

2637

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO 2637 MAP

Geological Report

Cotton belt Property: Snow, GN and Shuswap Claims

Kamloops M.D., B.C.

for

Great Northern Petroleums and Mines Ltd. (N.P.L.)

July - August - September, 1970

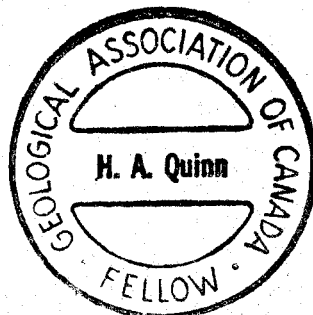
Location: 16 miles NNE. of Seymour Arm

West longitude 118° 50'
North latitude 51° 28'

Report by: R.S. Boyle - Geologist

under the supervision of
Harold A. Quinn

B.Sc M.Sc. Ph.D P. Eng.
(Ontario, Alberta & Yukon)



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Introduction

This report is submitted to accompany geological mapping done on the Cottonbelt Property during a six-week period ending August 22, 1970. All information was gathered by the writer from his experience on the property as a geologist employed by Great Northern Petroleum and Mines Ltd., (N.P.L.). Initial orientation and a history of the area was acquired from a report on the area by Alfred Allen, P. Eng. dated May 21, 1968.

The writer supervised trenching on the property and channel sampled the trenches as well as the Copper King Adit which was reopened and reportalled under his supervision.

Further work on the property was conducted by the author in the office of Great Northern Petroleum and Mines Ltd. (N.P.L.) for an additional twenty days during which time he prepared this report, drafted pertinent maps and coordinated successful completion of the job.

The writer feels that the area provided sufficient outcrop to prepare a representative geological map.
(encl.)





Location and Accessibility

The property, a group of 74 mineral claims and three crown grants, is located on Grace Mountain, twenty miles by helicopter from Seymour Arm, a northern arm of Shuswap Lake. All helicopter service was provided by Okanagan Helicopters based in Kamloops and Revelstoke, each some forty miles from Seymour Arm.

Since previous reports access has improved. Now there is a logging road, easily passable in the summer months, from Anglemont, B.C. to Seymour Arm. This eliminates the need of ferry service previously required. The road is approximately 42 miles long and can be passed in two hours in a standard two wheel drive, high centre vehicle.

From Seymour Arm the logging road described by Allen as extending to the forks of Seymour and Ratchford Rivers has been extended to within 8 miles of the property but as of yet has not been culverted and has washed out in several places rendering it negotiable by rough terrain vehicles only.

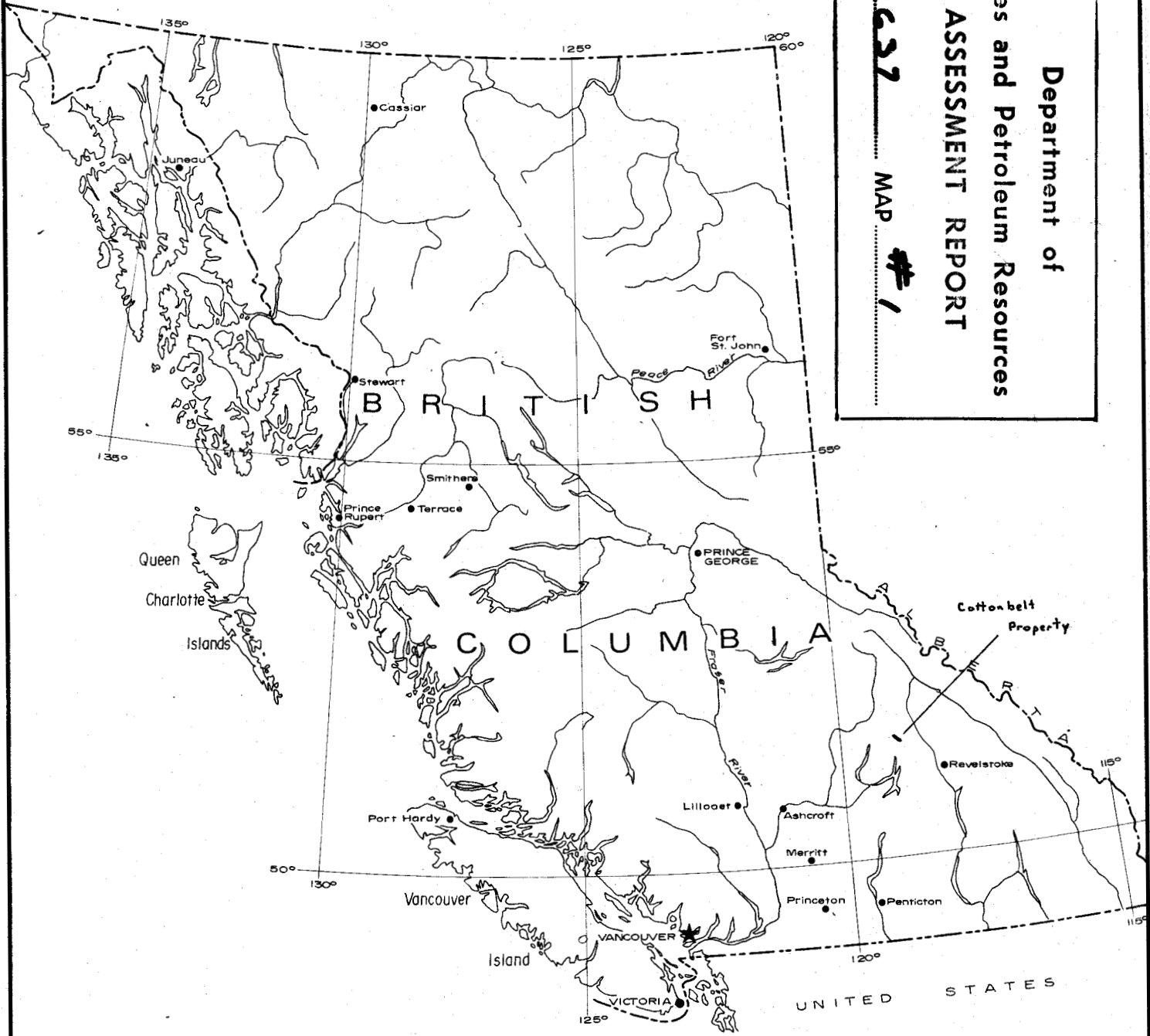
Camp Facilities

As the property lies on the steep north slope of Mount Grace and extends over a vertical rise of 3500', two camps have been maintained to provide proximity to the mid-slope and upper slope zones. The lower camp is central between the McLeod and Copper King Adits on a trail connecting them. Water is within 200 feet of camp at a seepage to the west.

The upper camp is a log cabin, 30 feet square and is the last habitable building from early work done on the property. It is equipped with bunks, tables and chairs and lies within 1000 feet of a well, sunk to provide water for early mining activity. This camp provides suitable accommodation for four men and supplies.

During the 1970 field season all trails were cleared and chained to provide cross reference for mapping and are now easily traversible.

Department of
 Gas and Petroleum Resources
ASSESSMENT REPORT
 NO. 2637 MAP # 1



Great Northern Petroleum & Mines Ltd. (N.P.M.)

Index Map

Cottonbelt Property

Kamloops M.D., B.C.

1 inch = 100 miles

October 5, 1970

R.S. Boyle



The area is well timbered and watered throughout the side slopes and is a gently sloping plateau area barren of trees at the summit.

Property

The Cottonbelt Property consists of 72 full size mineral claims held by Great Northern Petroleum and Mines Ltd., (N.P.L.).

- a) Shuswap 1-30
- b) Snow 1-6
- c) GN 1-38

<u>Claim Name</u>	<u>Recording Number</u>	<u>Recording Date</u>
Shuswap 1-30 (Inclusive)	64257-64286	May 26, 1967
Snow 1-6 (Inclusive)	52580-52585	November 12, 1967
GN 1-38 (Inclusive)	60700-60737	Sept. 26, 1966

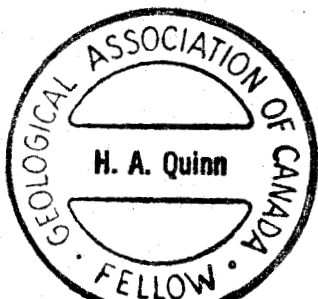
West longitude 118°-50' and north latitude 51°-28' intersect on the property.

Geology

Regional -

The property lies in an area mapped by the G.S.C. as part of their preliminary series. As the scale of mapping is one inch to four miles their map sheet (12-1964) provides only a general description of the area, serving to tie the property into its regional setting. The accompanying paper (number 64-32, 82M) likewise provides a very general description of the area but does mention the Cottonbelt Zone in somewhat greater detail on page 28.

Grace Mountain, upon the northwest slope of which the property lies, is made up entirely of the rocks of the Shuswap Metamorphic Complex. The area of the property is underlain predominantly by one of the successive envelopes of varying gneiss types surrounding a gneiss dome centered some 16 miles southeast of the property.



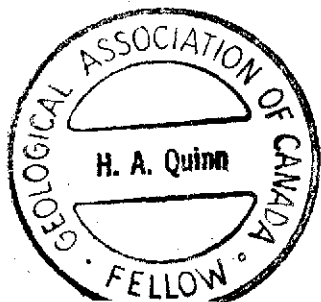
Local -

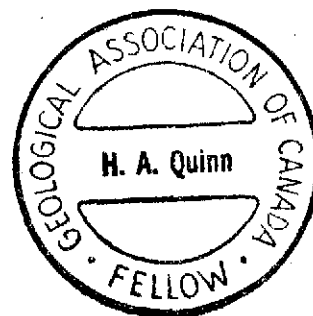
The eastern section of the property is underlain by grey-green schists and paragneisses striking without interruption north 25 to 35 degrees west and dipping 25 to 40 degrees southwest. All the mineralized zones, as well as thinly bedded crystalline limestone and quartz veins lie within this zone. White equigranular, predominately potash feldspar pegmatites outcrop in this eastern section as well, at two locations at east of center.

The westernmost limestone bed, lying in the Cottonbelt Zone, can be traced without interruption from appearances at the summit of Grace Mountain down slope to Blais Creek where it disappears under overburden. Over its exposure on the property the limestone varies in width and purity from a 100 foot thickness of white, massive phaneritic material (suggesting a cotton-belt) to a 20 foot thickness expressing itself only in the highly calcareous nature of the schist-gneiss zone in which it lies conformably.

Associated with this long band of limestone and the calcareous continuations of it are deposits of lead, zinc and silver sulfides, apparently replacement deposits of older limestone beds. The vein width varies from reported values of up to 10 feet at the Cottonbelt Adit #2 to two feet at the Ken Outcrop some 8000 feet to the northwest. A further 2000 feet to the northwest, along the suspected continuation of the Cottonbelt, Pb.Zn rich float was found, and although this is suspected to be in situ the depth of overburden did not permit confirmation. The vein material consists of galena, sphalerite, pyrrhotite and magnetite in a gangue of calcareous schists and altered silicates.

The eastern limestone bed, part of the McLeod Zone, extends from a point 2000 feet southeast of the McLeod Adit down the slope of Grace Mountain to the junction of Blais and Deep Creeks, where it expresses itself as a highly weathered bed of lime clay. The limestone varies in width from 12 to 20 feet and remains white and crystalline to its culminations as calcareous gneiss at the southeast end of the McLeod Zone. Mineralization associated with this bed is very similar to the Cotton belt Zone. The vein lies conformably above a sharp contact with the limestone and extends for 1800 feet varying in width from 2 to 7 feet. The ore is of replacement type comprised of sphalerite and galena with associated pyrrhotite,





magnetite and minor pyrite in a gangue of highly oxidized and carbonated wall rock. The southeast extension of the vein contains disseminated pyrrhotite with possible copper content in a calcareous gneiss.

Lying between the McLeod and Cottonbelt Zones is the Copper King, a zone rich in chalcopyrite disseminated in quartz which in turn lies interbedded with thin lenses of limestone and schist. An adit, was reportalled and opened during the 1970 field season and provides good exposure of the Copper King vein for the 150 feet it has been driven along strike. The vein varies from a good ten foot section at the mouth to a more sparsely mineralized six foot section at the back of the adit. The hanging wall is a friable schist and makes maintenance of the adit portal difficult. The footwall is a light grey-black banded qtz. - feldspathic biotite paragneiss interbedded with highly micaceous schists. The quartz vein itself extends 1800' southeast, upslope from the adit and shows sparsely mineralized quartz for some 600 feet along this distance. To the northwest the quartz extends approximately 800 feet from the adit portal and shows sparsely mineralized quartz for some 400 feet. In all cases the ore is predominantly chalcopyrite with minor bornite showing.

Dividing the property and following approximately along strike line is a contact between the darker, paragneisses to the east and leucocratic, coarser grained graniticgneiss, homogeneous and pink. The contact appears to be gradational in the central zone but shows indications of a more abrupt invasion in the region of the summit of Grace Mountain. Along the contact the dip of the beds steepens and occasionally an average orientation is difficult to determine due to extreme changes in attitude and confusing lineation. However to the west of the contact the granitic gneiss assumes the same attitude as the paragneisses to the east. At every exposure the graniticgneisses lacked any mineralization and showed no calcareous nature.

Comments

The crown grants shown on the map were not located through field observations as all ground record of then had been destroyed through time. Therefore every effort has been made to properly locate them from early maps made to show their location. The locations decided



upon are at variance with the government 1:50,000 topographic map but have been placed in locations agreed upon by 3 previous efforts.

Respectfully Submitted,

R.S. Boyle

R.S. Boyle, Geologist
October 2, 1970



H. A. Quinn
Oct. 6, 1970

Declaration of Expenses

Cost Breakdown

Expenses to conduct geological survey of the Cottonbelt Property July 9 to August 22, 1970.

Wages: R.S. Boyle 1 1/2 months @ \$750.00	\$1,125.00
2 wheel drive vehicle 6 weeks @ \$90.00	540.00
Maps (reproduction, base map drafting)	150.00
Helicopter Service	2,000.00
Camp Equipment	150.00
Camp Supplies	400.00

Wages: R.S. Boyle 2/3 month @ \$750.00	<u>495.00</u>
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Total Costs	<u><u>\$4,860.00</u></u>
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Declared before me at the City
of Nanaimo, in the
Province of British Columbia, this 6th
day of October 1970.

R.S. Boyle

G. Phillips

A Commissioner of the A.S.S. in the Province of British Columbia or
A Notary Public in the Province of British Columbia.



Statement of Qualifications of R.S. Boyle

Education: 3 years study at McGill University, Faculty of Arts and Science, geology major.

Experience: 1966 - Summer - employed by the Quebec Department of Natural Resources as compassman, line cutter, assistant to geological mapping.

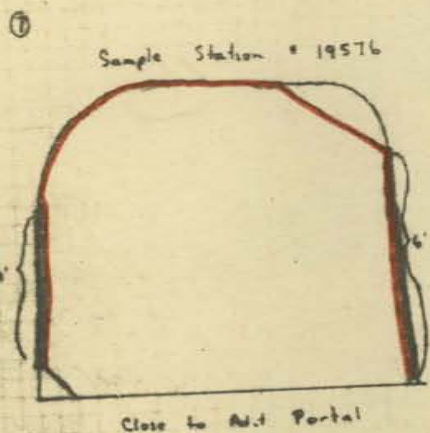
1967 - Summer - employed by New Jersey Zinc Exploration as geological assistant responsible for diamond drill core logging, geochemical surveying, prospecting, assistant to mapping.

1969 - Summer - employed by Atlantic Richfield (Canada) as assistant geologist responsible for radon gas survey, air photo interpretation, prospecting, staking.

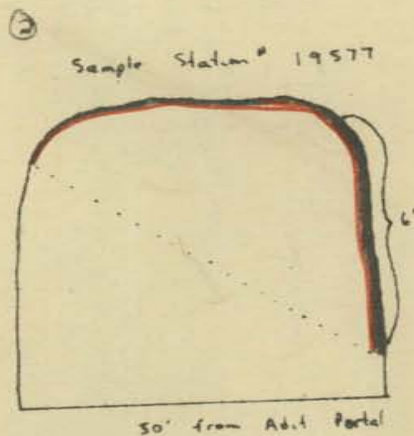
1970 - Summer - (partial) employed by G.V. Lloyd exploration to conduct a magnetometer survey, prospecting, radiometric survey.



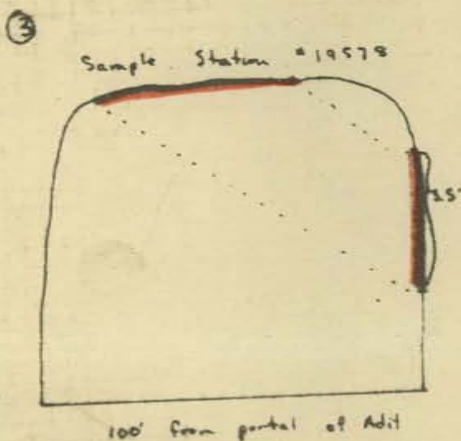
Vertical Sections of Copper King Adit at sample stations (looking toward back of Adit)



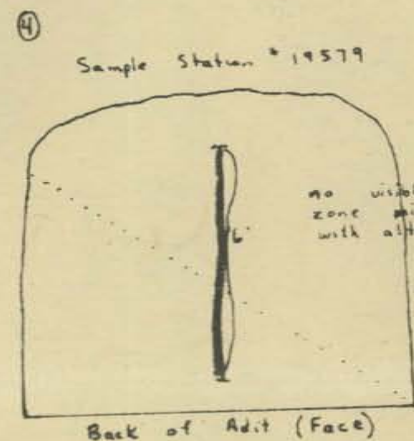
Assay values
Cu 1.98 Ag 0.14



Cu 1.96 Ag 0.10



Cu 3.55 Ag 0.20



no visible sulfides, entire zone mixed gneiss carbonate with altered wall rock.

Cu 0.08 Ag trace

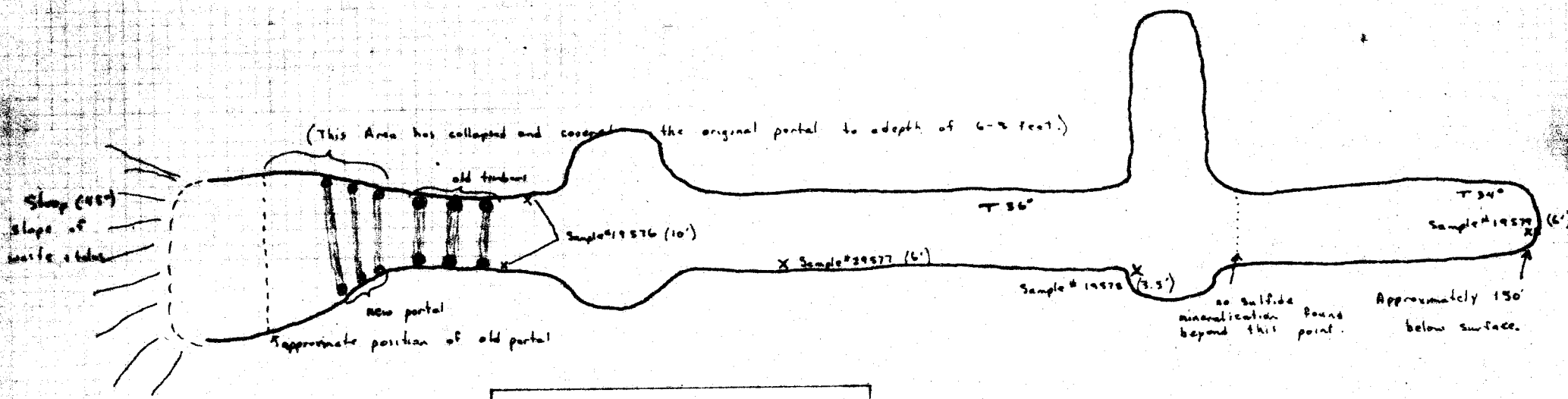


Trace of avg. bedding attitude
Copper Mineralization (Visible but not necessarily continuous)
Sample location
Avg. attitude of beds dipping 95° left to right

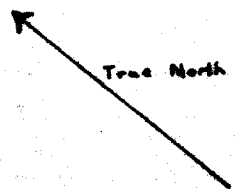
R.S.B.
Scale 1" = 10'
Sept 21, 1970

R.S. Bayl

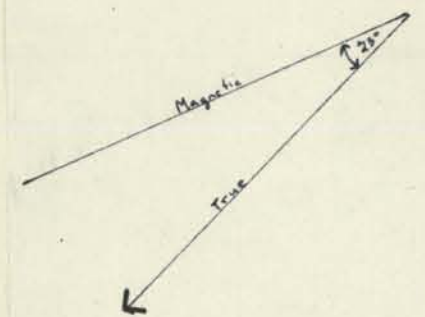
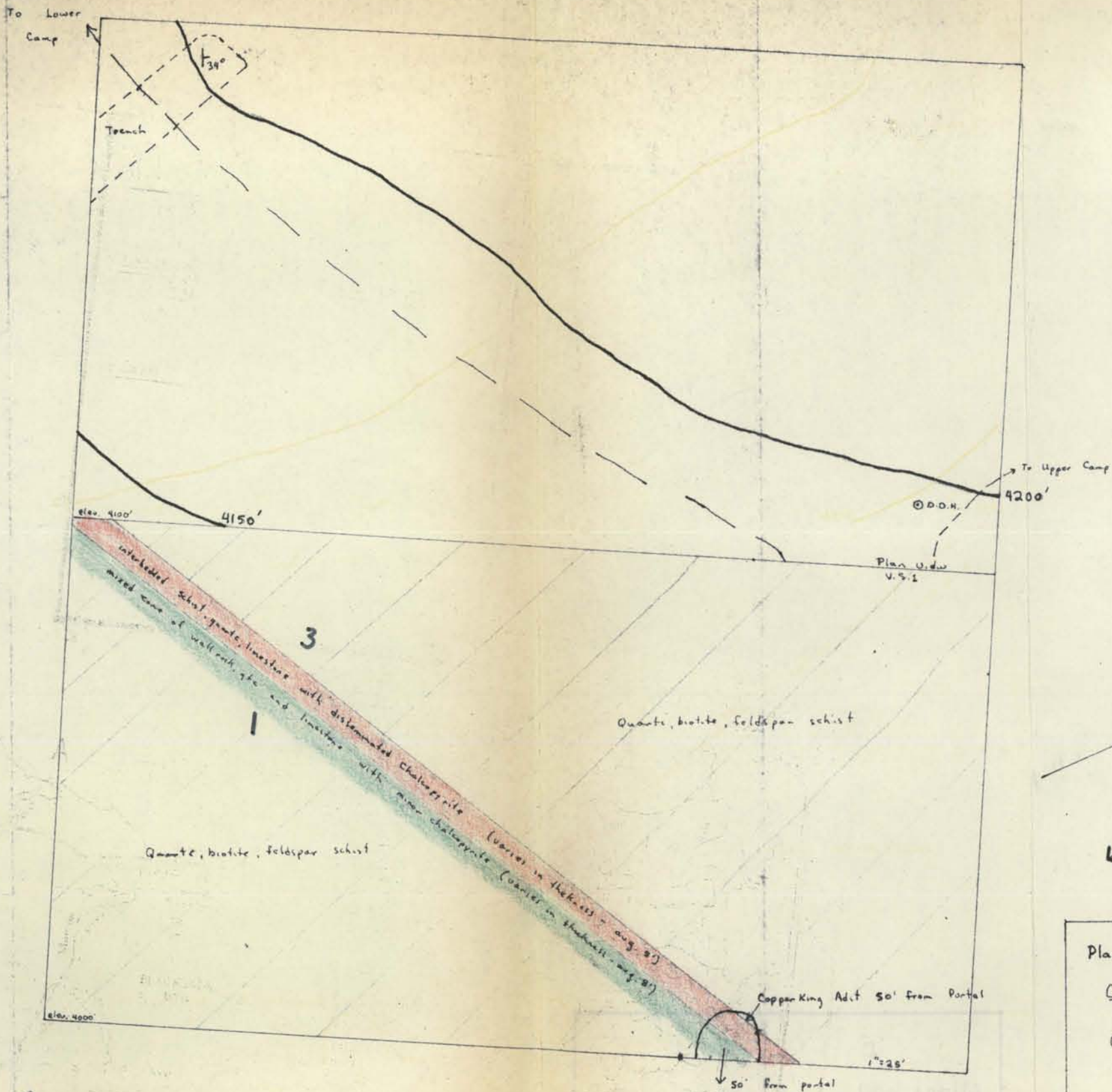
Vertical Sections of Copper King Adit at sample stations (looking toward back of Adit)



Plan View of Copper King Adit
 Cotton belt Property
 Great Northern Mines and Petroleum Ltd.
 Scale 1" = 20'
 R. S. B.
 Sept 21 / 1970



R. S. Boyle



Plan View and Vertical Section
of
Copper King Adit Area
on the
Cottonbelt Property

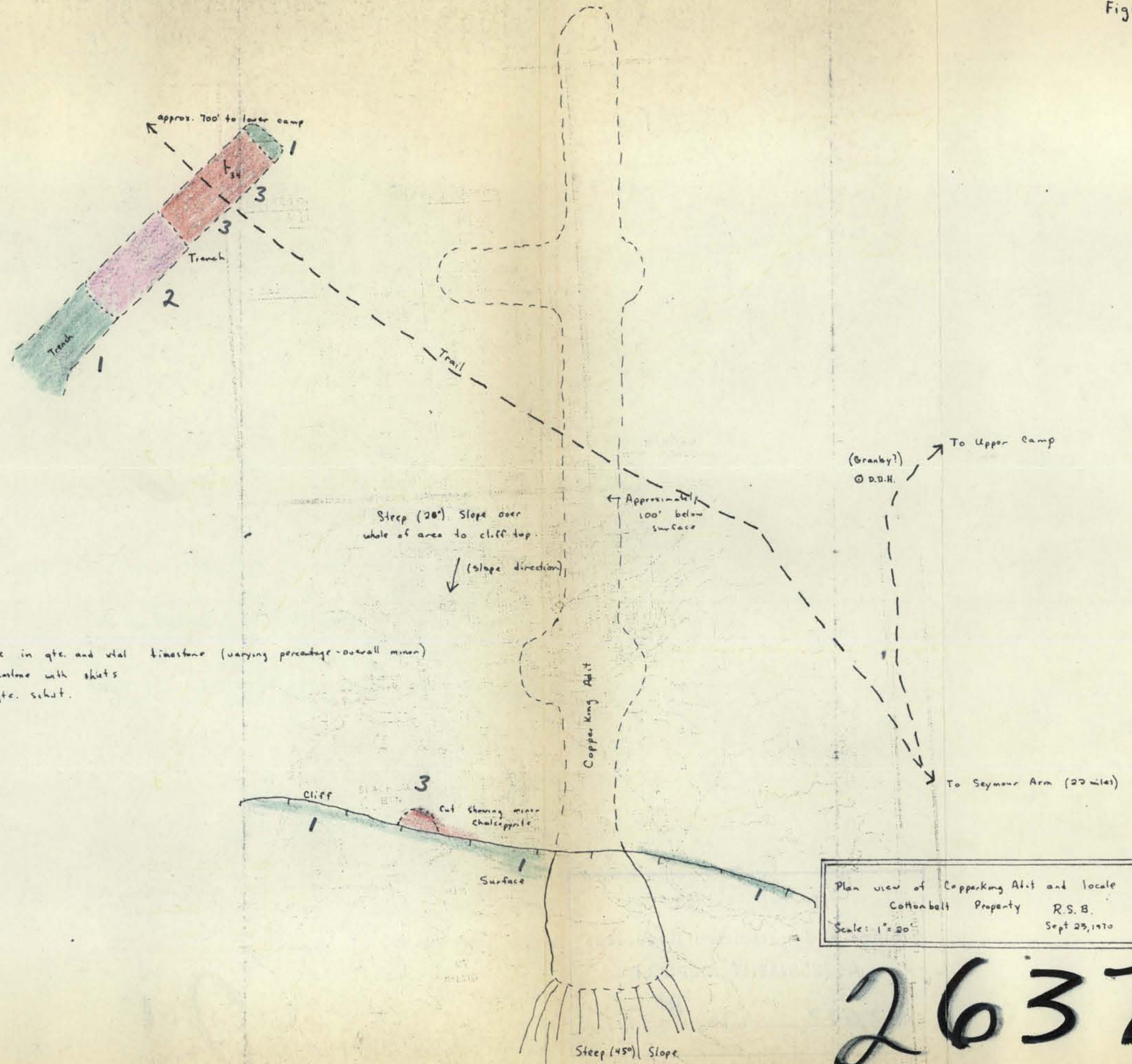
R.S. Boyle
Sept. 21, 1970

Scale 1" = 25'

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R.S. Boyle

Figure 1

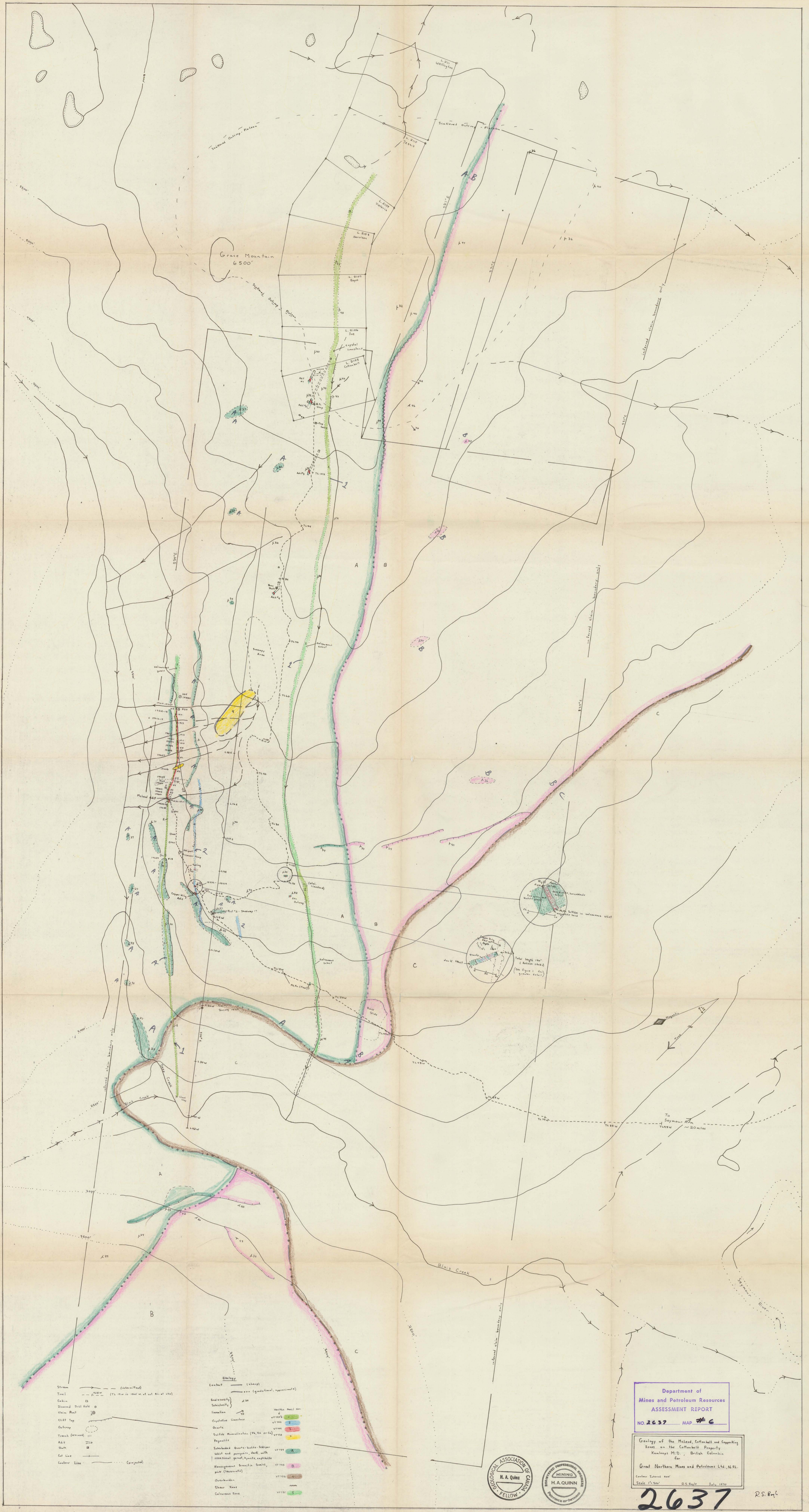


Legend

- 3 Disseminated Chalcopryite in qtz. and vtl. limestone (varying percentage - overall minor)
- 2 Quartz and vtl. limestone with shists
- 1 Dark biotite, feldspar qtz. schist.

Plan view of Copper King Adit and locale
 Cottonbelt Property R.S.B.
 Scale: 1" = 20'
 Sept 23, 1970

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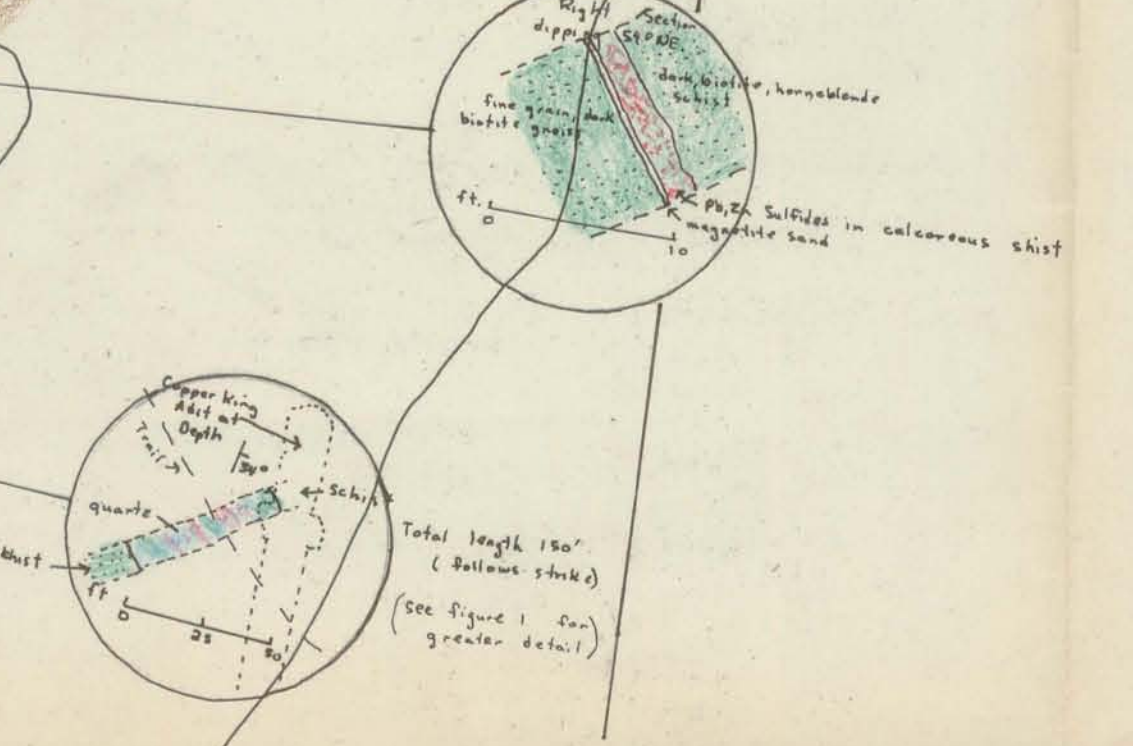


Grace Mountain
6500'

Stream (intermittent)
 Trail
 Cabin
 Shovel Drill Hole
 Steam Post
 Cliff Top
 Outcrop
 Track (stump)
 Axi
 Mark
 Cut Line
 Contour Line (projected)

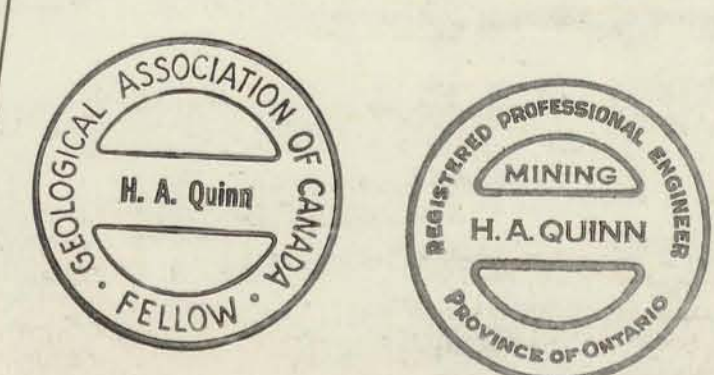
Geology
 Contact (sharp)
 Contact (gradual, approximate)
 Subvolcanic
 Intrusion
 Crystalline limestone
 Quartz
 Sulfide Mineralization (Pb, Zn or Cu)
 Pegmatite
 Intermediate Quartz-sulfide bodies
 Sulfid and pyritic, dark with
 occasional green, quartz, amphibole
 Homogeneous granitic quartz
 pure (leucocratic)
 Overburden
 Shear Zone
 Calcareous zone

Vertical Footing
 V7755
 V7756
 V7757
 V7758
 V7759
 V7760
 V7761
 V7762
 V7763
 V7764
 V7765
 V7766
 V7767
 V7768
 V7769
 V7770



Department of
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Geology of the Meek, Colman and Cooper
 Zones on the Colman Property
 Kamloops M.D., British Columbia
 for
 Great Northern Mines and Petroleum Ltd., N.P.L.
 Scale 1:50,000 R.S. Boyle July 1970



2637 R.S. Boyle