

GEOLOGY OF THE GOAT PROSPECT
Goat 1,2 claims
Potential Pb - Zn - Ag deposit, Aldridge Fm.,
Southeastern B.C.

by

Owner: Gordon Leask

FILMED

BaSc.

Operator: Big Bend Joint Venture
Whitesail Joint Venture

NELSON MINING DIVISION

NTS ~~BZF/1E~~ BZF/1E

49°7.5' Lat. North, 116°12' Long. West

GEOLOGICAL BRANCH
ASSESSMENT REPORT

14-773

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INTRODUCTION

The Goat property is located in the Purcell Mountains of southeastern B.C., 10km northwest of Yahk and 40km east of Creston.

The property is a potential sedimentary exhalative (sedex) deposit hosted within the Aldridge Formation, (the lowermost unit of the Purcell Supergroup).

Lithologies within the project area (Fig. 1) include moderate easterly dipping metasedimentary quartzites, quartz wackes, argillites, and diorite sills of the Aldridge Formation and platformal quartzites of the Creston formation.

This report presents a geological map and interpretation based on recent ideas of basinal development. (Gulf of Afar, Scientific American July 1983).

Geological mapping has indicated a graben related third order basin, that appears to have formed at Lower-Middle Aldridge time. It is approximately 2km wide with the bounding faults indicated by zones of disrupted bedding, intense tourmalinization and albitization. A pyritic siliceous exhalite unit within a quartz Arenite sequence (tentatively the 'U' quartzites) at the base of the Middle Aldridge is evidence of hydrothermal activity during Lower-Middle Aldridge Time.

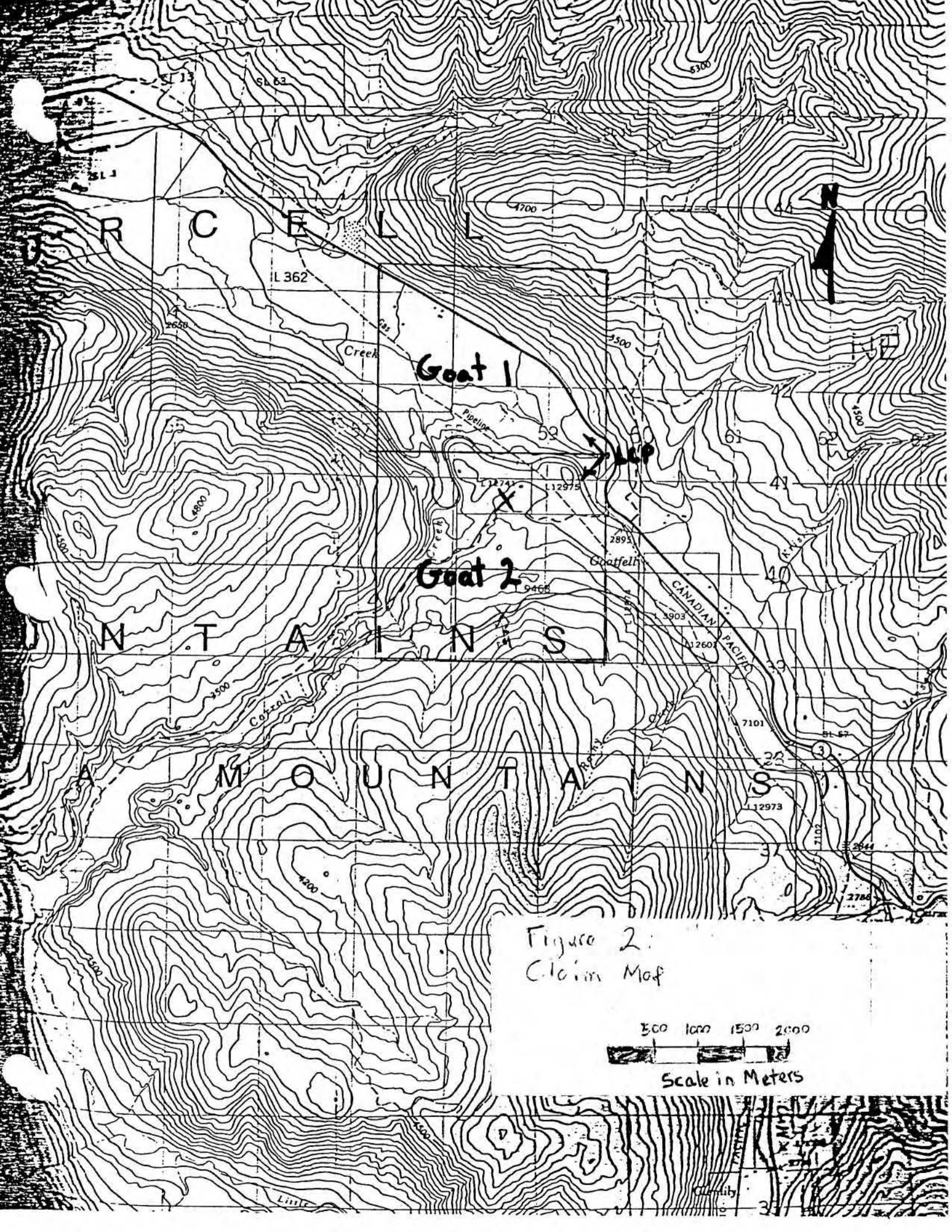
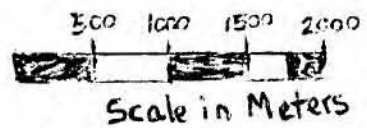


Figure 2:
Claim Map



CLAIMS AND OWNERSHIP

All claims are within the Nelson Mining Division and are owned by:

Gordon P. Leask
843 W. 15 Avenue
Vancouver, British Columbia
V5Z 1R8

<u>Claim Name</u>	<u>Size</u>	<u>Record #</u>	<u>Record Date</u>
Goat 1	20 units	4007	Jan. 29th/84
Goat 2	20 units	4008	Jan. 29th/84
Total	<u>40 units</u>		

Claims locations outlined on the geologic map presented in this report.

Scale 1:10 000.



Fig. 3

LEASK ASSOCIATES				
LOCATION MAP				
160	FR	0	160	320
SCALE IN KILOMETERS				

LOCATION ACCESS AND PHYSIOGRAPHY

The Goat property is located within the southern portion of the Purcell mountains, 10 km northwest of Yahk B.C. (NTS: 82F1; latitude 49°07' north, longitude 116°12' west, elevation 700m).

Goat claim group consists of 40 modified grid units, located at Goatfell, 10km north of the Canada-U.S. boundary. Access to the property is by vehicle along Highway 3. Several logging roads also provide excellent access throughout the property.

Moderate to cliff forming slopes with gentle U-shaped valleys typify the topography of this region. Treeline is approximately 1800m A.M.S.L. above which grassy open slopes predominate. Snow cover often exceeds 2m in the valley bottoms which makes viewing of the property possible only from early April to early November.

EXPLORATION HISTORY

The Goat property was acquired in mid-winter of 1985 by the writer. A total of 40 claim units were staked, using the modified grid method, to encompass the area of geologic promise. Geologic mapping at a scale of 1:10 000 was conducted during the 1985 field season. Prospecting was carried out to determine if a potential mineralized horizon outcropped. A siliceous pyritic exhalative horizon and a carbonate manganese breccia zone with sphalerite and galena mineralization were discovered in outcrop (Figure 1), within the Lower-Middle Aldridge Stratigraphic interval.

REGIONAL GEOLOGY

Regionally the area is underlain by rocks of the Purcell Supergroup on the western flank of the Purcell anticlinorium, a broad slightly north plunging arch-like structure in Helikian and Hadrinian aged rocks. The oldest rocks exposed in the Purcell Anticlinorium are greenish, rusty weathering siltites and quartzites of the Lower Aldridge Formation. Overlying the Lower Aldridge is a monotonous section of Middle Aldridge quartz wackes, subwackes, and argillites some 3000+ meters thick. Within the Middle Aldridge fourteen varved 'marker horizons' can be correlated varve for varve over hundreds of kilometers. These represent the only accurate stratigraphic control. A number of areally extensive diorite sills are present within the Lower and Middle Aldridge Formations. Middle Aldridge is overlain by Upper Aldridge, 300 - 400m of thin, fissile, rusty weathering argillite/siltite.

Conformably overlying the Aldridge Formation is the Creston Formation, comprising approximately 1800m of grey, green and maroon, cross bedded and ripple marked platformal quartzites and mudstones. Kitchener-Siyeh Formation, which includes approximately 1200 -1600m of green/grey dolomitic mudstone and buff coloured mudstone are shallow water sediments overlying the Creston Formation and mark the end of Lower Purcell Time. The upper portion of the Purcell Supergroup consists of the Dutch Creek and Mount Nelson Formations. Dutch Creek Formation consists of approximately 1200m of dark grey, calcareous dolomitic mudstones. Overlying the Dutch Creek Formation is the Mount Nelson Formation, 1000m of grey/green and maroon mudstones and calcareous mudstones. This marks the top of the Purcell Supergroup.

The Aldridge basin hosts the world class Sullivan Pb-Zn-Ag deposit. It is believed this basin evolved as a deep intercratonic trough, analagous to the Guamas Basin on the west coast of Mexico, as a result of tectonic activity along an ancient crustal spreading center. It is proposed that the Sullivan deposit is situated at the junction of a major transform fault (ie. the Kimberly fault) and the oceanic spreading center (rift zone). Transform faults are generated to relieve stress generated during spreading. Zones of spreading within the Aldridge basin are believed to be marked on surface by albitization (sodium addition) and tourmalinite, a mineral/rock type produced from replacement by boron-silica rich fluids which have originated at great depth.

PROPERTY GEOLOGY

Rocks of the Lower Aldridge, Middle Aldridge, and Creston Formations underly the property. Lower and Middle Aldridge Formations dip approximately 45° to the east and are in faulted contact on the east with the Creston Formation along the Moyie Fault. The Moyie Fault at this location has greater than 2000m of vertical displacement, and is believed to be one of a generation of penecontemporaneous growth faults active from Sullivan time to at least the Middle Devonian. Several dioritic sills occur within the project area and can be used as a rough stratigraphic markers. A proposed east-west trending graben, approximately 2km wide, is linked to the north-south trending Moyie Fault within the claims. The Lower-Middle Aldridge contact is projected to subcrop beneath deep glacial till within the boundaries of the inferred graben. Tourmalinite is abundant along a zone that offsets 'U Quartzite' arenites near the base of the Middle Aldridge, possibly indicating early movement along the south bounding flank of the graben. This trend is coincident with a zone of disrupted bedding, albitization, and extremely thick channeled beds (>10 meters). A siliceous pyritic exhalative horizon is exposed to the south of the graben at the base of the Middle Aldridge, indicating a hydrothermal system was active near Lower-Middle Aldridge Time. 'U' quartzites are a series of quartz pebble arenites of unknown origin, stratigraphically 100m above the Lower-Middle Aldridge contact. Manganiferous quartz-carbonate breccia with minor galena-sphalerite mineralization and abundant albitization is exposed suggesting a mineralizing event near Lower-Middle Aldridge time.

PROPERTY MINERALIZATION

Manganiferrous quartz-carbonate breccia with disseminated galena and sphalerite exists 500m north of the Goat #1 claim boundary. This breccia occurs within a zone of albitization and disrupted bedding which may mark the northern limits of the proposed graben (see geologic map - Figure 1). A siliceous pyrite rich exhalitive horizon outcrops 300m south of the proposed graben within the 'U' quartzite-arenite sequence. It is approximately 100m stratigraphically above the projected Lower-Middle Aldridge contact which represents the best stratigraphic control on the property.

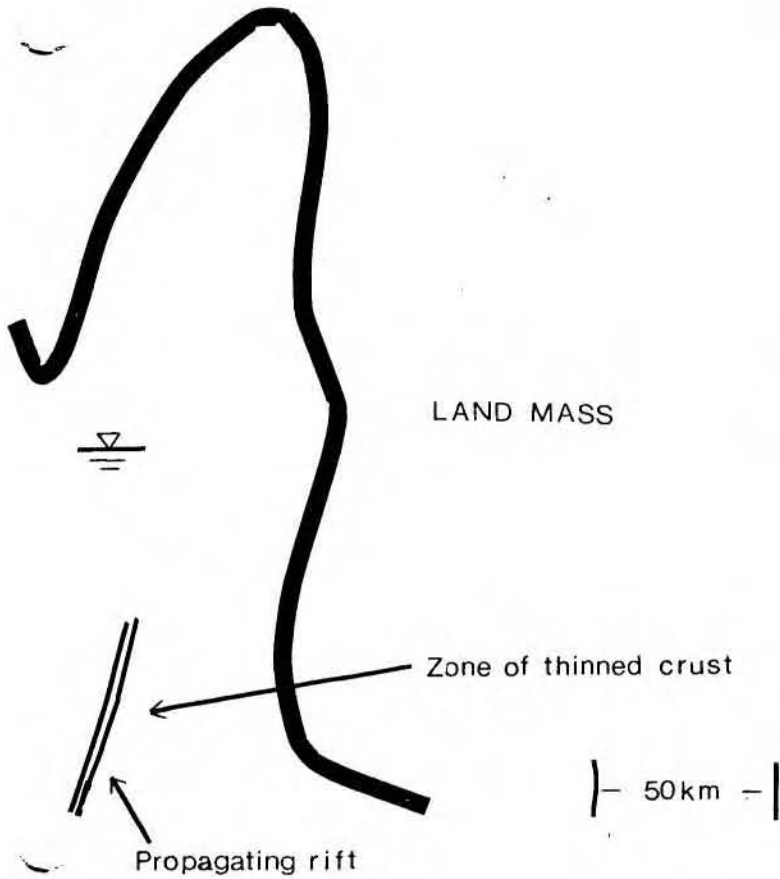
GEOLOGIC MODEL

Recent studies have shown that massive sulphide deposits are now forming at the intersection of crustal spreading centers and major transform fault features. Some present day sites of deposition are Juan de Fuca Straight, Gulf of Afar and the Guamas Basin.

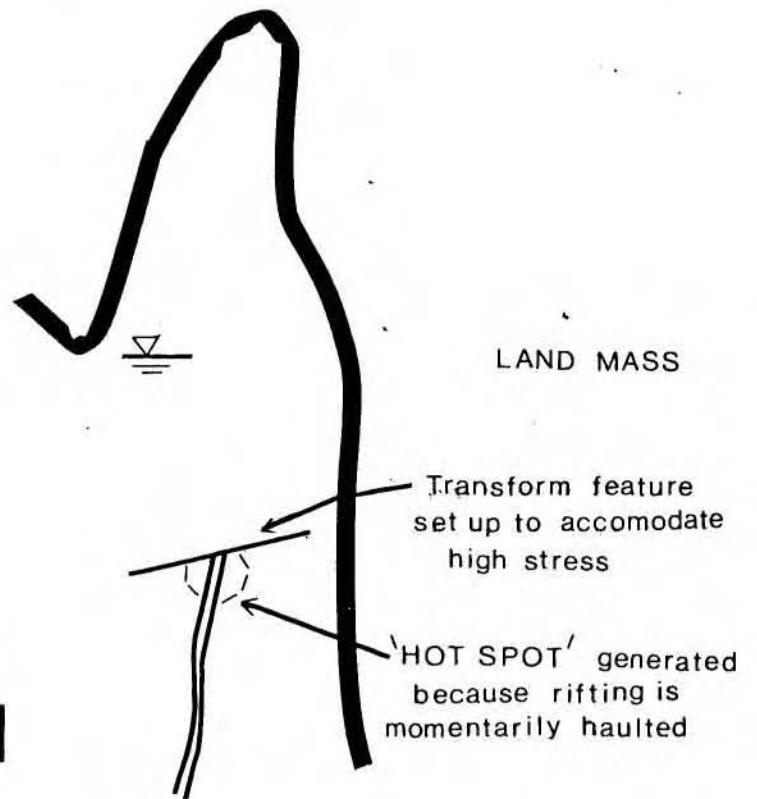
As the spreading progresses the rift system propagates and stress builds up in the surrounding crust. Generation of a transform fault releases the shear stress by accomodating it with transverse movement perpendicular to the direction of rift propagation. When the stress levels exceed what can be accomodated by the transform feature the rift will again propogate along its path. This process will continue until either the rift system is aborted or the continent breaks up (Figure 4). Typically a spreading center is not a single linear feature, rather it is a zone one to several kilometers wide consisting of down dropped graben blocks. Third order basins are developed on the

GEOLOGICAL MODEL

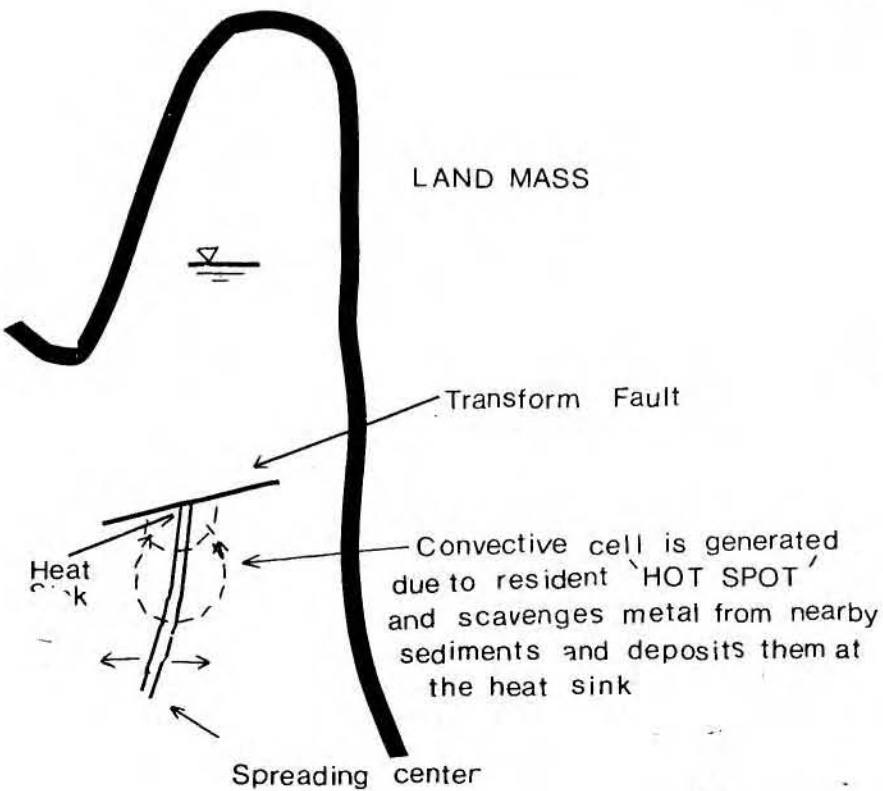
(1)



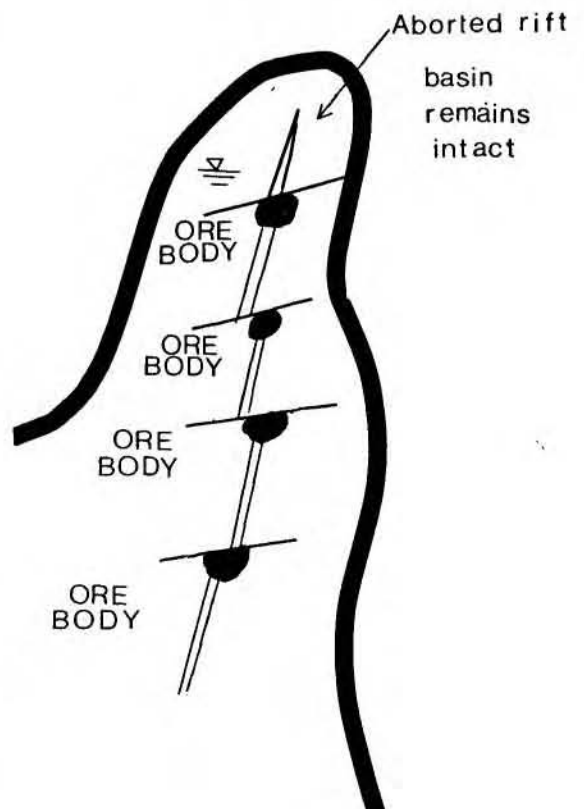
(2)



(3)



(4)



ocean floor at the intersection of grabens and transform faults, producing sites where massive sulphide deposits may accumulate. Transform faults allow a 'hot spot' to stay resident for sufficient time to develop a convective hydrothermal cell which scavenges the surrounding sediments of metals and accumulates them at or near the junction of the transform faults and the grabens. The flanks of the graben may be marked by sodium addition (albite alteration) and tourmalinization.

Gabbro sills present in the Aldridge Formation were intruded along the crustal spreading center into unconsolidated turbiditic sediments and are laterally continuous over large areas.

SUMMARY AND RECOMMENDATIONS

The Goat prospect, located in Southeastern B.C., is a potential sedimentary exhalative deposit (Sullivan Type) hosted within the Aldridge Formation.

Results of this study indicate:

- 1) Abundant albite alteration outcrops in two locations on the Goat property.
- 2) Abundant tourmalinization (boron alteration) coincident with extremely thick beds occur locally on the property.
- 3) A quartz-carbonate manganese breccia zone with sphalerite and galena mineralization outcrops on the northern part of the property.
- 4) The Lower-Middle Aldridge contact subcrops within the claim boundaries.
- 5) Electromagnetic and Induced Polarization surveys with coincident overburden drilling are recommended along the projected subcrop of the Lower-Middle Aldridge contact.
- 6) Three short diamond drill holes will be required initially to test the Sullivan Time Horizon (Lower-Middle Aldridge Contact) within the outlined graben.

Statement of Expenditures

Expenses		
Gas		297.47
Truck Maintenance		48.00
Miscellaneous		55.00
Supplies		156.00
Truck Rental		
(1981 Datsun 4x4)		
10 days at \$50.00/day		500.00
(1978 Jeep 4x4)		
14 days at \$50.00/day		700.00
Room and Board		
40 man/days at \$50.00/day per man		2 000.00
Wages		
Gordon P. Leask - Geological Eng./Prospector		
Mapping	14 days at \$250.00/day	3 500.00
Prospecting	5 days at \$250.00/day	1 250.00
Report Preparation	6 days at \$250.00/day	1 500.00
Drafting Maps and Supplies		500.00
J. M. Leask - Geological Eng./Prospector		
Prospecting	20 days at \$250.00/day	5 000.00
	Total:	<u>\$ 15,506.47</u>

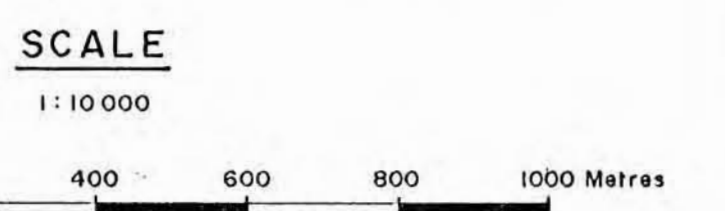
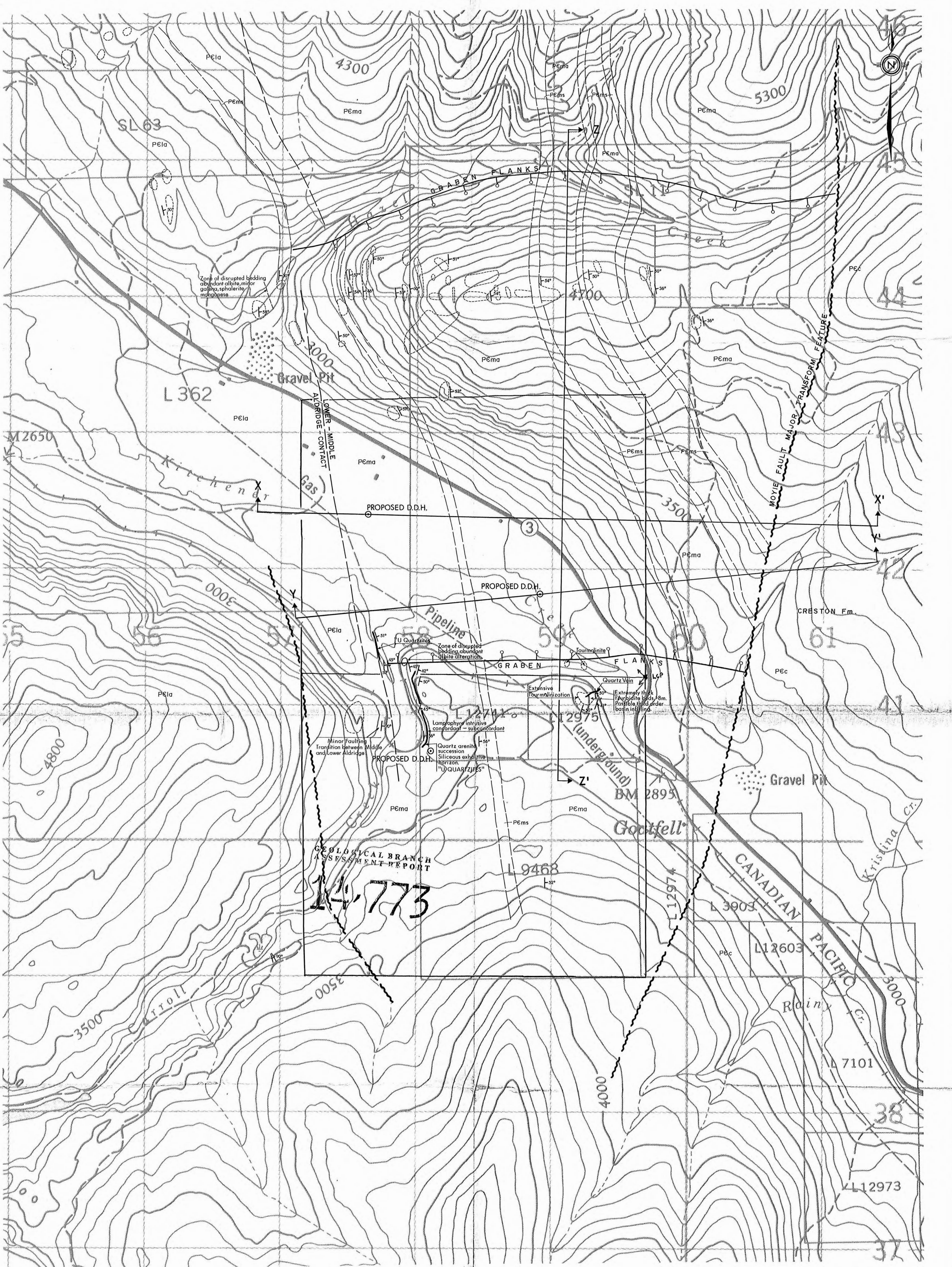
Statement of Qualifications

I, Gordon P. Leask, do hereby certify that:

- 1) I am a prospector with residence at 843 W. 15 Avenue, Vancouver, British Columbia, V5Z 1R8.
- 2) I am a graduate of the University of British Columbia with a Bachelor of Applied Science in Geological Engineering (1985).
- 3) I have been active in mineral exploration as an independent since 1980.

Respectfully Submitted

Gordon P. Leask

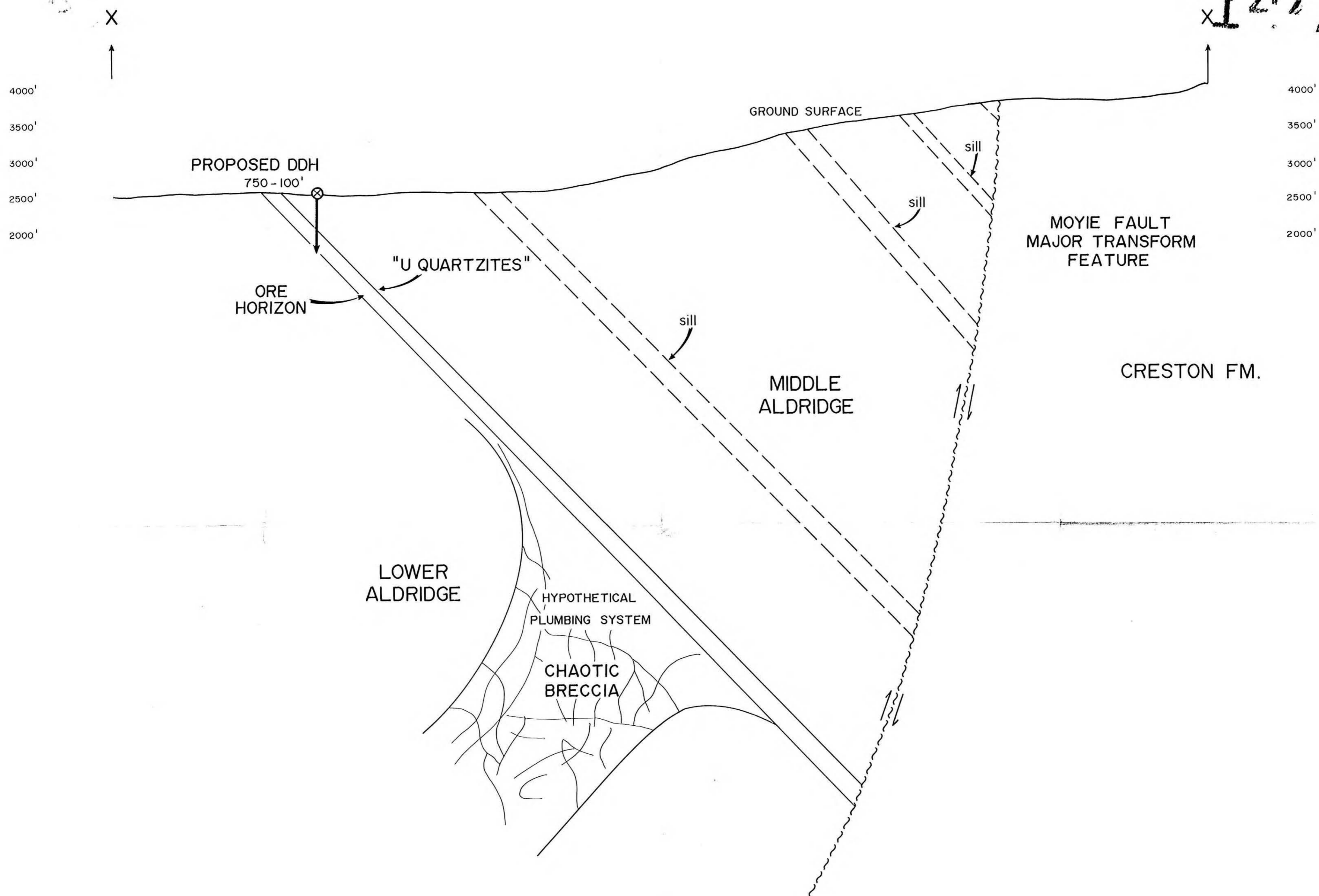


LEGEND

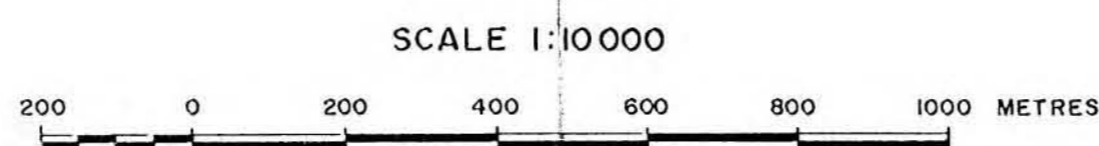
- P6c Creston Fm.
- P6ma Middle Aldridge Sed.
- P61a Lower Aldridge Sed.
- P6ms Sills
- Tourmalinite
- U Quartzites
- Fault
- Down Drop
- Attitude

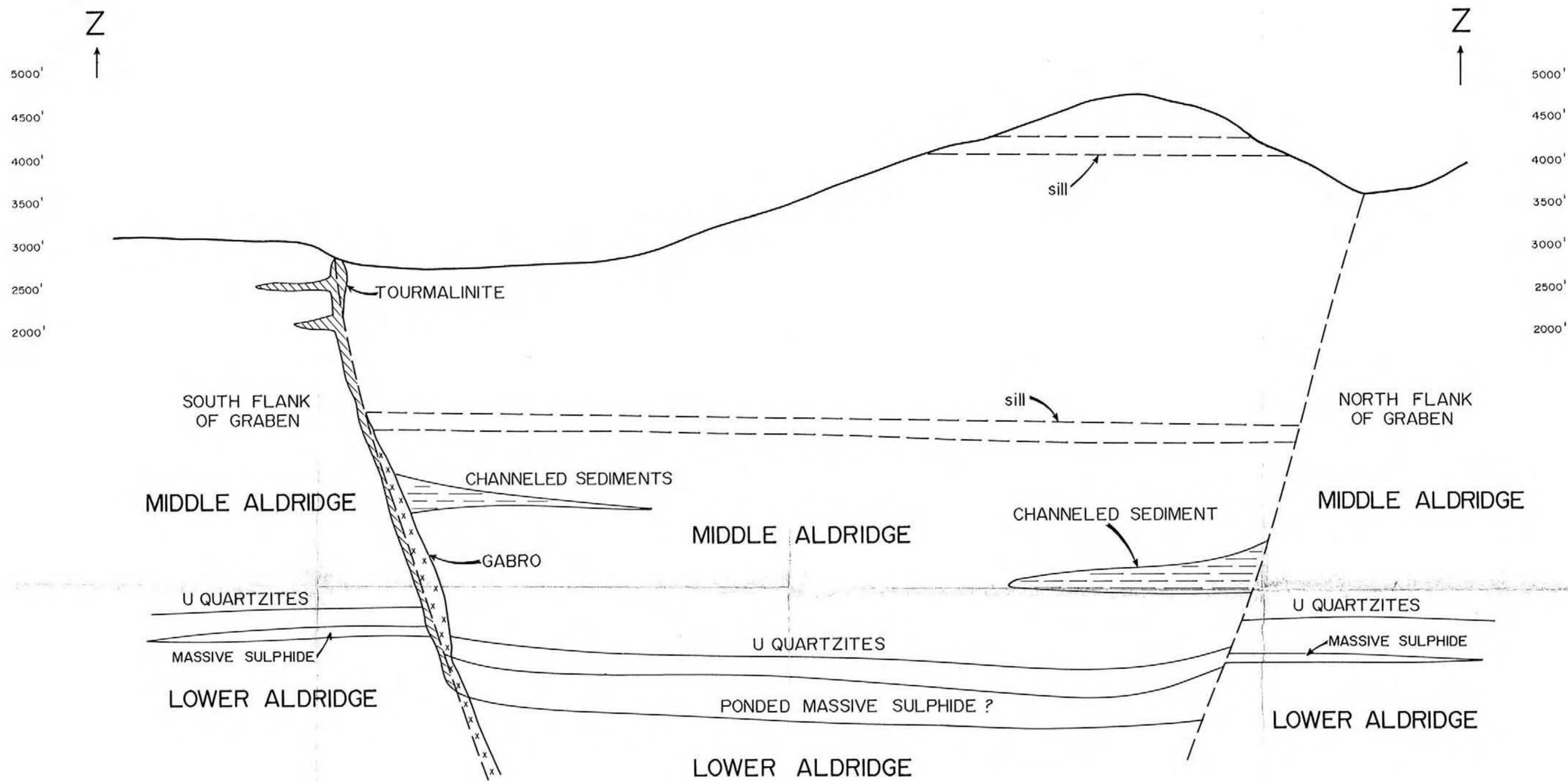
REVISED	GOAT PROPERTY	
	GEOLOGY	
PROJ. No.	SURVEY BY: G. Leask	DATE: December 1985
N.T.S. B2F/1	DRAWN BY: P. Arthur, J. Sarwin	SCALE: 1:10,000
DWG. No.	WHITE SAIL - BIG BEND J.V.	
	OFFICE: VANCOUVER	

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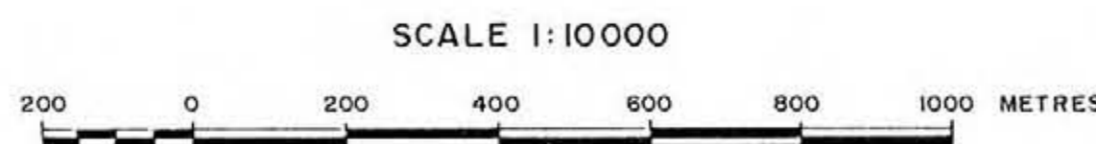


X-X CROSS SECTION THROUGH CENTRAL PORTION OF THE GRABEN, GOAT PROPERTY



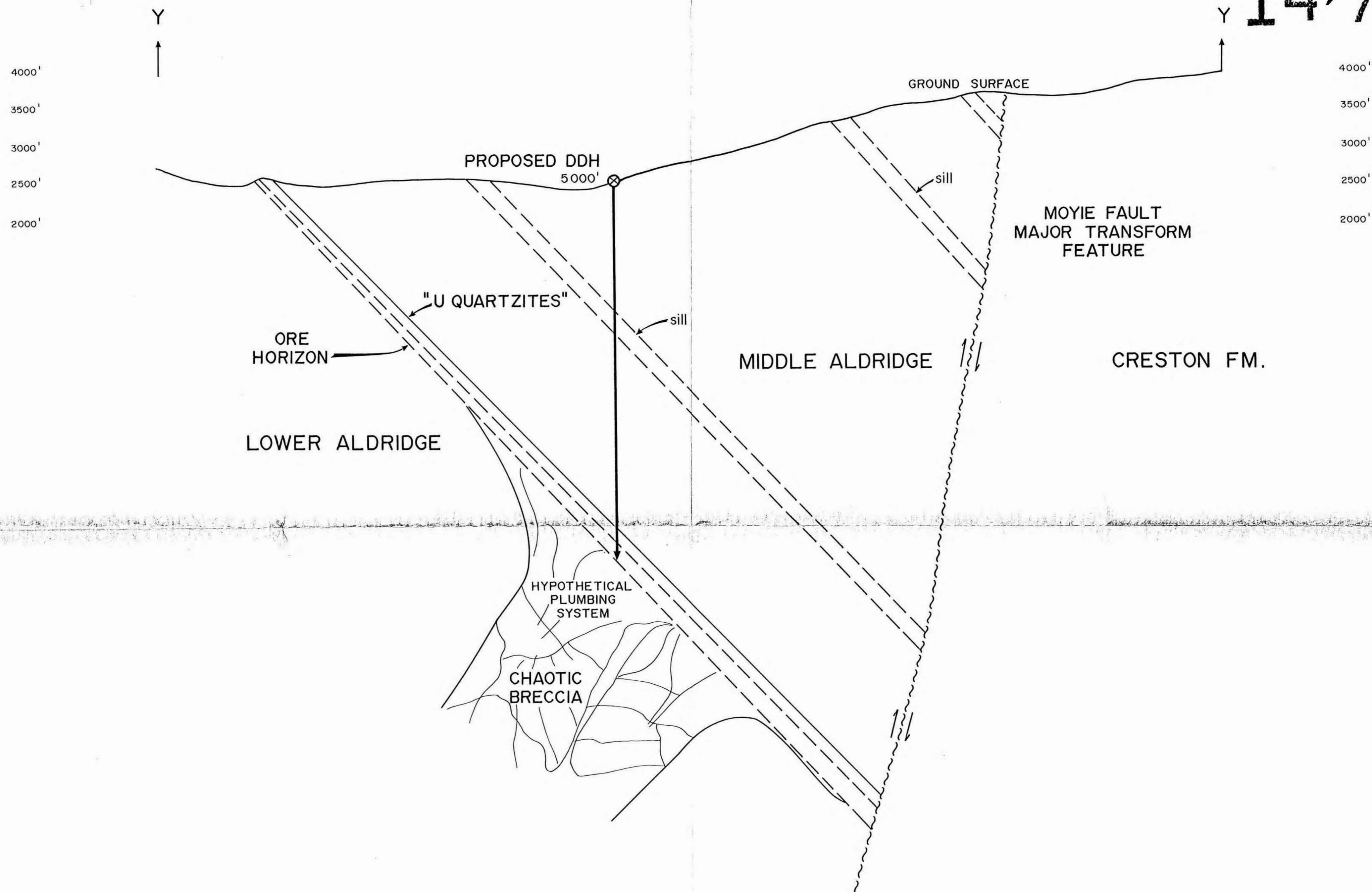


Z-Z CROSS SECTION ACROSS GRABEN, GOAT PROPERTY



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Y-Y CROSS SECTION SOUTHERN PORTION OF GRABEN , GOAT PROPERTY

