

680183

REPORT ON  
THE BAR PROPERTY, BRITISH COLUMBIA

Prepared for  
Laramide Resources Ltd.  
Skylark Resources Ltd.  
Canadian United Minerals Inc.

R.G. Gifford, P.Eng.

March 8, 1985

REPORT ON  
THE BAR PROPERTY, BRITISH COLUMBIA

Prepared for  
Laramide Resources Ltd.  
Skylark Resources Ltd.  
Canadian United Minerals Inc.

REPORT ON THE BAR PROPERTY, BRITISH COLUMBIA

TABLE OF CONTENTS

	<u>PAGE NO.</u>
SUMMARY	1
INTRODUCTION	1
LOCATION AND OWNERSHIP	2
HISTORY	3
GEOLOGY	4
MINERALIZATION	4
DISCUSSION	5
PROPOSED PROGRAMME	6
RECOMMENDATIONS	8
REFERENCES	8
CERTIFICATE	9
FIGURES	
1. Claim Location Map	attached
2. Structural & Geological Setting	"

## REPORT ON THE BAR PROPERTY, BRITISH COLUMBIA

### SUMMARY

The BAR property consists of 93 claim units located in southeastern British Columbia, 12 kilometres southwest of the town of Cranbrook. The property is held under option by Noranda Exploration Company Limited from Therm Exploration Ltd.

Noranda, Laramide Resources Ltd., Skylark Resources Ltd. and Canadian United Minerals Inc. propose to carry out exploration work on the BAR property under a joint venture agreement which provides for a 25% working interest to each company. Noranda will be the operator of the exploration programme.

The prospect covers the possibility of discovering a large sulfide deposit enriched with silver, lead and zinc. The claim group is situated 30 km south of the world class, stratigraphically controlled Sullivan orebody. Interpretation of geological data indicates that the equivalent of Sullivan strata, potentially mineralized, may underlie the claims at a depth that is practical for exploration.

Exploration of the property by a phased programme of drilling is recommended. Budgeting for the proposed programme is \$400,000 Cdn. of which \$120,000 is set aside for the first stage.

### INTRODUCTION

The following report was prepared at the request of the President and Directors of Laramide Resources Ltd., Skylark Resources Ltd. and United Canadian Minerals Inc., Vancouver, British Columbia. It presents the setting of mineralization for the BAR property, gives the conceptual basis on which exploration is targeted and gives recommendations and estimated costs for diamond drill testwork.

The report is based on a review of data made available by Noranda Exploration Company Ltd., and on personal knowledge of the region gained through several years of mining and exploration experience in the district. Work done on the property has consisted of geological mapping of the claim block in recent years and of tunnelling on the crown granted claims in a much earlier period. The underground work aggregates about 700 feet of development derived from 2 adits and 3 shallow shafts.

LOCATION AND OWNERSHIP

The BAR property consists of 93 claim units in one block approximating 5600 acres owned by Therm Exploration Ltd., Cranbrook, B.C. The claim group is currently optioned to Noranda Exploration Company Limited, Vancouver, B.C.

The area of primary interest is 12 kilometres west of the supply centre of Cranbrook. Access to the site is via about 7 kilometres of forestry road leading from Highway 3/95 south of Cranbrook. The claims are situated to the north of Lumberton Hill in an area of moderate topographic relief. Co-ordinates of the main site in the claim block are latitude 49°27'N, longitude 115°56'W, elevation 4000 feet and N.T.S. 82 G/SW.

Field inspection of claim posts for the BAR property was not undertaken for this report. Examination of mineral titles registered with the Ministry of Energy, Mines and Petroleum Resources, Vancouver, B.C. gives the following description for mineral claims of the BAR property, Fort Steele Mining Division, Kootenay Land District:

<u>Claim</u>	<u>Units</u>	<u>Record No.</u>	<u>Date of Record</u>	
Vine 55	18	1871	July 18/83	<sup>1</sup>
BAR 1	20	2015	Nov. 10/83	<sup>1</sup>
BAR 6	16	2028	Dec. 14/83	<sup>1</sup>
BAR 7	2	2029	Dec. 14/83	<sup>1</sup>
BAR 8	1 (2 Post)	2164	July 3/84	<sup>2</sup>
BAR 9	1 (2 Post)	2165	July 3/84	<sup>2</sup>
BAR 10	1 (2 Post)	2166	July 3/84	<sup>2</sup>
BAR 11	1 (2 Post)	2167	July 3/84	<sup>2</sup>
BAR 12	18	2168	July 3/84	<sup>2</sup>
BAR 13	10	2169	July 3/84	<sup>2</sup>
BAR 14	1 (2 Post)	2170	July 3/84	<sup>2</sup>
BAR 15	1 (2 Post)	2171	July 3/84	<sup>2</sup>
BAR 16	1 (2 Post)	2172	July 3/84	<sup>2</sup>
L 5253	Crown Grant	(Lookout)		<sup>3</sup>
L 5254	Crown Grant	(Belleville)		<sup>3</sup>

Notes at March 8, 1985:

- <sup>1</sup> Assessment work filed, Survey Pending (1983).
- <sup>2</sup> No Assessment work filed (1984).
- <sup>3</sup> Mineral Revenue, Victoria, B.C. states taxes are up to date.

## HISTORY

Mining development of the district began with the discovery of showings of the Sullivan orebody in 1892 located 30 km north of the BAR prospect, and of the St. Eugene orebody in 1893 located 20 km south of the prospect. The BAR property to this point has been modestly developed by exploratory underground workings.

From the date of acquisition in 1909 by Cominco to the end of 1980, the Sullivan Mine produced 125,500,000 tons containing 6.7% lead, 5.8% zinc and 2.4 oz/ton silver. Remaining diluted reserves at the end of 1979 were 54,000,000 tons containing 4.5% lead, 5.9% zinc and 1.1 oz/ton silver. In total the Sullivan approximates 180,000,000 tons in size grading 12% PbZn and 2 oz/ton Ag.

Records show that from start-up in 1900 to the end of 1915, the St. Eugene Mine produced 1,018,300 tons carrying approximately 15% lead, 5% zinc and 7 oz/ton silver. Between 1915 and shutdown in 1921, production was sporadic and amounted to only about 5,800 tons. Zinc was not recovered during the main life of the mine and the zinc estimate derives from miscellaneous data and from reclamation of mine tailings in 1926.

In recent years exploration of the area has been advanced by developments which include the following:

Recognition in 1962 of laminated markers, their possible use in subdivision of Aldridge stratigraphy, and their potential application to exploration.

Discovery of lead-zinc float boulders at the Fors prospect in 1965 which led to exploration of bedding controlled mineralization that was at a higher level than Sullivan time. Located 40 km south of the Sullivan Mine.

Discovery of lead-zinc mineralized strata beneath deep cover at the Polaris prospect in 1971; believed to be of Sullivan type and timing. Located 10 km south of the Sullivan Mine.

Discovery of lead-zinc float boulders of the important Vine deposit (Cominco) in 1976, located 37 km south of the Sullivan mine. This was followed by discovery of the main deposit, which was of the crosscutting St. Eugene type, by trenching in approximately 1978. Then followed the discovery of bedding controlled sulfides of believed Sullivan time by deep drilling in about 1979. Subsequent stepouts in a few deep drill holes to the north, toward the BAR prospect, continued exploration through 1984 at the believed level of Sullivan time.

## GEOLOGY

The claim area is underlain by sedimentary rocks of the Middle Aldridge formation. The assemblage is presumably succeeded by the Lower Aldridge formation at depth. In outcrop the strata is medium to thick bedded, is composed of quartzose turbidites and is gently dipping toward the north.

The outcrop of two diorite sills is evidenced in the southern part of the property. These sills and the bedded series they invade have been subjected to a regional metamorphism that has moderately altered the original constitution. A small mass of quartz monzonite intrudes the sequence in the northeast part of the area.

On the north side of the property is the Cranbrook fault of east strike and major displacement, and to the west is a later set of faults of northwest strike and moderate displacement. The Cranbrook fault, displaced by the northeast structures, offsets stratigraphy by a relative movement of north side down. A broad gentle fold with northeast trend is mapped in the central part of the claim block. These various structures serve mainly to elevate the level of stratigraphy for the claim group, such that favourable strata deep within the Aldridge formation is possibly within reach of exploratory drilling.

The consideration of marker beds, supported by the sequencing of sill units, indicates that the top portion of the Lower Aldridge formation may be between 2400' and 3000' below surface. This stratigraphic level approximates the position of productive strata of the Sullivan Mine situated 30 km to the north.

## MINERALIZATION

Chalcopyrite is associated with the diorite sills in several showings on and in the vicinity of the property. To the east of the claim block galena, arsenopyrite and chalcopyrite occurs in quartz veins cutting Middle Aldridge quartzites of the B & V prospect.

On the property the old Belleville adits explore shear zones both within a diorite sill and at the contact between the sill and Middle Aldridge quartzites. The shears are commonly 1 foot wide, reach 3 feet on occasion, and are filled intermittently with quartz and calcite. Galena, sphalerite and occasional chalcopyrite is associated with the vein material, and early reports describe a sample across 30 inches which assayed 0.44 oz/ton gold, 2.2 oz/ton silver.

## DISCUSSION

Interest in the possibility of discovering stratiform massive sulfides was renewed in the district in recent years by the use of markers to establish a stratigraphic framework and by the use of this framework to identify the favourable interval of Sullivan time at depth. In particular the favourable section is believed to be identified at the Vine showing to the south of Cranbrook.

The Sullivan orebody forms the chief basis on which exploration of the district is modelled. Features of the deposit and the sequence of events as presently interpreted include the following:

The orebody is an accumulation of sulfides vented in a sub-basin on the Aldridge marine floor at the same time as sediments were being deposited. It is located over conduits through which mineralizing fluids passed. **Associated characteristics:** great lateral extent in layering of sulfides concordant with bedding, uniformity in metallic composition; chaotic breccia, intraformational conglomerate.

The early stage of fluid channelling was boron rich. **Associated characteristics:** footwall tourmalinite.

A change of conditions gave an ore stage in which sulfides accumulated. The deposition of pyrrhotite predominated initially, later it was interlayered with galena and sphalerite. As the ore stage declined, well layered sulfides were intercalated with influxes of sediment. **Associated characteristics:** massive sulfide, sulfide and interbedded sediments, graded sequences with tops of distinctive sulfide lamination in the closing period.

The late stage changed conditions again and sodium-rich fluids percolated through the sequence and altered the composition of a large area of the orebody. **Associated characteristics:** zones of various albitic, chloritic, pyritic and calcitic alteration.

In the situation of the claim area the model taken to form a guide to locating massive sulfide mineralization includes components as given below:

1. Stratigraphic control of sulfide mineralization with attendant large areal extent to the sulfides and uniformity in their composition.
2. General coincidence of features that may express an orebody and form a basis to guide the exploration programme, such as: (a) **bedding controlled sulfides**, possibly mineralized with lead and zinc; (b) **alteration**, a precursor of tourmalinite and associated sulfide veining; an overprint of possibly albitic, chloritic,



pyritic or calcitic altered rock; and (c) ground conditioning, structurally developed zones that give evidence of having formed significant channelways to ore fluid.

3. Moderate dip to wallrock stratigraphy such that a broad area presents itself in plan view for easier targeting.

Of importance is the significant areal extent of features which mark the target and which allow the search to be broadly based. Exploration of the property is supported by the following factors: (a) identification of the depth to favourable beds, and this depth being within the scope of exploration; (b) reported identification of mineralized beds to the south of the property which are believed to be of Sullivan time; (c) reported improvement in mineralization of favourable strata going north toward the property; and (d) structural setting that is comparable in general terms to the environs of the Sullivan orebody.

#### PROPOSED PROGRAMME

The proposed programme is intended to explore the favourable stratigraphy for possible occurrences of bedding controlled mineralization. It is estimated that 3 holes totalling about 10,000 feet of drilling may be required for this work.

Available information suggests that the favourable strata may lie at a depth between 2400' and 3000' below surface. Also, interpretation suggests that sulfide mineralization becomes stronger in a northerly direction proceeding to the BAR prospect from the Cominco Vine deposit.

The determination of depth to the favourable strata is based on surface occurrences of marker beds 3 km south of the BAR property and on the general relationship of diorite sill emplacement on the property. There is of course much scope for error in this projection.

The first hole while directed to locating mineralization will also be important in establishing stratigraphy. Considering all the uncertainties involved, this programme can only be planned on a hole to hole basis. It might well require additional holes to expand on information obtained from the first and thus a further two holes are included as a second stage of exploration. Concurrent with the drilling, detailed stratigraphic studies should be carried out in an attempt to correlate surface and drill hole data.

As drilling of the first hole progresses, consideration of geological features should include:

1. Comparison of measured thickness of diorite sill in outcrop at drill site against drill hole information for any unusual thickening.
2. Recognition of stratigraphic markers.
3. Interception at a high level of persistent tourmalinized strata could lead to excessive drilling cost. However, if only a modest thickness of this hard material is anticipated then experience suggests that the cost of drilling would possibly continue within budget.
4. Interception of additional unexpected diorite sills. This could lead to an increased depth to target because of possible hydraulic separation of strata brought about by sill injection.

Siting of holes should avoid proximity to major faults in order to diminish adverse effects to drilling such as severely broken ground and loss of water return.

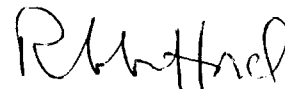
RECOMMENDATIONS

A programme of deep drilling supported by geological studies is recommended. This would explore the possibility of mineralization being associated with favourable strata at the top of the Lower Aldridge formation. The initial drilling site is located in the claim block near the Palmer Bar reservoir. This selection gives the lowest stratigraphic level on the property. A total of 10,000 feet of drilling is allocated for the programme with 3000 feet assigned to the first hole.

The programme is intended to proceed in two stages with the second stage of drilling contingent on results of the initial drill hole. The programme could take 6 weeks or more for drilling excluding mobilizations, site preparation and downtime.

The cost of implementing the proposed programme is estimated to total \$120,000 Cdn as set out below:

	\$'s Cdn
<u>Stage I:</u> Two week drilling programme.	
Diamond drilling (3000 feet), 1 hole; including preparation, analyses, supplies, transportation, accommodation and geological work	100,000
Mobilizations	<u>2,000</u>
sub-total	102,000
Plus contingency (includes factor for drilling more than 2000 feet per hole)	<u>18,000</u>
Total Stage I	\$120,000
<u>Stage II:</u> Four week drilling programme.	
Diamond drilling (7000 feet), all inclusive for 2 holes	
Total Stage II	<u>\$280,000</u>
Total Estimate	<u>\$400,000</u>



-----  
R.G. Gifford, P. Eng.  
March 8, 1985

RGG:sg

CERTIFICATE

I, R. G. Gifford, DO HEREBY CERTIFY:

That I am a consulting geologist with offices at #200 - 675 West Hastings Street, Vancouver, B.C. V6B 1N2.

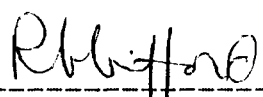
That I graduated with a B.A. Sc degree in geological engineering from the University of British Columbia in 1958.

That I am a Registered Professional Engineer in the Association of Professional Engineers of the Province of British Columbia.

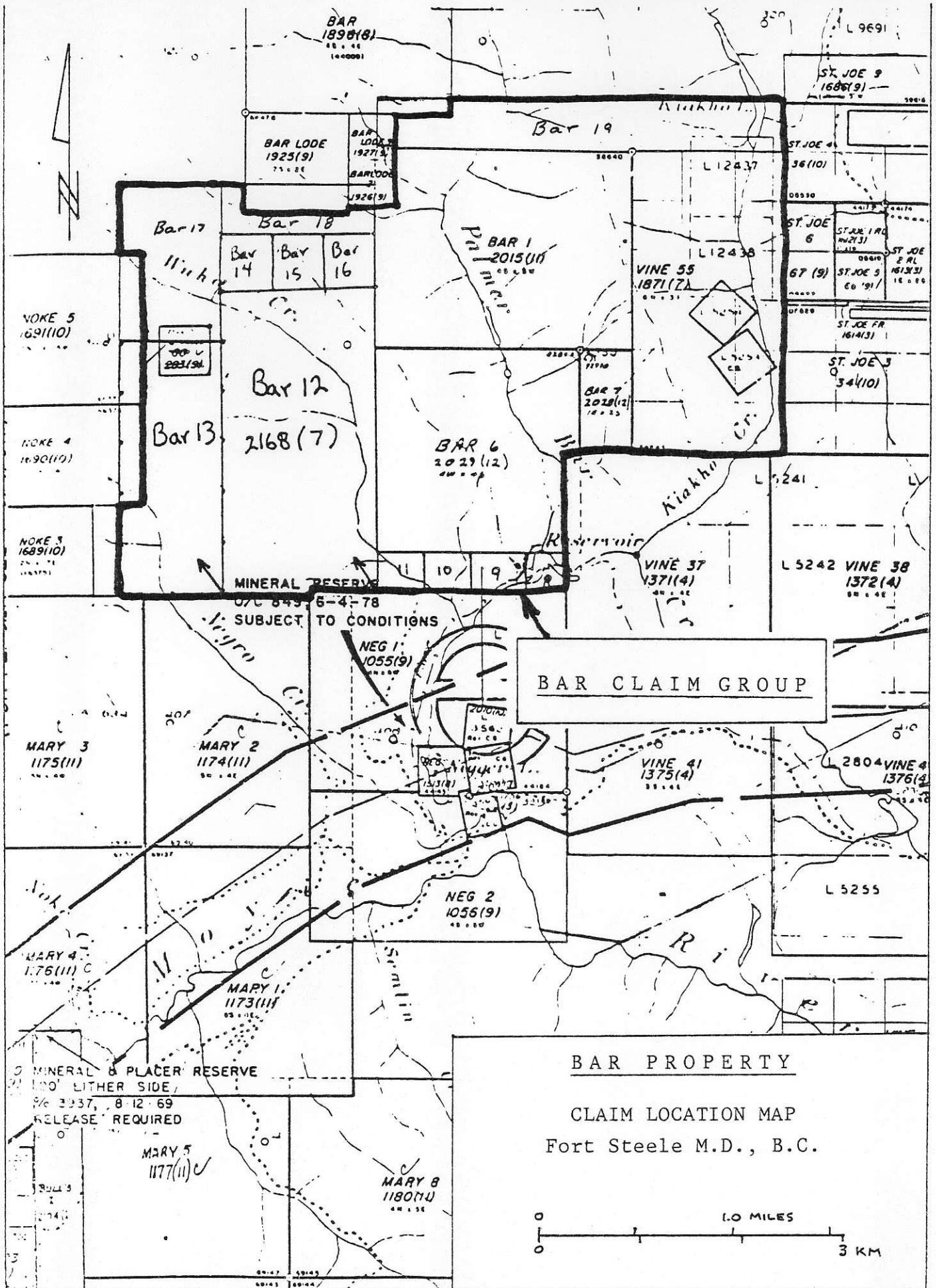
That I have practised my profession as a geologist for the past twenty-seven years in Canada, U.S.A., Central America and Australia.

That the information, opinions, and recommendations in the attached report are based on the experience gained by the writer through work as a geologist both in the Sullivan Mine and in exploration of the region during a 15 year period and on research of published reports and maps obtained from the British Columbia Ministry of Energy, Mines and Petroleum Resources, the Geological Survey of Canada and from the property owners. That the information on claim records and validity is based on checking with the Mining Recorder's offices in Vancouver.

That I have no direct, indirect nor contingent interest in the BAR property, nor in the shares or securities of Laramide Resources Ltd., Skylark Resources Ltd. or Canadian United Minerals Inc. nor do I expect to receive such interest.

  
-----  
R.G. Gifford, P.Eng.

Dated at Vancouver, British Columbia, this 8th day of March, 1984.



BAR 1898(8)  
85 x 45  
(140000)

BAR LODE 1925(9)  
75 x 85

BAR LODE 1927(10)  
BAR LODE 1926(9)

Bar 19

ST. JOE 9 1686(9)

Bar 17

Bar 18

Bar 14 Bar 15 Bar 16

BAR 1 2015(11)  
60 x 60

VINE 55 1871(7A)

ST. JOE 4 36(10)

ST. JOE 6

ST. JOE 2 PL 1613(3)  
16 x 25

ST. JOE 9 60(9)

ST. JOE FR 1614(3)

ST. JOE 3 34(10)

NOKE 5 1691(10)

NOKE 4 1690(10)

NOKE 3 1689(10)

Bar 12

Bar 13

2168(7)

BAR 6 2029(12)  
40 x 40

BAR 7 2028(12)  
18 x 25

VINE 37 1371(4)

L 5242 VINE 38 1372(4)  
80 x 40

MINERAL RESERVE  
O/C 849 6-4-78  
SUBJECT TO CONDITIONS

NEG 1 1055(9)

BAR CLAIM GROUP

MARY 3 1175(11)

MARY 2 1174(11)

VINE 41 1375(4)

L 2804 VINE 4 1376(4)

NEG 2 1056(9)

L 5255

MARY 4 1176(11)

MARY 1 1173(11)

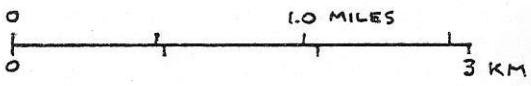
MINERAL & PLACER RESERVE  
100' EITHER SIDE,  
O/C 3937, 8-12-69  
RELEASE REQUIRED

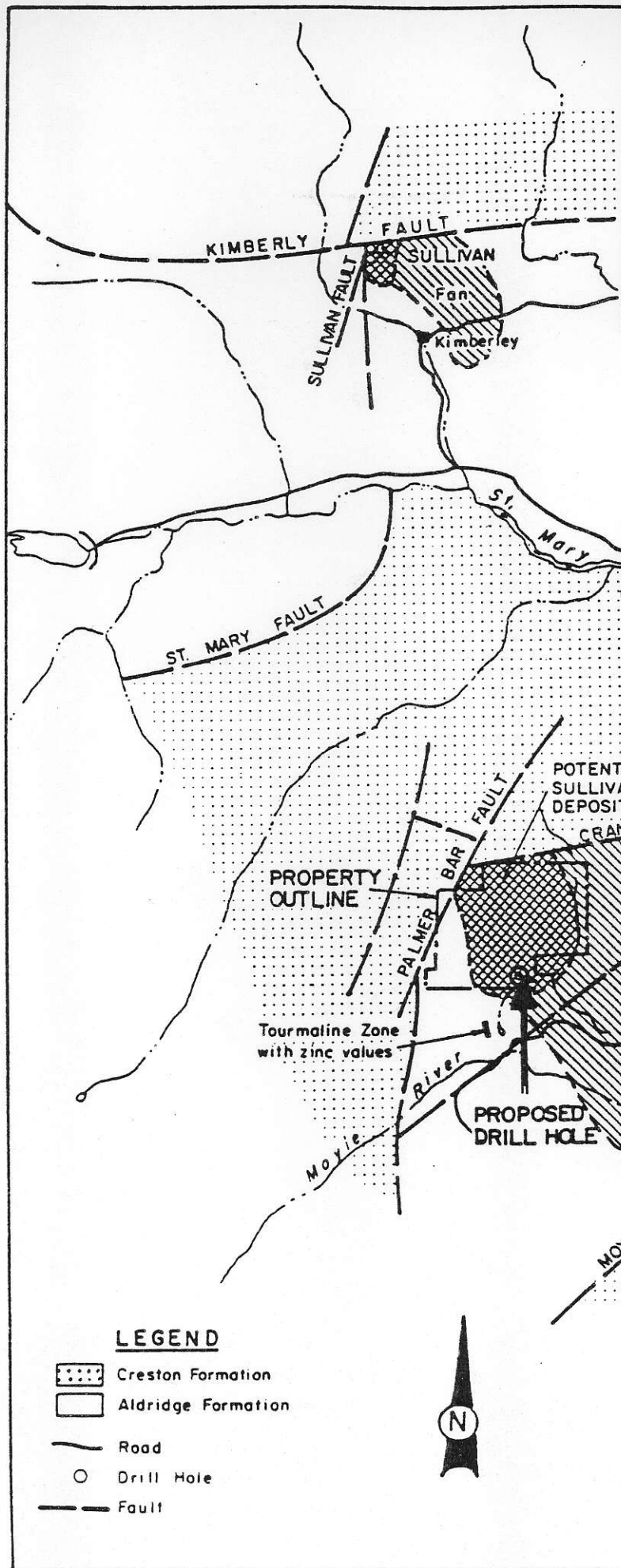
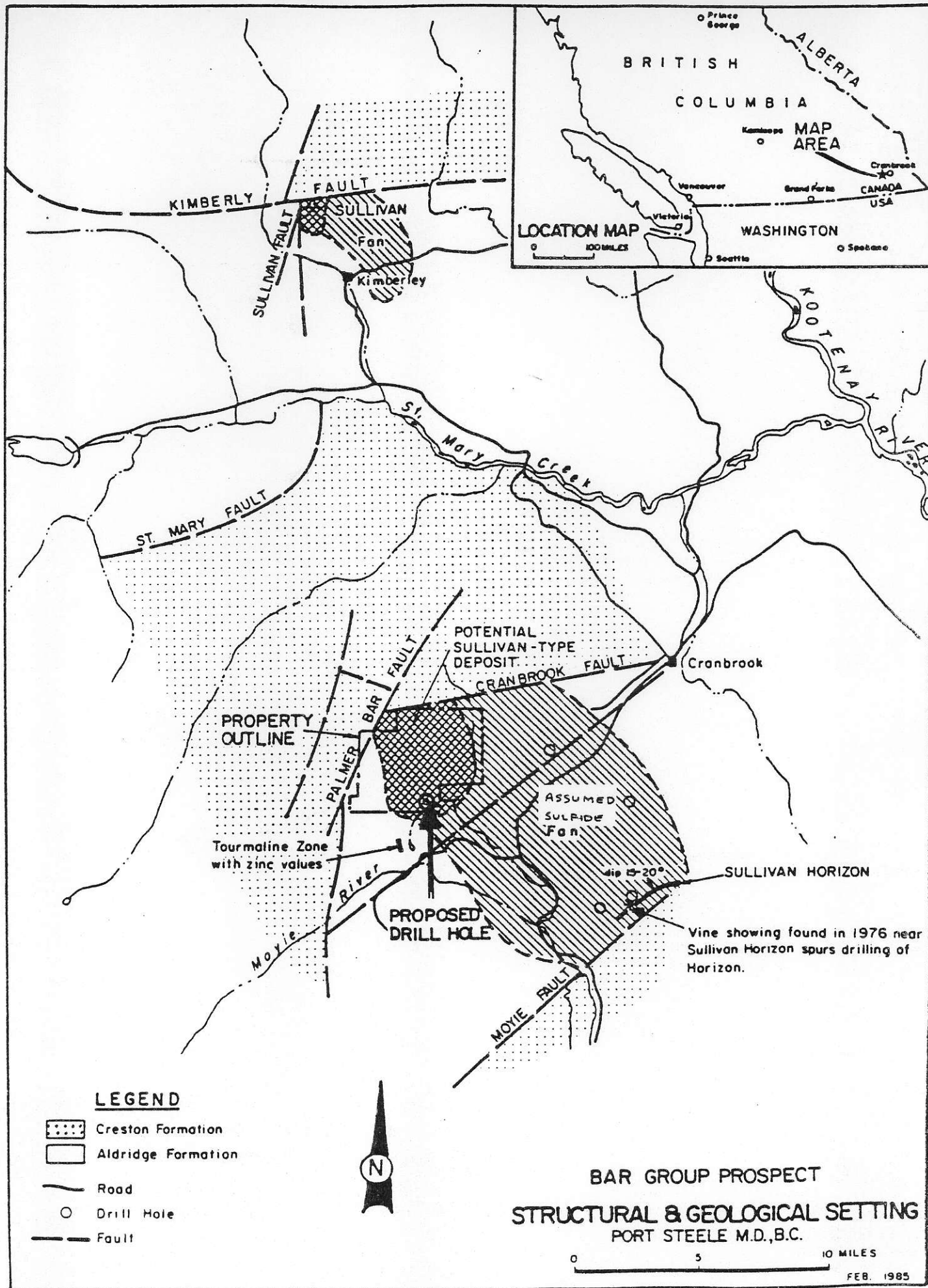
MARY 5 1177(11)

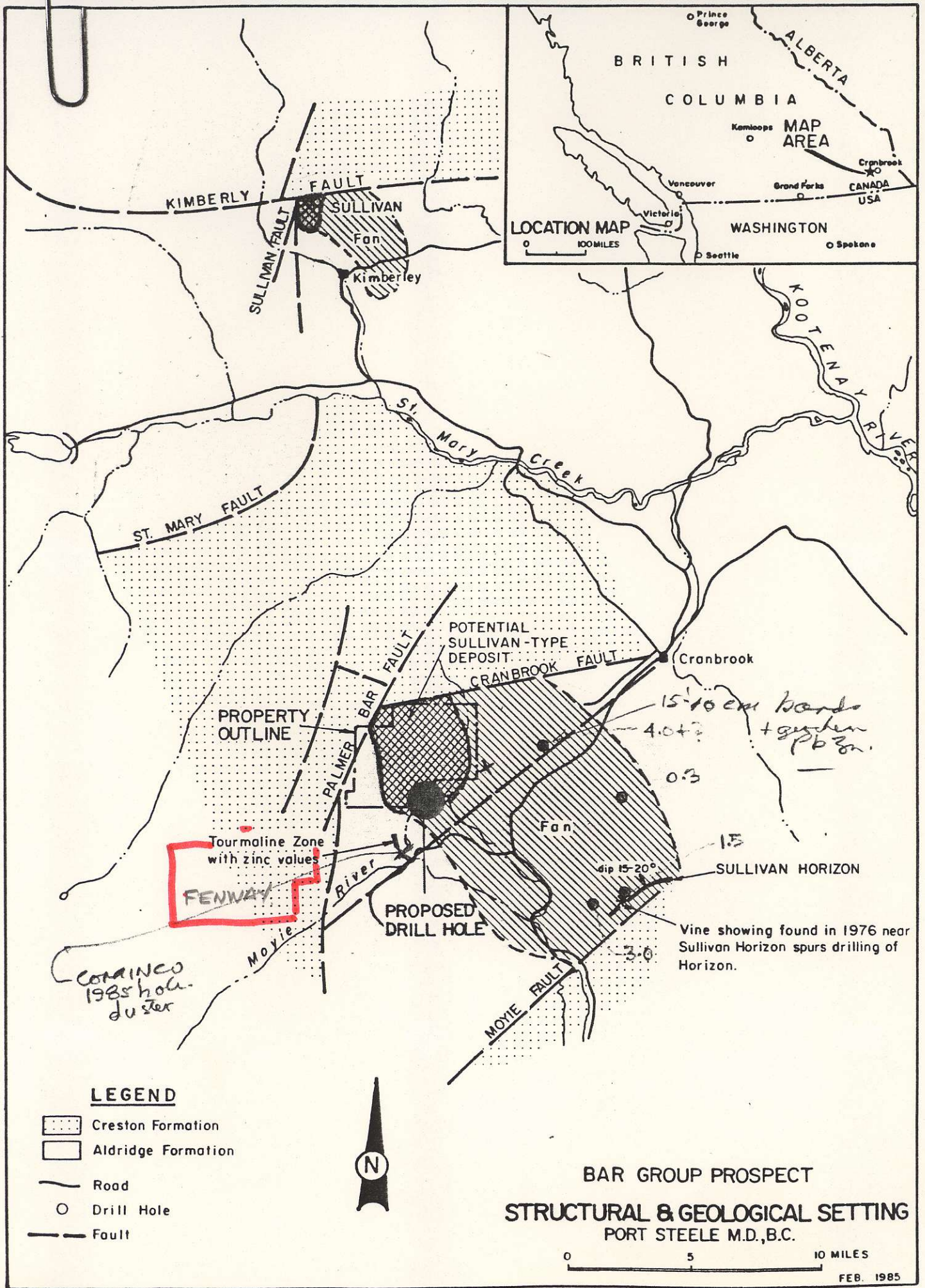
MARY 8 1180(11)

BAR PROPERTY

CLAIM LOCATION MAP  
Fort Steele M.D., B.C.





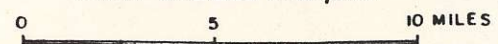


**LEGEND**

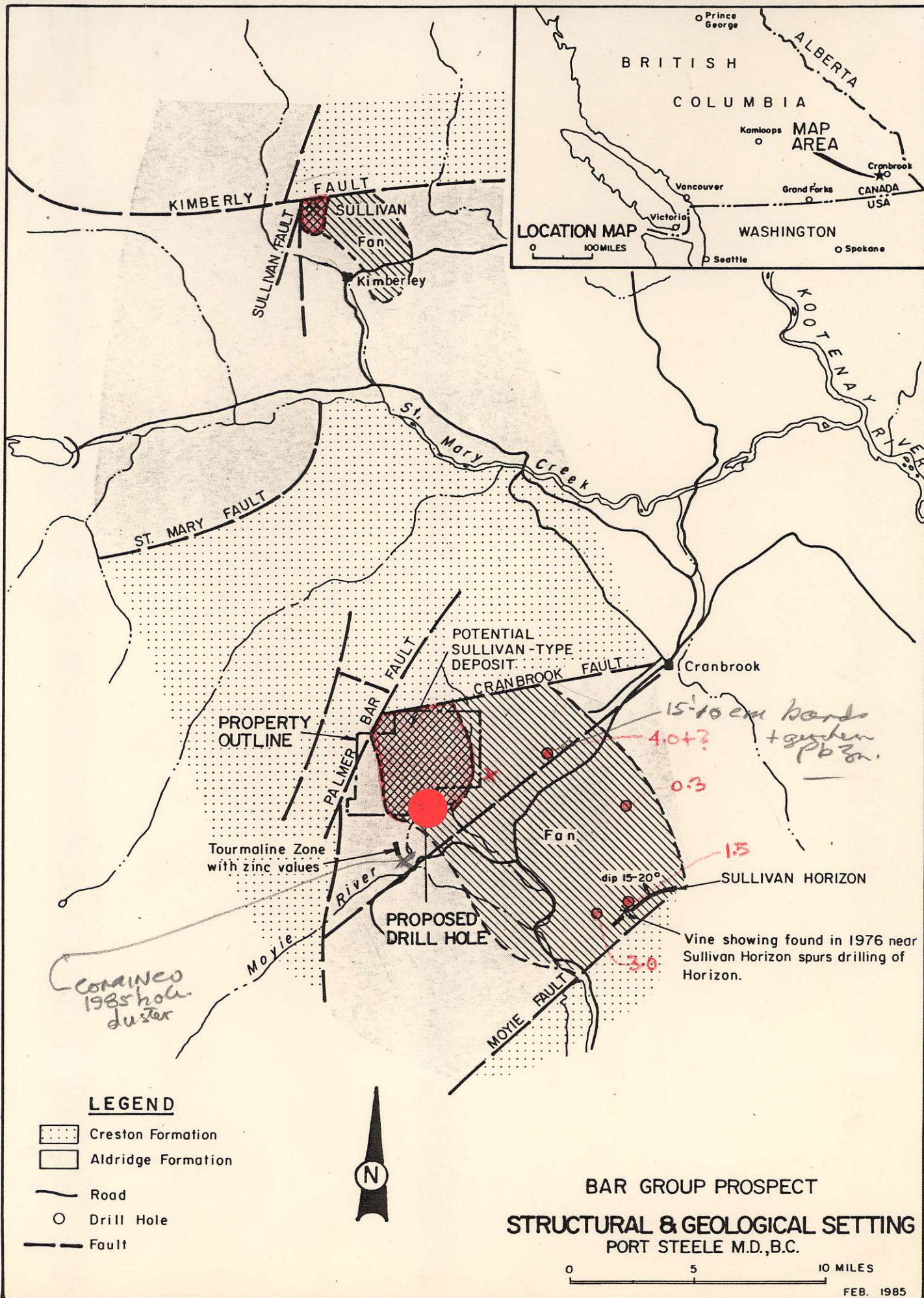
- Creston Formation
- Aldridge Formation
- Road
- Drill Hole
- Fault








**BAR GROUP PROSPECT  
STRUCTURAL & GEOLOGICAL SETTING  
PORT STEELE M.D., B.C.**



FEB. 1985



**LEGEND**

-  Creston Formation
-  Aldridge Formation
-  Road
-  Drill Hole
-  Fault



**BAR GROUP PROSPECT  
STRUCTURAL & GEOLOGICAL SETTING  
PORT STEELE M.D., B.C.**



FEB. 1985