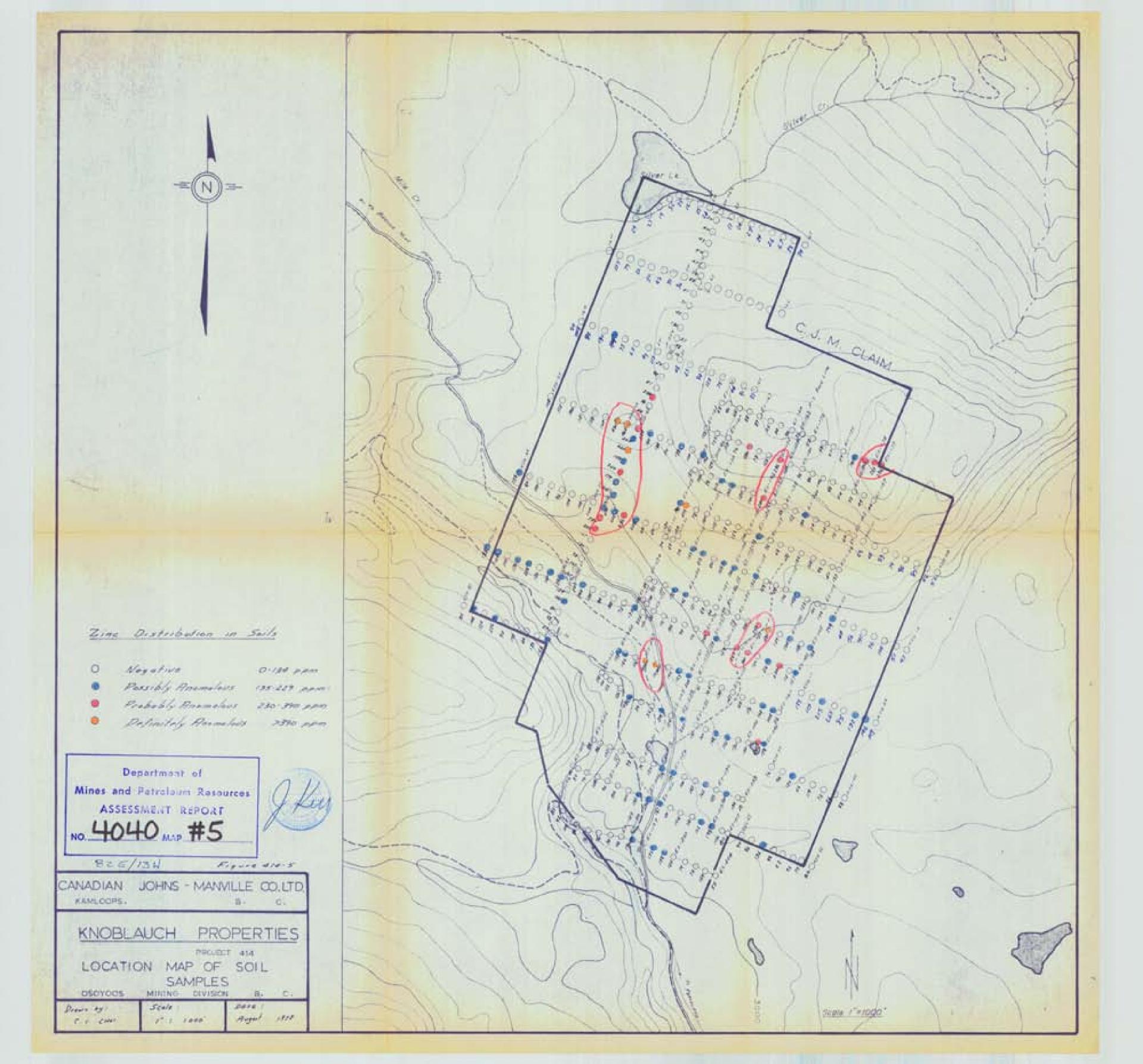
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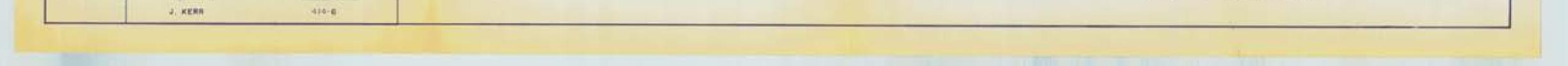


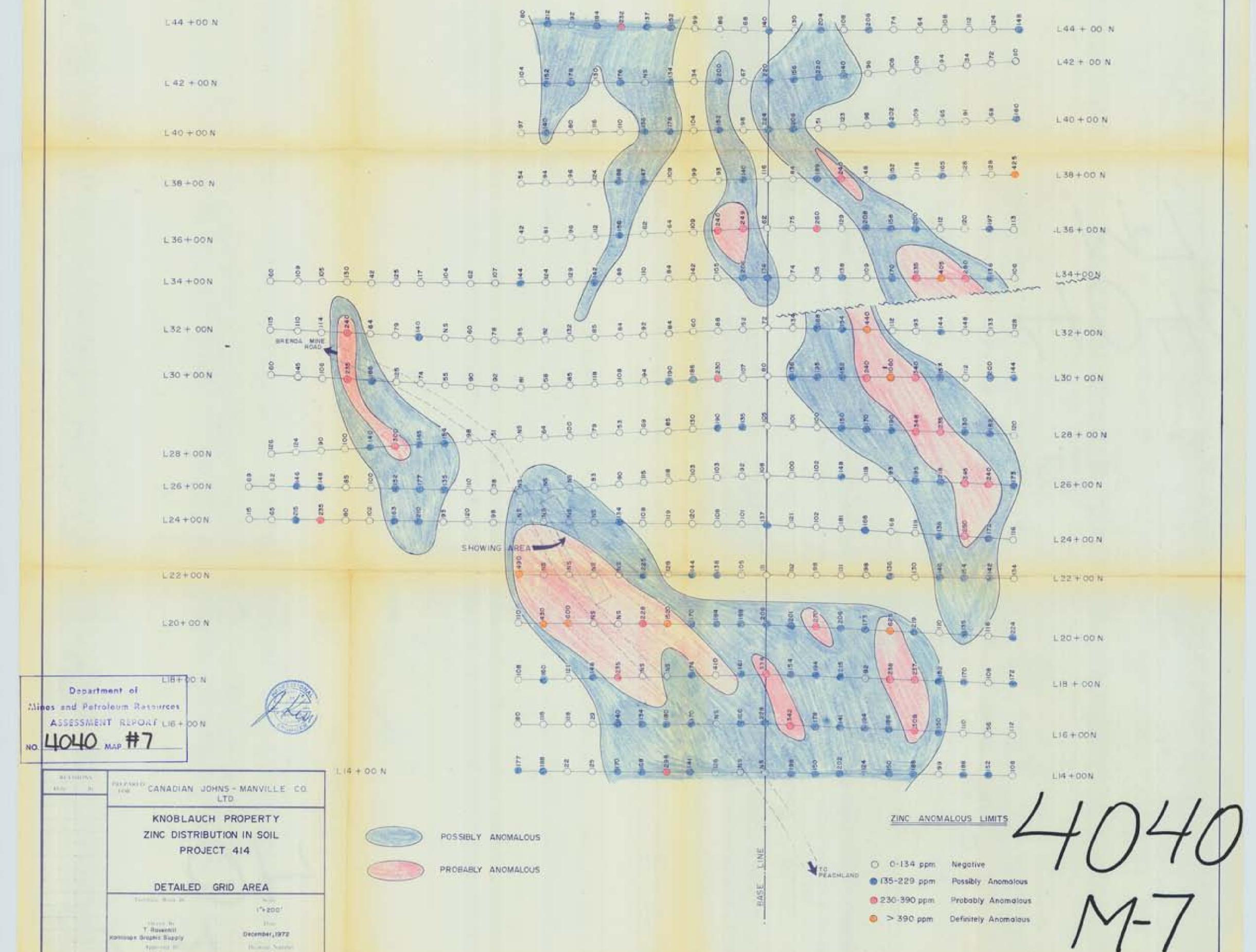




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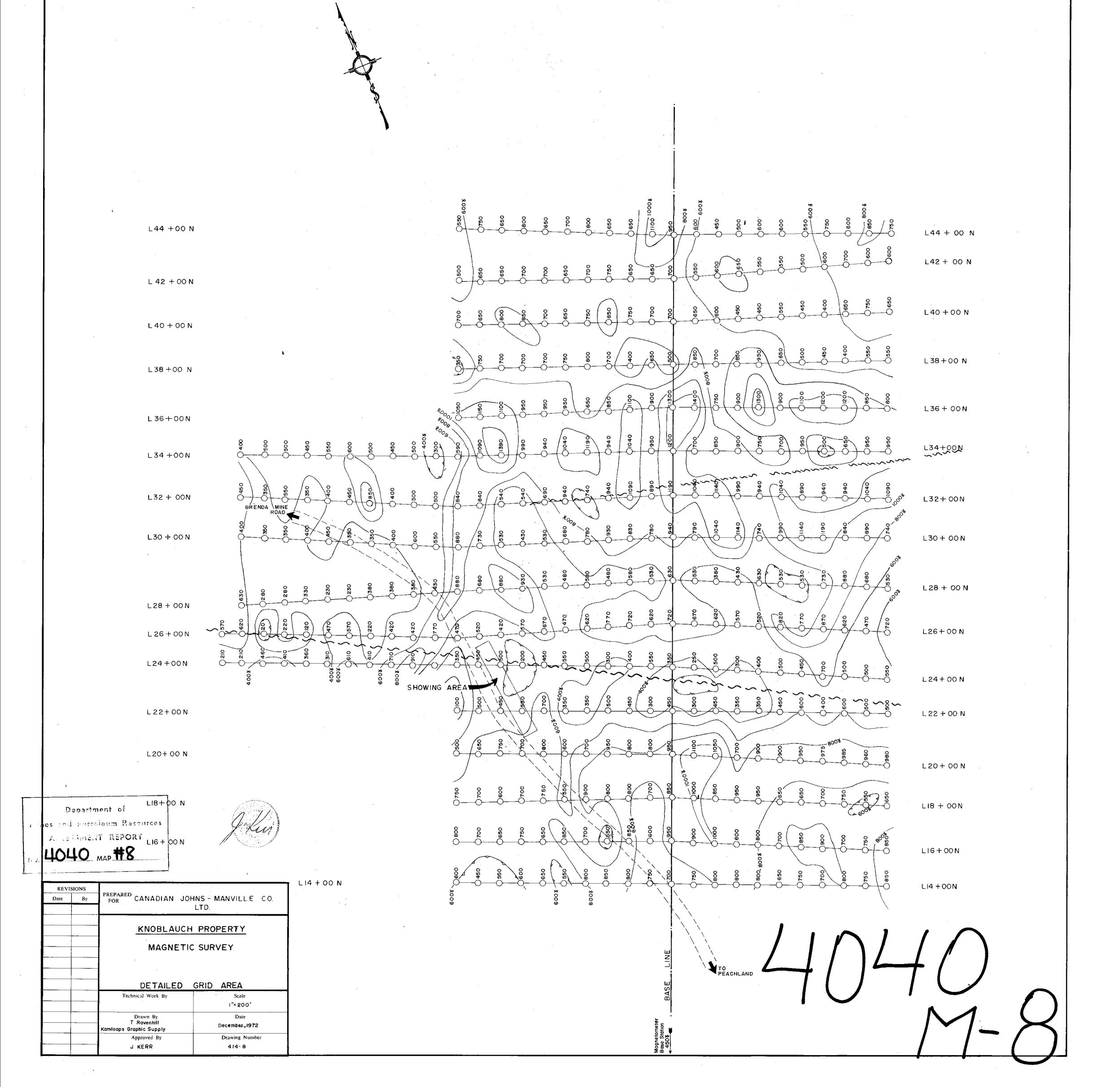






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