



WELCOME NORTH MINES LTD. (N.P.L.)

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WOODSIDE PROJECT

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE

EEL 1-19 AND ANGIE 315-394, 419-426, 453-458,
487 - 496, 675, 678-682 MINERAL CLAIMS

Latitude 61°55'N

Longitude 132°40'W

N.T.S. 105F-15

WHITEHORSE MINING DISTRICT

YUKON TERRITORY

R. Holland

February 10, 1978



090278



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

\$ 17422.63

A large, stylized handwritten signature in black ink, appearing to read "J. H. Craig".

Resident Geologist or
~~Resident Mining Engineer~~

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

A handwritten signature in black ink, appearing to read "B. R. Baxter".

B. R. BAXTER
Supervising Mining Recorder

Commissioner of Yukon Territory

VANGORDA
AREA OF INTEREST

WOODSIDE
AREA OF INTEREST

AREA OF INTEREST
WOODSIDE PROJECT
YUKON TERRITORY

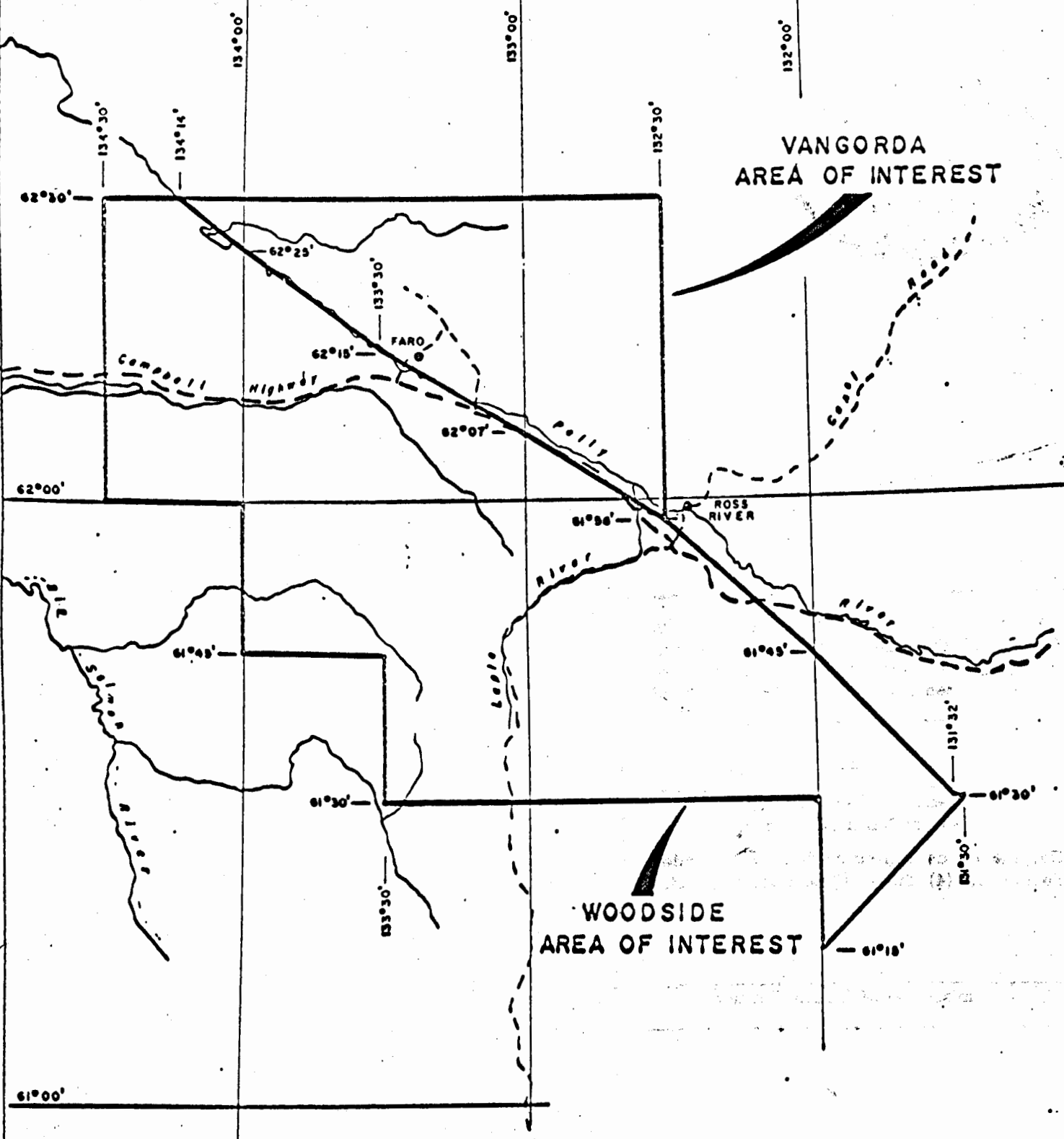


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INTRODUCTION

The EEL 1-20 mineral claims were staked June 30, 1976 by Welcome North Mines Ltd. to cover a reported zinc showing in the area. These claims were later included in the Woodside Project Joint Venture Agreement with Getty Mining Pacific Ltd. Under this agreement Getty holds a 60 percent working interest in the property, with Welcome North as a partner with a 40 percent carried interest. In May 1977 the EEL 20 mineral claim was abandoned.

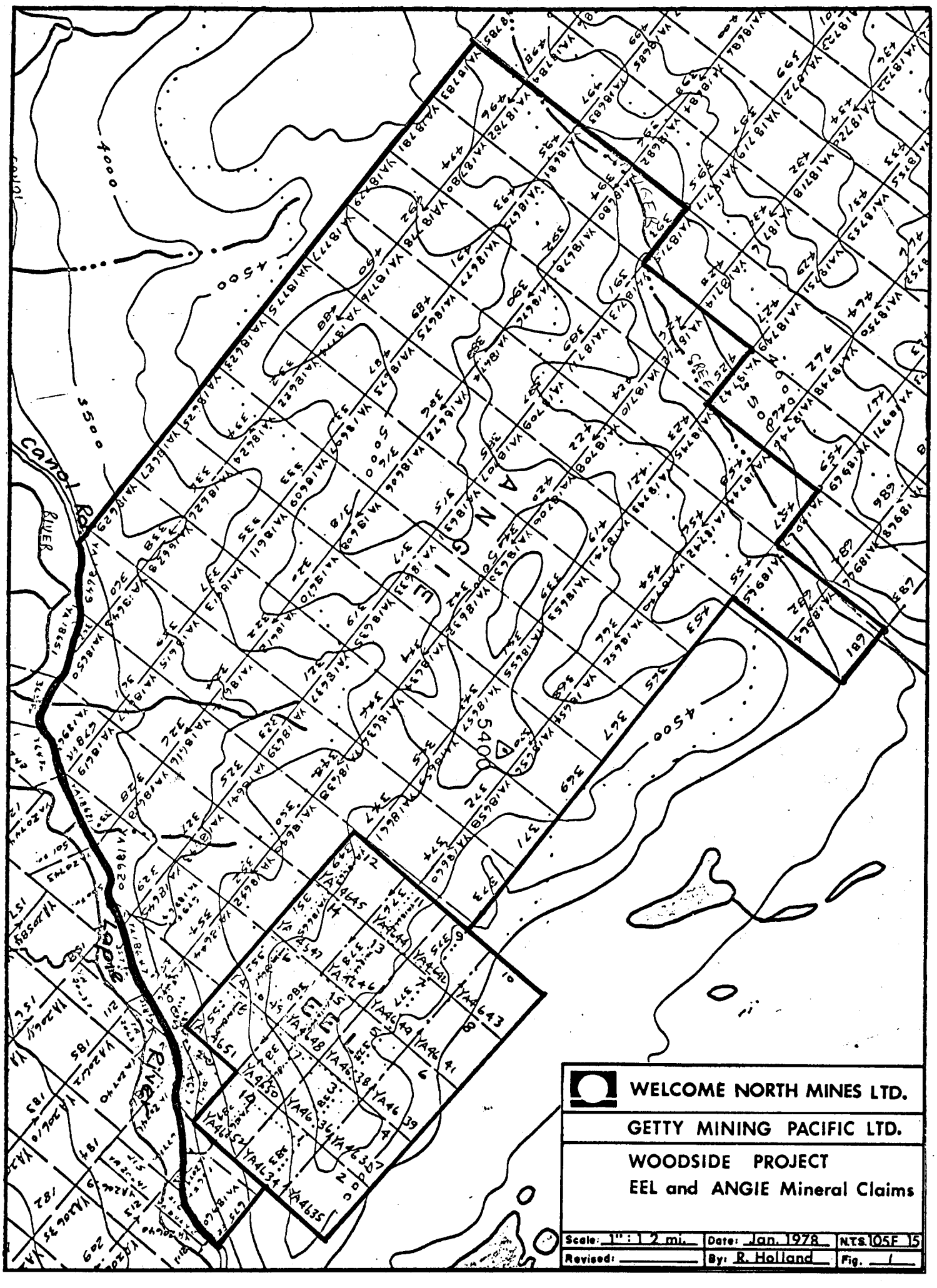
Further prospecting in the area during June, 1977 failed to relocate the initial zinc showing, however five new showings similar to the first were discovered resulting in the staking of the adjacent ANGIE claims on June 28, 1977.


Work done during 1977 on the EEL and ANGIE claims by Welcome North, as Operator, consisted mainly of prospecting and regional geological mapping. Some rock geochemistry was also done over the showings.

MINERAL CLAIMS

The EEL 1-19 and ANGIE 315-394, 419-426, 453-458, 487-496, 675, 678-682 claim groups consist of the following 125 contiguous mineral claims located in the Whitehorse Mining District of the Yukon Territory (see Fig. 1).

<u>CLAIMS</u>	<u>GRANT NUMBERS</u>	<u>RECORDING DATE</u>
EEL 1-19	YA4634-YA4652	June 30, 1976
ANGIE 315-356	YA18606-YA18647	June 28, 1977
359-362	YA18648-YA18651	June 28, 1977
365-394	YA18652-YA18681	June 28, 1977
419-426	YA18706-YA18713	June 28, 1977
453-458	YA18740-YA18745	June 28, 1977
487-496	YA18774-YA18783	June 28, 1977
675Fr	YA18960	June 28, 1977
678Fr-680Fr	YA18961-YA18963	June 28, 1977
681-682	YA18964-YA18965	June 28, 1977




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WOODSIDE PROJECT
EEL and ANGLE Mineral Claims

Scale: 1" = 1.2 mi. Date: Jan. 1978 NTS 105F 15
 Revised: _____ By: R. Holland Fig. 1

SUMMARY

The rocks underlying the EEL and ANGIE mineral claims are part of an extensive and often highly variable package of sedimentary rocks laid down along the edge of the Pelly-Cassiar carbonate platform during Cambrian to Mississippian times. This sequence is composed mainly of interlayered and interfingered limestones, quartzites, siltstones, phyllites and chert and has been highly and complexly folded about an east-west axis. Scattered zinc mineralization has been found throughout most of the sequence in the adjacent areas, with the Cambro-Ordovician, Silurian-Devonian, and Devonian packages being the most favourable horizons.

Prospecting and mapping have revealed at least five zinc showings between Danger Creek and the Lapie River. No visible sulphides have as yet been located, however all the showings reacted strongly to zinc solution, with one sample assaying almost 6% zinc. This mineralization appears to be restricted to the Devonian limestone and to nearby similar phases of the underlying Silurian-Devonian quartzite sequence. The host rock in all cases is a fine-grained sooty black limestone.

Work postulated for 1978 includes detailed regional geological mapping and geochemistry with the possibility of grid geological, geochemical, and geophysical work being undertaken later on.

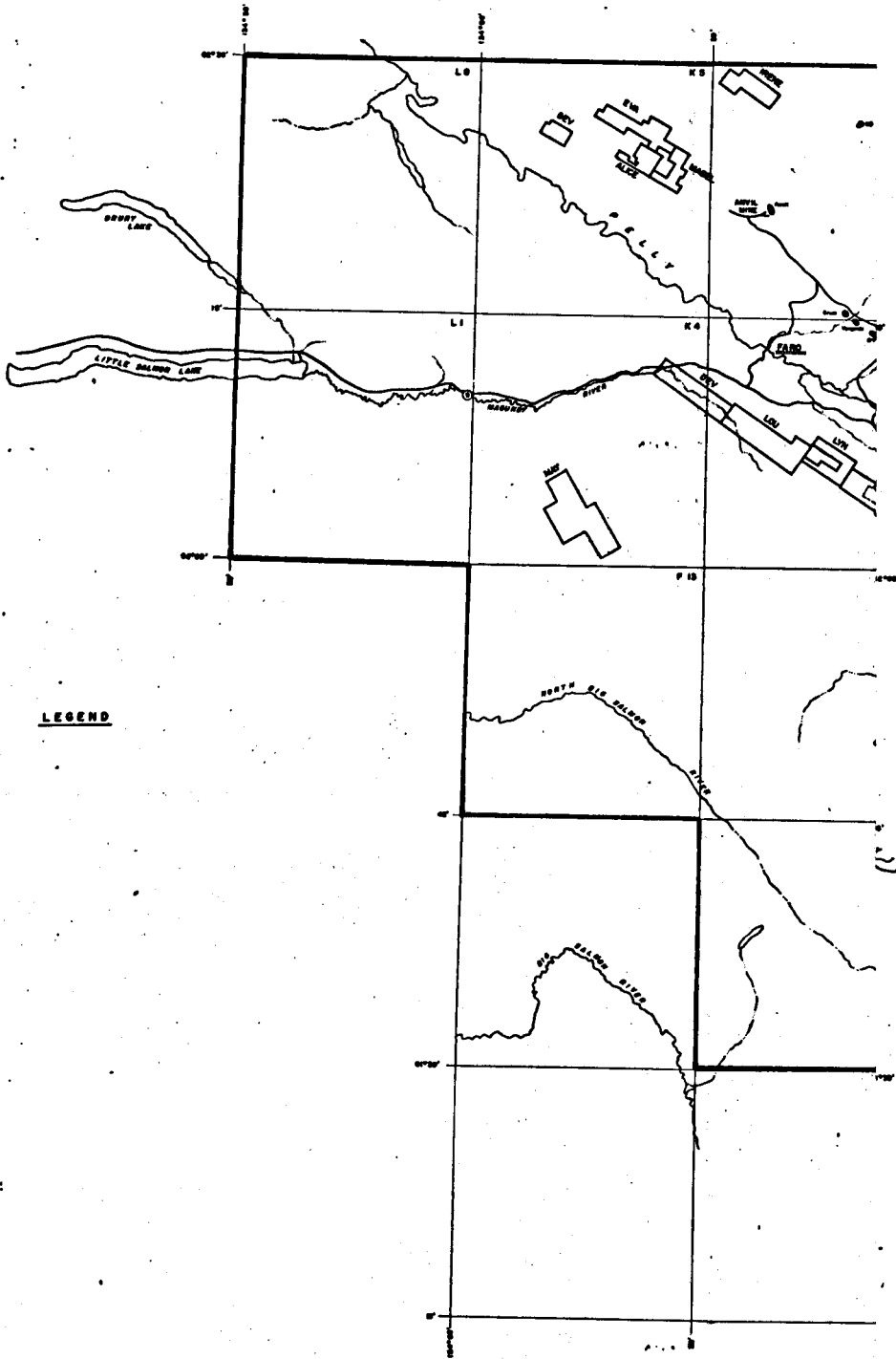
LOCATION AND ACCESS

The EEL and ANGIE mineral claims are located in the Whitehorse Mining District of the Yukon Territory (N.T.S. 105F-15) at latitude $61^{\circ}55'N$ and longitude $132^{\circ}40'W$, approximately 120 miles northeast of Whitehorse, Yukon Territory and five miles southwest of the town of Ross River, Yukon Territory (see Fig. 2).

Access to the property is by helicopter from Faro or Ross River or by motor vehicle via the south Canol Road which runs along the southeastern edge of the claims or via the Robert Campbell Highway which passes within four miles to the northeast. Both these roads are major routes connecting the area with Whitehorse and the Alaska Highway to the south.

The claims cover the area between Danger Creek to the northwest and the Canol Road and Lapie River to the southeast, along the front ranges of the Pelly Mountains. Elevations vary from 2700 feet above sea level at the Lapie River to 5400 feet along the main ridge. The main ridges are generally steep sided with rounded crests with the higher elevations being above tree line and barren of vegetation except for sparse grass cover. Abundant buck brush and occasional stunted spruce occur lower down the flanks, with poplar and evergreen growths well developed in the valley bottoms and lower ridge areas.

Outcrop is generally restricted to the ridge tops and to a lesser extent the creek bottoms.



LEGEND

WELCOME NORTH MINES LTD.			
VANGORDA & WOODSIDE PROJECTS - 1977			
PROPERTY LOCATION MAP			
SCALE	1" = 6 MILES	DATE	AUGUST 1977
DRAWN	P. PECK	REVISED	JAN. 1978
BY	WTS	DESIGNED BY	W.S.A.
			<i>Fig 2</i>

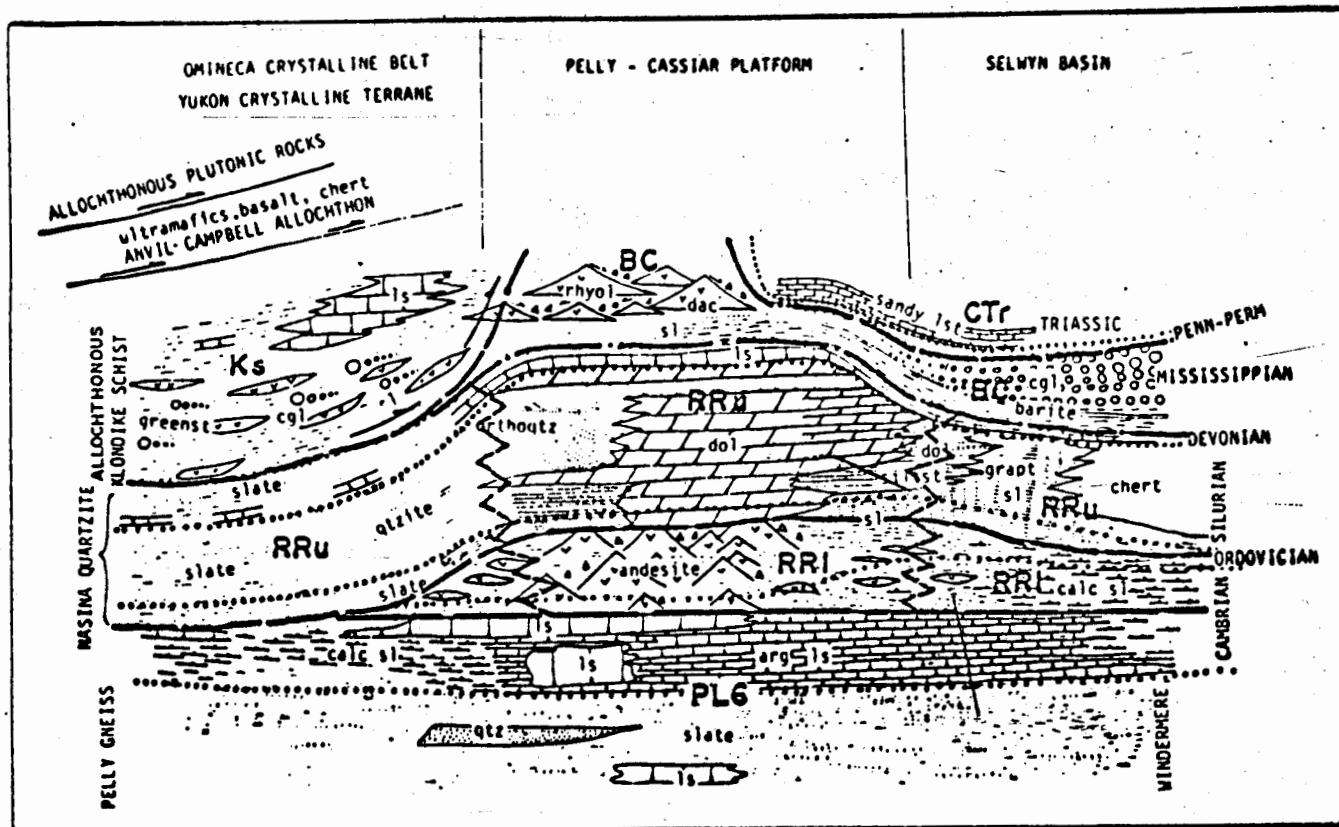
REGIONAL GEOLOGY

Two contrasting sequences of stratified rocks are exposed in the Pelly Mountains. On the northeast near Tintina Trench a succession of shale, sandstone and carbonate rocks was deposited during shallow marine conditions near the margin of the stable continental platform. This miogeoclinal assemblage ranges from Proterozoic to Triassic. On the southwest a late Paleozoic metamorphosed eugeosynclinal assemblage which includes argillaceous chert, siliceous tuff, basalt, serpentinite, greenstone, limestone, slate and conglomerate, occurs. Thrust over both these sequences are at least two allochthonous assemblages, believed to be respectively Devonian-Mississippian and Permian-Triassic in age. All the rocks were arched over two large northwest trending anticlines which were the locus of relatively long-lived heat flow accompanied by intrusion of elongate mid-Cretaceous granitic batholiths. Transcurrent movement along Tintina Fault occurred shortly after the intrusive event (see Fig. 3).

The Proterozoic and Lower Cambrian assemblage, labelled PL6 in Fig. 4, is a relatively uniform package of rocks. Because of its widespread occurrence through the Pelly Mountains and along the Omineca Crystalline Belt to the south (Campbell et al, 1973; Gabrielse, 1963; Gabrielse and Dodds, 1974) it is assumed that these rocks were deposited on a long-lived stable continental shelf. The occurrence of argillaceous limestones containing archeocyathid reefs near the top of this succession in the Pelly Mountains suggests that uplift of part of the continental shelf was initiated during Lower Cambrian time.

This Proterozoic and Lower Cambrian assemblage of rocks is separated from the Cambrian to Devonian Road River assemblage of rocks by a widespread unconformity.

The Road River assemblage is divided into two parts. The Cambro-Ordovician lower assemblage, labelled RRI in Fig. 4, is a volcanic arc



Restored section across the Pelly-Cassiar Platform through Quiet Lake map-area to illustrate the facies relations of the main stratigraphic units with those found in the flanking tectonic elements, Selwyn Basin and the Omineca Crystalline Belt-Yukon Crystalline Terrane. Time lines shown by heavy dots across the diagram are only approximately located in the Omineca Crystalline Belt part of the diagram because no diagnostic fossils have been found there.

FIG. 4

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From: Report of Activities, Part A;
Geol. Surv. Can., Paper 77-1A (1977).

sequence flanked by calcareous and basinal shales upon which the Siluro-Devonian carbonates, labelled RRu in Fig. 4, have formed the Pelly-Cassiar Platform. After restoring the right lateral movement along the Tintina Fault, the Pelly Cassiar Platform appears as a "barrier reef" separating the quiescent sediments of the Selwyn Basin from the outboard oceanic sediments.

The Devono-Mississippian Black Clastic Assemblage, labelled BC in Fig. 4, is a transgressive sequence of black siliceous slate that represents a return to deeper water, quiet sedimentation following subsidence of the stable shelf on which the underlying carbonate rocks were formed. At the top of the sequence chert, tuff and acid volcanic flows have emanated from volcanic centers which have later been intruded by their syenitic igneous sources. Chert pebble conglomerates seen within the black slates are derived from the erosion of black cherts lying to the east in the Selwyn Basin.

The Carboniferous to Triassic rocks, labelled CTr in Fig. 4, consist of strongly bioturbated shale and siltstone, and silty and sandy limestones. This dominantly clastic unit represents a shallow environment hundreds of meters below wave base with clastic detritus being shed onto the shelf from the continent; the Pelly-Cassiar Platform having disappeared in Mississippian time.

The allochthonous Klondike Schist assemblage, labelled KS in Fig. 4, consists of limestone, conglomerate, greenstone, and slates believed to be a distal correlative of the Black Clastic assemblage. This allochthon, tectonically transported to its present proximity to the Black Clastic, is in turn overthrust by volcanic rocks of the Anvil Campbell allochthon.

PREVIOUS WORK

Until recently there has been virtually no work done on the front ranges of the Pelly Mountains. In 1976 however, a regional silt geochemistry program was undertaken by Welcome North, with many of the major north-flowing creeks being sampled. Results of this survey were very encouraging with many extremely high values for lead and zinc being obtained. The EEL 1-19 claims were staked by Welcome North in June, 1976 over a reported zinc showing above the Lapie River. More detailed prospecting in 1977 resulted in the discovery of several more showings and the tying on of the ANGIE claim block in June, 1977.

GEOLOGY

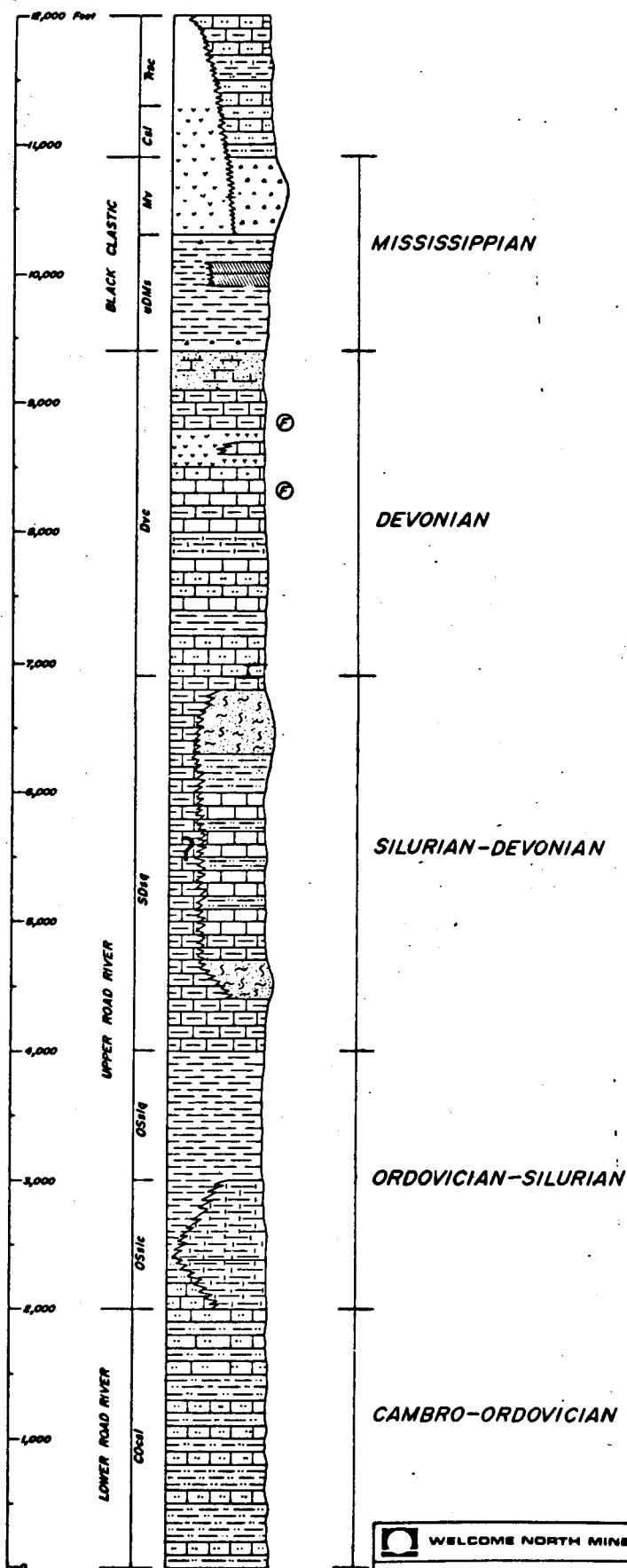
The EEL and ANGIE claims are underlain by a limestone, phyllite, quartzite, siltstone and chert sequence ranging in age from Upper Cambrian to Mississippian (see Fig. 5). Five units have been distinguished on the basis of regional geological mapping and mapping carried out by Tempelman-Kluit (1977b). These rocks appear to be highly contorted and deformed about an east-west axis (see Fig. 6).

The oldest rocks, Cambro-Ordovician in age, are brown weathering, thin bedded shales, calcareous siltstones and argillaceous limestones, labelled Unit 1 in Fig. 6+7. This unit is mapped by Tempelman-Kluit as cutting the eastern corner of the claim groups and is of considerable interest as it is the host for significant lead-zinc mineralization in more strongly metamorphosed rocks to the northeast.

Overlying Unit 1 rocks, probably conformably, are black to grey-black Ordovician-Silurian graphitic phyllites (Unit 2). These rocks are highly contorted displaying abundant intense small and larger scale folding. Minor zinc mineralization has been reported in this unit in adjacent areas.

Unit 3a consists mainly of Silurian-Devonian platy grey quartzite and phyllitic grey siltstone with locally abundant platy grey limestone. It appears to pinch out to the north and to grade locally into grey phyllite with minor quartzite, labelled Unit 3b in Fig. 6+7. Sections across similar rocks to the northwest and southeast indicate considerable amounts of both limestone and grey phyllite within the quartzite in these areas.

The Devonian rocks, labelled Unit 4 in Fig. 6+7, are composed of resistant weathering, platy, grey to sooty black limestone and calcareous grey phyllite. Crinoids were reported at one locality within the limestone and are abundant in this unit elsewhere in the Pelly Mountains.



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WOODSIDE PROJECT

STRATIGRAPHIC CORRELATIONS
IN THE PMJ TREND

Scale: 1/2" = 100' Date: Feb. 1978 NTS
 Revised: By: L. Foster P. 8

The Devonian limestone unit appears to be the main mineralized horizon in this area, containing four of the five known showings. The fifth showing occurs within Unit 3 quartzites but is contained within limestone and is essentially the same as the others. The host rock is generally a very fine grained sooty black limestone. No visible sulphides were encountered on the property, however this may be partially due to the fine-grained nature of the rocks and the lack of remobilization. All the showings did react positively when tested with zinc solution and had highly anomalous zinc geochemistry responses. One grab specimen ran close to 6% zinc.

Overlying the mineralized horizon is a relatively thin Mississippian chert unit consisting mainly of resistant brown weathering pale green tuffaceous chert, labelled Unit 4 in Fig. 7. No mineralization was reported in this unit.

The structural picture in the area of the EEL and ANGIE claims appears to be highly complex. Minor fold axes are fairly consistently dipping 5-10° to the east or west, however in places older rocks are seen to overlie younger rocks suggesting an overturned nearly horizontal-lying antiformal structural closing to the south (see Fig. 6). This antiformal structure itself appears to be intensely folded along a similar axis.

GEOCHEMISTRY

Twenty-four rock chip and grab samples were collected from three of the five showings. The rock chip samples, six in all, were bagged and sent to Bondar, Clegg and Company Ltd. in Whitehorse, Yukon Territory. Each sample was then crushed and assayed for percent lead, zinc and copper. The grab samples were cut, with half of each sample being labelled for future reference and the remaining half being placed in a brown Kraft bag and shipped to Acme Analytical Laboratories Ltd. in Ross River, Yukon Territory. Each sample was then crushed and screened to 80 mesh, with 0.5 grams being digested in hot aqua regia and tested for lead and zinc (in ppm). One sample was also run for copper.

All samples were highly anomalous for zinc, with many containing in excess of 2000 ppm zinc. One sample from showing 18 ran 60,000 ppm zinc. No anomalous values were obtained for lead or copper. The results are tabulated below, (see Fig. 7 for Showing Locations):

TABLE I

	<u>TYPE</u>	<u>ZINC</u>	<u>LEAD</u>	<u>COPPER</u>
Showing #18	Grab	60,000 ppm	16 ppm	200 ppm
	Grab	1,500 ppm	64 ppm	
Showing #26	Grab	2,500 ppm	36 ppm	
	Rock Chip	0.15%	0.01%	0.01%
	Rock Chip	0.12%	0.01%	0.01%
	Rock Chip	0.31%	0.01%	0.01%
	Rock Chip	0.11%	0.01%	0.01%
	Rock Chip	0.08%	0.01%	0.01%
Showing #30	Rock Chip	0.09%	0.01%	
	Rock Chip	0.10%	0.01%	
	Grab	2,300 ppm	32 ppm	
	Grab	3,200 ppm	28 ppm	
	Grab	1,600 ppm	34 ppm	
	Grab	710 ppm	24 ppm	
	Grab	1,400 ppm	38 ppm	
	Grab	1,700 ppm	32 ppm	
	Grab	1,000 ppm	26 ppm	
	Grab	780 ppm	34 ppm	
	Grab	1,300 ppm	22 ppm	
	Grab	2,500 ppm	34 ppm	
	Grab	2,400 ppm	28 ppm	
	Grab	3,500 ppm	32 ppm	
	Grab	5,800 ppm	32 ppm	
	Grab	2,600 ppm	34 ppm	
	Grab	650 ppm	36 ppm	

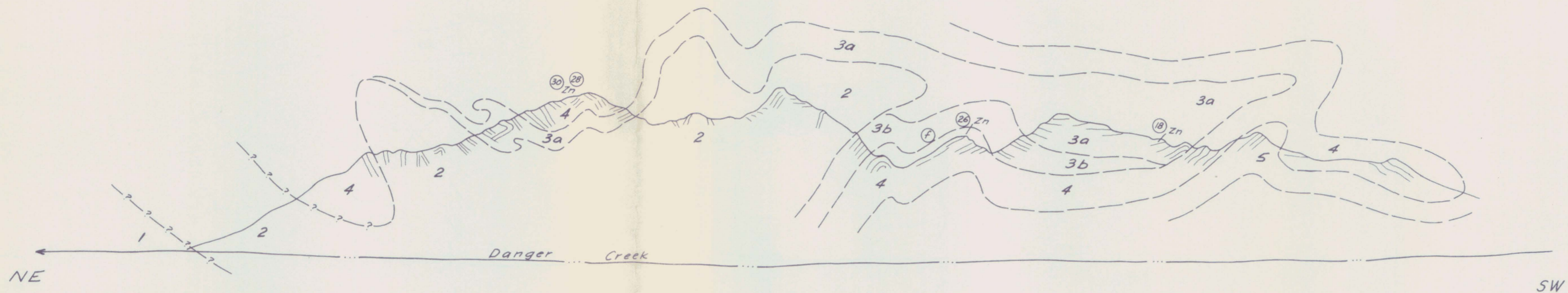
CONCLUSIONS AND RECOMMENDATIONS

It appears there is a great deal of potential for significant zinc mineralization within the rocks underlying the EEL and ANGIE claim blocks. With the possible exception of the chert unit, all the rock units contain locally at least minor amounts of zinc on the property or in adjacent areas. Of particular interest are the Cambro-Ordovician calcareous siltstones, the Silurian-Devonian quartzite-limestones, and the Devonian limestones which appear to contain consistently high zinc backgrounds and abundant scattered zinc showings throughout the Pelly Mountains. The presence of the zinc value of almost 6% on the property is in itself very encouraging.

It is readily apparent that much more work will have to be done in this area in order to further understand the geology, structure, and more importantly the nature and extent of the zinc mineralization. Complex folding and deformation have caused abundant repetition of the favourable horizons and these will also have to be delineated and examined for mineralization. Detailed regional mapping on a scale of 1" - 1000' is therefore essential and has been planned for the 1978 field season along with some regional soil and silt geochemistry and further evaluation of the existing showings. It is also recommended that a grid be established over the showing areas to allow more detailed geological mapping, geochemistry and possibly geophysics in the form of magnetic and/or electromagnetic surveys.

BIBLIOGRAPHY

- Gabrielse, H., 1963: McDame map-areas, Cassiar District, British Columbia; Geol. Surv. Can., Memoir 319, p. 138.
- Campbell, R.B., Mountjoy, E.W., and Young, F.G., 1973: Geology of McBride map-area, British Columbia; Geol. Surv. Can., Paper 72-35, p. 104.
- Gabrielse, H. and Dodds, F.J., 1974: Operation Finlay; Geol. Surv. Can., Paper 74-1, Part A, p. 13-16.
- Tempelman-Kluit, D.J., Gordey, S.P., and Read, B.C., 1976: Stratigraphy and Structural Studies in the Pelly Mountain, Yukon Territory; Geol. Surv. Can., Paper 76-1A, p. 97-106.
- Tempelman-Kluit, D.J., 1977a: Report of Activities, Part A; Geol. Surv. Can., Paper 77-1A.
- Tempelman-Kluit, D.J., 1977b: Quiet Lake (105F) and Finlayson Lake (105G) Map Areas; Geol. Surv. Can., Open File 486.



Looking Southeast

Mississippian

5 Brown-weathering, pale-green, tuffaceous chert

Devonian

4 Platy, grey to grey-black limestone and calcareous grey phyllite

Silurian-Devonian

3b Grey phyllite; minor quartzite

3a Platy, grey quartzite; phyllitic siltstone; locally abundant, platy, grey limestone

Ordovician-Silurian


2 Black to grey-black phyllite

Cambro-Ordovician

1 Thin-bedded shale; calcareous siltstone; argillaceous limestone

26 Mineral Showing

f Fossil locality

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WOODSIDE PROJECT
EEL and ANGIE Mineral Claims
GEOLOGICAL CROSS-SECTION

Scale: 1" = 1000' Date: Feb. 1978 N.T.S. 105F/15

Revised: By: R. Holland Fig. 6



- MISSISSIPPIAN**
- 5 Brown-weathering, pale-green, tuffaceous chert
- DEVONIAN**
- 4 Platy, grey to gray-black limestone; calcareous grey phyllite
- SILURIAN-DEVONIAN**
- 3b Grey phyllite; minor quartzite
 - 3a Platy, grey quartzite; phyllitic siltstone; locally abundant platy, grey limestone
- ORDOVICIAN-SILURIAN**
- 2 Black to grey-black phyllite
- CAMBRO-ORDOVICIAN**
- 1 Thin-bedded shale; calcareous siltstone; argillaceous limestone
- Geologic contact—approx., assumed -----
- Compositional layering
- Cleavage
- Minor fold axis
- Limit of outcrop
- Zinc showing location (26)
- Fossil locality (2)

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WOODSIDE PROJECT	
EEL and ANGIE Mineral Claims	
REGIONAL GEOLOGY and	
SHOWING LOCATION	
Scale: 1" = 1000'	Date: Feb. 13, 1978 NTS. 105F/15
Revised:	By: W.J. Crawford Plate 7