

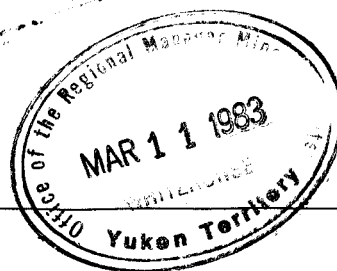
ARCHER, CATHRO

& ASSOCIATES (1981) LIMITED

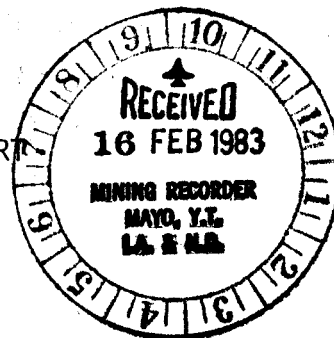
CONSULTING GEOLOGICAL ENGINEERS

1016-510 WEST HASTINGS STREET
VANCOUVER, B. C. V6B 1L8

(604) 688-2568



WERNECKE JOINT VENTURE
GEOLOGICAL AND GEOCHEMICAL REPORT
FLAT 1-16 CLAIMS
(YA76508-YA76523)



DECEMBER, 1982

CLAIM SHEET 106E/4

LATITUDE 65°05'N; LONGITUDE 135°39'W

W.D. EATON, B.A., B.Sc.

WORK DONE BETWEEN JULY 20 AND AUGUST 2, 1982

091443

This report has been examined by
the Geological Survey of Canada
under the provisions of the
Mineral Act and is hereby
certified as correct in amount
of \$ 3,200.—

R. Watson

for Regional Manager, Geological Services for Commissioner
of Yukon Territory.

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INTRODUCTION

The Flat 1-16 claims were staked on May 31, 1982 to cover lead-zinc occurrences and stream sediment anomalies in the core of the recently lapsed LWR 1-284 claims, which were formerly held by Getty Canada Minerals Limited. Exploration by WJV consisted of geological mapping and prospecting on and peripheral to the property.

PROPERTY, LOCATION AND ACCESS

The property consists of 16 contiguous mineral claims recorded in the Mayo Mining District as follows:

<u>Claim Name</u>	<u>Grant Numbers</u>	<u>Expiry Date</u>
Flat 1-8	YA76516-YA76523	14 June, 1983
Flat 9-16	YA76508-YA76515	14 June, 1983

The claims are located at latitude 65°05'N and longitude 135°39'W within claim sheet 106E/4, 165 km north of Mayo. The closest lake suitable for float-equipped, fixed-wing aircraft is Three Barrel Lake, 30 km to the west, while the closest bush airstrips are on the Bear River, 70 km to the southeast and at Hart River Mines, 55 km to the southwest. Access in 1982 was by helicopter from the WJV camp on the Igor property.

PREVIOUS WORK

In 1974 the Flat target area was partially explored by reconnaissance stream sediment surveys conducted by Cyprus Anvil and others during wide-ranging regional programs searching for Mississippi Valley-type lead-zinc in Paleozoic carbonates but no claims were staked at that time. In 1976 WJV conducted airborne radiometric surveys over the southern portion of the target area while exploring for uranium in Helikian breccia bodies and along the unconformity between the Wernecke Supergroup and the overlying Paleozoic carbonates. That same year, the Geological Survey of Canada conducted a reconnaissance stream sediment survey, the results of which were published the following spring in Open File 518.

In 1977 Getty staked the LWR 1-284 claims to cover lead, zinc and copper anomalies outlined by the GSC survey. These claims were lightly contour soil sampled, prospected and mapped that year and in 1978 a small program of additional mapping and hand trenching was done. Getty's soil sampling confirmed the GSC's stream sediment anomalies and led to the discovery of several stratabound and vein, galena and sphalerite occurrences. When the last of the LWR claims expired in the spring of 1982, WJV staked the Flat 1-16 claims to cover the main lead-zinc occurrences.

GEOLOGY

General

Figure WJV82-F1 in the pocket illustrates geology of the property and adjacent area of interest which is confined to a 13 by 20 km, structurally-controlled erosional window, referred to as the Little Wind Window. The window exposes Wernecke Supergroup sedimentary and volcanic rocks and is surrounded by unconformably overlying lower to middle Paleozoic platform carbonates and clastics. Numerous mafic sills and dykes up to 100 m wide intrude the older rocks and are truncated by the unconformity.

Geomorphology

The Little Wind Window exhibits relatively subdued topography compared to most of the Wernecke Mountains. The area is drained by the Little Wind River, which is part of the Mackenzie River watershed, and is characterized by V-shaped tributary valleys separated by low ridges. Local elevations range from 725 m in valley bottoms to 1825 m on the highest ridges. Most hillsides are blanketed by talus. Outcrop is usually restricted to actively eroding creek cuts and ridge tops. Although the area escaped Pleistocene continental glaciation, alpine glaciers have carved cirques in a few valleys. Treeline is at 800 m and typical vegetation includes spruce forests in the larger valleys giving way to buckbrush (alder) on the lower slopes and moss and lichens above 950 m.

Stratigraphy

Only the central portion of the Wernecke Supergroup is seen in the Flat target area as the lower Fairchild Lake Group is not exposed and the uppermost Quartet Group and Gillespie Lake Group have been eroded away.

Fairchild Lake Group includes tan to medium brown weathering silty dolomites and dolomitic siltstones, medium grey brown, non- to slightly-dolomitic siltstones and fine-grained sandstones. These rocks are typically thin- to medium-bedded and locally exhibit weak argillaceous partings. Although rocks in the northern part of the window show a faint phyllitic sheen on bedding planes, they are distinctly less metamorphosed and deformed than equivalent sedimentary rocks at the southern end of the window.

The rocks described above do not readily conform to any of Delaney's (1981) subdivisions of the Fairchild Lake Group. They are tentatively assigned to F_{TR} based on their stratigraphic position immediately beneath the basal part of the Quartet Group and on the presence of two occurrences of fine-grained, white

limestone and dolomite interbedded with the siltstones and sandstones. These carbonate horizons may correspond to the "white limestone marker" considered by Delaney to be diagnostic of F_{TR} .

The nature of the contact between Fairchild Lake Group and the overlying Quartet Group is uncertain in the Flat target area. Although clearly a thrust fault in some instances, the contact over much of the area appears to be conformable. Without definite marker horizons, it is impossible to determine how much, if any, of the Fairchild Lake Group is missing.

Quartet Group can be subdivided into two formations, the lower Q_1 and upper Q_2 . The Q_1 formation immediately overlies the Fairchild Lake Group and consists of a 350 m thick sequence of dark grey, carbonaceous mudstones and minor siltstones. The unit is thinly laminated and thin- to medium-bedded and displays a well-developed, slaty cleavage. It typically weathers rusty orange due to abundant pyrite, which occurs as disseminations along bedding planes, as thin laminae, and, rarely, as continuous beds to 1 cm thick. Although the mudstones and siltstones are somewhat siliceous, the Q_1 is relatively recessive weathering and outcrops are normally restricted to creek cuts. The Q_1 section on the Flat property contains three lithologies that make it somewhat anomalous regionally. The first is a 25 m thick medium to dark orange weathering, fine- to coarse-grained, ferroan dolomite unit with contorted pale to medium grey chert interbeds up to 10 cm thick. Shatter breccia is abundant within the dolomite with coarsely crystalline, white, ferroan dolomite occurring as the breccia matrix. It is continuous on the property but appears to pinch out to the west and east. The second unusual rock type occurs at or near the top of Q_1 and is a discontinuous, pale to medium grey green weathering metavolcanic unit with a maximum thickness of 25 m. Carbonate-filled vesicles, amphibole pseudomorphs after clinopyroxene phenocrysts and possible pillow structures

indicate that the unit originated as a pillowed flow of intermediate or mafic composition which was extruded in relatively shallow water. This occurrence of metavolcanic rocks is the first to be recognized in the Quartet Group, although volcanic rocks do occur in the upper part of the Fairchild Lake Group in the Kiwi Lake area. The third anomalous lithology consists of thin- to medium-bedded, thinly laminated, medium to dark orange and orange brown weathering, silty ferroan dolomites and dolomitic siltstones. These rocks occur as narrow lenses up to 1 m thick throughout the Q_1 section. They may be related to the dolomite-chert unit described above although no chert has been found within them.

The Q_2 formation conformably overlies the Q_1 and the contact appears to be gradational. The Q_2 includes approximately 350 m of thin- to medium-bedded, carbonaceous siltstones and mudstones with moderate to well-developed slaty cleavage. The unit is thinly laminated and characteristically exhibits rhythmic interlayering of pale grey weathering siltstones and dark grey weathering mudstones on a scale of 0.5 to 2.0 cm which gives it a distinctive striped appearance on cleavage planes. Unlike the Q_1 , Q_2 does not contain bedded pyrite although pyrite is often present in minor amounts as disseminated blebs and cubes and as rare fracture fillings. Portions of Q_2 are rusty weathering but these zones are patchy, unlike the Q_1 .

Several intense gossans immediately north of the Flat property are associated with intensely silicified and pyritized carbonaceous siltstones and fine-grained, non-carbonaceous sandstones within a broader zone of chloritized basal Q_2 . Like the unusual lithologies observed in Q_1 , this silicified horizon is unique regionally.

Paleozoic sediments unconformably overlie, or are in thrust contact with, the Wernecke Supergroup in the Flat target area and can be divided into three units. The oldest are lower Cambrian dark red to red brown weathering, fine- to coarse-grained clastics. They are conformably overlain by tan to medium orange brown

weathering dolomites and silty dolomites, also of lower Cambrian age. These strata are thrust over Quartet Group to the east, south and northwest of the Flat property. The youngest sediments lie east of the property and are separated from the Quartet and Fairchild Lake Group rocks by a pronounced angular unconformity. They consist of a thick, east-dipping sequence of pale grey weathering, thin-bedded to massive, slightly fetid limestones and dolomites of Ordovician and Silurian age. A narrow, tan weathering, dolomitic pebble conglomerate is commonly present at the base of this unit.

Intrusive Rocks

Pervasively propylitic altered, fine- to medium-grained, medium green and grey green weathering, dioritic intrusions are present in the Flat target area. Most of these are roughly conformable and were probably emplaced as sills but the largest body, which occurs near the southwest corner of the Flat property at least locally, crosscuts bedding. The rocks are weakly to moderately foliated and were deformed by the main deformation event that affected the sedimentary rocks. The age of the intrusions is unknown but they were probably not feeders for the metavolcanic rocks at the Q_1/Q_2 contact as compositionally and texturally identical intrusive rocks cut upper Q_2 strata to the west of the property.

Structure

The Wernecke Supergroup rocks in the Flat target area have experienced one major deformation event in addition to at least two major thrust-faulting events, late normal faulting and regional-scale warping. The relative timing of these events can be determined in some cases but their absolute ages remain uncertain. Two north-dipping thrust faults immediately north of the Flat property truncate against the sub-Ordovician carbonate unconformity and are therefore lower Paleozoic or older in age. These thrusts are deformed around the major fold closures but

the folds themselves do not affect the Ordovician carbonates and thus are also lower Paleozoic or older. Other thrust faults east, south and west of the property dip southeasterly and involve the lower Cambrian units and, locally, the Ordovician carbonates; therefore, a second thrust faulting event is indicated. The normal faulting and regional warping affect all of the rock in the area and post-date all other tectonism.

The Flat property covers a portion of one of the southwest-dipping thrust panels consisting of F_{TR} , Q_1 and Q_2 which overlie a second panel that is related to one of the deformed pre-Ordovician thrust faults and contains Q_1 and F_{TR} . The mineralization on the property occurs in the upper thrust panel. The strata are deformed into southwest-trending, southeast-verging, open to locally tight concentric folds with a poorly to well developed axial planar slaty cleavage. Minor fold axes and cleavage bedding intersection lineations plunge from 0° to 30° toward the southwest. Cleavage and lineation orientations vary somewhat over the property reflecting the late regional warping. The major deformation appears to increase in intensity to the southeast.

Metamorphism associated with the folding did not exceed lower greenschist facies, as indicated by mineral assemblages in the metavolcanic rocks. No metamorphic porphyroblasts were noted anywhere on the property, with the exception of recrystallized pyrite cubes.

MINERALIZATION

Trace amounts of pyrite are present in all Wernecke Supergroup rocks exposed in the Flat target area. In F_{TR} and Q_2 however, it occurs only as disseminated blebs and cubes and as rare fracture fillings. In Q_1 , pyrite occurs as disseminations that are probably diagenetic in origin but also as clusters of

individual grains along bedding planes, as thin continuous laminations, and locally as up to 1 cm thick beds. This bedded pyrite occurs throughout Q₁ and is probably syngenetic in origin.

Base metal sulphides in sedimentary rocks are confined to Q₁ and occur in three modes on the Flat property, as described below.

1. Wide-spaced, fracture fillings of sphalerite and galena with coarse-grained pyrite, quartz and carbonate are present in several localities on the property. These are not related to any large vein systems but rather represent remobilization of sulphides over a few tens of metres, probably during the major deformation event.
2. Sphalerite and minor galena also occur with quartz and pyrite as disseminated blebs up to 1 cm in diameter that are locally concentrated along particular bedding planes and as narrow, continuous beds from 3 to 5 mm thick that contain up to 40 percent sphalerite. A 1978 Getty assessment report describes as many as 20 of these beds over a stratigraphic thickness of 120 m.
3. Three bands of massive, coarse-grained galena with minor pyrite, sphalerite and quartz fill open spaces in brecciated horizons within the dolomite-chert unit. The mineralized bands parallel bedding in the surrounding sediments and are spaced approximately 10 cm apart. The upper band has an average width of 36 cm, while the lower bands average 8 and 2 cm respectively. All three are exposed in a series of hand trenches over a distance of 50 m and are open along strike and downdip. Two chip samples taken by Getty assayed 37.80 and 26.15% Pb, 0.18 and 0.19% Zn and 5.86 and 3.00 oz/ton Ag respectively over true widths of 1.4 and 1.1 m.

Disseminated chalcopyrite (up to 3% locally) and pyrite (up to 2%) are common in metavolcanic rocks on the Flat property while disseminated chalcopyrite (trace to 2%), pyrite (1 to 10%), hematite (trace to 10%) and a trace of cobaltite occur in a 1 km in diameter breccia body near the south end of the target area.

GEOCHEMISTRY

Figures WJV 82-F2, 3 and 4 in the pocket illustrate soil and stream sediment copper, lead and zinc geochemistry respectively for most of the Flat target area. Data on these maps was compiled from WJV analyses, GSC Open File 518 and Getty assessment reports for the expired LWR 1-284 claims.

Stream sediments and soils in the Flat target area are generally immature and the abundance of carbonate in the section has resulted in high pH's in surface and groundwaters. In this environment, mechanical dispersion is expected to predominate over hydromorphic dispersion of metals.

Anomalous lead and zinc stream sediment values are found over a 10 by 6 km area and most are apparently derived from Q_1 strata. The anomalies are crudely zoned with the highest lead to zinc ratios on and to the west of the Flat property, with increasing zinc and decreasing lead toward the south. The most anomalous lead value (1780 ppm) was obtained from a small creek directly across a larger creek from the stratabound massive galena showing on the Flat property, while the largest cluster of strongly anomalous lead values is from a 5 by 2 km area of pyritic, Q_1 shales some 2.5 km to the west. The highest zinc value (1700 ppm) was obtained from a sample taken 1 km south of the property. Although most streams which are anomalous for lead and zinc are also anomalous for copper (up to 215 ppm), the source of this metal and its role in zoning patterning are difficult to determine as anomalous copper values are also associated with Helikian breccia bodies and mafic intrusions.

Where available, soil geochemistry supports the stream sediment anomalies, and general observations made concerning the source and distribution of metals in anomalous stream sediments are also applicable to soils. The highest lead

value (3000 ppm) was an isolated spot high 3 km southwest of the property while the second highest (2000 ppm) came from directly below the massive galena showing. The most anomalous zinc value (3400 ppm) came from a cluster of strongly anomalous lead and zinc values 5 km to the south of the property. The recessive weathering nature of the mineralized horizons makes them difficult to detect by traditional prospecting, and soil geochemistry is probably the most effective technique for identifying specific targets.

DISCUSSION

Although the lead-zinc mineralization presently identified on the property is locally high grade, individual occurrences are too small to be of economic interest. However, as yet unexplained, widespread lead and zinc soil and stream sediment geochemical anomalies associated with bedded pyrite-bearing, Q_1 formation shales indicates excellent potential for additional, possibly much larger, massive sulphide deposits on the property along strike to the west and downdip to the south. Broad zoning within the geochemical anomalies, from zinc on the periphery to lead in the core, coupled with the distribution of metavolcanic and chert-dolomite horizon in the Q_1 , suggests that the Flat claims are located near or over one of the vent zones of the sedimentary exhalite system which produced the laterally extensive pyrite beds.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED



W.D. Eaton, B.A., B.Sc.

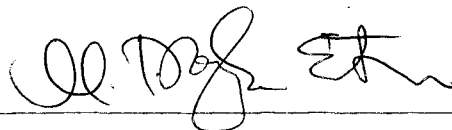
APPENDICES

APPENDIX I - STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, W. Douglas Eaton, geologist, with business addresses in Whitehorse, Yukon Territory and Vancouver, British Columbia, and residential address in Burnaby, British Columbia, do hereby declare:

1. I graduated from the University of British Columbia in 1980 with a B.Sc. and am currently enrolled in a M.Sc. majoring in Geological Sciences.
2. From 1971 to the present, I have been actively engaged in mineral exploration in British Columbia and Yukon Territory and on June 1, 1981, became a partner in Archer, Cathro & Associates (1981) Limited.
3. I have personally participated in or supervised the field work reported herein and have interpreted all data resulting from this work.



W. Douglas Eaton, B.A., B.Sc.

APPENDIX II - PERSONNEL

<u>Name</u>	<u>Address</u>	<u>Position</u>
J. Mortensen	c/o Geology Dept. U.B.C., Vancouver, B.C.	Geologist
J. Dennett	5665 Toronto Road Vancouver, B.C.	Student Assistant

APPENDIX III - REFERENCES

BIBLIOGRAPHY

Delaney, G.D.
1981:

The mid-Proterozoic Wernecke Supergroup, Wernecke Mountains,
Yukon Territory; in Proterozoic Basins of Canada, F.H.A. Campbell,
ed.; Geological Survey of Canada Paper 81-10, p.1-23

ARCHER, CATHRO

& ASSOCIATES LIMITED

CONSULTING GEOLOGICAL ENGINEERS

VANCOUVER, B.C. (604) 688-2568

BOX 4127, WHITEHORSE, Y.T. Y1A 3S9 (403) 667-4415

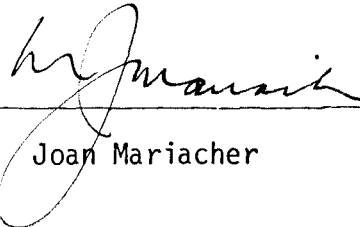
1016 - 510 WEST HASTINGS STREET
VANCOUVER, B.C. V6B 1L8



AFFIDAVIT

I, Joan Mariacher, of Vancouver, B.C. make oath and say:

That to the best of my knowledge the attached Statement of Expenditures for exploration work on the Flat 1-16 mineral claims on Claim Sheet 106E/4 is accurate.



Joan Mariacher

Sworn before me at Vancouver, B.C.

this 2nd day of

February, 1983



Notary, Yukon Territory

091443

Statement of Expenditures
Flat 1-16 Claims
January 23, 1983

Labour

J. Mortensen - July 20-23 - 4 days at \$230/day	\$ 920.00	
J. Dennett - July 20-23 - 4 days at \$131/day	<u>524.00</u>	\$1,444.00

Expenses

Helicopter - 6.5 hours Bell 206B contracted from Century Helicopters Ltd. at \$400/hr		<u>2,600.00</u>
		<u>\$4,044.00</u>

In Account With

WERNERCKE JOINT VENTURE

Project-

JULY 31, 1982

Date --

			Total
MANAGEMENT			
JULY			3000.00
LABOUR			
Supervisory			A
Field	<ul style="list-style-type: none"> ✓ D. RAYON - 1/2 JULY 1-31 @ 3400/mo ✓ D. HERBREM - JULY 1-31 @ 2600 ✓ H. OLYK - JULY 1-31 @ ✓ S. SHALANSKI - JULY 1-31 @ ✓ B. SINCLAIR - JULY 1-31 @ ✓ D. STAMMERON - JULY 1-31 @ ✓ G. DENNETT - JULY 16-31 @ 2100 ✓ J. MORTENSEN - JULY 16-31 @ ✓ R. PHILLIPS - JULY 7-15 @ 	<ul style="list-style-type: none"> 1700.00 2600.00 2400.00 1400.00 1700.00 1747.00 948.00 1600.00 420.00 	<ul style="list-style-type: none"> <li style="text-align: center;">} <li style="text-align: center;">}
			14,515.
	plus 50 %		7,257.50
Casual			A
EXPENSES			
Accounting	JULY	500.00	C3
Expediting	JULY	1400.00	D3
Room & Board in Whse	five men/day @ \$45	225.00	D2
	total days at \$ /day		
Field equipment from AC stock			
Xerox copies, 235 copies at 25¢/copy		58.75	C1
Radio rental 513 X L00 + 58 X 11 ; JULY 1-31		550.00	D1
Rental AC truck	at \$ /mo.		
plus (to)	kms at /km		
Petty cash 21.50 D1 ; 1.50 C2 ; 1.75 D1 ; 7.63 C2 ; 11.40 D2 ; 26.20 D1 ; 11.25 D2		171.11	D1 D2 D4
Telephone 15 D2 ; 40 D1 ; 34.88 D2			
Blueprinting, 335 sq.ft. Ozalid at 30 c/ft plus - sq.ft. Dilar at \$ - /ft.		100.50	C1
Drafting, 60.5 hrs. at \$ 22 /hr.		1331.00	C1
Rental large Honda generator - July 1-31 @ \$5/day		155.00	D1
Rental AC core splitter - July 1-31 @ \$20/wk.		80.00	D1
postage		75.00	C2
Telephone 8.57 + 9.80 + 1.80 + 16.32		36.29	C2
Trucks, car rental paid by Nat in error July 4		806.00	D4
Nashua Seminar		13.05	C2
Kelly Douglas (OSC and Bill, field books)		49.93	D2
Rental Fuel		17.30	D2
White Pass		10.00	D1
Rexnium General		14.00	C2
General Rent.		7.02	D1
kits Marine		27.71	D1
Nelsons Ltd.		22.29	D1
			5449.95
			30,222.4
Credit			
✓ Govt. of Can., overpaid amou. fee		200.00	(200.00)
Total			30,022.4

Keystone Helicopters Ltd.

P.O. Bpx 178, Atlin B.C. V0W 1A0 Phone (604) 651-7569

No 4452

CHARTERER

ARCHER / CATHER (WJW)

DATE Jul 7 1974

A/C (WJW)

ADDRESS

TYPE B-4262

BASE

CHEQUE CASH CHARGE

P.O.

REMARKS

PASS CARGO TIME

TOW

1.5

FLAT

1.4

160R - SLING DIESEL
AROUND CAMP FOR TENT
HOLTERS.

0.3

3.2

TERMS: NET 10 DAYS

TOTALS

3.2

FUEL COST \$

TOTAL

\$ 1280.00

FLYING 3.2 HRS. AT \$400.00 = \$1280.00

AUTHORIZED BY

PRINT D. MEYERLEIN

SIGNATURE

[Signature]

CONTRACT HRS.

FUEL SUPPLIED BY:

CUST.

KH

DAY _____

KEYSTONE FUEL

MONTH _____

_____ GALS. FROM _____ AT _____ PER GAL.

YEAR _____

_____ GALS. FROM _____ AT _____ PER GAL.

_____ GALS. FROM _____ AT _____ PER GAL.

_____ GALS. FROM _____ AT _____ PER GAL.

PILOTS NAME

TOM TAYLOR

SIGNATURE

[Signature]

Keystone Helicopters Ltd.

P.O. Box 178, Atlin B.C. V0W 1A0 Phone (604) 651-7569

No 4453

CHARTERER

ARCHER / CATHER (LIVE)
ADDRESS

DATE 5/23/82

A/C 4142

TYPE Bell 206B

BASE

CHEQUE	CASH	CHARGE
--------	------	--------

P.O.

REMARKS

PASS	CARGO	TIME
------	-------	------

FLAT

2		1.4
---	--	-----

QUARTET

4		1.0
		2.4

TERMS: NET 10 DAYS

TOTALS

2.4

FUEL COST \$

TOTAL

\$ 960.00

FLYING 2.4 HRS. AT \$400.00 = \$960.00

AUTHORIZED BY

PRINT

DIEBERLEIN

SIGNATURE

[Signature]

CONTRACT HRS.

FUEL SUPPLIED BY:

CUST.

KH

DAY _____

MONTH _____

YEAR _____

KEYSTONE FUEL

GALS. FROM _____ AT _____ PER GAL.

GALS. FROM _____ AT _____ PER GAL.

GALS. FROM _____ AT _____ PER GAL.

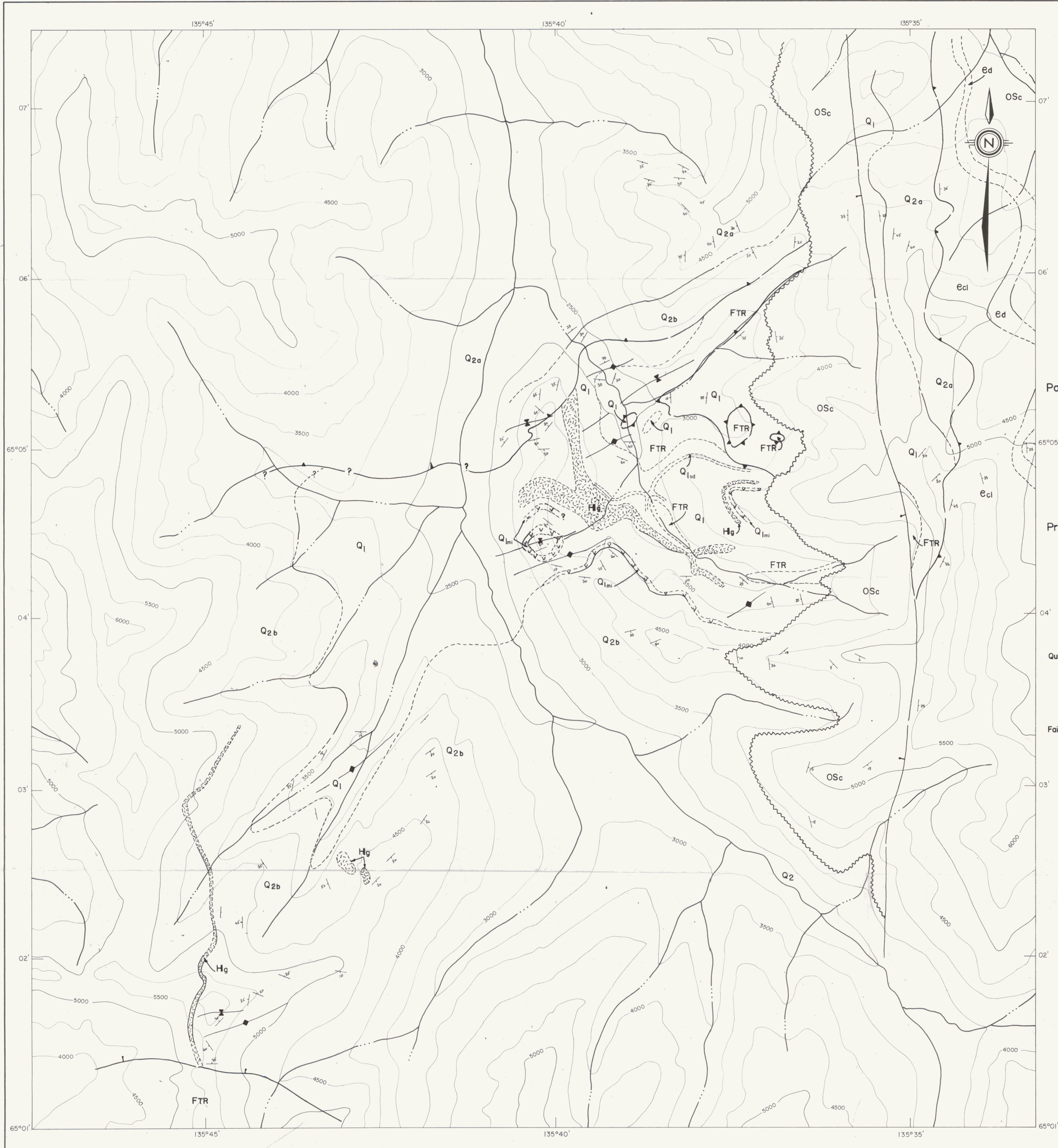
GALS. FROM _____ AT _____ PER GAL.

PILOTS NAME

TOM DYLLOR

SIGNATURE

[Signature]



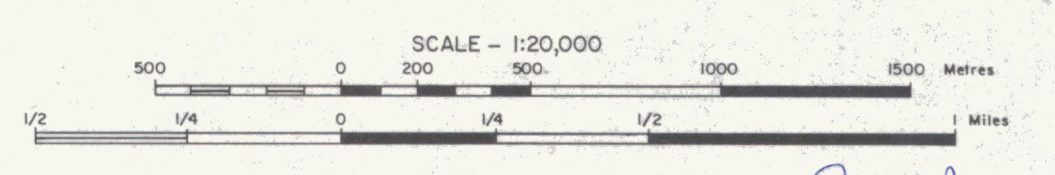
LEGEND

- Paleozoic**
- Ordovician - Silurian**
- OSc Pale grey weathering, fetid limestone, silty limestone and dolomitic limestone.
- Cambrian**
- Ed Orange to tan weathering, thin to medium bedded, silty dolomite.
 - Ecl Dark red weathering sandstones, conglomerates and siltstones.
-
- Proterozoic**
- Hadrianian ?**
- Hg Medium to coarse grained gabbro or diorite plugs and sills.
- Helikian and older**
- Q2 a - pale green to grey sandstones and siltstones.
b - dark grey siltstones and siliceous mudstones.
- Quartet Group**
- Q1 Dark grey, rusty weathering siliceous siltstone and mudstone with laminar and disseminated pyrite.
 - Q1sd Thinly bedded orange weathering silty dolomite with highly contorted interbeds of grey chert.
 - Q1mi Intermediate to mafic, clinopyroxene phytic, vesicular volcanics which are locally pillowed.
- Fairchild Lake Group**
- FTR Brown weathering silty dolomites and dolomitic siltstones.
- Structural Features:**
- Thrust fault.
 - Normal fault.
 - Geological contact (known, inferred).
 - Unconformity.
 - Anticline.
 - Syncline.
 - Bedding attitude.

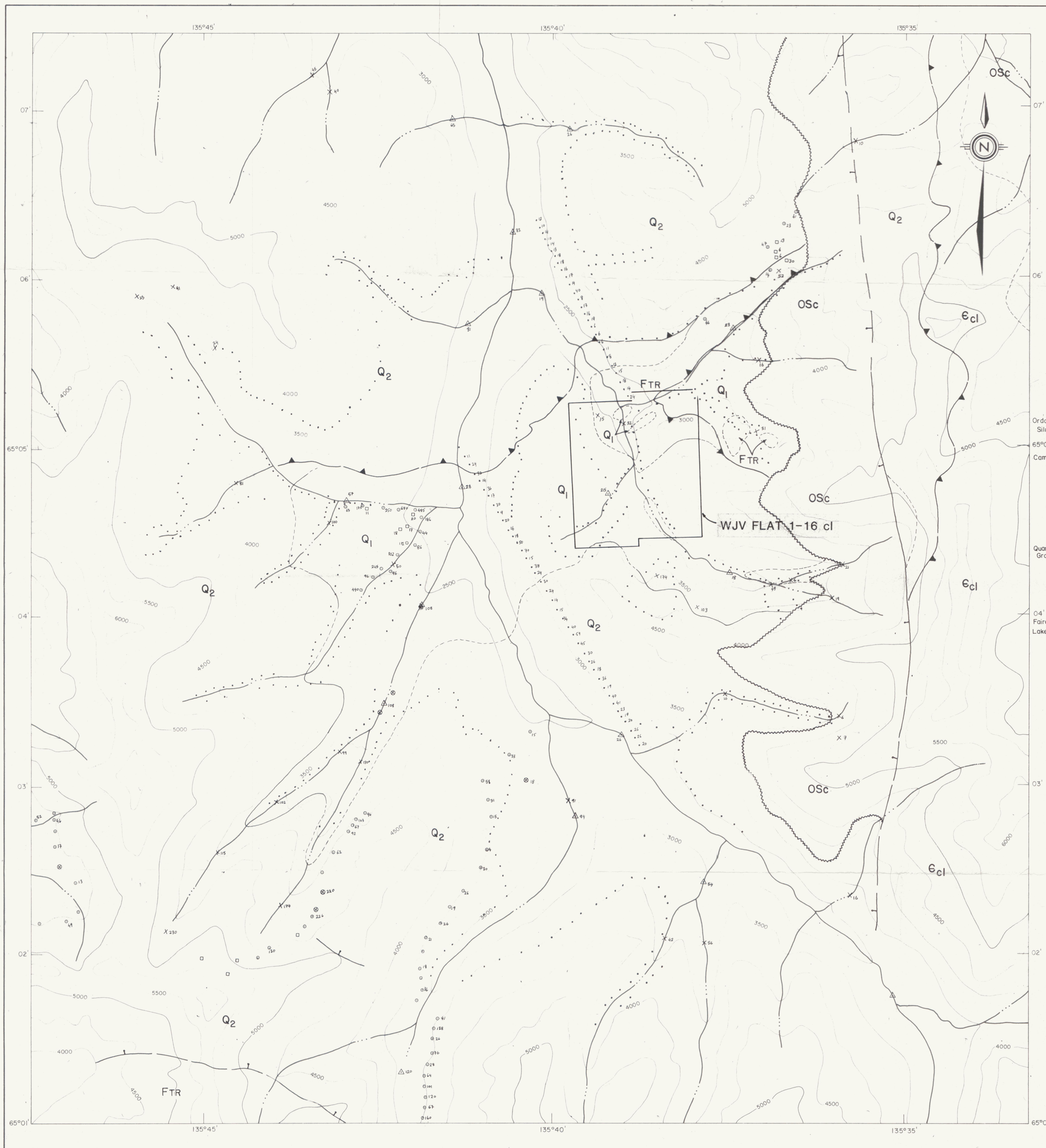
Figure WJV82 - F1
 ARCHER, CATHRO & ASSOCIATES (1981) LIMITED

GEOLOGY

FLAT AREA
 WERNECKE JOINT VENTURE



091443
 To accompany report dated December, 1982.



LEGEND

Paleozoic.

Ordovician-Silurian. **Osc** White to grey limestones and dolomites.

65°05' Cambrian. **Ecl** Red and white conglomerates, quartzites and sandstones.

Helikian or older.

Quartet Group. **Q2** Grey to black siltstones, mudstones, phyllites and silty dolomites.

Q1 Carbonaceous, pyritic mudstones, siltstones and cherts with occasional silty dolomites.

04' Fairchild Lake Group. **FTR** Brown to grey silty dolomites.

Thrust fault.

Normal fault.

Geological contact.

Unconformity.

• Getty soil sample. (from 1978 LWR assessment report).

X Getty stream sediment sample.

• WJV soil sample.

⊙ WJV stream sediment sample.

□ WJV rock sample.

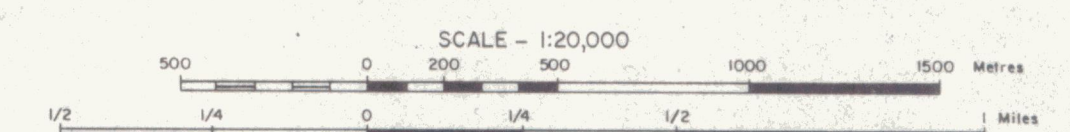
△ GSC stream sediment sample. (from GSC O.F. 518).

Figure WJV82 - F2

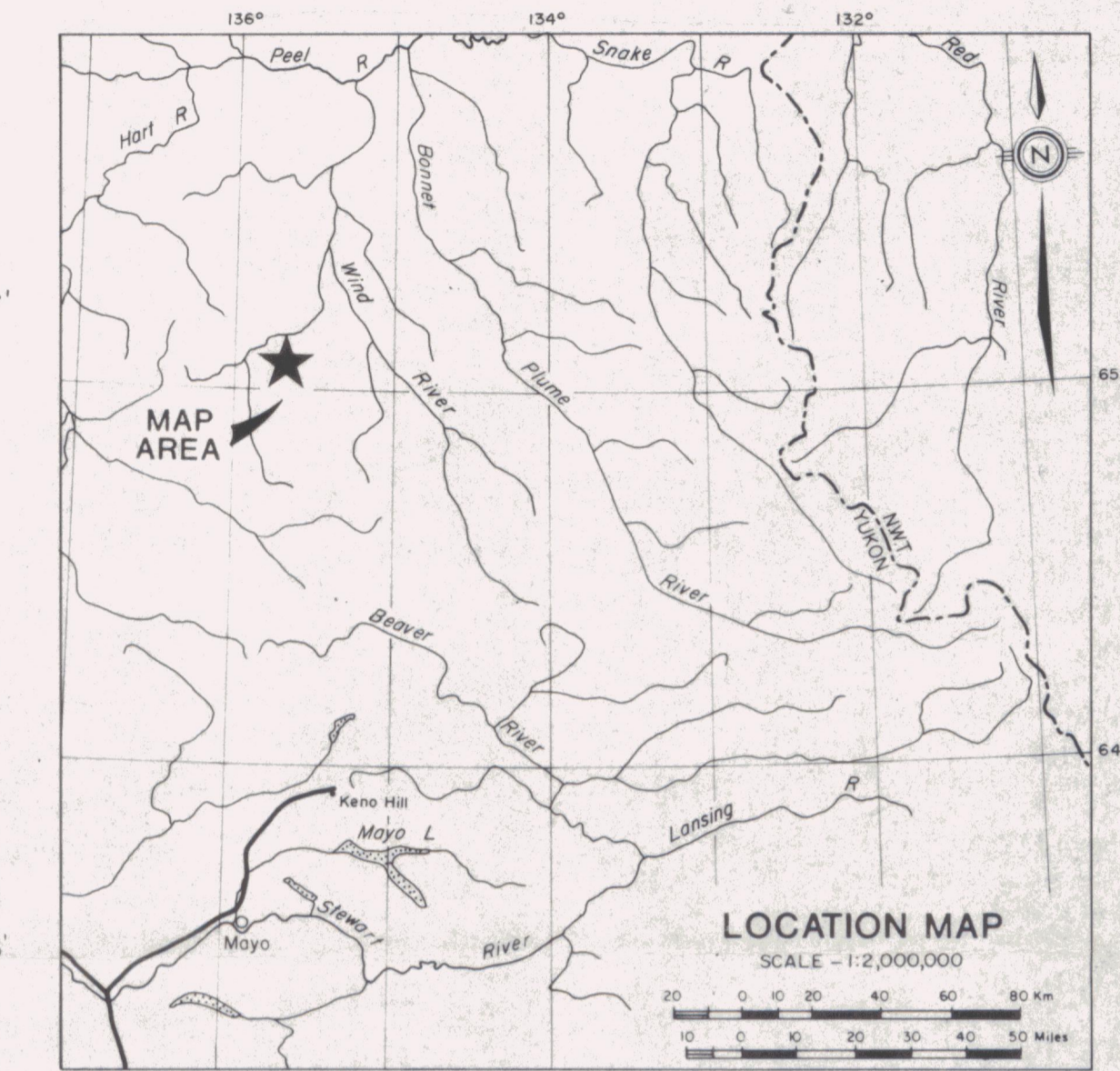
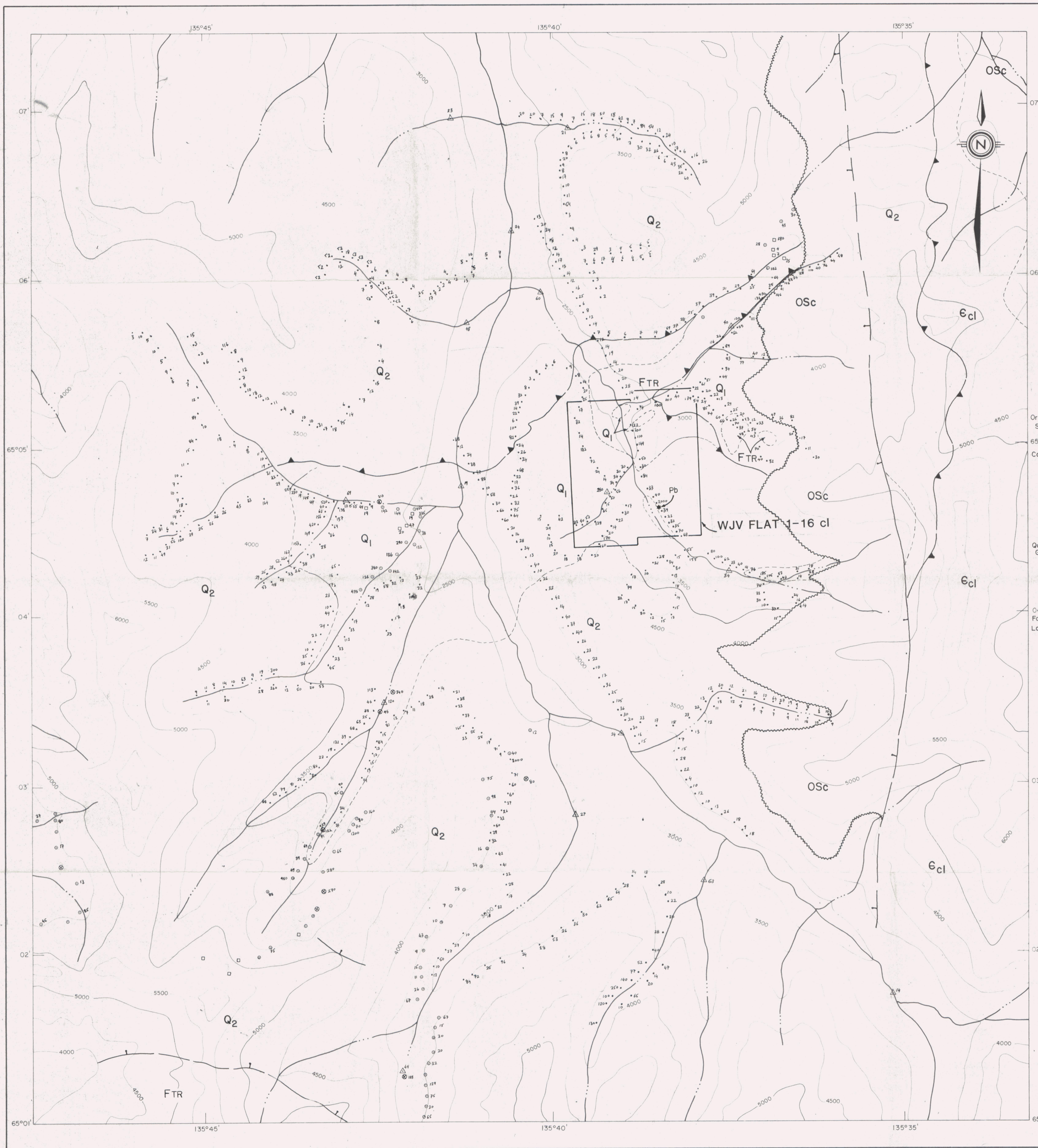
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COPPER GEOCHEMISTRY

FLAT AREA
WERNECKE JOINT VENTURE



W. D. Archer



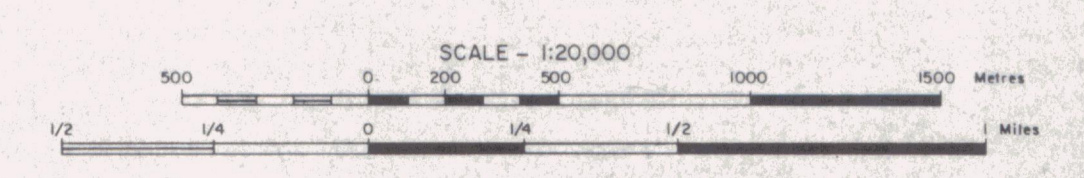
LEGEND

- Paleozoic.**
- Ordovician-Silurian. **Osc** White to grey limestones and dolomites.
 - 65°05' Cambrian. **Ecl** Red and white conglomerates, quartzites and sandstones.
- Helikian or older.**
- Quartet Group. **Q2** Grey to black siltstones, mudstones, phyllites and silty dolomites.
 - Q1** Carbonaceous, pyritic mudstones, siltstones and cherts with occasional silty dolomites.
 - ? **FTR** Brown to grey silty dolomites.
- 04' Fairchild Lake Group.
- Thrust fault.
 - Normal fault.
 - Geological contact.
 - Unconformity.
- Getty soil sample. (from 1978 LWR assessment report.)
 - × Getty stream sediment sample.
 - WJV soil sample.
 - ⊙ WJV stream sediment sample.
 - WJV rock sample.
 - △ GSC stream sediment sample. (from GSC O.F. 518).

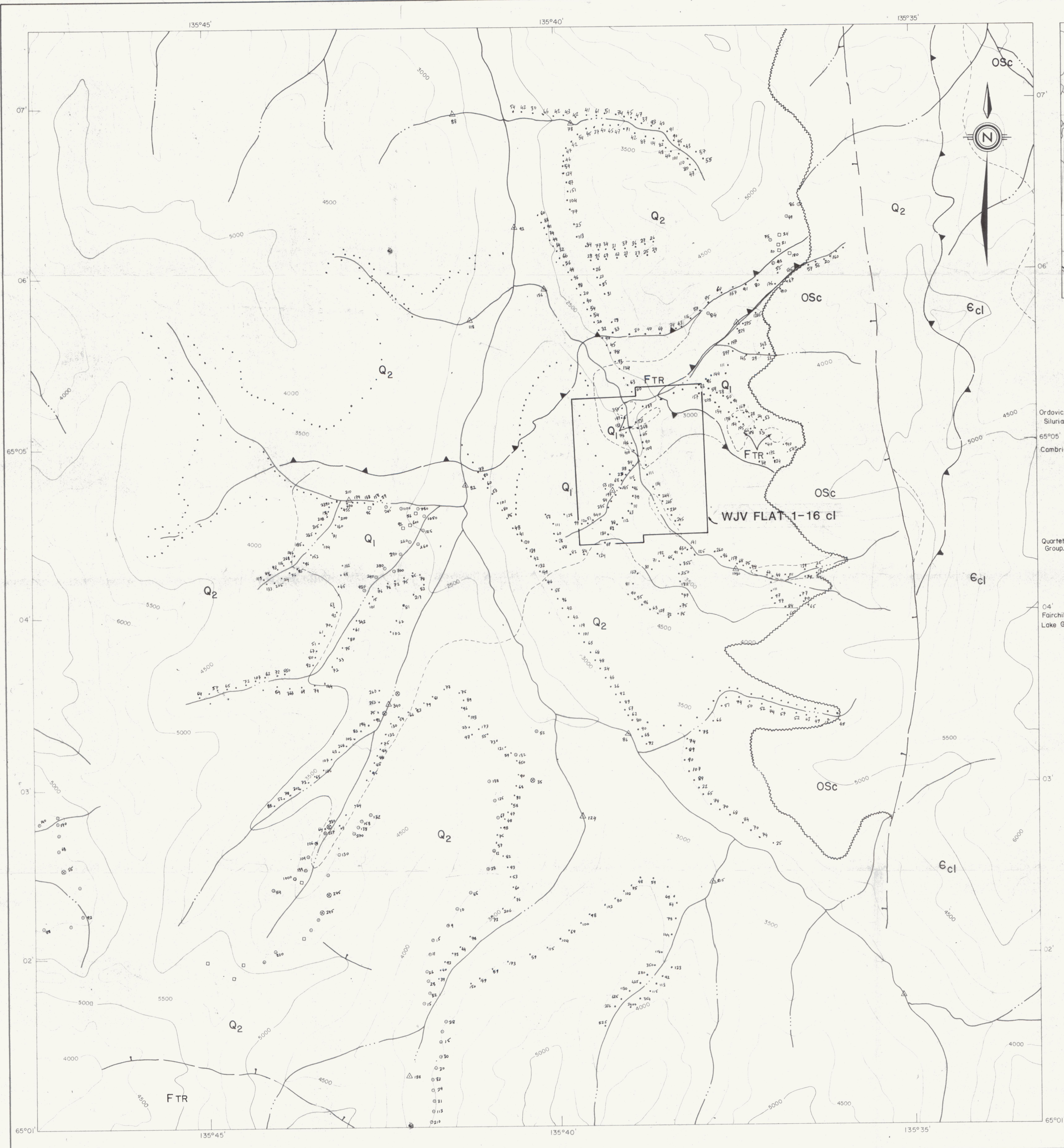
Figure WJV82 - F3

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LEAD GEOCHEMISTRY
 FLAT AREA
 WERNECKE JOINT VENTURE



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 To accompany report dated December, 1982.



LEGEND

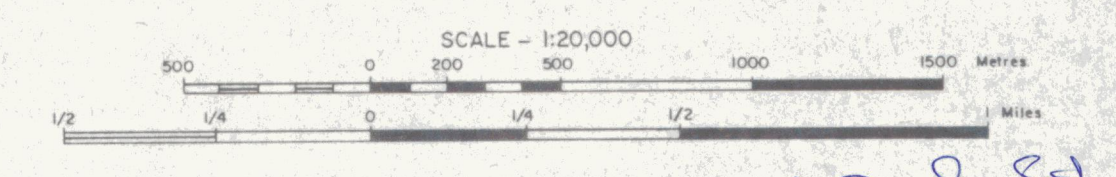
- Paleozoic.**
- Ordovician-Silurian. **OSc** White to grey limestones and dolomites.
 - Cambrian. **Ecl** Red and white conglomerates, quartzites and sandstones.
- Helikian or older.**
- Q₂** Grey to black siltstones, mudstones, phyllites and silty dolomites.
 - Quartet Group. **Q₁** Carbonaceous, pyritic mudstones, siltstones and cherts with occasional silty dolomites.
 - 04' Fairchild Lake Group. **FTR** Brown to grey silty dolomites.
- Thrust fault.
 - Normal fault.
 - Geological contact.
 - Unconformity.
- Getty soil sample. (from 1976 LWR assessment report.)
 - Getty stream sediment sample.
 - WJV soil sample.
 - WJV stream sediment sample.
 - WJV rock sample.
 - GSC stream sediment sample. (from GSC O.F. 518).

Figure WJV82 - F 4

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ZINC GEOCHEMISTRY

FLAT AREA
WERNECKE JOINT VENTURE



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