

# ARCHER, CATHRO

& ASSOCIATES LIMITED

CONSULTING GEOLOGICAL ENGINEERS

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

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



WERNECKE JOINT VENTURE

GEOLOGICAL, GEOCHEMICAL AND DIAMOND DRILLING REPORT

PTERD 1-10, PTERD 11F-12F, PTERD 13-14, PNERD 1-4,

KNIT 1-22, KNIT 9-26, PTOES 1-22, SKIN 1-4 CLAIMS

(Y98056-Y98065, YA5933-YA5934, YA5995-YA5996,

Y98240-Y98243, YA1320-YA1339, YA5573-YA5586,

YA6200-YA6213, YA5997-YA6002, YA6431-YA6442)



JANUARY, 1982

Claim Sheet 106C/14

Latitude 64°57'N; Longitude 133°18'W

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

Work done from June 13, 1981 to August 7, 1981

090965

FROM Mining Recorder at MAYO

TO Supervising Mining Recorder at Whitehorse, Y.T.



FOR ACTION ARE:

NEW APPL'N for PLACER LEASE to PROSPECT: Name: \_\_\_\_\_ Lease No. \_\_\_\_\_

RENEWAL APPL'N PLACER LEASE to PROSPECT: Name: \_\_\_\_\_ Lease No. \_\_\_\_\_

AFFIDAVIT of EXPENDITURE on PLACER LEASE. Name: \_\_\_\_\_ Lease No. \_\_\_\_\_

ASSIGNMENT of PLACER LEASE No. \_\_\_\_\_  
From: \_\_\_\_\_ To: \_\_\_\_\_

GROUPING APPL'N UNDER SEC. 52(2) PLACER MINING ACT.  
Owner: \_\_\_\_\_

DIAMOND DRILL LOGS:  
Claims: \_\_\_\_\_ Claim sheet no. \_\_\_\_\_

QUARTZ ASSESSMENT REPORT  
Claims: \_\_\_\_\_ Claim sheet no. 106 C-14

Type of report: PTERD, PTDES, KNIT & SKIN  
DIAMOND DRILLING  
Submitted by: D. EATON FOR ARCHER, CATHRO & ASSOC. LTD.

Cls. work performed on: PTERD #7  
\$ Req. for ren. application \$47,544.00

COPY FOR YOUR FILES.

[Signature]  
Signature

REPLY ACTION:

Date Ret. \_\_\_\_\_

090965

Signature \_\_\_\_\_

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## INTRODUCTION

The Pterd property was staked by Wernecke Joint Venture (Chevron Canada Limited and Aquitaine Company of Canada Ltd.) in July, 1975 after a float train of pitchblende-bearing rocks was discovered on top of a stagnating alpine glacier in a north-facing cirque during a regional airborne radiometric survey. Ground radiometric surveys conducted in August that year showed that the mineralized float was restricted to a zone about 150 m wide on the west side of the glacier and extended for its entire length of 1000 m. Within this zone, pitchblende-bearing rocks make up between 0.01 and 0.1 per cent of the rocks and are unusually high grade averaging at least one per cent  $U_3O_8$ . In 1976, the property was optioned to Eldorado Nuclear Ltd. which explored by geological mapping, additional airborne and ground radiometric surveys, and 471 m of diamond drilling in 5 holes. When surface work failed to locate the source of the mineralized boulders and the drilling intersected only a trace of pitchblende, further exploration by Eldorado was limited to a few mandays of geological mapping in 1977. Part of the property was returned to WJV in 1977 and the remainder in March, 1981 when the Eldorado option expired.

The 1981 WJV exploration program included additional geological mapping, prospecting, a radiometric survey and 607 m of diamond drilling in 3 holes. The drilling and much of the geological mapping was done between June 13 and July 8 from a camp located on the glacier within walking distance of the drill, while the remainder of the program was done between July 29 and August 7 from a series of two-man flycamps and the WJV base camp at Bear River. A total of

90 mandays (excluding the drill crew) and 87.5 hours of helicopter support were required. Appendix I lists geological personnel involved in the program, their addresses and dates of their employment.

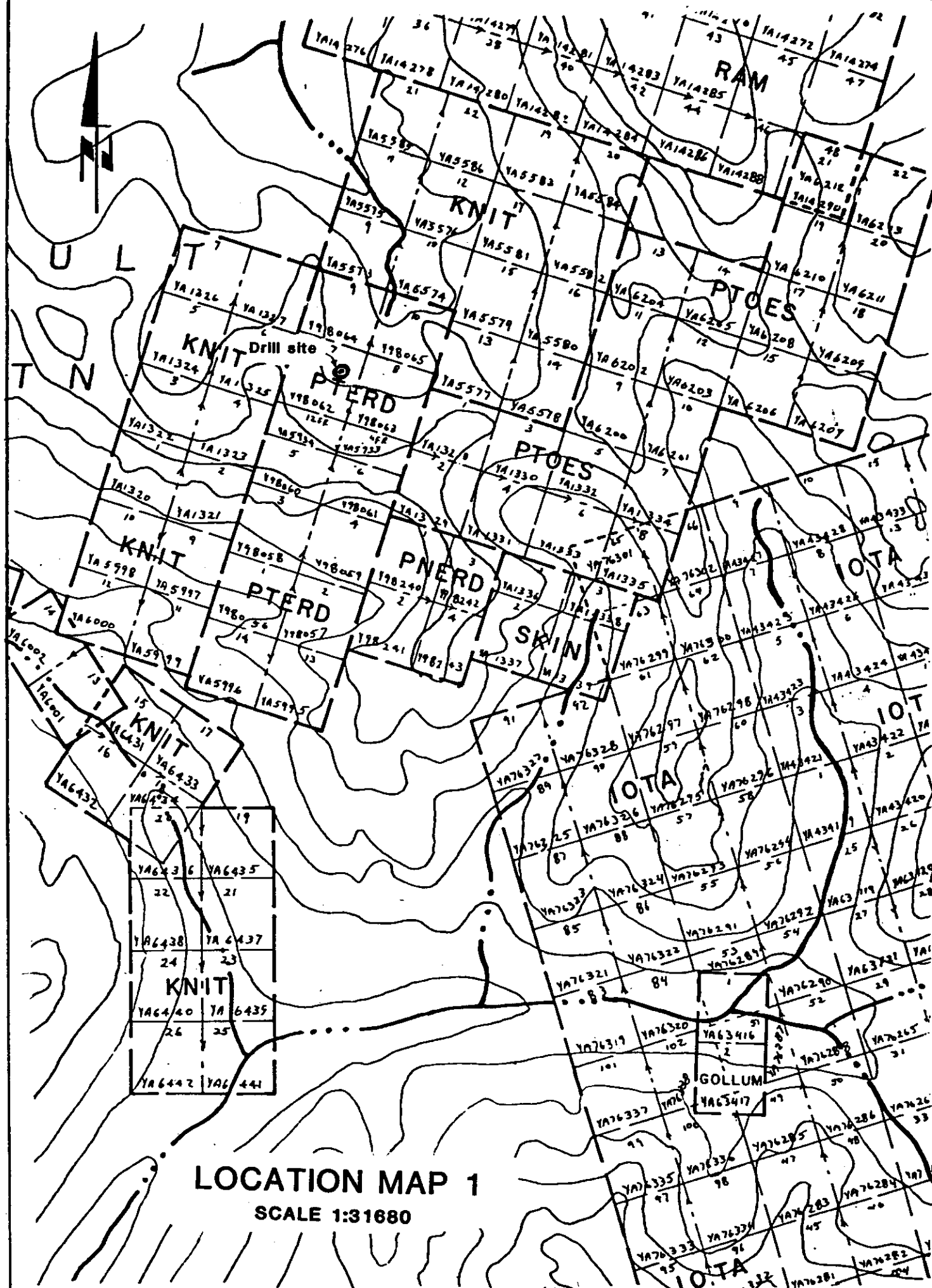
PROPERTY, LOCATION AND ACCESS

The Pterd property consists of 34 contiguous mineral claims recorded in the name of Archer, Cathro & Associates Limited. The claims locations are shown on Location Map 1 on the following page and they are registered in the Mayo Mining District as follows:

<u>Claim Name</u>	<u>Grant Numbers</u>	<u>Expiry Date</u>
Pterd 1-10	Y98056-Y98065	27 April, 1982
Pterd 11F-12F	YA5933-YA5934	26 April, 1982
Pterd 13-14	YA5995-YA5996	26 April, 1982
Pnerd 1-4	Y98240-Y98243	27 April, 1982
Knit 1-8	YA1320-YA1327	18 March, 1982
*Knit 9-22	YA5573-YA5586	2 April, 1982
Ptoes 1-8	YA1328-YA1335	18 March, 1982
Ptoes 9-22	YA6200-YA6213	2 April, 1982
*Knit 9-14	YA5997-YA6002	26 April, 1982
*Knit 15-26	YA6431-YA6442	26 April, 1982
Skin 1-4	YA1336-YA1339	18 March, 1982

\* Please note that the listing of the Knit 9-23 claims twice is due to misnumbering while staking and is not a typing error.

The property is located at latitude 64°57'N and longitude 133°18'W on NTS claim sheet 106C/14, 192 km northeast of Mayo. The closest lake suitable for float-equipped, fixed-wing aircraft is Delores Lake 14 km to the southwest. A bush airstrip suitable for small aircraft, is located 4 km southwest of the property near the headwaters of Delores Creek. It was constructed in 1968 with equipment brought in over a 95 km winter road from the Wind River Trail,



**LOCATION MAP 1**  
**SCALE 1:31680**

another winter road and the probable route for any road into the Bonnet Plume Basin coal deposits. Access in 1981 was by single Otter and Islander aircraft from Mayo into Delores Creek with helicopter support from the WJV base camp at Bear River, 50 km to the east, and from bases in Mayo and Whitehorse.

### GEOLOGY

The property straddles the divide between the Bonnet Plume and Snake River systems and covers rugged alpine terrane characterized by broad cirques, flooded by wasting glaciers and glacial debris, separated by steep ridges which rise to elevations of 2150 m from an average base of 1750 m. North-facing cirques are usually surrounded by cliffs and are free of snow only during late July and August, while south-facing cirques exhibit steep talus slopes with scattered outcrops on the upper hillsides. Vegetation is absent over most of the property.

Figure WJV81 P1 in Pocket A illustrates property geology which consists of strongly deformed and faulted, lower Proterozoic metasediments cut by Unit Hb heterolithic breccia bodies and mafic dykes of uncertain age. The oldest rocks belong to the Fairchild Lake Group and include Unit Hcs<sup>2</sup> pale green to spotted green phyllites with minor interbedded dolomites and Unit Hcs<sup>3</sup> interbedded wavy-banded, green argillites and brown weathering argillaceous limestones. A series of east-trending, steeply dipping faults have brought these rocks into contact with the overlying Unit Hs, Quartet Group black argillites and interbedded quartzites, which are often altered along breccia margins and faults to Unit Hsa medium to pale green argillites. Two 200 m by 500 m blocks of orange weathering dolomites occurring along a north-trending fault system are

mapped as Unit Hc, Gillespie Lake Group dolomites but may be large carbonate veins. The heterolithic breccia bodies appear to be smaller and less continuous than previously mapped and are composed 75 to 80 per cent of variously altered, subrounded, metasediment fragments in a carbonate and hematite matrix. Some of the larger breccia bodies have a marginal, homolithic phase containing 95 per cent angular, slightly bleached to unaltered metasediment fragments and 5 per cent coarse carbonate and hematite matrix. The homolithic phase appears to be a crackle breccia and exhibits sharp contacts with the heterolithic breccias but gradational contacts with the country rock. The mafic dykes are not abundant, range from diabases to gabbros and rarely exceed 5 m in width.

The last movement on all faults post-dates the breccia bodies but most faults exhibit multiple lineations and small scale folds on slickensided surfaces, indicating a complex history. Fault offsets are generally small but a few have apparent vertical offsets in excess of 150 m. The mafic dykes often parallel north- to northwest-trending faults and may be associated with them.

#### MINERALIZATION

Figure WJV81 P2 in Pocket B illustrates radiometric anomalies and mineral occurrences on the property. The main uranium and sulphide occurrences were described in detail in the 1975 WJV Final Report and the descriptions are summarized and updated below.

Pitchblende is the most abundant uranium mineral on the property and is usually seen in fractures peripheral to breccia bodies and/or faults. A 1 m by 2 m occurrence of sooty pitchblende cementing cross bedding in Unit Hs

quartzite was found in one location. Brannerite is rarely seen on the property and occurs as widely scattered crystals within heterolithic breccia bodies and in fracture systems adjacent to the breccia. Yellow and green uranium secondary oxides coat some pitchblende-bearing float.

The largest pitchblende occurrence is a 150 m wide, radioactive float train which can be traced 1000 m along the west side of a stagnant alpine glacier in a north-facing cirque referred to as Pterd Cirque. Mineralized boulders range from 5 cm to 2 m in diameter and make up 0.01 to 0.1 per cent of the float in the train. The host rocks are pale green to dark grey-green, highly fractured and often brecciated and slickensided, Unit Hsa argillites. Pitchblende associated with minor pyrite and chalcopryrite is seen as anhedral masses filling discontinuous 0.5 mm to 8 mm wide fractures or more commonly as dissemination throughout the matrix of the tightly cemented breccias. Yellow and green secondary uranium oxides are only occasionally seen in weathered surfaces. Three representative specimens assayed 2.04 per cent, 1.36 per cent, and 1.61 per cent  $U_3O_8$ . The last sample also assayed 75 ppm thorium, 0.07 per cent rare earths, 0.02 per cent copper, 0.23 oz/ton silver and trace gold. A specimen of similar but better grade float taken above the glacier at the base of the cirque headwall assayed 7.67 per cent  $U_3O_8$ , 10 ppm thorium, 0.09 per cent rare earths, 0.09 per cent copper, 0.22 oz/ton silver and trace gold.

Sulphides, including pyrite, chalcopryrite, bornite, and cobaltite, are found in small quantities throughout the property in faults and along breccia margins. The mineralization commonly has siderite or quartz gangue and is often oxidized to limonite, malachite, azurite and erythrite. The largest zone is a 120 m by 40 m area of fracturing in Cobalt Cirque that was visually

estimated to grade 1.0 per cent copper and 0.2 per cent cobalt by previous workers. However a 1981 WJV reconnaissance chip sample across it assayed only 1550 ppm copper and 185 ppm cobalt.

### RADIOMETRICS

Figure WJV81 P3 in Pocket C illustrates 1981 results from a 300 m by 650 m, compass- and topofil-controlled radiometric grid survey and detailed radiometric prospecting which explored the upper two thirds of the radioactive float train on Pterd Cirque. The grid survey was conducted from a picketed base line paralleling the float train and consisted of waist height readings with a Saphymo-Stel SSP 2 scintillometer recorded at 25 m intervals on crosslines spaced 50 m apart. The prospecting was done along and between the survey lines and involved detection and description of float exhibiting anomalous radioactivity. All float which exceeded 1000 counts per second in situ, regardless of size, was subdivided into three types based on colour, brecciation, slickensides, and sulphide content.

A description and distribution of each type is illustrated on Figure WJV81 P3 and observations based on this data are:

- (1) most pitchblende-bearing float appears to be derived from the south and southwestern corner of the cirque and at least some is derived from the actively eroding headwall of the cirque. A 3 m wide, moderately radioactive, bleached zone which surrounds an east-trending, steeply dipping fault is one probable source;
- (2) the mineralized float is partially obscured by unmineralized argillite talus on the west side of the cirque;

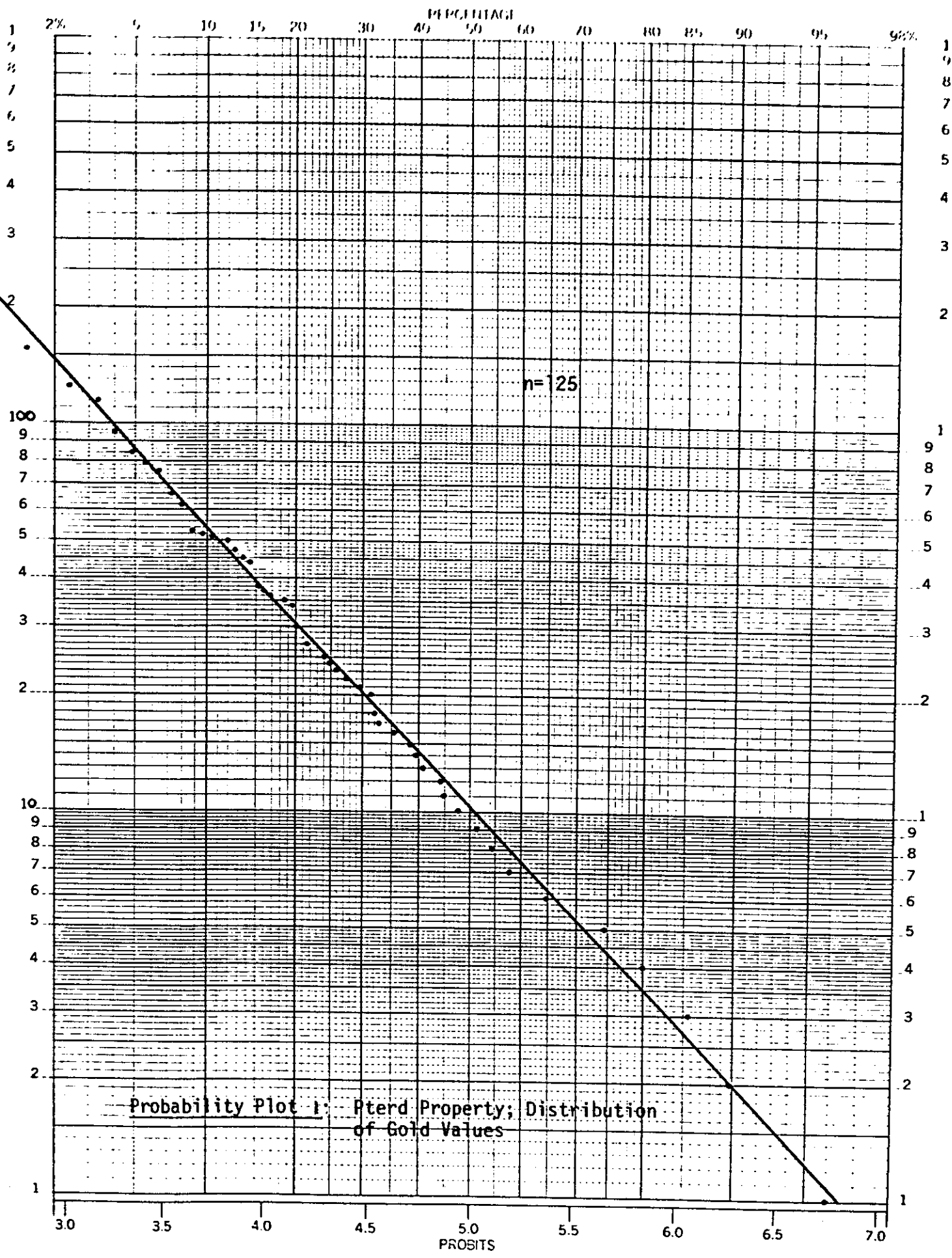
- (3) the proportion of mineralized boulders to barren boulders is relatively constant over the survey area;
- (4) there is no obvious pattern in the float distribution that would suggest different sources for the various types of mineralization. A fourth type of pitchblende-bearing float found east of the main float train can be traced back to a narrow, carbonate and hematite altered zone on the margin of a breccia body;
- (5) all radioactive rocks are argillites, exhibit alteration ranging from weak chloritization to intense bleaching, and contain pitchblende in fractures and matrix. The intensity of alteration is usually greatest in rocks exhibiting brecciation and slickensides.

#### GEOCHEMISTRY

One hundred and twenty-five soil samples, collected at 100 metre intervals along the base of talus slopes in five cirques during prospecting and geological mapping traverses, were analyzed for gold at Chemex Labs Ltd., North Vancouver, B.C., as discussed in Appendix II. The results are shown on Figure WJV81 P2. Probability Plot 1 on the following page indicates that all gold values belong to a single-log normal population ranging from <1 to 273 ppb with a mean of 10.5 ppb and standard deviation of 14 ppb. The highest values were obtained below known sulphide occurrences, along faults and adjacent to breccia bodies. Although no geological environment produced consistently encouraging results and the high values are not tightly clustered, the results are moderately to strongly anomalous when compared to the regional gold background.

46 8080

K&E PROBABILITY X 3 LOG CYCLES  
KLUFFEL & ESSER CO. MADE IN U.S.A.



Probability Plot of: Pterd Property; Distribution of Gold Values

## DIAMOND DRILLING

### General

The 1981 WJV drilling was contracted from E. Caron Diamond Drilling Limited, Whitehorse, Yukon, using a Longyear "Super 38" drill powered by a diesel engine and equipped with hydraulic head and wireline attachments. All holes were drilled using BQ rods and water circulation. No sludges were collected because core recovery exceeded 95 per cent. A fan of 3 inclined holes (P6 to P8) totalling 607 m, were drilled from a single site on the glacier near the head of the radioactive float train in Pterd cirque to explore for mineralization beneath the ice. The target was a possible stockwork zone along the margins of a breccia body or a fault which may be the primary source of the radioactive float. Although the ice was easily penetrated and bedrock cored well, ice movement caused severe rod wear and resulted in termination of all holes at depths between 188 and 212 m.

There was no permafrost below the glacier, but the cooling effect of the glacial ice itself required constant use of propane coil heaters and addition of calcium chloride when drilling stopped for longer than 15 minutes. Three shifts were lost on days when snow and rock slides made work too dangerous.

The core was logged in metric units and although logging has been done using a computer format, the data has not been computer processed. Detailed radiometric logging of the core was performed with a Scintrex BGS-1SL scintillometer. No down hole logging was done as the risk of losing the probe was too great. Copies of drill logs and radiometric logs are included in Appendix III and Figure WJV81 P4 in Pocket D illustrates detailed geology of Pterd Cirque, drill hole locations and sections. The core is stored in the H.S. Bostock core library in Whitehorse.

## Results

None of the holes intercepted pitchblende or sulphide mineralization, and the radiometric logs produced only background readings. Each hole passed through 67 to 73 m of glacial ice before reaching bedrock. Hole P6 intersected Unit Hs argillite then crossed a gradational contact into Unit Hb homolithic breccia and a sharp contact into a 25 m wide heterolithic breccia body before passing back into homolithic breccia and finally more Unit Hs argillite. The hole had to be abandoned 100 m short of the projected downdip extension of a moderately radioactive, bleached zone developed around a series of steeply dipping faults which is exposed on the cirque wall. Hole P7 intersected a 2 m wide bleached fault zone just after reaching bedrock then cut Unit Hs argillite and quartzite for the remainder of its length before being abandoned 70 m short of the projected radioactive fault zone. Hole P8 was in Unit Hb homolithic breccia for its entire length and passed through one 1.6 m wide fault zone.

These results indicate that the geology beneath the glacier is more complex than suspected. The discovery of the small heterolithic breccia body in Hole P6 and extensive homolithic breccia in Hole P8 suggests that other breccia bodies are present, and given the number of faults intersected in the drill holes and the density of faults on the remainder of the property it is reasonable to assume that numerous other fault zones are also present below the glacier.

## DISCUSSION AND CONCLUSIONS

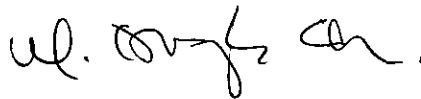
The 1981 drilling has eliminated a large area near the head of the radioactive float train as a potential source for the mineralization. Although

the drilling failed to explore beneath a moderately radioactive fault zone exposed on the cirque wall, surface exploration of this zone by WJV and Eldorado indicates little tonnage and grade potential. It would appear that if the mineralized float was derived from this zone it has been largely eroded. Radiometric prospecting has shown that the radioactive float train extends beneath non-radioactive talus on the west side of the cirque, however, severe erosion of the drill site and the inability of the drill to penetrate deeper than 220 m due to ice movement made it impossible to test targets in that direction from the existing site. Unfortunately drill sites closer to the cirque wall or to the west of the existing site lie in the path of major rock and snow slides and are probably too dangerous to use. Thus further drill exploration will have to be conducted from the south side of the cirque wall (Cobalt Cirque) which will require holes in excess of 350 m length.

Surface exploration did not discover any new zones of uranium or sulphide mineralization and suggests that the main area of interest is restricted to Pterd Cirque. Gold geochemistry produced some high values but no specific target.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES (1981) LIMITED,



W. Douglas Eaton

/jm

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 I

PERSONNEL

PERSONNEL

<u>Name</u>	<u>Position</u>	<u>Address</u>	<u>Period During Which Work Was Done</u>
D. Eaton	Geologist	6108 Burns St., Burnaby, B.C.	June 13 to August 7
D. Heberlein	Geologist	4639 W. 9th Ave., Vancouver, B.C.	June 13 to August 7
T. Stokes	Geologist	#705, 625 Milton St., Montreal, P.Q.	June 13 to August 7

APPENDIX II

ANALYTICAL TECHNIQUES

## ANALYTICAL TECHNIQUES

### Preparation

All soil samples were dried and sieved through an ASTM 35 mesh screen (0.50 mm). The -35 mesh fraction was then pulverized and homogenized in a ring grinder to approximately -100 mesh (0.15 mm). For grab and chip samples from rocks, the entire sample was crushed and split. A subsample was then pulverized in a ring grinder to approximately -100 mesh.

### Analytical Techniques

Gold was analyzed by a "combo technique" consisting of a fire assay followed by neutron activation, while copper, cobalt, and silver were analyzed using a perchloric-nitric acid extraction followed by atomic absorption spectrometry.

APPENDIX III

DRILL LOGS





# DRILL HOLE LOG

HOLE No. 81P7  
PAGE 1 OF 2

COORDINATES  
ELEVATION  
DIP - 50"  
AZIMUTH 204°  
SCALE

CORE SIZE BQ  
HOLE STARTED June 25, 1981  
HOLE COMPLETED June 30, 1981  
LOGGED BY Tim Stokes

DEPTH IN FEET	DESCRIPTION	DIP
0 - 240'	GLACIAL ICE	
210	240' - 680': ARGILLITE : dark grey to red-brown, slightly hematized argillite. The rock is often strongly fractured and these are filled with a stockwork of calcite ± hematite veins. A few narrow bleached zones occur locally.	
220		
210		
230		
220		
210		
220		
210		
220		
210		
220		
210		
220		
210		



# DRILL HOLE LOG

HOLE No. 81PB  
PAGE 1 OF 2

COORDINATES  
ELEVATION  
DIP -50°  
AZIMUTH 174°  
SCALE

CORE SIZE BQ  
HOLE STARTED JULY 1, 1981  
HOLE COMPLETED JULY 8, 1981  
LOGGED BY Tim Stokes

in cps	Radioactivity Feet	DESCRIPTION	DIP
	0	0 - 235' : <u>GLACIAL ICE</u>	
	100		
	200		
220		235' - 619' : <u>HOMOLITHIC BRECCIA</u> : wallrock breccia consisting of dark grey to bleached pale green argillite fragments in a calcite ± hematite matrix. The fragments are angular and range from 1 cm to several meters in diameter. Occasionally grades toward highly fractured argillite.	
230			
	300		
220			
210			
	400		
200			
	500		
220			
210			
220			
210			
210			
220	600		

# DRILL HOLE LOG

HOLE No. 81PB  
PAGE 2 OF 2

COORDINATES  
ELEVATION  
DIP  
AZIMUTH  
SCALE

CORE SIZE  
HOLE STARTED  
HOLE COMPLETED  
LOGGED BY

DEPTH IN FEET	DESCRIPTION	DIP
210	HOMOLITHIC BRECCIA: contd.	
	end of hole 619'	

# ARCHER, CATHRO

AND ASSOCIATES LTD.

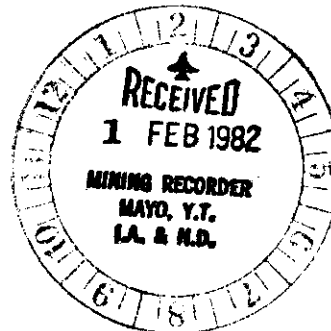
CONSULTING GEOLOGICAL ENGINEERS

BOX 4127, WHITEHORSE, Y.T. VIA 359 667-4415

STANDARD BUILDING, VANCOUVER, B.C. 688-2568

1016 STANDARD BUILDING  
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 Pterd 1-10, 11F-12F, 13-14;  
Pnerd 1-4; Skin 1-4; Knit 1-22; Ptoes 1-22; and Knit 9-26  
mineral claims on Claim Sheet 160C/14 is accurate.

  
Joan Mariacher

Sworn before me at Vancouver, B.C.  
this 7 day of  
January, 1982.



Notary, Yukon Territory

090965

Statement of Expenditures  
Diamond Drilling  
Pterd 1 - 10, 11F - 12F, 13 - 14; Pnerd 1 - 4,  
Skin 1 - 4; Knit 1 - 22; Ptoes 1 - 22, Knit 9 - 26 Claims  
January 5, 1982

---

Expenses

E. Caron Diamond Drilling - contract drilling	<u>\$47,544.61</u>
---	--------------------



ARON DIAMOND DRILLING LTD.

7 Roundel Road Whitehorse, Yukon.

Phone (403) 668-2424 Telex 036-B-337

June 30, 1981

Invoice #- 994

IN ACCOUNT WITH:

Archer Cathro & Associates,  
1016 Standard Building,  
510 West Hastings Street,  
Vancouver, B.C.

Drilling Charges June 13 to 30, 1981:

(Bear River)

Hole 81-1/50/BQ

Moving

110 man hrs. @ \$ 23.00 per hr. = \$ 2,530.00

Drilling

18 man hrs. @ \$ 23.00 per hr. = \$ 414.00

9 mach. hrs. @ \$ 13.50 per hr. = \$ 121.50 \$ 535.50

Reaming Cave

26 man hrs. @ \$ 23.00 per hr. = \$ 598.00

13 mach. hrs. @ \$ 13.50 per hr. = \$ 175.50 \$ 773.50

Waterline

50 man hrs. @ \$ 23.00 per hr. = \$ 1,150.00

21 mach. hrs. @ \$ 13.50 per hr. = \$ 283.50 \$ 1,433.50

Mud Time

2 man hrs. @ \$ 23.00 per hr. = \$ 46.00

1 mach. hr. @ \$ 13.50 per hr. = \$ 13.50 \$ 59.50

Travelling Time

16 man hrs. @ \$ 23.00 per hr. = \$ 368.00

Casing

0 - 249 = 249 ft. @ \$ 24.00 per ft. = \$ 5,976.00

Coring

220 - 500 = 280 ft. @ \$ 25.00 per ft. = \$ 7,000.00

500 - 693 = 193 ft. @ \$ 26.00 per ft. = \$ 5,018.00 \$12,018.00 \$23,694.00





Hole 81-2/50/BQ

Moving

64 man hrs. @ \$ 23.00 per hr. = \$ 1,472.00

Drilling

6 man hrs. @ \$ 23.00 per hr. = \$ 138.00

3 mach. hrs. @ \$ 13.50 per hr. = \$ 40.50 \$ 178.50

Mud Time

2 man hrs. @ \$ 23.00 per hr. = \$ 46.00

1 mach. hr. @ \$ 13.50 per hr. = \$ 13.50 \$ 59.50

Standby Time

46 man hrs. @ \$ 23.00 per hr. = \$ 1,058.00

23 mach. hrs. @ \$ 13.50 per hr. = \$ 310.50 \$ 1,368.50

Casing

0 - 252 = 252 ft. @ \$ 24.00 per ft. = \$ 6,048.00

Coring

241 - 500 = 259 ft. @ \$ 25.00 per ft. = \$ 6,475.00

500 - 680 = 180 ft. @ \$ 26.00 per ft. = \$ 4,680.00 \$11,155.00 \$20,281.50

Mobilization

of drill & equipment  
and crew from Mayo @ \$ 1,900.00 = \$ 1,900.00

Items Consumed & Chargeable

Hole 81-1/55/BQ

4 pieces 10' Casing @ \$103.50 each = \$ 414.00

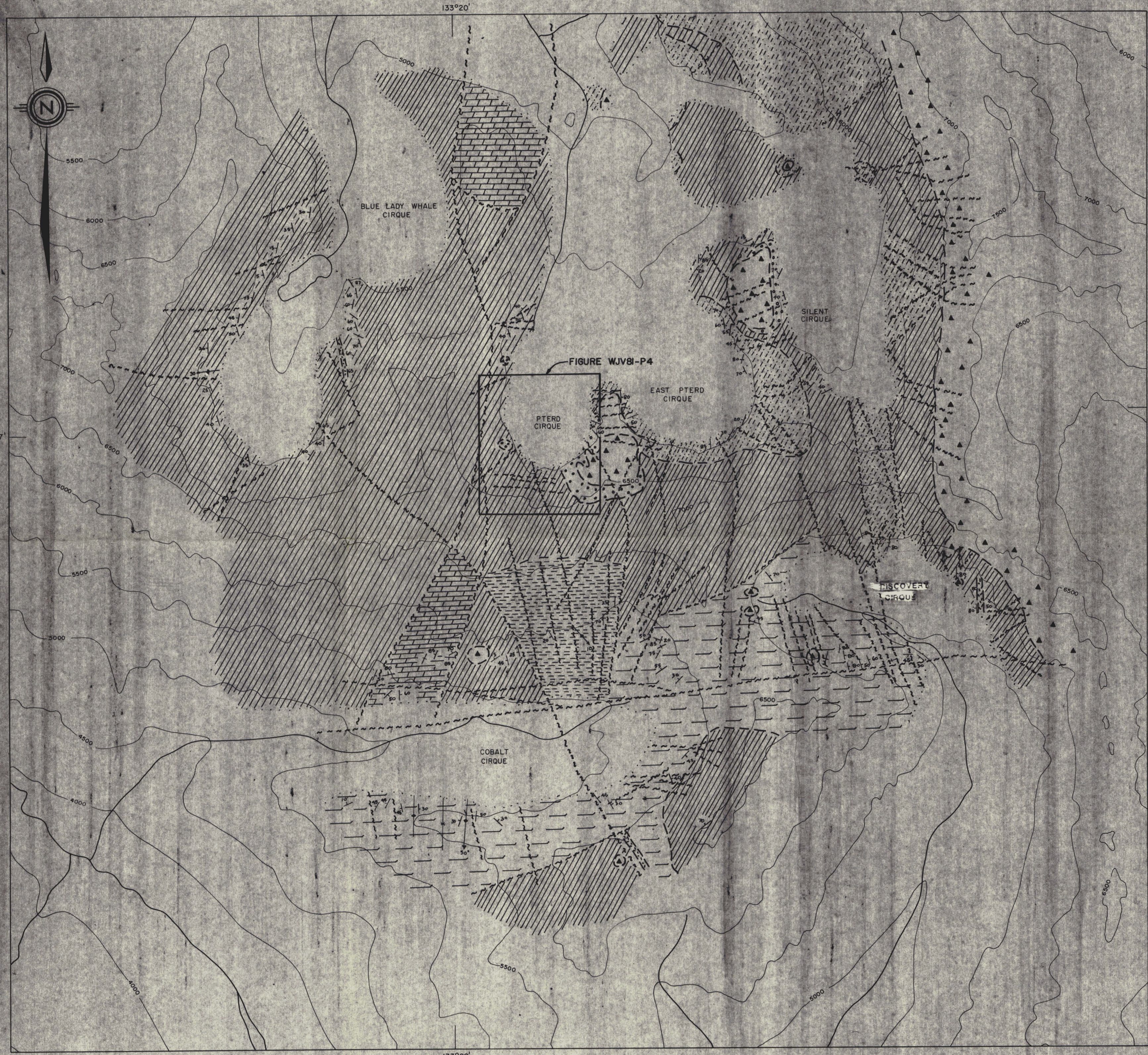
12 pieces 10' BQ rods @ \$ 86.45 each = \$ 1,037.40 \$ 1,451.40

+ 15 % = \$ 217.71 \$ 1,669.11

Total Invoice: \$47,544.61

*Ind July 8/81  
#654*





**GEOLOGY**

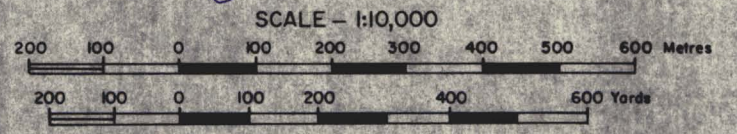
<b>MELIEM</b>	
	M1 - Asterolithic breccia; variously altered, subrounded fragments in a carbonate and hematite-rich matrix
	M2 - Homoplithic breccia; angular, commonly bleached outcrop fragments in minor carbonate and hematite matrix. Gradational contacts with M1 but generally sharp contacts with M3
	D - Diabase dyke - approximately diabasic composition
<b>MELIEM, POSSIBLY APHEBIAN</b>	
	M3 - Gillispie Group: thick bedded, orange weathering dolomite
	M4 - Quartz Group: black argillites with interbedded slates and quartzites
	M5 - Bleached, medium green to white-equivalents of M4
<b>POSSIBLY APHEBIAN</b>	
	M6 - Fairchild Group: thin interbedded, wavy bedded, green argillite and brown weathering argillaceous limestone
	M7 - Fairchild Group: predominantly pale green and spotted green phyllites, minor interbedded carbonate
	Approximate geological contact
	Fault trace
	Bedding attitude
	Antiformal fold axis
	Synformal fold axis
	Limit of outcrop

FIG. WJV81- P1  
ARCHER, CATHRO & ASSOCIATES (1981) LTD.

**GEOLOGY**

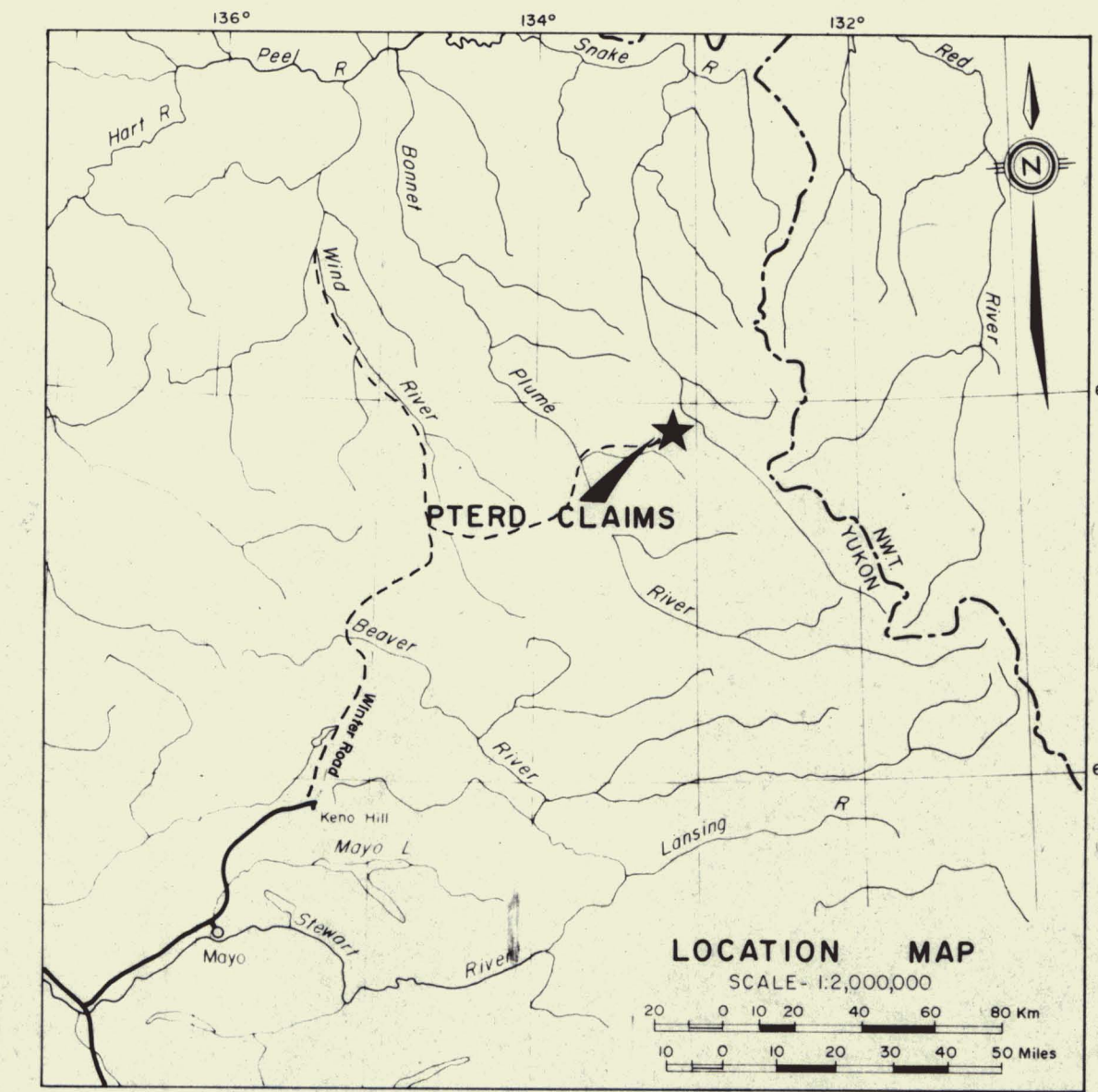
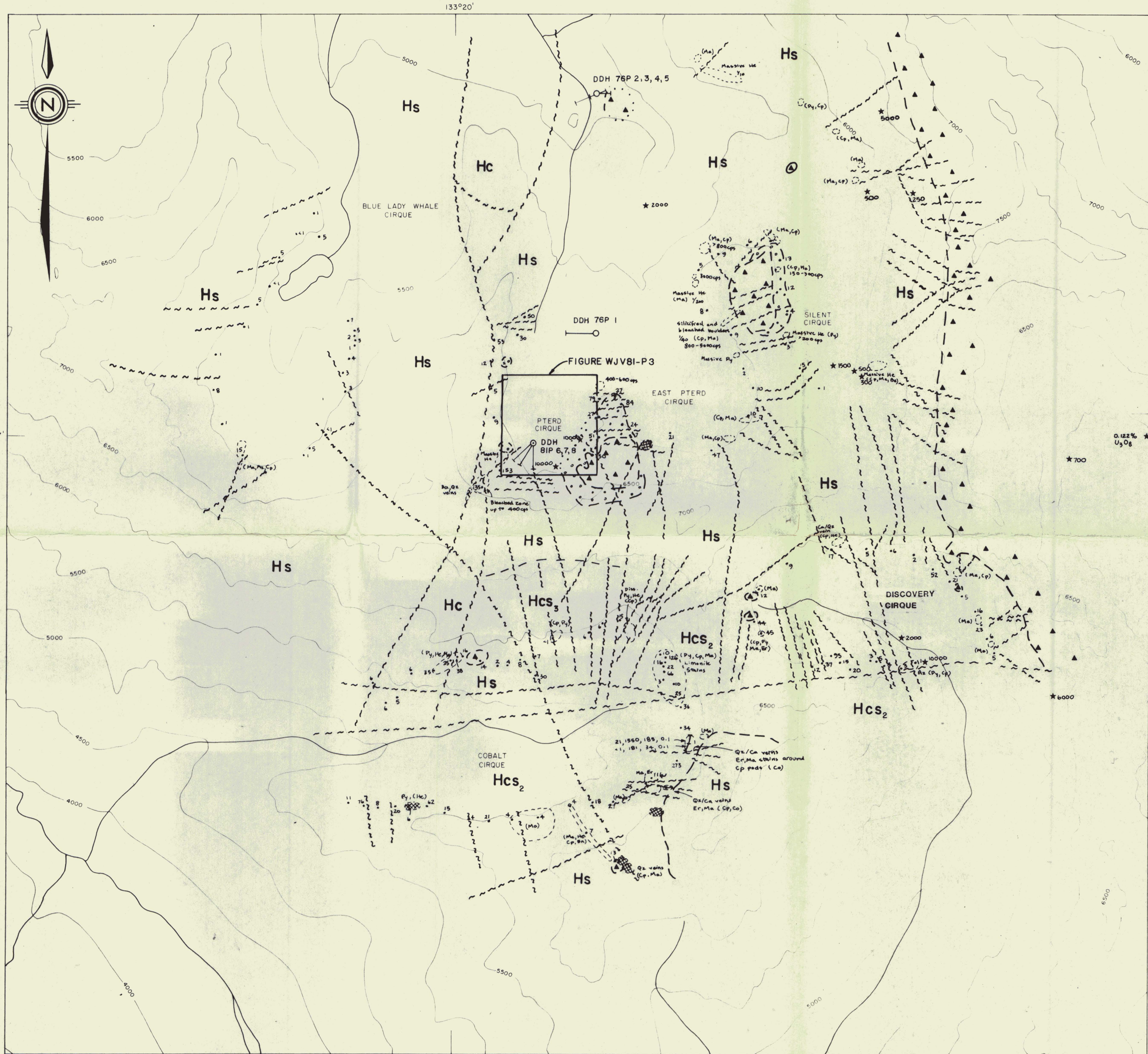
PTERD PROPERTY  
WERNECKE JOINT VENTURE

*W. J. Vernecke*, January 21, 1982



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January 1982  
To accompany report dated December 2, 1981



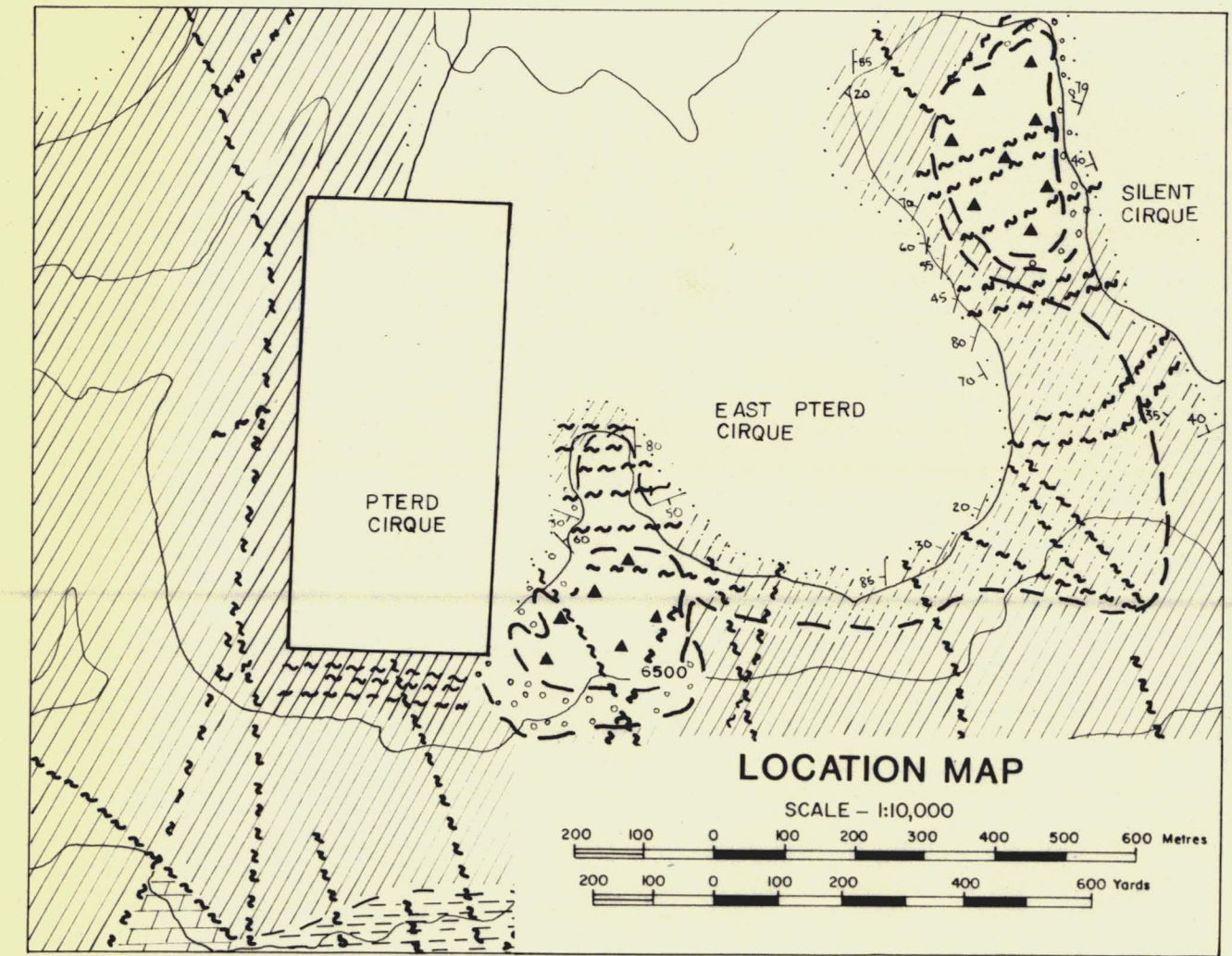
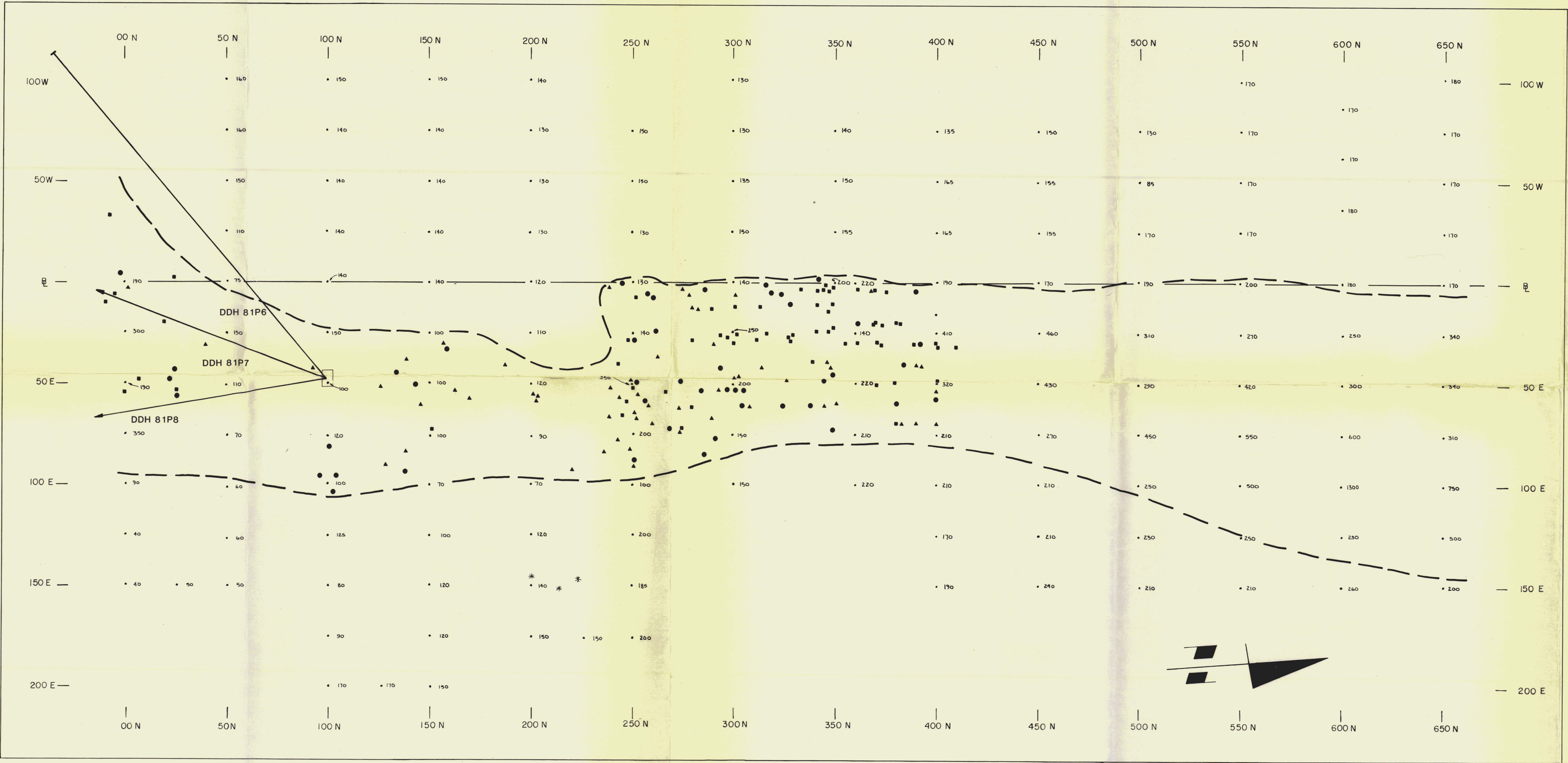
- GEOLOGY**
- HELIXIAN
    - Hb - Metrolithic breccia
    - Hc - Homolitic breccia
  - HELIXIAN, POSSIBLY APHEBIAN
    - Hc - orange weathering dolomite
    - Hs - black argillites, minor interbedded slates, and argillites
  - PROBABLY APHEBIAN
    - Hcs<sub>1</sub> - green argillites and brown argillaceous limestones
    - Hcs<sub>2</sub> - pale green phyllites
- Approximate geological contacts  
 ~ Fault trace
- LEGEND**
- 21 Soil sample location, Au in ppb
  - 21, 185, 185, 0.1 Chip sample location, Au in ppb, Cu, Co, Ag in ppm
  - ⊗ Gossan
  - Py, (Ma) Mineralized zone, Py - major mineral (Ma) minor mineral
  - 400 cps - counts/second with Scintrex BGS-ISL scintillation
  - Bn Bornite
  - Cp Chalcopyrite
  - Az Azurite
  - Mq Malachite
  - Co Cobaltite
  - Er Erythrite
  - Mg Magnetite
  - He Hematite
  - Qz Quartz
  - Ca Calcite
  - Bo Barite
  - 1500 ★ Radioactive boulder, cps with Scintrex BGS-ISL scintillation

FIG. WJV81- P'2  
 ARCHER CATHRO & ASSOCIATES (1981) LTD.  
**MINERALIZATION**  
**Au GEOCHEMISTRY**  
 PTERD PROPERTY  
 WERNECKE JOINT VENTURE  
*W. Torrey Ebn* January 21, 1982  
 SCALE - 1:10,000  
 200 100 0 100 200 300 400 500 600 Metres  
 200 100 0 100 200 400 600 Yards

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To accompany report dated December 1981



- LEGEND**
- 210 Radioactivity measured in counts per second (cps) with sophymo-stel SPP 2 scintillometer.
  - Dark grey-green argillite, occasionally fault breccia with slickensides.
  - ▲ Bleached pale green argillite, often brecciated and slickensided.
  - Pale brown to gossanous argillite contains up to 5% pyrite and 1% chalcopyrite. Brecciation rare, but occasional slickensides.
  - \* Pink to brown, altered argillite from small linear zone near breccia contact. No brecciation or slickensides.
  - - - Approximate limit of radioactive float train
  - 1981 Drill site
- All rock exceeded 1000 CPS as hand specimens

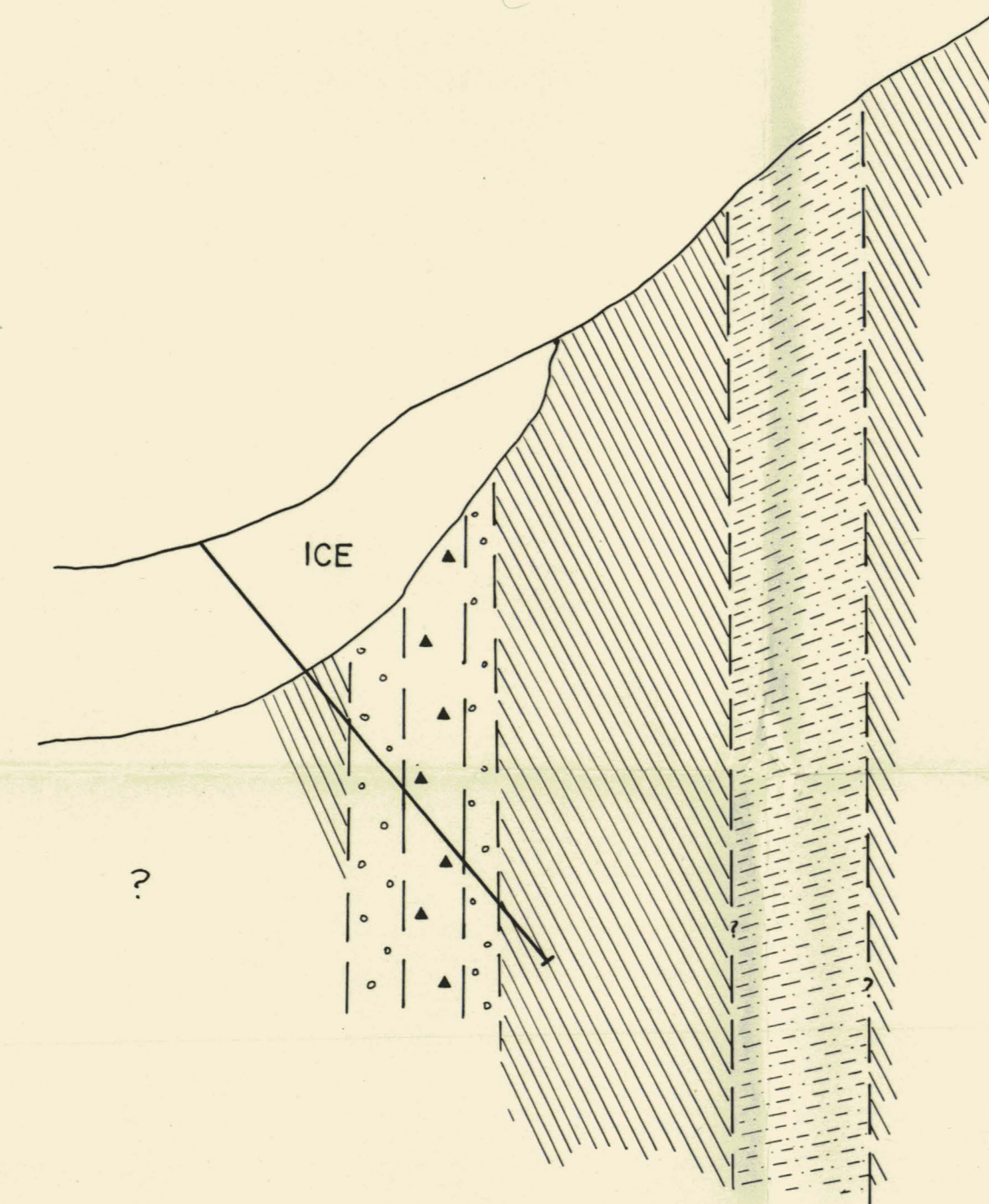
FIGURE WJV81 P3  
 ARCHER CATHRO AND ASSOCIATES (1981) LTD.

**DETAIL RADIOMETRICS**

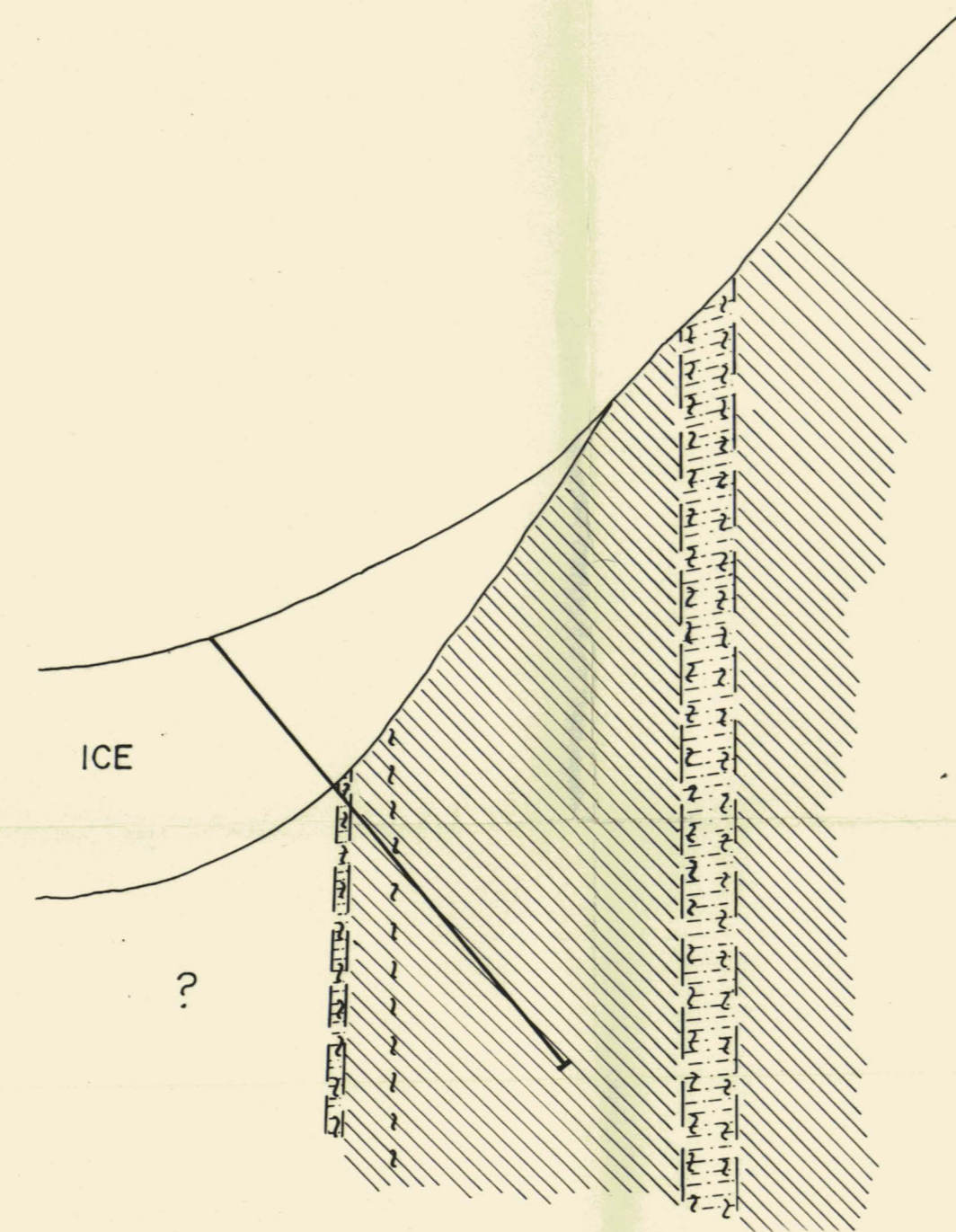
PTERD CIRQUE  
 PTERD PROPERTY  
 WERNECKE JOINT VENTURE  
*W. J. Vernecke* January 21, 1982

SCALE - 1:1000  
 0 10 20 30 40 50 Metres  
 0 10 20 30 40 50 Yards

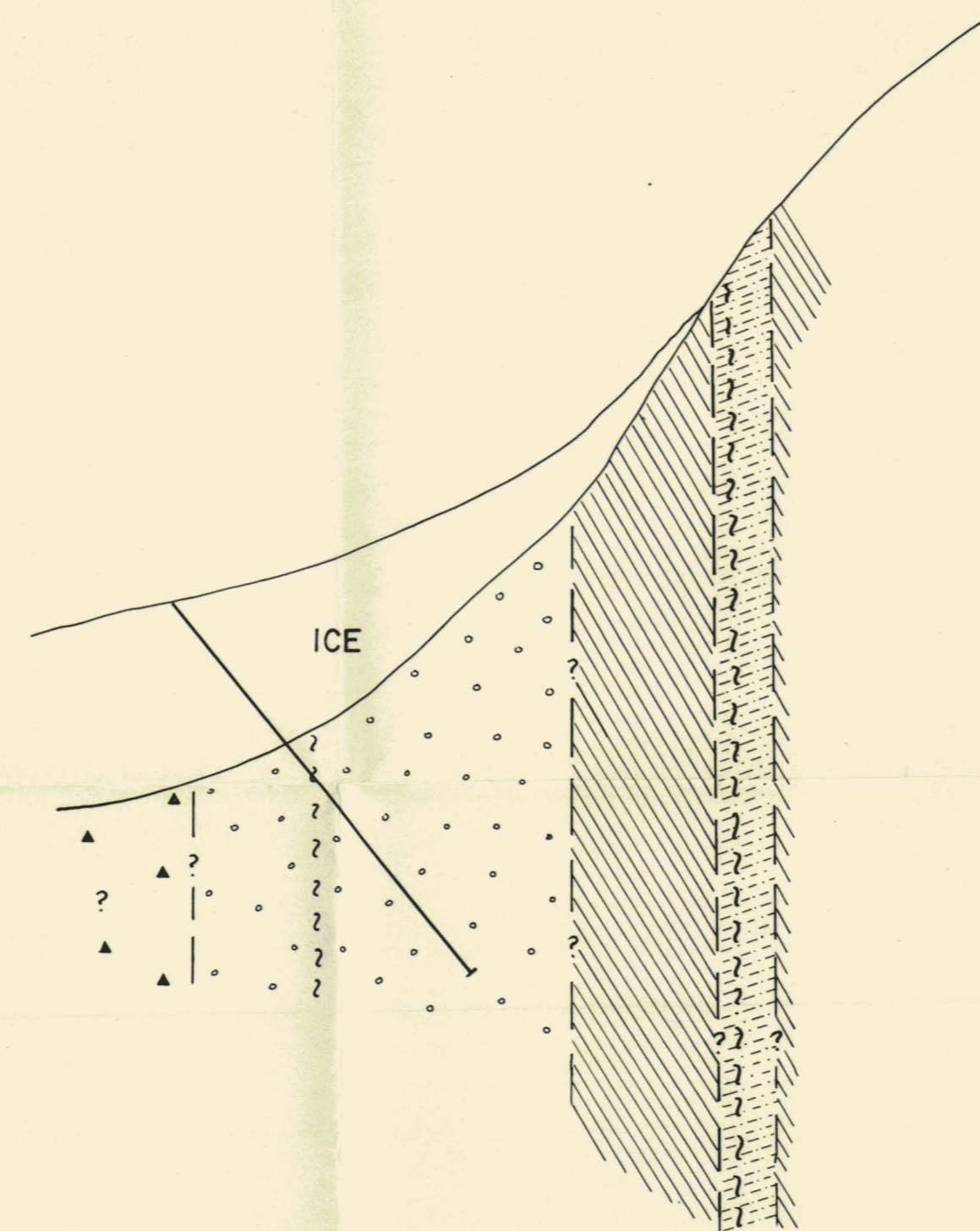
090985  
 January 1982  
 To accompany report dated 7/1/82



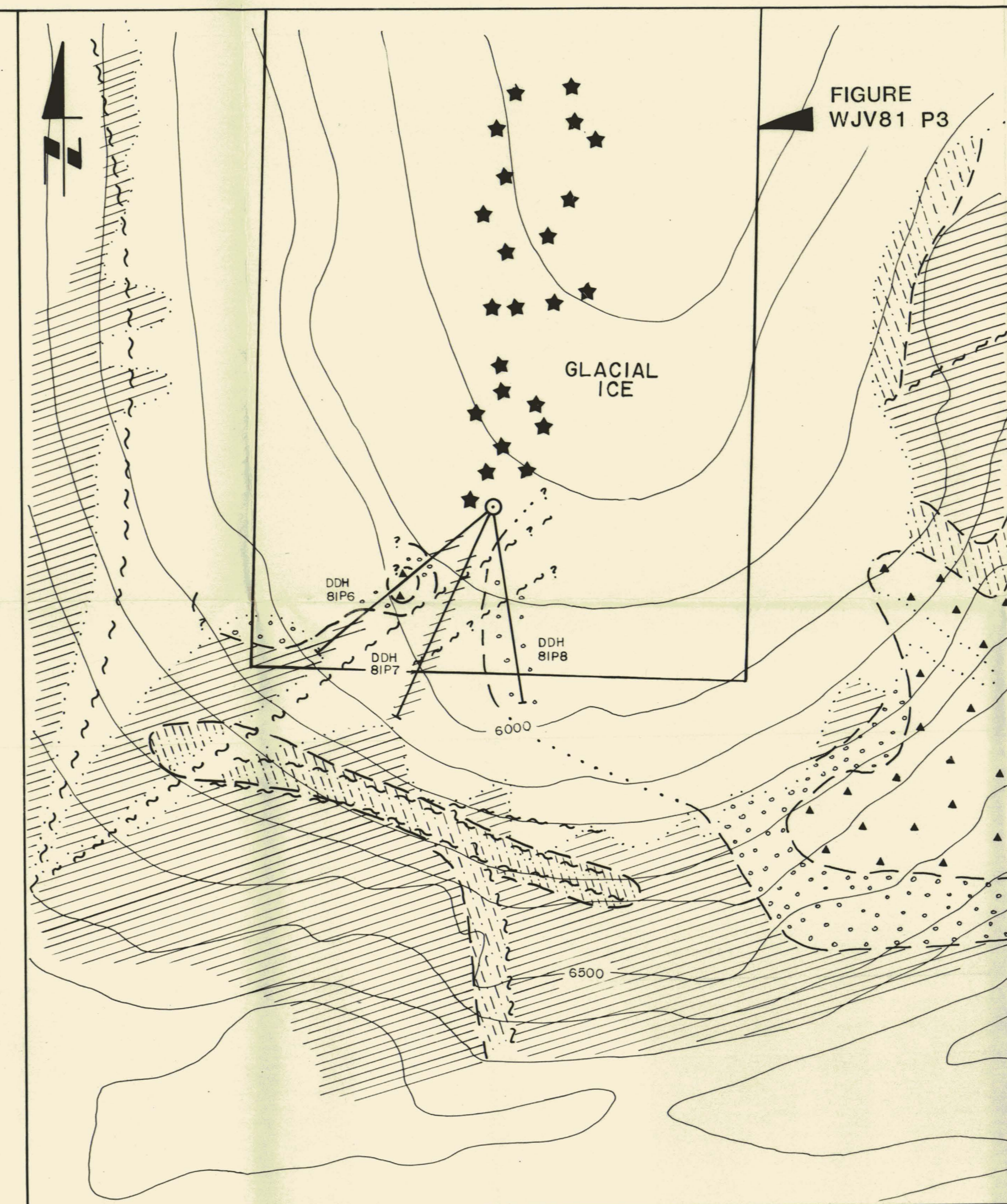
DDH 8IP6  
 AZIMUTH 234°  
 DIP - 50°  
 DEPTH 211.3m (693 ft.)  
 No vertical exaggeration



DDH 8IP7  
 AZIMUTH 204°  
 DIP - 50°  
 DEPTH 207.3m (680 ft.)  
 No vertical exaggeration



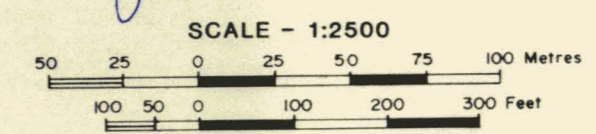
DDH 8IP8  
 AZIMUTH 174°  
 DIP - 50°  
 DEPTH 188.7m (619 ft.)  
 No vertical exaggeration



**GEOLOGY**

- HELIKIAN**
- ▲ Hb - Heterolithic breccia containing 80% subrounded dark grey, brown and pink metasediment fragments in a carbonate- and hematite-rich matrix
  - Hb - Homolithic breccia consisting of 95% unaltered to strongly bleached Hs fragments surrounded by a carbonate- and hematite-rich matrix. Gradational contact with Hs but sharp contact with heterolithic breccia
- HELIKIAN, POSSIBLY APHEBIAN**
- ▨ Hs - Dark grey argillites with minor interbedded quartzite
  - ▨ Hsa - bleached, medium grey to white, often slicken-sided equivalents of Hs
- Approximate geological contact  
 ~ ~ ~ Fault trace  
 ..... Limit of outcrop
- LEGEND**
- 1981 Diamond Drill hole location
  - ★ Pitchblende - bearing float train

FIGURE WJV81 P4  
 ARCHER CATHRO AND ASSOCIATES (1981) LTD.  
**DETAIL GEOLOGY**  
 1981 DRILL SECTIONS  
 PTERD CIRQUE  
 PTERD PROPERTY  
 WERNECKE JOINT VENTURE  
*W.D.G.* January 21, 1982



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