

3428

GEOLOGICAL REPORT

on

TODD GROUP OF CLAIMS

STEWART AREA

SKEENA MINING DIVISION, B.C.

by

A.G. Hodgson P. Eng.

August 28, 1971

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 3428 MAP

-00000-

CONTENTS

CERTIFICATE(i)
SUMMARY(ii)

	Page
INTRODUCTORY STATEMENT	1
THE PROPERTY	2
OWNERSHIP	2
LOCATION & ACCESSIBILITY	3
PHYSIOGRAPHY	4
CLIMATE & TIMBER	5
HISTORY	6
REGIONAL GEOLOGY	7
GEOLOGY OF THE PROPERTY	8
DESCRIPTION OF COPPER SHOWING	9
RESULTS OF SAMPLING	10
ANALYSIS OF SAMPLE RESULTS	12
SUMMARY & CONCLUSIONS	13
RECOMMENDATIONS	14
COST ESTIMATE	15

REFERENCES APPENDIX "A"
SAMPLE REPORTING SHEET ... APPENDIX "B"
CERTIFICATE OF ANALYSIS .. APPENDIX "C"
SPECTROGRAPHIC ANALYSIS .. APPENDIX "D"

ILLUSTRATIONS

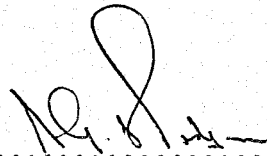
1 LOCATION MAP	FRONTISPIECE
2 PLAN OF TODD CLAIM GROUP.....	FOLLOWING PAGE 2
3 DIAGRAMMATIC INTERPRETATION.....	FOLLOWING PAGE 8
4 PLAN OF PART OF COPPER ZONE.....	FOLLOWING PAGE 9

(Note: above figures 1 to 4 in report)

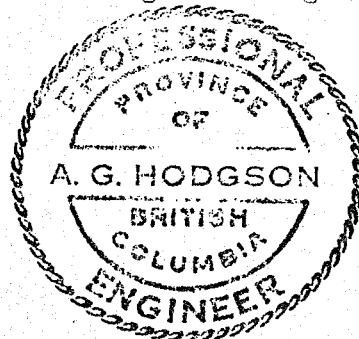
CERTIFICATE

I, Alexander G. Hodgson, with address at 2285 West 13 Avenue, Vancouver B.C. do hereby certify:

1. That I am a consulting geological engineer.
2. That I am a Professional Engineer registered in the Province of British Columbia (Reg. No. 6249) and in the Province of Ontario (non-resident status)
3. That I am a graduate of the University of British Columbia where I received the degree of B.A.Sc. in Geological Engineering in 1946 and M.A.Sc. in 1948.
4. That I have practised my profession for over 20 years as engineer for mining companies and as a private consultant.
5. That my report is based on a personal examination of the property known as the TODD Claims on August 3rd to 5th, 1971 augmented by a study of certain Government maps and reports listed as references in this report.
6. That the mineral claims, to the best of my knowledge, conform with the B.C. Mineral Act and that I personally examined all of the key corner posts and ascertained that the mineral occurrence examined and herein described is within the boundaries of the property.
7. That I do not own, nor do I expect to own, any direct or indirect interest in the subject property.



.....
A.G. Hodgson P. Eng.



2285 West 13 Avenue
Vancouver 9, B.C.
28 August, 1971

(ii)

SUMMARY

The TODD Group of claims is comprised of 6 adjoining mineral claims located 22 miles north of Stewart, B.C.

The property covers a small body of altered felsitic rock, believed to be of intrusive origin, enclosed in Bear River volcanics.

Within the felsite a mineralized zone up to 100 feet wide and 1500 to 2000 feet long contains a significant content of copper, gold and silver.

The inaccessibility of the area renders it one of high cost in which to operate.

A preliminary surface exploration program is recommended which is modest in scope and intended to give maximum key information at minimum cost.

Cost of the program is estimated at \$38,500.00 and time for completion should not exceed 2 months.

REPORT
ON
TODD GROUP OF CLAIMS

STEWART AREA
SKEENA MINING DIVISION, B.C.

by
A.G. Hodgson P. Eng.

INTRODUCTORY STATEMENT

The TODD Group of mineral claims is located in the Skeena Mining Division in northwestern British Columbia. At the request of Mr. Herb Fichtner of Prince George, B.C. the writer visited the property and devoted 2 days to examining a copper occurrence on the claims and inspecting the general area. Mr. Fred Kern of Barriere, B.C. and Ron Fichtner went along on the trip to stake additional claims and assist the examination.

This report, which treats the most important aspects of the property pertinent to its preliminary examination, is based principally on information gathered by the writer in the field. Regional geology is taken from published government maps which, unfortunately, do not cover the exact area of the claims but do deal with their immediate environs. Reference maps are listed in Appendix "A" of this report.

Mr. Fred Kern, geologist, contributed valuable information to discussions on the property and the general area.

The term "TODD Claims" is used to designate a block of 6 claims, although the property actually includes 23 additional claims of which several are invalid for reasons to be explained later.

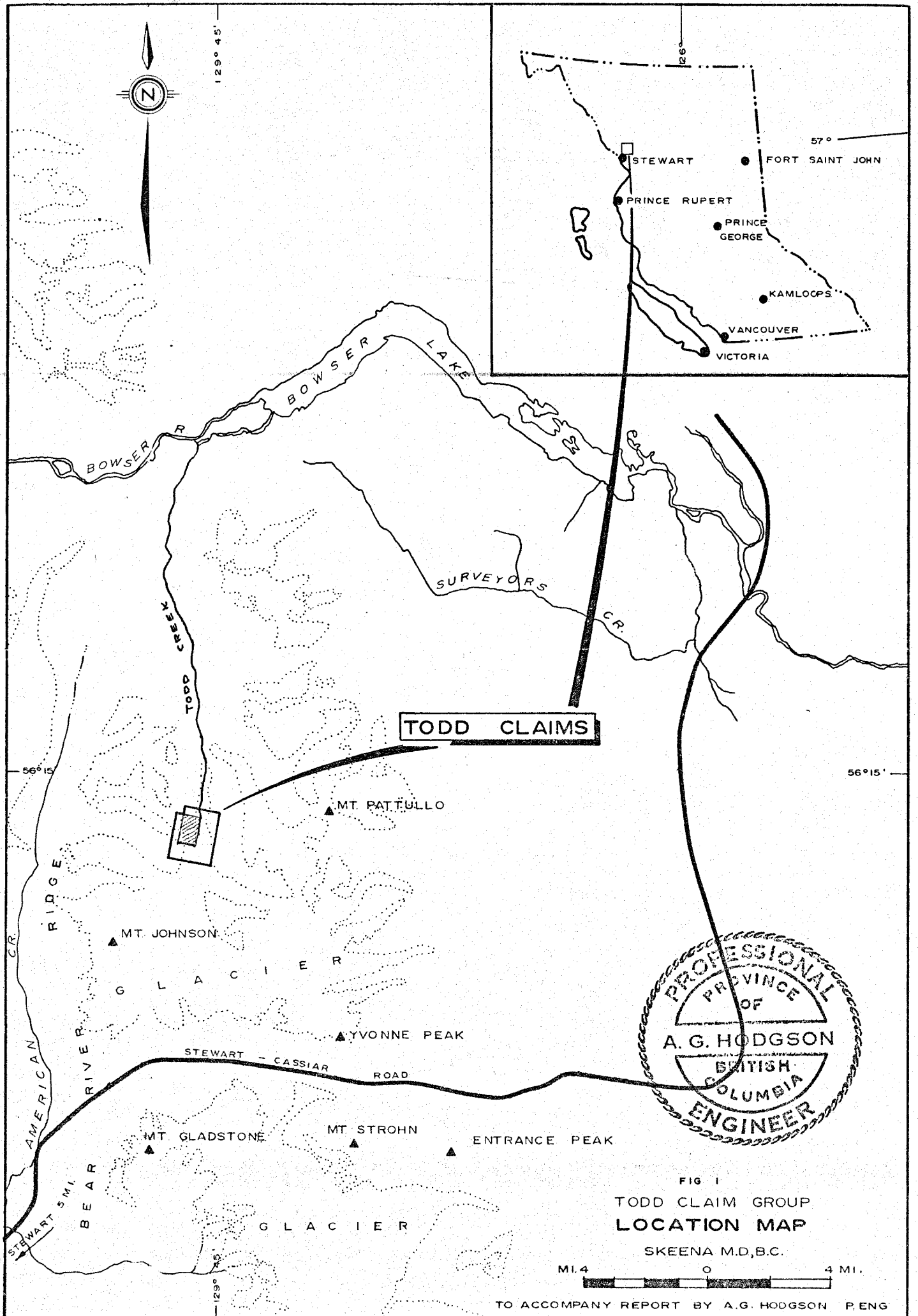


FIG 1
TODD CLAIM GROUP
LOCATION MAP

SKEENA M.D., B.C.

MI. 4 0 4 MI.

THE PROPERTY

A rectangular block of 6 contiguous claims, none of them surveyed, makes up the property (figure 2) with legal description as follows:

<u>Name & Number</u>	<u>Tag Nos.</u>	<u>Registered Nos.</u>	<u>Staking Date</u>
TODD 1 to TODD 6 inc.	642775-642780	34554M - 34559M	August 20/69

The 6 claims were recorded on September 2, 1969 so that September 2 is the anniversary date. Assessment work filed on the claims in Prince Rupert, B.C. maintains their good standing to September 2, 1972.

TODD 7 to TODD 29 as shown on figure 2 were staked on August 4 and 5, 1971 but prior staking on January 16, 1971 invalidates claims 26 and 29 and a part each of 25 and 28.

Until the relationship between the two stakings has been resolved on the ground the TODD Group refers to the initial 6 claims only and this report deals with them accordingly.

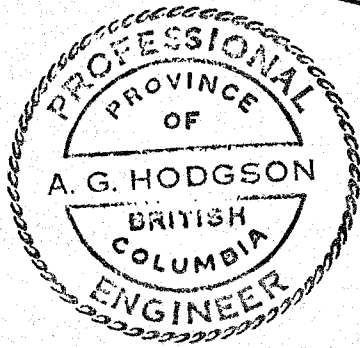
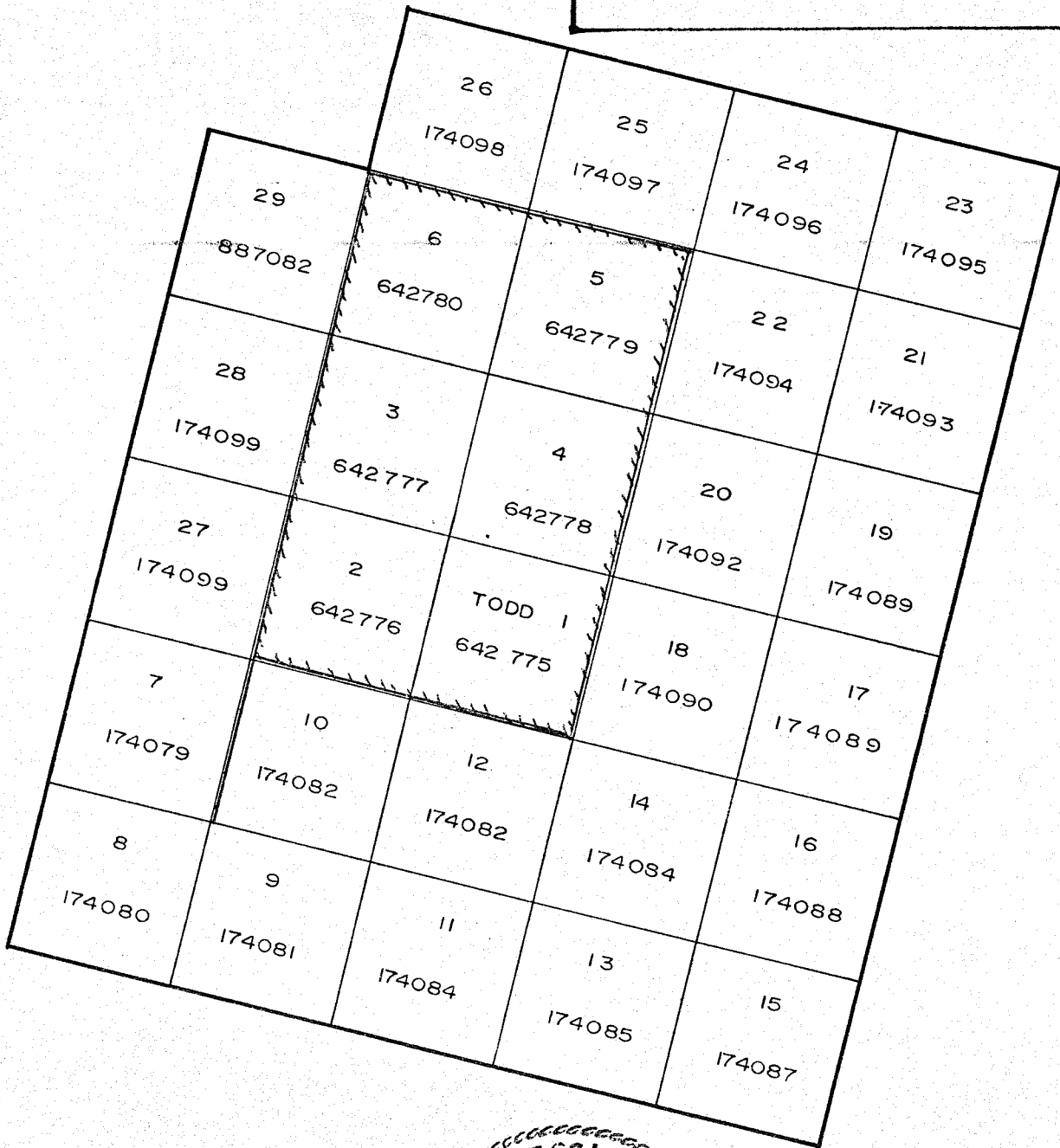
OWNERSHIP

TODD #1 to TODD #6 were located initially by Wilf Christians of Fort St James, B.C. for Kerr Addison Mines Ltd. That company transferred title to Christians who subsequently, by Bill of Sale recorded in Prince Rupert, B.C., conveyed title to Mr. C.S. Powney who resides in Penticton, B.C.

Mr. Powney is currently the registered owner of the 6 TODD claims.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 3428 MAP #2



TODD
1-6

TODD
7-26

TODD
27-29

FIG 2
TODD CLAIM GROUP
PLAN

SKENA M.D., B.C.

FT 1500 0 1500 FT.

TO ACCOMPANY REPORT BY A. G. HODGSON P. ENG.

STAKED: AUG 20/69 AUG 4/71 AUG 5/71

NOTE: Numbers recorded are tag numbers.

LOCATION & ACCESSIBILITY

The TODD claims are located in the Skeena Mining Division, B.C. at approximate Latitude: $56^{\circ} 13' N$ and Longitude $129^{\circ} 46' W$. They lie at the upper end of Todd Creek, a glacial stream that flows northerly from its source in a large ice field into the Bowser River immediately west of Bowser Lake (see figure 1).

The closest supply centre is Stewart, B.C. at the head of the Portland Canal and approximately 22 air miles southerly from the property.

Access to the area is limited to flying by helicopter from Stewart where Vancouver Island Helicopters Ltd. has machines available for charter on a year-round basis.

The Stewart-Cassiar road leads northerly following the Bear River from Stewart. Where the road swings easterly it comes to a point within about 8 miles of the property so that freight can be trucked from Stewart approximately 15 miles along the road and thence lifted the last 8 miles to the property by helicopter.

The feasibility of building a tote road into the area following up the Todd Creek valley was scouted from the air and found to be impractical. Two or 3 miles north of the claims the valley of glacial outwash that extends along them gives way to rapids, falls and finally a deep gorge. A road to circumvent these obstacles would be an expensive undertaking.

No other practical routes are known to provide overland access to the property.

PHYSIOGRAPHY

The general area lies on the eastern flank of the Coast Mountains which constitute the rugged range that extend along the west coast of British Columbia (figure 1).

Relief in the area is great; with peaks rising to nearly 9000 feet above river valleys as low as 500 feet above sea level (such as the Bear River valley south of the property). Relief on the property itself ranges from approximately 3500 feet in the Todd Creek valley on the east side to about 4500 feet in places on the west boundary.

Todd Creek has its source in the glaciers and flows northerly along the east side of the property to its confluence with Bowser River 11 miles north. The creek valley on the property is occupied by coarse glacial outwash material through which the waters thread their course in an intricate, braided pattern.

The geologically - recent retreat of the alpine glaciers is manifest by conspicuous "ice-lines" along both sides of the valley, which at its head are at least 400 feet above its floor. Sufficient time has not elapsed since the retreat of the ice to establish normal forest growth below these "ice-lines".

Rock outcrop occupies about 25% of the property surface, and at the showing locality and north along the same outcrop the rock has been almost completely denuded of all cover - thus affording almost continuous rock exposure for 3000 feet. Elsewhere, bare outcrops project above thick deposits of morainal and outwash material (as at the camp site - see figure 3). The northwest portion of the property is removed from recent influence by the glaciation.

CLIMATE & TIMBER

The area is on the edge of the wet, coastal rain belt. The nearest meteorological station is at Prince Rupert which records a mean annual precipitation of 95.6 inches. It is likely that the subject area has a somewhat higher annual precipitation.

Snowfall during the winter is considerable, and the area of the property probably receives at least 10 feet of snowpack during a normal winter. In most seasons snow commences in September (it may not remain on the ground until mid-October or later) and the ground is not entirely snow - free until the middle of June or later; thus contributing to a short field season in the area.

Sub-zero temperatures, though not extreme, are commonplace during the winter. Summer temperatures rarely exceed 90 degrees during the daytime and nights are always cool.

Much of the weather, during both winter and summer, is characterized by low-lying clouds and fog that shroud much of the higher ground and frequently descend into the valleys to produce rather hazardous and unreliable flying conditions.

Good timber, consisting mainly of fir, hemlock and spruce, is plentiful in the area, although none is available in the immediate vicinity of the showing and not too much is available on the property. However, there is adequate timber in the general area to take care of all mining requirements.

HISTORY

Background information on the property is extremely meagre. The writer could uncover no reference to the occurrence on government maps or in British Columbia Minister of Mines Reports. (see 1962 p. 7)

X-Ray drilling was done at some unknown time in the past and the core - at least some of it - is still on the property near 3 separate assumed sites of drilling. Total footage drilled as indicated by the core aggregates approximately 200 feet. Split core from one hole was sampled and will be discussed later.

In 1969 Wilf Christians in the employ of Kerr Addison Mines staked the 6 TODD claims to cover the showing but so far as is known that company did no work on the property.

Kerr Addison subsequently transferred the claims to Christians who later gave title to C.S. Powney, the present owner of the property.

Rock trenching at several places to fulfil assessment requirements is the only recent work known to have been conducted on the property.

REGIONAL GEOLOGY

The general area is underlain by 6 principal rock units:

- (1) Felsite & felsite porphyry
- (2) Coast Range Intrusions
- (3) Augite porphyrite & allied rocks
- (4) Nass formation
- (5) Bear River formation
- (6) Bitter Creek formation

The Bitter Creek formation is a series of argillite beds (mostly black) of Triassic and/or Jurassic age.

The Bear River formation is comprised essentially of breccias, agglomerates, tuffs and lavas and is believed to be of Jurassic age.

The Nass formation, also Jurassic, consists of argillite, quartzite and tuff.

The augite porphyrite and allied rocks form small stocks that are mostly intrusive into the Bitter Creek argillites, but also occur rarely within the Bear River formation.

The Jura-Cretaceous Coast Range Intrusives are mainly granitic rocks that form small stocks genetically related to the main Coast Range batholith.

The Bitter Creek and Bear River formations, as well as the augite porphyrite, frequently contain metalliferous deposits while the Nass formation is generally devoid of mineralization.

A few scattered bodies of light-colored, fine-grained felsite or felsite porphyry with rusty outcrops are scattered through the area. These rocks - younger than the Coast Range Intrusives - are the most widespread rocks on the property and are host to the copper mineralization.

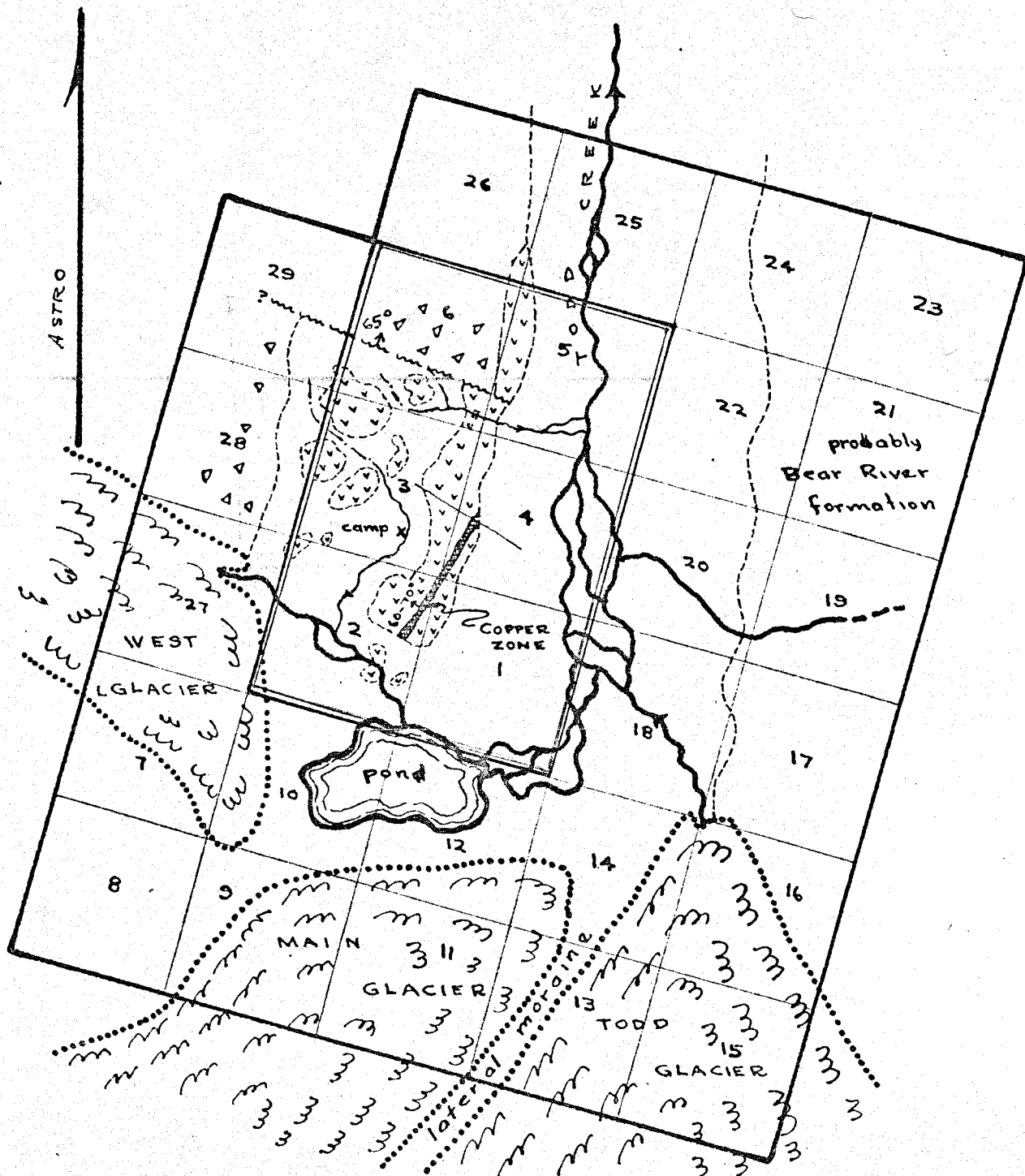
GEOLOGY OF THE PROPERTY

As already stated the claims are located in an area of unmapped geology, so reliable data are limited to those places visited by the writer (see figure 3). However, by extrapolation from outlying mapped areas it can be surmised that the property is enclosed by rocks of the Bear River formation. Within the property boundaries Bear River rocks are known to outcrop in the northwest corner on TODD #6. Rocks here are highly fragmental, chloritic with a greenish weathered surface. They contain areas of fresh-looking dark green rocks with augite phenocrysts that may be either thick flows or augite porphyrite dykes or sills.

Most rock exposure on the property consists of fine - grained, light colored, highly altered rock dusted with extremely fine pyrite that imparts a distinctive rusty - weathering to the surface outcrop. These rocks form a continuous outcrop for over 2 claim lengths along the centre of the property and also form numerous isolated outcrops west from here to the highlands on the west side of the claim group(see figure 3). The east side of these rocks is bounded by the Todd Creek valley and the south side by ice and glacial debris. On the north they appear to be offset 1500 feet or more by an easterly-trending, northerly-dipping cross fault although mapping is necessary to establish this with certainty. The sharp discontinuity could be merely a sharp irregularity along an intrusive contact.

The entire rock formation, especially in the vicinity of the copper showing, is transected by myriads of discontinuous joints or fractures trending northwest, dipping steeply, and conforming to an unusually regular pattern.

The prevailing attitude of rocks in the area appears to be northerly and the felsite body is apparently elongated in the same direction.



To accompany report by A.G. Hodgson P. Eng. approx. glacier area

N.B: Diagrammatic interpretation of geology & mineralized zone. Relation of claims to topography, shape of outcrops, glaciers etc. is approx. only

- ~ ~ ~ altered intrusive
- △ △ △ Bear River Formation

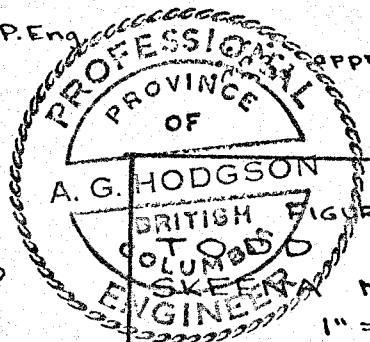


FIGURE 3
CLAIMS
M.D., B.C.
1" = 1500'

AUG. 4, 1971 A.G. HODGSON

DESCRIPTION OF COPPER SHOWING

Copper, along with gold and silver, occurs along a zone up to 100 feet or more wide within the felsitic intrusive near the center of the property (see figure 3). The zone trends an average N30°E and definitive elements within it dip from vertical to 55° westerly with a dominant measure of about 75°. It can be followed almost continuously for about 1500 to 2000 feet on TODD #2 and #4 mineral claims.

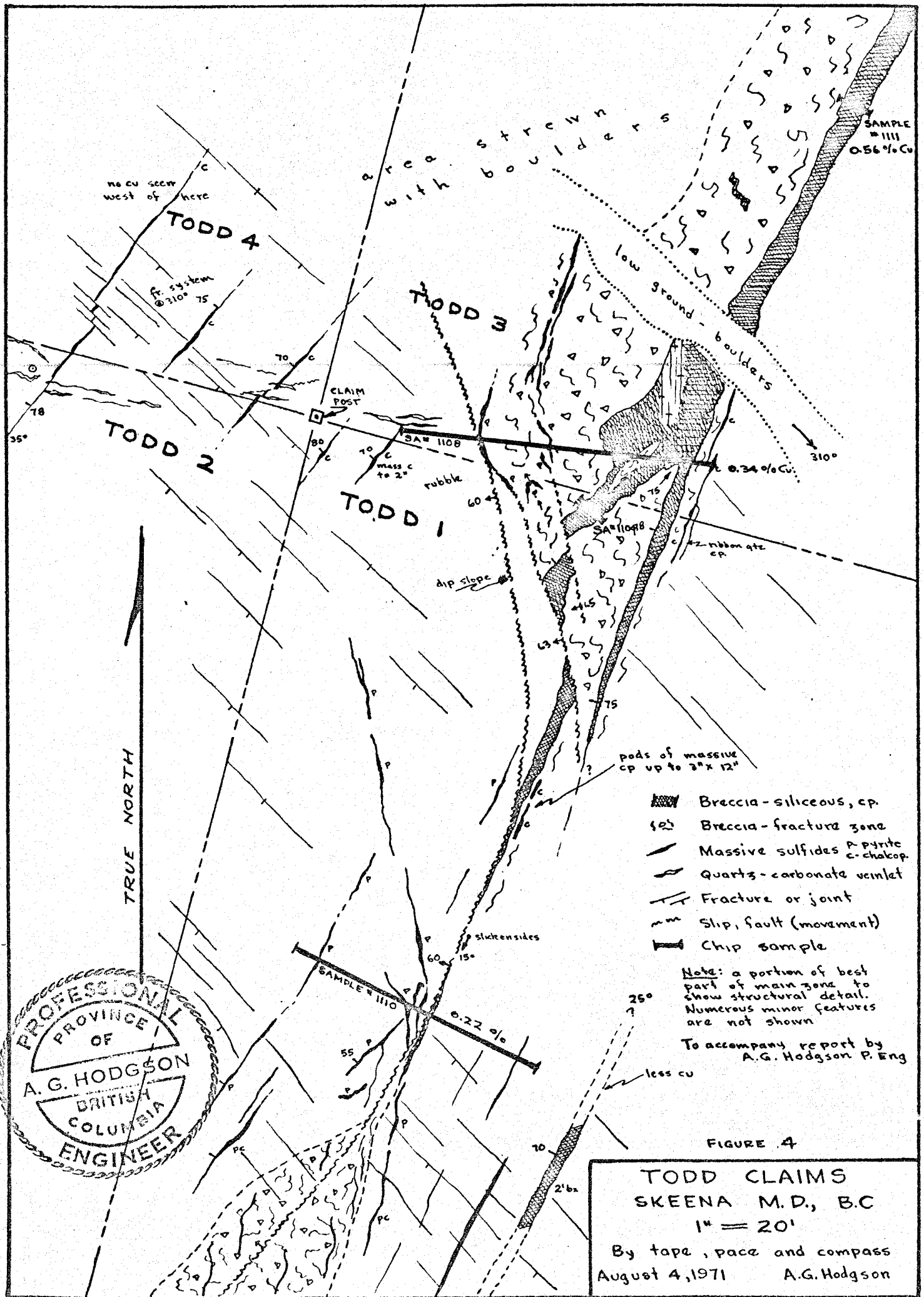
Although mineralization is spread across 100 feet or more it is more concentrated on the east (footwall) side and it gradually decreases across the zone going west towards the hanging wall. The footwall "contact" is also much easier to define than the hanging wall one.

The most abundant sulfide within the zone is pyrite and it, along with chalcopyrite and minor specularite, is erratically disposed throughout the zone.

The pyrite and chalcopyrite occur separately or together along weak fractures; as irregular veinlets varying from a thin film to several inches wide; as pods lenses and irregular masses; and in vein-like breccia zones up to 5 feet wide. The latter contain very little pyrite.

Leaching is apparent on the weathered surface but does not extend more than a few inches below the surface. A little malachite is locally developed from the decomposition of the chalcopyrite.

Alteration is mainly silicification and carbonatization. The carbonate is ferruginous and weathers to a buff or rusty color. Some dark purple to black manganese stain is likely derived from a small manganese content in the carbonate. The best copper values follow the silicification, and copper is confined exclusively to northerly - trending elements within the zone, i.e. those striking from North to N35 degrees east.



Numerous small - scale faults transect the zone. They all show left hand horizontal displacements and dip steeply.

The strong system of cross fractures already mentioned has an average strike of N45°W and dips are usually steeply to the southwest. These fractures offset some of the copper-bearing fractures in the zone a few inches, but the cross fractures themselves are not mineralized with anything other than barren quartz and carbonate.

Figure 4 is a 20-scale plan of a small part of the mineralized zone to show some of the detail in the structure. There are numerous minor features within the map area that are not shown.

RESULTS OF SAMPLING

Ten samples were taken by the writer during the examination.

Assay results appear in Appendices "B" and "C" and are summarized below:

- (1) Four samples from the 20-scale map area (locations on figure 4) gave the following results:

<u>Sample No.</u>	<u>Width(feet)</u>	<u>oz Au</u>	<u>oz Ag</u>	<u>% Cu</u>
1108	50.0	0.039	0.03	0.34
1109	4.0	0.251	0.05	1.80
1110	45.0	0.023	0.05	0.22
1111	5.0	0.075	0.05	0.56

These were carefully weighted chip samples; nos. 1109 and 1111 were taken across the best mineralization (quartz breccia) and Nos. 1108 and 1110 are across the entire footwall side of the zone.

- (2) Sample #1107, approximately 35% of the core from one of the X-Ray drill holes carefully weighted across an estimated 30 feet of intersection, assayed as follows:

oz. Au - 0.044
oz. Ag - 0.06
% Cu - 0.40

The location of the hole and its angle relative to the zone are not known.

- (3) Sample #1112 across 20 feet of heavy pyrite mineralization approximately 500 feet northerly from the map area gave the following results:

oz. Au - 0.047
 oz. Ag - 0.12
 % Cu - 0.91

- (4) Selected small pieces of pyrite and chalcopryrite from numerous places in the zone were analyzed to determine whether the gold and silver are associated with the pyrite or chalcopryrite. The results were:

<u>Sample No.</u>	<u>oz. Au</u>	<u>oz. Ag</u>	<u>% Cu</u>	<u>Type of Sa.</u>
1113	0.022	0.24	0.65	pyrite
1114	0.056	3.65	23.50	chalcopryrite

- (5) Sample #1106 was a number of grabs taken from the most southerly outcrops where they disappear under glacial debris. Results are:

oz. Au - 0.047
 oz. Ag - 0.07
 % Cu - 0.15

- (6) Sample #1115 comprised of random chips from numerous localities in the rusty - weathering felsite representing an area over 1000 feet long and 500 feet wide in which rock is dusted with finely divided sulfides gave the following result:

oz. Au - 0.006
 oz. Ag - less than 0.01
 % Cu - 0.02

- (7) A semi-quantitative spectrographic analysis of a composite sample made up from the pulps from all the above samples gave the following significant results (see Appendix "D"):

Copper - 1M (0.50-5.0%)
 Gold - 0.05 oz./Ton
 Silver - 0.10 to 0.20 oz./Ton
 Arsenic- 0.05%

ANALYSIS OF SAMPLE RESULTS

Following are some conclusions that may be inferred from the results of the foregoing samples:

- (1) The mineralized zone contains sections from 2 to 5 feet wide which run from 0.50% to 2.00% and from 20 to 50 feet on the footwall(east) side averages from 0.30% to 1.00% copper.
- (2) The larger part of the precious metal content is associated with the chalcopyrite, and would thus appear in a copper concentrate.
- (3) The large areas of rusty - weathering, altered rock with much very finely divided sulfides do not contain significant copper values - the sulfide present is undoubtedly mostly pyrite.
- (4) The most southerly exposure along the projection of the zone before it disappears under glacial debris contains appreciable copper mineralization.
- (5) The spectroscopic analysis confirms the assay results reasonably well. The low arsenic content indicated (0.05%) rules out the presence of much arsenopyrite with the other sulfides.

It should be mentioned that a suite of 10 samples taken from an occurrence of the type under consideration are by no means conclusive. The writer suspects that at some localities where a chip sample was taken a bulk sample representing the same portion of the zone would return somewhat higher assay results. The increase, however, would not likely be of sufficient magnitude to materially alter the over-all assessment of the potential of the zone.

SUMMARY & CONCLUSIONS

The TODD claims are underlain by a highly fractured and altered felsite intrusive into fragmental volcanics of the Bear River formation.

The felsite hosts a zone of copper mineralization - with significant gold and silver content - up to 100 feet wide exposed almost continuously for 1500 to 2000 feet along strike. The zone trends north-northeasterly and dips steeply westerly. The southward extension is obscured by glacial debris and ice; going north the zone angles across the containing outcrop until it enters the Todd Creek valley.

Grade consists of up to 2.0% copper and 0.25 oz. gold across narrow widths, and considerably lower values across the total width of the zone. Best grade is found in siliceous breccias from 2 to 5 feet wide erratically distributed throughout the zone.

Results obtained by sampling on the surface returned sub-marginal grades. However, the property warrants further investigation because of the strong alteration and deformation; the favorable acid-intrusive host rock and the fact that a moderate improvement in grade would approach "ore" requirements for a medium tonnage operation.

RECOMMENDATIONS

A modest program of preliminary exploration is recommended for the property embodying the following essentials:

- (1) Establish accurately on the ground the claim boundaries and determine that ground which is invalidated by prior staking.
- (2) Prepare a base map from air photos on a scale of 400 feet to 1 inch with a contour interval of 25 or 50 feet.
- (3) Map the geology of the 6 claims using the above map as a base and using air photograph enlargements in the field if possible.
- (4) Test the zone at depth by diamond drilling.

Supplies for such a program would be trucked up the Stewart-Cassiar road from Stewart and lifted by helicopter from the Bear River valley to the property. This would cost an estimated \$500.00 per ton.

A temporary camp to accommodate about 10 men should be established on the small stream on the west side of the zone.

The work on claim boundaries and the geological mapping should employ air photos (enlarged) where feasible and should take 10 days at the most to complete.

Diamond drilling, employing a light rig using AXT core to minimize freighting cost, should be done from the west side of the zone to test it at two levels - say 100 feet and 200 feet below the surface. Five 50 degree holes to test the 100-foot horizon and 4 to test the 200-foot horizon would aggregate approximately 1950 feet and take 4 to 6 weeks to complete.

The entire program should easily be handled in a period of 2 months, which allows considerable time for delays from adverse flying conditions.

APPENDIX "A"

(references)

APPENDIX "B"

(Sample Reporting Sheet)

SAMPLE REPORTING SHEET

APPENDIX "B"

Property TODD CREEK CLAIMS

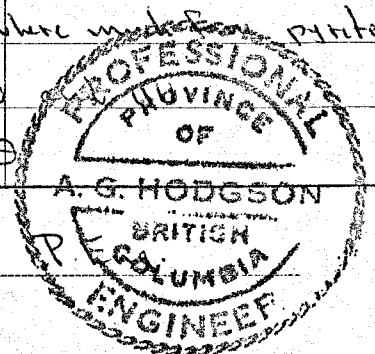
Date August 3 & 4, 1911

SAMPLE NUMBER	FROM WIDTH - FT.	GOLD 03 Au/T	SILVER 03 Ag/T	SAMPLE WIDTH FT.	GOLD 0.02% Cu	REMARKS
1106	-	0.047	0.07	0.15	Chips from farthest S etc. on zone	
1107	30.0'	0.044	0.06	0.40	30% (approx) from core of X-Ray at site of main chowung	
1108	50.0'	0.039	0.03	0.34	Chips across widest of zone	
1109	4.0'	0.251	0.05	1.80	Channel across quartz breccia	
1110	45.0'	0.023	0.05	0.22	Chips across widest, 90.0' ft S. 1108	
1111	5.0'	0.075	0.05	0.56	Chips across quartz breccia 80.0' N. of 1109	
1112	20.0'	0.047	0.12	0.91	Chips across heaviest min. Much Py. 500.0' ft E N. of 1111	
1113	Select	0.022	0.24	0.65	Selected massive Py, check prec. metab	
1114	Select	0.056	3.65	23.50	Selected mass. Cp. - check " "	
1115	Random	0.006	<0.01	0.02	Chips from many places, N and W. where made from pyrite	
See Figure A for locations of 1108, 1109, 1110						
Assays by Core Laboratories, Report V10459						

HAMLY - EDMONTON

Signed

A. G. Hodgson



APPENDIX "C"

(Certificate of Analysis)

T
S
L

Laboratories

325 HOWE STREET - VANCOUVER 1, B.C.

APPENDIX "C"

TELEPHONE 688-3504

Division of



ASSAYERS
CHEMISTS
GEOCHEMISTS

CERTIFICATE OF ANALYSIS

SAMPLE(S) FROM MR. A.G. HODGSON

REPORT NO.

V 10459

SAMPLE(S) OF ROCK AND DRILLCORE

Sample No.	Au oz:ton	Ag oz:ton	Cu %
1106	0.047	0.07	0.15
1107	0.044	0.06	0.40
1108	0.039	0.03	0.34
1109	0.251	0.05	1.80
1110	0.023	0.05	0.22
1111	0.075	0.05	0.56
1112	0.047	0.12	0.91
1113	0.022	0.24	0.65
1114	0.056	3.65	23.50 +
1115	0.006	<0.01	0.02

+ Not Asked for but reported but not charged.

DATE Aug. 17, 1971.

SIGNED 

PULP AND REJECTS DISCARDED AFTER 3 MONTHS

APPENDIX "D"

(Spectrographic Analysis)

ASSAYERS
CHEMISTS
GEOCHEMISTS

APPENDIX "D"



CORE LABORATORIES - CANADA LTD.

P. O. BOX 5670, POSTAL STATION "A", CALGARY 9, ALBERTA, TELEPHONE: 253-3391

Certificate of Analysis

SEMIQUANTITATIVE SPECTROGRAPHIC

REPORT NO.

V 10459

Sample(s) From MR. A.G. HODGSON

Sample(s) Of COMPOSITE

	Sample 1106-1115	Sample	Sample	Sample 1106-1115	Sample	Sample
Antimony	.01%			Phosphorus	-	
Arsenic	.05%			Platinum	-	
Barium	.1%			Rhenium	X	
Beryllium (BeO)	-			Rhodium	X	
Bismuth	.002%			Rubidium	X	
Boron	<.002%			Ruthenium	X	
Cadmium	-			Silver	.1-.2 oz:t	
Cerium (CeO ₂)	-			Strontium	-	
Caesium	X			Tantalum (Ta ₂ O ₅)	-	
Chromium	<.005%			Tellurium	X	
Cobalt	<.05%			Thallium	X	
Columbium (Cb ₂ O ₅)	-			Thorium (ThO ₂)	-	
Copper	LM			Tin	-	
Gallium	<.001%			Titanium	.02%	
Germanium	-			Tungsten	-	
Gold	.05 oz:t			Uranium (U ₃ O ₈)	-	
Hafnium	X			Vanadium	<.005%	
Indium	-			Yttrium (Y ₂ O ₃)	-	
Iridium	X			Zinc	-	
Lanthanum La ₂ O ₃)	-			Zirconium ZrO ₂)	.005%	
Lead	.005%			ROCK FORMING METALS		
Lithium (Li ₂ O)	-			Aluminum (Al ₂ O ₃)	M	
Manganese	.1%			Calcium (CaO)	.5%	
Mercury	-			Iron (Fe)	M	
Molybdenum	<.001%			Magnesium (MgO)	.5%	
Neodymium Nd ₂ O ₃)	-			Silica (SiO ₂)	H	
Nickel	-			Sodium Na ₂ O)	.2%	
Palladium	<.005 oz:t			Potassium (K ₂ O)	1-2%	

Figures are approximate:

CODE

< - Less Than.

H	- High	- 10 - 100% approx.	LM	- Low Medium	- .5 - 5% approx.	FT	- Faint Trace	- approx. less than .01%.
MH	- Medium High	- 5 - 50% approx.	L	- Low	- .1 - 1% approx.	PT	- Possible Trace	- Presence not certain.
M	- Medium	- 1 - 10% approx.	TL	- Trace Low	- .05 - .5% approx.	-	- Not Detected	- Elements looked for but not found.
			T	- Trace	- .01 - .1% approx.	X	- Not looked for	

DATE Aug. 16, 1971.

SIGNED