800840

PRELIMINARY GEOLOGICAL REPORT

on the

ZED COPPER PROSPECT

centering approximately one mile southeast of

CUISSON LAKE, BRITISH COLUMBIA

in the

CARIBOO MINING DIVISION

for

KENNEDY SILVER MINES LTD. (N.P.L.)

Port Alberni, B.C.

by

W.M. Sharp, P.Eng.

Consulting Geological Engineer

North Vancouver, B.C.

November 1970

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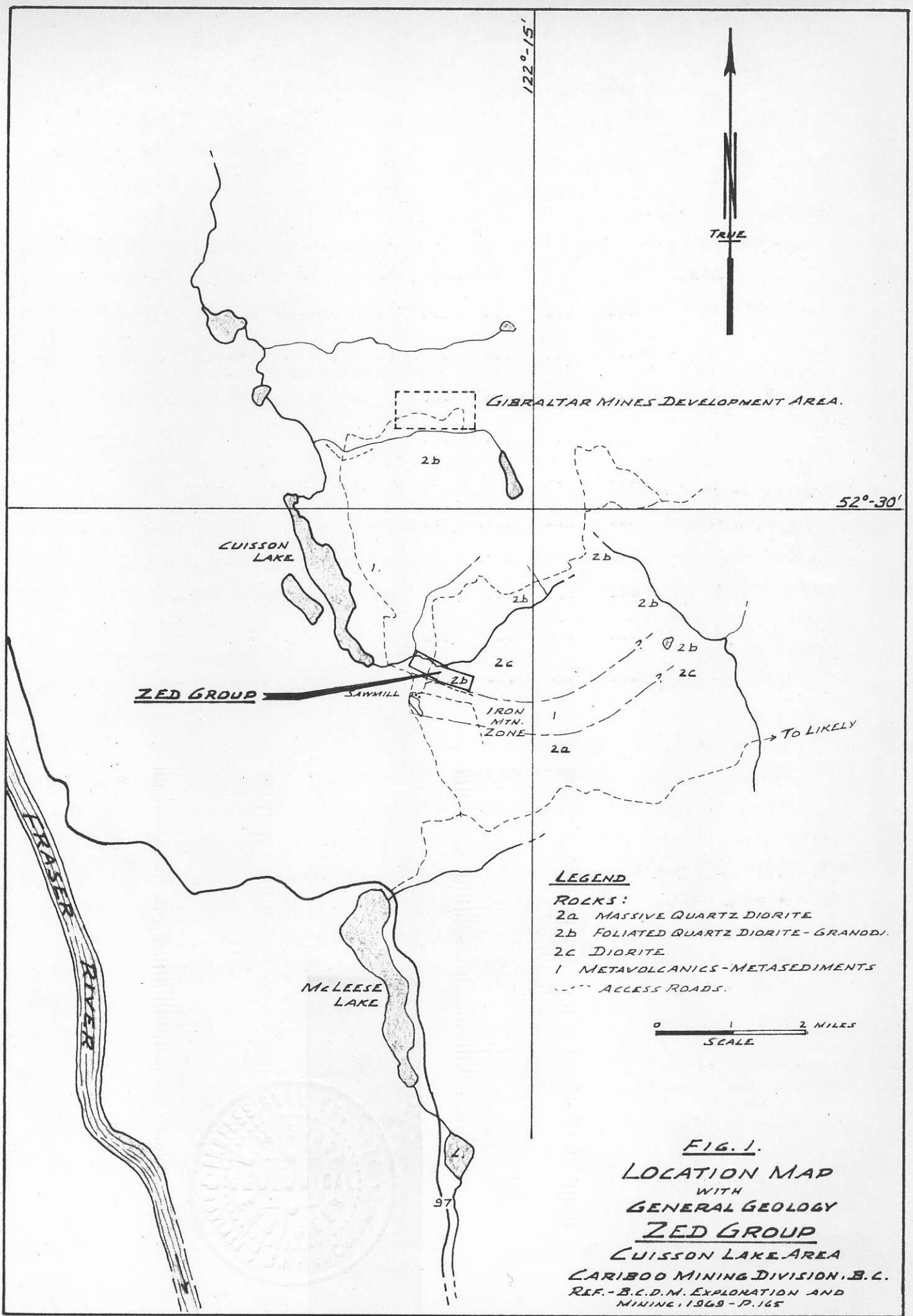

FIG. 1.

LOCATION MAP
WITH
GENERAL GEOLOGY
ZED GROUP
CUISSON LAKE AREA
CARIBOO MINING DIVISION, B.C.
REF. - B.C.D.M. EXPLORATION AND MINING, 1969 - P. 165

NOV. 1970 W.M. SHARP, P.ENG.

SUMMARY AND CONCLUSIONS

The Zed group, centering at roughly one mile east of the south end of Cuisson Lake, consists of one block of 8 contiguous claims; of these, 4 have been staked since the writer's November 10, 1970 field examination. Formal notice of recording in respect to all eight claims is currently pending.

The property is accessible by way of some 5 miles of well-graded dirt road from its junction with Highway 97 near the north end of Cuisson Lake.

The Zed claim group and general locality are underlain by more southerly portions of the same major stock which hosts the Gibraltar group of large disseminated copper ore deposits---now being prepared for open-pit mining. The published geological data suggest that the optimum host rocks of the Gibraltar locality comprise the more strongly foliated and sheared phases or sections of the general quartz diorite stock---particularly where these show a significant development of alteration epidote, chlorite, muscovite and quartz, with disseminated gangue metallics in the form of pyrite and/or hematite.

The Zed chalcopyrite showings---currently exposed by one of two trenches excavated---situate within a panel of sheared, altered foliated quartz diorites. A visual estimate of the grade, over an exposed part-width of 8-10 feet, is in the range of 1.3 - 1.5 percent copper. In general, and according to the currently-available information, the greater part of the claim group is relatively unexplored---in marked contrast to the large amount of exploration undertaken on the southerly-adjacent schist panel prior to 1963 and the advent of intensive exploration of the Gibraltar area mineralization.

The E.N.E. and W.S.W. strike extensions of the Trench No. 2 mineralization presently comprise the most obvious exploration target. However, such detailed exploration would be properly deferred until such time as a general reconnaissance of the total claims area had been completed.

To date, no commercial concentrations of copper mineralization have been discovered within the Zed claim group. However, a fair possibility that they may occur beneath the general blanket of overburden may be inferred on the basis of similarities of the Zed group geology to the general geological setting of the Gibraltar mineralization --- situating some 2½ to 3 miles to the north.

RECOMMENDATIONS AND ESTIMATED COSTS

Stage I Exploration

1.	Establish the actual claims area via compass-tape survey methods;	8 claims @ $65	$ 520
2.	Establish exploration grid; N-S lines at 400' E-W spacing, with 100' line-stations;	5 mi. @ $100	500
3.	Perform a full magnetic survey;	5 mi. @ $80	400
4.	Perform a geochemical soil survey (Cu)		
	Labour, 7 days @ $80/day	$ 560	
	Mailing & lab costs, 260 samples @ $2	520	1,080
5.	Provision for geological mapping and office compilation, including travel expense		750
6.	Provision for I.P. survey;	5 miles @ $700 gross	3,500
7.	Provision, bulldozer trenching;	60 hours @ $35 gross	2,100
8.	Provision, sampling and assaying		500
9.	Provision, general overhead, travel, and property payments		3,000
	TOTAL, Stage I		$12,350

Stage II .

Follow-up exploration and financing contingent on Stage I results.

Respectfully submitted,

W.M. Sharp

W.M. Sharp, P.Eng.

INTRODUCTION

The writer's examination of the Zed copper prospect was accomplished on November 10, 1970, and comprised detailed mapping of Trenches No. 1 and 2 bedrock exposures, minor rock and soil sampling, and observations of bedrock exposures within the general locality of the trenches. In addition, posts common to Zed No's. 1 and 2 claims were tied to the No. 1 and 2 trenches via a short compass-tape traverse. Mr. A.M. Watson, owner of the group, provided the necessary guidance, assistance, and supplementary information.

Principal references supplementing the writer's personal observations relating to this report are as follows:

1. Lode Metals in British Columbia - 1966; pps. 121-124.
2. Geology, Exploration, and Mining in B.C. - 1969, pps. 162-172.
3. Geological Map by D. Pegg, May 1963.

CLAIMS

The Zed group (Fig. 2); as established prior to the writer's examination, consists of 4 standard (rectangular) claims forming a single westerly, to northwesterly-trending block of length approximately 5200 feet. The group was located on October 28, 1970 by A.M. and N.E. Watson, Quesnel, B.C., and recorded on October 30, 1970 at Quesnel by Mr. A.M. Watson; record numbers, pursuant to British Columbia Mining Receipt No. 6680E, are pending. For present purposes the following detail is listed:

Zed No. 1 - Tag No. 83939
Zed No. 2 - Tag No. 83940
Zed No. 3 - Tag No. 161618
Zed No. 4 - Tag No. 161619

Following their personal investigations of the status of claims adjacent to the Zed No's. 1-4 group, A.M. and N.E. Watson staked, on November 14, 1970, four additional claims directly adjoining Zed No's 1 and 2. Zed No's. 5-8, inclusive, were staked via a location line bearing

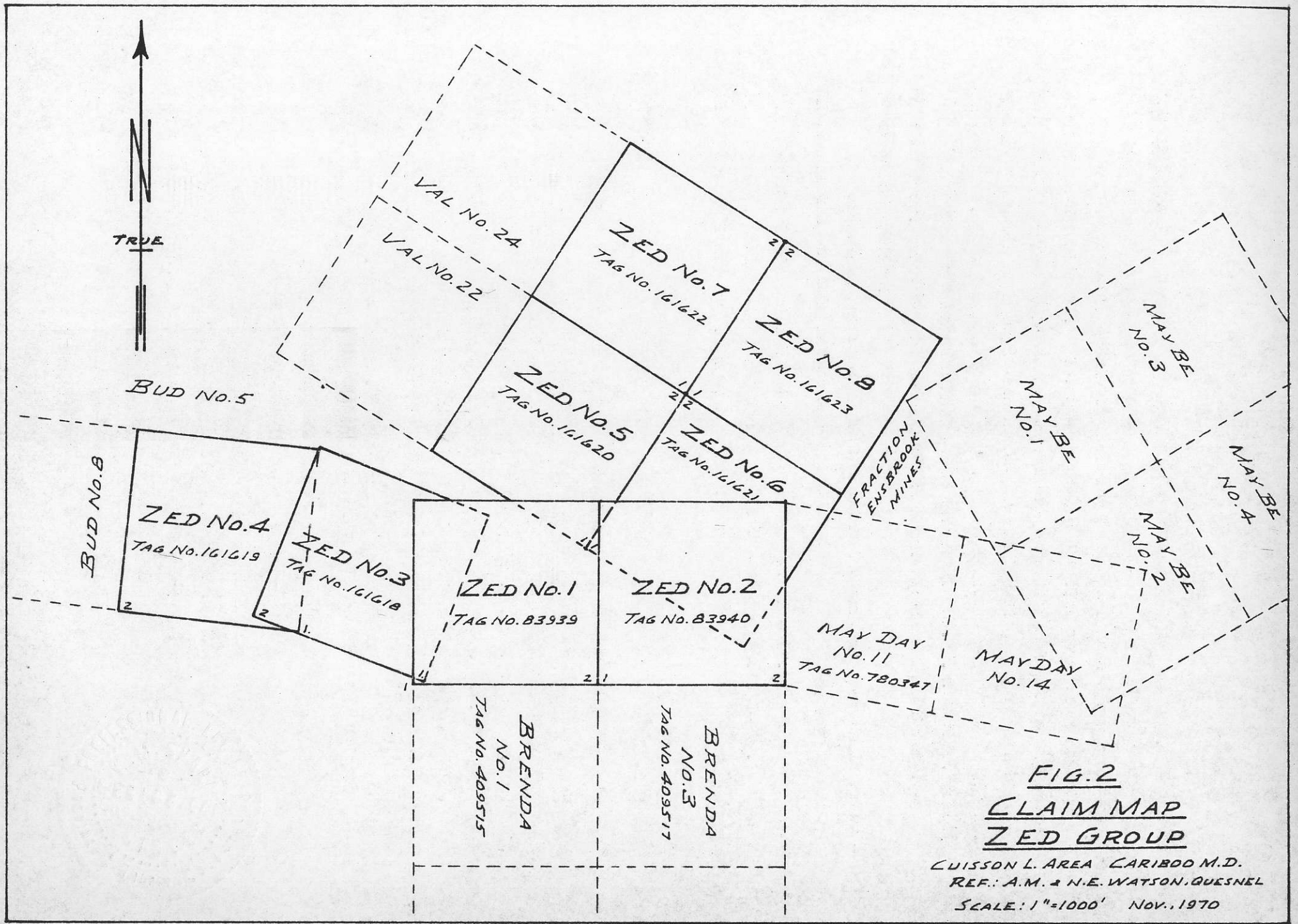

FIG. 2
CLAIM MAP
ZED GROUP

CUISSON L. AREA CARIBOO M.D.
REF.: A.M. & N.E. WATSON, QUESNEL
SCALE: 1"=1000' NOV., 1970

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magnetic north (N. 25½° E. truebearing). Pending formal notification of their recording at Quesnel, they are detailed as follows:

Zed No. 5 - Tag No. 161620, located by A.M. Watson
Zed No. 6 - Tag No. 161621, located by A.M. Watson
Zed No. 7 - Tag No. 161622, located by N.E. Watson
Zed No. 8 - Tag No. 161623, located by N.E. Watson

The principals of Kennedy Silver Mines Ltd. are presently negotiating for acquisition of the above claims along with those of the previously-located 4-claim group.

The staking and lines defining 'key' claims Zed No. 1 and 2 were checked and found to be in accordance with the requirements of the B.C. Mineral Act.

LOCATION, ACCESS AND GENERAL FEATURES

The claim group centers at roughly one mile east of the south end of Cuisson Lake in the Cariboo Mining Division (Fig. 1).

The principal, or No's. 1 and 2 trench showings lie slightly above the 3600-foot elevation, and are reached via some 5 miles of well-graded dirt road. This route includes 2 miles of the McLeese Lake - Likely road from Highway 97, and 3 miles of branch road leading northward from the above-noted road for some ¼ - ½ miles beyond the 'sawmill' lake. In dry weather normal 2-wheel drive motor vehicles can easily negotiate the full distance from the main highway.

The claims are situated within a moderately-rolling and incised terrain. The relatively open stands of fir and pine, with sparse undergrowth, facilitate off-road access and would expedite general ground-based exploration.

Water for drilling purposes is available from the several small lakes and ponds within the general locality of the property.

HISTORY

Mining exploration within the general Cuisson Lake - Granite Mountain areas appears to date from the discovery of copper mineralization at the Pollyanna prospect on, or before the year 1917. This and subsequent discoveries within the above locality comprise parts of the present Placer Development --- Gibraltar open-pit mine development project now proceeding towards production. Gibraltar-Pollyanna proven ore reserves are quoted as 206 million tons at an average grade of 0.39% Cu, 0.016% MoS_2.

Exploration activity within the general (Iron Mountain) locality of the Zed Group commenced about 1962. Most of this area has been prospected more or less intensively and systematically by several individuals and junior mining - exploration companies. In general the various claim groups have been maintained in good standing or, when allowed to lapse, promptly re-staked by other interests.

Details of former exploration activities within the area comprising the present Zed Group are not known. However past exploration has been of an essentially superficial nature -- comprising reconnaissance type geochemical surveys, a single reconnaissance I.P. survey line originating from a more northerly-situated group, conventional prospecting of the occasional ridge and gully bedrock exposures, and hand-trenching of mineralized bedrock exposures discovered within the southeast corner of Zed No. 1 mineral claim.

To date, no concentrations of economically-mineable mineralization have been discovered within the Zed claim group. However, a significant potential for the occurrence of mineable copper ore within the property is postulated on the basis of similarities of the local lithology, structure, alteration, and mineralization with that of the Gibraltar ore zones situating some 2½ to 3 miles to the north.

GEOLOGY AND MINERALIZATION

A - Regional:

Fig. 1 and Dwg. 70-1 supplement the following text:

The general Cuisson Lake - Granite Mountain map area is underlain by a major stock of quartz diorite 'average' composition. This body has been only partly delimited, but is known to be intrusive into metavolcanic and metasedimentary rocks on the west and southwest, and to be overlapped by drift and alluvium on the north and east. Its size, as inferred from actual exposures and their probable extensions, is 14 by 9 miles -- the larger dimension representing its S.E.-N.W. axis.

In the vicinity of the (Ross) sawmill, an easterly-trending parting or septum of metamorphic rocks at least locally breaks the N-S continuity of the stock. Granitic rocks lying south of this panel are generally of a more massive, less-altered (and less mineralized) character than those northward of it. Northward of this same panel the quartz diorites have conspicuously gneissic textures, and a frequently-occurring, superimposed shear-foliation; alteration and/or copper (-molybdenum) mineralization tends to localize within the more intensely sheared zones of intrusives and metamorphic rocks.

The regional mapping indicates that the Zed group situates along the southwesterly-arcuate contact between the metamorphic panel and the Cuisson Lake-Granite Mountain (north) portion of the stock.

Pyrite, chalcopyrite, copper carbonates and, locally, molybdenite occur as veinlets and disseminations within sheared and foliated quartz diorities; copper and molybdenum sulphides --- but rarely pyrite --- also occur within quartz veins.

'Alteration minerals', typically associated with the regional sulphide mineralization, include epidote, chlorite, quartz, and muscovite -- locally sericite. Specularite and magnetite occur frequently within mineralized zones.

B - Local:

Dwg. 70-1 supplements the following text.

The available reference maps provide only local indications of the Zed group bedrock geology; the available evidence suggests, however, that the claims situate over a geologically-favourable panel of foliated quartz diorites. Foliations and subsequent shear-fracture zones, where exposed, strike east-northeasterly and dip moderately southward in apparent structural conformity with the schist (metamorphic) panel occurring closely southward of Zed No's. 1 and 2 claims.

The available maps indicate that the major part of the exploration accomplished within the Zed group locality was undertaken prior to 1963. This work, largely confined to the 'schist panel', included considerable trenching and diamond drilling. In the aggregate, it defined a broad zone of submarginal copper mineralization typified by numerous occurrences of pyrite and chalcopyrite -- primarily as disseminations and fracture-fillings within 'green altered' schists, and secondarily within quartz veins.

The above-noted exploration had been mainly completed and interpreted prior to the advent of intensive exploration within the 'Gibraltar group' of properties. In the light of the geological data disclosed by these more recent developments, it appears that the pre-1963 exploration effort in the Zed Group locality could have been advantageously diverted from the schist panel to the section of sheared-foliated granitic rocks lying northward of it.

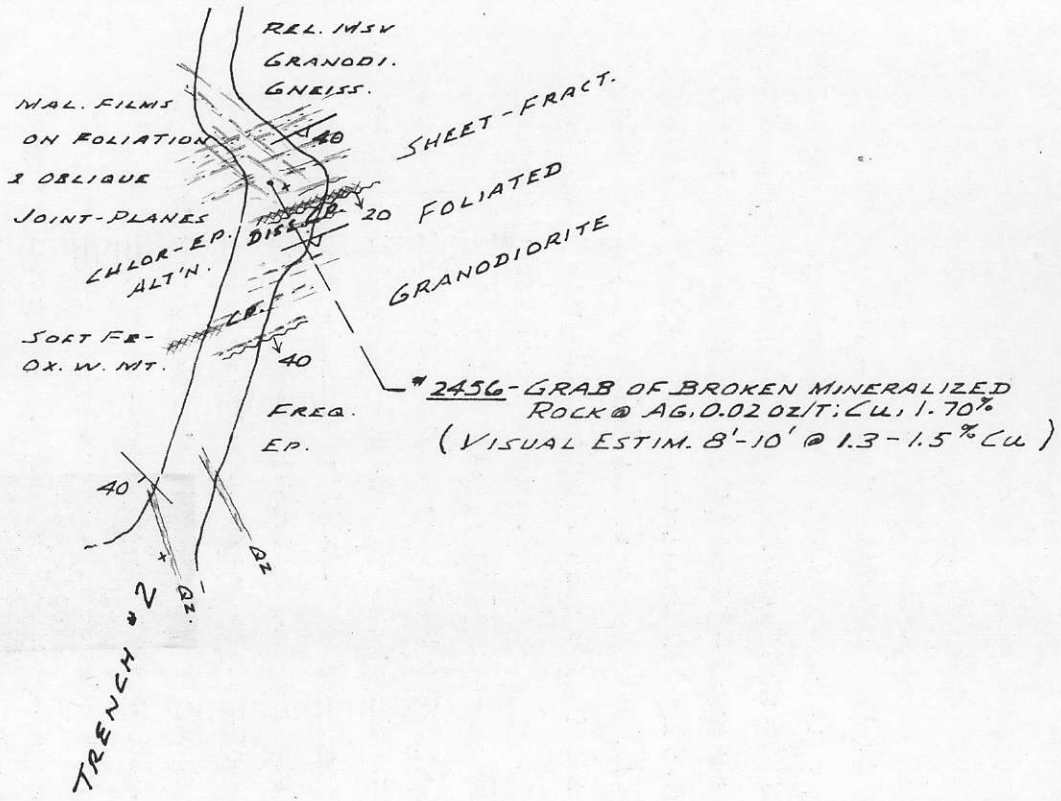

FIG. 3

PROSPECT TRENCHES

ZED NO. 1 M.C.

SCALE: 1" = 20' NOV. 1970

MAL. - MALACHITE
QZ. - QUARTZ
CP. - CHALCOPYRITE
MT. - MAGNETITE
EP. - EPIDOTE
CHLOR - CHLORITE

W.M.S.

C - Zed No. 1 Trenches:

Trenches No's. 1 and 2 situate close to the southeast corner of Zed No. 1 mineral claim; also, Trench No. 2 lies about 100 feet northwest of Trench No. 1. Both trenches appear to have been excavated some three to four years ago --- possibly by C. Fuller, who reportedly held the ground during that period.

Trench No. 1 exposes bedrock occurrences of faintly-gneissic quartz diorite --- the weak foliation appearing to strike about N.70° E. and dip 40° southward. Minor disseminated and joint-filling epidote is representative of the slightly altered condition of the Trench No. 1 exposures; locally, evidence of copper mineralization is limited to the occurrence of a few seams and films of malachite.

Trench No. 2 opens a section of strongly foliated, locally sheared and fractured quartz diorite gneiss. As in Trench No. 1, the strike of foliation and shearing is about N. 70° E., but with dips rolling between 20 to 40 degrees southerly. The most conspicuous evidence of copper mineralization consists of relatively abundant malachite staining of the highly fractured trench walls --- particularly below (north of) the flatly-sheared panel striking through the bend in the trench. Locally, good concentrations of disseminated chalcopyrite were observed within gossan pods occurring within the above-noted shear structure; above and below it the mineralization is apparently weaker, but difficult to ascertain due to general leaching-oxidation effects. The writer estimates an average grade of 1.3 to 1.5 percent copper over the 8 - 10 foot width of the main fracture zone.

By reason of its location with respect to Trench No. 2, Trench No. 1 does not expose strike extensions of the Trench No. 2 gneiss panel or mineralization. For this reason, the lack of mineralization in Trench No. 1 is of no particular significance.

The current geological data indicate that much of the claim group is underlain by "Gibraltar-type" foliated and locally-sheared quartz diorites. Hence there is a sound geological basis for inferring the existence of other mineralized zones beneath the extensive cover of soil, drift, and alluvium blanketing much of the claims area.

Respectfully submitted,

W.M. Sharp

W.M. Sharp, P.Eng.

CERTIFICATE

I, William M. Sharp, with business and residential addresses in North Vancouver, British Columbia, DO HEREBY CERTIFY THAT:

1. I am a graduate of the University of British Columbia with an M.A.Sc.(1950) degree in Geological Engineering.

2. I am a registered Professional Engineer in the Province of British Columbia.

3. I have practiced my profession for 20 years.

4. I personally examined the Zed copper prospect and available references prior to preparing this report.

5. I have no interest, direct or indirect, in the properties or securities of Kennedy Silver Mines Ltd. (N.P.L.), nor do I expect to acquire any such interest.

6. I have inspected the staking relevant to the key claims Zed No's. 1 and 2 during my November 10, 1970 field examination and believe this has been done as required by the B.C. Mineral Act.

W.M. Sharp

W.M. Sharp, P.Eng.

November 16, 1970
North Vancouver, Canada

TEL: BUS. 987-5322
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WILLIAM M. SHARP, P.ENG.
CONSULTING GEOLOGICAL ENGINEER

171 WEST ESPLANADE
NORTH VANCOUVER, B.C.

November 16th, 1970

President and Directors
Kennedy Silver Mines Ltd. (N.P.L.)
Box 279
Port Alberni, B.C.

Attention: Mr. J.M. Law, President

Gentlemen:

With this the undersigned transmits his "PRELIMINARY GEOLOGICAL REPORT, ZED COPPER PROSPECT, CUISSON LAKE AREA, CARIBOO MINING DIVISION, B.C." -- resulting from his November 10, 1970 field examination, his studies of B.C. Department of Mines annual reports, and from maps and general data provided by Mr. and Mrs. A.M. Watson of Quesnel, B.C. The writer herewith conveys his thanks to Mr. and Mrs. Watson, for field assistance and general background information relevant to this report.

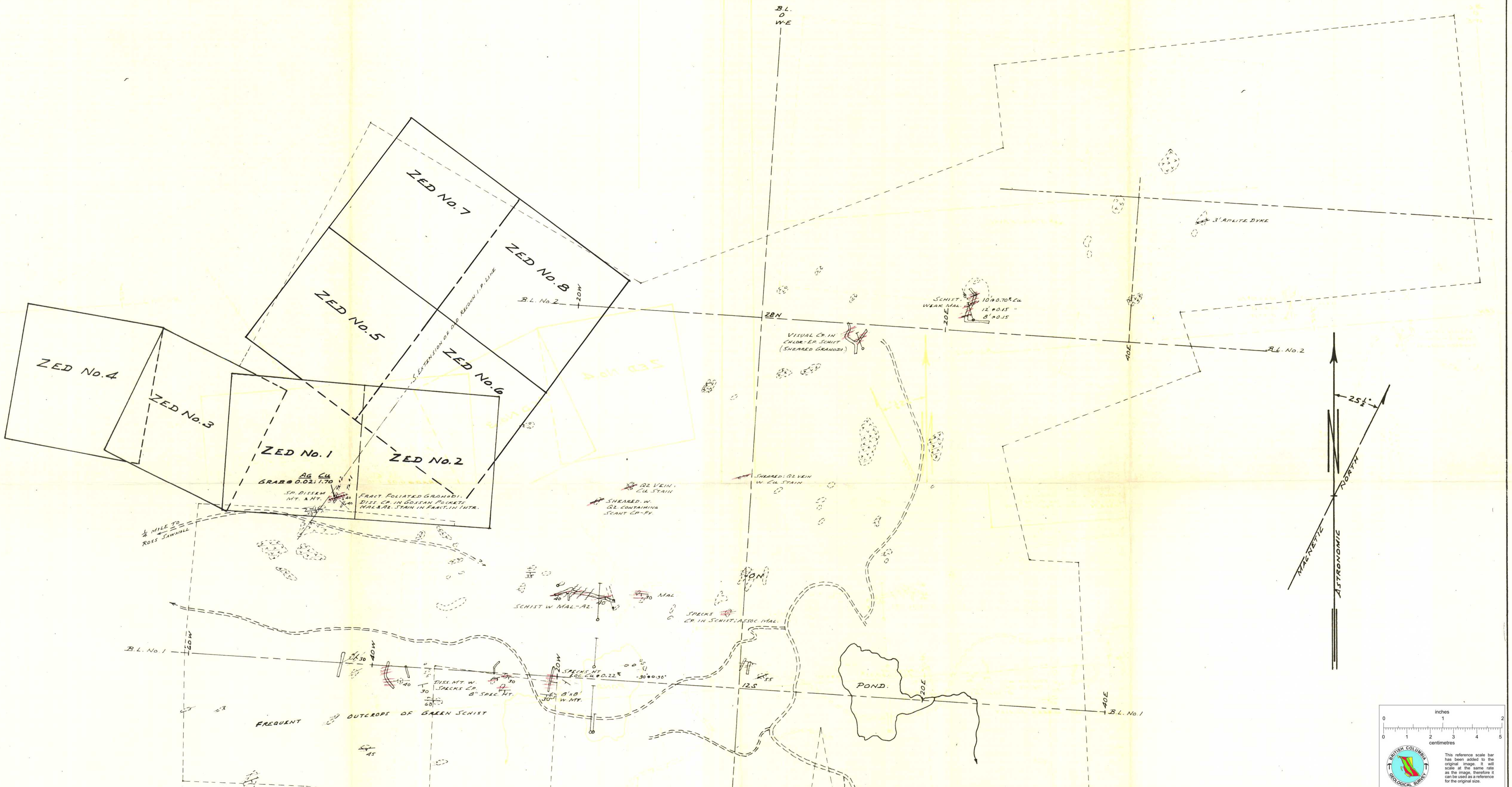
The writer hereby requests that persons making reference to this report take note of the B.C. Government regulations and also of the general formalities concerning extracts and quotations from reports for use as news releases.

Respectfully submitted,

W.M. Sharp

W.M. Sharp, P.Eng.

WMS/hb
encl.


B.L. 0 W-E
ZED No. 7
ZED No. 8
ZED No. 5
ZED No. 6
ZED No. 4
ZED No. 3
ZED No. 1
ZED No. 2
B.L. No. 2
20W
28N
20E
40E
B.L. No. 2
3' APLITE DYKE
VISUAL CP. IN CHLOR.-EP. SCHIST (SHEARED GRANODI.)
SCHIST. WEAK MAL.
AG CU GRAB @ 0.02 : 1.70
SP. DISSEM MT. & HT.
FRACT. FOLIATED GRANODI. DISS. CP. IN GOSSAN POCKETS MAL & AZ. STAIN IN FRACT. IN INTR.
1/2 MILE TO ROSS SAWMILL
QZ VEIN. CU. STAIN
SHEARED. W. QZ CONTAINING SCANT CP.-PY.
SHEARED. QZ VEIN W. CU. STAIN
SCHIST W MAL.-AZ.
MAL
SPECKS CP. IN SCHIST : ASSOC. MAL.
B.L. No. 1
60W
40W
20W
DISS. MT. W. SPECKS CP.
8" SPEC. HT.
SPECKS HT 20' CU. @ 0.22%
8'x8' W. MT.
12S
POND.
20E
40E
B.L. No. 1
FREQUENT OUTCROPS OF GREEN SCHIST
DISS. PY. IN GRANITIC ARGILLITE
0 W-E B.L.
25 1/2°
MAGNETIC
NORTH
ASTRONOMIC
N

W. M. SHARP, P.Eng.	CONSULTING GEOLOGICAL ENGINEER NORTH VANCOUVER, B.C.

KENNEDY SILVER MINES LTD. (N.P.L.)

PROPERTY: ZED COPPER PROSPECT

CUISSON LAKE AREA, B.C. — CARIBOO MINING DIVISION

TITLE: GENERAL GEOLOGY & EXPLORATION

LEGEND:

DIORITE & GRANODIORITE " & " - FOLIATED	CHALCOPYRITE : VEIN & DISSEM. ASSOC. PYRITE, HEMATITE, MAGNET.
GREEN SCHIST, PHYLLITE, ETC	OUTLINE 1962-63 EXPLOR. AREA
FAULT FOLIATION ATTITUDE	DIAMOND DRILL HOLE, 1962-63 - INCLINED & VERTICAL

SCALE:	DATE:	REVISION:	DWG/FIG. No.
1 IN. = 650 FT.	NOV., 1970 DWN BY: W.M.S.	REF: BARTON OPTION - 1963 & B.C.D.M. 1968-69	70-1

ABBREVIATIONS:

AZ. - AZURITE
MAL. - MALACHITE
CP. - CHALCOPYRITE
PY. - PYRITE
MT. - MAGNETITE
HT. - HEMATITE ; SPEC. - SPECULAR
QZ - QUARTZ
CHLOR: CHLORITE
EP. - EPIDOTE
VN. - VEIN
DISS. - DISSEMINATED
TR. - TRENCH