GEOCHEMICAL & GEOPHYSICAL REPORT

T.V.I. Mining Ltd.

Reliance Property, Lillooet Mining Division, B.C. Latitude 50° 52.5'N Longitude 122° 46.5'W

900/1000

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P. ENGINEER: W. G. Stevenson DATE OF WORK: June 25 - July 4, 1971 # 3276

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Mines and Petroleum Resources Department of ASSESSMENT REPORT NO. 3276 MAP

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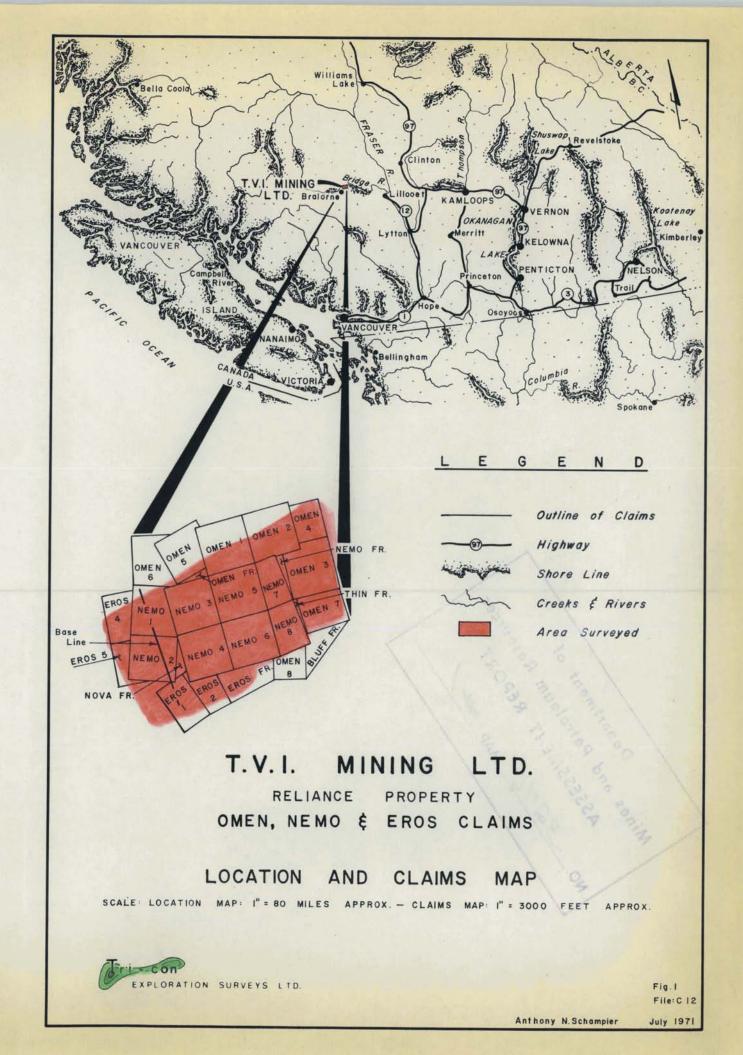
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# INTRODUCTION

From June 25 to July 4, 1971, Tri-Con Exploration Surveys Ltd. on behalf of T.V.I. mining Ltd. conducted a program of geological mapping, detailed reconnaissance soil sampling, and electromagnetometer surveying on the Reliance Property (Figure 1), Lillooet Mining Division, Province of British Columbia.

The purpose of this 1971 exploration program was to determine limits of known antimony mineralization and to attempt to find and delineate any unknown shear zones containing antimony.

The electromagnetometer survey was carried out to locate possible shear and fault structures and to determine limits of known shear zones. The geochemical and geological surveys were carried out to determine the possible presence of antimony mineralization in these shears.

# LOCATION AND ACCESS

The claims surveyed are situated on the south side of the Bridge River at Latitude  $50^{\circ}$  52.5'N and Longitude  $122^{\circ}$  46.5'W N.T.S. 92J/15 Lillooet Mining Division, Province of British Columbia.

Access to the property is by 3.5 miles of gravel road from Goldbridge along the south side of the Bridge River.

# PROPERTY

The Reliance Property consists of crown grants and fractions as follows:

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Omen 1-8
Nemo 1-8
Eros 1, 2, 4, 5
Omen Fraction,
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Omen Fraction, Nemo Fraction, Thin Fraction, Bluff Fraction, Nova Fraction, Eros Fraction

# GENERAL GEOLOGY

#### References:

McCann, W.S., 1922, Geological Survey - Bridge River, B.C. Canada Dept. of Mines Memoir 130. Joubin, Frank, 1948, Structural Geology of the Bralorne & Pioneer Mines, Western Miner, July 1948.

James, D. H., and Weeks, J.P. Bridge River Mineral Area, British Columbia, Victoria Branch C.I.M.M., Sept. 29, 1961.

The Reliance Property is located in an area of rocks of the Fergusson Series. These rocks consisted of a eugeosynclinal sequence of chert, sandstones, muds, and limestones deposited in a wide shallow sea in Pennsylvania to Permian time. Uniform conditions of sedimentation prevailed with contemporaneous flows of basaltic lava upon the sea bottom and possible injections of lava into the sediments. This deposition was followed by epeirogenic uplift and local deformation of marine deposits towards the end of the Paleozoic. An erosional interval then created a non-conformity.

Olivine rocks were then extruded through pipes and dykes, with the lavas flowing over the Paleozoic erosion surface.

Transgression of the Upper Triassic sea upon a land surface of considerable relief caused deposition of the Cadwallader Series of conglomerate, sandstone and argillite with minor limestone. This was interrupted by accumulations of course clastics and outpouring of numerous basaltic flows.

The Nevadian disturbance at the close of the Jurassic caused the formation of the Bridge River anticlinal dome and folding of the Cadwallader and Fergusson Series. Then followed the intrusion of the important augite-diorite stock of the Bralorne area to which has been related the period of gold mineralization.

Over the Cadwallader Series was deposited the Lower Cretaceous Eldorado Series with contemporaneous volcanic activity. There were great mechanical disintegrations of sediments and rapidly changing conditions of sedimentation. This period was followed by the intrusion of the Bendor quartz-diorite.

The land surface was much reduced during an upper Cretaceous cycle of erosion. The Laramidian revolution then caused folding and up-

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lift of the Cretaceous erosion surface. Active erosion and peneplanation occured during Eocene time followed by orogenic uplift at the close of the Eocene. Contemporaneous local volcanic activity and intrusion of igneous dykes associated with antimony deposits also occured at this time.

Miocene erosion followed, then Pliocene uplift and erosion (present topography), Pleistocene glaciation, stream erosion, and recently river deposits, landslides, and accumulation of volcanic ash.

#### LOCAL GEOLOGY

#### Reference:

Cairnes, C.E., 1943, Geology & Mineral Deposits of Tyaughton Lake Map-Area, British Columbia, G.S.C. Paper 43-15 (includes Geology Map).

The published geology of the area indicates that the Reliance Property consists entirely of rocks of the Fergusson Series. These have been observed to be an alternating succession of sedimentary and volcanic rocks, the former consisting very largely of thinly bedded, often much contorted, chert, with argillaceous partings. Colours vary from almost white to shades of gray blue, green, and occasionally red. Locally argillaceous beds predominate. Pods and beds of crystalline limestone are also present. The volcanic rocks are chiefly fine-grained, massive to schistose, altered, andesitic to basaltic lavas, commonly green (greenstones), but reddish in places. They are occasionally amygdaloidal and commonly show pillow structures. The Fergusson Series is probably Permian in age.

#### SURVEY SPECIFICATIONS

#### Survey Grid

A baseline 4000 feet in length was established starting 100 feet east along the access road from MacDonald Creek. The bearing of the line was 160°. A tie line was established 5000 feet to the east for grid control. The road was used as the northern most grid line and

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six additional lines of varying lengths to suit the outline of the claim block were laid out perpendicular to the base line. The grid totalled 7.5 line miles.

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# Geology

Reconnaissance mapping was carried out over the property using the grid for control. Detailed mapping was done in the vicinity of the workings on the property and along the road. Rock geochem samples were taken at significant outcrops for later use in geochemical interpretation, and mineralized showings and shear zones were sampled for assay purposes.

# Geochemical Survey

The soil of the property is basically of the alpine type which consists of a heavily oxidized (hematitic) zone comprising the "B" and "C" horizons, while the "A" horizons are mainly organic. Profiling was carried out to test barren and mineralized areas for comparison of metal content and detailed sampling was done in the vicinity of the Turner adit, plates 2, 3 and 4.

A cover of volcanic ash over the property complicated sampling and in some cases made it unfeasible. The layer of ash varied from a few inches to probably about fifteen feet. Soil samples were taken from the highly oxidized "B" horizon just under the ash.

Sample holes were dug with a mattock. The samples were taken by hand and placed in a water resistant kraft bag where they remained until analysis.

#### The Electromagnetometer Survey

This survey was conducted using a Geonics V.L.F. E.M.-16 electromagnetometer. This instrument acts as a receiver only. It utilizes the primary electromagnetic fields generated by V.L.F. marine communication stations. These stations operate at a frequency between 15-25 KHZ, and have a vertical antenna-current resulting in a horizontal primary field. Thus, this V.L.F. - E.M. measures the dipangle of the secondary field induced in a conductor.

For maximum coupling, a transmitter station located in the same direction as the geological strike should be selected, since the direction of the horizontal electromagnetic field is perpendicular to the direction of the transmitting station.

Readings were taken at 50 foot intervals and the data filtered in the field by the operator as described by D.C. Fraser, Geophysics Vol. 34, No. 6 (December 1969). The advantage of this method is that it removes the dc and attenuates long spatical wave lengths to increase resolution of local anomalies, and phase shifts the dip-angle data by 90 degrees so that crossovers and inflections will be transformed into peaks to yield contourable quantities.

Some 197 soil samples, 19 chip and channel samples and some 34 rock geochemical samples were taken. The samples were delivered to Chemex Laboratories Ltd. of North Vancouver, B.C. where drying, sieving and analysis by atomic absorption was carried out under the supervision of professional chemists. All samples were analysed for antimony and arsenic while some of the chip, channel and rock geochemical samples were also analysed for gold, copper and zinc.

#### Data Presentation

The survey data accompany this report as planimetric maps and illustrations as follows:

Figure 2 Geochemical Map - arsenic contoured at 25, 50 and 75 ppm.
Figure 3 Geochemical Map - antimony contoured at 24, 48 and 72 ppm.
Figure 4 Geophysical Map - Electromagnetometer-Filtered dip-angle contoured at 5, 10, and 15 degrees.
Figure 5 Geology and Interpretation Map

Plate 1 Soil Profile #1
Plate 2 Soil Profile #2
Plate 3 Soil Profile #3
Plate 4 Sample Data Turner Adit & Open Cut
Plate 5 Fergusson Adit & Open Cut
Plate 6 Geology & Sampling Data Reliance Workings
Plate 7 Location, Sample Data & Geology Senator Workings

# DISCUSSION OF RESULTS

#### Geology

The geological survey was conducted on a reconnaissance basis over the complete claim group (Figure 5) and in more detail over the various adits and workings, Plates 4, 5, 6 and 7. The geological survey mapped the various lithologic units of the Fergusson Group and examined them for indications of sulphide mineralization. The various rock units in general trend north-south and are cut by a strong set of northwest-southeast shears and a weaker system of eastwest and northeast-southwest shears.

The Turner Adit, Plate #4, is located in the andesite rock sequence. The mineralization appears to be controlled by a shear zone trending N  $75^{\circ}$  E dipping  $85^{\circ}$  N and by a shear zone trending N  $60^{\circ}$  E dipping  $55^{\circ}$  N.

The Fergusson Adit, Plate 5, and the Reliance Adit, Plate 6 are also located in andesitic rock in a southeast trend from the Turner Adit and also reflect the same structural features.

The Senator Workings, Plate 7 are located in a grey siliceous tuff. The northwest-southeast and north-south shear zones appear to control the antimony and gold mineralization.

#### The Geochemistry

There are well-defined definite antimony and arsenic geochemical trends on the property. The arsenic anomalies show ion transportation 2-3 times as far from the expected source as do the an-

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timony anomalies. This is to be expected in the soils of this area as ion mobility is not severely hampered.

The soil profiles, Plates 1-3, show 6-13" of volcanic ash over most of the property. Since this horizon impedes ion migration, it was avoided as a sampling medium in all cases, and the "B" horizon directly beneath this volcanic ash was sampled. The "B" horizon was in all cases a well-developed horizon, slightly oxidized and intermixed with the "C" horizon. As all samples were taken from this horizon, the results are accepted as representing ions from the immediate underlying material and any lateral migration will be due to variance in topography.

#### The Electromagnetometer Survey

The filtered electromagnetometer data located several moderately strong conductors which trend in a northwest-southeast direction as indicated by the weaker conductor trends. The conductors and weak conductor trends in general, appear to reflect the strong northwestsoutheast shear zones.

# Data Correlation

Correlation of the geological, geochemical and geophysical data indicates that the strong arsenic-antimony geochemical anomaly (Figure 5) just east of the baseline appears to be associated with northwest-southeast shears as indicated by the geology and the electromagnetometer data and occurs up-hill from the Senator Workings. The smaller parallel antimony anomaly just to the east (Figure 5) is also interesting. Examination of Figure 3 indicates this anomaly is associated with a weaker antimony trend, which terminates at the road at 4E with a rock geochemical value of 3400 ppm. antimony. The third interesting antimony anomaly is located in the eastern side of the claim group in a largely overburden covered area. Rock geochemical values just to the east show a definite increase in antimony content. The two strong electromagnetic conductors in this area appear to reflect the limestone-chert contact. It is interesting to note that the Turner, Fergusson and Reliance adits are located in a weak antimony anomaly and are in line with an electromagnetic conductor trend. Thus, since some of the results in the geochemical trends are higher than those taken over the known showings it is expected that investigation of these high results will uncover significant mineralization of a grade as good as, or better than that of the known showings.

# CONCLUSIONS & RECOMMENDATIONS

A reconnaissance program of geological, geochemical and electromagnetometer surveying was conducted on the T.V.I. Reliance Property, Lillooet Mining Division, B.C.

The survey located three areas of interesting antimony trends which contain values greater than those at the known mineral showings. It is recommended that these trends be trenched or diamond drilled depending upon accessibility.

> Respectfully submitted, TRI-CON EXPLORATION SURVEYS LTD.

G. L. Anselmo, President

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Glen E. White, Chief Geophysicist

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# Instrument Specifications

# ELECTROMAGNETOMETER

A. Instrument

a. Type - Geonics V.L.F. - E.M.

- b. Make Ronka E.M. 16
- B. Specifications

Measurement (1)

nt (1) Utilizes primary fields generated by VLF marine communication stations, measures the vertical field components in terms of horizontal field present.

- (2) Frequency range 15 25 KHZ
- (3) Range of measurement in phase ±150% or ±90°
   quadrature ±40%
- (4) Method of reading null detection by earphone, real and quadrature from mechanical dials.
- (5) Accuracy ±1% resolution.

# C. Survey Procedures

Method a. Select closest VLF station perpendicular to traverse lines.

- b. In-phase dial measures degree of tilt from vertical position.
- c. Quadrature dial calibrated in percent null.
- d. Station plot plot values read at station surveyed.
- e. Manually filter dip-angle data.

# CERTIFICATE

I, Garry L. Anselmo, DO HEREBY CERTIFY:
 That I am President of Tri-Con Exploration Surveys Ltd. with offices at Suite 200 - 1405 Hunter Street, North Vancouver, British Columbia, and a Consultant in Geochemical Exploration.

- That I studied Geology and Geochemistry at the University of British Columbia for three years and am a graduate of Simon Fraser University with the Degree of Bachelor of Arts.
- That I have been engaged in Mining Exploration for six years.
  That I have no direct, indirect or contingent interest in the Reliance Property or in the securities of T.V.I. Mining Ltd., nor do I intend to receive any such interest.
- That this report dated August 11, 1971 is based on information derived from reconnaissance geology, geochemistry and electromagnetometer surveying carried out by Tri-Con Exploration Surveys Ltd.

Dated at Vancouver, British Columbia, this <u>11</u>th day of <u>August</u> 1971

TRI-CON EXPLORATION SURVEYS LTD.

Lang J. amelin

G. L. Anselmo, B.A. President

# CERTIFICATION

TO WHOM IT MAY CONCERN:

I, GLEN ELMO WHITE, of the City of Richmond in the Province of British Columbia, hereby certify:

- 1. That I am a Geophysicist and reside at 117-641 Gilbert Road in Richmond, B.C.
- 2. That I studied Geophysics and Geology and graduated from the University of British Columbia with the degree of Bachelor of Science.
- 3. That I have been engaged in Mining Exploration for eight years.
- 4. That I do not have, nor do I expect to receive, either directly or indirectly, any interest in the Reliance property, or in the securities of T.V.I. Mining Ltd.
- 5. That this report is based on information derived from reconnaissance geology, geochemistry and electromagnetometer surveying carried out by Tri-Con Exploration Surveys Ltd.

Dated this 11th day of August 1971

Alon Suhito

Glen E. White, B.Sc., Chief Geophysicist

## CERTIFICATE

I, William G. Stevenson, DO HEREBY CERTIFY:

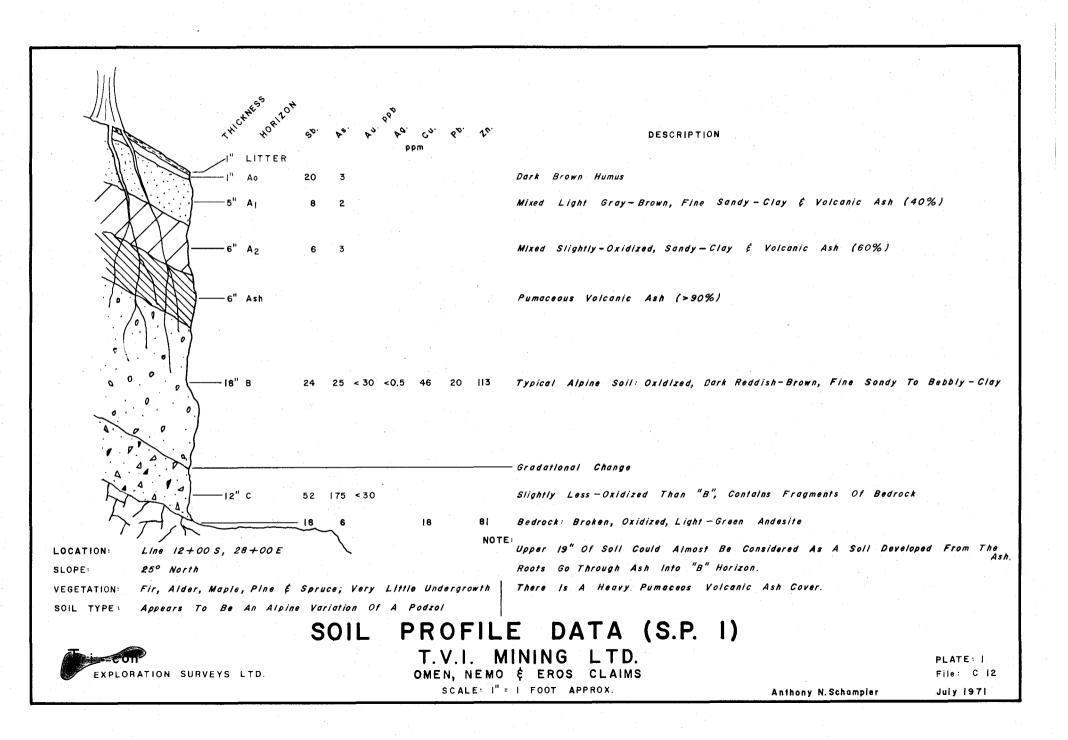
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- That I am a Consulting Geological Engineer with offices at Suite
- 209 Stock Exchange Building, 475 Howe Street, Vancouver 1, B.C.
  That I am a graduate of the University of Utah, 1946, with a B.Sc. Degree.
- That I am a registered Professional Engineer in the Association in British Columbia.
- That I have practised my profession for 22 years.
- That I have no direct, indirect or contingent interest in the Reliance Property or in the securities of T.V.I. Mining Ltd. nor do I intend to receive any such interest.
- That I have reviewed a report dated August 11, 1971 based on work conducted by Tri-Con Exploration Surveys Ltd. under the supervision of G. L. Anselmo, President and Glen E. White, Chief Geophysicist.

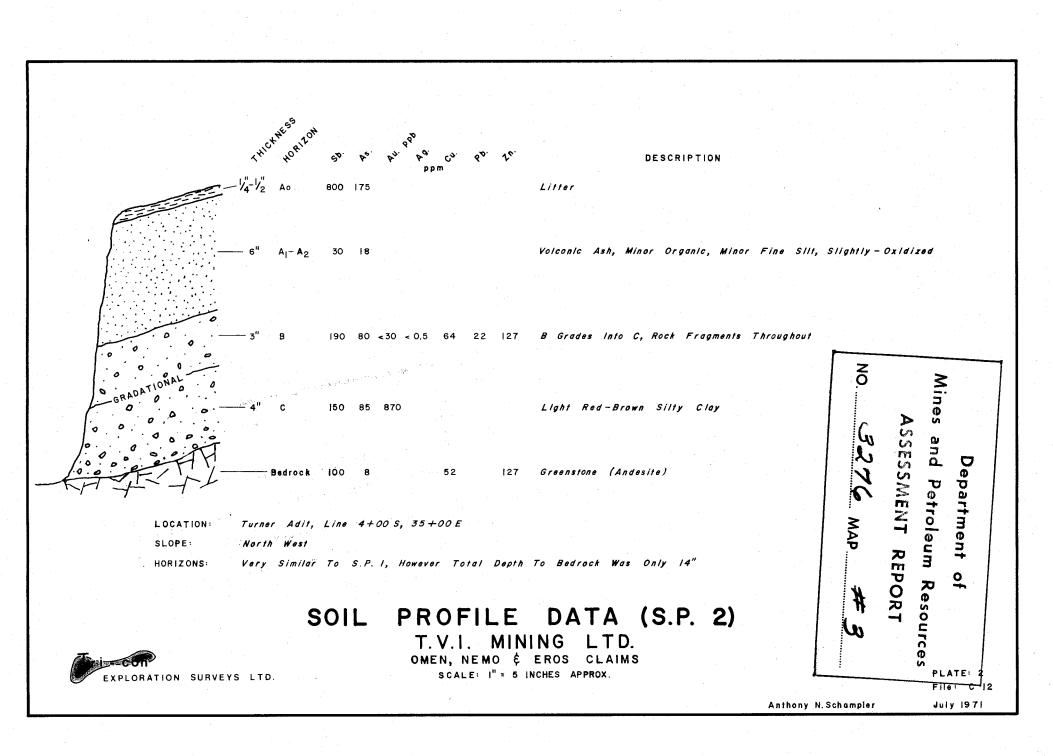
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W. G. STEVENSON & ASSOCIATES LIMITED Consulting Geologists

W. G. Stevenson, P. Engineer

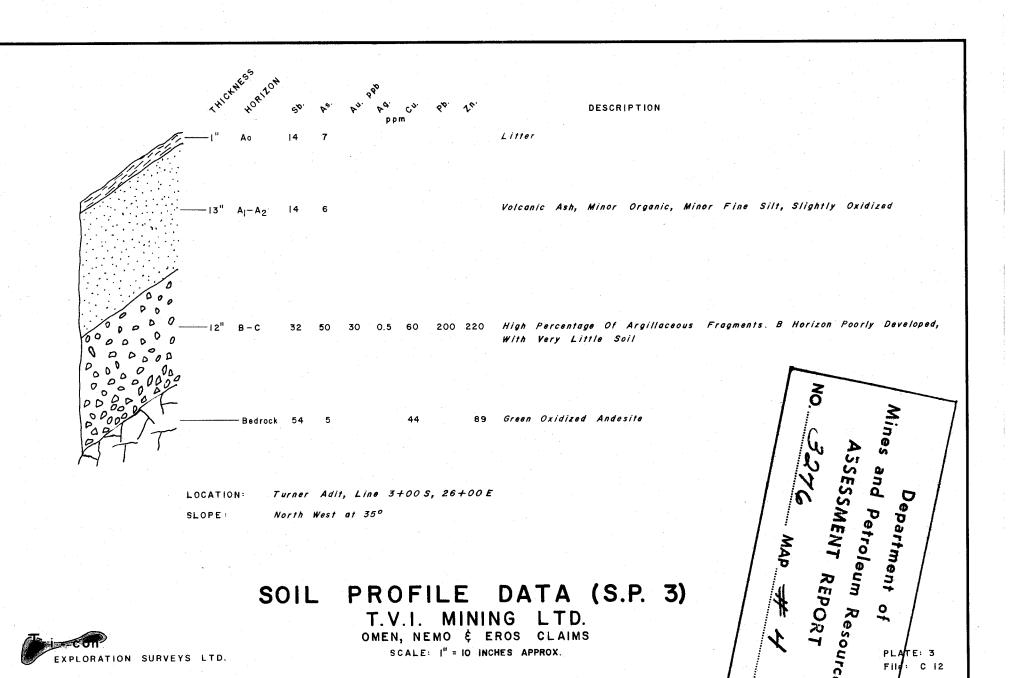


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SOIL PROFILE DATA (S.P. 3) T.V.I. MINING LTD. OMEN, NEMO & EROS CLAIMS

PLATE: 3

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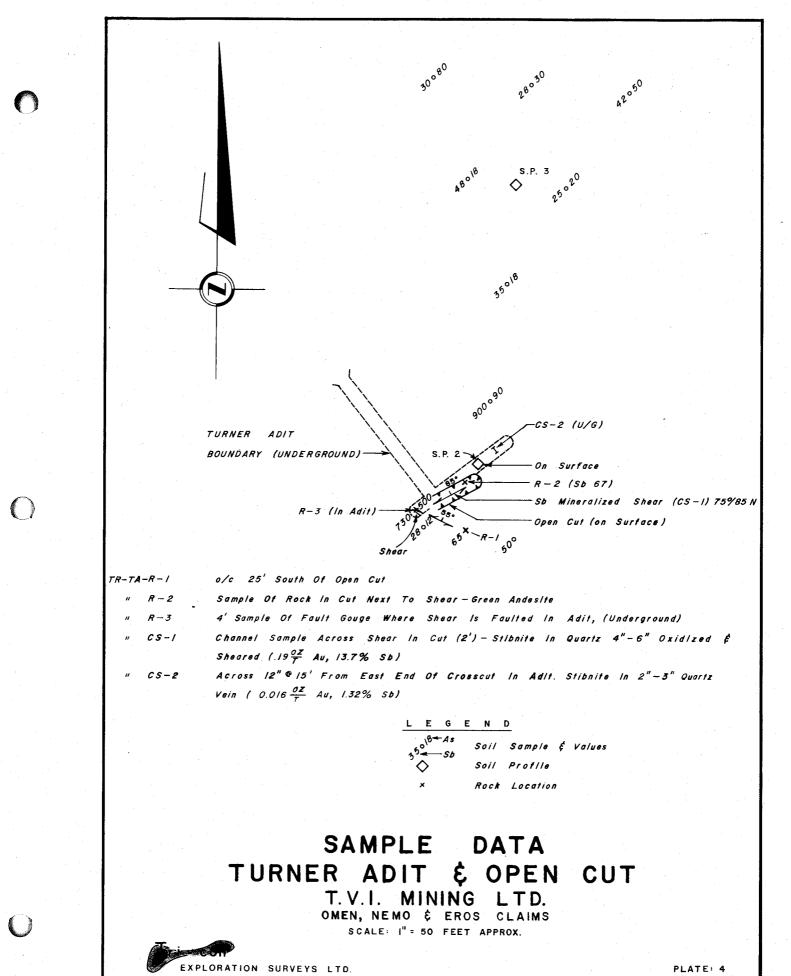
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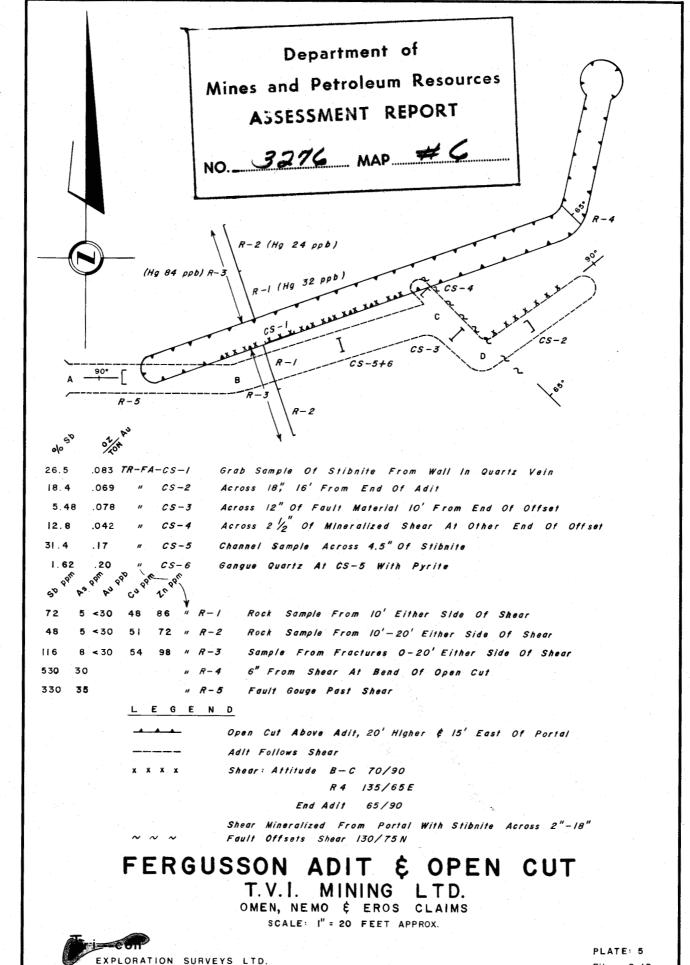
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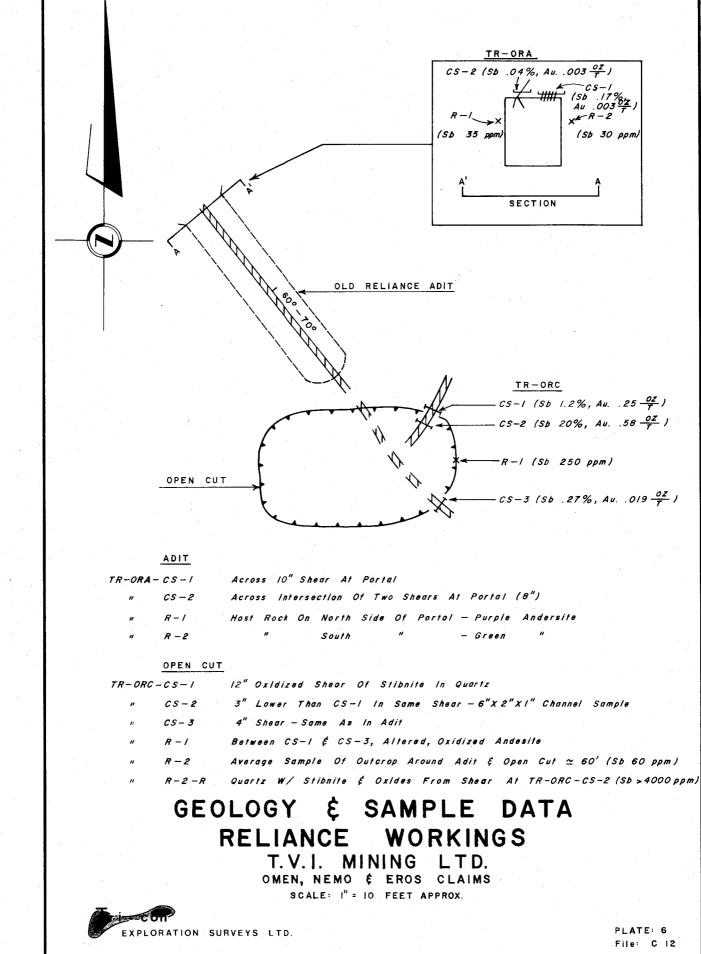


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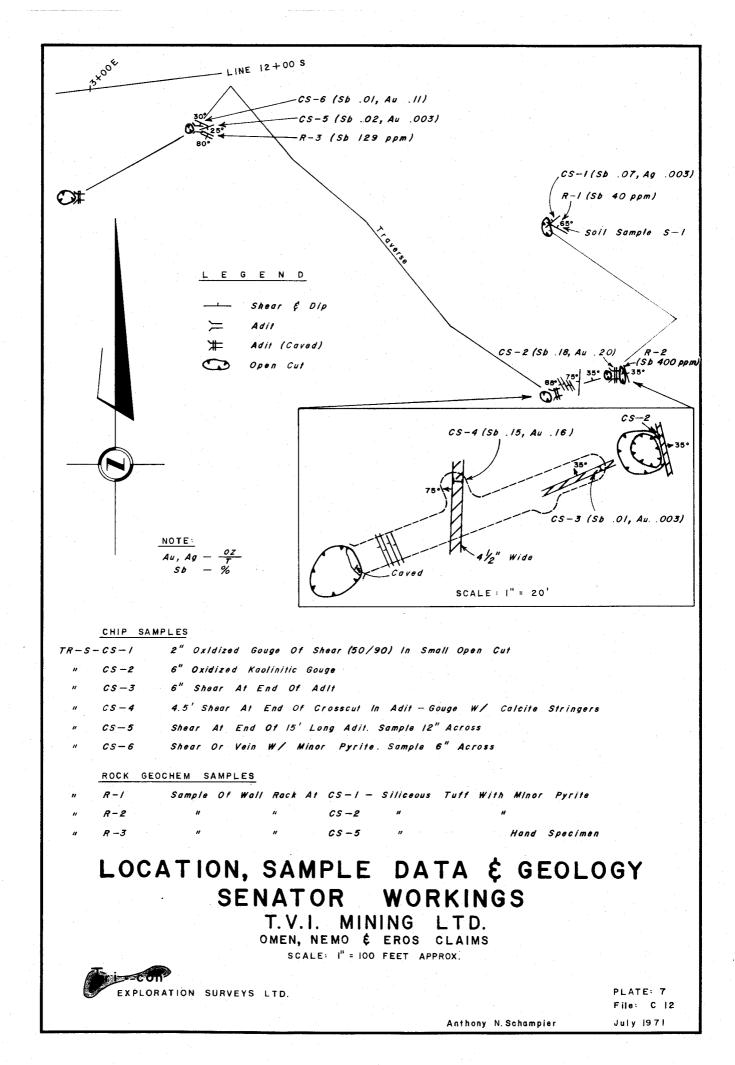
Anthony N. Schampier

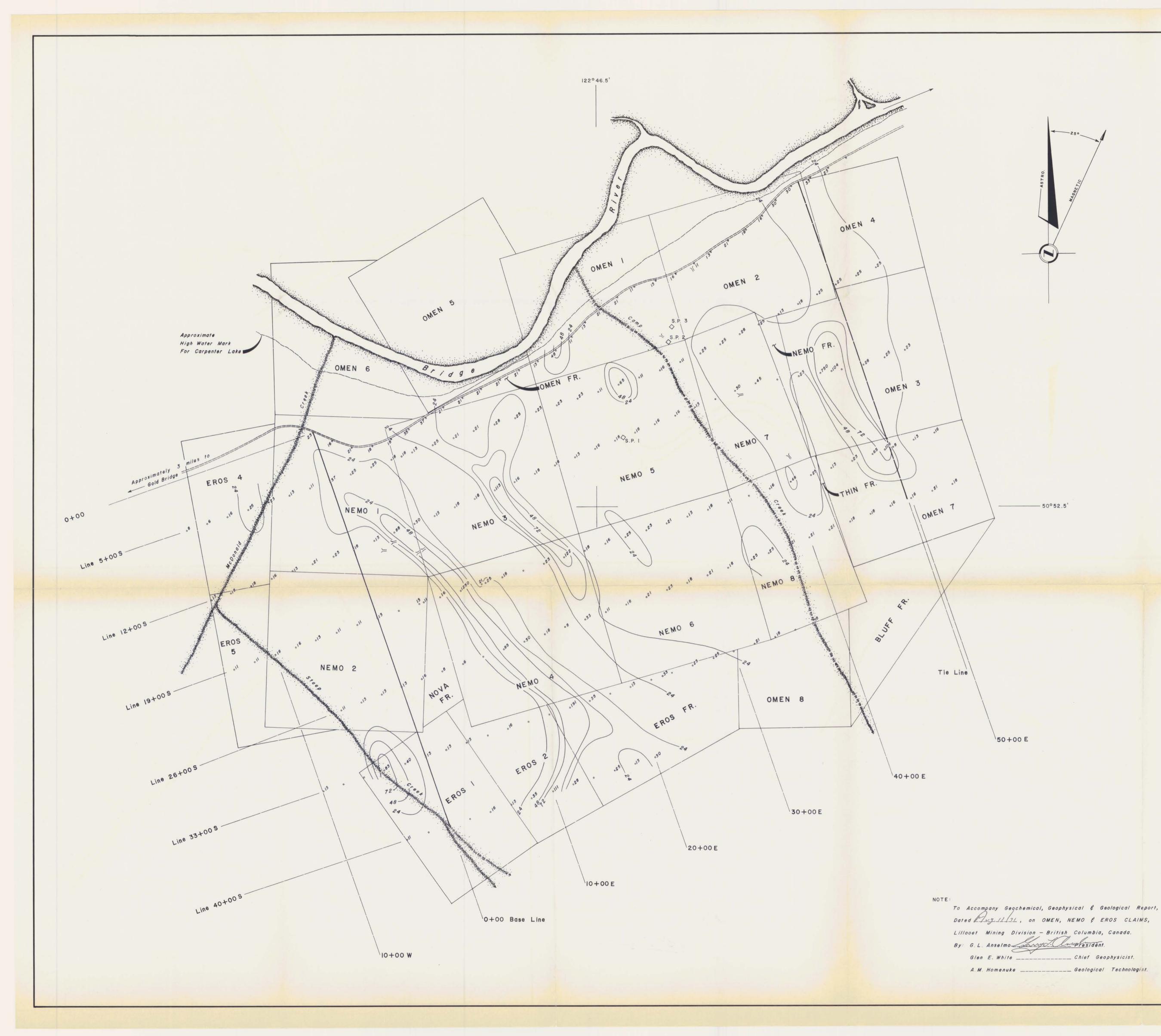
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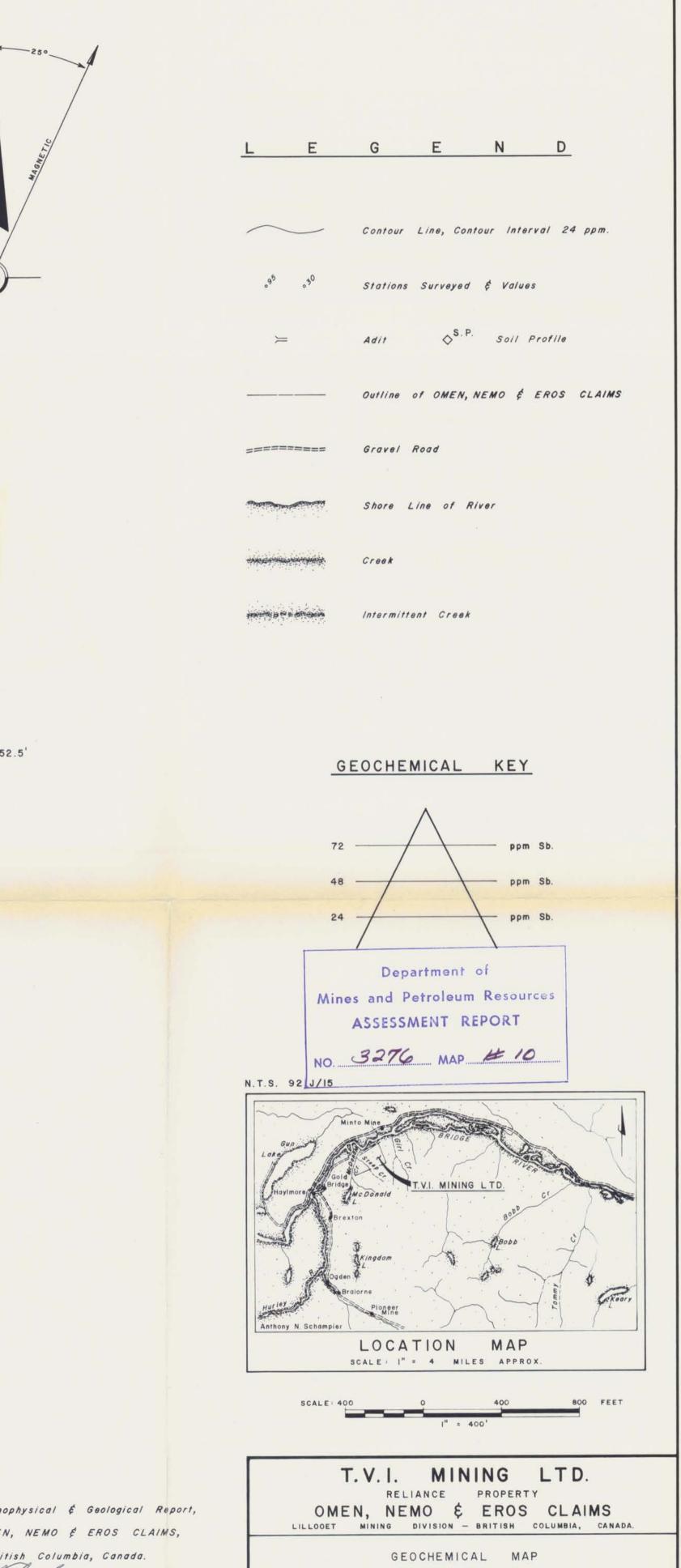


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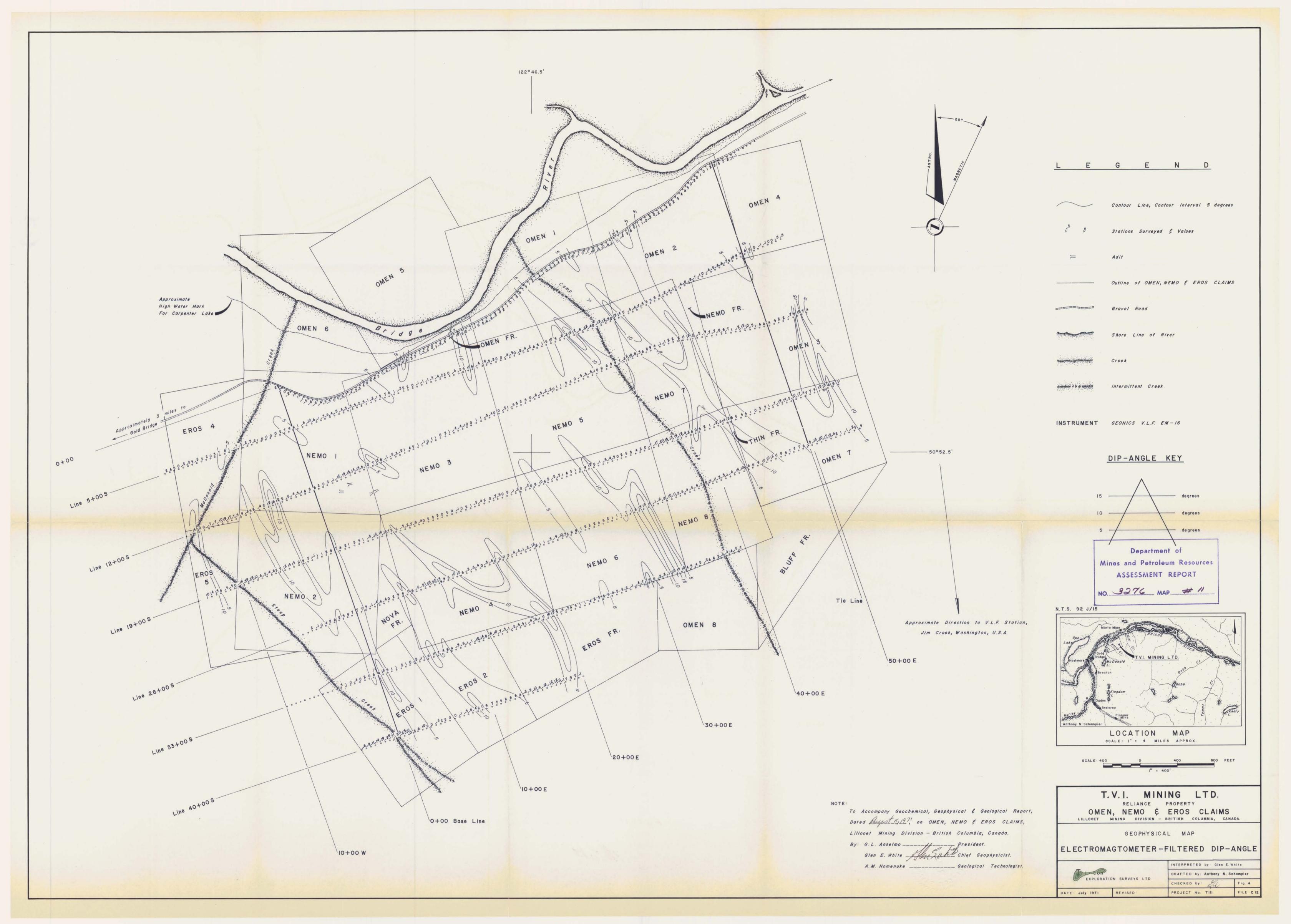


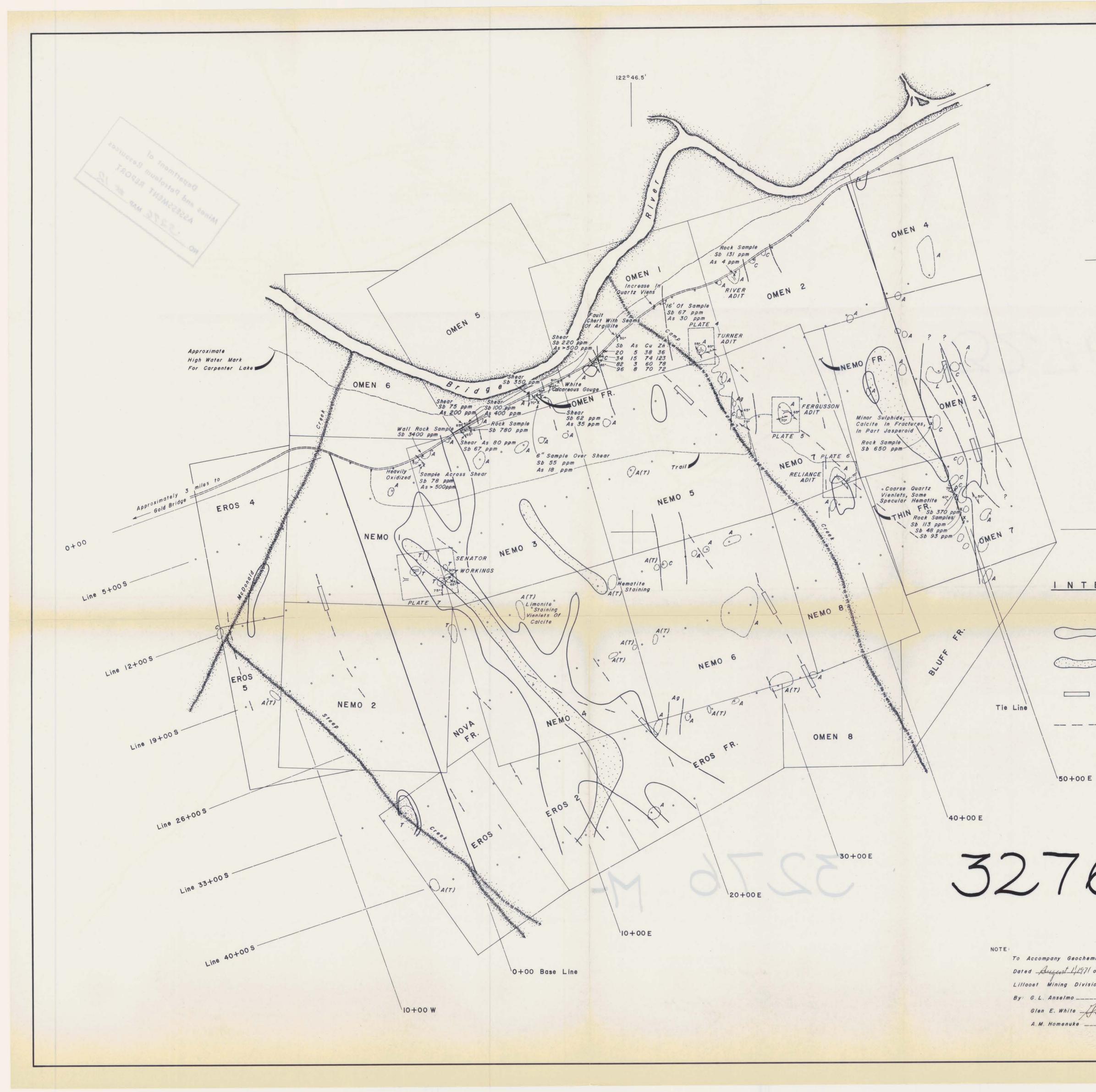


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		DATE July 197	REVISED







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MAGNETIC	L E	<u>GEND</u>
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	L	Limestone
		Andesite
	A(T)	Tuffaceus Andesite
		Gray Siliceous Tuff
	<u>s</u> y	M B O L S
	$\bigcirc$	Outcrop
	ł	Strike & Dip Of Bedding
	ł	Strike & Dip Of Joint
50° 52.5'	1	Strike & Dip Of Faults & Shear Zones
	$\succ$	Adit
ERPRETATION		Outline Of OMEN, NEMO & EROS CLAIMS
		Gravel Road
) > 75 ppm Arsenic (As)		Shore Line Of River
>72 ppm Antimony (Sb)	-	Creek
Electromagnetic Conductors	N.T.S. 92 J/15	Intermittant Creek
Conductor Trends	Gun Later Hayimorer Bridge Breat	to Mine Donald T.V.I. MINING LTD C.I. McDonald Kingdom L Mone L Mone L L L L L L L L L L L L L
6 11	Anthony N Schampier	LOCATION MAP SCALE : I" = 4 MILES APPROX.
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sion - British Columbia, Canada. 	GEOLO	GY & INTERPRETATION MAP
<u>Hen Lut C</u> hief Geophysicist. Geological Technologist.	DATE JULY 1971	TION SURVEYS LTD. REVISED: INTERPRETED by: A.M. Homenuke, G.E. White DRAFTED by: Anthony N. Schampler CHECKED by: JW. Fig. 5 PROJECT No. 7111 FILE: C 12