

DOLMAGE CAMPBELL & ASSOCIATES LTD.

CONSULTING GEOLOGICAL & MINING ENGINEERS

1000 GUINNESS TOWER

VANCOUVER 1, B.C.



Vestor Explorations Ltd.
Edmonton, Alberta



Report on
SUMMIT LAKE PROPERTIES
YUKON and NWT




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 \$ 300 2/10 hrs. No Budget

February 19, 1973

Resident Geologist or
Resident Mining Engineer

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


Commissioner of Yukon Territory

Douglas D. Campbell

Consultant

Vancouver, Canada

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SUMMARY & RECOMMENDATIONS

Vestor Explorations Ltd. own four groups of mineral claims, totalling 136 claims, adjacent to the property of Placer Development Ltd. ten miles north of Summit Lake on the border of the Yukon and the Northwest Territories in the MacKenzie Mountains. Access to the properties is by helicopter from the Canol Road 30 miles to the northwest.

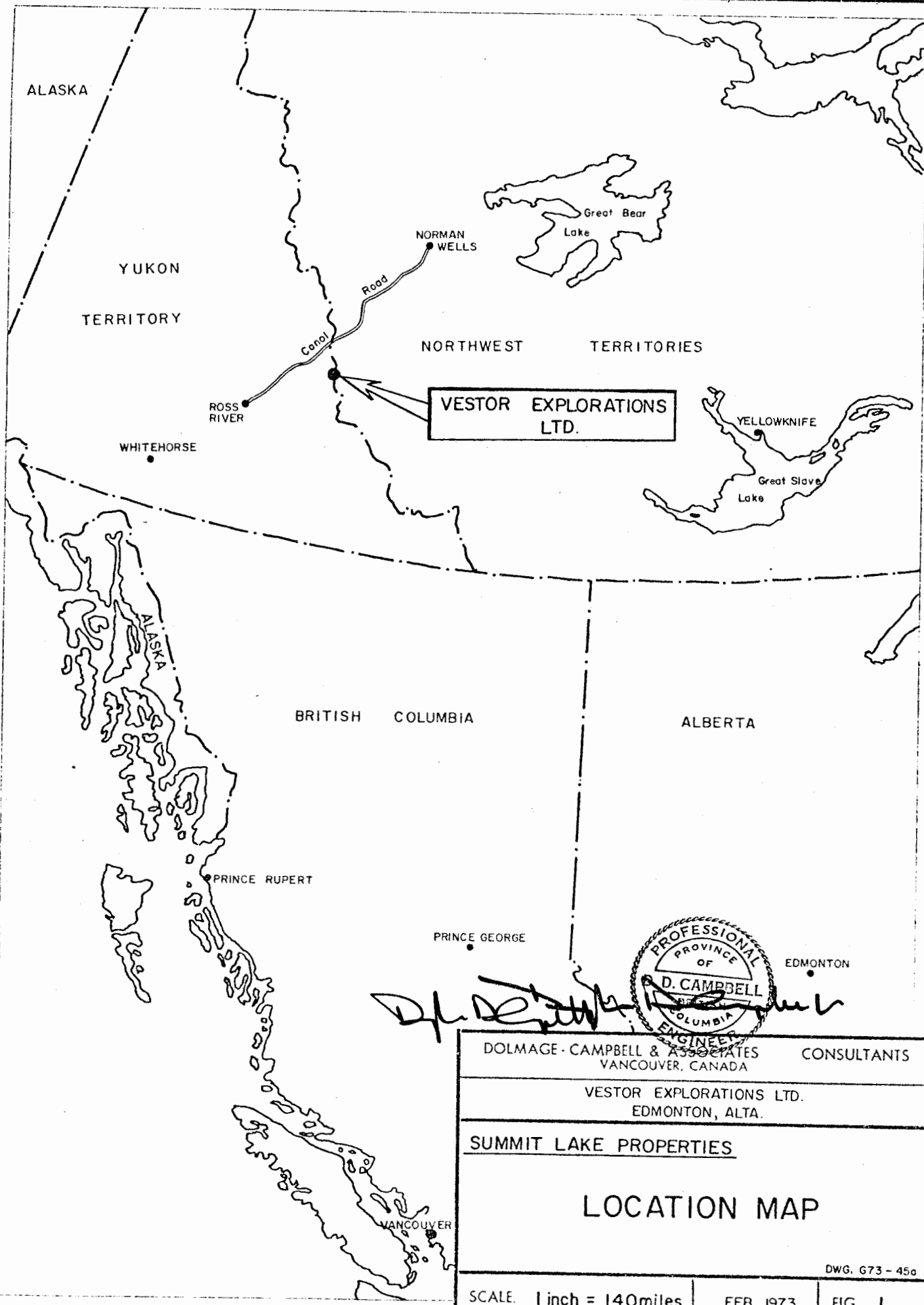
Extensive and relatively rich showings of lead-zinc mineralization occur within Upper Paleozoic (Devonian?) beds of argillaceous shale in what appear to be stratiform deposits on the Placer property. All of the Vestor claim groups are underlain by the same argillite formation that occurs on the adjacent Placer property. The Cinq Group of Vestor claims are located about $1\frac{1}{2}$ miles southwest of the main Placer trench that has been reported by Placer to assay 20-30% Pb-Zn along a strike length of "several hundred feet."

Based on present geological data there appears to be a reasonable possibility of lead-zinc mineralization occurring on the Vestor property; therefore, the claims warrant initial assessment consisting of geological mapping, prospecting by careful study of freshly broken rock for fine grained galena-sphalerite content, and of soil geochemical surveys for lead and zinc.

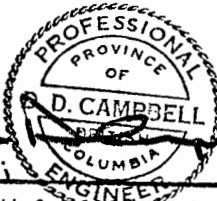
RECOMMENDATIONS:

The total cost of the mapping, the geochemical surveying and the prospecting of all of the four Vestor properties described above is estimated to be \$ 68,000.00.

Encouraging results from this initial exploration would warrant more detailed work, bulldozer trenching and diamond drilling as a second stage of investigation to test anomalous areas as well as to probe the underlying (favourable?) argillite-carbonate contact. Such a second stage program is estimated to cost approximately \$ 200,000.00.



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VESTOR EXPLORATIONS LTD. EDMONTON, ALTA.	
SUMMIT LAKE PROPERTIES	
LOCATION MAP	

DWG. G73 - 45a

SCALE. 1 inch = 140miles	FEB., 1973	FIG. 1
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INTRODUCTION

In the autumn of 1972 Placer Development Ltd. announced the discovery of extensive and locally rich lead-zinc deposits on the border between the Yukon Territory and the Northwest Territories about 200 miles due north of Watson Lake. Subsequently Vestor Explorations Ltd. staked four blocks of claims adjacent to the Placer property.

At the request of the president of Vestor Explorations Ltd., Mr. A. Rich, the writer has prepared this present report as an initial assessment of these four claim blocks owned by Vestor Explorations Ltd. The writer has worked in the area of the properties in 1959 and 1963 and most recently in January of this year and, although he has not examined the Vestor properties specifically, he is reasonably familiar with the physical conditions and general geological features on them. In addition, specific data on the properties have been collected by Mr. A. Rich, P.Geol.(Alta.), and have been made available to the writer for the compilation of this report.

LOCATION: (62°31'N, 129°30'W.)

The four Vestor properties lie within a few miles of the boundary between the Yukon Territory and the Northwest Territories on the divide in the MacKenzie Mountains between the Arctic watershed on the northeast, (South Nahanni River), and the Bering Sea watershed on the southwest, (Pelly River), (Figs. 1 and 2).

Present access to the property is by helicopter, or by float plane to Summit Lake, which is 10-15 miles south of the Vestor properties, or by winter bulldozer haul from either the Canol Road about 30 miles to the northwest, or the Canada Tungsten Mine 50 miles to the southeast. Road access to the Canol Road could be readily constructed if activity in the area warranted it.

The area of the Vestor claim groups is relatively subdued uplands at an elevation of between 4000 and 6000 feet with rounded hills and ridges lying between broad, low gradient, locally swampy, river valleys. Relief ranges

from one to two thousand feet. Bedrock outcrops are scattered along the ridges and in some creek beds.

PROPERTY:

There has been no prior staking in this area and no history of mineral production other than that from the Cantung Mine (W), located about 50 miles to the southeast, and the Anvil Mine (Pb-Zn), located about 100 miles to the west.

Vestor Explorations Ltd. wholly own four groups of mineral claims located at both ends and the middle of the Placer property which extends as a NW-SE strip 25 miles in length, (Fig.3). From northwest to southeast the Vestor properties are:

- 1/ UN Group - 19 mineral claims; UN 1-19
- 2/ Pell Group - 56 mineral claims; Pell 1-56
- 3/ Trois Group - 16 mineral claims; Trois 1-16
- NWT* - > 4/ Cinq Group - 45 mineral claims; Cinq 1-27, DI 1-18

TOTAL : 136 mineral claims.

The Cinq Group is located wholly within the Northwest Territories; all of the other properties lie within the Yukon Territory. Record numbers are as follows:

Watson Lake Mining Division:

TROIS 1-16 Grant No.: Y71774 - Y71789

Recorded: December 20, 1972

UN 1-19 Grant No.: Y71755 - Y71773

Recorded: December 20, 1972

PELL 1-56 'A' Forms (Application to Record) not yet received.

Nchanni Mining Division:

DI 1-6 Mineral Claim Tag No: A11155 - A11160 inclusive.

DI 7-18 Mineral Claim Tag No: A65111 - A65122 inclusive.

CINQ 1-10 Mineral Claim Tag No: A11161 - A11170 inclusive.

CINQ 11-27 Mineral Claim Tag No: A11181 - A11197 inclusive.

GEOLOGICAL SETTING

REGIONAL:

All of the MacKenzie Mountains in northern Canada are underlain entirely by Paleozoic sedimentary rocks which comprise the northwestward continuation of the Rocky Mountain formations. Northwestward from the Liard River in northern British Columbia this belt of Paleozoic formations broadens markedly from its telescoped configuration in the Rocky Mountains to a wide expanse of sedimentary rocks that underlies the northeast half of the Yukon Territory as well as the western margin of the Northwest Territories, (Fig. 2). Also, northwest from the Rocky Mountains these Paleozoic formations are intruded by regionally local swarms of granitic stocks of probable Cretaceous Age. These granitic intrusive bodies assume batholithic dimensions along the western margin of the Paleozoic belt and include the Cassiar Batholith.

North of the Liard River the Paleozoic formations generally lie in broad, open, northwest-trending folds with only local occurrences of intense thrust faulting that is characteristic of the Rocky Mountain structures. However, locally, in the vicinity of intrusive bodies or of intense faulting, the formations are tightly folded and, particularly north of Summit Lake, are complexly thrust faulted.

The Paleozoic succession in the MacKenzie Mountains and much of the Yukon according to the mapping done to date is characterized by thick developments of Cambrian and Devonian strata with relatively abbreviated or absent developments of Ordovician, Silurian, Mississippian and Permian strata. Within the Summit Lake area, as well as over large areas to the north, Mid-Upper Devonian beds lie directly on Upper Cambrian surfaces.

A belt of Cretaceous intrusive stocks of granite-monzonite-granodiorite composition trends northwesterly across the band of Paleozoic rocks from the southeast corner of the Yukon Territory to the vicinity of Dawson City, (Fig. 2). The intrusive stocks form erosion-resistant cores to mountains and ridges hence this belt of intrusives tends to form the high core of the southern MacKenzie Mountains. Since the Yukon-NWT border follows the height-of-land of this range of mountains the intrusive stocks are found within 20 miles of the border. In the Summit Lake area a series of intrusive stocks trends north-northwest from Cantung to a point due north of Summit Lake. These stocks range in outcrop diameter from $\frac{1}{2}$ to 12 miles. The closest stocks to

Summit Lake lie 10 miles due east and 12 miles due north of the southeast and northwest ends of the Placer property respectively.

PROPERTY: (Figure 3)

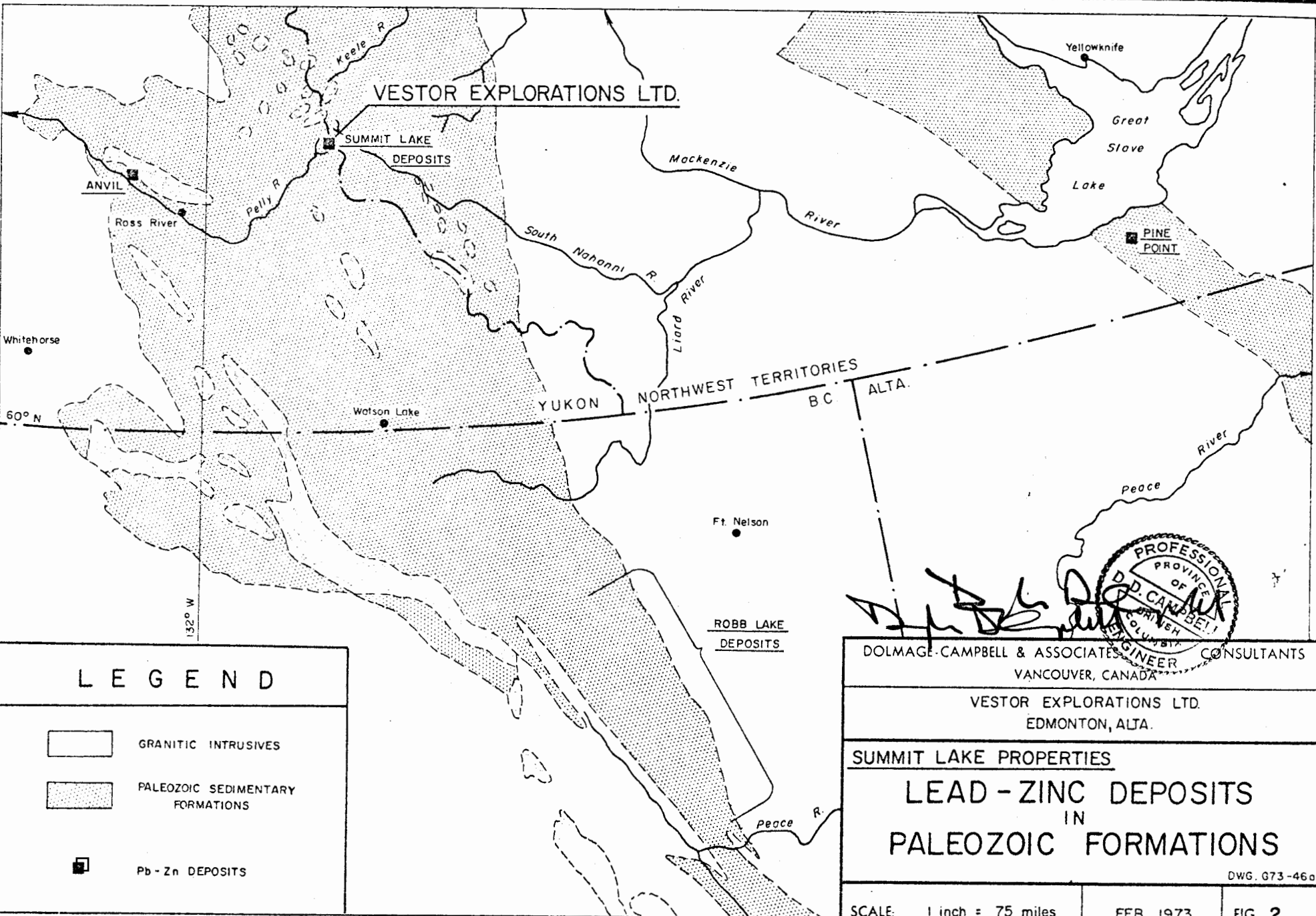
The general area in the vicinity of the Summit Lake lead-zinc occurrences is underlain by two rock types which have been tentatively identified by the Geological Survey of Canada as belonging to two separate formations.

The most extensive rock type in the area is black-grey shale of probable Upper Devonian age that is extensively regionally metamorphosed to argillite with well developed foliation. The argillite is noticeably harder than the unmetamorphosed shale and is locally pyritic; otherwise, the two rock types are not readily distinguished in the field by casual observation. Most of the rock exposed in the area of the Summit Lake base metal occurrences is argillaceous and some is pyritic enough to have produced gossans. Local intense (isoclinal) folding of the shale-argillite sequence is common and, combined with the absence of distinct marker beds, makes precise stratigraphic positional determinations difficult in this sequence. Also, due to this difficulty of determining the proper sequence in the shale-argillite rocks it is not unlikely that some of the rock units included in it may be as old as Ordovician and thus represent an orderly sequence from the underlying Cambrian rocks.

The other rock type in the Summit Lake area is probably Upper Cambrian in age and is comprised predominantly of buff-grey coloured, banded limestone and silty dolomite.

In the Summit Lake area the Cambrian rocks underlie the Devonian shale-argillite sequence and are exposed as windows in the lower flanks of the ridges in northwest-trending bands that are separated by isolated caps of the Devonian rocks, (Fig. 3). This relatively simple relationship is locally complicated by steep folding and possible faulting parallel to the northwest-trending contacts. The contact itself is not well exposed in this area but it is probably an erosional one that in other locales is an angular unconformity.

The pertinent geology of each claim block is outlined below:



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SUMMIT LAKE
DEPOSITS

ANVIL

Ross River

Pelly R.

Watson Lake

South Nahanni R.

Liard River

Mackenzie River

Yellowknife

Great Slave Lake

PINE POINT

Whitehorse

60° N

YUKON

NORTHWEST TERRITORIES

B.C.

ALTA.

Ft. Nelson

ROBB LAKE
DEPOSITS

Peace River

Peace

Peace R.

LEGEND



GRANITIC INTRUSIVES



PALEOZOIC SEDIMENTARY FORMATIONS



Pb - Zn DEPOSITS

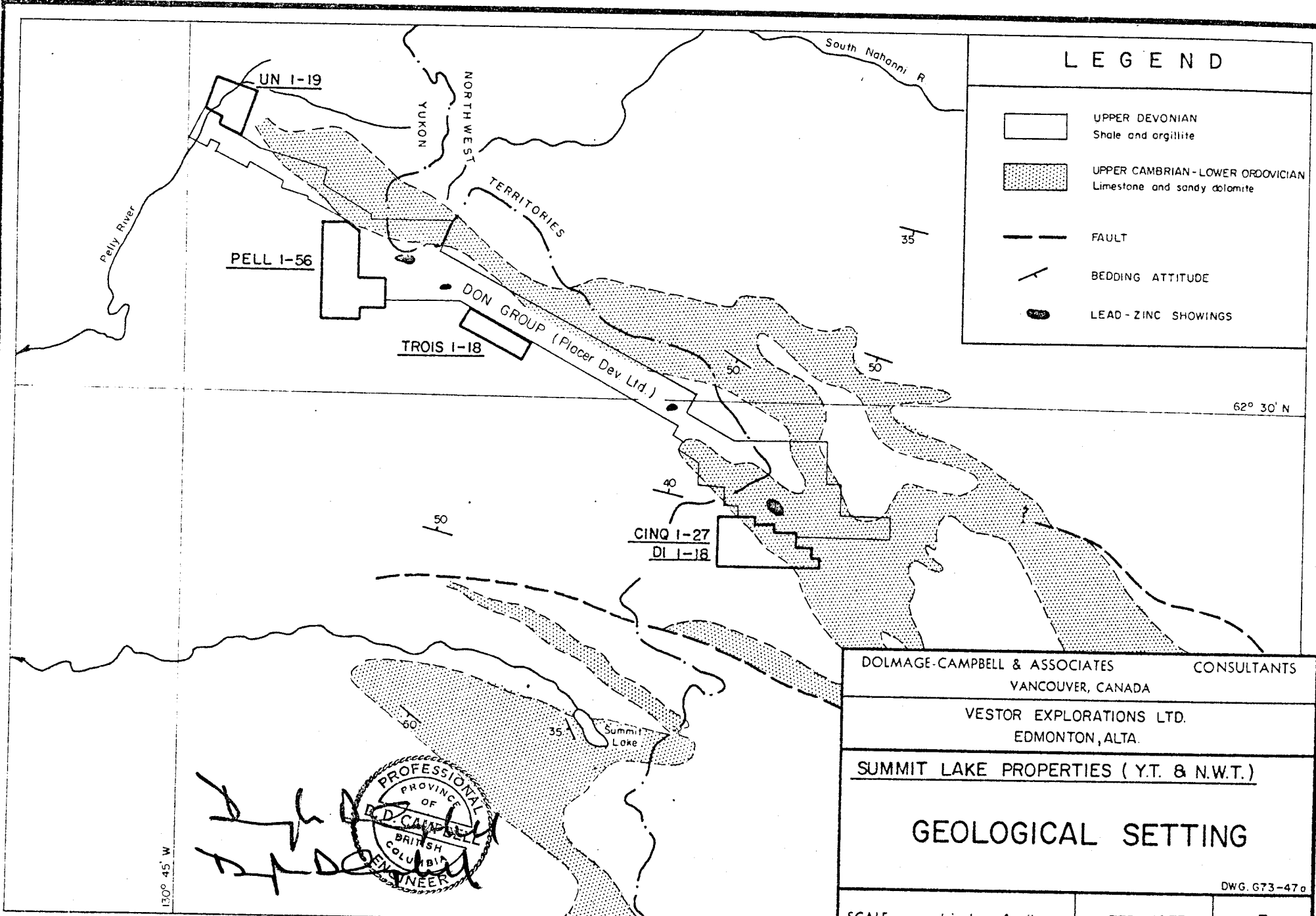
[Signature]
 PROFESSIONAL
 PROVINCE OF
 D. D. CAMPBELL
 COLUMBIA
 ENGINEER
 CONSULTANTS
 DOLMAGE-CAMPBELL & ASSOCIATES
 VANCOUVER, CANADA

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SUMMIT LAKE PROPERTIES
 LEAD - ZINC DEPOSITS
 IN
 PALEOZOIC FORMATIONS

DWG. G73-46a

SCALE: 1 inch = 75 miles
 FEB., 1973
 FIG 2



LEGEND

- UPPER DEVONIAN
Shale and argillite
- UPPER CAMBRIAN - LOWER ORDOVICIAN
Limestone and sandy dolomite
- FAULT
- / BEDDING ATTITUDE
- LEAD - ZINC SHOWINGS

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SUMMIT LAKE PROPERTIES (Y.T. & N.W.T.)

GEOLOGICAL SETTING

DWG. G73-47e

SCALE: 1 inch = 4 miles

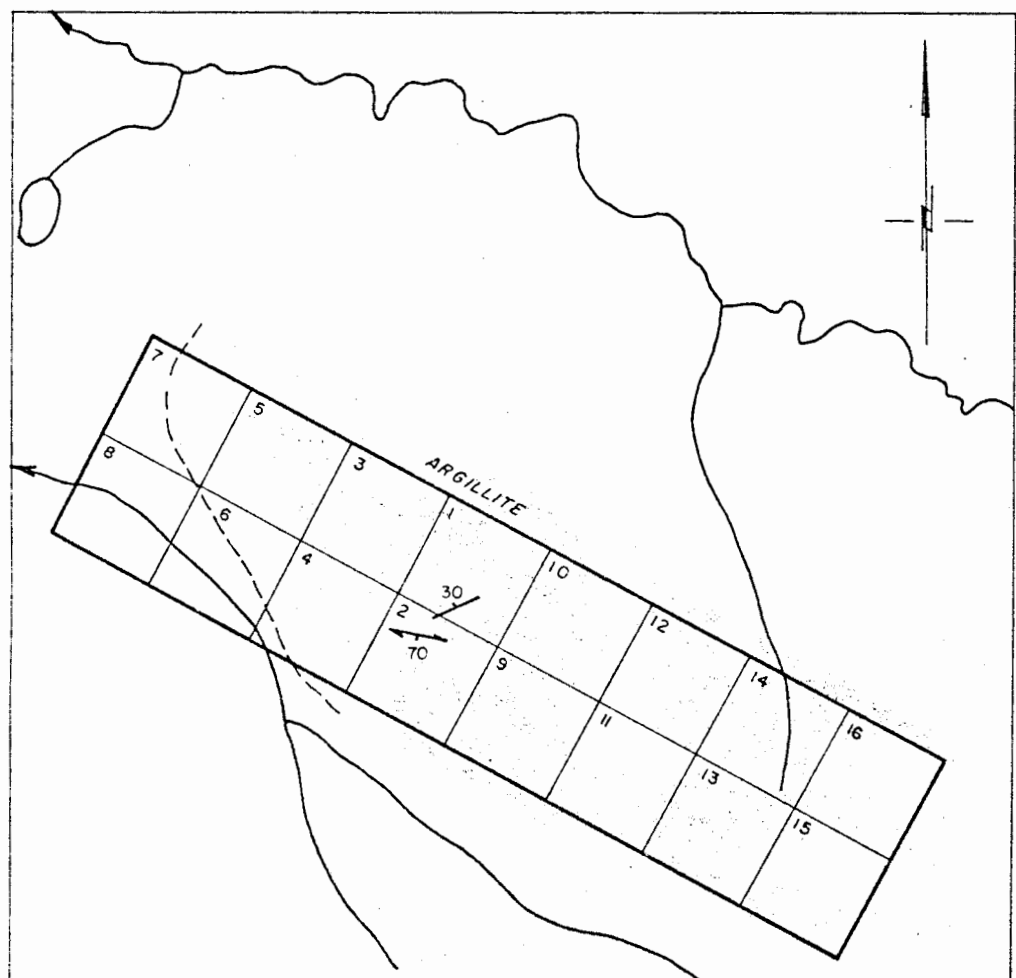
FEB, 1973

FIG. 3

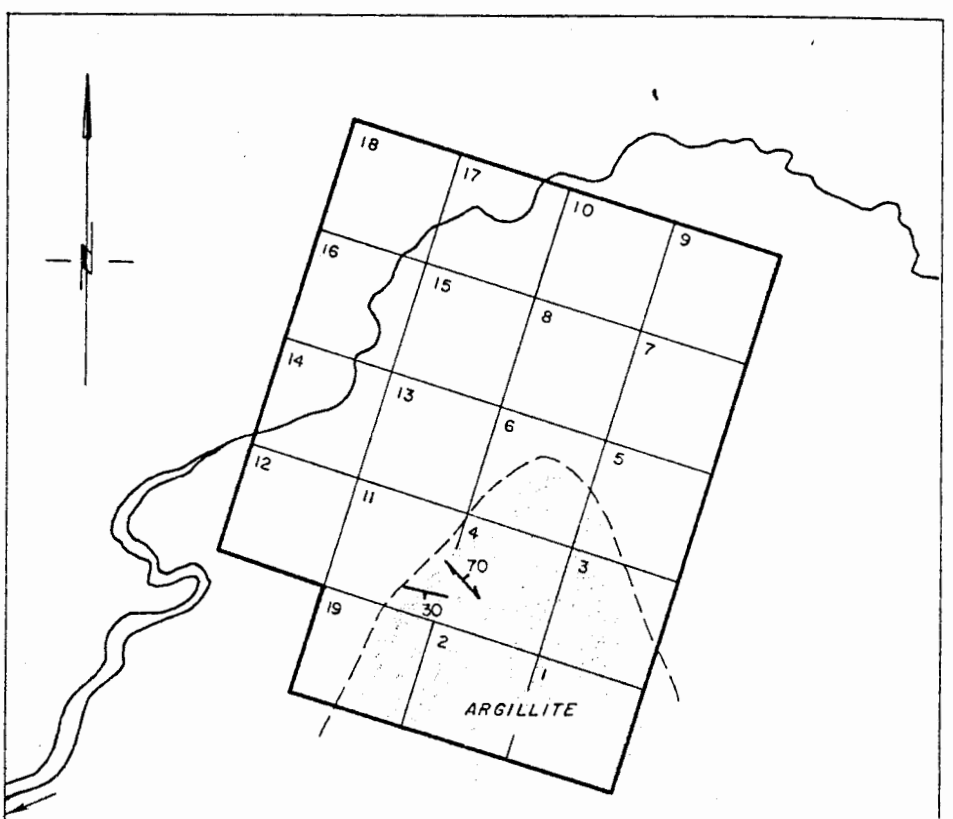
130° 45' W

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 PROFESSIONAL ENGINEER
 PROVINCE OF BRITISH COLUMBIA
 R.D. CAMPBELL

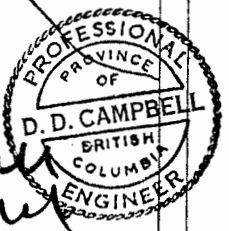


TROIS 1-16



UN 1-19

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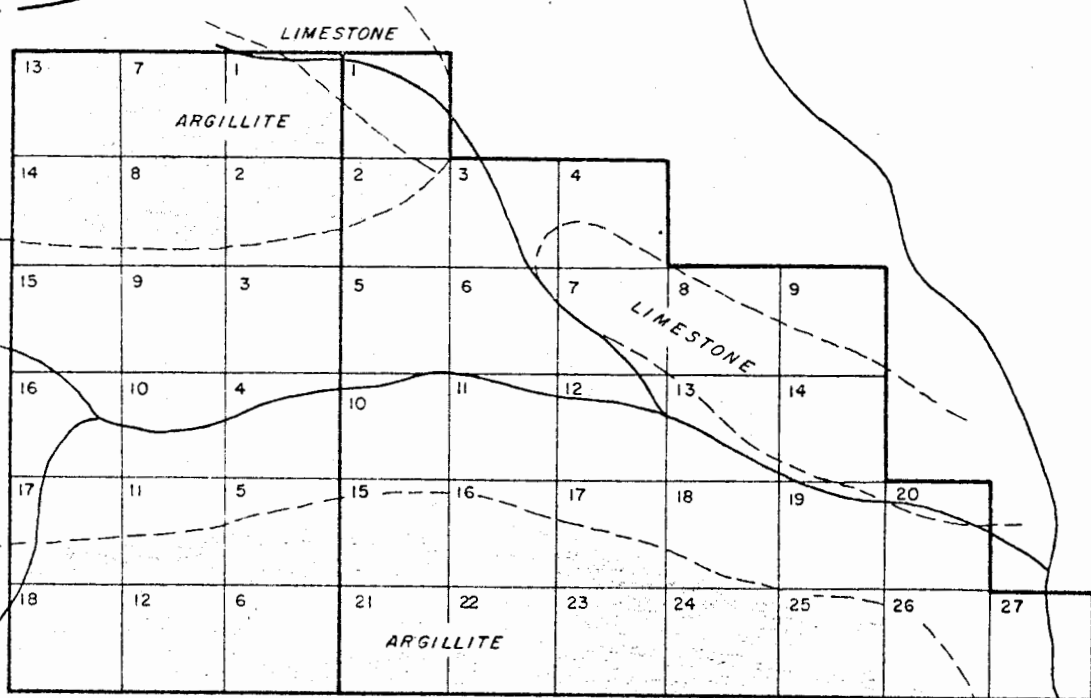
SUMMIT LAKE PROPERTIES

TROIS & UN CLAIMS
YUKON

DWG G73-48c

SCALE: 1 inch = 1/2 mile FEB., 1973 FIG 4

YUKON
N.W.T.



DI CLAIMS

CINQ CLAIMS

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GEOLOGICAL ENGINEER

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SUMMIT LAKE PROPERTIES

CINQ & DI CLAIMS
NWT

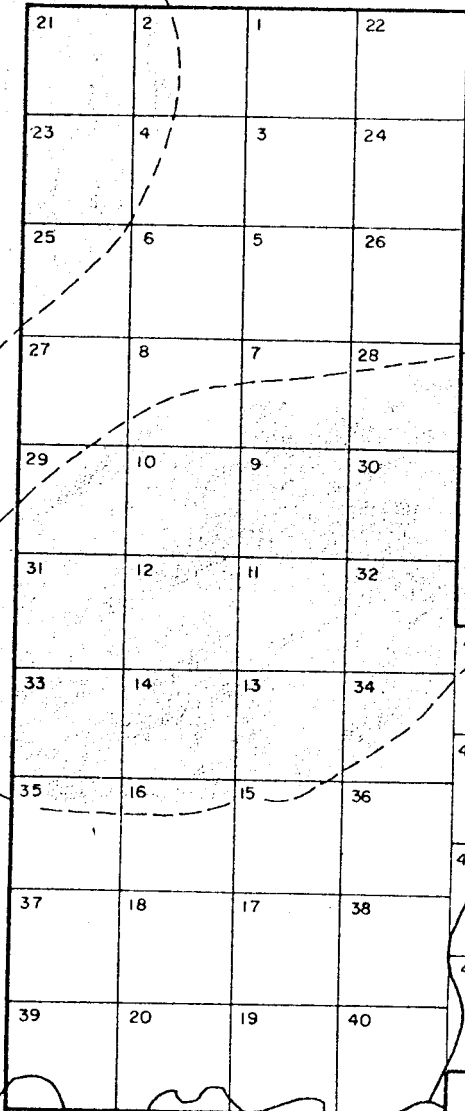
DWG G73-49a

SCALE: 1 inch = 1/2 mile

FEB., 1973

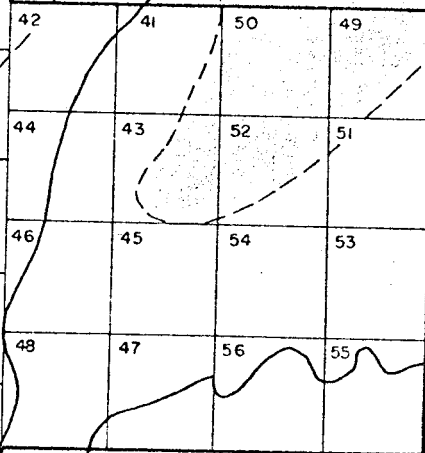
FIG. 5

ARGILLITE

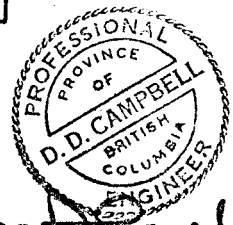


ARGILLITE

ARGILLITE



PELL 1-56 CLAIMS



D. D. Campbell
T. J. DePelle

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EDMONTON, ALTA.			
<u>SUMMIT LAKE PROPERTIES</u>			
PELL CLAIMS			
YUKON			
DWG 673-50a			
SCALE	1 inch = 1/2 mile	FEB, 1973	FIG 6

ECONOMIC GEOLOGY

GENERAL:

Stratiform base metal deposits in Paleozoic sedimentary rocks are world-wide in distribution; however, there are few that have reached production in Canada, the most noteworthy to date being Pine Point in the Northwest Territories and Anvil in the Yukon. Recently significant occurrences of lead-zinc have been discovered and explored within Paleozoic formations within the Rocky Mountains along a distance of 200 miles between the Peace and the Liard rivers; this area is now known as the Robb Lake district, (Figure 2). Also, late in 1972 Placer Development Ltd. announced the discovery of the lead-zinc showings in the Summit Lake area of the Yukon and other deposits were also found further north in the Northwest Territories. The unique similarity of all of these stratiform deposits but Anvil lies in their simple mineralogy, (galena, sphalerite) and their general restriction within dolomitic, reefal carbonate beds of Mid-Upper Devonian age. (If it is assumed that the Anvil deposit was subjected to post-deposition metamorphism then its present form could have been derived from the Summit Lake type of simple mineralogy.)

SUMMIT LAKE:

The Summit Lake lead-zinc occurrences discovered by Placer Development Ltd. are unique among the known Paleozoic deposits in that they occur within argillaceous rocks rather than carbonates, though the age is still ostensibly Devonian. The galena and sphalerite in the argillite from the Placer showings is extremely fine grained and deceptively difficult to see in many places; assays of relatively innocuous appearing specimens are as high as 20% combined lead-zinc. The principal showings on the Placer claims are at the southeast end of their group and consist of natural outcrops and a trench several hundreds of feet in length excavated along the strike of the argillaceous rocks. (In Figure 3 the showings are shown as being within the carbonate formation; however, the geology shown has been taken from the Geological Survey 4 mile map which is reconnaissance in nature and does not include local details of the formational structures and particularly, in this case, of "islands" of the overlying argillite occurring throughout the carbonate basement.)

Other occurrences of galena and sphalerite within argillite were discovered by Placer northwestward from the discovery showing. These exposures

were in the creek-bottom within the overburden-filled valley. Additional showings were then discovered on ridges 14 miles westnorthwest of the discovery showings and the entire strike length was staked by Placer Development Ltd.

All mineralization exposed to date is within the argillites close to the contact with the underlying carbonate rocks. As yet the area has not been comprehensively explored and there is no clearly evident structural control to the mineralization other than its possible proximity to the carbonate contact; however, on the evidence available this proximity could just as well be coincidental as genetic. Therefore, on existing geological evidence, all of the argillite formations in the vicinity of the known lead-zinc occurrences warrants careful examination, particularly if it is close (vertically or laterally) to the carbonate contact. Using these criteria it's evident that the four properties of Vestor Explorations Ltd. adjoining the Placer property warrant investigation for the possible occurrences of lead-zinc mineralization.

It is of interest that a grab sample taken by Mr. Rich of gossan from Trois No. 2 M.C. assayed 0.73% Zn, indicating the presence of anomalous quantities of zinc in that outcrop.

CONCLUSIONS

With limited geological knowledge and exploration results presently available concerning the Summit Lake lead-zinc deposits a meaningful assessment of their worth is not possible; however, it is evident from the sample lengths and grades published by Placer Development Ltd. that it is possible that profitable lead-zinc deposits, either openpit or underground, could occur in this area.

Because of the limited state of knowledge of the mineral occurrences at this time it is necessary to investigate all ground in the vicinity of the known showings thoroughly in order to ensure that all geological possibilities be covered. Assumptions at this time as to what will comprise the most favourable site for mineral occurrences must be cautiously applied and only loosely limited to 1/ the argillite formation, and 2/ the vicinity of the carbonate contact.

It is therefore recommended that the Vestor claims be thoroughly prospected by careful examination by hand lens of every argillite outcrop. This should be supplemented by detailed geological mapping of the claims and reconnaissance grid soil sampling of them. Results from this initial investigation, together with further knowledge of the adjacent occurrences on the Placer property as it becomes available from the results of the drilling to be done on the deposits in 1973, will govern the nature and direction of the next stage of exploration of the Vestor properties.

The estimated cost of the above-described program is given below, based on identical work done in 1972 in the Robb Lake area and in this general area of the Yukon. It has been assumed that all properties will be worked from one base camp and that a helicopter will be available for charter at Summit Lake as planned by at least one company.

Geochemical survey and line cutting	\$ 10,000.
Geological mapping and prospecting	\$ 6,000.
Assays	\$ 1,000.

Helicopter (all surveys)	\$ 22,000.
Camp & supplies (3 months)	\$ 11,000.
Consulting and supervision	\$ 5,000.
Transportation	\$ 2,500.
Overhead and administration	\$ 7,500.
Contingencies	<u>\$ 3,000.</u>
TOTAL	<u>\$ 68,000.</u>

STAGE 2:

If the above-recommended initial stage of exploration of the Vestor properties results in any indications of lead-zinc mineralization, either as outcrops or soil anomalies, it will warrant an extensive follow-up exploration by more detailed soil sampling and by bulldozer or rock trenching. In addition, because of the present lack of knowledge about the shape, size and controls of the mineral deposits in this area it will be necessary to explore any possible deposits in detail diamond drilling.

If it is assumed that encouraging results are found on two of the four properties and that each property warrants about 5000 feet of exploration drilling the total cost for such a program will be:

10,000 ft. at 20/ft. = \$ 200,000.00

This stage of exploration is of course entirely contingent on the results of Stage 1.

Respectfully submitted,
DOLMAGE CAMPBELL & ASSOCIATES LTD.



Douglas D. Campbell, P.Eng., Ph.D.



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CERTIFICATE

I, Douglas D. Campbell, with business and residential addresses in Vancouver, British Columbia, do hereby certify that:

1. I am a consulting geological engineer.
2. I am a graduate of the University of British Columbia, (B.A., Sc., Geological Engineering, 1946) and of the California Institute of Technology, (Ph.D., Economic Geology and Geophysics, 1955).
3. I am a registered Professional Engineer of the Province of British Columbia and of the Yukon Territory.
4. From 1946 until 1957 I was engaged in mining and mining exploration in Canada and the United States as geologist for a number of companies before beginning private practice as a consulting geological engineer.
5. I have worked in the area of the properties of Vestor Explorations Ltd. and have made use of all available data on the properties in the area. I am thoroughly familiar with the geology of the area of the properties.
6. I have not received, nor do I expect to receive, any interest directly or indirectly, in the properties or securities of Vestor Explorations Ltd. or of any associated companies.

Respectfully submitted.

DOLMAGE CAMPBELL & ASSOCIATES LTD.



Douglas D. Campbell, P.Eng., Ph.D.



Vancouver, Canada

February 19, 1973