

534

GEOLOGICAL, GEOPHYSICAL and GEOCHEMICAL REPORT

NICHOLS CREEK, B.C.

CLAIMS: Nichol Group consisting of Nichol
Mineral Claim No.'s 1 to 20 incl.

LOCATION:

Bridge River area
Latitude 50° Longitude 123°
North~~east~~^{west}, Lillooet M.D.
British Columbia.

AUTHOR: W. Meyer, BSc.

ENDORSED BY:

John De Leen, BAsC., MASc., E.M., P. Eng. No. 3675

OWNED BY:

Phelps Dodge Corporation
of Canada, Limited,

DATES of WORK:

August 22nd to September 10th, 1963.

T A B L E o f C O N T E N T S

	<u>Page No.</u>
1. Summary	I
2. Location	1
3. Geology:	1
(a) Topography	1
(b) General Geology	1
(c) Rock types	2
(d) Structures	3
(e) Mineralization and Alteration	4
4. Geophysics:	4
(a) Method	4
(b) Interpretation	5
5. Geochemistry	6
(a) Method	6
(b) Interpretation	6
6. Accounting Statement	7
7. Claims	7

MAPS IN POCKET

- Figure No. 1 - Surface Geology
Figure No. 2 - Magnetometer and
Geochemical Map

<p>Department of Mines and Petroleum Resources ASSESSMENT REPORT</p> <p>NO. <u>534</u> MAP.....</p>
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GEOLOGICAL, GEOPHYSICAL and GEOCHEMICAL REPORT

NICHOLS CREEK, B.C.

SUMMARY:

In 1963, 20 days were spent by Phelps Dodge Corporation of Canada's personnel mapping the Nichol claims and carrying out a reconnaissance magnetometer and soil sample survey.

Pyrite, chalcopyrite and minor amounts of molybdenite occur in quartz veins and shear zones in a quartz monzonite intrusive. Trace amounts of pyrite and chalcopyrite occur in adjacent quartz diorite.

The reconnaissance magnetometer survey was successful in outlining the contacts between the three main rock units, quartz diorite, quartz monzonite (soda granite) and basalt.

The reconnaissance geochemical survey was largely negative.

All the surveying was completed using tape and compass traverses.

GEOLOGICAL, GEOPHYSICAL and GEOCHEMICAL REPORT

NICHOLS CREEK, B.C.

LOCATION:

The Nichol claims are located at the headwaters of Nichols Creek, a tributary of the Bridge River, at latitude 50°55' north and longitude 123°20' west. Access is by helicopter from Taseko Lake or by pack trail from Bralorne.

GEOLOGY:

(a) Topography

Nichols Creek lies in a "U" shaped glacial valley at the divide between the Bridge River and Taseko River water sheds. Nichols Creek is a main tributary of the Bridge River near the latter's headwaters. The Nichol claims extend from the headwaters of Nichol Creek in Griswold Pass at 6,500 feet south along Nichols Creek to the timberline at 5,500 feet. Scrub spruce and balsam cover the lower southern portion of the group.

(b) General Geology

The Nichol claims lie on the contact between the "Coast Intrusive" and the "Bridge River Intrusive". The younger "Bridge River Intrusive" or soda granite is in a fault contact, parallel to Nichols Creek, with the quartz diorite of the Coast Intrusive on the east side. The quartz diorite bounds the group on the east. Flat lying, Late Tertiary to Recent basalts lie unconformably over the soda granite on the west side of the group. The soda granite is intruded by narrow, Late Tertiary to Recent, andesitic to basaltic dykes.

The Upper part of Nichols Creek occupies a wide northwest trending fault zone.

(c) Rock Types

The following rocks were mapped:

1. Quartz diorite.

This rock occupies most of Nichol claim No.'s 11, 13, 15, 17 and 19 and the steep bluffs of a high ridge lying to the east of the claim group. The coarse rock contains approximately 10 percent quartz, 40 percent calcic feldspar and up to 50 percent hornblende. The quartz crystals range in size from 1/8" to 1/4" in a uniform groundmass of feldspar. The hornblende ranges in size from 1/16" to 3/8" and in composition from 10 to 50 percent in places giving the rock the appearance of a hornblendite.

2. Soda granite.

Nichol claim No.'s 12, 14, 16, 18, 20, 1, 3, 5, 7, 9 and the east portions of 2, 4, 6, 8 and 10 are underlain by the younger Bridge River Intrusives or soda granite. These rocks have been described by Dr. V. Dolmage, in the Geological Survey of Canada, Summary Report, 1928, Part "A" as follows:

"This granite consists of about 40 percent quartz, 40 percent albite-oligoclase (Ab₈₀ - An₂₀), 5 percent orthoclase and 15 percent biotite and is, therefore, more properly a soda granite. It differs from the Coast Range batholith in the larger amount of quartz, more acid plagioclase, less hornblende and more biotite".

3. Volcanics

The flat lying, Late Tertiary to Recent

lavas of most of the Nichol claim No.'s 2, 4, 6, 8 and 10 lie unconformably over the soda granite. These highly vesicular flows consist of brownish to black basalt. Dark green andesitic rocks at the base of the volcanic formation were noted in several places. Dense green andesitic and dark basaltic dykes ranging in size from a few feet to more than 200 feet in width were mapped in Nichols Creek Canyon on Nichol claim No.'s 1, 3, 5 and 16.

4. Conglomerate.

A 20 to 30 foot thick conglomerate bed consisting of well rounded pebbles and boulders of soda granite cemented by basaltic material was mapped on Nichol claim No.'s 1 and 2. The conglomerate occurs at the base of the basaltic flow rocks and overlies the main soda granite mass.

5. Sediments and Volcanics (Pre-Tertiary)

On Nichol claim No.'s 19 and 20, a small section of contorted interbedded volcanics and sediments were mapped. This formation strikes northwest and dips steeply. Rocks mapped in this remnant include sandstone, argillites, chert, rhyolite and porphyritic rhyolite.

(d) Structures

The main feature of the geology of the claim area is the northwest trending contact between the soda granite which lies to the west of the contact and the quartz diorite which lies to the east of the contact. Mineralized shear zones and quartz filled tension fractures striking north 45 degrees east to north 60 degrees east, dipping steeply and terminating were mapped on Nichol claim No.'s 17 and 19.

These shear zones and tension fractures located within the soda granite terminate at the above-mentioned contact.

Widespread faulting and shearing was mapped in the canyon of Upper Nichols Creek. Basaltic and andesitic dykes intrude the soda granite along faults and/or shears striking north 10 degrees west to north 20 degrees west and dipping 40 degrees to 65 degrees to the northeast. A second northwest fracture and/or a joint system dips 30 to 60 degrees to the southwest.

(e) Mineralization and alteration

Minor pyrite and chalcopyrite mineralization is associated with kaolinite and minor orthoclase alteration along the fault and shear zones striking north 10 degrees to 30 degrees west and dipping 40 to 60 degrees to the northeast in the Nichols Creek canyon.

Disseminations and small, massive pods to 6 inches of chalcopyrite and molybdenite are associated with extensive kaolinite, orthoclase and silica alteration and quartz veins in tension shears along the fault contact between the two intrusive masses on Nichol claim No.'s 17 and 19.

GEOPHYSICS:

(a) Method

A magnetometer survey was conducted on east-west tape and compasses traverses using claim location lines for control. The profiles were spaced from 500 to 1,500 feet apart. The reconnaissance survey was carried out over portions of Nichol claim No.'s 1 to 4 inclusive, Nichol claim No.'s 11 to 17 inclusive. The object of the survey was to locate the

intrusive contact in the north part of the property which is obscured by overburden.

All observations were made with an Askania G.f.z. vertical field torsion fibre magnetometer having a scale constant of 209 gammas per degree. A total of 308 stations were occupied on 5.85 miles of traverse.

Figure No. 2 is a map drawn on a scale of 1" = 200' showing the data contoured on 100 gamma intervals.

(b) Interpretation

The magnetic contour map may be divided into 4 areas. The south portion of line 26 west is characterized by a high density of magnetic contours. This magnetic anomaly is attributed to the thin capping of flat lying magnetite rich basalt. Immediately to the northeast of the basalt contact, a narrow northwest trending anomaly has smaller magnetic relief than over the basalt and greater relief than the area to the northeast. This anomaly is due to the magnetite rich basalt cement of the conglomerate underlying this area.

The central portion of the surveyed area is characterized by almost no magnetic relief. Abundant soda granite outcrops in the canyon and occasional outcrops east of the canyon indicate that this whole area is underlain by soda granite.

The east portion of the surveyed area is characterized by a slightly higher density of contours although the magnetic intensity is approximately the same as the central part. From the observed contact to the south and past experience on other similar geological environments in the Taseko area, this area is thought to be underlain by quartz diorite of the

Coast Range Batholith and the contact to be located as indicated on Figure No. 2.

GEOCHEMISTRY:

(a) Method

A reconnaissance geochemical survey was carried out along the claim location lines, magnetometer lines and one traverse along Nichols Creek in the canyon. Samples of soil at a depth of approximately 6 inches were taken every 100 feet along these traverses.

The samples were tested using the Rubenic Acid Test for Copper in Soils distributed by Eldrico Geophysical Sales Ltd., 125 East 4th Avenue, Vancouver 10, B.C.

Four hundred and forty samples were taken along 8.9 miles of traverse. Figure 2 shows the stations occupied during the reconnaissance survey. A single positive denotes a sample that shows a weak positive response to the Rubenic acid test. A double positive denotes a sample with a strong positive reaction to the copper test.

(b) Interpretation

The positive reactions in the canyon are attributed to the minor amounts of chalcopyrite which were observed there. The positive samples on Nichol claim No.'s 17 and 19 are located in small creeks which drain the area of the high grade copper occurrences to the east of the traverse.

Other isolated positives were checked by close prospecting but remain unexplained.

Report by: W^m Meyer
W. Meyer BSc.

Endorsed by: John De Leen
John De Leen B.A.Sc., M.A.Sc., E.M., P. Eng. No. 3675

CLAIMS - NICHOLS CREEK, B.C.

Bridge River area
Latitude 51° Longitude 123°
Northeast, Lillooet M.D.
British Columbia.

Nichol Group consisting of Nichol Mineral Claim
No.'s 1 to 20 incl.

Record Numbers 23664 to 23683 inclusive

Nichol Mineral Claim No.	1	-	Record No.	23664
	No. 2	-	" "	23665
	No. 3	-	" "	23666
	No. 4	-	" "	23667
	No. 5	-	" "	23668
	No. 6	-	" "	23669
	No. 7	-	" "	23670
	No. 8	-	" "	23671
	No. 9	-	" "	23672
	No. 10	-	" "	23673
	No. 11	-	" "	23674
	No. 12	-	" "	23675
	No. 13	-	" "	23676
	No. 14	-	" "	23677
	No. 15	-	" "	23678
	No. 16	-	" "	23679
	No. 17	-	" "	23680
	No. 18	-	" "	23681
	No. 19	-	" "	23682
	No. 20	-	" "	23683

NICHOLS CREEK, B.C.

GEOLOGICAL, GEOPHYSICAL and GEOCHEMICAL REPORT

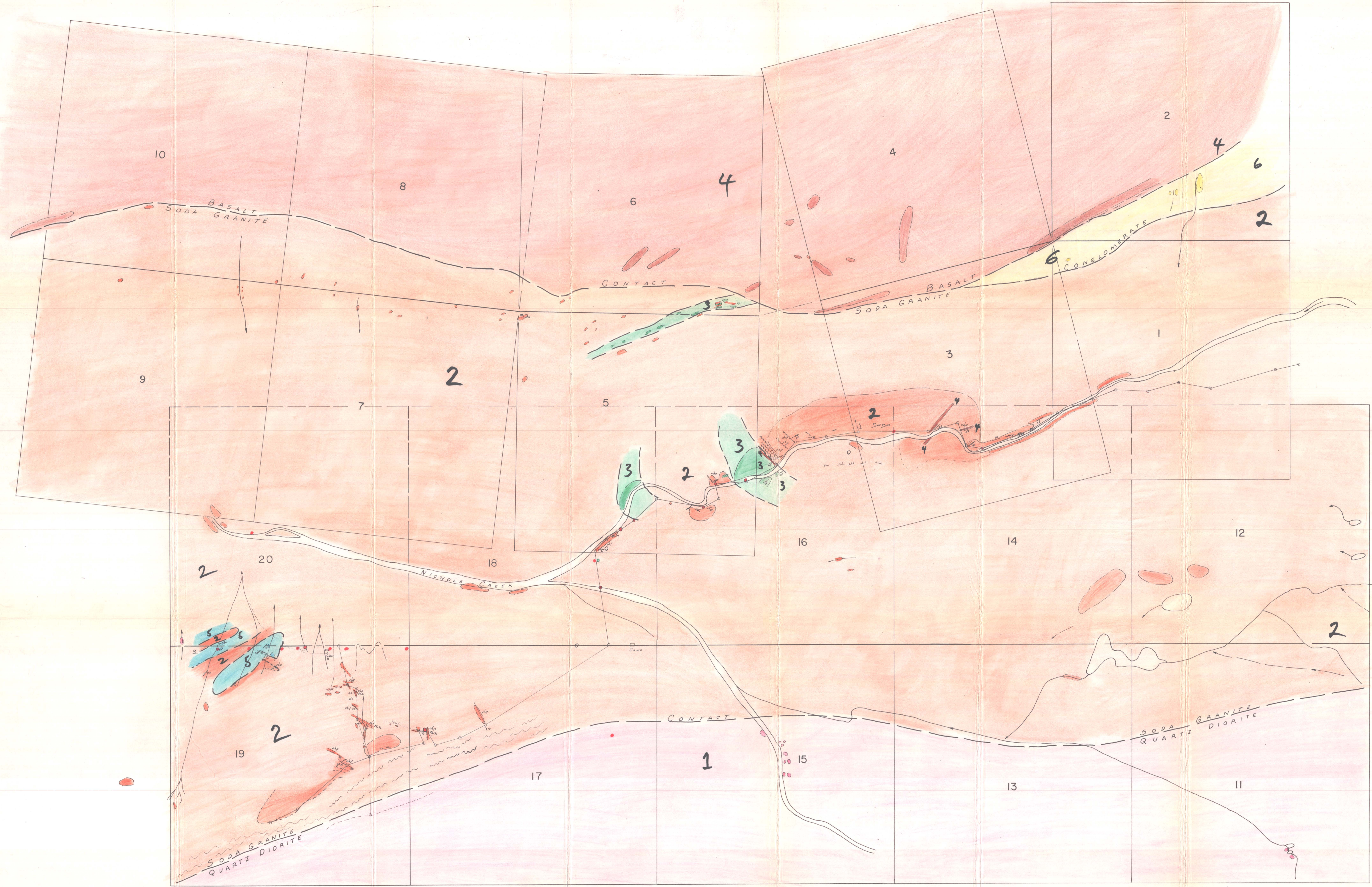
AUTHOR: W. Meyer, BSc.

ENDORSED BY:

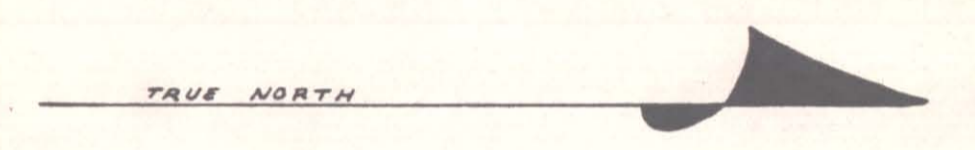
John De Leen, BAsC., MASc., E.M., P. Eng. No. 3675

Vancouver, B.C.

January 10, 1964



- SEDIMENTARY ROCKS**
- RECENT (OR LATE TERTIARY)
6 CONGLOMERATE
- PRE-TERTIARY
5 INTERBEDDED SEDIMENTS AND VOLCANICS
(Sandstone, Argillite, Chert, Graywacke, Rhyolite)
- VOLCANIC ROCKS**
- RECENT (OR LATE TERTIARY)
4 BASALT
3 ANDESITE
- INTRUSIVE ROCKS**
- TERTIARY
2 SODA GRANITE
- JURASSIC
1 QUARTZ DIORITE



● SOIL SAMPLE POSITIVES

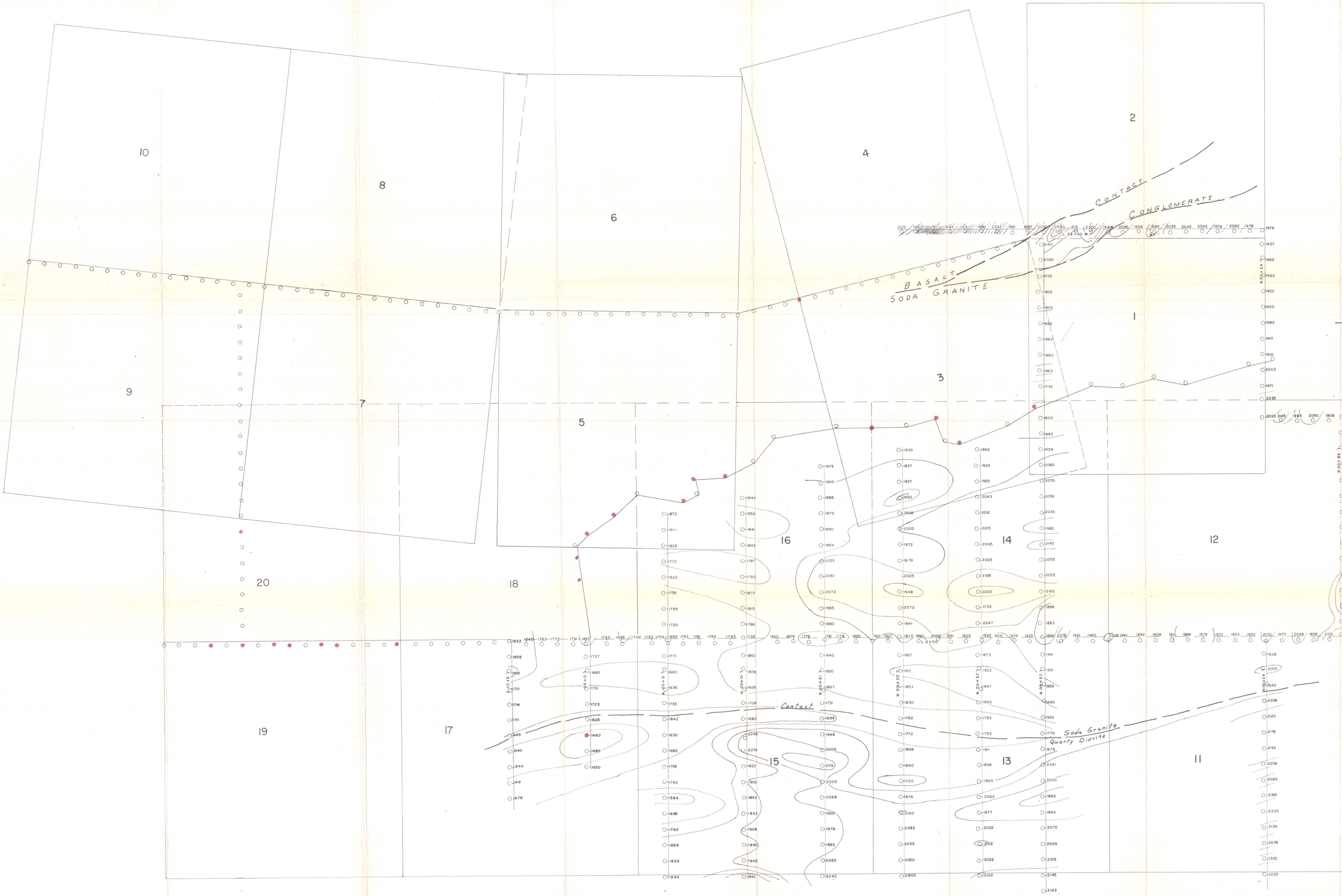
To accompany Geological, Geophysical and Geochemical Report by W. Meyer, B.Sc., on Nichol Nos. 1-20 mineral claims, Lillooet M.D. Dated Jan. 10, 1964.

534

FIG. 1
PHELPS DODGE CORP. OF CANADA, LIMITED

NICHOLS CREEK - SURFACE GEOLOGY

SCALE - 1"=200' DATE - DEC., 1963 SURVEYED BY - W.M. DRAWN BY - T.W.



GEOCHEMISTRY
 ○ BACKGROUND
 ● POSITIVE
 ● DOUBLE POSITIVE

MAGNETOMETER
 MAGNETOMETER READINGS IN GAMMAS
 CONTOUR INTERVAL = 100 GAMMAS



Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. 534 MAP 2

To accompany Geological, Geophysical and
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534

FIG. 2
 PHELPS DODGE CORP. OF CANADA, LIMITED
 NICHOLS CREEK
 MAGNETOMETER AND GEOCHEMICAL MAP

SCALE: 1" = 200' DATE: NOV, 1963 SURVEYED BY: W.M. DRAWN BY: T.W.