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GEOLOGICAL REPORT

ON THE

MENZIES BAY GROUP

Nanaimo Mining Division  
 Vancouver Island  
 British Columbia

SUB-RECORDER RECEIVED	
JUN 13 1990	
M.K. # .....	\$.....
VANCOUVER, B.C.	

NTS 92K/3W

50<sup>0</sup> <sup>08</sup> ~~06.5~~' North  
 125<sup>0</sup> ~~23.3~~' West  
 24' 45"

Owned and Operated by:

J. Laird  
 3868 Mt. Seymour Parkway  
 North Vancouver, B.C.

Prepared by:  
 Tiro Clarke, B.Sc. (Geol.)

June 11, 1990

**GEOLOGICAL BRANCH  
 ASSESSMENT REPORT**

20,072

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1. Introduction

This report summarizes the results of a geological examination of the Menzies Bay Group carried out between December 28 and 30, 1989.

The purpose of the report was to assess the potential for massive sulphide mineralization on the Menzies Bay Group property.

a. Location and Access (Figure 1)

The Menzies Bay Group is located in the Nanaimo Mining Division on Vancouver Island, approximately 19km north of the bridge over Campbell River, and 2km west from the head of Menzies Bay. Access is by driving northwest from Campbell River along Highway 19 for 19km, then turning south on to a logging for another 1km.

b. Topography and Vegetation (Figure 1)

The Menzies Bay Group is situated on a gentle westward facing slope. Maximum and minimum elevations are approximately 700 feet at the western side of the group and 250 feet along the eastern boundary. One small easterly flowing creek draining the southern part of the group flows past the Final Post for the V3 and V4 claims. Much of the northern part of the Menzies Bay Group has recently been logged. The rest of the group is covered primarily by a spruce and fir forest.

c. Property Status and History (Figure 2)

The Menzies Bay Group consists of four claims as follows:

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<u>Claim Name</u>	<u># Units</u>	<u>Record #</u>	<u>Expiry Date</u>
V1	1	3312	March 16, 1993
V2	1	3313	March 16, 1993
V3	1	3314	March 16, 1993
V4	1	3315	March 16, 1993

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The claims were staked by J. Laird on the basis of a previously reported vanadiferous massive chalcocite showing hosted by Karmutsen Formation basalts and interflow sediments (Jambor, 1960). In 1956, 5 tonnes of material were mined from an open cut and short adit located on the V1 claim (BC Minfile, 092K/016). The material averaged approximately 10% Cu.

d. Summary of Assessment Work Performed

Between December 28 and 30, 1989, the following work was performed on the Menzies Bay Group:

1. Geology along the access road to the property was mapped on a scale of 1:2,500
2. An open cut exposing massive chalcocite mineralization on the V1 claim was mapped on a scale of 1:50.

2. Technical Data

a. Regional Geology (Figure 3)

The Campbell River area on Vancouver Island is underlain by a conformable sequence comprised of, from oldest to youngest, Karmutsen Formation basalts, Quatsino Formation limestones, and Bonanza Volcanics. Parson Bay Formation limestones and calcareous sediments and Harbledown Formation non-calcareous sediments may occur between the Quatsino Formation and Bonanza Volcanics but have not been noted in the Campbell River area. The entire package spans from Late Triassic to Early Jurassic time and is intruded by Middle to Late Jurassic Island Intrusion plutonic rocks.

At the bottom of the package is the Upper Triassic Karmutsen Formation, with a total thickness of approximately 6000m. The predominant units are pillowed basaltic flows and breccias, and basaltic to andesitic massive flows. Thin beds and lenses limestone which may represent earliest Quatsino Formation limestone deposition are present in the uppermost Karmutsen Formation.

The Upper Triassic Quatsino Formation is a homogeneous limestone sequence with a maximum thickness of at least 750m. The limestone is generally light grey, fine grained, well bedded, and locally fossiliferous. In areas of deformation and/or intrusive activity the limestone is often recrystallized, stylolitic, and bleached white.

Above the Quatsino Formation limestones lie the Bonanza Volcanics, approximately 2400m thick. The volcanics range in composition from rhyodacites to basalts, with intercalated sedimentary units.

Intruding the above Late Triassic-Early Jurassic package are Island Intrusion granitic rocks. Most have a granite to quartz monzonite and diorite composition. Isotope dates of Island Intrusion rocks are approximately 150 million years.

b. Menzies Bay Group Geology (Figure 4)

i) Stratigraphy - The Menzies Bay Group is underlain entirely by Karmutsen Formation basalts and andesites. The rocks are primarily fine to medium grained and dark green to black, weathering to black, brown and grey. Amygdaloidal flows are common, with the amygdules consisting of epidote, white calcite and quartz, black chalcedony, and chalcocite. Amygdules containing both black chalcedony and chalcocite were common directly beneath (stratigraphically and structurally) the massive chalcocite horizon.

The basalts and andesites underlying the Menzies Bay Group are interpreted to be massive submarine flows, ranging in thickness from 0.5m-2m.

ii) Structure - Rocks in the Menzies Bay Group area exhibit no pervasive deformation. Bedding ranges from flat lying to gently dipping to the northeast. The three non-horizontal measurements were 170/07NE, 165/17NE and 130/25NE. A nearly vertical shear or fracture zone trending approximately  $315^{\circ}$  runs through the

property, approximately 100m southwest of the centre of the claim block. Joint sets with attitudes 090/72S, 000/48E, 120/65SW and 065/90 were measured during mapping.

iii) Mineralization - Mineralization on the Menzies Bay Group consists of vanadiferous massive chalcocite hosted by Karmutsen Fm. basalts and interflow sediments. Where seen in an open cut on the V1 claim (Figure 5) the massive chalcocite is finely laminated, 20cm thick, and underlain by a thin (<1-2cm) black argillaceous sediment. Load casts occur in the argillites. Vanadium in the form of volborthite occurs as yellow coatings, particularly on fracture surfaces. Moderate malachite staining also occurs with the chalcocite. A grab sample of the chalcocite contained 32% Cu and 1.34% V (J. Laird, pers. comm.). Within 1m directly below the massive chalcocite horizon, the basalts contained chalcocite amygdaloids.

Volborthite and chalcocite mineralization is also reported to occur in a shear zone within basalts (Jambor, 1960). This was not seen during mapping.

### 3. Conclusions and Recommendations

The Menzies Bay Group is underlain by Upper Triassic Karmutsen Formation massive basalt and andesite flows. Massive chalcocite on the V1 claim is hosted by basalts and interflow sediments. A grab sample of the mineralization contained 32.0% Cu and 1.34% V. Sedimentary features (laminations and load casts) indicate that mineralization is syngenetic, with a possible source being submarine hydrothermal vents. While the maximum observed thickness of the chalcocite is 20cm, this may increase with proximity to the source(s).

There is good potential for discovering more substantial massive sulphide mineralization on the Menzies Bay Group. A soil geochemistry program followed by trenching of soil anomalies is recommended to trace the massive chalcocite horizon both north and

south from the showing on the V1 claim. A 1000m long baseline oriented at  $340^0$  with grid lines spaced 100m apart and sample stations every 25m are suggested. Grid lines should extend 250m on either side of the baseline. Anomalous results will guide both a trenching program and further grid coverage.

4.

Bibliography

British Columbia Ministry of Energy, Mines and Petroleum Resources: Resource Data Section. Minfile Occurrence 092K/016.

Jambor, J. L., 1960. Vanadium-bearing Interlava Sediment from the Campbell River Area, British Columbia: M.Sc. Thesis, University of British Columbia, 123 pp. plus 2 maps.



5. Itemized Cost StatementWAGES:

Tiro Clarke, Geologist-

Field work (March 17,		
Dec. 27-30, 1989)	4 days	
Report & map prep.:	2 days	

Total = 6 days @ \$200.00/day	\$1,200.00
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Transportation:

Truck rental - 4 days @ \$50.00/day	\$ 200.00
Gas	\$ 72.50
Mileage (940km @ \$0.15/km)	\$ 141.00

Meals and Accommodation:

Hotel (Dec. 27/28/29, 1989)	\$ 81.00
Meals	\$ 137.37

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TOTAL COSTS	=	\$1,831.87
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6.

DECLARATION

I, Tiro Clarke of #301-357 E. 2nd St., North Vancouver, B.C.,  
V7L 1C6, hereby certify that:

1. I graduated from the University of British Columbia with a  
B.Sc. in Geology in 1988.
2. I have practised geology since graduation.
3. Work detailed in this report was carried out by myself.

Date: June 11, 1990

Signature: Tiro Clarke

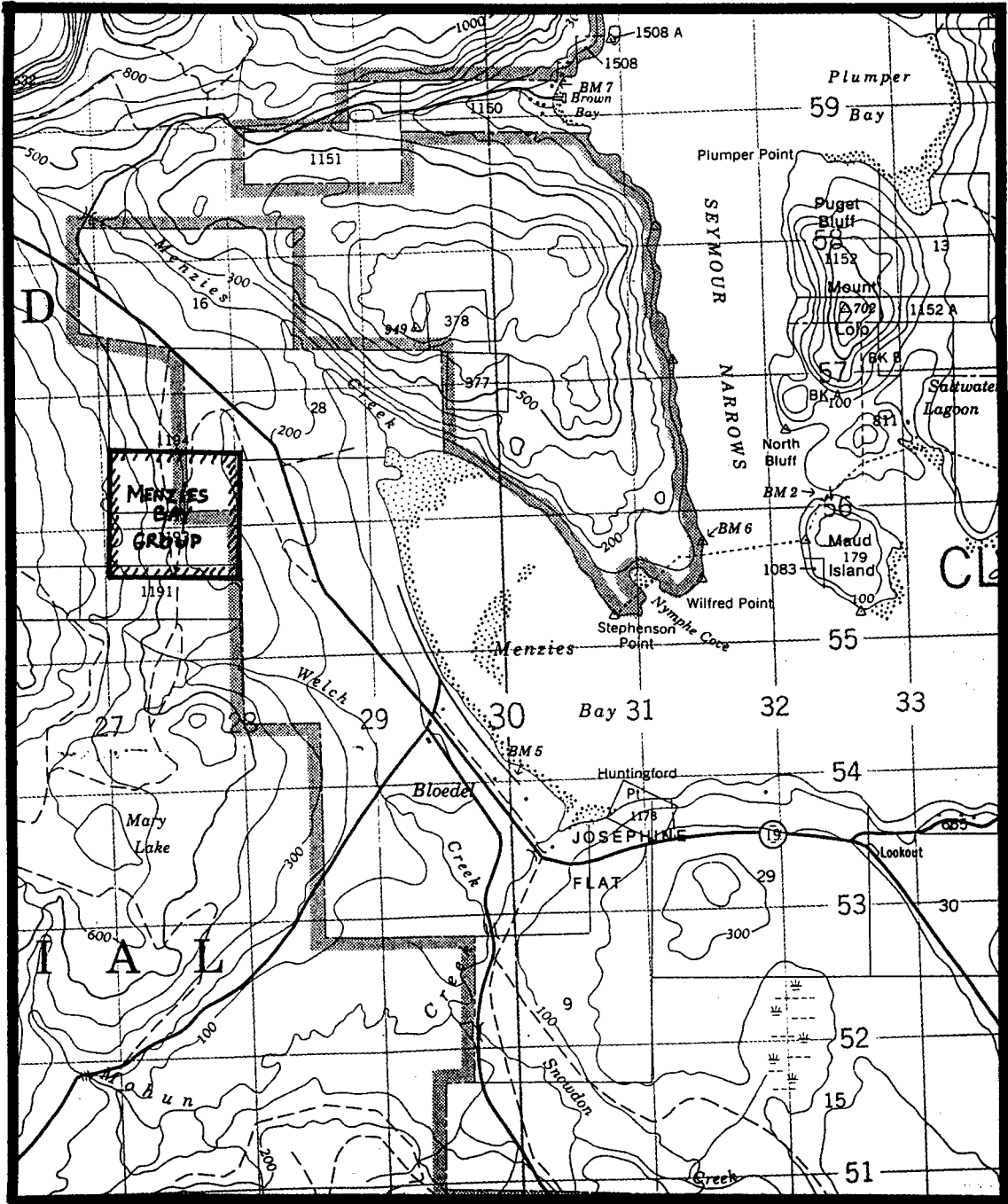
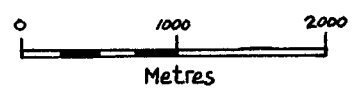


Figure 1. Location map of the Menzies Bay Group.

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1:50,000



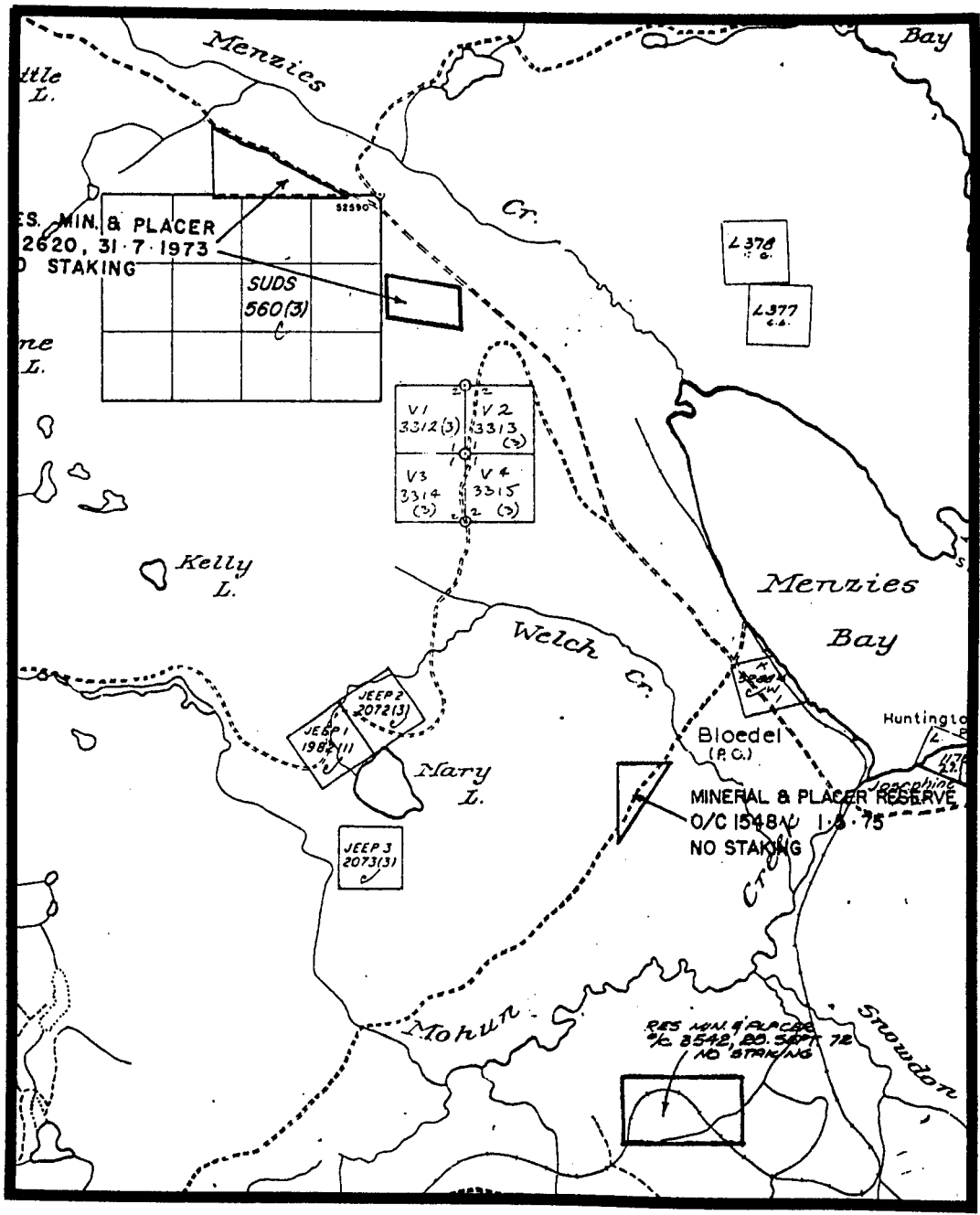
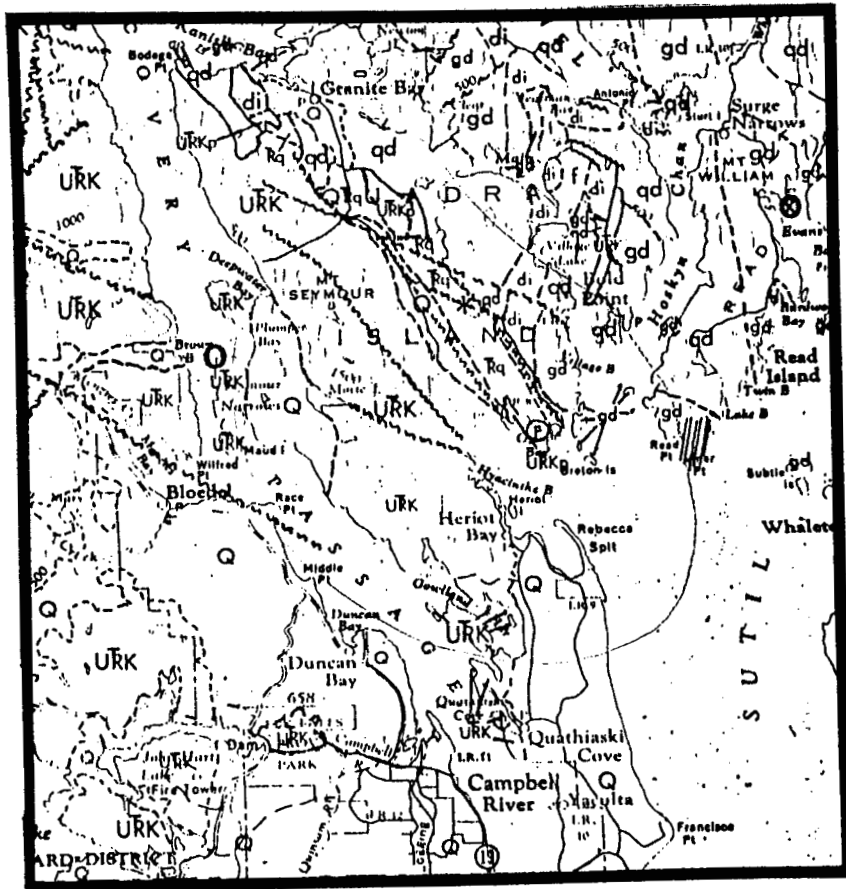


Figure 2. Claim details of the Menzies Bay Group.

NTS 92K/3W 1:50,000



Q = Quaternary  
 di, gd, gd = Island Intrusions  
 URK = Karmutsen Fm.

Figure 3. Regional Geology of the Menzies Bay Group area.

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1:250,000



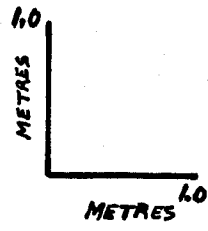
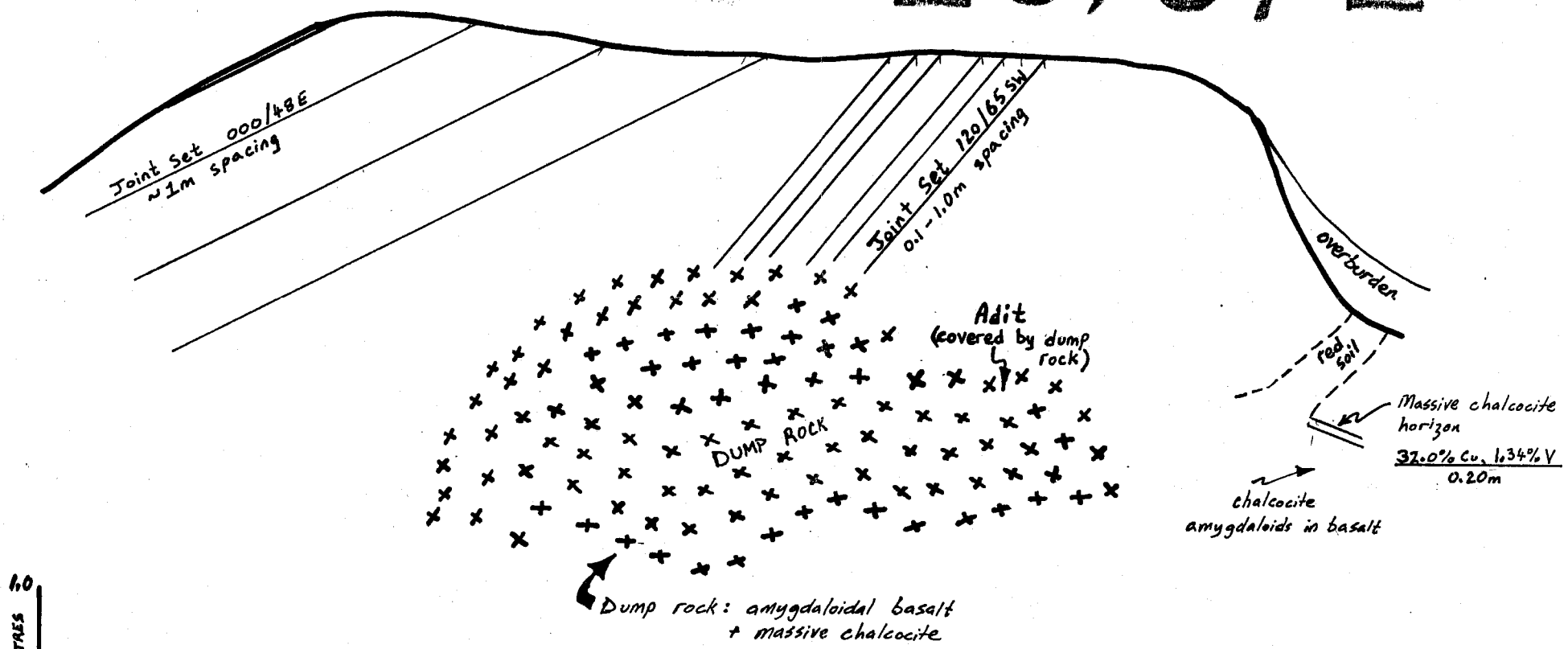
Kilometres

GEOLOGICAL BRANCH  
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155°

335°

20,072



**FIGURE 5**

Open Cut on V1 claim

Scale 1:50

T. Clarke  
12-28-89

