



EMPIRE METALS CORPORATION LTD. (N.P.L.)

REPORT ON THE PELY LEAD ZINC PROPERTY  
WATSON LAKE MINING DIVISION, YUKON TERRITORY

February, 1975.

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of

\$ \_\_\_\_\_

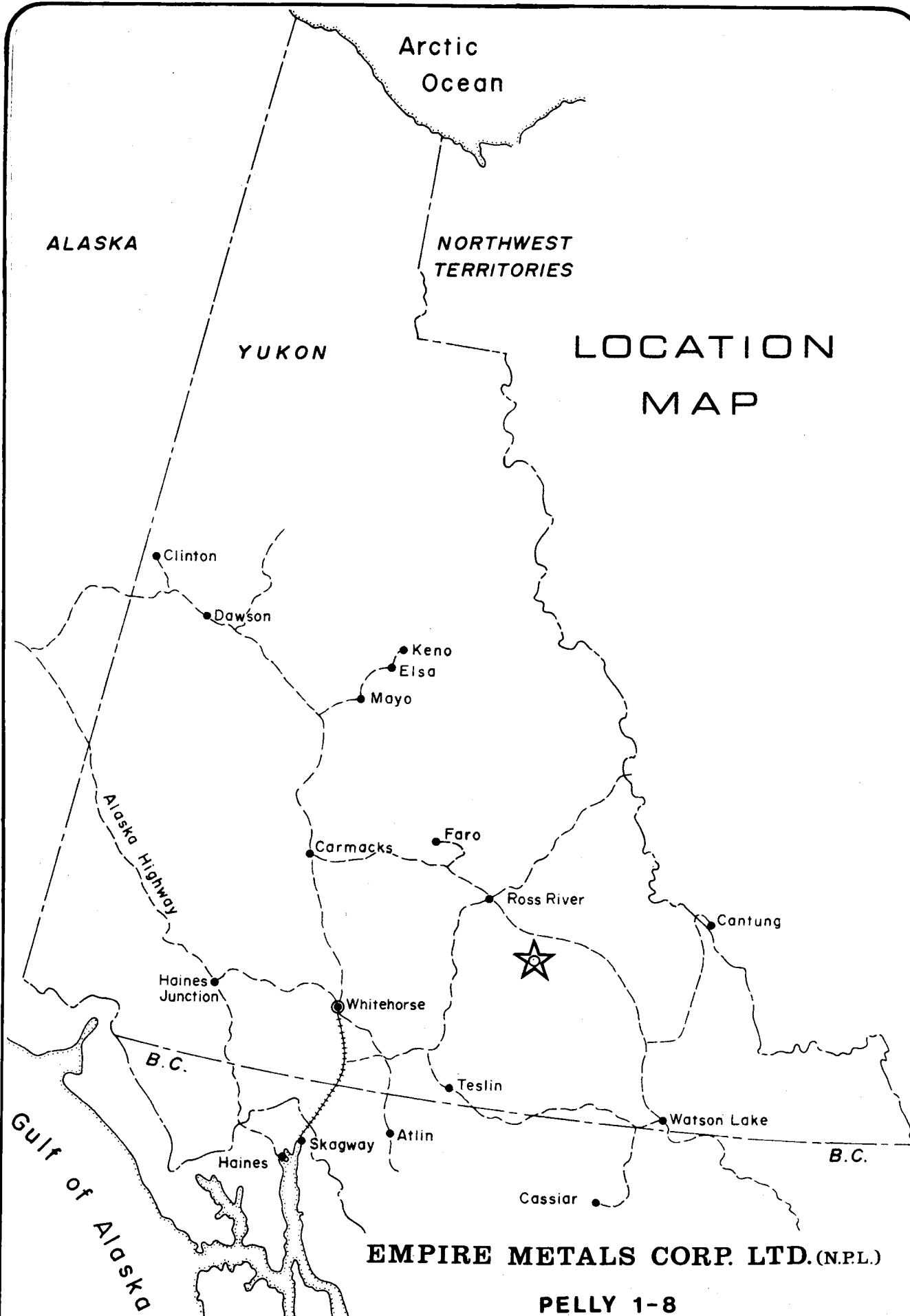
Resident Geologist or  
Resident Mining Engineer

Considered as representation work under  
Section 53 (4) Yukon Quartz Mining Act.

B. R. BAXTER  
Supervising Mining Recorder

Per Commissioner of Yukon Territory

# LOCATION MAP



ALASKA

Arctic Ocean

NORTHWEST TERRITORIES

YUKON

Clinton

Dawson

Keno

Elsa

Mayo

Carmacks

Faro

Ross River

Cantung

Haines Junction

Whitehorse



B.C.

Teslin

Watson Lake

B.C.

Gulf of Alaska

Haines

Skagway

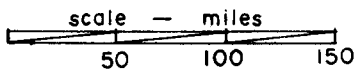
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EMPIRE METALS CORP. LTD. (N.P.L.)

PELLY 1-8  
HOOLE RIVER AREA

Fig. 1



NEVIN SADLER-BROWN GOODBRAND LTD.  
CONSULTING GEOLOGISTS

## SYNOPSIS

The Pelly 1-8 mining claims, held by Empire Metals Corporation, are located 50 miles southeast of Ross River, in the Watson Lake Mining Division, Yukon Territory. A preliminary exploration programme on this ground in the middle 1960's revealed large, coincident zinc-lead soil geochemical anomalies, a sub-parallel E.M. conductor, and disseminated zinc-lead mineralization in trenches and shallow diamond drill holes.

The Pelly claims are an exploration target of unusual promise for the following reasons:

1. Principal rock units include the recognized favourable assemblage of sericite schist, graphite schist, and zinc and lead sulfides;
2. The schists belong to the Proterozoic system at the base of the Selwyn Basin sediments - - which recent work has shown to be an important common factor among the Faro, Vangorda, AEX and Swim zinc-lead deposits to the northwest and the Howard Pass and MacMillan Pass deposits to the northeast.
3. Structurally the claims lie immediately northeast of the Tintina Trench, a fault zone which influenced ore emplacement, as do the ores in the Faro-AEX district.
4. The geochemical and E.M. anomalies have yet to be adequately tested.

We recommend that in 1975 Empire Metals Corporation should pursue a vigorous exploration programme which would include high resolution E.M. and magnetometer surveys, geochemical sampling, enough geologic work to set up models of ore controls, and 1,000 feet of diamond drilling as a second stage. The estimated cost of this work and its logistical support is \$55,000.

The objective of the work would be to take the first steps toward testing for the possible existence of a large commercial zinc-lead ore body.

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Fig.5.	Geochemical Survey - Zinc Plot.....	" 1 in. = 400 feet
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Fig.7.	Diamond Drilling.....	" 1 in = 100 feet

## COVER PHOTOGRAPH

Base-Line on the Pelly Group Looking Northeast.

## APPENDICES

Affidavit - Personnel Employed - Costs Incurred.

1.0. INTRODUCTION

1.1. Terms Of Reference

This report has been prepared at the request of Mr.H.S. Aikins, President, Empire Metals Corporation Ltd. (N.P.L.). Its scope is a description of the current status of the Pelly claims and a summary of previously conducted exploration work on the property.. It is based on information made available by government agencies and former holders of the claims and on observations made by the writer during the course of an examination of the claim group conducted July 25th, 1974.

In recent years mineral exploration development and geological research in the central Yukon has modified some previously held exploration concepts. This report also reviews the new thinking and applies it to the Pelly claims.

1.2. Legal Description

This report describes the Pelly 1-8 mining claims, located in the Watson Lake Mining Division, Yukon Territory. The claims were staked by Eric Brown on June 21, 1974. An examination of the posts and the ground indicates that they are staked in compliance with the Yukon Quartz Mining Act. The claims have been transferred to Empire Metals Corporation and are so registered in the office of the Mining Recorder for the Watson Lake District.

1.3. Location and Access

The Pelly 1-8 claims are centred on latitude 60° 28 min. north and longitude 131°20 min. west, on map sheet #105-G-6. They are 50 miles southeast of Ross River.

Access is via a tote road, leading from the Ross River - Watson Lake highway at Mink Creek, or alternatively by fixed wing aircraft to an air strip some 6 miles to the north-west and then by helicopter or A.T.V. to the property.

1.4. Geography

The general terrain and vegetation are typical of the Yukon Plateau and not unlike the local setting found along the Faro-Vangorda belt. Hills of moderate size are timbered on flanking slopes with tree line at about 5000 ft. A.S.L. Scrub alder with occasional stands of black spruce cover the valley floors. Generally enough rock outcrops to permit some preliminary inferences, however, for detailed work the prospector has to turn to geophysical, geochemical and other indirect methods.

2.0./

## 2.0. EXPLORATION HISTORY

### 2.1. Work Performed in 1966-67

Following in the wake of the discovery of the Faro ore body in the middle 1960's, regional exploration was directed in the area of the Hoole and Pelly rivers. Airborne geophysical methods followed by stream silt sampling programmes and conventional prospecting resulted in several finds. Ground now covered by the Pelly 1-8 claim covers one of the more significant of these. Subsequent work during this period involved geochemical soil surveys, bulldozer trenching and the drilling of four short diamond drill holes. These data have been made available to Empire Metals and have been verified by the writer.

### 2.2. Empire Metals

Since the restaking of the claims, Empire Metals has re-examined the claims and reviewed existing data on the basis of revised concepts designed with a view toward an exploration programme to follow up on earlier results.

### 2.3. Regional History

Exploration in the Faro basin languished for several years after the excitement surrounding the discovery of the Faro ore body died down. During the past year exploration has increased beyond its 1967 level, following pursuit of the concepts which led to the discovery of the AEX lead-zinc zone near Faro, a significant zinc-lead province on the eastern margin of the Selwyn Basin and elsewhere, along with the realization that such ores are liable to occur throughout the early Paleozoic - late Proterozoic terrain northeast of the Tintina trench.

## 3.0. GEOLOGY

### 3.1. Regional Economic Geology

The Pelly claims lie on the southern margin of the Selwyn Basin a 3000 square mile assemblage of shale and carbonate rocks ranging in age from Proterozoic through Carboniferous. The accumulation reaches more than 15,000 to 20,000 feet in the centre of the basin. These rocks are variously intruded by Mesozoic granite stocks and occasional late Paleozoic ultrabasics. The southwestern margin of the basin coincides with the Tintina trench, a major northwest trending fault zone which passes immediately southwest of the Pelly claims, Ross River, and the Faro-Vangorda-Swim Lake lead-zinc district.

During the period from 1953 through 1966, the interval during which the Swim Lakes, Vangorda and Faro orebodies were discovered and confirmed, the effort in the region was confined to the development of geophysical techniques adequate for penetrating large areas of overburden and for discriminating between/

between significant sulfide zones and the plentiful zones of graphite conductors. In recent years considerable thought and research has been applied towards developing models of ore formation and the geological framework of the foundation as it bears on continued exploration. Two recent studies, one by D.J. Tempelman-Kluit<sup>(1)</sup> in 1972 and the other by Clyde L. Smith<sup>(2)</sup> in 1974, have provided grounds for practical work throughout the basin.

Stratabound lead zinc ores in the Anvil Range, 75 miles northwest of the Pelly claims, occur as pyritic massive sulfides, with or without graphite, in crenulated muscovite, phyllites and schists. Exact age determination on these rocks is difficult owing to the overprint of regional metamorphism, however, in general they have been assigned to the Cambrian. On the eastern margin of the basin broadly similar mineral deposits are present at Howard Pass and Macmillan Pass and occur in rocks of similar age and sedimentary facies. All in all some 80 million tons of mineralized rock containing roughly 10% combined lead and zinc and more than 1 oz. per ton of silver have been proven in the basal rocks outcropping on the margins of the Selwyn Basin.

Current thought on the lead-zinc ores in the region is as follows:-

- 1) They are independent of Mesozoic granitic intrusives.
- 2) They are liable to be present in any of the basal phyllitic units.
- 3) They were emplaced by solutions derived within these basal units.
- 4) Their localization was controlled in part by the Tintina trench and other northwest and northeast trending structures.
- 5) The presence of muscovite and graphite schists is a generally favourable indicator.

### 3.2. Rock Types

The Pelly claims are underlain by schistose rock of three principal types, all including chlorite, sericite and quartz. They are 1) a dark green chlorite-graphite schist, 2) a feldspar augen schist, and 3) a quartz-sericite schist.

Immediately north of the west edge of the claims is a circular body of dunite about 6 miles in diameter.

The schist is tentatively identified as equivalent to the Proterozoic Grit unit identified in adjacent terrain where metamorphic effects are less pronounced, and the dunite is presumed to be Paleozoic (Permian). The dunite is believed to be unrelated to the mineralization in the schist on the Pelly group but it is of some interest that similar alpine ultrama-

1. Tempelman-Kluit, D.J. Geology and Origin of the Faro, Vangorda and Swim Concordant Zinc-Lead Deposits, Central Yukon Territory, G.S.C.Bull.208, 1972.
2. Smith, Clyde L., Newly Discovered Mississippi Valley Type Zn-Pb Province Yukon - Northwest Territories, Canada - Soc.Min.Engrs., Fall Meeting, 1974.

ultramafites extend along the trend of the ore deposits of the Faro-Vangorda camp.

### 3.3. Structure

The strike of the schistosity is northwest, that is parallel to the adjacent Tintina trench to the south. Dips range from 15° to the northeast through vertical, although recent structural studies by the G.S.C. indicate gentle dips prevail on a more regional scale. The crenulations and axes of tiny folds give the appearance of an overall axial plunge 8° to 45° to the southeast.

The structural relationship of this zone has not been resolved, however, it is believed that the feldspar eye schist overlies the graphitic schist, probably along a warped or undulated surface characterized by the gentle dips, and that the contact between the two serves as a locus for the occurrence of mineralization.

## 4.0. METAL VALUES

### 4.1. Geochemistry

Earlier work, handicapped as most by variable overburden depth, produced corresponding zinc and lead geochemical anomalies on the central parts of the claim group. Both of these plots accompany this report. The zinc anomaly, defined as having values consistently or nearly consistently above 250 ppm., is an elongate pattern more than 3200 feet in length and about 600 feet in width at a bulge in the centre. Values range up to nearly 2000 ppm. zinc.

Coinciding with the highest parts of the zinc anomaly is a lead anomaly having values above 90 ppm. and as high as 600 ppm.

The sampling conducted in both surveys consisted of soil samples spaced on 100 or 200 foot intervals along northwest lines spaced 400 feet apart.

### 4.2. Drill Hole Values

As shown in the attached sketch Drill Holes # 1 and # 3 intersected low grade lead and zinc values over short intersections. No.1 had an average of 0.6% Pb and 0.6% Zn over a footage of 37 feet near the top of the hole. Drill hole #3 intersected 0.3% Pb and 0.2% Zn over 7 feet at a depth of about 80 feet. The highest value recorded in one run was between 38 and 44 feet in Drill Hole # 1 and consisted of 0.82% Pb, 2.49% Zn and 0.28 oz. Ag.

### 4.3. Surface Mineralization/

#### 4.3. Surface Mineralization

During the writer's visit to the property he selected a sample high grade from the trench on Line 44W. This assayed 26.8% Pb, 0.45% Zn and 0.6 oz. Ag, as reported by Chemex Labs. Ltd. of North Vancouver.

Examination of other mineralization suggests that lead-zinc ratios will prove to be more nearly equal.

#### 5.0. GEOPHYSICS

##### 5.1. Government Aeromagnetic Map

The Government aeromagnetic map, Finlayson Lake sheet, shows a pronounced aeromagnetic high immediately northwest of the Pelly claims. This high, against a background of low magnetic relief, corresponds with the ultramafite and is believed to be directly caused by it.

##### 5.2. Pelly Group - Magnetism

A map of the claims and the area to the north accompanies this report. The north central part of the claims has a small circular high about 100 gammas above the background. This, too, probably corresponds to the dunite contact dipping toward the Pelly group. Magnetic features elsewhere on this map suggest a pronounced north trend.

##### 5.3. Electromagnetic Studies

The E.M. map which also accompanies this report indicates a conductor trending northeast and north to the eastern part of the claim group. The central part of this conductor corresponds with the central part of the zinc and lead geochemical anomaly and the occurrence of mineralization on the surface. The two features do cross each other at low angles however. One interpretation of the electromagnetic information is that it reflects a graphitic zone in the schist. Near surface disseminated-to-massive sulphides could provide a similar response. This feature should be studied and followed up in terms of renewed exploration.

#### 6.0. EXPLORATION RATIONALE

We recommend that Empire Metals continue exploration on the Pelly Group for several reasons:-

- 1) The geochemical anomalies had not been entirely followed up by the earlier programme;
- 2) The coincident E.M. anomaly was not followed up;
- 3) The presence of extreme quantities of sericite and graphite, both of which are ore indicators in the district;
- 4)/

- 4) Disseminated sulphide mineralization observed within the schist may indicate the presence of commercial concentration within adjacent structures.
- 5) Renewed interest in rocks at the base of the Selwyn Basin, especially near the Tintina Trench.

7.0. PROPOSED WORK PROGRAM

We recommend that work be continued. Initially we suggest re-inspection of detailed geology, and high-resolution E.M. and magnetic surveys. A preliminary topographic survey suitable for control of a gravity survey should be considered.

If the early inspection warrants it, a programme of about 1000 feet of diamond drilling should be planned and carried out.

8.0. ESTIMATED COSTS

<u>Item</u>	<u>Units</u>	<u>Expenditure</u>
1. General		
(a) Consultant's Fees	10 Days	\$1,800
(b) Field Supervision	1.5 months	3,200
2. Mobilization and demobilization		
(a) Transportation	General	1,500
(b) Freight	Drill mobilization*	3,500
3. Exploration Work		
(a) Mapping and prospecting	2 man-month	3,000
(b) (i) Geological surveys	1 " "	2,000
(ii) Geophysical surveys	10 line-miles high resolution E.M. and Mag.	6,000
(iii) Geochemical surveys	200	1,000
(c) Diamond drilling	4-250' holes*	20,000
4. Misc. sampling and assaying	100 samples	1,000
5. Camp construction	5 man camp	2,000
6. Camp supplies	300 man-days	3,000
7. Truck rental	2 months	<u>1,000</u>
	c/f.	49,000

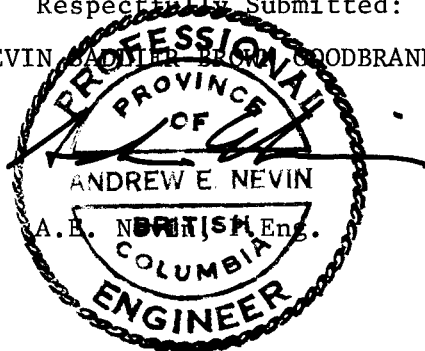
b/f. \$ 49,000

8. Major transportation		
(a) Fixed wing	10 hours	1,000
(b) Helicopter	15 hours	4,500
9. Communications	Radio	<u>500</u>
	<u>TOTAL PROGRAMME</u>	- <u>\$55,000</u>

\* Stage II items, contingent upon the outcome of other work.

Respectfully Submitted:

NEVIN SADLIER-BROWN GOODBRAND LTD.

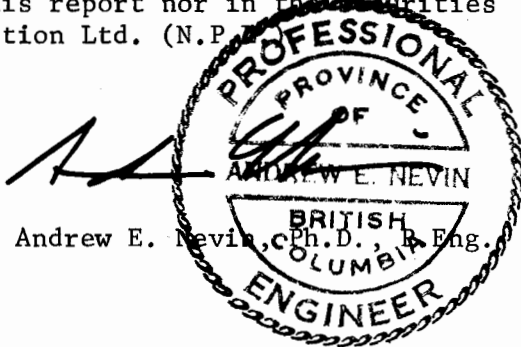


February, 1975.

CERTIFICATE

I, Andrew E. Nevin, hereby certify that:

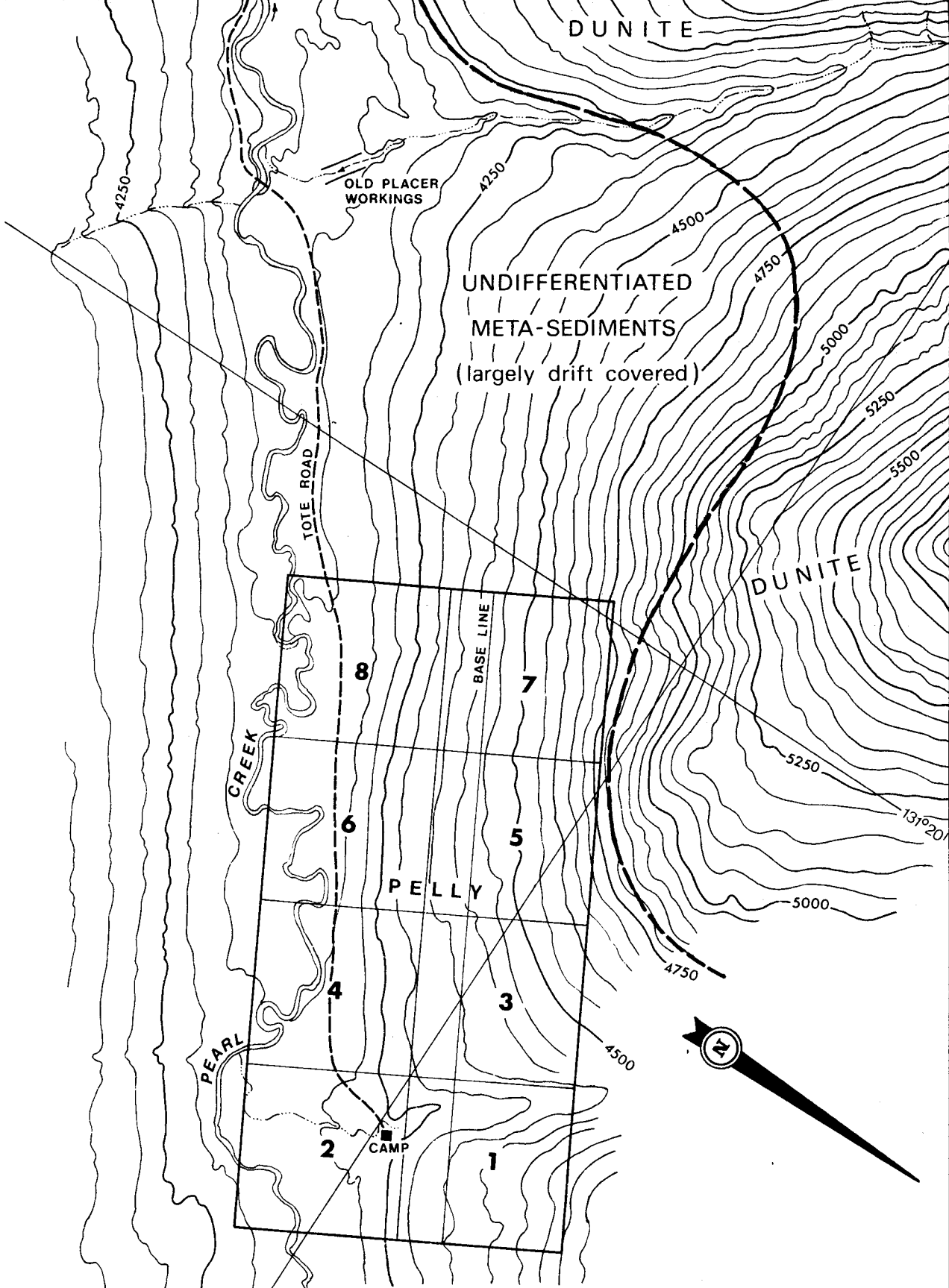
1. My residence address is 962 Montroyal Blvd., North Vancouver, B.C., my office address is 5th Floor - 134 Abbott Street, Vancouver, B.C. V6B 2K4, and that I am a Geologist by occupation.
2. I hold a B.Sc. in Geophysics from St. Lawrence University, an M.A. in Geology from University of California, Berkeley, and a Ph.D. in Geology from University of Idaho. I have been practicing my profession since 1961, and I am a member of the Association of Professional Engineers (Geological) of the Province of British Columbia, and a Registered Professional Geologist in the State of Idaho.
3. I have examined the Pelly property and reviewed the data thereon personally.
4. I hold no direct or indirect beneficial interest in the property described in this report nor in the securities of Empire Metals Corporation Ltd. (N.P.A.)



Andrew E. Nevin, Ph.D., R. Eng.

February, 1975.

AEN/jrt.



**EMPIRE METALS CORP. LTD. (N.P.L.)**  
**CLAIM LOCATION PLAN**  
**PELLY 1-8**  
 HOOLE RIVER AREA

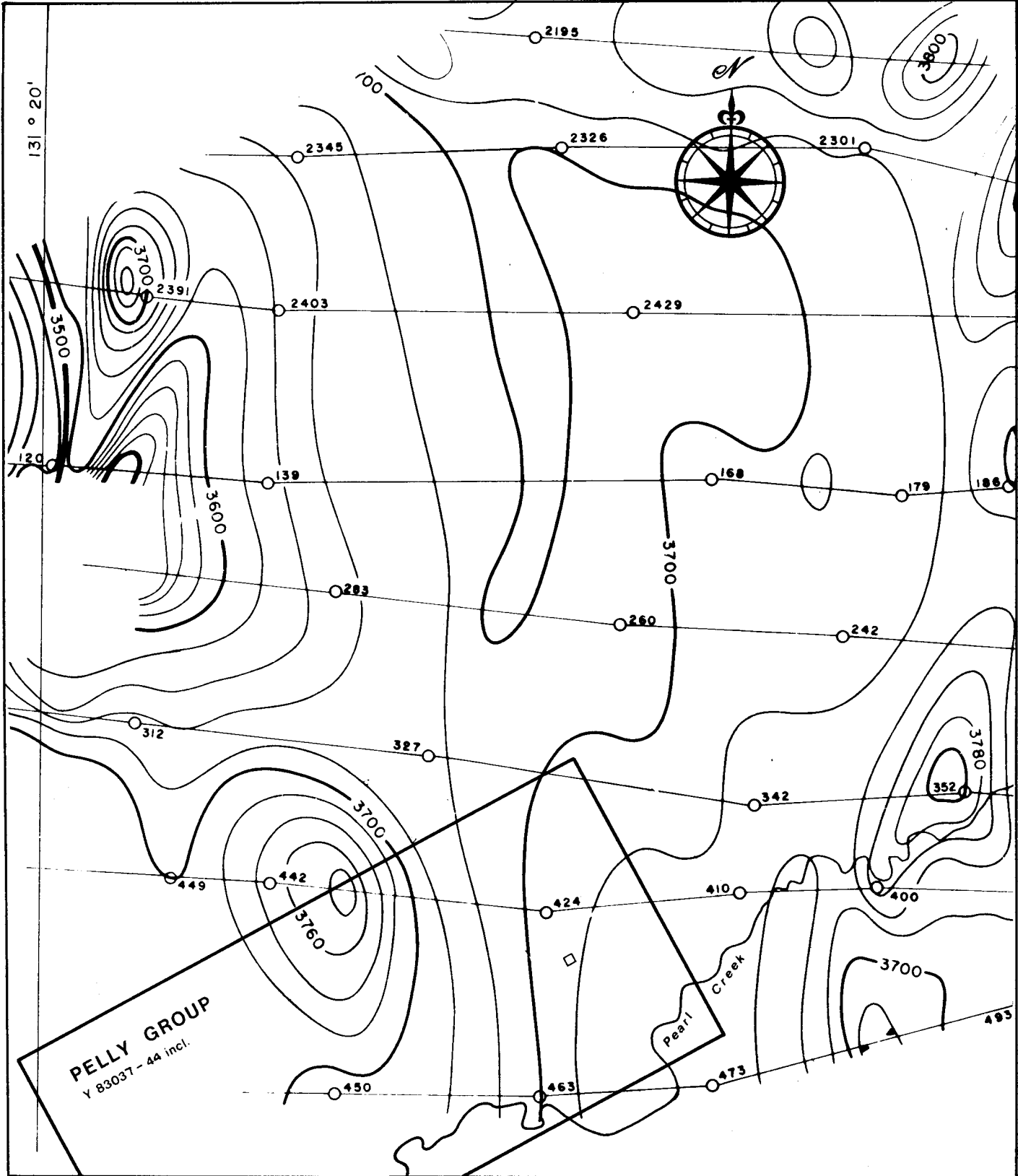
WATSON LAKE M.D.

Scale 1" : 1320'

105 G-6

TO ACCOMPANY REPORT BY A.E. NEVIN, P. Eng.

Fig. 2



MAGNETOMETRIC MAP

PARTIAL PRINT OF SURVEY BY:  
 LOCKWOOD SURVEY CORP.  
 for  
 PETER H. SEVENSMA Ph.D., P.Eng.

AEROMAGNETIC RESPONSE CONTOURED  
 AT 20 GAMMA INTERVALS

NEVIN SADLIER-BROWN GOODBRAND LTD.  
 CONSULTING GEOLOGISTS · VANCOUVER, B. C.

TYPE/DATE SURVEY - Pelly Group

TO ACCOMPANY REPORT :  
**EMPIRE METALS CORP. LTD. (N.P.L.)**

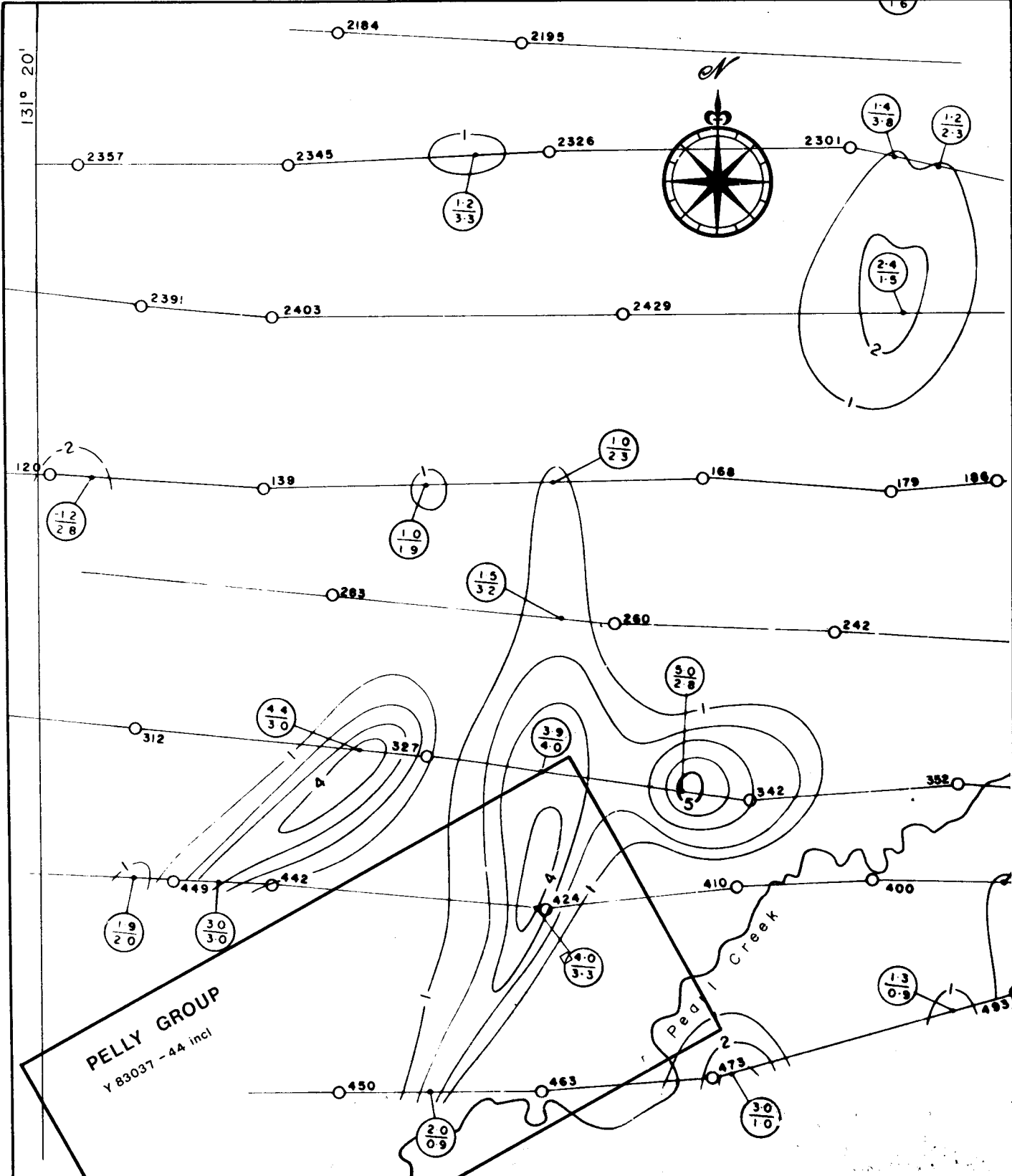
Watson Lake M.D., Y.T. 105 G-6

BY:

DATE: DEC. 1974

Scale: 1" = 1320'

FIG. 3



ELECTROMAGNETIC MAP

PARTIAL PRINT OF SURVEY BY:  
 LOCKWOOD SURVEY CORP.  
 for  
 PETER H. SEVENSMA Ph.D., P.Eng

ELECTROMAGNETIC RESPONSE CONTOURED  
 IN PARTS PER MILLION

NEVIN SADLIER-BROWN GOODBRAND LTD.  
 CONSULTING GEOLOGISTS · VANCOUVER, B. C.

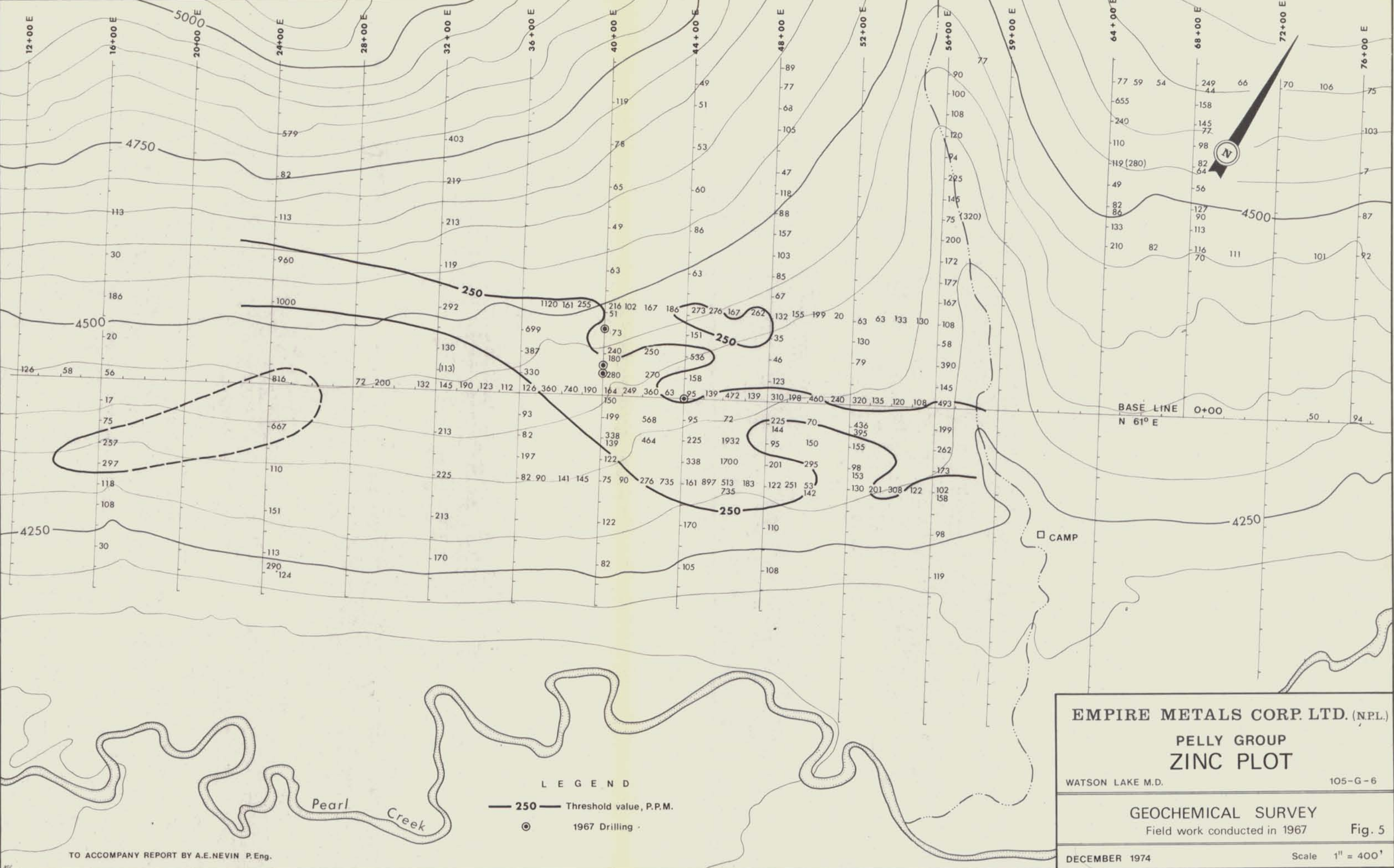
TYPE/DATE SURVEY- Pelly Group

TO ACCOMPANY REPORT :  
**EMPIRE METALS CORP. LTD. (N.P.L.)**

Watson Lake M.D., Y.T. 105 G-6

BY: DATE: DEC. 1974

Scale: 1" - 1320' FIG. 4



EMPIRE METALS CORP. LTD. (N.P.L.)  
 PELLY GROUP  
 ZINC PLOT  
 WATSON LAKE M.D. 105-G-6

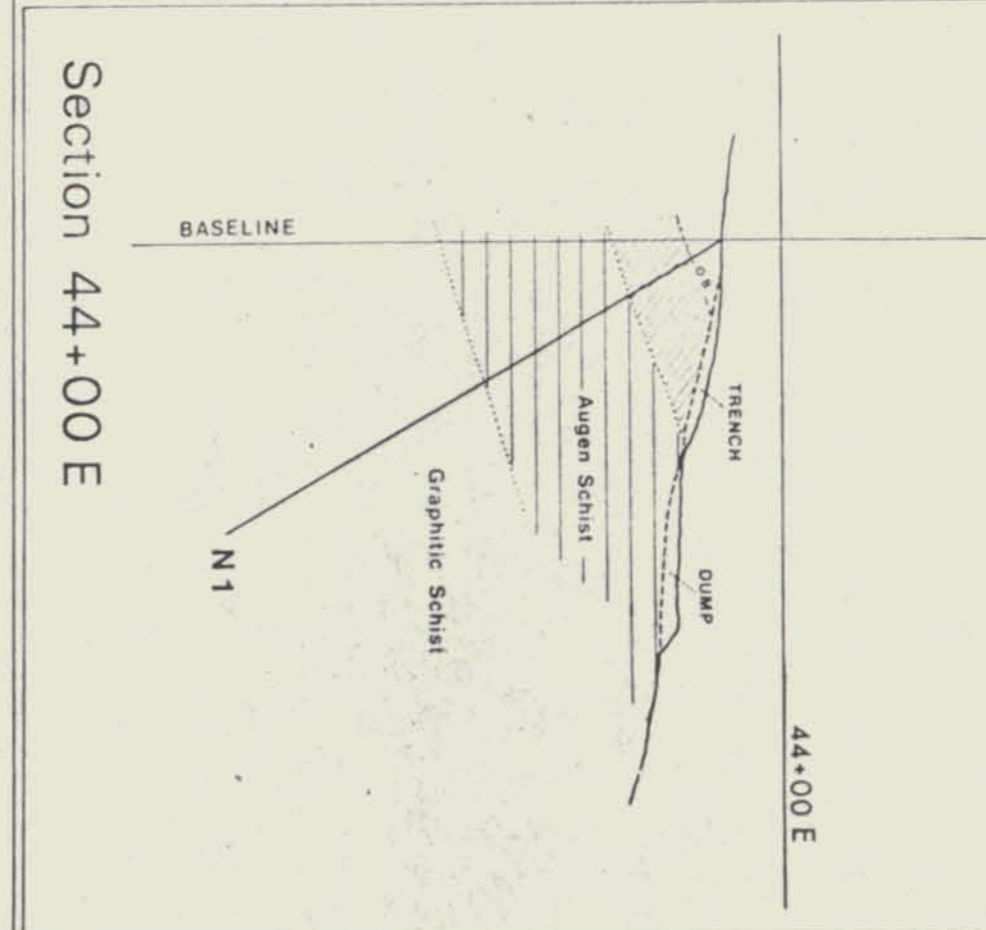
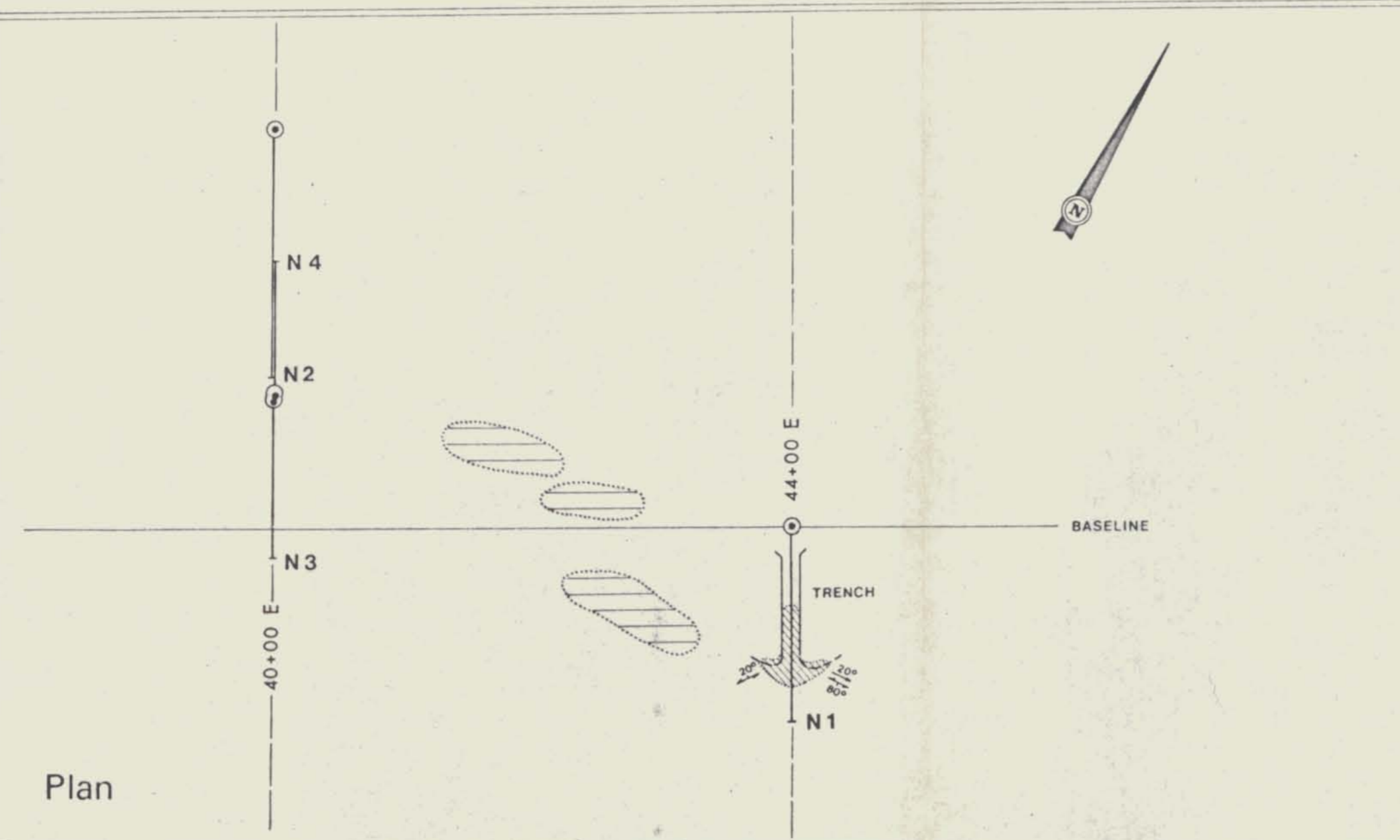
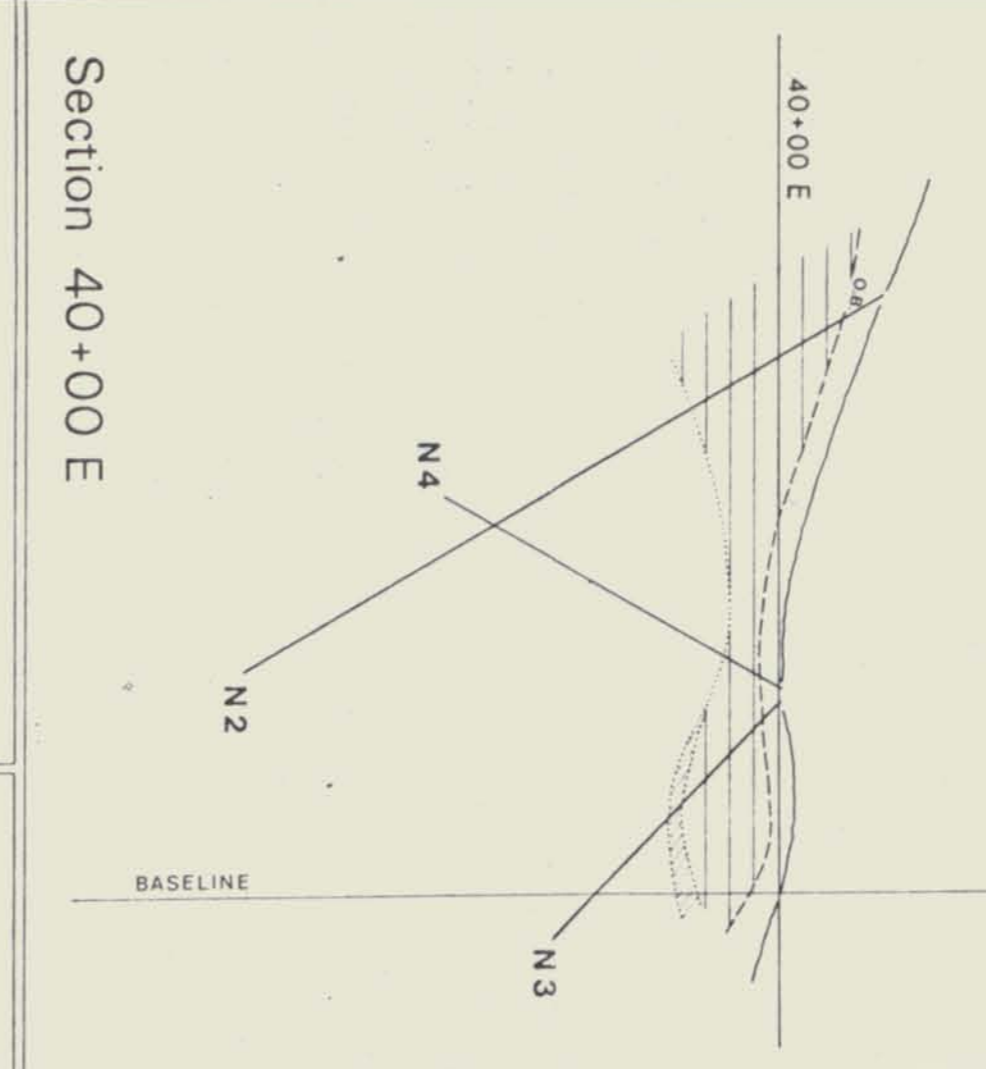
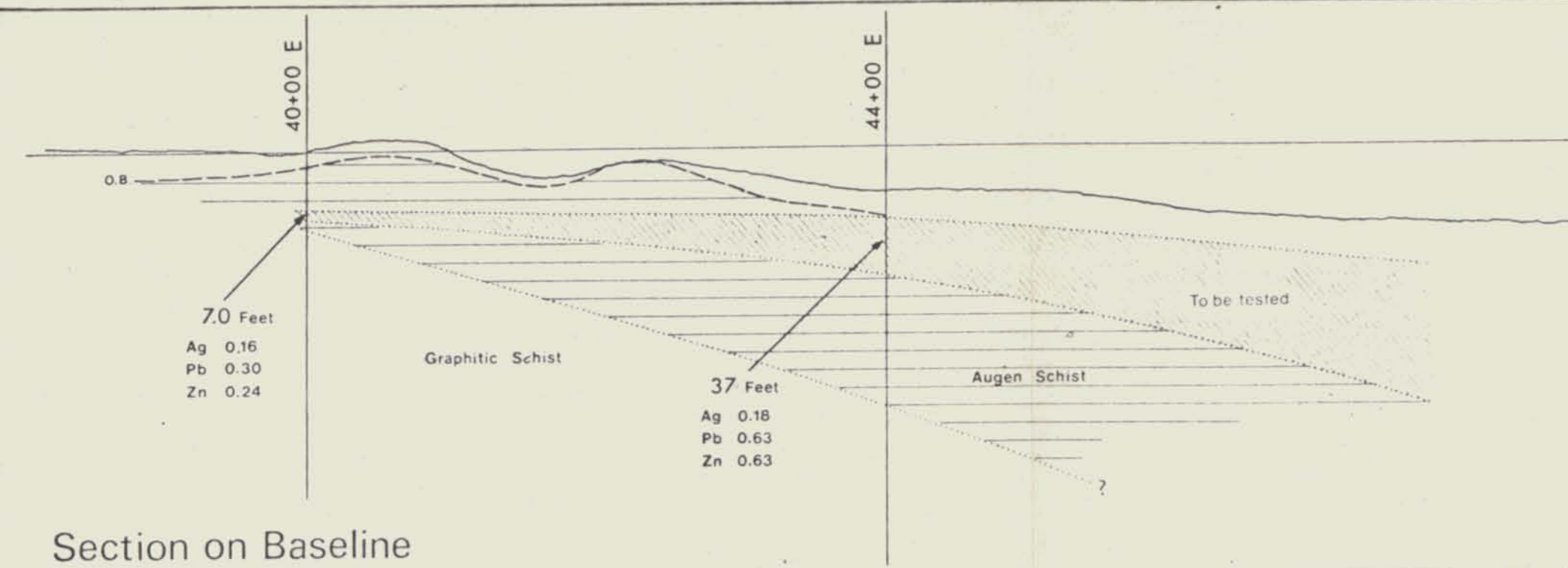
GEOCHEMICAL SURVEY  
 Field work conducted in 1967 Fig. 5

DECEMBER 1974 Scale 1" = 400'

LEGEND

- 250 — Threshold value, P.P.M.
- ⊙ 1967 Drilling





LEGEND


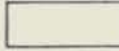






-  Feldspar Augen Schist
-  Graphitic Schist
-  Feldspar Augen Schist, mineralized
-  Inferred geological boundary
-  D.D. Hole
-  Overburden contact
-  Limit of outcrop
-  Foliation

Fig. 7

EMPIRE METALS CORP. LTD. (N.P.L.)  
 PELLY GROUP  
 1967 Diamond Drilling  
 WATSON LAKE M.D.      105-G-6

NEVIN SADLER-BROWN GOODBRAND LTD.  
 CONSULTING GEOLOGISTS      VANCOUVER, B.C.

DECEMBER, 1974      Scale 1" = 100'

Canada )  
 )  
Yukon Territory )  
 )  
To Wit ) Pelly mineral claims

I, HAROLD S. AIKINS, of the City of North Vancouver in the Province of British Columbia

HEREBY MAKE OATH AND SAY AS FOLLOWS:

That attached hereto, this my affidavit, marked Appendix I and Appendix II, respectively, is a list of the Personnel Employed and a Statement of Costs Incurred, which I certify to be correct to the best of my knowledge and belief.

SWORN before me at  
Vancouver, British Columbia,  
this 30<sup>th</sup> day of June, 1975

)  
)  
)  
)  
)

H.S. Aikins

Jack Brown

APPENDIX I

LIST OF PERSONNEL EMPLOYED

PELLEY MINERAL CLAIMS

1. Nevin Sadlier-Brown Goodbrand Ltd.
  - A.E. Nevin, Ph.D. P. Eng.  
Field, Travel, Report Preparation 3 days
  - T.L. Sadlier-Brown, Geologist  
Compilation of data 1 day
  - J. R. Tullis, Secretary  
Typing services 3 days
2. Empire Metals Corporation
  - H.S. Aikins, Sr. Engineering Technician  
Field, Compilation of data 5 days
3. N. Cukor, Draftsperson  
Map preparation 3 days

APPENDIX II

STATEMENT OF COSTS INCURRED

PELLEY MINERAL CLAIMS.

Nevin Sadlier-Brown Goodbrand Ltd.  
 5th Floor - 134 Abbott Street  
 Vancouver, B.C.

Invoice No. 5/2	-	\$ 696.85
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H.S. Aikins, C.E.T.  
 5th Floor - 134 Abbott Street  
 Vancouver, B.C.

- Salary and Benefits	-	250.00
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N.Cukor, Drafting Service  
 2841 West 18th Avenue  
 Vancouver, B.C.

- Invoice of Jan.30, 1975.	-	<u>134.40</u>
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COST OF WORK APPLICABLE.	<u><u>\$ 1081.25</u></u>
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Note: Air-fares, subsistence and accommodation, and aircraft charter costs have been omitted as they were borne in part by other parties and were also partly applicable to other holdings in the Yukon.



A REPORT ON A GEOCHEMICAL SURVEY OF THE

PELLY (1-32) CLAIMS.

Watson Lake Mining District, Yukon

Located in the Hoole River Area

Claim Sheet No. 105-G-6

60° 28' N.Lat.

131° 20' W.Long.

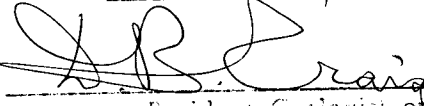


by: T.L. Sadlier-Brown, Geologist  
and A.E. Nevin, P.Eng.

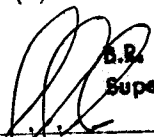
5959.54

June 10 - 15, 1975.

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of \$5959.54

  
Resident Geologist of  
Mining Engineers

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

  
B.B. BAXTER  
Supervising Mining Recorder  
Per Commissioner of Yukon Territory

090008

### SUMMARY

During June of 1975 a geochemical survey was carried out over part of the Pelly claims in the Hoole River Area, southeastern Yukon. Samples were tested for Zn, Pb and Cu and Zn Pb anomaly discovered earlier was extended both to the northeast and southwest.

Additional physical geochemical and geophysical work was warranted to test these extensions and an \$11,000 program is recommended.

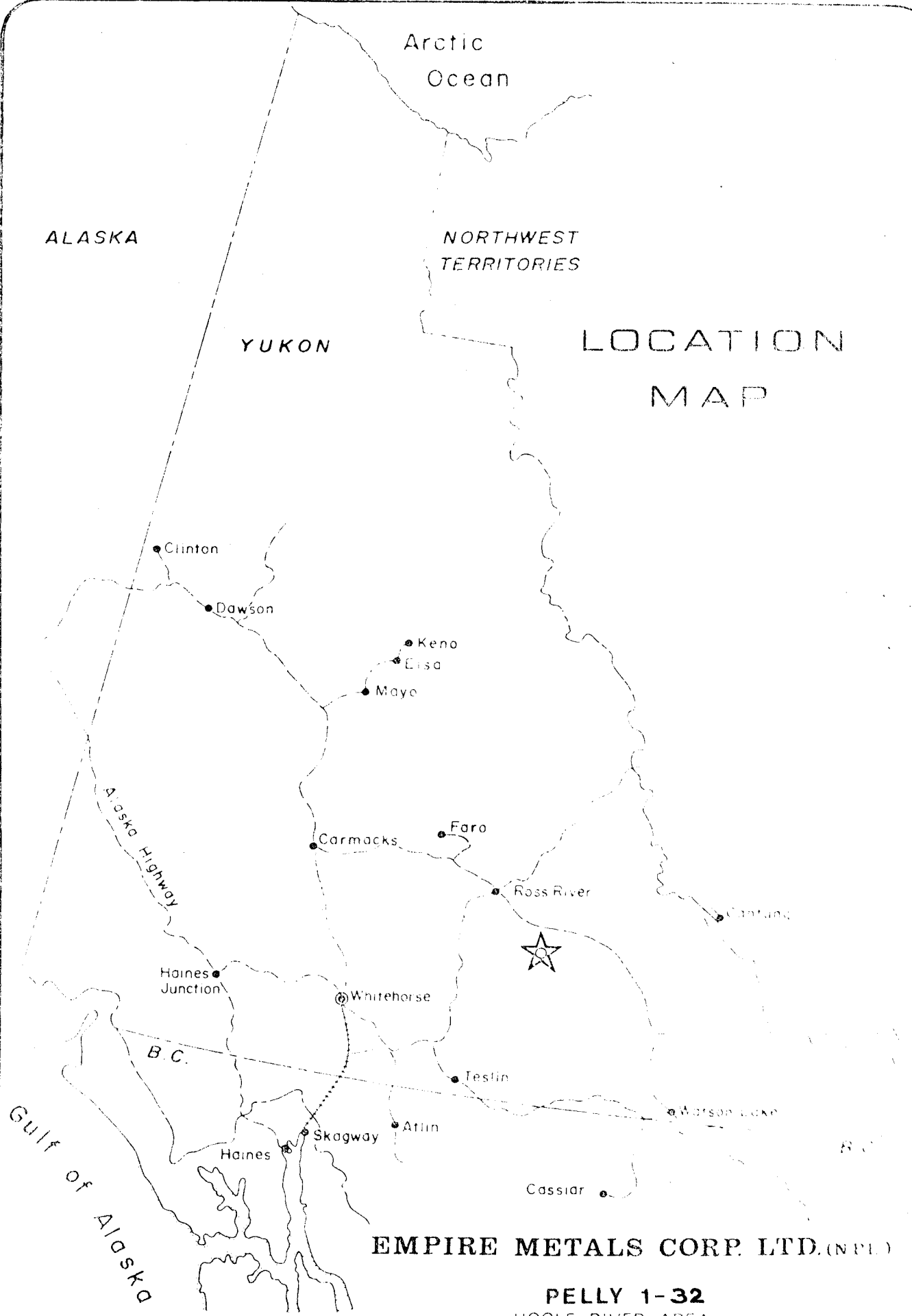
Arctic  
Ocean

ALASKA

NORTHWEST  
TERRITORIES

YUKON

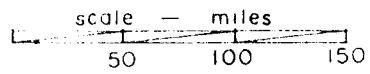
# LOCATION MAP



Alaska Highway

B.C.

Gulf of Alaska

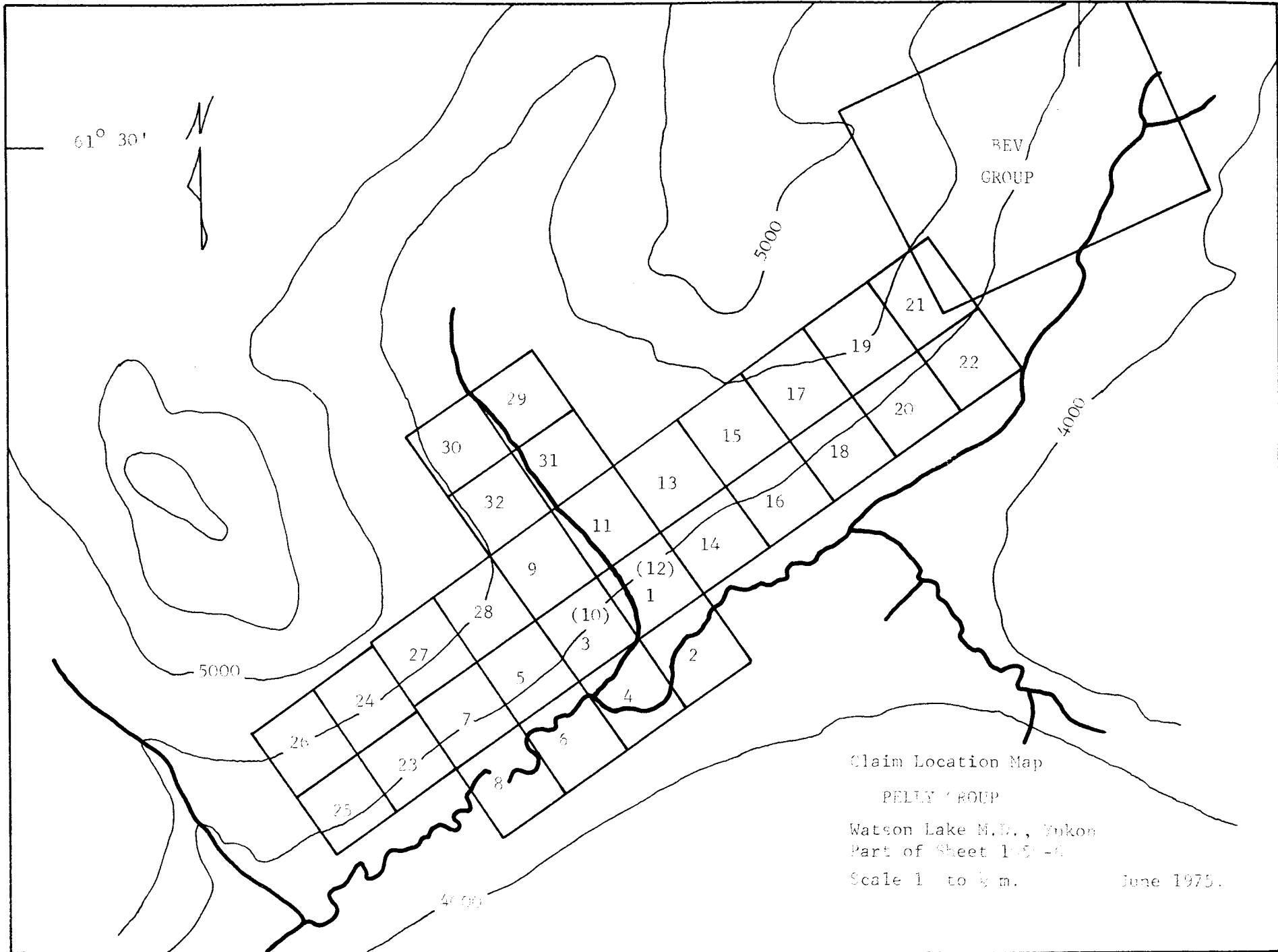


**EMPIRE METALS CORP. LTD. (N.P.L.)**

**PELLY 1-32**  
HOOLE RIVER AREA

FIG. 1

**NEVIN SADLER-BROWN GOODBRAND LTD.**  
CONSULTING GEOLOGISTS



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Maps:

Location Map.....	(Front)
Claim Map.....	"
Silt Sampling Map (Fig.3).....	(Rear Pocket)
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Soil Sampling Map: Copper Lead (Fig.6).....	(Rear Pocket)

I.O. INTRODUCTION

1.1. Terms Of Reference

Between June 10th and 15th, 1975 a geological reconnaissance prospecting and a geochemical sampling survey was carried out on the Pelly claims. Work was supervised by R.G. Gifford, P.Eng., who was assisted by H.S. Aikins, L.Bell, and T.L. Sadlier-Brown, all of Vancouver, B.C. based upon recommendations contained in a report by A.E. Nevin, P.Eng.\* The survey was carried out at the request of Mr.H.S. Aikins, President of Empire Metals Corporation and done on behalf of Empire, the recorded owner of the claims and Texasgulf Inc.

1.2. Legal Description

The Pelly Property consists of a group of 32 contiguous claims registered in the Watson Lake Mining District, Yukon Territory in the name of Empire Metals. A schedule of the claims with staking and record dates is as follows:-

<u>Claim No.</u>	<u>Grant No.</u>	<u>Staked</u>	<u>Record Date</u>
Pelly 1	Y 83037	June 21, 1974	June 28, 1974
2	38	"	"
3	39	"	"
4	40	"	"
5	41	"	"
6	42	"	"
7	43	"	"
8	44	"	"
9	Y 84094	March 17, 1975	April 10, 1975
10	95	"	"
11	96	"	"
12	97	"	"
13	98	"	"
14	99	"	"
15	Y 84100	"	"
16	101	"	"
17	102	"	"
18	103	"	"
19	104	"	"
20	105	"	"
21	106	"	"
22	107	"	"
23	108	"	"
24	109	"	"
25	110	"	"
26	Y 84 111	"	"
27	Y 84195	June 12, 1975	June 23, 1975
28	Y 84196	"	"
29	Y 84223	June 13, 1975	July 7, 1975
30	Y 84224	"	"
31	Y 84225	"	"
32	Y 84226	"	"

\* Nevin A.E. - Report on the Pelly Lead Zinc Property, Watson Lake M.D. February, 1975.

Claim posts and lines have been examined and found to comply with the provision of the Yukon Quartz Act with respect to staking.

### 1.3. Location and Access

The Pelly Prospect is located in the southeastern Yukon on claim sheet 105-G-6 at  $60^{\circ} 28' N$  Lat. and  $131^{\circ} 20' W$  Long. It is on the north side of Pearl Creek, a tributary of the Hoole River about 52 miles southeast of the town of Ross River from where it may most conveniently be reached by helicopter. A tractor road connects the property to the Campbell highway at a point just north of Mink Creek and could provide access for supplies and equipment for any major undertaking in the area. An airstrip built several years ago about six miles north of the prospect might also be useful as part of an access route.

### 1.4. Topography & Physiography

The claims lie on a moderate to gentle southeast slope above the valley of Pearl Creek. They are at an elevation of between 4000 and 5000 feet above sea level and are drained by several southeasterly flowing tributaries of Pearl Creek. Among these is Anomaly Creek which flows past the campsite. In the main valleys vegetation consists primarily of alders, buckbrush and grass with occasional small patches of meadow. The slopes are well-forested with spruce and lesser amounts of balsam.

Outcrop is absent in the lower part of the valley and rare on the lower slopes, the area of interest. Above tree line, however, it is abundant.

## 2.0. PREVIOUS WORK

The prospect was discovered in the mid 1960's and a considerable amount of exploration work was performed during 1966 and 1967 by Northlake Mines Ltd., a Vancouver based exploration company. The work carried out at that time included bulldozer trenching, geological, geochemical and some geophysical surveys, and diamond drilling. Four holes were put down, and, although mineralization was intersected both in these and in trenches, results were not conclusive and the claims later lapsed. Empire Metals acquired the prospect by staking 8 claims in June 1974. It later carried out geological work followed by additional staking and now holds 32 claims.

## 3.0. GEOLOGICAL STATEMENT

A detailed account of the geology of the Pelly prospect is beyond the scope of this discussion but may be found in Nevins Report on the Pelly Lead-Zinc Property of February 1975. The following excerpt from this report, however, gives a good general appraisal of the geological conditions:

"The/

"The Pelly claims are underlain by schistose rock of three principal types, all including chlorite, sericite and quartz. They are 1) a dark green chlorite-graphite schist, 2) a feldspar augen schist, and 3) a quartz-sericite schist.

Immediately north of the west edge of the claims is a circular body of dunite about 6 miles in diameter.

The schist is tentatively identified as equivalent to the Proterozoic Grit unit identified in adjacent terrain where metamorphic effects are less pronounced, and the dunite is presumed to be Paleozoic (Permian). The dunite is believed to be unrelated to the mineralization in the schist on the Pelly group but it is of some interest that similar alpine ultramafites extend along the trend of the ore deposits of the Faro-Vangorda camp.

The strike of the schistosity is northwest, that is parallel to the adjacent Tintina trench to the south. Dips range from 15° to the northeast through vertical, although recent structural studies by the G.S.C. indicate gentle dips prevail on a more regional scale. The crenulations and axes of tiny folds give the appearance of an overall axial plunge 8° to 45° to the southeast.

The structural relationship of this zone has not been resolved, however, it is believed that the feldspar eye schist overlies the graphitic schist, probably along a warped or undulated surface characterized by the gentle dips, and that the contact between the two serves as a locus for the occurrence of mineralization."

The schists are mineralized with galena and sphalerite which occur in roughly conformable bands and disseminations.

#### 4.0. GEOCHEMISTRY

##### 4.1. General Statement

A total of 146 samples for analysis were taken both of stream sediments from drainage on the property and of soils from a grid covering the area of interest. They were taken with a mattock and placed in numbered paper envelopes and sent to Bondar Clegg & Co. for analyses. They were tested using hot acid digestion and an atomic absorption spectrophotometer for Zinc, Lead, and Copper. Results quoted in parts per million were plotted on the four accompanying geochemical maps.

The lead and zinc plots include, in addition to the samples collected this year, compiled data from previous surveys. The copper plot shows only the samples from the present program.

4.2./

#### 4.2. Silt Sampling Survey

A total of 23 silt samples were taken from Pearl Creek and its 'tributary', Anomaly Creek.

Results of this survey are plotted at a scale of 400 feet to the inch on the Reconnaissance Geochemistry map.

In general, copper values from anomaly creek are somewhat higher than those from Pearl Creek with an average of 23 P.P.M. Cu. Pearl Creek values averaged about 16 P.P.M. Cu. Neither are considered anomalous. A small occurrence of copper on the mountainside near the headwaters of Anomaly Creek may contribute to the higher values found there.

No anomalously high lead values were detected in the silts. They tend to average about 13 P.P.M. lead and were not significantly different in either drainage.

Zinc values tend to be higher in the silts from Pearl Creek averaging 75 P.P.M. while those from Anomaly Creek averaged 62 P.P.M. While the absolute values are low the difference may be significant and an effort should be made to explain it.

#### 4.3. Soil Sampling Survey; Zinc.

Zinc values in the soils on the grid have a mode at about 90 to 100 P.P.M. Zn and maximum of about 1900 P.P.M. Threshold value for the present survey is taken at 280 P.P.M. This contour outlines an elongate area approximately paralleling the base line from about 24 + 00 E to about 52 + 00 E. Width is variable but is roughly 400 feet. Spot highs on line 56E, 64E, and 72E may be expressions of a continuation of this zone as they are approximately on strike. For reasons explained below, however, the possibility exists that the zone may continue beneath the overburden in Pearl Creek valley about due east of the camp. The Zn high is spatially related to a galena-sphalerite occurrence on line 44E.

#### 4.4. Soil Sampling Survey; Lead

Threshold Pb values are taken at 100 P.P.M. Anomalous amounts of Pb are present in soils between about line 40 E and line 56 E in an east west trending zone which coincides with the central part of the Zn anomaly. Unlike the Zn zone the Pb anomaly appears truncated to the west while to the east its configuration suggests a trend beneath the overburden in the valley of Pearl Creek in the vicinity of the campsite. If the Pb and Zn anomalies are related this may be taken as an indication that the Zn mineralization continues in this direction as well. The soil high are most intense in the areas near the known Pb showing on line 44 E.

4.5./

4.5. Soil Sampling Survey; Copper.

Copper values are only available for the part of the grid covered by the 1975 survey work. In general they are low although in the extreme east part of the area on lines 68E, 72E, and 76E higher values are present. With a threshold value of 30 P.P.M. they form a north south trending open anomaly having a maximum of 106 P.P.M. Cu. No outcrop is known in the area and there is no other obvious source to the copper. The possibility of some form of organic concentration, however, should not be discounted.

4.6. Discussion and Conclusions

Geochemical soil sampling has resulted in the delineation of a zone of potentially interesting zinc and lead values. The anomalous area is spatially related to a known Pb Zn sulphide occurrence and may, with some degree of assurance, be attributed to subcropping extensions of this mineralization between about line 24 E and 52 E on the grid shown on the accompanying maps. The zone has not been traced west of about line 16 E and information to the east of line 56 E is ambiguous. Spot highs in this direction suggest a continuation of the Zn anomaly in a northeasterly direction but there is a strong possibility that the mineralization strikes in an east west direction and extends beneath the overburden in the valley of Pearl Creek. In any event both of these possibilities should be tested.

5.0. RECOMMENDATIONS

Both additional geochemical work and geophysical work are recommended. The soil sampling survey should be extended to include lines 12E, 20E, 28E, 36E, and the untested southern part of 52E. Both Zn and Pb should be tested for.

Silt sampling should be continued in the drainage entering Pearl Creek east of the present area of interest. Drainage from both north and south sides of the valley should be tested for Pb and Zn.

An EM survey is recommended for the part of the grid now known to be geochemically anomalous; that is from line 20E to 68E inclusive. Lines 52E and 56E should be extended at least to Pearl Creek for this work.

A test gravity survey should be conducted over the areas where the best geochemical response occurs and over any EM anomalies located during the course of this work.

6.0. ESTIMATE OF COSTS/

6.0. ESTIMATE OF COSTS

An estimate of costs for the above recommendation based on mobilization out of Ross River by helicopter is as follows:-

Mobilization

Fares	\$ 500
Helicopter charter	1,500
Vehicle	600
Meals and Accommodation	200

Geochemical Survey:

Sampling (Soil and Silt)	1,000
Analysis	700
Camp Costs	200
Map Preparation, Interpretation & Reporting	700

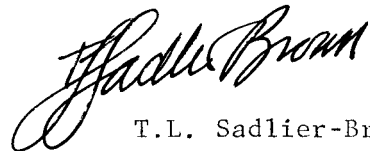
Geophysical Surveys:

Field Work	2,000
Map Preparation, Interpretation & Reporting	900
Camp Costs	500

Office Costs 1,400

Contingency Allowance 800

TOTAL - \$ 11,000



T.L. Sadlier-Brown  
Geologist.

TLSB/jrt.

CERTIFICATES AND APPENDICES

STATEMENT OF QUALIFICATION

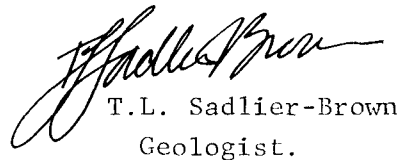
I, T.L. Sadlier-Brown of 1102 - 1307 Harwood Street, Vancouver, B.C.  
hereby certify that:

I am a partner in the firm of Nevin Sadlier-Brown Goodbrand Ltd.,  
consulting geologists of 134 Abbott Street, Vancouver, B.C.

I was educated in geology at Carleton University, Ottawa, Ontario  
and have practiced in the field of geology since 1964.

This report is based upon field work carried out by me, L. Bell,  
R.Gifford and H.S. Aikins, during June of 1975 in accordance with the  
recommendation of A.E. Nevin, Ph.D., P.Eng.

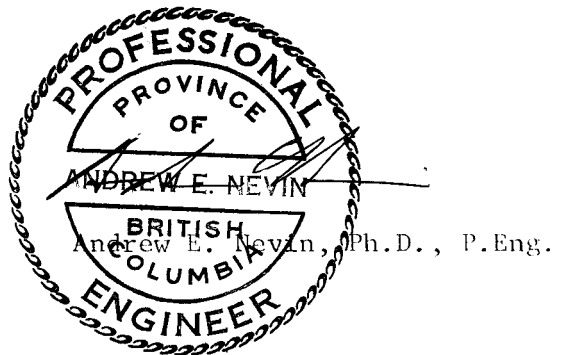
Dated this 23rd day of July 1975.  
Vancouver, B.C.

  
T.L. Sadlier-Brown  
Geologist.

CERTIFICATE

1, Andrew E. Nevin, hereby certify that:

1. My residence address is 962 Montroyal Blvd., North Vancouver, B.C., my office address is 5th Floor - 134 Abbott Street, Vancouver, B.C. V6B 2K4, and that I am a Geologist by occupation.
2. I hold a B.Sc. in Geophysics from St. Lawrence University, an M.A. in Geology from University of California, Berkeley, and a Ph.D. in Geology from University of Idaho. I have been practicing my profession since 1961, and I am a member of the Association of Professional Engineers (Geological) of the Province of British Columbia, and a Registered Professional Geologist in the State of Idaho.
3. I have examined the Pelly property and reviewed the data thereon personally.
4. I hold no direct or indirect beneficial interest in the property described in this report nor in the securities of Empire Metals Corporation Ltd. (N.P.L.).



July, 1975.

AEN/jrt.

Canada )  
Yukon Territory )  
To Wit )

In the matter of geological  
and geochemical surveys at the  
Pelly mineral claims.

I, T.L. Sadlier-Brown of the City of North Vancouver in the Province  
of British Columbia

HEREBY MAKE OATH AND SAY AS FOLLOWS:

That attached hereto, this my affidavit, marked Appendix I and  
Appendix II, respectively, is a list of the Personnel Employed and a  
Statement of Costs Incurred, which I certify to be correct to the  
best of my knowledge and belief.

SWORN before me at  
Vancouver, British Columbia,  
this 31<sup>st</sup> day of July, 1975.

H.S. Aik

T. L. Sadlier-Brown

APPENDIX I

LIST OF PERSONS EMPLOYED - PELLY MINERAL  
CLAIMS, WATSON LAKE M.D., YUKON.

- |    |  |   |                   |
|----|--|---|-------------------|
| 1. | H.S. Aikins, Sr. Engineering Technician, North Vancouver, B.C.<br>Geological, Geochemical & Engineering Surveys. | - | 5 Days            |
| 2. | R.G. Gifford, Geologist, Vancouver, B.C.<br>Geological Mapping, Sampling & Supervision.                          | - | 5 Days            |
| 3. | L. Bell, Technician, Vancouver, B.C.<br>Geochemical Sampling.  | - | 5 Days            |
| 4. | T.L. Sadlier-Brown, Geologist, Vancouver, B.C.<br>Geology & Geochemical Sampling                                 | - | 5 Days            |
|    | Report preparation   | - | 3 Days            |
| 5. | A.E. Nevin, Geologist, P.Eng., North Vancouver, B.C.<br>Review of data and report preparation                    | - | $\frac{1}{2}$ Day |
| 6. | J.R. Tullis, Secretary, Vancouver, B.C.<br>Typing and report preparation.  | - | 1 Day             |
| 7. | T. Drews, Draughtsman, Vancouver, B.C.<br>Drafting   | - | $\frac{1}{2}$ Day |

APPENDIX II

STATEMENT OF COSTS INCURRED

Fares and Accommodation		
R. Gifford and L. Bell	-	\$ 500.00
H.S. Aikins Invoice. Salary benefits -		
Includes fares, accommodation, transportation for H.S. Aikins and T.L. Sadlier-Brown.	-	849.27
Meals and Accommodation - Ross River.	-	111.30
Vehicle Costs (Gifford and Bell) Mileage, Watson Lake to Ross River to Mink Creek - return.		
520 miles @ 12¢/mile	-	\$62.40
Gasoline Costs 30 gal. @ 95¢	-	<u>28.50</u>
	Total Vehicle Costs -	90.90
Camp Supplies	-	365.00
Transwest Helicopters	-	660.00
Transnorth Helicopters	-	495.00
Nevin Sadlier-Brown Goodbrand Ltd.		
T.Sadlier-Brown, A.E. Nevin, J.R. Tullis (Report Preparation).	\$ 580.00	
T.L. Sadlier-Brown (field work)	<u>700.00</u>	1,280.00
Salary & Benefits - R.Gifford, P.Eng. (5 days @ \$150/day)	-	750.00
- L.Bell -(5 days @ \$75/day)	-	375.00
Bondar-Clegg Laboratories Ltd. Invoice	-	394.30
Global Drafting Invoice	-	76.31
Western Reproducers	-	<u>12.46</u>
		<u><u>\$5,959.54</u></u>

○ 24, 10, 70



X 40, 9, 24  
 ○ 23, 9, 46  
 X 49, 19, 63  
 X 24, 13, 42  
 X 30, 14, 49  
 X 14, 3, 44  
 X 22, 12, 63  
 X 16, 12, 40  
 ○ 30, 15, 66



LEGEND

- Stream
- 4500 Topographical Contour
- SOIL SAMPLE
- SILT SAMPLE
- Copper
- Lead
- Zinc
- (In ppm)

EMPIRE METALS CORP. LTD

PELLY GROUP  
WATSON LAKE M.D., YUKON TERRITORY

RECONNAISSANCE GEOCHEMISTRY



To accompany a Geological Report, on the Pelly Claims by T. Sadler Brown & A.E. Nevin June 1975.



L E G E N D

- Threshold value, P.P.M.
- 1967 Drilling
- Claim post

To accompany a Geological Report on the  
 Pelly Claims by T. Sadler Brown & A.E. Nevin  
 June 1975

EMPIRE METALS CORP. LTD. (NPL)

PELLY GROUP  
COPPER

WATSON LAKE M.D.

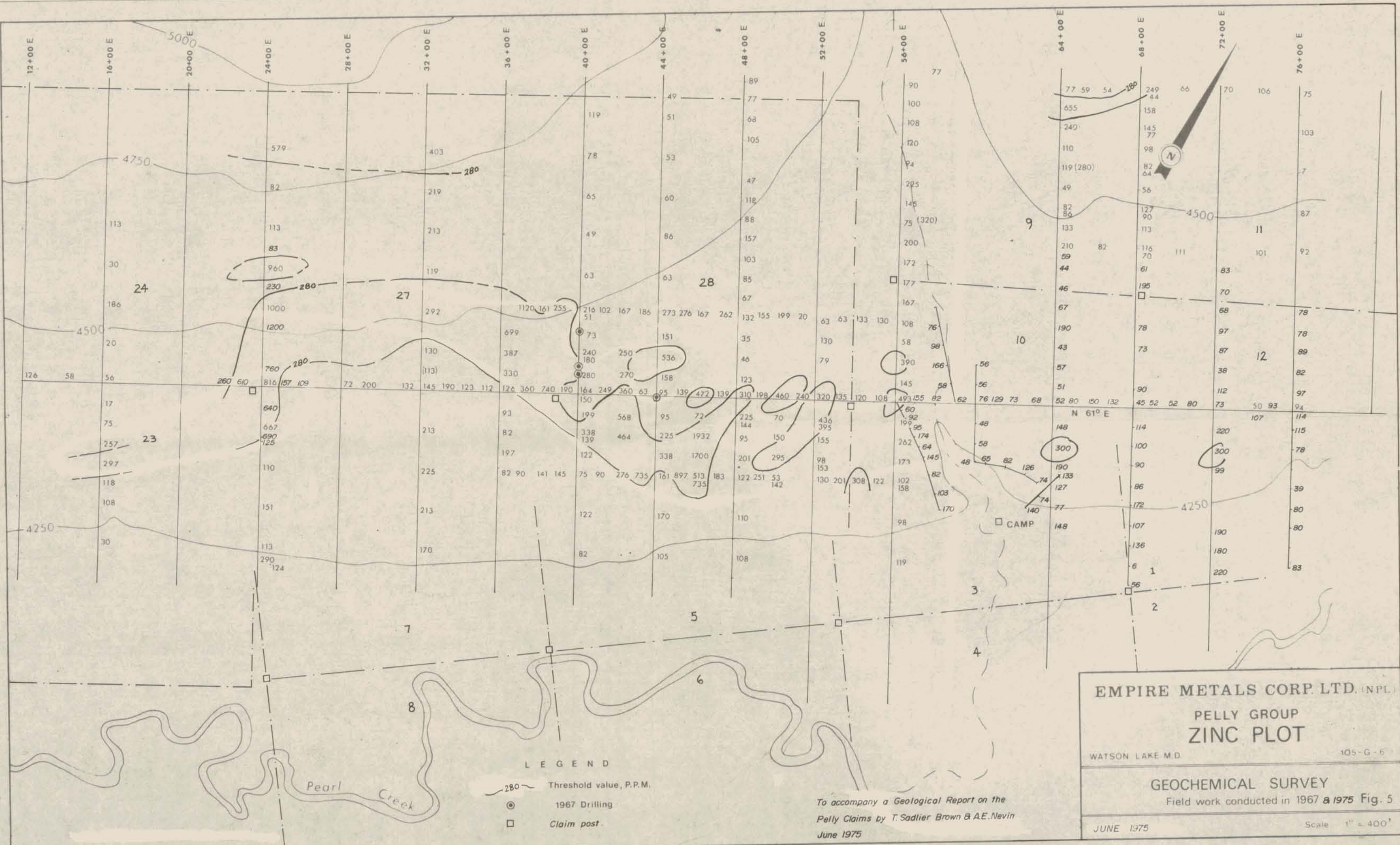
105-G-6

GEOCHEMICAL SURVEY

Field work conducted in 1967 & 1975 Fig 4

JUNE 1975

Scale 1" = 400'



LEGEND

- 280 - Threshold value, P.P.M.
- ⊙ 1967 Drilling
- Claim post.

To accompany a Geological Report on the  
 Pelly Claims by T. Sadlier Brown & A.E. Nevin  
 June 1975

EMPIRE METALS CORP. LTD. (INPL.)  
 PELLY GROUP  
 ZINC PLOT

WATSON LAKE M.D.

105-G-6

GEOCHEMICAL SURVEY  
 Field work conducted in 1967 & 1975 Fig. 5

JUNE 1975

Scale 1" = 400'



**LEGEND**

- Threshold value, P.P.M.
- 1967. Drilling
- Claim post

**EMPIRE METALS CORP. LTD. (NPL.)**

**PELLY GROUP  
LEAD PLOT**

WATSON LAKE M.D.

105-G-6

**GEOCHEMICAL SURVEY**

Field work conducted in 1967 & 1975 Fig 6

JUNE 1975

Scale 1" = 400'

To accompany a Geological Report on the  
Pelly Claims by T. Sadler Brown & A.E. Nevin  
June 1975