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Arizona Geological Survey
3550 N. Central Ave, 2nd floor
Phoenix, AZ, 85012
602-771-1601
http://www.azgs.az.gov
inquiries@azgs.az.gov

The following file is part of the Grover Heinrichs Mining Collection

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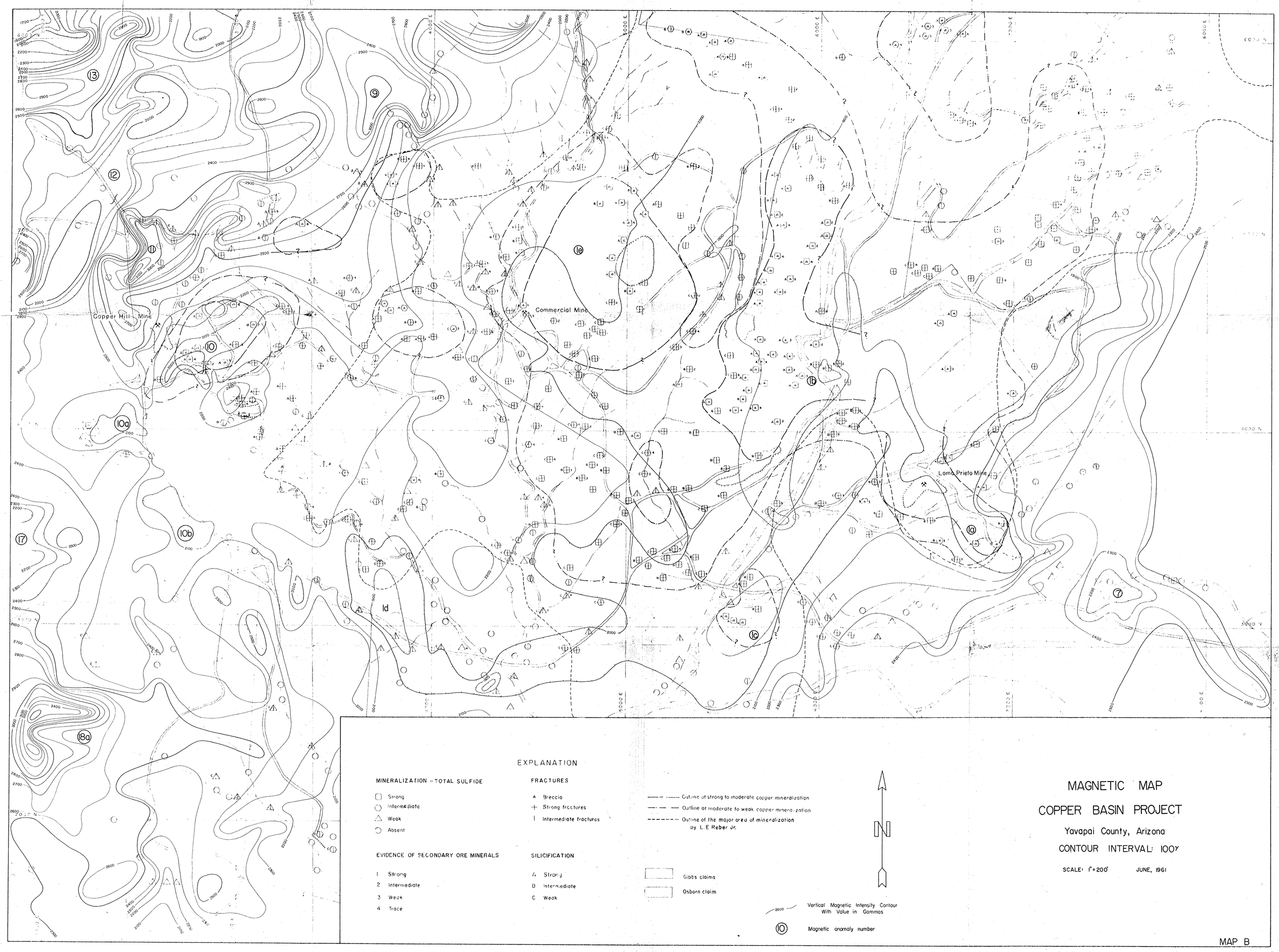
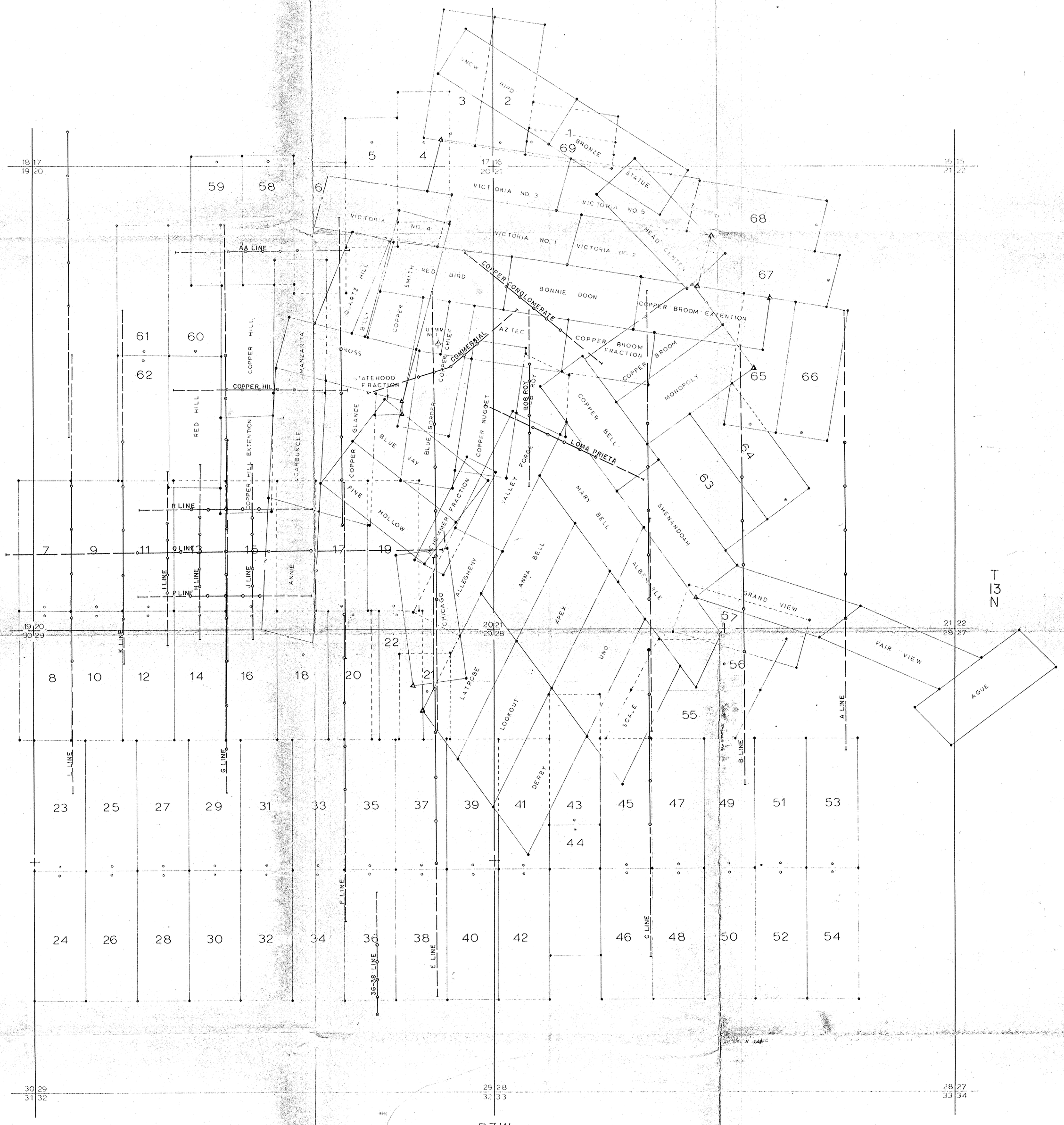

Copper Hill Mine
Commercial Mine
Loma Prieta Mine
EXPLANATION
MINERALIZATION – TOTAL SULFIDE
Strong
Intermediate
Weak
Absent
EVIDENCE OF SECONDARY ORE MINERALS
1 Strong
2 Intermediate
3 Weak
4 Trace
FRACTURES
Breccia
Strong fractures
Intermediate fractures
SILICIFICATION
A Strong
B Intermediate
C Weak
Outline of strong to moderate copper mineralization
Outline of moderate to weak copper mineralization
Outline of the major area of mineralization by L.E. Reber Jr.
Gibbs claims
Osborn claim
Vertical Magnetic Intensity Contour With Value in Gammas
Magnetic anomaly number
N
MAGNETIC MAP
COPPER BASIN PROJECT
Yavapai County, Arizona
CONTOUR INTERVAL: 100γ
SCALE: 1" = 200'
JUNE, 1961
MAP B



Induced Polarization Traverse Line Showing Electrode Positions and Full Extent of Traverse

EXPLANATION

- RECOVERED PATENTED CLAIM CORNER
- RECOVERED SECTION CORNER
- RECOVERED QUARTER CORNER
- DOUBTFUL CLAIM BOUNDARY
- 31 VIH CLAIM NUMBER

- PHELPS DODGE PATENTED
- PHELPS DODGE UNPATENTED
- OSBORN UNPATENTED
- RANWICK PATENTED – Acquired by PHELPS DODGE
- RANWICK UNPATENTED – Acquired by PHELPS DODGE
- GIBBS PATENTED
- GIBBS UNPATENTED
- LOWELL SURFACE RIGHTS

All patentented claims plotted from Mineral Survey Plats. Where conflicting data existed, the later survey plat was used.

All surveys plotted from U.S.M.M. No. 1 or B.L.M. corners.

N

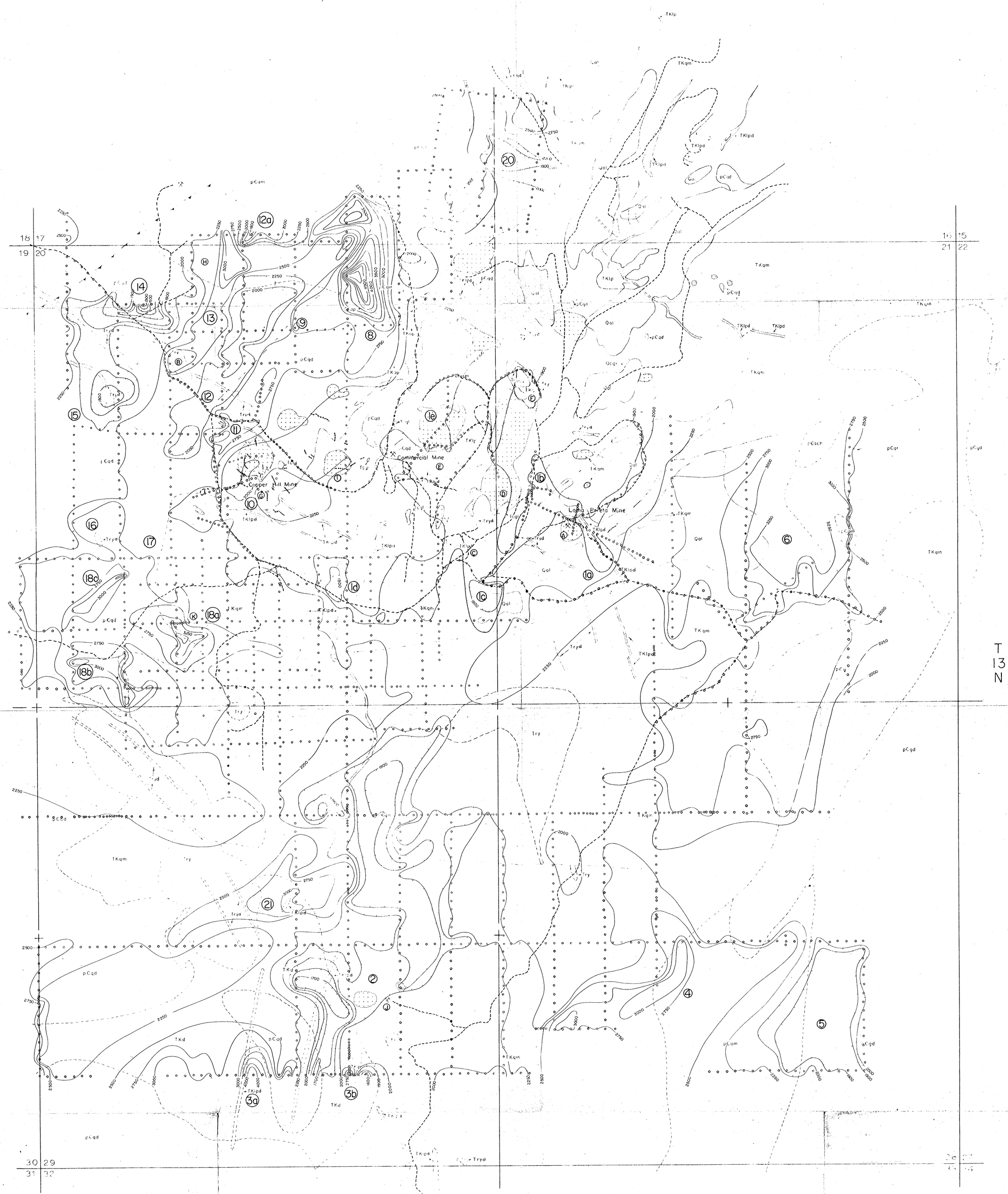
5 0 5 10 15 20
HUNDRED FEET

INDUCED POLARIZATION SURVEY COVERAGE
COPPER BASIN CLAIM MAP

YAVAPAI COUNTY, ARIZONA

PHELPS DODGE CORPORATION – Geophysical Research & Exploration Department

JANUARY 1961 SCALE 1" = 500'



EXPLANATION

QUATERNARY

- Qal — Alluvium
- Qcgl — Copper conglomerate

TERTIARY?

- Try, Tryd — Rhyolite - Rhyolite dike

TERTIARY? OR CRETACEOUS?

- TKap — Aplite
- TKlp, TKlpd — Latite porphyry - Latite porphyry dike
- TKqm — Quartz monzonite
- TKd — Diorite

OLDER PRECAMBRIAN

- pCgd — Granodiorite
- pCgr — Bradshaw granite
- pCqd — Quartz diorite
- pCsch — Yavapai schist
- pCam — Amphibolite member

Fault

Fault inferred

Thrust fault inferred

Quartz vein

Brecciated and, or, silicified area

Recovered section corner

Recovered quarter corner

Road

Mine

Magnetometer station

2000 — Vertical magnetic intensity contour with value in gammas

Ⓐ Sample collection station

⑩ Magnetic anomaly number

N

5 0 5 10 15 20

HUNDRED FEET

MAP SHOWING SOURCES OF GEOLOGIC DATA

Geology from the 'Geologic Map, Copper Basin Area' by L.E. Reber Jr., 1943-45. (Contacts generally solid lines)

Geology from the 'Geologic Map of the Copper Basin Mining District' by W.P. Johnson 1955, and the 'Geologic Map, Copper Basin Mining District' by Ranwick Inc. (Contacts dashed lines)

COPPER BASIN MAGNETIC MAP
COPPER BASIN GEOLOGIC MAP

YAVAPAI COUNTY, ARIZONA

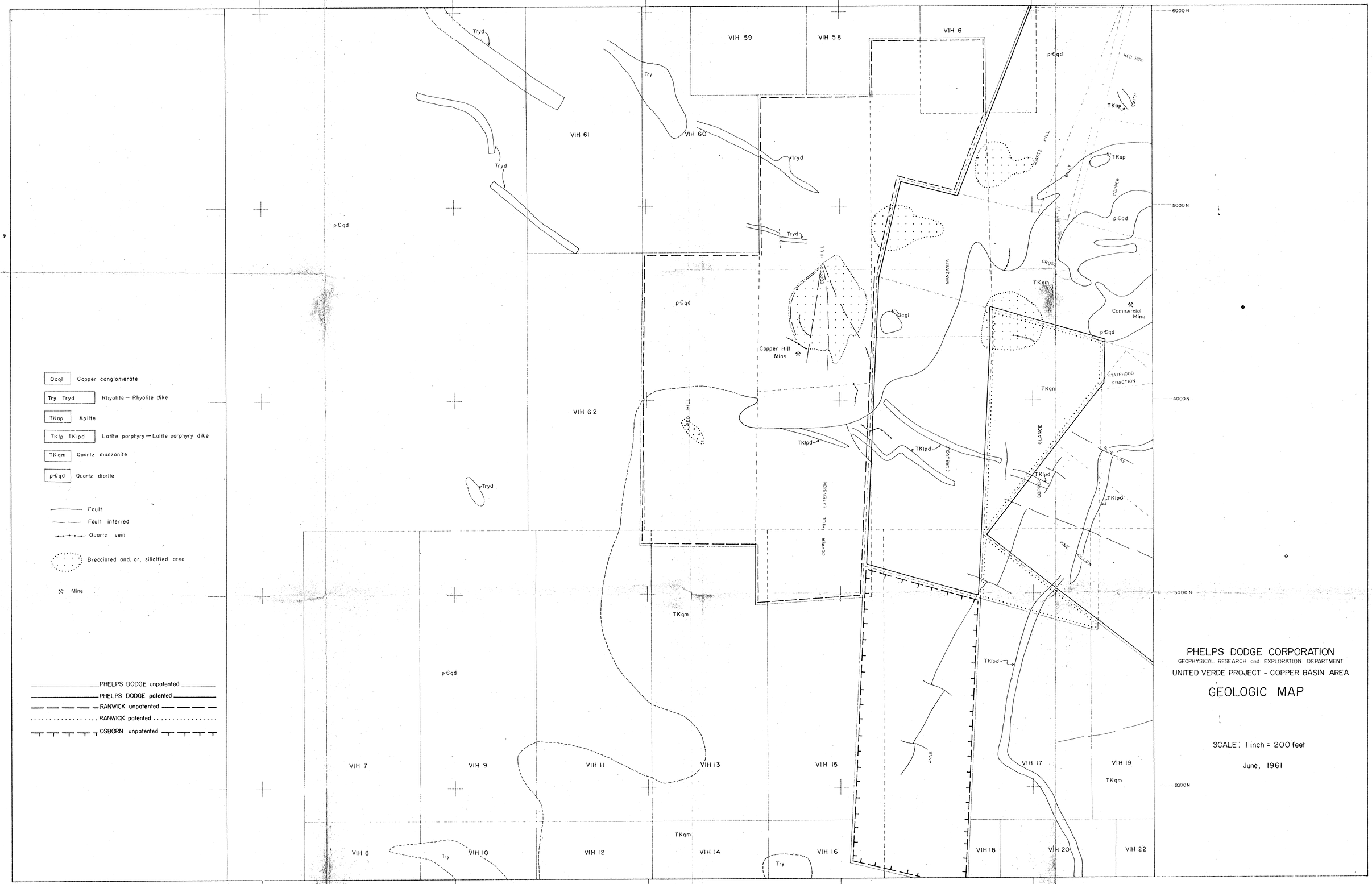
CONTOUR INTERVAL: 100γ Below 2000γ - 250γ Above 2000γ

PHELPS DODGE CORPORATION - Geophysical Research & Exploration Department

MARCH 1961 SCALE 1" = 500'

MAGNETIC SURVEY COMPLETED JUNE, 1961

MAP A

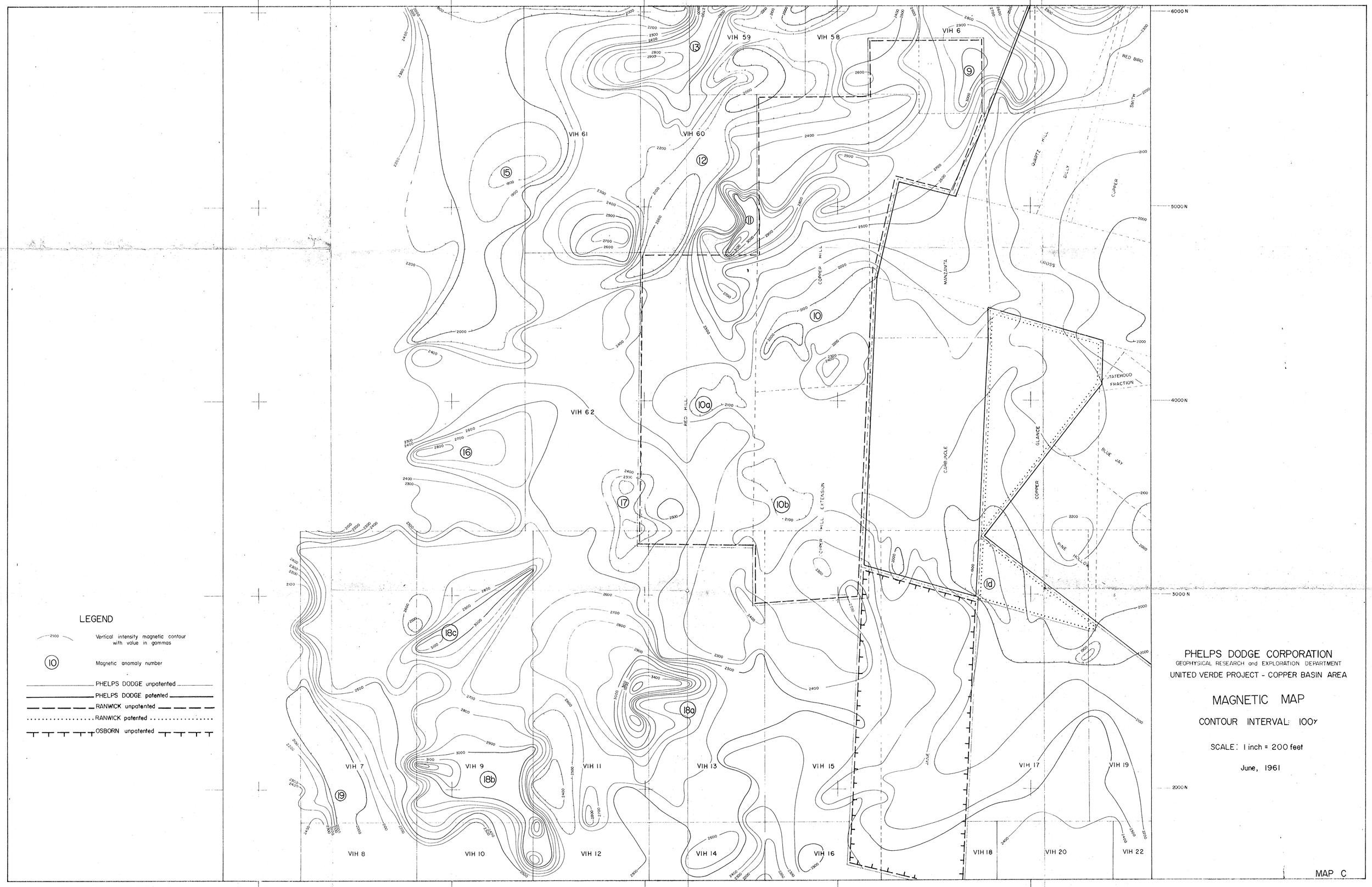


PHELPS DODGE CORPORATION
GEOPHYSICAL RESEARCH and EXPLORATION DEPARTMENT
UNITED VERDE PROJECT - COPPER BASIN AREA

GEOLOGIC MAP

SCALE: 1 inch = 200 feet

June, 1961


LEGEND
Vertical intensity magnetic contour with value in gammas
Magnetic anomaly number
PHELPS DODGE unpatented
PHELPS DODGE patented
RANWICK unpatented
RANWICK patented
OSBORN unpatented
VIH 6
VIH 7
VIH 8
VIH 9
VIH 10
VIH 11
VIH 12
VIH 13
VIH 14
VIH 15
VIH 16
VIH 17
VIH 18
VIH 19
VIH 20
VIH 22
VIH 58
VIH 59
VIH 60
VIH 61
VIH 62
RED BIRD
SMITH
QUARTZ HILL
BILLY
CUPRER
GROSS
MANZANITA
COPPER HILL
RED HILL
COPPER HILL EXTENSION
CARBUNCLE
GLANCE
COPPER
PINE FOLLOW
BLUE JAY
STATEHOOD FRACTION
6000 N
5000 N
4000 N
3000 N
2000 N
1000 E
2000 E
3000 E
4000 E
PHELPS DODGE CORPORATION
GEOPHYSICAL RESEARCH and EXPLORATION DEPARTMENT
UNITED VERDE PROJECT - COPPER BASIN AREA
MAGNETIC MAP
CONTOUR INTERVAL: 100γ
SCALE: 1 inch = 200 feet
June, 1961
MAP C

March 17, 1975

Note for Dr. John Sumner and Grover Heinrichs

Please review your report file on Copper Basin activity to refresh your recollection with respect to the following:

1. Please state the time of your association with Phelps Dodge and the nature of your work in Copper Basin including, to the best of your recollection, the times during which you were personally in Copper Basin.

2. Your direct and personal observation of mineralization in place on the VIH 67 and VIH 68 mining claims. If you do recall any such direct observation, please identify on a map provided by Harry Metz, the nature of the mineralization, its location, and the time of your observation.

3. Did you, at any time, encounter Mrs. Belle White or Mr. L. B. White or persons of their description provided by Harry Metz, during your work in Copper Basin. If so, please describe your conversation with them. This is an attempt to establish that the Whites knew that Phelps Dodge was conducting work in the Copper Basin area, and more specifically, on the land covered by the VIH 67 and 68, prior to 1966.

4. Did you see any of the VIH 67 or 68 claim monuments or discovery pits during your work in the early 1960's?

5. Please describe any work which you or your personnel performed on or near the VIH 67 or 68 mining claims of a nature which would be expected to call the Whites' attention to work being conducted there.

6. Please state your knowledge of the indications of surface mineralization in Copper Basin generally, and, more specifically, on the surface of the VIH 67 and 68 mining claims.

7. Harry Metz will furnish to you a map dated May 1964 showing the area covering the VIH 67 and 68 claims as consisting of quartz monzonite. There is also shown a breccia pipe on VIH 68. Is this accurate, and, if so,

what is the significance of this surface material with respect to indications of mineralization on these claims?

8. Dr. Sumner has mentioned a David Lowell (now with Still, Lowell & Still) who has worked in Copper Basin and who wrote a paper published in "Economic Geology" on Copper Basin. What does Dr. Sumner know about David Lowell, where can he be located, and what information might he be able to furnish on surface mineralization on the VIH 78 and 68 mining claims?

9. Please examine the attached sketch and notes concerning sites for mineral in place on the Silver Queen claims. Consider whether you or your assistant would have observed the same mineral occurrences during your geophysical work in the area in the early 1960's.

STATE OF ARIZONA, County of Yavapai—ss. 11165

I do hereby certify that the within instrument was filed and recorded at the request of E. Grover Heinrichs on Oct 14 A.D., 1960 at 3:35 o'clock P M. Book 200 Official Records Page 332, Records of Yavapai County, Arizona.

WITNESS my hand and official seal the day and year first above written.

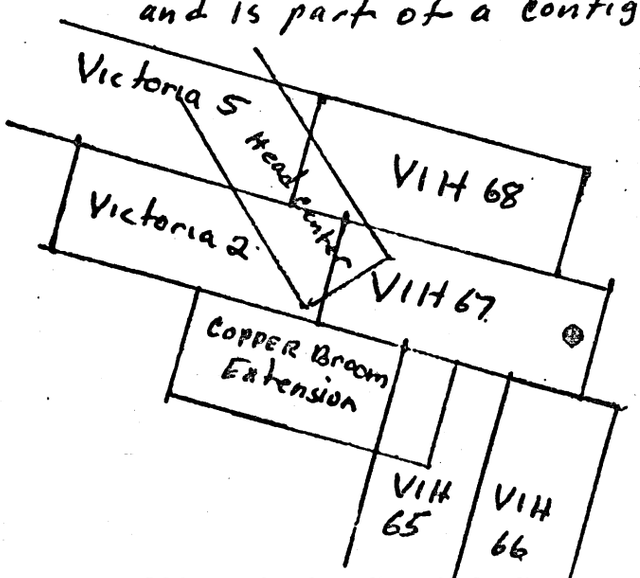
INDEXED

FRANK C. BAUER, County Recorder,
By Doris L. Gillis, Deputy

Notice of Location
(LODE)

NOTICE IS HEREBY GIVEN that the VIH 67 lode mining claim was located by E. Grover Heinrichs on 12/Oct, 1960 This claim is 1,500 feet in length along the vein or deposit of mineral-bearing rock in place and 300 feet in width on each side of the middle of said vein or deposit at which this notice is posted. The general course of this claim is N 80°53'W and is situated in the Copper Basin Mining District, Yavapai County, Arizona. This claim runs from the location monument or stake on which the notice is posted 1450 feet in a westerly direction to the west center end monument or stake and 50 feet in a easterly direction from the location monument or stake to the east center end monument or stake, and is also marked by two corner monuments or stakes at each end of the claim, one on each side of and 300 feet from the center end monuments or stakes, making the claim in the form of a parallelogram.

This claim is located about 3980' S71°E from the NW Cor Sec 21 T13N, R3W, G&SRB&M and is bounded on the north by VIH 68 on the west by Victoria 2 (pat. sur. 4488) on the south by Copper Broom Extension, VIH 65 and VIH 66 and overlaps in part Head Center and is part of a contiguous group



E. Grover Heinrichs
by: Franklin O. Surcudy Agent.
Locator
Witness: [signature]

Write on the above lines the locality of the claim with reference to some natural object or permanent monument whereby the claim can be identified. Give the section, township and range if known and, if possible, the direction and distance from the nearest public survey marker. It is advisable to make a sketch in the space above, showing the adjoining and overlapping claims. If this is an amendment of a location notice, give the name and book and page of recording of the claim being amended.

BOOK 200 PAGE 332

UNITED VERDE

ARIZONA

PHELPS DODGE ; VERDE EXPLORATION ; ANACONDA

PAST PROD'N : >1.8 million tons Cu
+ substantial Au, Ag, Pb, Zn

UNITED VERDE OREBODY : most of prod'n.
80 m.t. sulphides removed, including
3-4 m.t. @ 10.48% Cu from chalcocite
enrichment ; No expl. drilling below 1900'
17 m.t. sphalerite-rich orebody remains
— owned by Phelps Dodge ; acquired by PD in 1930's.

UNITED VERDE EXTENSION :
may or may not be faulted-off portion
of UV orebody
$125,000,000 Cu-Au-Ag-Pb-Zn
mined out ; owned by VERDE EXPL.

UNITED VERDE CENTRAL
VERDE EXPL.
DEVELOPMENT approx. ½ mile SE OF JEROME
250,000 tons @ >2% Cu (chalcocite)

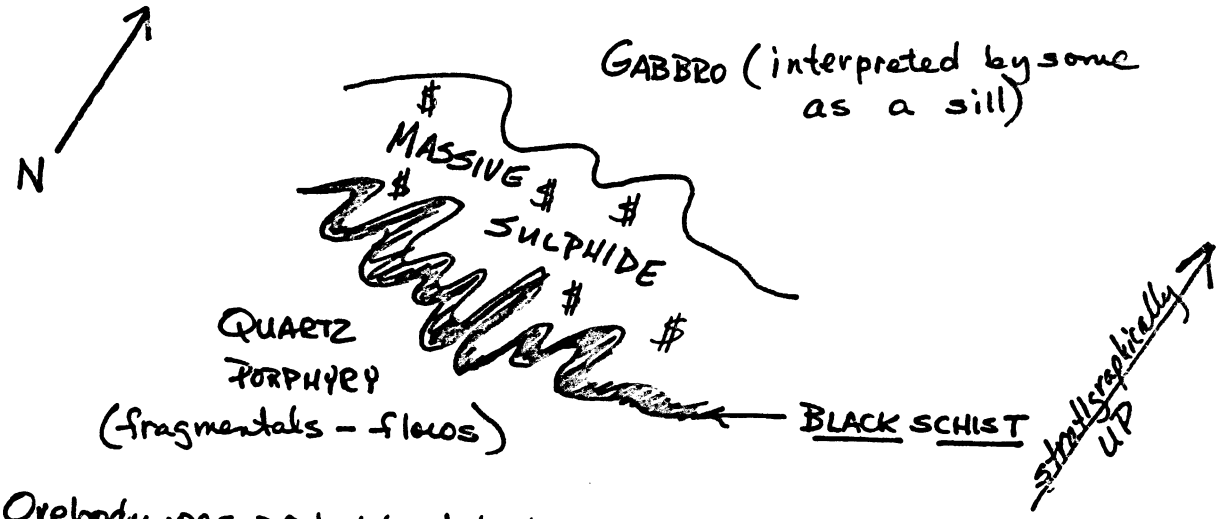
United Verde orebody occurs in structurally high block bounded by 4 faults. UVX orebody is on down-thrown side of Verde fault + on opposite limb of anticline from UV orebody.

Ore occurs in PC Ash Creek group volcanic sequence, which has been metamorphosed.

At least 2 ore horizons; probably 3 ; possibly 4

Massive sulphide lenses

Ore occurs above a "black schist" horizon, at contact between a "quartz porphyry" (Cleopatra member underlies q ppy) and a (post-ore?) gabbro:



Orebody was probably tabular + was strongly folded (Mazatzal Orogeny?) into a more cylindrical orebody. Folds gen. open up with depth. Two distinct fold systems are recognized.

Bedded sediments (Grapevine Gulch fm.) occur on flanks of ore horizon; pinch out at ore zone. These are interpreted as post-ore (They are high in sulphide content)

Orebodies interpreted to be at igneous center(s). Fragmentals occur on flanks of orebodies, units change from pyroclastics to flows laterally from orebodies.

Main ore min'ls were chalcocite (2ndary enrichment) cpy occurs in lower levels as ore pinches out. UV bottom level: 4750'

REFERENCES:

USGS Prof. Paper 308 - Anderson + Creasey (1958)

Leo J. Miller, unpubl. transcript of speech at GAC meeting, 4/60

Paul Handverger, 9-28-74 (Verde Expl. Co.)

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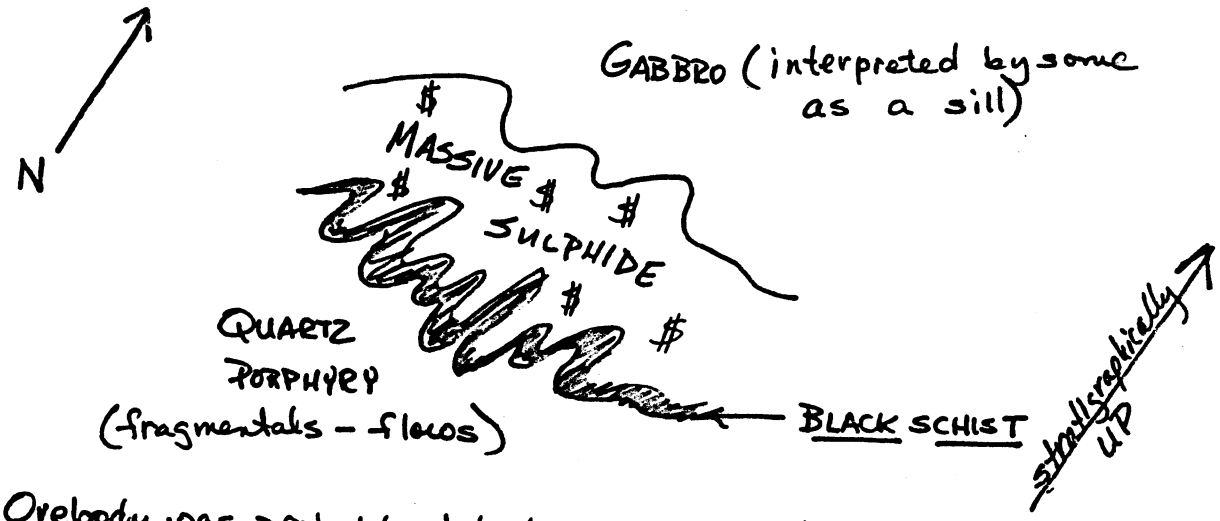

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