BARRDA
MINERALS INC.

895051

#315 - 409 Granville Street
Vancouver, B.C. V6C 1T2
Tel: (604) 684-3443

May 26, 1989

Mr. R.W.A. Boal, President
Shannon Energy Ltd.
704, 304 - 8th Avenue, S.W.
Calgary, Alberta
T2P 1C2

Dear Ron:

Thorn Property

As requested, I enclose a copy of a geological report on the Thorn Property recommending a program of surface exploration in 1989 at an estimated cost of $70,000 during a two-week period.

I also enclose the original copy which I have signed and sealed to provide as clear a copy as possible for reproduction purposes that you may require. I am also arranging to provide Gerald Carlson with a complete unbound signed and sealed set of plates for the report and also for the report on the Misty-Nie, Inlaw and Outlaw properties.

} There are also enclosed herewith DAB.

Also, enclosed is a revised original copy of pages 22-23 which should be substituted in any reproduction provided for public distribution as it excludes reference on recommended staking to the northwest of the Daisy claims.

Gerald Carlson has been provided with a copy of the report today.

Sincerely,

D.A. Barr

DAB/cc
Encl.

cc G.G. Carlson

TERTIARY (?) RHYOLITE FLOW

PROSPECTED - 1964

PROSPECTED - 1964-65

PROSPECTED - 1964

PROSPECTED - 1964

PROSPECTED - 1965

PROSPECTED - 1965

PROSPECTED - 1964

PROSPECTED - 1965

PROSPECTED - 1964

PROSPECTED - 1965

FLOWS & SEDIMENTS

CIRQUE ZONE

TN

XDH B-1

XDH A-1 -90°

XDH A-2 -90°

XDH A-3 -90°

XDH A-2 -50°

XBILL CR.

WEST

2000'

1" ≃ 950'

1" = 950' x 85% reduction

REDUCED TO HALF SIZE

LEGEND

910	Creamy Rhyolite, Tuffs and Agglomerates	TERTIARY
934	Diorite Dykes (also Andesite)	
928	Diorite, Gabbro, Monzonite	
918	Quartz - Feldspar Porphyry	MESOZOIC
910	Rhyolite - (pink, white)	
913	Rhyolite Tuff and Agglomerate	
911	Andesite	
905	Limestone	
909	Chert Agglomerate, Basic pyroclastics	
935	Argillite	PERMIAN
904	Limestone	

PSH - PACKSACK DDH
XDH - X-RAY DDH
BX WL - BX WIRE-LINE DDH
- FRACTURE - VERT

JULIAN MINING CO. LTD.

THORN PROJECT

REGIONAL GEOLOGY

Mapped by: R.S.A., R.W.P., D.M. Date: Nov. 1965

Drawn by: I. L. BELL Scale: 1" = 500'

DRAFT

GEOLOGICAL REPORT

ON THE

THORN PROPERTY

OF

SHANNON ENERGY LTD.

ATLIN MINING DIVISION

TRAPPER LAKE AREA

BRITISH COLUMBIA

58°33'North Latitude; 132°48'West Longitude

NTS 104K/10W

FOR

SHANNON ENERGY LTD.

May 18, 1989

Prepared by:
D.A. Barr, P.Eng.
Barrda Minerals Inc.

TABLE OF CONTENTS

LIST OF APPENDICES

(3) The work done to date, as documented, is considered to have a relatively high degree of reliability.

Although the writer in general agrees with interpretations made of geologic, geophysical and geochemical data presented in reports by respective authors, he accepts responsibility for any re-interpretations of the data as his own.

This report discusses the geologic setting, economic potential, and history of past exploration of the property and recommends a $65,000 program of geological, geochemical, and geophysical surveys and trenching to be completed over a two-week period by a six-person crew on behalf of Shannon Energy Ltd.

PROPERTY

The Thorn property currently comprises two located mineral claims located in the Atlin Mining Division, British Columbia which were staked in 1981 by P. Timpany as agent for Mr. J.R. Woodcock (Appendix B). The claims cover part of ground originally staked in 1963 (see History).

Thorn Property Claims

Claim Name	Record No.	Record Date	Expiry Date	No. of Units
Daisy	1302	April 24, 1982	1993	20
Daisy 2	1317	June 15, 1981	1992	10

In 1982, the claims were sold outright by Mr. Woodcock to Inland Recovery Group Ltd. ("Inland") of Vancouver, British Columbia. By an agreement dated February 28, 1986 American Reserve Mining Corporation ("American Reserve") of Vancouver, British Columbia acquired the right to earn an undivided 50% interest in the property by funding a $200,000 exploration program which was completed on the claims in 1986.

By an agreement dated December 22, 1988 Mr. Gerald G. Carlson acquired the right to

earn a 100% interest in the property, subject to a 5% net proceeds interest to be retained by American Reserve by spending a total of $500,000 on the property by December 31, 1991. At any time up to feasibility, American Reserve may elect to forgo its 5% NPI and earn a 10% working interest in the property by paying $12.5% of the total exploration costs incurred between the date of the agreement and the date of election.

By an agreement dated January 16, 1989 Mr. Carlson acquired the right to earn 100% of Inland's interest under the same terms and conditions of those agreed to with American Reserve.

Mr. Carlson is currently negotiating an agreement with Shannon Energy Ltd. ("Shannon") by which Shannon can earn 100% of Mr. Carlson's interest by assuming his obligations under the above agreements with American Reserve and Inland. In return, Shannon will issue treasury shares to Mr. Carlson in the amount of one share for each dollar of exploration work spent on the property by Shannon to a maximum of 500,000 shares and with a minimum of 100,000 shares on signing of an agreement, subject to regulatory approval.

LOCATION AND ACCESS

The property is situated in the Atlin Mining Division in northwestern British Columbia, about 125 kilometres southeast of Atlin, B.C. and 125 kilometres northwest of Telegraph Creek. The property is centered at latitude 58°33'N and longitude 132°48'W on a northwesterly flowing tributary of Sutlahine River (Appendix A). Sutlahine River flows northerly into Inklin River which flows northwest into Taku River, a major waterway which cuts through the Coast Mountains and the Alaska Panhandle and drains into the Pacific Ocean at Taku Inlet, 65 kilometres due west of the property and 15 kilometres northeast of Juneau, Alaska.

The most convenient access to the property is by float-equipped fixed-wing aircraft to Trapper Lake, 13 kilometres to the southeast and thence by helicopter. The nearest road location is currently at Muddy Lake on the Golden Bear property, about 40 kilometres to the southeast. A recently completed all-weather road extends 155

SUMMARY

The Thorn property comprises two contiguous mineral claims containing 20 units in the Sutlahine River area, Atlin Mining Division in northwestern British Columbia. Shannon Energy Ltd. is current negotiating an agreement with Mr. G.C. Carlson which will be subject to regulatory approval and which is expected to provide Shannon with a 100% interest in the property subject to a 10% Net Profits interest payable to Mr. Carlson and a back-in provision with Inland Recovery Group Ltd. and American Reserve Mining Corporation.

The nearest communities are Telegraph Creek, 125 kilometres to the southeast and Atlin, 125 kilometres to the northwest. The property lies about 65 kilometres due east of the Pacific Coast on the eastern margin of the Coast Range mountains at elevations ranging from 670 to 1,800 metres above sea level.

Copper-gold-silver mineralization was discovered on the property by Kennco Explorations (Western) Limited in 1959 and claims covering the current property have been staked intermittently since 1963. About $500,000 has been spent on the property to date by various companies and individuals in prospecting, geological mapping, stream sediment, soil and talus sampling, line-cutting, trenching, rock sampling, VLF-EM, Induced Polarization, magnetometer surveys and diamond drilling.

The work done to date has indicated encouraging copper-gold-silver bearing quartz veins and more massive mineralization associated with enargite, tetrahedrite, and other sulphide minerals, localized by faulting, fracturing and brecciation in altered zones, mostly within a quartz feldspar porphyry intrusion occupying an area of about three square kilometres and oriented northwesterly.

The geological setting of the Thorn property is remarkably similar to that of the El Indio gold-silver-copper deposit in Chile with proven and probable reserves as of October 31, 1984 totalling 5 million metric tons averaging 5% copper, 10.3 grams gold per metric ton, and 116.6 grams silver per metric ton.

An exploration program consisting of VLF-EM electromagnetic and magnetometer surveys, additional soil sampling and trenching to better define targets areas for

diamond drilling is recommended in 1989 at a cost of $70,000. It is expected that a Phase II program requiring a minimum of 1,000 metres of diamond drilling at an overall cost of $250,000 will be supported by the results of the Phase I program.

INTRODUCTION

On April 27, 1987 the writer met with Dr. G.C. Carlson, Director and Exploration Manager, Shannon Energy Ltd. to complete a preliminary review of the current status of the Thorn property. On April 28, Shannon Energy Ltd. commissioned the writer to review the available reports and other data pertaining to the property, assess the potential for a further exploration program in 1989 to test any target areas of potential interest, and prepare a report.

In complying with this assignment the writer examined relevant portions of reports and maps listed herein under References; and discussed past exploration work with Mr. J.R. Woodcock, P.Eng., author of the most recent reports completed on exploration work at the property.

The writer is familiar with the general geologic setting of the Thorn property having performed preliminary exploration in the area in June, 1959 while following up copper-in-stream-sediment anomalies with Kennco Explorations (Western) Limited.

A field examination of the property has not been made by the writer for the following reasons:

(1) Considerable well documented exploration work has been completed over a 25-year period by several companies, partly for their own corporate purpose which indicate several additional relatively untested portions of the property that require preliminary surveys prior to recommending further drilling on partly tested mineral occurrences. Much of the area to be covered in this preliminary work is believed to be drift-covered.

(2) Only those portions of the property at low elevation will be free of snow by mid-May and the proposed program will be scheduled in July as part of a summer exploration program in the same area.

kilometres easterly to Highway 114 which links Telegraph Creek and Dease Lake and Highway 37.

The proposed work program in 1989 discussed in this report will probably rely on charter helicopter service for camp moves and supplies to be provided by Trans North Turbo Air scheduled to be based at Dease Lake. Alternatively, Atlin should be considered as a supply base.

PHYSIOGRAPHY, CLIMATE AND INFRASTRUCTURE

The property lies on the eastern margin of the Coast Range mountains about 65 kilometres east of the nearest point on tidewater in a transition zone between heavy coastal precipitation and drier interior climate. The area contains rugged alpine to sub-alpine terrain with elevations ranging from a low of 670 metres on a tributary to Sutlahine River to a high of 1,800 metres on the southwest part of the Daisy 2 claim.

Vegetation is generally sparse with timberline at about 1,400 metres and most vegetation occurring in valley bottoms and along the steep lower slopes. Most common trees are Engelmann spruce, alpine fir, and birch with dense underbrush consisting of devil's club, alder, huckleberry and other bushes.

No reliable information is available on the climatic conditions; however, average precipitation is about 90 centimetres and July and August are usually the warmest months. Temperatures may average a high of 15° C in summer whereas a low of -40° C is common in winter (Sanguinetti, 1969).

There is no local infrastructure, the nearest communities lying about 125 kilometres to the northwest and southeast and the nearest road terminus being at the Golden Bear property, about 40 kilometres to the southeast (see Location and Access).

HISTORY

Although prospecting was carried out in the general region prior to 1959, the earliest exploration work in the property area with which the writer is familiar was carried out

in June, 1959 by Kennco Explorations (Western) Limited in a helicopter-supported geochemically-oriented exploration program using Holman copper values in stream sediment, molybdenum values in water, augmented by sulphate in water and heavy metal in stream sediment values (Bloom method) plus geologic data to define anomalies. The program, which covered two five-month seasons employing 20 men, was completed with the object of discovering target areas for porphyry copper and molybdenum deposits. Anomalous stream sediment samples were also subjected to multi-element spectroscopic analyses. The writer and J.R. Woodcock acted as co-party chiefs in the 1959 program.

The following is a chronological summary of exploration work in the property area and includes work done on predecessor claims which covered part of the surrounding area.

1959: The writer, while employed by Kennco Explorations (Western) Limited, followed up an anomalous Holman copper in stream sediment value from the mouth of the later named Camp Creek for about 1,000 metres northeasterly to its apparent source on a tributary at an elevation of about 1,000 metres above sea level. A 37-metre chip sample across a silicified zone containing massive pyrite at a fault controlled contact between chert breccia and volcanic fragmentals assayed 0.34% copper, 3.5% silver/ton and 0.04 gold/ton. The location coincides with the north-central part of the present Daisy claim and Zone as designated by Julian Mining Company Ltd. (Adamson, 1964).

The writer followed up another anomalous creek which drains the south-central portion of the Daisy 2 claim and located highly pyritized argillite and breccia with low copper contents associated with chalcopyrite and malachite mineralization.

1963: Julian Mining Company Ltd. staked the Thorn property to cover mineralized outcrops in the drainage basin of the creeks. One zone that outcrops on a branch creek (Zone A) was mapped and tested by drilling four short holes aggregating 71 metres using Pack Sack equipment and completing minor trenching. Large boulders

mineralized with tetrahedrite and pyrite were located about 1.5 kilometres to the northwest and six character samples averaged 0.202 oz gold/ton (6.9 grams/metric ton), 8.01 oz silver/ton (274.7 grams/metric ton) and 1.20% copper (Zone B). An additional mineral occurrence was also discovered, Adamson (1963).

1964: Following the discovery of additional mineralized zones the original claim was expanded from 22 to 132 claims. Some hand trenching, soil sampling and limited IP surveys were also completed. A preliminary geological map of the core of the property was prepared (Adamson, 1964).

1965: From 12-24 personnel were involved in an exploration program between early May and late September which included geological mapping, soil sampling, 306 metres of X-ray drilling and 828 metres of BQ wireline drilling. Most work was done on the Cirque Zone 3 kilometres northeast of the later staked Kay and Lin claims which was geologically mapped, surveyed by 11 kilometres of IP and ground magnetics and tested by 828 metres of wireline drilling in six holes and 61 metres of X-ray drilling in two holes. Geological mapping, soil sampling, 3,246 metres of IP surveys, a magnetometer survey and 179 metres of X-ray drilling in four holes were completed on Zone A (Appendices E12, E13). Geological mapping, IP surveys and one X-ray drill hole were completed on Zone B in an unsuccessful attempt to locate the source of the well-mineralized boulders discovered in 1963. High lead geochemical values were located from soil sampling in the area of Zone C in 1964 but proposed follow-up was postponed. Zone E was mapped and sampled and an IP survey was carried out to the northeast without detecting anomalous responses (Appendix E4). Sampling of Zones I and F, consisting of quartz veins mineralized with pyrite, tetrahedrite and enargite, indicated erratic results (Appendices E5, E6). Stripping on Zone G, where encouraging gold-silver mineralization had been located in 1964, outlined a pod-like occurrence with no continuity. Prospecting and sampling on Zone P revealed that disseminated chalcopyrite in quartz diorite was very

erratic and low grade. Zone Q was investigated but was found to have no economic significance. The West Zone was mapped and soil sampled and anomalous copper values were attributed to economically insignificant copper mineralization occurring as erratic seams and blebs in quartz-diorite (Adamson, 1965).

As a result of the disappointing 1965 program, no further work was proposed and the claims were allowed to lapse.

1968: The property was re-staked as the Ink claims, acquired by Montana Mines and optioned to American Uranium Ltd.

1969: Between June 28 and August 29, Cordilleran Engineering Limited on behalf of American Uranium Ltd., carried out geological mapping, stream sediment and soil sampling, ground magnetometer surveys and completed 22 hand trenches and 500 metres of sampling in 30 sample locations (Appendices E2a, F1, H). No further work was recommended following completion of the program and the claims were allowed to lapse in 1970 (Sanguinetti, 1969). A total of $25,827 was spent in the 1969 program which also covered exploration on the Lin claims situated about 3 kilometres to the northeast, site of the Cirque deposit explored by Julian Mining Company Ltd. in 1964-65 (former Kay claims).

1974: Barry Watson staked the showings covered by the former Ink claims but the claims were allowed to lapse.

1981: J.R. Woodcock acquired the Daisy claims which were staked to cover the intrusive complex that hosts the vein zones and in 1981 he did minor rock sampling and stream sediment sampling. Total cost of the 1981 program was $6,216 (Woodcock, 1982).

1982: A 100% interest in the Daisy claims was purchased by Inland Recovery Group Ltd. of Vancouver.

1983: Between July 12 and August 2 a four-person field crew supervised by Mr. J. Douglas Blanchflower, geologically mapped the central part of the claim group, established a blazed and flagged grid over the mineralized breccia zone, conducted a variable VLF-EM survey over the grid and collected 438 soil, 37 silt and 21 rock samples which were analyzed for copper, zinc, silver and gold (Appendices E2, F2-F5, G). Total cost of the 1983 program was $42,974 (Wallis, 1983). Later in the year the Thorn 1-6 mineral claims were staked to provide protection to the south, west and north (the Outlaw 1 and 4 claims bounded the group to the east).

1986: A program of detailed geological mapping (1:1,000) was completed by D. Nowak and M. Boldt under the supervision of J.R. Woodcock and 688 metres of diamond drilling was completed in eight holes in portions of the Main, East and East Extension zones (Julian Zone B). The best intercept (Hole 6) was 2.58 metres averaging 3.78% copper, 152.6 grams silver/metric ton and 1.95 grams gold/metric ton (Appendices E3, E7-E11, I).

REGIONAL GEOLOGY

Regional maps and reports by Kerr (1930, 1932) and Souther (1958, 1960) provide comprehensive descriptions of geology and structure (Appendix C).

The Trapper Lake area lies within the eastern margin of the Coast Plutonic Complex and flanking variably deformed volcanic and sedimentary strata which range in age from Permian to recent and comprise the western margin of the Intermontane Belt which hosts most of the known lode and placer gold deposits in the Cordillera.

The area is underlain principally by pre-Upper Triassic Stikine Terrane comprising sedimentary and volcanic rocks and their metamorphosed equivalents, Upper Triassic intermediate volcanic rocks of the Stuhini Group, and Lower to Middle Jurassic sedimentary rocks of the Takwahoni Formation (Souther, 1971). A small granodiorite stock, probably of Late Jurassic age, intrudes these units locally. The youngest rocks

in the area are gently inclined felsic volcanics and volcaniclastic rocks, their intrusive equivalents and dykes of the Sloko Group of Cretaceous and Tertiary age.

In the Taku River region the intrusive stocks of the Sloko Group frequently represent centres of extensive pyritization associated with base and precious metal mineralization. An intrusive complex centered on the Thorn property hosts similar mineralization.

Major folds are common in all rocks of Jurassic and older age. The Triassic-Jurassic sedimentary rocks usually exhibit northwest trending axial planes probably related to overthrusting from the northeast along the King Salmon Fault (Walton, 1987).

Major faults in the district strike mainly northwest. A pronounced northeast trending lineament occurs in all pre-Miocene stratigraphic packages (Walton, 1987).

Pre-Upper Triassic rocks have undergone regional greenschist facies metamorphism and local areas of amphibolite-migmatite rock are associated with diorite intrusions (Souther, 1971).

Hydrothermal alteration occurs on a regional scale with altered zones consisting of 50-90% carbonate, 10-40% silica and about 5% pyrite.

PROPERTY GEOLOGY

Pre-Upper Triassic sedimentary rocks and their metamorphosed equivalents comprising siltstone, limestone and chert on the property strike easterly and dip moderately to steeply north as mapped along Drill Creek on the south side of the intrusive complex.

Volcanic rocks of the Stuhini Group are exposed at intervals along the southwest side of Lajaune Creek and east of the intrusion on Camp Creek (Appendices E1, E2, E2a, E4). They consist of porphyritic andesite and tuff. Attitudes are unknown. Rhyolitic volcanic rocks of the Sloko Group occur in the northeastern part of the property above Camp Creek (Woodcock, 1986).

The intrusive complex on the Thorn property is somewhat elliptical in plan, being approximately 1,830 metres in length and 1,340 metres maximum along its short axis. Trending northwesterly along the axis of Lajaune Creek, it has been exposed by the erosion of Lajaune and Camp Creek canyons. Several smaller satellite bodies occur along Lajaune Creek to the northwest of the main intrusive body. Centered at the junction of Camp and Lajaune creeks, the complex is apparently cored by quartz feldspar porphyry which has abundant phenocrysts. Rounded quartz phenocrysts are very prominent. Plagioclase porphyry with less plentiful quartz phenocrysts also occurs. Finer-grained acidic rocks (felsites), apparently related to the porphyry, are also present. A breccia of unknown origin, but possibly related to the intrusion, occurs on Camp Creek. The intrusive complex appears to have intruded the contact between a metasedimentary-volcanic unit and an intermediate volcanic units (Woodcock, 1986).

In 1986 a stadia and transit base map was made and detailed geological mapping was done on a scale of 1:1,000. The stock was divided into feldspar-quartz porphyry with a northwest contact zone of a finer-grained porphyry and fewer quartz phenocrysts. Several basic dykes were also mapped cutting the porphyry and also occurring along the west contact of the stock.

Erosion surfaces, some recent and some possible pre-Pleistocene, are marked by ferricrete-conglomerate in which boulders of a number of rock types including glacial erratics are cemented by limonite and finer soil debris. Such conglomerates are conspicuous near the confluence of Camp and Lajaune creeks and also occur at higher elevations. They may be overlain by glacial outwash gravels locally (Woodcock, 1986).

MINERALIZATION

Pyrite mineralization occurs extensively and erratically throughout the intrusive complex. Some pyrite mineralization, more massive in texture, occurs along shear zones in the intrusion, frequently associated with enargite, tetrahedrite and stibnite. Numerous mineralized occurrences lie within and peripheral to the stock. By 1964 17 separate occurrences of mineralized float or outcrop had been reported following prospecting by Julian Mining Company Ltd. These were recognized as being of three distinct types by Adamson (1964):

(1) Structurally controlled chalcopyrite-pyrite-quartz replacement with moderate wallrock alteration normally reflected by pyritization and exemplified by Zones A, E and perhaps J.

(2) Low temperature quartz veins containing pyrite, tetrahedrite and enargite with stibnite, luzonite-famatinite, and minor arsenopyrite. Zones B, D, F, K and I are representative of this type and often carry appreciable gold values. Significantly this mineralization type is generally confined to the quartz feldspar porphyry intrusion. Wallrock alteration associated with veins in relatively intense and consists of clay minerals, sericite and pyrite enveloping the quartz veins and narrow sulphide stringers and pods.

(3) Zones of relatively widespread mineralization of low grade disseminated pyrite. Significantly, this type of mineralization lacks pyrite and related alteration. The Cirque and P zones are characteristic types.

The latest exploration work (Woodcock, 1987) was concentrated on targets related to type (2) above, i.e., low temperature quartz veins which appear to have the greatest economic potential based on exploration completed to date (Appendices E2a, E7-E11, I).

The following section of Mr. Woodcock's 1987 report is abstracted with minor modifications, i.e., conversion of assays to metric equivalents and addition of plate numbers and references where appropriate. Names of zones used by Mr. Woodcock also include the zone designation used by Adamson (1964) in parentheses.

Camp Creek Vein Zones (F, M)

A prominent, northeasterly striking siliceous vein zone outcrops along the northern wall of Camp Creek (Appendix E3). The vein zone extends in discontinuous fashion for the full width of the intrusive complex. The overall width of the vein is in the order of 60 metres. Parallel but shorter and narrower zones occur on the south side of Camp Creek. Hydrothermal alteration, visible

as limonitic staining, silicification, and general bleaching of the intrusion envelopes all zones.

Within the main zone at least two parallel bands of discontinuous sulphides are evident. These bands, which vary from one to ten metres in width, comprise irregular pods of pyrite and tetrahedrite with lesser amounts of enargite and stibnite. Gold and silver values range up to 6.9 grams gold/metric ton and 336.1 grams silver/metric ton. Generally, average values are low and mineralization lacks continuity.

The Drill Creek Zone (A)

Mineralization consisting of chalcopyrite, galena, pyrite, calcite, barite, and quartz occurs in brecciated rhyolites within andesitic volcanic rocks at the southeastern end of the intrusion (Zone A). The andesitic wallrocks are generally pyritic for some distance beyond the base metal mineralization/

In 1965 the zone was geophysically surveyed (IP) and tested by drilling fourX-ray holes (179 metres). Mineralized outcrops were initially sampled in 1963 by drilling four Pack Sack drill holes (79 metres). The zone was not investigated further as the mineralization appeared to be discontinuous and low grade (Appendices E12, E13).

East Zone (B)

In the 1986 mapping the East Zone was divided into the East Zone and the East Extension (Appendix E3). The East Zone consists of a number of parallel silicified vertical structures that occur within the altered porphyry over a maximum width of 30 metres. The East Extension Zone lies 200 metres east of the East Zone and may be the same zone offset by a fault. It consists of some silicified and mineralized rock in one exposure on the steep hill slope and numerous large boulders of mineralized float in the gully 20 metres to the south.

The silicified structures at the main East Zone include layers of up to 6 metres wide that consist of almost pure quartz with large pockets of pyrite. The drill core indicates that minor enargite or tetrahedrite occur with the pyrite. The zone strikes about 70° azimuth and can be traced along the hillside for 1,200 metres possibly with some small offsets.

not accessible - App. E-3

In 1986 three drill holes were placed across the widest part of the zone from one site. Hole No. 3 (Appendix E8) strikes 137° at azimuth and dips 45°. In addition to a number of small silicified and quartz stringers, this hole intersected a 6-metre wide breccia zone of silicification and pyritization. The best intersection in this hole had a length of 10.29 metres containing 35.3 grams silver/metric ton and 2.749 grams gold/metric ton. Hole No. 4, drilled at a 60° angle under Hole No. 3, did not intersect the silicified zone indicating that it is faulted off at a shallow depth. The best intersection obtained was 0.54 metres containing 67.9 grams silver/metric ton and 2.19 grams gold/metric ton. Hole No. 5 (Appendix E9), drilled southeasterly, again intersected the silica zone with lithology similar to that in Hole No. 3. The best value obtained in this hole was 5.44 metres with 19.9 grams silver/metric ton and 1.61 grams gold/metric ton.

The East Extension Zone (B)

At the East Extension Zone a silicified outcrop on the hill slope was trenched and sampled by Cordilleran in 1969 and returned 8.57 grams gold/metric ton, 312.1 grams silver/metric ton and 0.3% copper across 3.6 metres (Appendix E2a). Six character samples taken in 1963 from the mineralized float of tis zone averaged 6.93 grams gold/metric ton, 0.34 grams silver/metric ton and 1.2% copper. In 1986 grab samples were taken from the large pieces of oxidized and mineralized boulders in the bed of the gully and these had values up to 1,440 grams silver/metric ton, 13.8 grams gold/metric ton and but no copper. The boulders are highly oxidized; the effects of supergene enrichment are unknown.

In 1964 one short drill hole was spotted to intersect the extension of the outcropping quartz vein in the hope of encountering the source of the mineralized boulders. However, no mineralization was intersected in the drill hole.

In 1986 two short holes were collared on the pad placed over the mineralized float in the gully (Appendix E7). These short holes intersected fault zones containing pyrite and some chalcopyrite but no silicification. However, projected up dip, this zone would intersect the mineralized exposure. The mineralogy of the exposure with its silica and arsenopyrite differs sharply from that of the intersections in the two drill holes. Whether the type of mineralization has changed drastically down dip from the surface exposure in a distance of less than 50 metres or whether the zone intersected in the drill hole is different from that exposed on the slope uphill is not known.

The Main Target (B)

In 1964 prospecting on the southwest side of Lajaune Creek, on strike with Zone B, led to the discovery of massive sulphide boulders. Mineralization consisted of pyrite with appreciable tetrahedrite and enargite. A grab sample assayed 8.45% copper, 21.95 grams gold/metric ton and 310.7 grams silver/metric tons. These boulders occurred in slide debris; their source was the overburden area in or above the slide. Some hand stripping was done but the source of the sulphide float was not found (Wallis, 1983).

The mapping and prospecting by Blanchflower in 1983 (Wallis, 1983) led to the discovery of exposures along the southwest side of the stock which could be the source of the float. A fairly recent slide has exposed a seven-metre wide zone which contains en-echelon veins of tetrahedrite, enargite, and pyrite with individual veins ranging in width from one to 15 centimetres. A chip sample taken across one metre of this zone cut five of the veinlets and assayed 2.02 gms gold/metric ton, 165.3 gms silver/metric ton, and 4.75% Cu.

Sampling of selected lenses within this mineralized exposure by Dave Nowak in 1986 returned very high silver and copper values across very narrow lenses. Although a number of these enargite-tetrahedrite lenses occur within the exposure, the overall grade would be low.

In 1986, a hole was collared on the ridge to the southeast of the mineralized exposure and directed underneath this outcrop (Appendix E10). Below the outcrop there was very little mineralization however, near the end of the hole and at the contact of a bounding dike on the west, some pyrite-enargite mineralization forms a stronger zone. The best value in Hole No. 6 was 2.58 metres with 3.78% Cu, 1.95 gms gold/metric ton, and 152.6 gms silver/metric ton.

A hole (DDH #7) as also directed to the southeast of this pad (Appendix E11) into an area of few exposures and unknown geology but the source of some float in gullies down slope. Near the collar this hole intersected some tetrahedrite-pyrite; however, most of the hole cut barren porphyry. A short hole (DDH #8) was therefore drilled from the same collar. The highest value in Hole #7 was 0.6 metres with 5.74% copper, 4.11 grams gold/metric ton and 246.2 grams silver/metric ton. The second hole (#8) encountered 2.2 metres containing 1.38% copper, 1.41 grams gold/metric ton and 120.0 grams silver/metric ton.

The results of 1986 higher grade drill intercepts reported above from the low temperature quartz veins indicate the following average ratios for the mineralization encountered:

Zone	Gold	Silver	Copper
East Zone	1	19	Not appreciable
East Extension	1	104	Low
Main Target	1	75	1% Cu/48 gms Ag

EL INDIO MODEL

In his conclusions, Mr. Woodcock (1986) makes reference to the similar geologic setting of the Thorn property mineralization and that described (Sillitoe, 1983 and Walthier et al, 1985) for the El Indio gold-silver-copper deposit in Chile and enargite-bearing massive sulphide deposits in porphyry copper systems. The ratio shown above for the Main Target Zone are not dissimilar from those quoted in proven and probable reserves at the El Indio mine as of October 31, 1984, being 5 million metric tons averaging 5% copper, 10.3 grams gold/metric ton and 116.6 grams silver/metric ton.

As noted below, the geologic settings of the Thorn property and the El Indio mine are remarkably similar.

El Indio's regional structural setting is dominated by acid volcanic to subvolcanic rocks of Tertiary age in contact by a major (150 kilometres) north-south reverse fault system with Permian-Triassic sedimentary rocks.

The ore is in a complex vein system, generally oriented northeast, cutting volcanic and subvolcanic dacites and quartz dacites within a caldera. Faults were active before, during and after mineralization and were conduits for widespread alteration and localized ore deposition. At El Indio, alteration is predominantly quartz-sericite-alunite with more distant barite. Intrusive stocks in the area are generally granodiorites with phaneritic or porphyritic texture and locally contain disseminated chalcopyrite and molybdenite. It has been suggested (Walthier et al, 1985) that El Indio may be the upper volcanic portion of a mineralized system that will grade into a porphyritic stockwork, albeit not necessarily a commercial one.

Primary mineralization is of two types: (1) quartz veins with or without native gold and (2) massive enargite, pyrite and quartz veins or stockworks (both with and without precious metals). The largest quartz-gold veins are enclosed within quartz-sericite alteration and the largest massive sulphide veins generally occur with argillic alteration. Intense silicification appears to be essential for important gold deposition. Massive sulphide veins contain tennantite-tetrahedrite, sphalerite, galena, covellite and digenite with increasing depth. Average grades for the massive sulphide veins are 6-10% copper, 8-10 grams gold/metric ton and 160 grams silver/metric ton. Ore shoots have been developed on these veins up to 170 metres in strike length, for 230 metres in vertical extent and for widths of over 10 metres.

Quartz veins are important for their high gold values, but they also contain important grades in silver and copper. The average width is about 2 metres and strike lengths and vertical extent are similar to those for massive sulphide veins.

St. Joe Minerals Corporation (now Bond Gold Inc.) has intensely explored the 150-kilometre strike length of the major fault system containing the El Indio deposits since 1975.

At El Indio, principal exploration methods used in defining target areas of potential interest have included geochemical sampling of talus fines, prospecting for mineralized vein float material, trenching anomalous areas and sampling. Geophysical surveys have assisted but have not been dominant. Any mineralized veins located ranging from 5-30 centimetres in width have been drilled, recognizing the characteristic pinch-and-swell nature of veins. Drifting on even the narrowest mineralized veins is undertaken recognizing that the 3,500 Ore Shoot, a drill target, was discovered following cross-cutting with negative results, returning to a mineralized fracture and drifting on the fracture for 100 metres to the discovery which contained 3,500 grams gold in the initial samples taken (T. Walthier, pers. comm.).

At June 30, 1988 El Indio reserves were 13.9 million metric tons grading 5.48 grams gold/metric ton. Of this amount, 4.5 million metric tons were heap-leachable with 9.3 million metric tons averaging 6.78 grams gold/metric ton. Direct smelting ore totalled 50,830 metric tons grading 184.8 grams gold/metric ton. Milled since June 30, 1988 were ores containing 6,842 kg gold (220,000 oz) which will have been more than replaced within the year ending June 30, 1989 by successful exploration.

During the period 1975-79, more than (U.S.) $10 million were expended in exploration prior to determination that a commercial ore deposit had been delineated at El Indio.

GEOPHYSICAL AND GEOCHEMICAL

As indicated under **History**, geophysical and geochemical surveys have been completed over parts of the property by various companies. Some of the later surveys covered earlier grids or areas, in part (Appendix D).

Geophysical Surveys

In 1964 a single line along Lajaune Creek valley was surveyed with Induced Polarization ("IP"). No details are available on the length or depth of spacing,

however, the survey reportedly defined an anomaly at the contact of the altered quartz feldspar porphyry intrusion and fresh andesites (Adamson, 1964).

In 1965, IP and ground magnetic surveys were completed over Zone A on 13 lines, 61 metres (200 feet) apart aggregating 3,246 metres (10,650 feet). An IP survey was carried out on Zone B (no details provided) and an IP survey was carried out on Zone E along the porphyry-volcanic contact to the northeast which failed to detect any additional signs of mineralization (Adamson, 1964).

In 1969, a magnetometer survey was conducted with a Sharpe MF-1 fluxgate magnetometer on grid lines covering part of a northwesterly oriented block centered on Camp Creek and extending northwest for about 900 metres northwesterly by 500 metres northeasterly (Appendix H). The survey defined several northeast trending magnetic high anomalies in the central part of the quartz feldspar porphyry intrusion attributed to more magnetic volcanic rock and a northwest trending magnetic low area believed to be associated with fault controlled altered porphyry near its contact (Sanguinetti, 1969).

In 1983, a VLF-EM survey was carried out over a similar area using Annapolis MD and Hawaii as transmitting stations. It was concluded that although cross-overs corresponded closely to geologic features (Wallis, 1983), many appear related to depressed areas and probably reflect topography (Woodcock, 1986). However, several of the creeks and depressed areas also coincide with fault zones.

Geochemical Surveys

As noted under **History**, follow-up of anomalous stream sediment sites indicated mineralized areas in 1959. Helicopter reconnaissance of the rugged area also revealed gossans related to mineralization.

In 1964, nine irregular soil sample lines were run for 250-375 metres northeast from Lajeune Creek, covering an area from 200-1,000 metres southeast of Camp Creek and three soil sample lines at intervals of 125-150 metres were run for 125-250 metres southwest from Lajeune Creek. Samples were collected at about 15-metre spacing.

Samples were analyzed for copper, lead, zinc, and total metals. Anomalous sample sites were defined, however, the extent of direct follow-up of these sites has not been documented in the 1964 report.

Anomalous 1964 sample sites were followed-up in several areas and additional soil sampling was completed particularly in the Zone A area. High lead geochemical values located in 1964 in the Zone C area were not followed-up in either year. Soil sampling completed in the West Zone area produced copper anomalies which were considered economically insignificant based on visible mineralization.

In 1969, a total of 68 stream sediment samples were collected on all accessible drainages on the Ink claim group, which covered most of the quartz feldspar porphyry area, excepting a northwesterly extension following the downstream portion of Lajeune Creek about 2 kilometres below the confluence with Camp Creek. The samples were analyzed for copper and six were rated as definitely anomalous and an additional 18 were above threshold level (Appendix F1). A total of 142 samples were collected along the same grid used for the magnetometer survey (see Geophysical Surveys). Eight soil samples were rated as definitely anomalous and two areas were above threshold level. Most of the anomalous stream sediment sites were attributed to chalcopyrite mineralization in volcanic rocks along the contact with quartz feldspar porphyry. Two soil anomalies coincide with areas of intense alteration and silicification in quartz feldspar porphyry containing known copper mineralization (Sanguinetti, 1969).

In 1981, J.R. Woodcock collected samples from eight sites draining southwesterly into Lajaune Creek and northwesterly into Camp Creek. Samples were analyzed for Pb, Zn, Cu, Ag, Au, Mn, F, As, Sb, Mo and W. The highest value obtained from this sampling was from a small creek draining northwesterly into Camp Creek near the eastern contact of the intrusive complex. Values included 312 ppm Pb, 5.6 ppm Ag, 1,760 ppm Zn, and 1,000 ppm As.

In 1983, a grid of southeast trending lines was established, most of which extended from 600 metres southeast of Camp Creek at 50-metre spacing on both sides of Lajaune Creek (Appendices F2-F5). A total of 435 samples were collected and analyzed for gold, silver, copper and zinc of which 97 showed anomalous gold values.

In addition, 37 stream sediment samples were collected and analyzed for gold, silver, copper and zinc and 19 were considered anomalous and eight others above threshold level. The anomalous samples coincided with a lightly silicified zone containing easterly trending quartz-pyrite breccia for a length of 600 metres and a width of 500 metres. The zone lies on the southwest side of Lajaune Creek opposite the mouth of Camp Creek and has been designated the Main Target area (Wallis, 1983). In addition, broad areas of silver, copper and zinc were defined on the northeast side of Lajaune Creek.

CONCLUSIONS

(1) Alteration and mineralization at the Thorn property are directly associated with an intrusive stock of quartz feldspar porphyry of Tertiary age localized within a northwesterly trending fault system and northeasterly trending cross-faults. Gold-silver-copper mineralization occurs within the intrusion and its margins, most importantly in low temperature quartz veins containing pyrite, tetrahedrite and enargite with stibnite, lazonite-famatinite and minor arsenopyrite.

(2) Most significantly, the geologic setting of the Thorn property is remarkably similar to that of the enargite model as exemplified by the El Indio gold-silver-copper deposit in Chile where high grade precious metal lodes are associated with structurally controlled quartz veins and zones of intense alteration.

(3) Since discovery of mineralized zones of potential economic interest in 1959 in this relatively remote and unexplored portion of British Columbia, about $500,000 is estimated to have been spent in exploration by at least three separate companies, a relatively modest expenditure considering the remoteness of the area, the time-span, and the exploration data achieved. Much of the earlier work was focused on the search for porphyry copper mineralization rather than structurally controlled veins in epithermal systems of the El Indio type.

(4) Exploration by all the companies has contributed to the current understanding of the economic potential of the property; however, much repetition of exploration survey data has resulted with no apparent attempt to provide an adequate

compilation with guides for future exploration in order to contain it within an optimum economic framework.

(5) Prior to considering further diamond drilling of potentially significant targets, which was so successful in the 1986 season, further work as elaborated under **Recommendations** should be completed.

RECOMMENDATIONS

(1) Prior to considering additional diamond drilling of potentially significant, but incompletely tested targets for gold-silver-copper mineralization, additional surface exploration is warranted within the entire area underlain by quartz feldspar porphyry intrusions.

(2) An adequate topographic map should be prepared.

(3) Complete soil/talus sampling with assays for gold, silver, copper and zinc should be extended to cover all the areas underlain by the quartz feldspar porphyry intrusion and within one kilometre of its contact in intruded rocks.

(4) Complete VLF-EM 16 and magnetometer surveys should be extended to cover all the areas described in (2) above.

(5) Trenching of any significant geochemical anomalies should be coordinated so as to take advantage of coincident geophysical data generated by the surveys.

(6) Complete geological mapping of available outcrops, newly trenched areas within the quartz feldspar porphyry intrusion and its intruded margins, with an emphasis on structure and alteration.

(7) Analyze all samples taken for copper, gold, silver, arsenic and antimony and ensure pulps and rejects are retained for a minimum of two years for other possible analytical requirements.

(8) Estimated cost of the above, excluding acquisition costs, is $70,000.

BUDGET ESTIMATE (Basis 2 Weeks)

Phase I

Mob/Demob			
Vancouver/Trapper Lake & Return			$ 4,000
Personnel			
Project Manager/Geologist (1)	$300/day	$ 4,600	
Geologist (1)	$350/day	4,900	
Assistants (4)	$200/day	11,200	20,700
Camp Equipment Rental	$150/day		2,100
Board			
Personnel (6) incl. fuel	$240/day		3,360
Misc. Supplies			2,000
Rentals/Communication			1,000
Base Map Preparation			2,500
Transportation			
Fixed Wing (1,500 mi @ $2.00/mi)		3,000	
Helicopter (10 hrs. @ $700/hr. with fuel)		7,000	10,000
Geophysical Equip. Rental	$250/day		3,500
Assays (250 @ $25/ea)			6,250
Expediting	$200/week		400
Report Writing			2,000
			57,810
Contingency			5,800
			63,610
Overhead			6,390
TOTAL			$ 70,000

Phase II

At this time any detailed budget estimate of a Phase II diamond drilling program required to investigate target areas resulting from the Phase I program is premature. A minimum of 1,000 metres of diamond drilling is expected to be supported by the Phase I work in investigating priority target areas. The overall cost of this work is estimated at $250,000 using for guidance historic drilling costs in the area by Chevron Minerals Limited.

Respectfully submitted,
BARRDA MINERALS INC.

Vancouver, B.C.
May 18, 1989

D.A. Barr, P.Eng.

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CERTIFICATE

I, David A. Barr, do hereby certify:

1. I am a Consulting Geological Engineer with offices at 315 - 409 Granville Street, Vancouver, British Columbia.

2. That I graduated in Mining Geology from the University of Toronto in 1950 with a Bachelor of Applied Science degree.

3. That I am a registered Professional Engineer in the Association in British Columbia.

4. That I have practised my profession for over 35 years.

5. That I have no direct, indirect or contingent interest in the mineral claims in Northern Gold Project properties, nor in the securities of Shannon Energy Ltd., or any of the companies that have underlying agreements with Shannon Energy Ltd. in the Trapper Lake area, nor do I intend to receive such interest.

6. That this report dated May 18, 1989 is based on a study of published and unpublished maps and reports and on discussions with engineers and geologists familiar with the related area. No on site examinations have been made of the property (although I have completed geological investigations in the general area in 1959) mostly because of the high quality of the data collected by various companies and individuals, as explained in the Introduction section of this report.

7. That I consent to the use of this report dated May 18, 1989 in a Prospectus or Statement of Material Facts or for other corporate purposes of Shannon Energy Ltd.

Vancouver, British Columbia
May 18, 1989

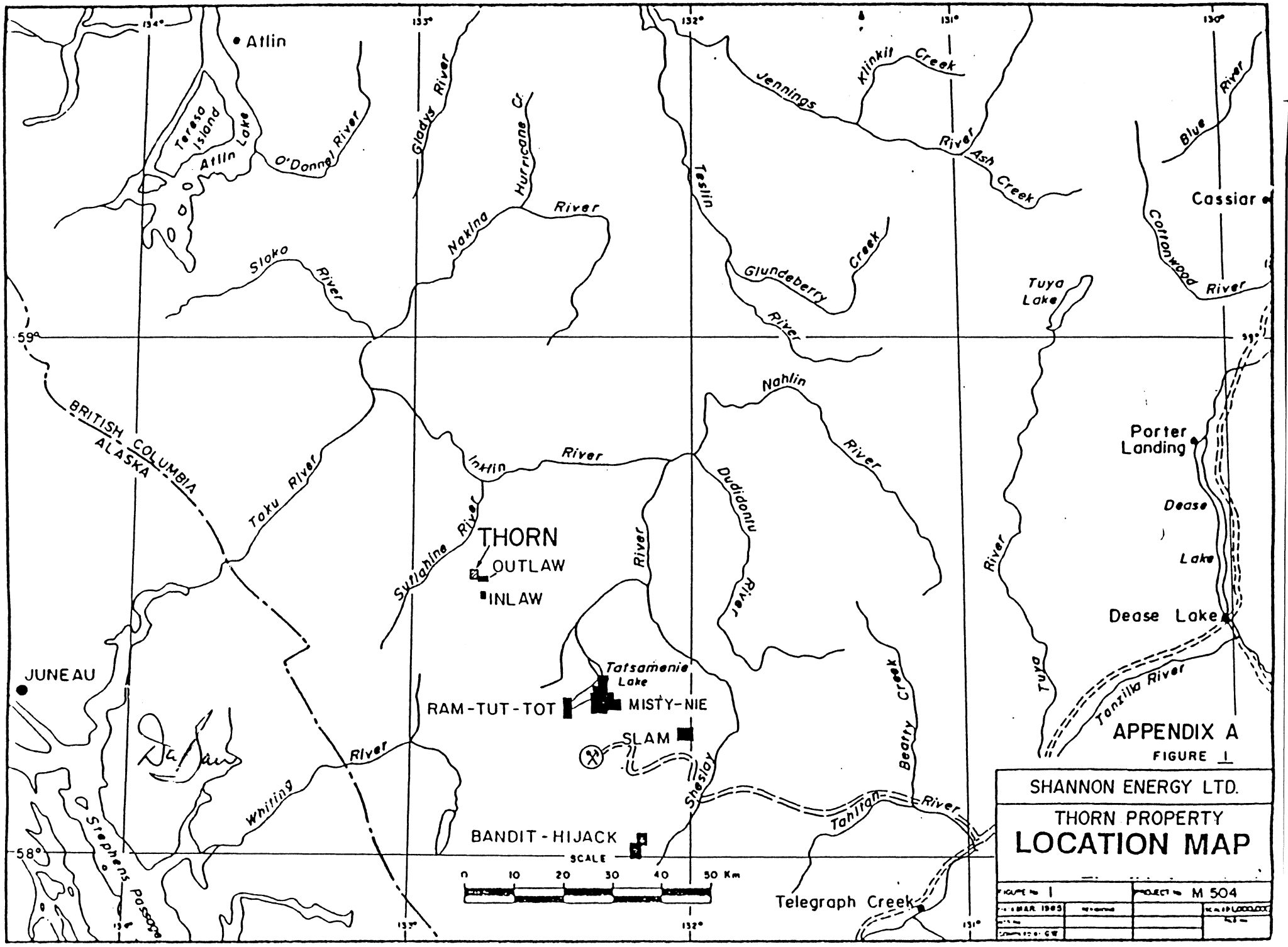
D.A. Barr, P.Eng.

APPENDIX I

THORN PROPERTY

1986 DRILLING PROGRAM

Hole No.		From (m)	To (m)	Core Length (m)	Cu (%)	Ag (oz/ton)	Au (oz/ton)	
East Extension Zone								
1		14.44	14.87	0.43	0.92	1.72	0.050	
2		15.98	18.09	2.11	0.16	0.64	0.014	
East Zone								
3		43.69	53.98	10.29	0.07	1.03	0.080	
4		30.20	30.74	0.54	0.04	1.98	0.064	
5		57.30	62.74	5.44	0.04	0.58	0.047	
Stringer Zone								
6		69.01	71.78	2.58	3.78	4.45	0.57	near stock contact
7		11.16	12.37	1.21	3.35	1.57	0.042	at collar
	and	104.33	110.29	5.96	1.34	1.25	0.033	
	which incl.	104.93	105.23	0.30	0.65	1.36	0.115	
	and	109.69	110.29	0.60	5.74	7.18	0.120	
8		13.30	15.50	2.20	1.38	3.50	0.041	near collar



APPENDIX A
FIGURE 1

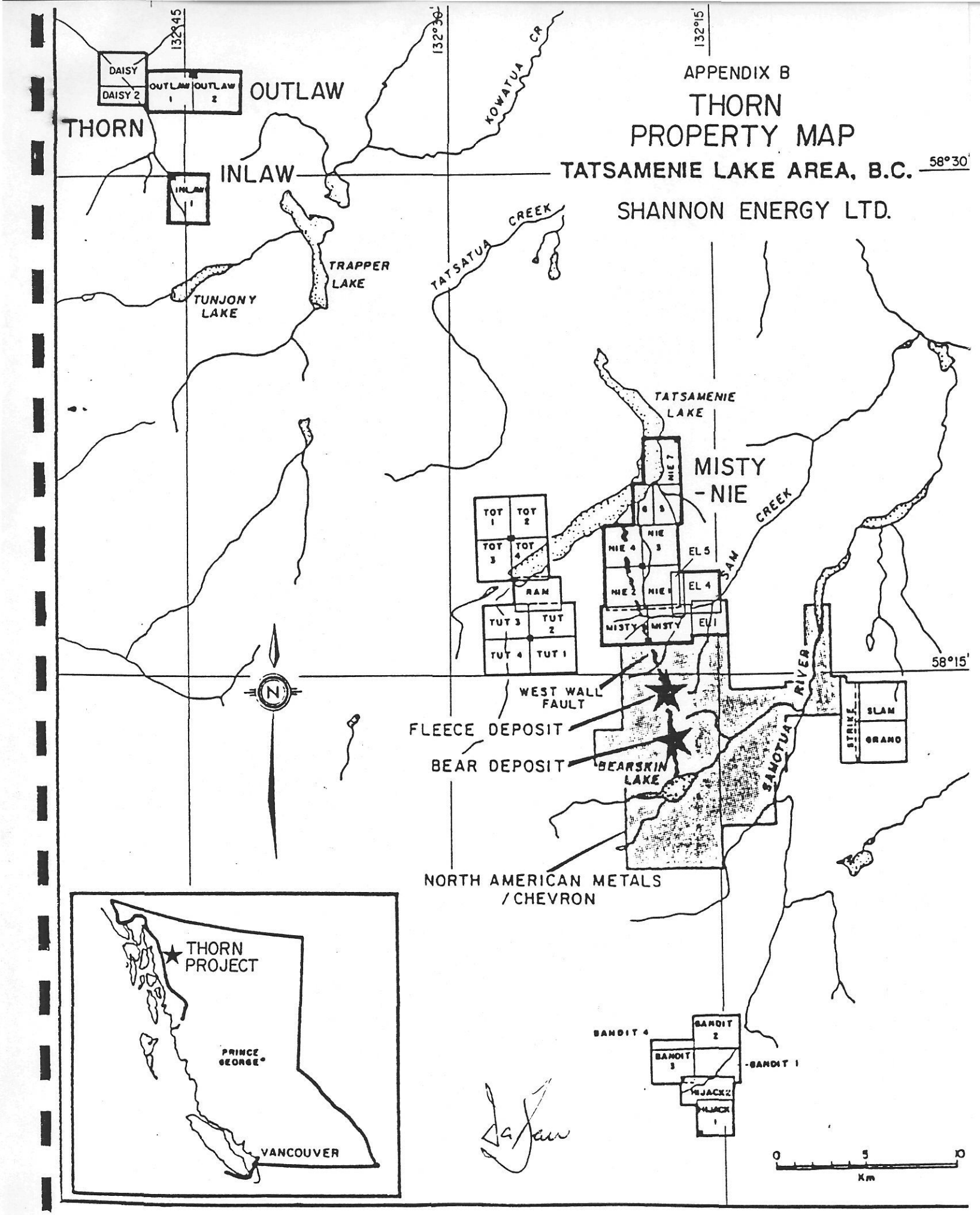
SHANNON ENERGY LTD.

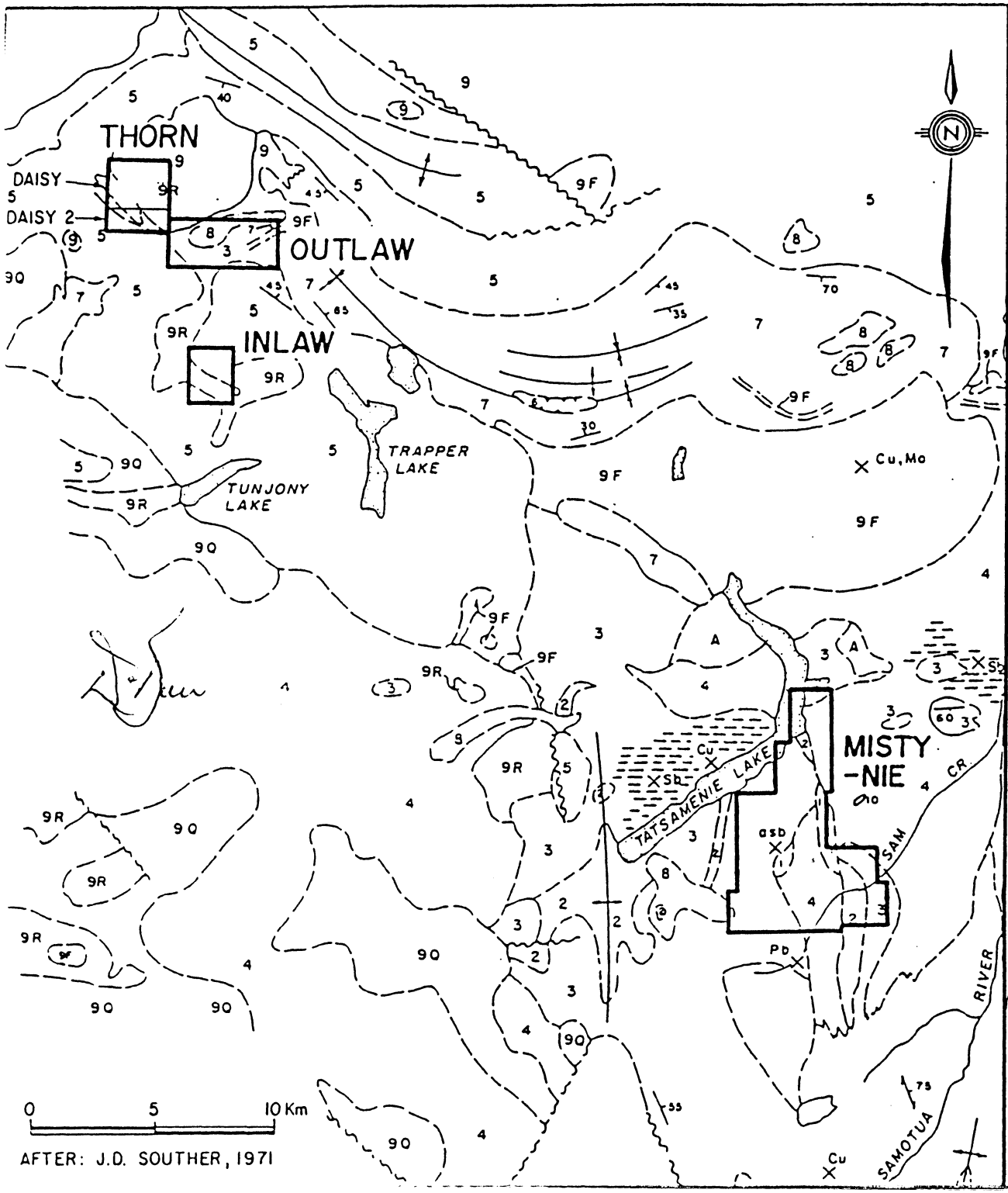
THORN PROPERTY

LOCATION MAP

FIGURE 1 PROJECT M 504

MAR 1989


APPENDIX B
THORN
PROPERTY MAP
TATSAMENIE LAKE AREA, B.C.
SHANNON ENERGY LTD.
132°45'
132°30'
132°15'
58°30'
58°15'
DAISY
DAISY 2
OUTLAW 1
OUTLAW 2
OUTLAW
THORN
INLAW
INLAW 1
KOWATUA CR
TATSATUA CREEK
TRAPPER LAKE
TUNJONY LAKE
TATSAMENIE LAKE
MISTY -NIE
NIE 7
NIE 5
NIE 4
NIE 3
NIE 2
NIE 1
EL 5
EL 4
EL 1
SAM CREEK
TOT 1
TOT 2
TOT 3
TOT 4
RAM
TUT 3
TUT 2
TUT 4
TUT 1
MISTY 4
MISTY 3
WEST WALL FAULT
FLEECE DEPOSIT
BEAR DEPOSIT
BEARSKIN LAKE
SAMOTUA RIVER
STRIKE
SLAM
GRAND
NORTH AMERICAN METALS / CHEVRON
BANDIT 4
BANDIT 2
BANDIT 3
BANDIT 1
MJACK 2
MJACK 1
THORN PROJECT
PRINCE GEORGE
VANCOUVER
0
5
10
Km



LEGEND:

LATE TERTIARY

10 LEVEL MOUNTAIN GROUP-

CRETACEOUS and TERTIARY

SLOKO GROUP - Felsic volcanic flows, intrusives and pyroclastics

90 Quartz monzonite

9F Felsite

9R Rhyolite

UPPER JURASSIC

8 Diorite granodiorite

JURASSIC

LABERGE GROUP

7 TAKWAHONI FORMATION - Conglomerate, sandstone

UPPER TRIASSIC

6 SINWA FORMATION - Limestone, clastics, chert

5 STUHINI GROUP - Volcanic and sedimentary rocks

TRIASSIC

4 Granodiorite, quartz diorite, foliated diorite

PRE-UPPER TRIASSIC

3 Sedimentary and volcanic rocks

PERMIAN

2 Limestone, dolomitic limestone, chert

1 Serpentinite, peridotite

A Diorite gneiss; age unknown

GEOLOGICAL BOUNDARY (defined, approximate)

BEDDING (inclined, vertical, horizontal)

FAULT (defined, approximate)

THRUST FAULT (defined, approximate)

MAJOR DYKE SWARM

ANTICLINE (arrow indicates plunge)

SYNCLINE

ZONE OF HYDROTHERMAL ALTERATION SILICIFICATION AND PYRITIZATION

× MINERAL OCCURRENCE

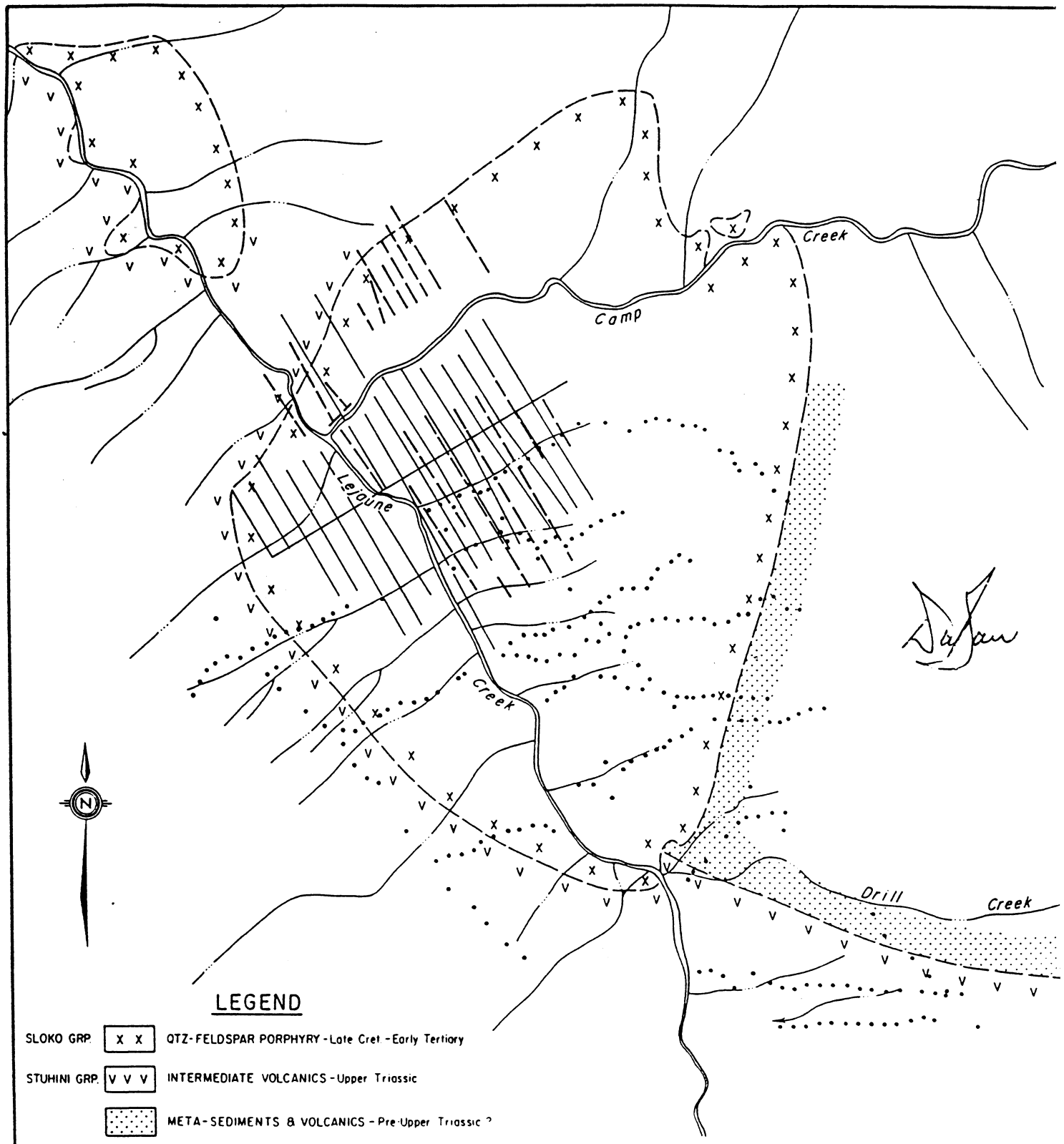
⚒ MINERAL PROPERTY

APPENDIX C

SHANNON ENERGY LTD.

REGIONAL GEOLOGY

TATSAMENIE LAKE-TRAPPER LAKE AREA



LEGEND

SLOKO GRP. X X QTZ-FELDSPAR PORPHYRY - Late Cret. - Early Tertiary

STUHINI GRP. V V V INTERMEDIATE VOLCANICS - Upper Triassic

META-SEDIMENTS & VOLCANICS - Pre-Upper Triassic ?

GRIDS

—— WALLIS (1983)

— — SANGUINETTI (1969)

····· ADAMSON (1964)

APPENDIX D

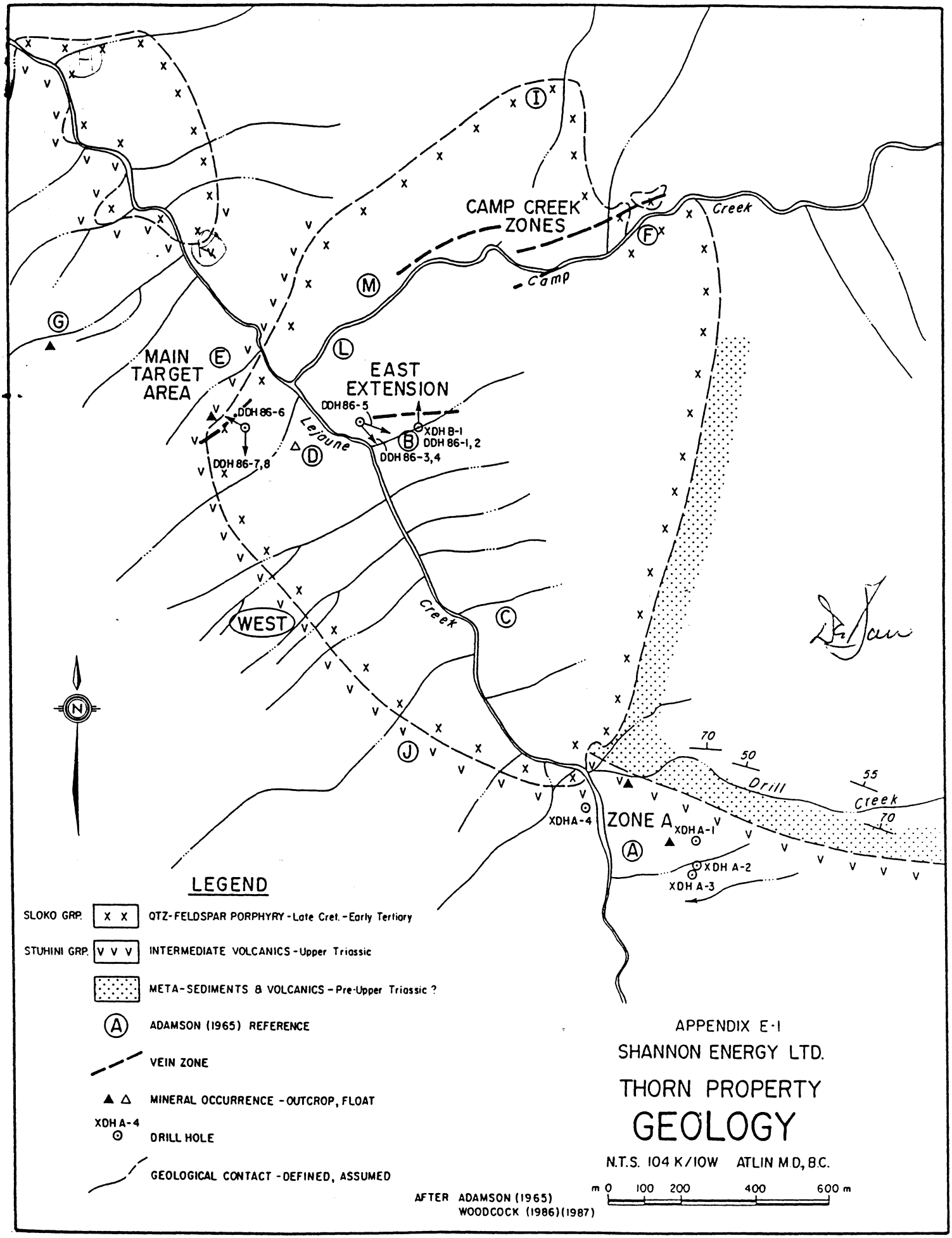
SHANNON ENERGY LTD.

THORN PROPERTY

MAP REFERENCES

N.T.S. 104 K/10W ATLIN M.D., B.C.

m 0 100 200 400 600 m



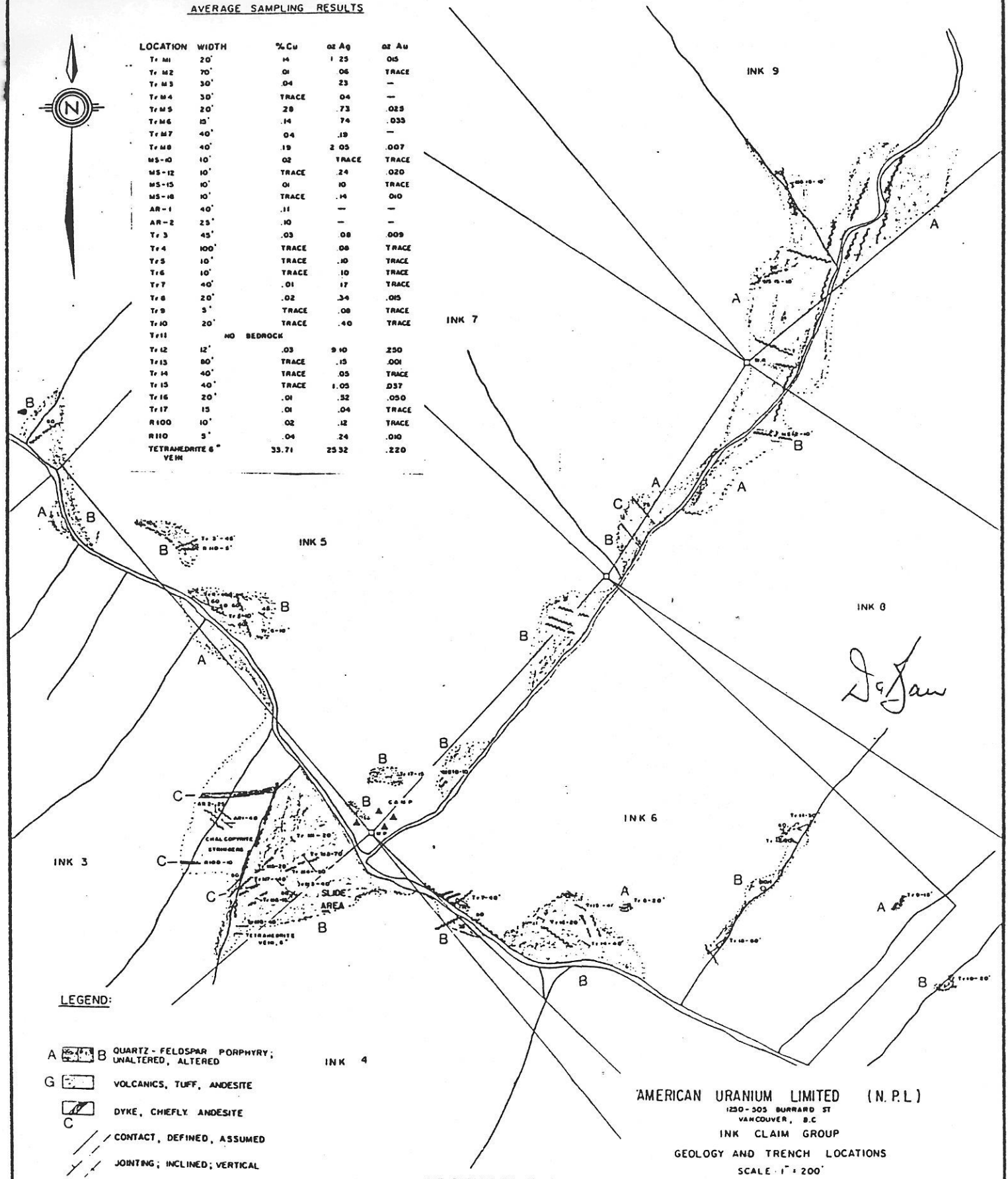
APPENDIX E-1

SHANNON ENERGY LTD.

THORN PROPERTY

GEOLOGY

N.T.S. 104 K/10W ATLIN M.D, B.C.



AMERICAN URANIUM LIMITED (N.P.L.)
1230-505 BURRARD ST
VANCOUVER, B.C

INK CLAIM GROUP

GEOLOGY AND TRENCH LOCATIONS

SCALE 1" = 200'

BY

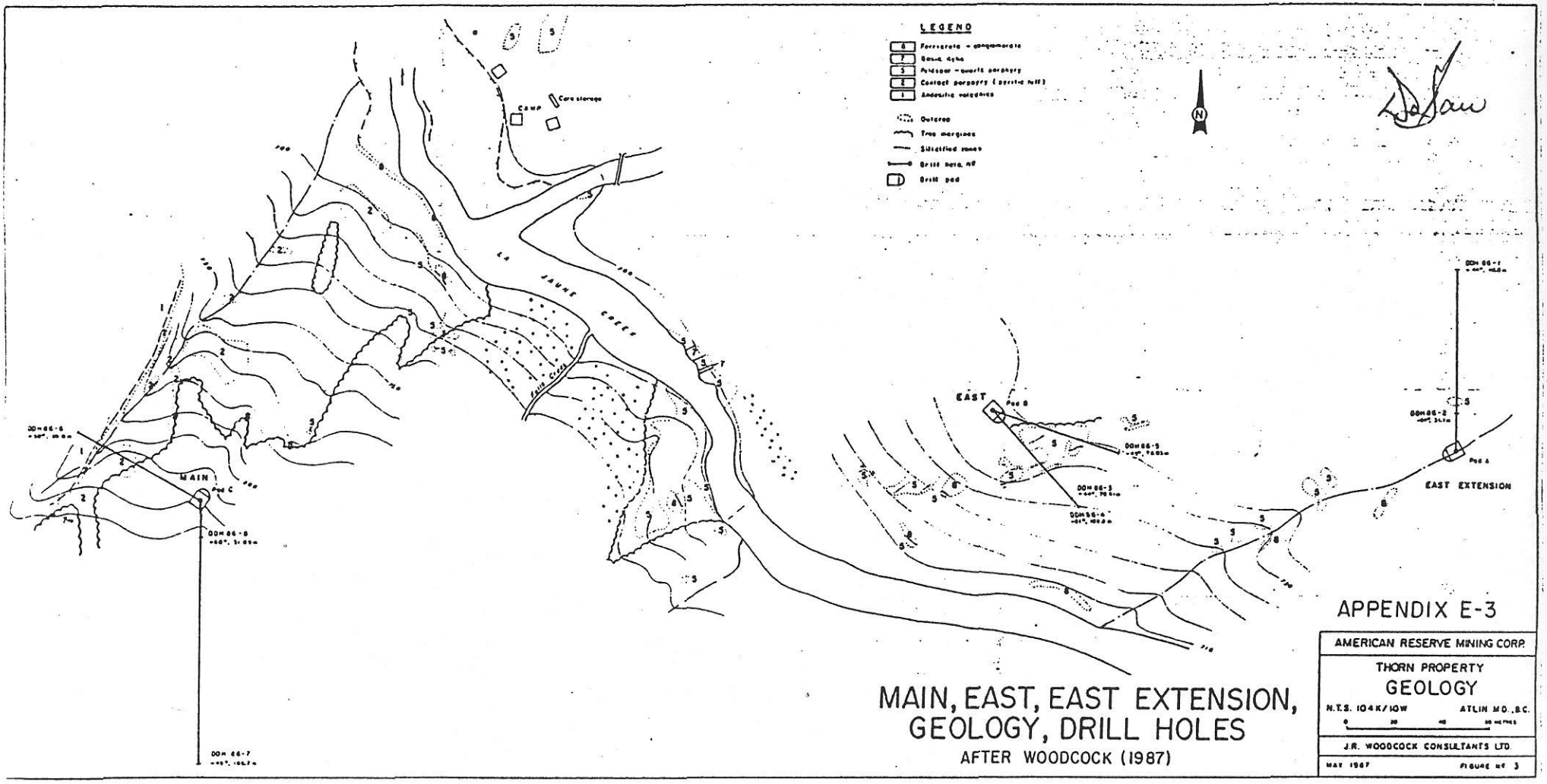
CORDILLERAN ENGINEERING LIMITED
1418-555 BURRARD ST.
VANCOUVER, B.C

APPENDIX E-2a

WEST CENTRAL AREA, GEOLOGY, TRENCH LOCATIONS & SAMPLING RESULTS (1969)

AFTER SANGUINETTI (1969)

FIGURE 4



APPENDIX E-3

MAIN, EAST, EAST EXTENSION, GEOLOGY, DRILL HOLES

AFTER WOODCOCK (1987)

AMERICAN RESERVE MINING CORP.

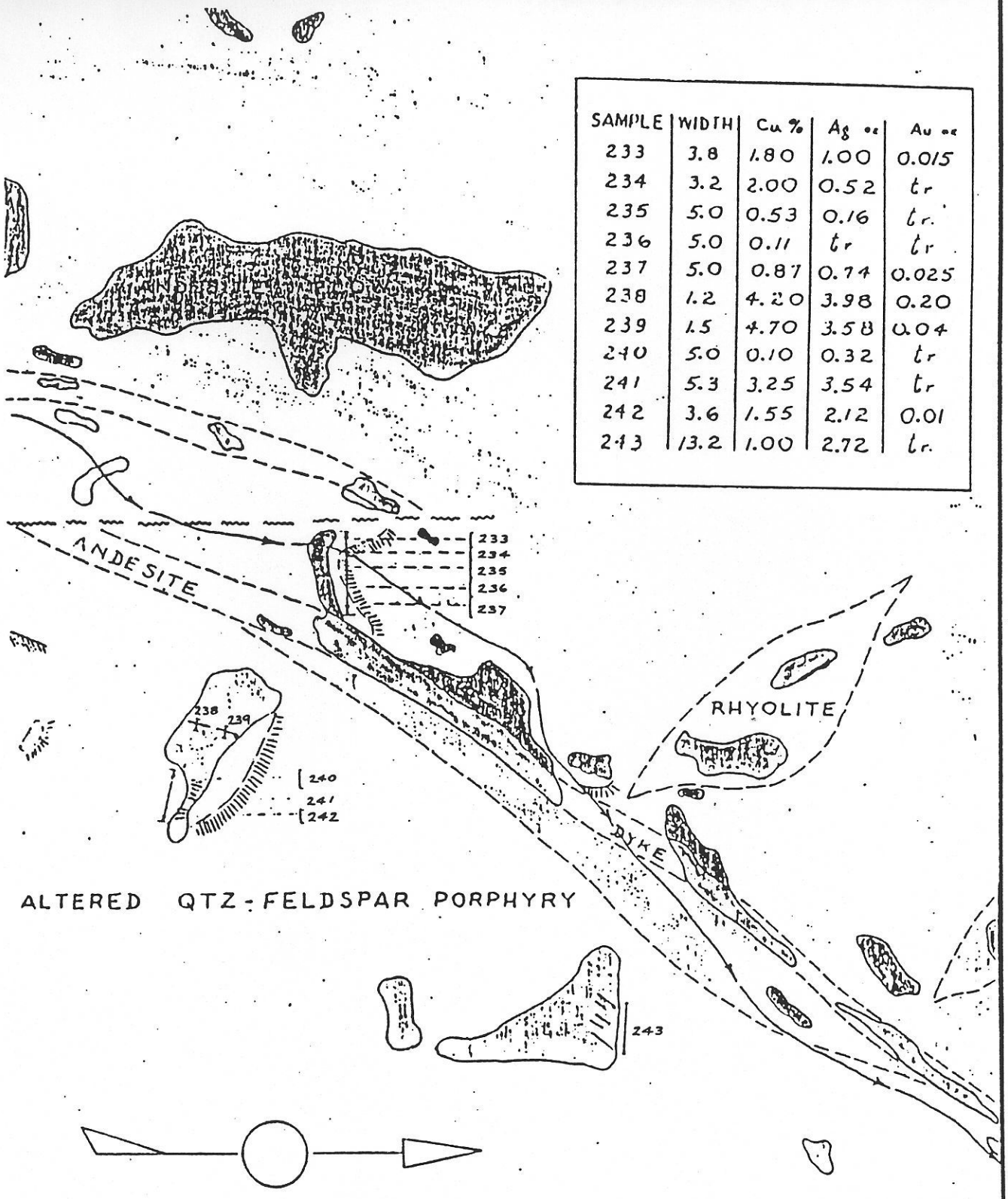
THORN PROPERTY

GEOLOGY

N.T.S. 104K/10W ATLIN M.D., B.C.

J.R. WOODCOCK CONSULTANTS LTD.

MAY 1987 FIGURE NO. 3



SAMPLE	WIDTH	Cu %	Ag oz	Au oz
233	3.8	1.80	1.00	0.015
234	3.2	2.00	0.52	tr
235	5.0	0.53	0.16	tr.
236	5.0	0.11	tr	tr
237	5.0	0.87	0.74	0.025
238	1.2	4.20	3.98	0.20
239	1.5	4.70	3.58	0.04
240	5.0	0.10	0.32	tr
241	5.3	3.25	3.54	tr
242	3.6	1.55	2.12	0.01
243	13.2	1.00	2.72	tr.

JULIAN MINING CO. LTD.

THORN PROJECT

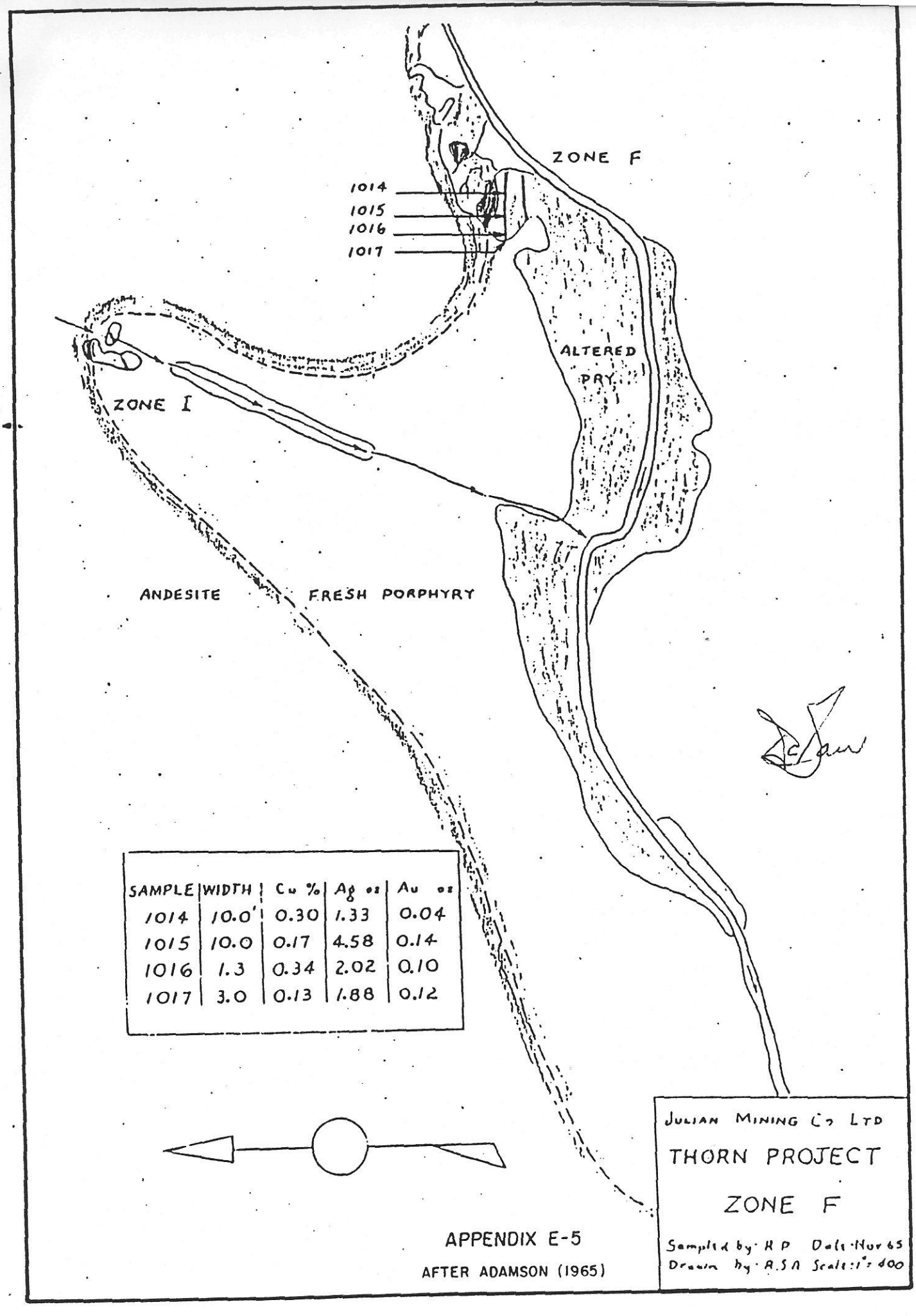
ZONE E

Mapped by: n.l Date: Nov 65

Drawn by: R.S.A Scale: 1" = 40'

APPENDIX E-4

AFTER ADAMSON (1965)



SAMPLE	WIDTH	Cu %	Ag oz	Au oz
1014	10.0'	0.30	1.33	0.04
1015	10.0	0.17	4.58	0.14
1016	1.3	0.34	2.02	0.10
1017	3.0	0.13	1.88	0.12

JULIAN MINING Co LTD

THORN PROJECT

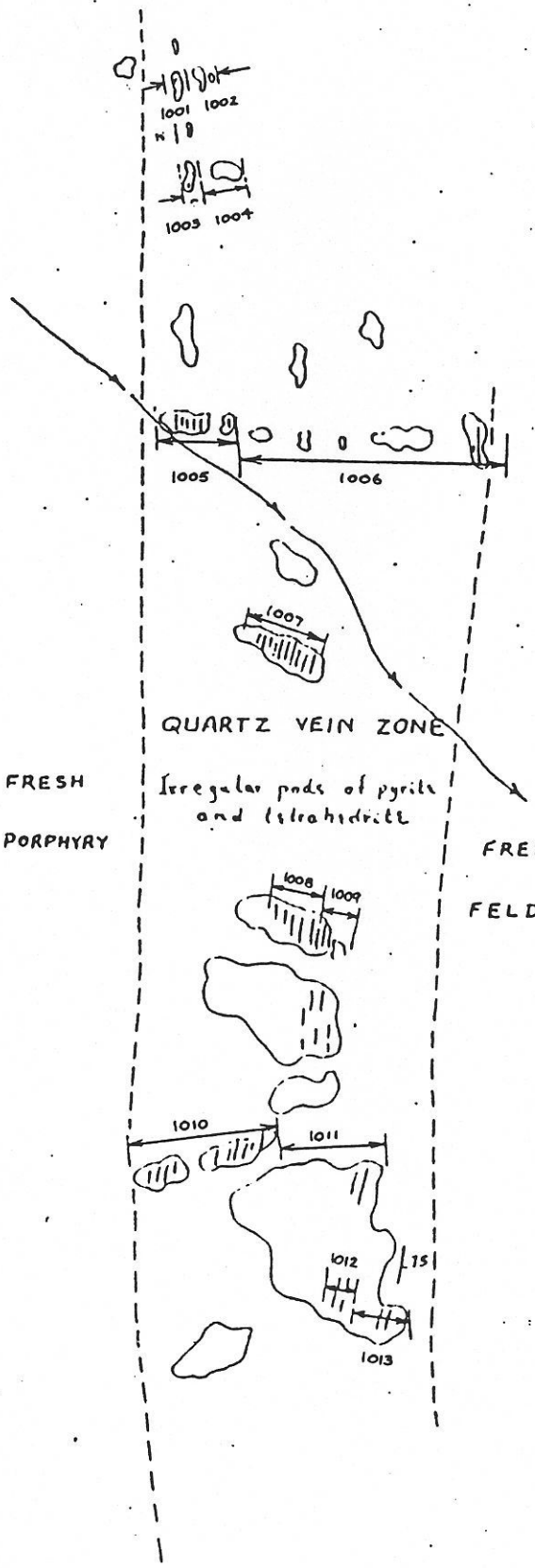
ZONE F

Sampled by: R P Date: Nov 65

Drawn by: R.S.A Scale: 1" = 400

APPENDIX E-5

AFTER ADAMSON (1965)



SAMPLE	WIDTH	Cu %	Ag oz	Au oz
1001	2.2'	0.2	6.38	0.20
1002	3.5'	0.06	1.28	tr
1003	2.0'	0.12	2.56	0.01
1004	3.2'	0.10	0.15	tr
1005	8.0'	0.06	0.50	0.02
1006	30.0'	0.06	1.12	tr.
1007	9.0'	0.02	0.32	tr
1008	6.0'	1.20	9.76	0.12
1009	5.0'	0.09	1.96	0.10
1010	20.0'	1.03	8.14	0.12
1011	12.0'	0.01	0.15	0.05
1012	3.0'	0.28	8.54	0.18
1013	7.0'	0.13	5.32	0.08

APPENDIX E-6

AFTER ADAMSON (1965)

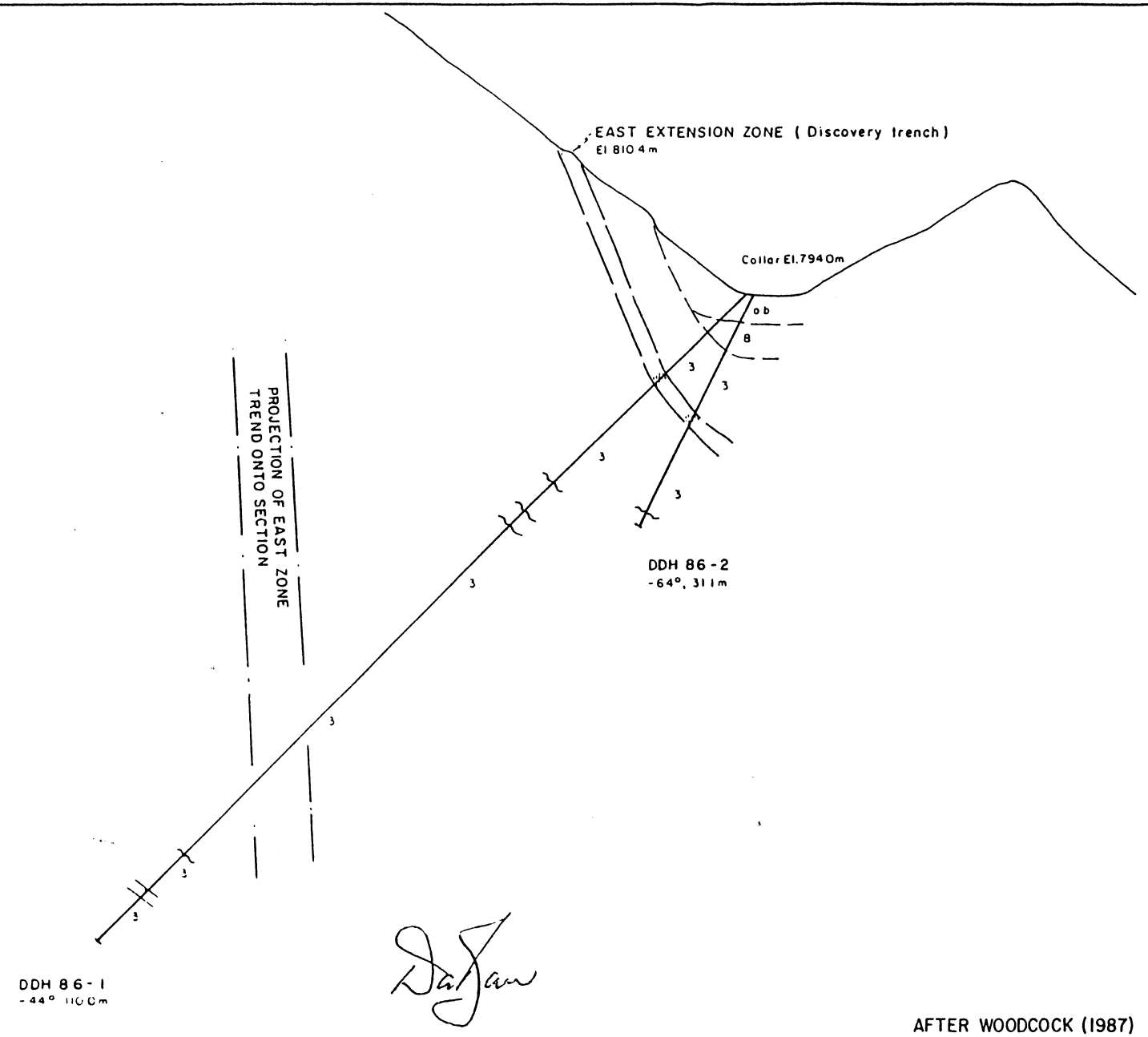
JULIAN MINING CO LTD

THORN PROJECT

ZONE I

Sampled by: R.I. Date: Nov 65

Drawn by: R.S.A Scale: 1"=20'



LEGEND

ob	Overburden
8	Ferricrete
7	Basic dykes
6	Green porphyry
5	Feldspar quartz porphyry
4	Feldspar porphyry
3	Feldspar - biotite porphyry
2	Contact porphyry or tuff
1	Andesitic volcanics
	Quartz sulphide veining
	Fault

Section along azmuth 000°, looking East

AFTER WOODCOCK (1987)

APPENDIX E-7

AMERICAN RESERVE MINING CORP.

THORN PROPERTY

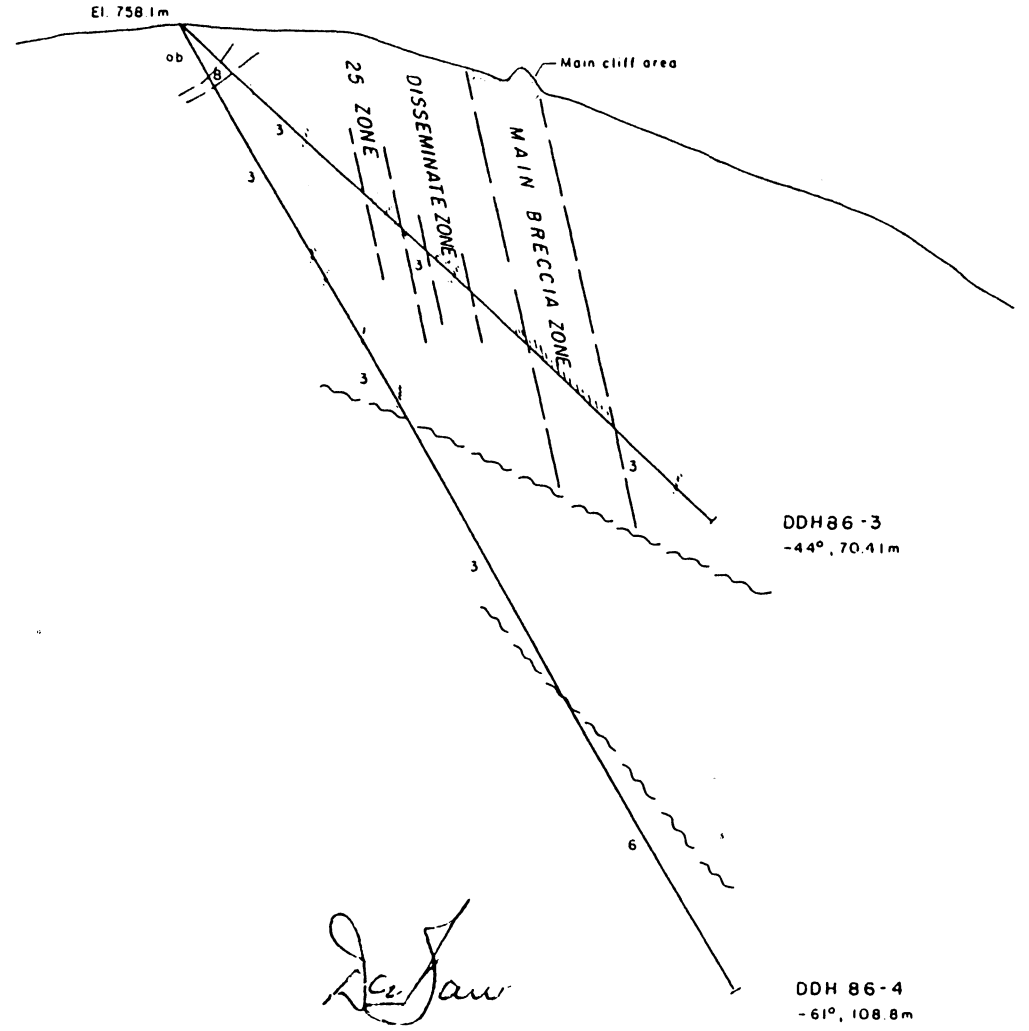
DIAMOND DRILL HOLE SECTION
DDH 86 - 1, 2

N.T.S. 104K/10W ATLIN M.D., B.C.

0 15 23 30 METRES

J. R. WOODCOCK CONSULTANTS LTD.

MAY 1987 FIGURE Nº 4



AFTER WOODCOCK (1987)

LEGEND

ob	Overburden
8	Ferricrete
7	Basic dykes
6	Green porphyry
5	Feldspar quartz porphyry
4	Feldspar porphyry
3	Feldspar - biotite porphyry
2	Contact porphyry or tuff
1	Andesitic volcanics
,,,,,,,	Tetrahedrite - pyrite
~~	Fault

Section along azmuth 138°, looking East

APPENDIX E-8

AMERICAN RESERVE MINING CORP.

THORN PROPERTY

DIAMOND DRILL HOLE SECTION

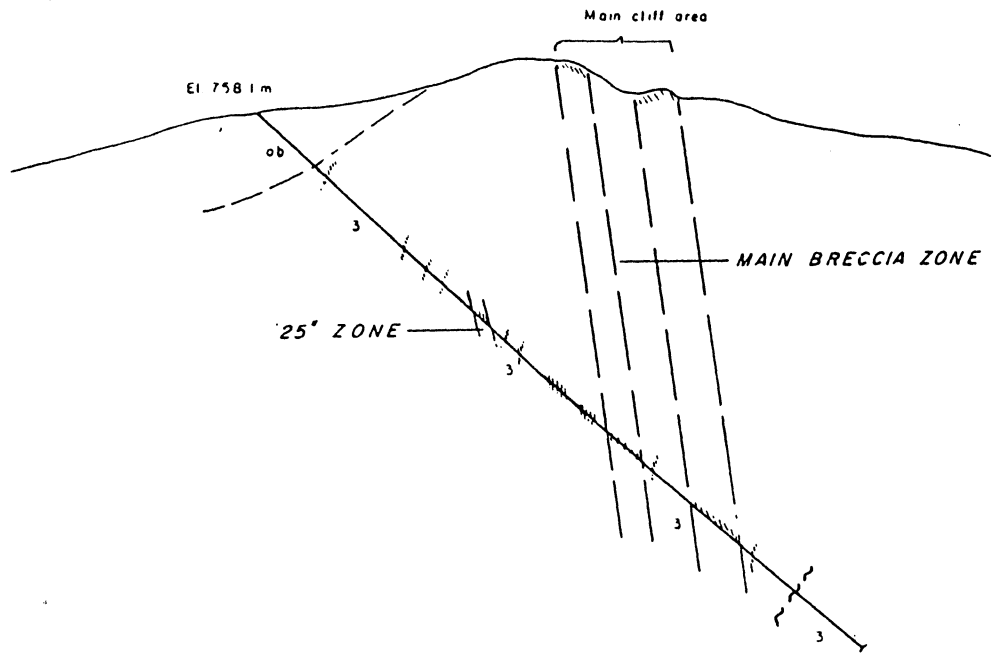
DDH 86 - 3,4

N.T.S. 104K/10W ATLIN M.D., B.C.

0 10 20 30METRES

J. R. WOODCOCK CONSULTANTS LTD.

MAY 1987 FIGURE Nº 5



LEGEND

ob	Overburden
8	Ferricrete
7	Basic dykes
6	Green porphyry
5	Feldspar quartz porphyry
4	Feldspar porphyry
3	Feldspar-biotite porphyry
2	Contact porphyry or tuff
1	Andesitic volcanics
	Silicified zone
	Fault

Section along azmuth 108 °, looking North

AFTER WOODCOCK (1987)

APPENDIX E-9

AMERICAN RESERVE MINING CORP.

THORN PROPERTY

DIAMOND DRILL HOLE SECTION

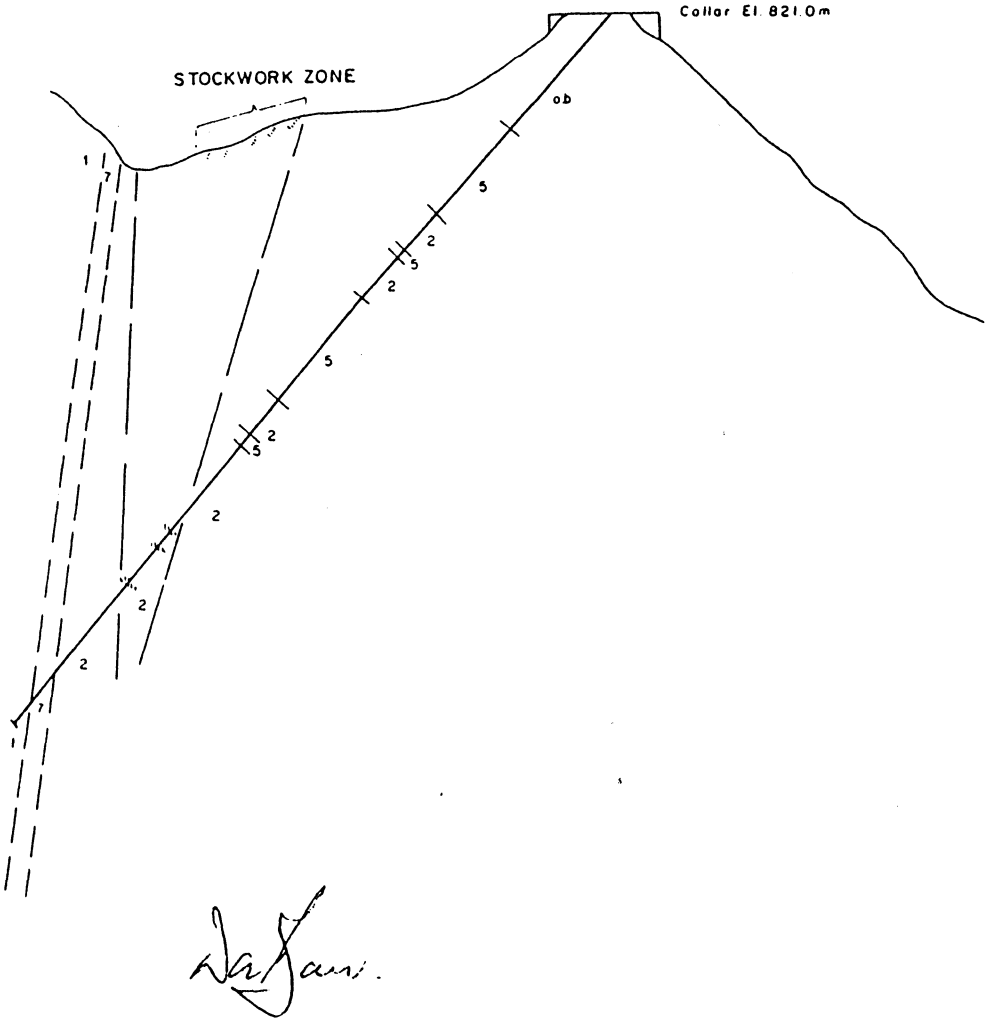
DDH 86 - 5

N.T.S. 104K/10W ATLIN M.D., B.C.

0 10 20 30 METRES

J.R. WOODCOCK CONSULTANTS LTD.

MAY 1987 FIGURE Nº 6



LEGEND

ob	Overburden
8	Ferricrete
7	Basic dykes
6	Green porphyry
5	Feldspar quartz porphyry
4	Feldspar porphyry
3	Feldspar - biotite porphyry
2	Contact porphyry or tuff
1	Andesitic volcanics
	Tetrahedrite - pyrite
	Fault

Section along azmuth 120 °, looking North

AFTER WOODCOCK (1987)

APPENDIX E-10

AMERICAN RESERVE MINING CORP.

THORN PROPERTY

DIAMOND DRILL HOLE SECTION

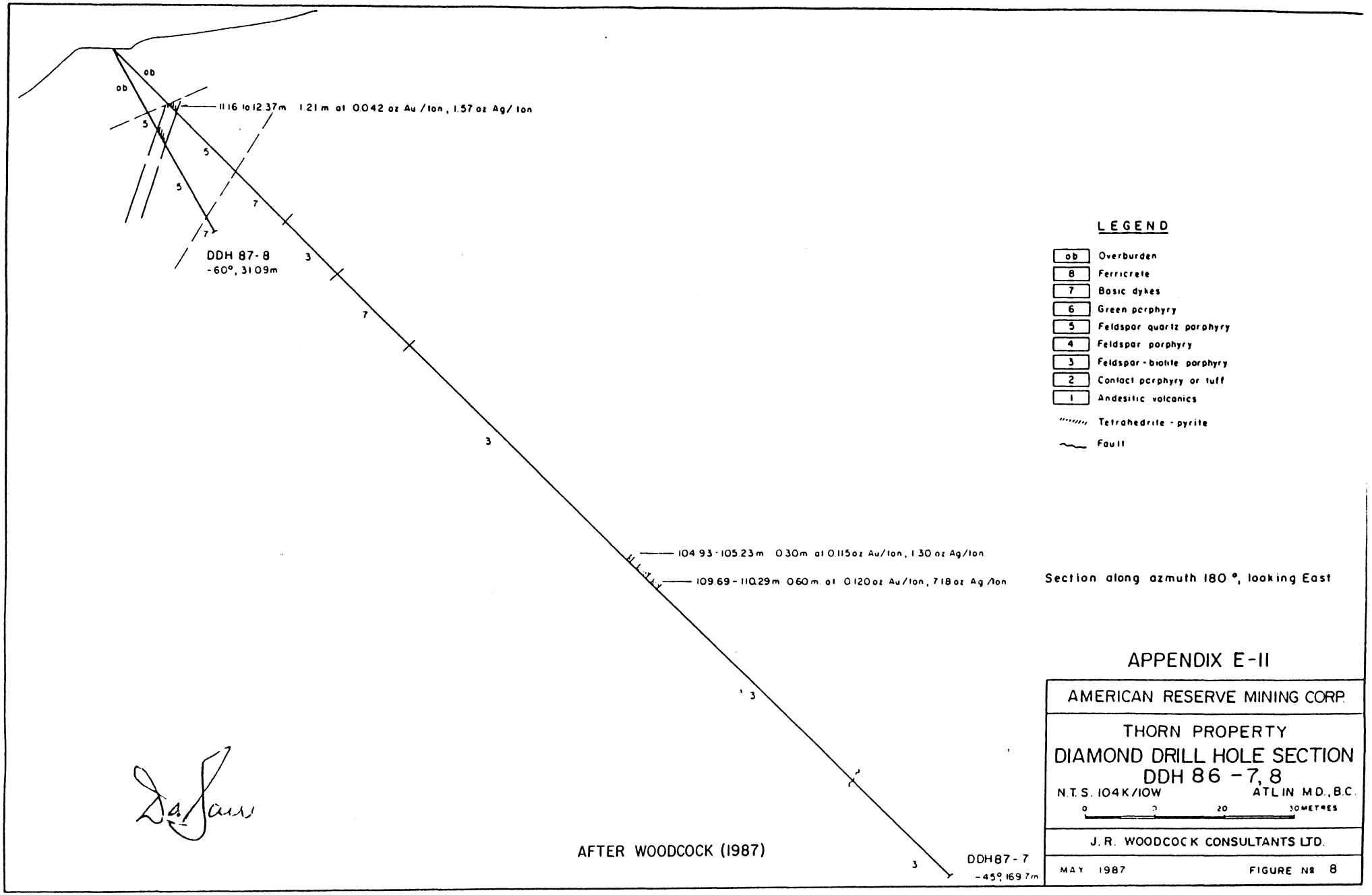
DDH 86 - 6

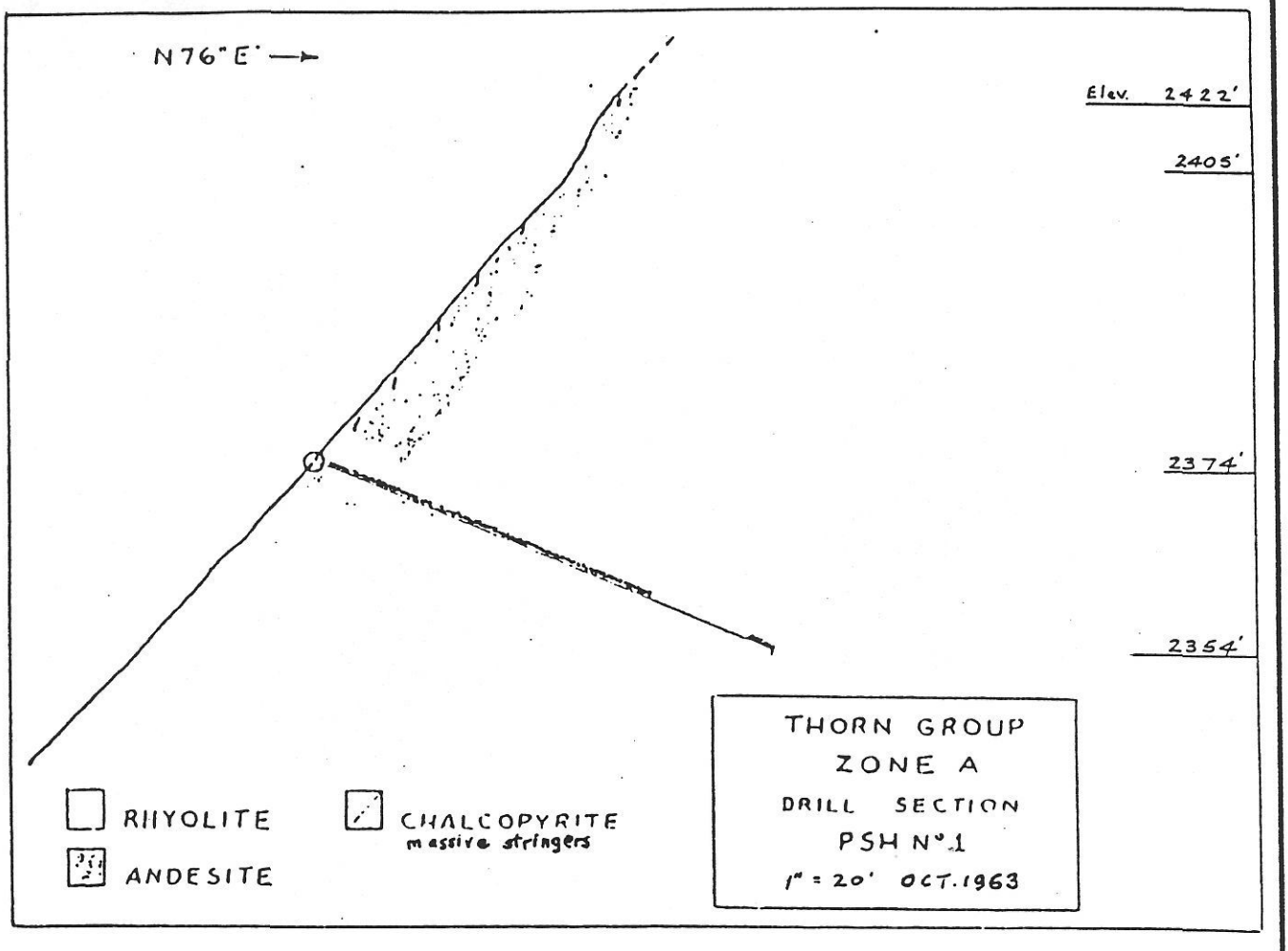
N.T.S. 104K/10W ATLIN M.D., B.C.

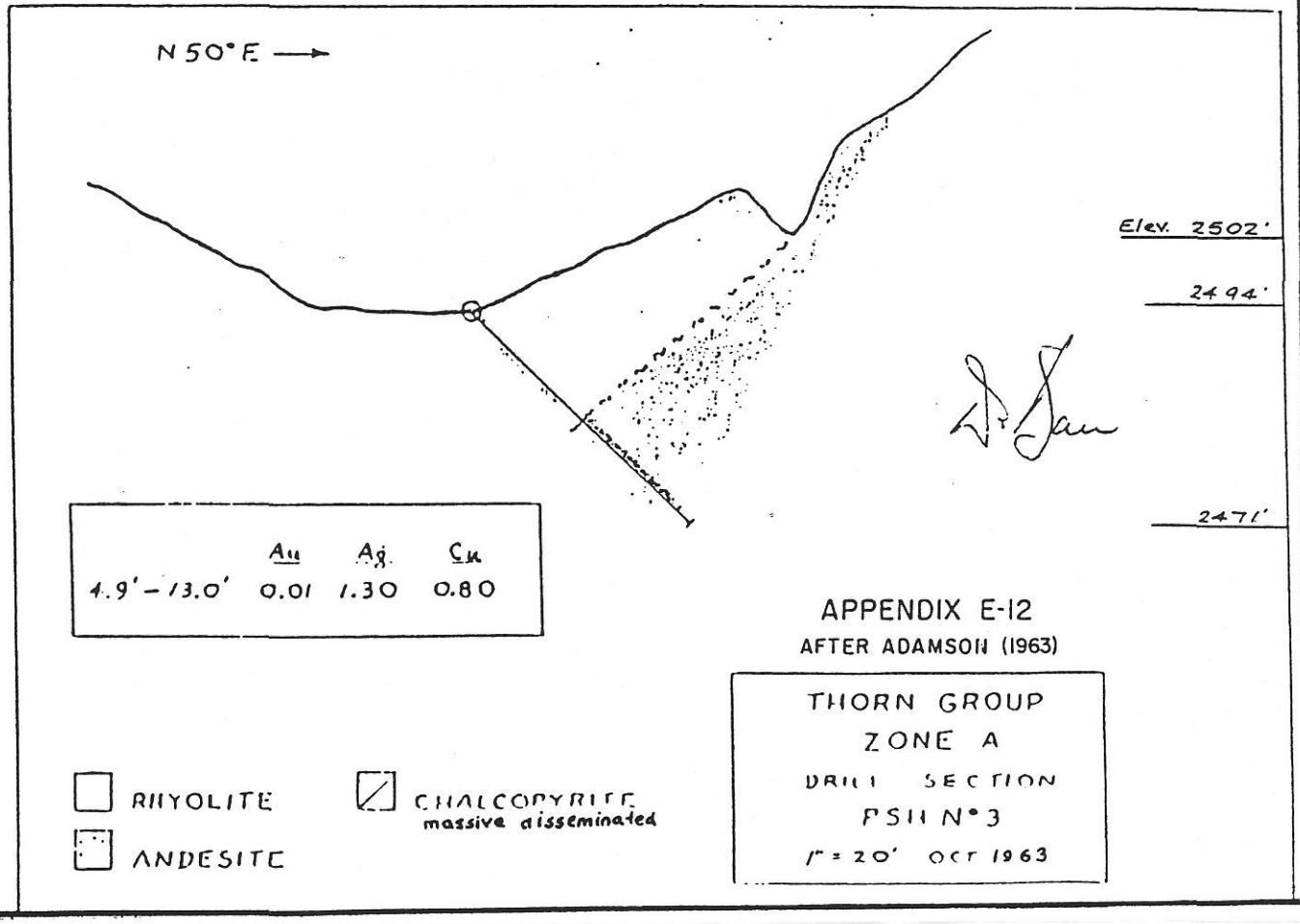
0 10 20 METRES

J. R. WOODCOCK CONSULTANTS LTD

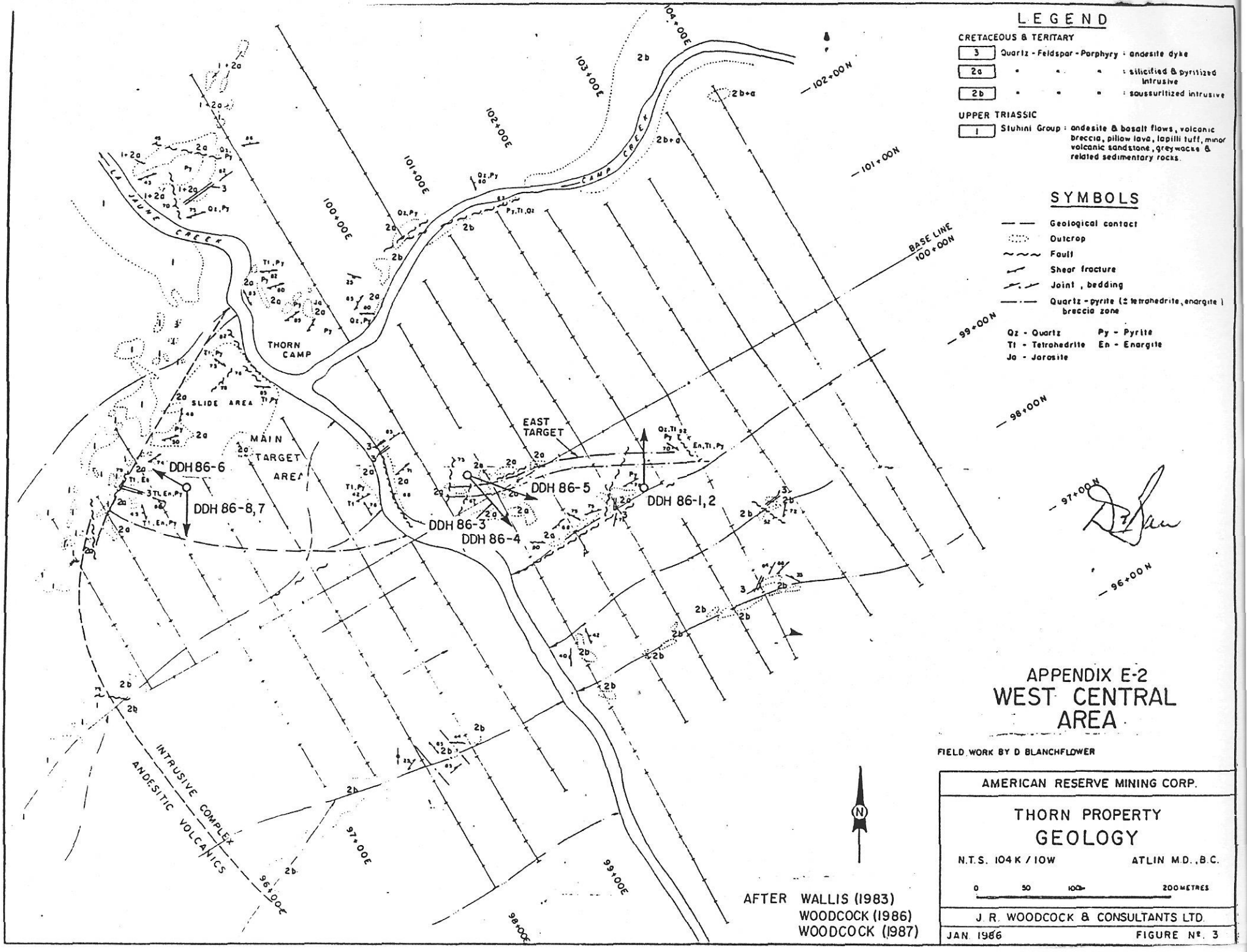
MAY 1987 FIGURE NO. 7

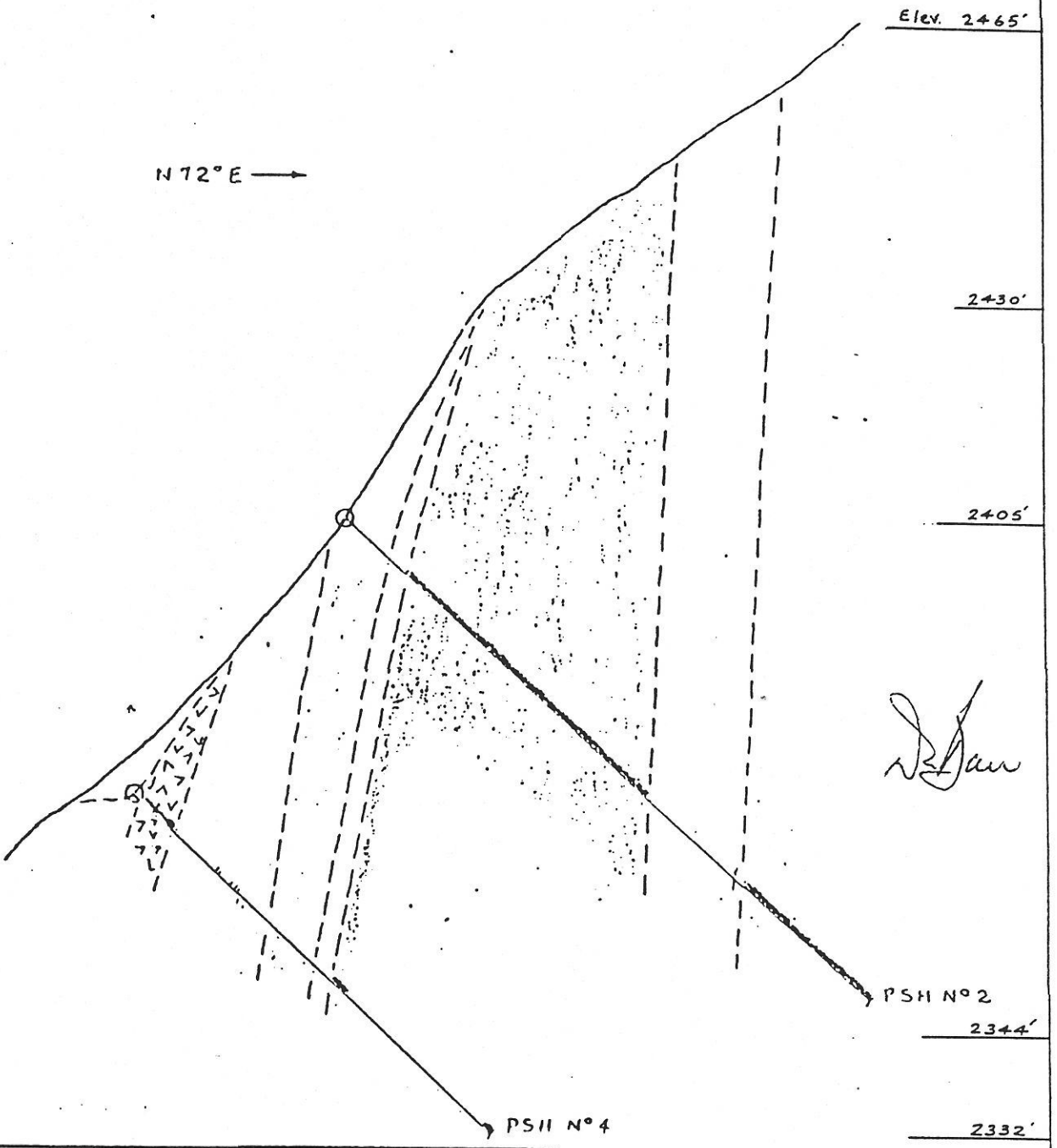

ob
ob
11.16 to 12.37m 1.21m at 0.042 oz Au/ton, 1.57 oz Ag/ton
5
5
5
7
7
DDH 87-8
-60°, 310.9m
3
7
3
3
3
104.93-105.23m 0.30m at 0.115 oz Au/ton, 1.30 oz Ag/ton
109.69-110.29m 0.60m at 0.120 oz Au/ton, 7.18 oz Ag/ton
DDH87-7
-45° 169.7m
LEGEND
ob Overburden
8 Ferricrete
7 Basic dykes
6 Green porphyry
5 Feldspar quartz porphyry
4 Feldspar porphyry
3 Feldspar-biotite porphyry
2 Contact porphyry or tuff
1 Andesitic volcanics
Tetrahedrite-pyrite
Fault
Section along azmuth 180°, looking East
AFTER WOODCOCK (1987)
APPENDIX E-II
AMERICAN RESERVE MINING CORP.
THORN PROPERTY
DIAMOND DRILL HOLE SECTION
DDH 86-7, 8
N.T.S. 104K/10W
ATLIN M.D., B.C.
0
10
20
30 METRES
J. R. WOODCOCK CONSULTANTS LTD.
MAY 1987
FIGURE No. 8





APPENDIX E-12
AFTER ADAMSON (1963)


LEGEND
CRETACEOUS & TERTIARY
3 Quartz - Feldspar - Porphyry : andesite dyke
2a : silicified & pyritized intrusive
2b : saussuritized intrusive
UPPER TRIASSIC
1 Stuhini Group : andesite & basalt flows, volcanic breccia, pillow lava, lapilli tuff, minor volcanic sandstone, greywacke & related sedimentary rocks.
SYMBOLS
Geological contact
Outcrop
Fault
Shear fracture
Joint, bedding
Quartz - pyrite (± tetrahedrite, enargite) breccia zone
Qz - Quartz
Py - Pyrite
Tl - Tetrahedrite
En - Enargite
Jo - Jarosite
LA JAUNE CREEK
CAMP CREEK
THORN CAMP
SLIDE AREA
MAIN TARGET AREA
EAST TARGET
DDH 86-6
DDH 86-8,7
DDH 86-5
DDH 86-1,2
DDH 86-3
DDH 86-4
INTRUSIVE COMPLEX ANDESITIC VOLCANICS
BASE LINE 100+00N
100+00E
101+00E
102+00E
103+00E
104+00E
102+00N
101+00N
99+00N
98+00N
97+00N
96+00N
97+00E
99+00E
98+00E
N
AFTER WALLIS (1983)
WOODCOCK (1986)
WOODCOCK (1987)
APPENDIX E-2
WEST CENTRAL AREA
FIELD WORK BY D BLANCHFLOWER
AMERICAN RESERVE MINING CORP.
THORN PROPERTY
GEOLOGY
N.T.S. 104 K / 10W
ATLIN M.D., B.C.
0 50 100 200 METRES
J. R. WOODCOCK & CONSULTANTS LTD.
JAN. 1986
FIGURE Nº. 3

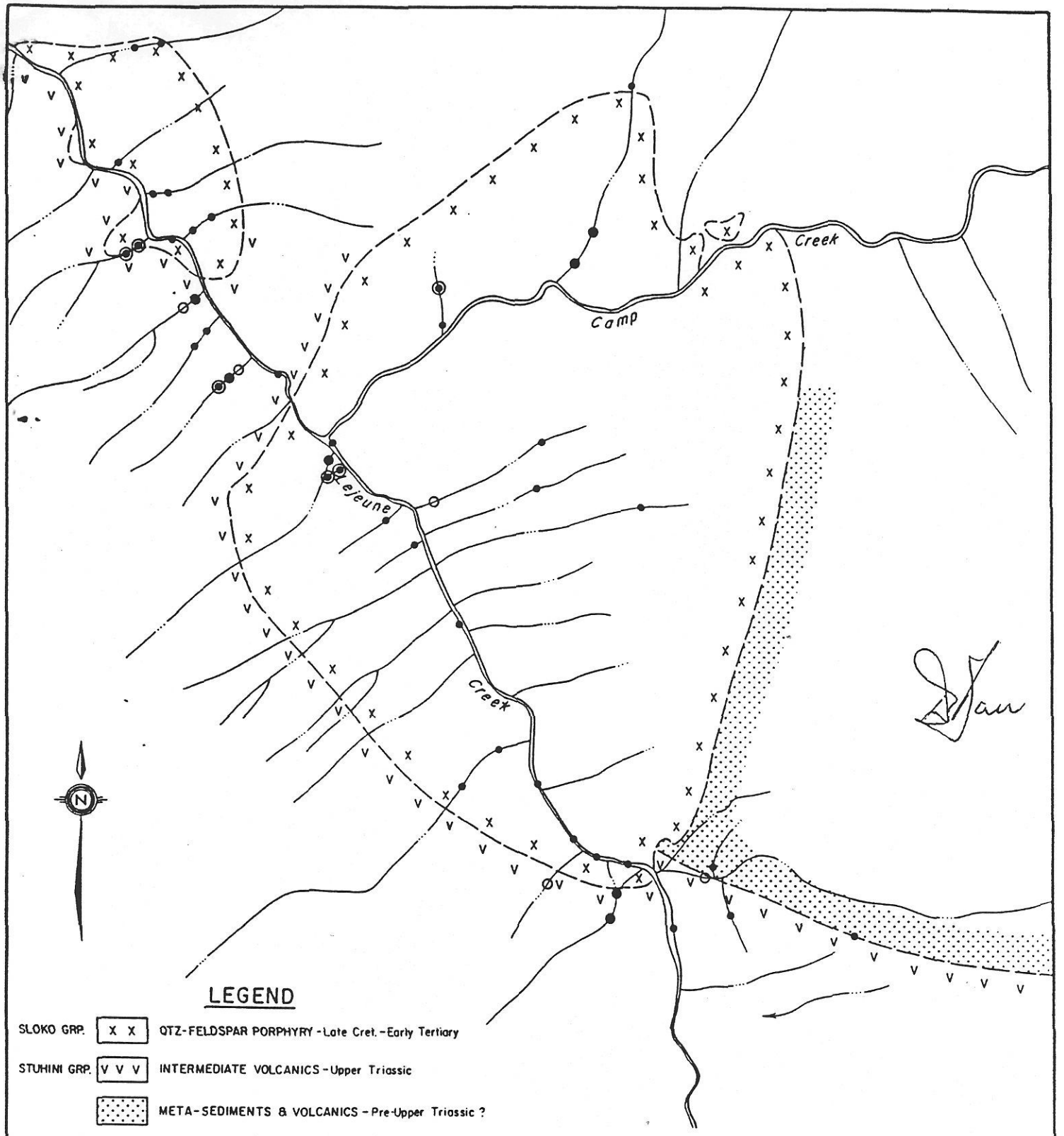


		Au	Ag.	Cu
PSH N° 2	0' - 7.8'	0.04	5.85	2.40
PSH N° 4	6.2 - 11.8	0.005	0.40	0.68
	11.8 - 16.8	Tr	0.45	0.50
	16.8 - 22.8	0.005	0.25	0.40
	22.8 - 29.3	0.005	0.40	2.10
	50.3 - 54.8	Tr.	0.55	0.95

RHYOLITE
ANDESITE
CHALCOPYRITE
PYROXENITE

APPENDIX E-13
AFTER ADAMSON (1963)

THORN GROUP
ZONE A
DRILL SECTION
PSH N°s 2 & 4
1" = 20' OCT 1963



LEGEND

SLOKO GRP. [X X] QTZ-FELDSPAR PORPHYRY - Late Cret. - Early Tertiary

STUHINI GRP. [V V V] INTERMEDIATE VOLCANICS - Upper Triassic

[ ] META-SEDIMENTS & VOLCANICS - Pre-Upper Triassic ?

- ● BACKGROUND 0 - 176 ppm Cu
- ○ POSSIBLY ANOMALOUS 177 - 250 ppm Cu
- ● PROBABLY ANOMALOUS 251 - 324 ppm Cu
- ◉ DEFINITELY ANOMALOUS >324 ppm Cu

APPENDIX F-I

SHANNON ENERGY LTD.

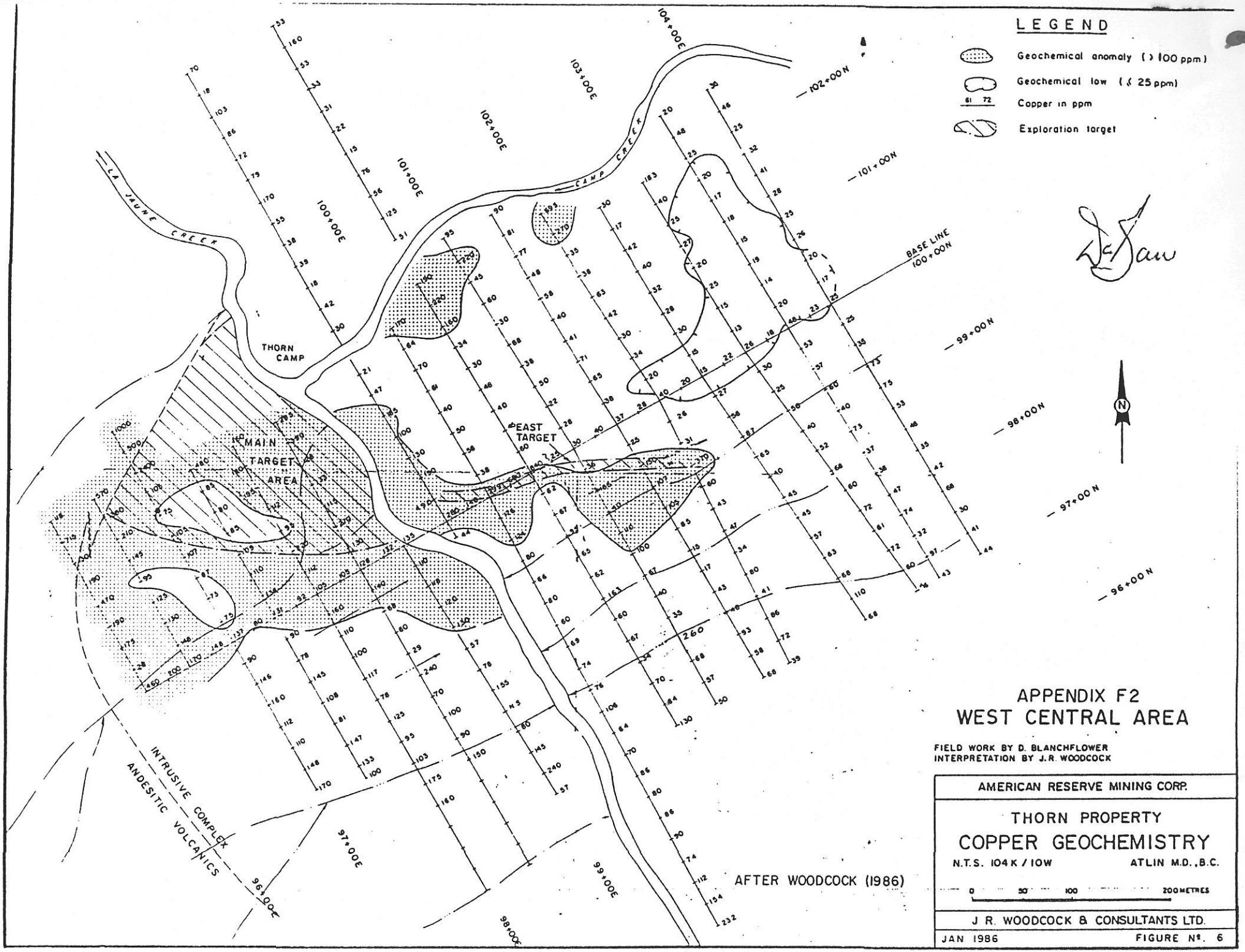
THORN PROPERTY

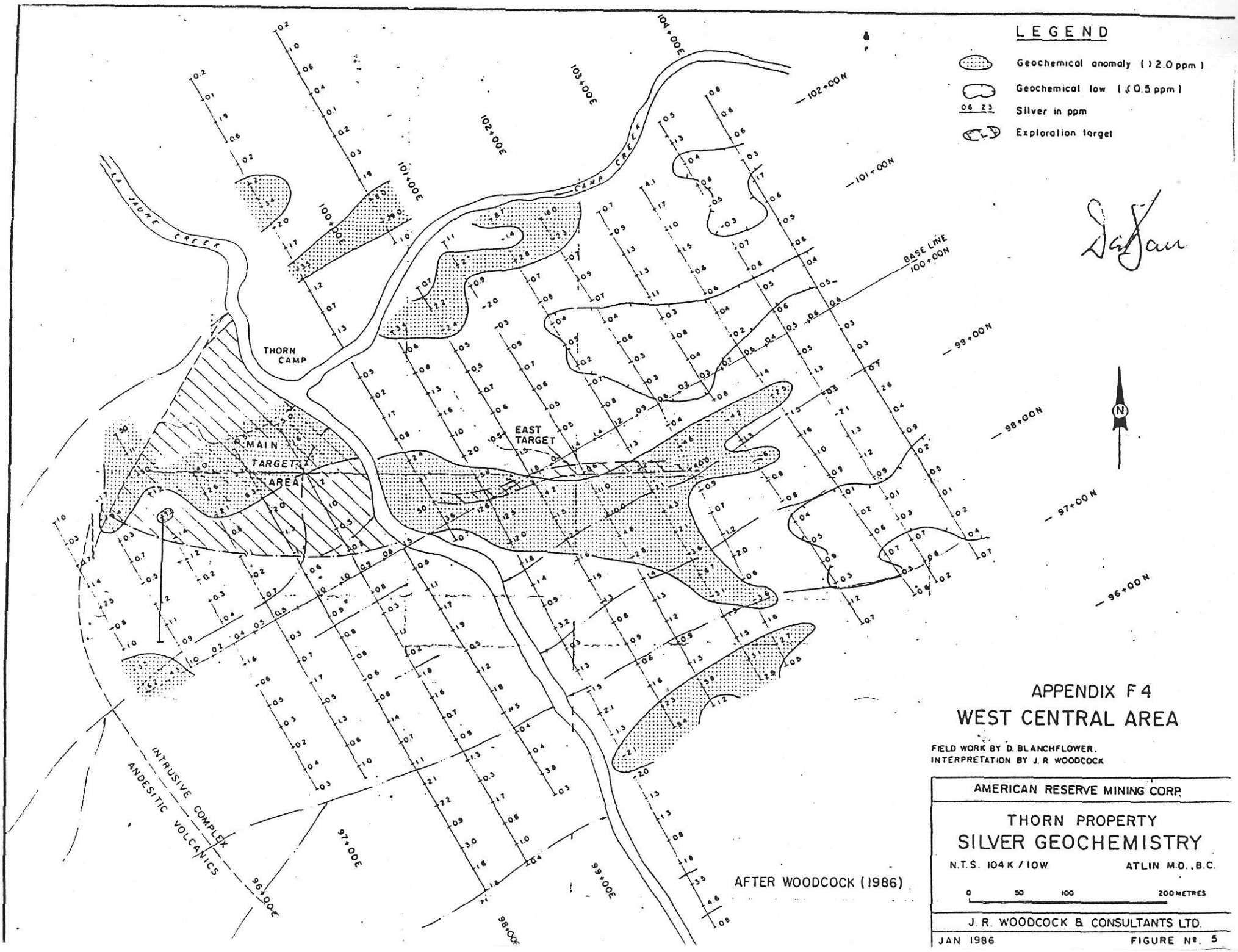
COPPER IN STREAM SEDIMENTS

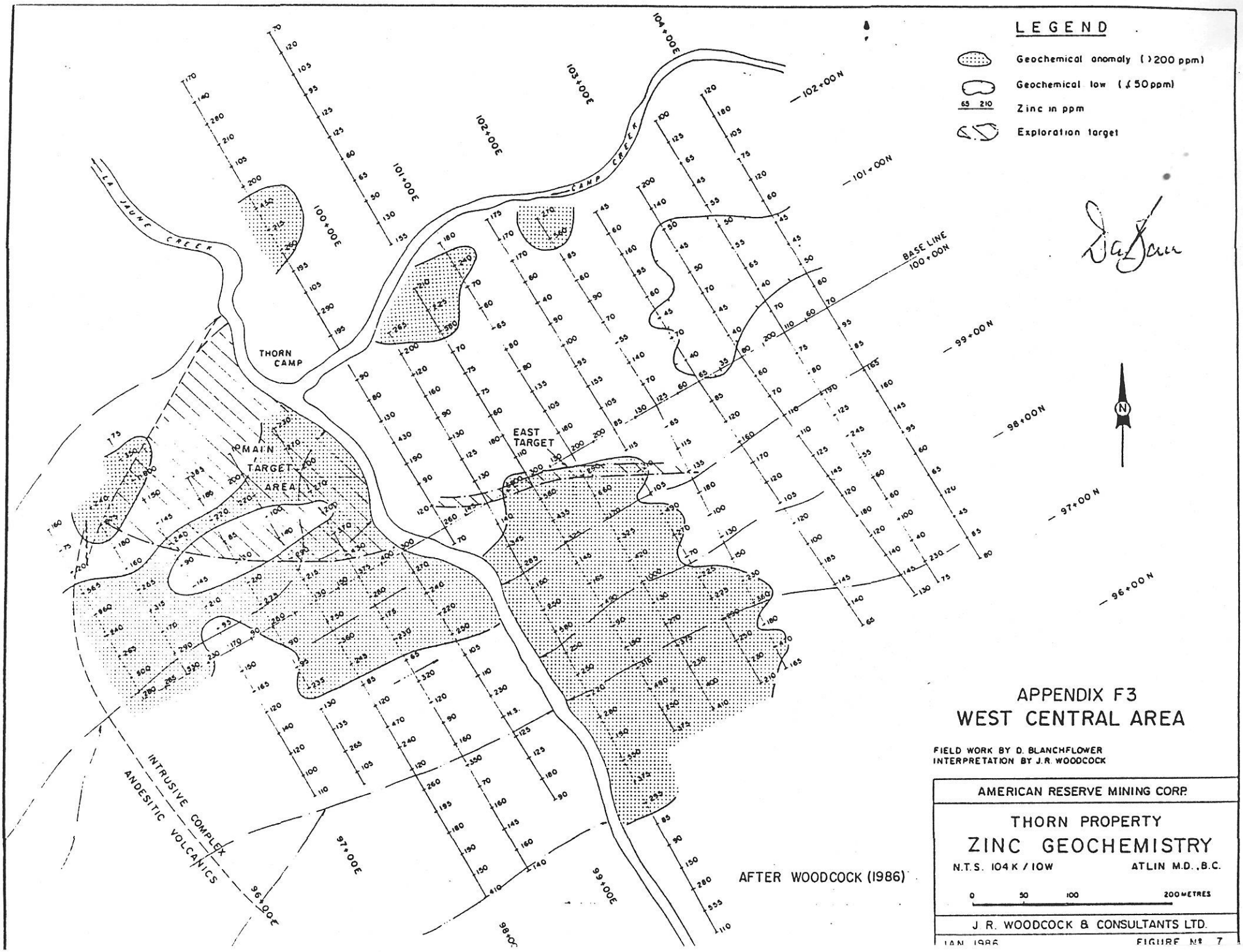
N.T.S. 104 K/10W ATLIN M.D., B.C.

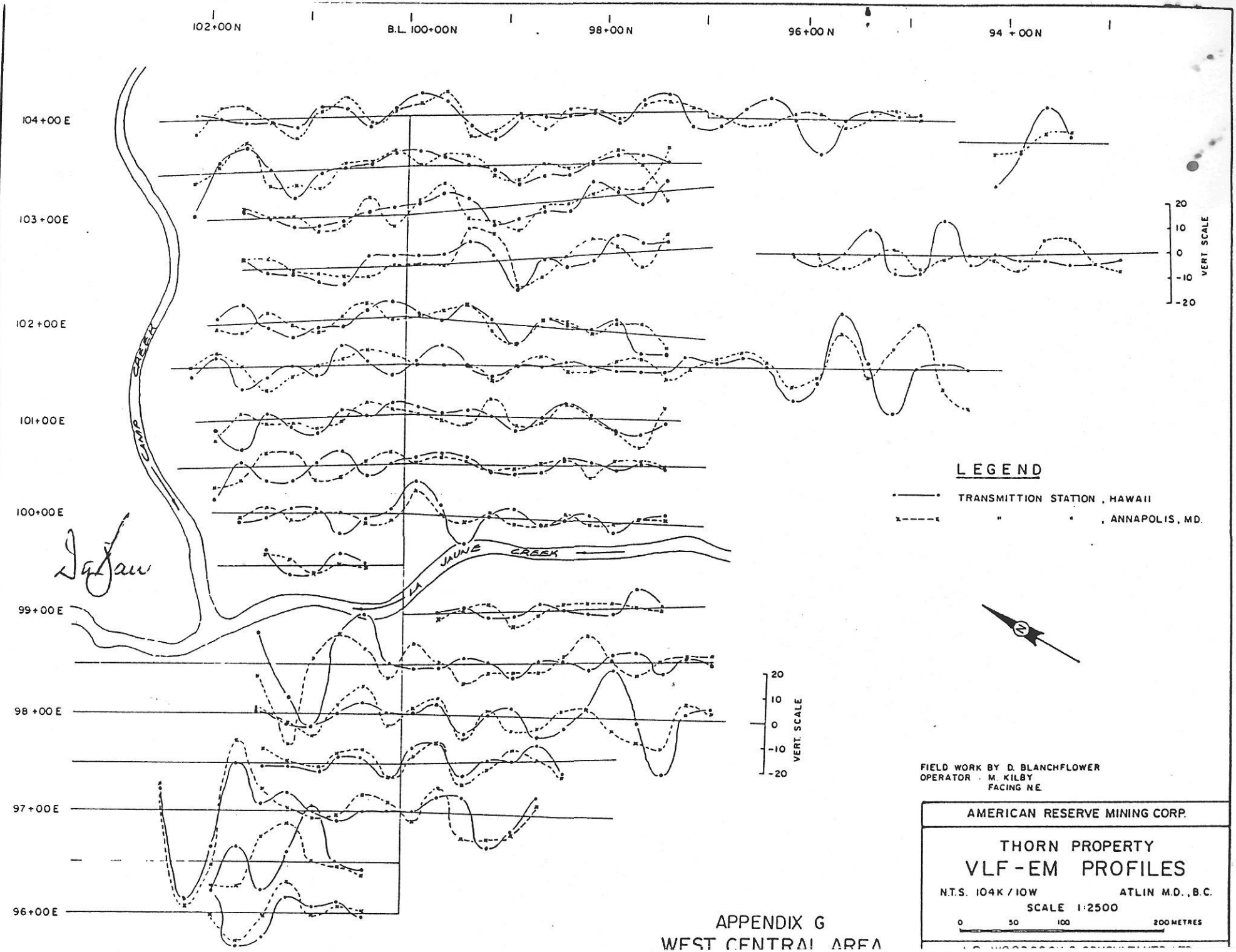
m 0 100 200 400 600 m

AFTER SANGUINETTI (1969)

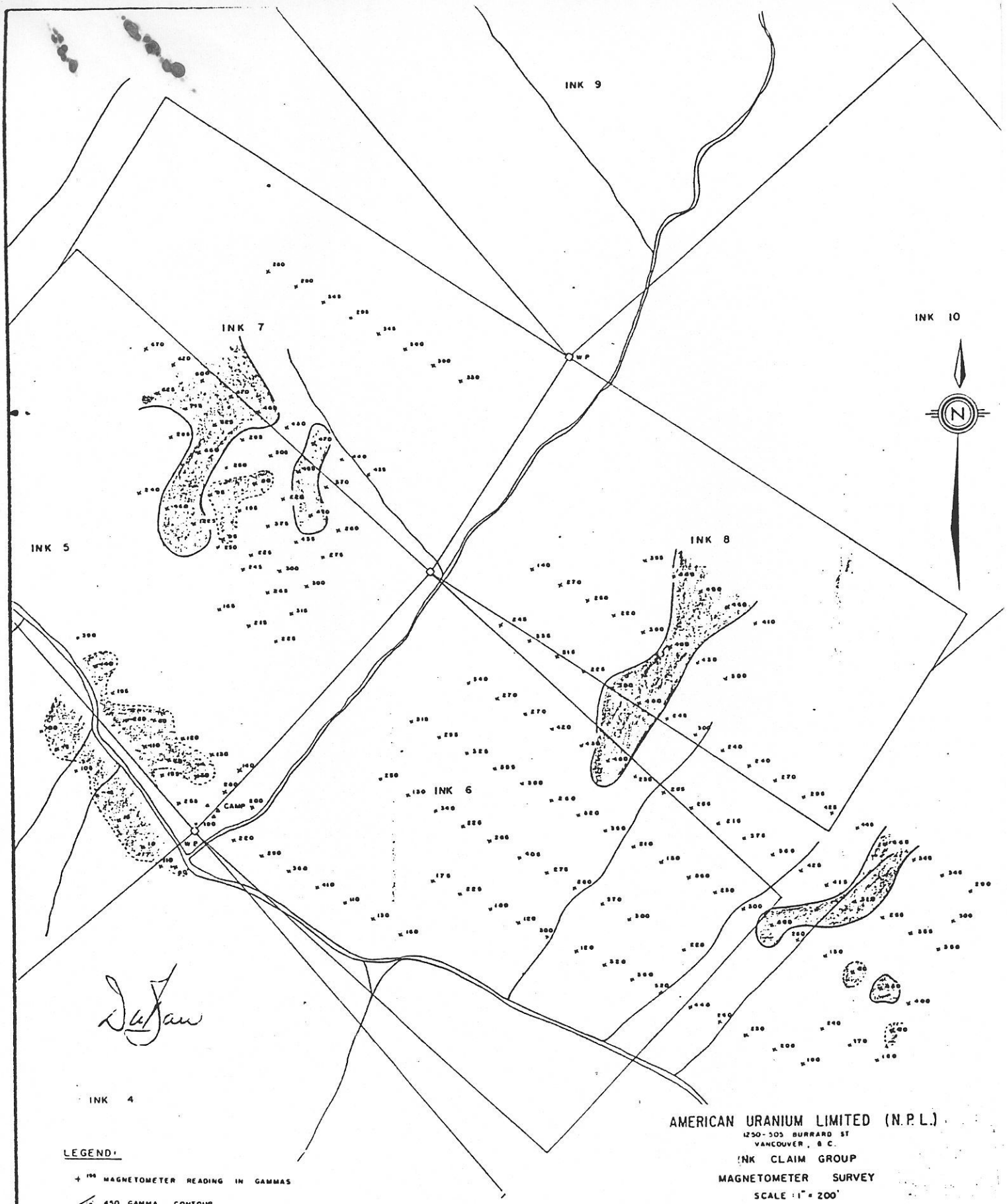

LEGEND
Geochemical anomaly (> 100 ppm)
Geochemical low (≤ 25 ppm)
61 72 Copper in ppm
Exploration target
LA JAUNE CREEK
CAMP CREEK
THORN CAMP
MAIN TARGET AREA
EAST TARGET
BASE LINE 100+00N
104+00E
103+00E
102+00E
101+00E
100+00E
99+00E
98+00E
97+00E
96+00E
102+00N
101+00N
99+00N
98+00N
97+00N
96+00N
INTRUSIVE COMPLEX
ANDESITIC VOLCANICS
AFTER WOODCOCK (1986)
APPENDIX F2
WEST CENTRAL AREA
FIELD WORK BY D. BLANCHFLOWER
INTERPRETATION BY J.R. WOODCOCK
AMERICAN RESERVE MINING CORP.
THORN PROPERTY
COPPER GEOCHEMISTRY
N.T.S. 104 K / 10W
ATLIN M.D., B.C.
0 50 100 200 METRES
J R. WOODCOCK & CONSULTANTS LTD.
JAN 1986
FIGURE Nº. 6


LEGEND
Geochemical anomaly ( ) 2.0 ppm)
Geochemical low (≤ 0.5 ppm)
06 23 Silver in ppm
Exploration target
LA JAUNE CREEK
CAMP CREEK
THORN CAMP
MAIN TARGET AREA
EAST TARGET
BASE LINE 100+00N
INTRUSIVE COMPLEX
ANDESITIC VOLCANICS
AFTER WOODCOCK (1986)
APPENDIX F 4
WEST CENTRAL AREA
FIELD WORK BY D. BLANCHFLOWER.
INTERPRETATION BY J. R WOODCOCK
AMERICAN RESERVE MINING CORP.
THORN PROPERTY
SILVER GEOCHEMISTRY
N.T.S. 104 K / 10W
ATLIN M.D., B.C.
0 50 100 200 METRES
J. R. WOODCOCK & CONSULTANTS LTD.
JAN 1986
FIGURE Nº. 5


LEGEND
Geochemical anomaly ( ) 200 ppm)
Geochemical low (≤ 50ppm)
65 210 Zinc in ppm
Exploration target
LEA JAUNE CREEK
CAMP CREEK
THORN CAMP
MAIN TARGET AREA
EAST TARGET
BASE LINE 100+00N
INTRUSIVE COMPLEX
ANDESITIC VOLCANICS
AFTER WOODCOCK (1986)
APPENDIX F3
WEST CENTRAL AREA
FIELD WORK BY D. BLANCHFLOWER
INTERPRETATION BY J.R. WOODCOCK
AMERICAN RESERVE MINING CORP.
THORN PROPERTY
ZINC GEOCHEMISTRY
N.T.S. 104 K / 10W
ATLIN M.D., B.C.
0 50 100 200 METRES
J R. WOODCOCK & CONSULTANTS LTD.
JAN. 1986
FIGURE No. 7



APPENDIX G
WEST CENTRAL AREA



LEGEND:

+ 196 MAGNETOMETER READING IN GAMMAS

450 GAMMA CONTOUR

100 GAMMA CONTOUR

NOTE:

READINGS TAKEN WITH SHARPE MF-1 FLUXGATE MAGNETOMETER

AMERICAN URANIUM LIMITED (N.P.L.)

1250-505 BURRARD ST
VANCOUVER, B.C.

INK CLAIM GROUP

MAGNETOMETER SURVEY

SCALE: 1" = 200'

BY

CORDILLERAN ENGINEERING LIMITED

1410-355 BURRARD ST.
VANCOUVER, B.C.

APPENDIX H
WEST CENTRAL AREA

AFTER SANGUINETTI (1969)

FIGURE 7

APPENDIX I

THORN PROPERTY

1986 DRILLING PROGRAM

(After Woodcock, 1987)

Hole No.		From (m)	To (m)	Core Length (m)	Cu (%)	Ag (oz/ton)	Au (oz/ton)	
East Extension Zone								
1		14.44	14.87	0.43	0.92	1.72	0.050	
2		15.98	18.09	2.11	0.16	0.64	0.014	
East Zone								
3		43.69	53.98	10.29	0.07	1.03	0.080	
4		30.20	30.74	0.54	0.04	1.98	0.064	
5		57.30	62.74	5.44	0.04	0.58	0.047	
Stringer Zone								
6		69.01	71.78	2.58	3.78	4.45	0.57	near stock contact
7		11.16	12.37	1.21	3.35	1.57	0.042	at collar
	and	104.33	110.29	5.96	1.34	1.25	0.033	
	which							
	incl.	104.93	105.23	0.30	0.65	1.36	0.115	
	and	109.69	110.29	0.60	5.74	7.18	0.120	
8		13.30	15.50	2.20	1.38	3.50	0.041	near collar