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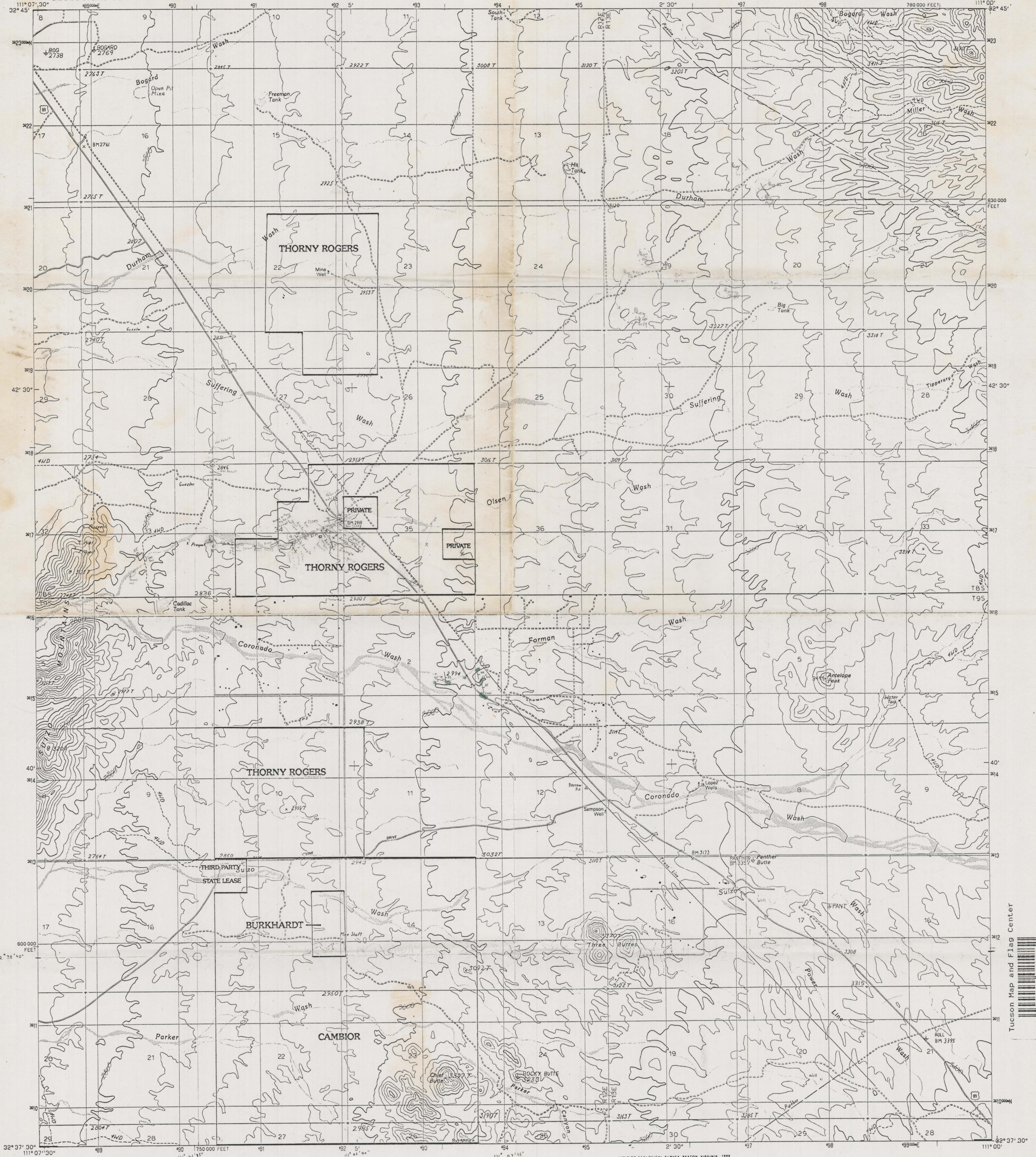
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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

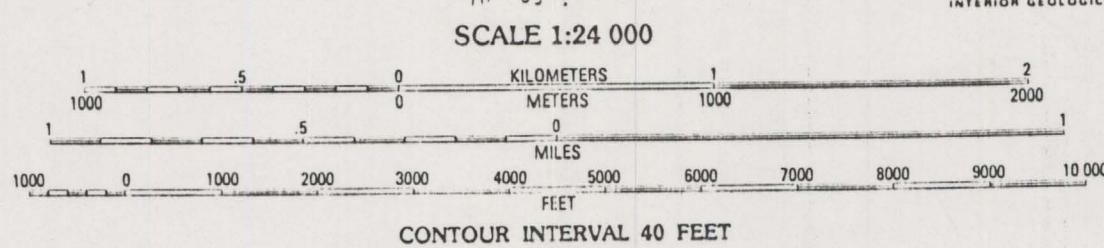
CHIEF BUTTE QUADRANGLE
ARIZONA-PINAL CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

SA
Original Geology Olsen Wash, Copper Cadillac
Copper Creek area



PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY
CONTROL BY USGS, NOSNOAA
COMPILED FROM AERIAL PHOTOGRAPHS TAKEN 1958
LIMITED REVISION FROM AERIAL PHOTOGRAPHS TAKEN 1959
FIELD CHECKED 1985 MAP EDITED 1988
PROJECTION TRANSVERSE MERCATOR
GRID: 1000-METER UNIVERSAL TRANSVERSE MERCATOR ZONE 12
10,000-FOOT STATE GRID TICS ARIZONA, CENTRAL ZONE
UTM GRID DECLINATION 1983 WEST
1988 MAGNETIC NORTH DECLINATION 12° EAST
VERTICAL DATUM NATIONAL GEODETIC VERTICAL DATUM OF 1929
HORIZONTAL DATUM 1927 NORTH AMERICAN DATUM
To place on the predicted North American Datum of 1983,
move the projection lines as shown by dashed corner ticks
(4 meters south and 62 meters east)
There may be private inholdings within the boundaries of any
Federal and State Reservations shown on this map
No distinction made between houses, barns, and other buildings
Public Land Survey System is shown as published in 1959 and
verified or supplemented in 1985

PROVISIONAL MAP
Produced from original
manuscript drawings. Infor-
mation shown as of date of
field check.



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225
OR RESTON, VIRGINIA 22092

1	2	3	1 Ninety Nine Hills SW
4	5	2 Ninety Nine Hills SE	
6	7	3 Black Mountain	
		4 Durham Hills	
		5 Fortified Peak	
		6 Desert Peak	
		7 Tortoise Mountain	
		8 Oracle Junction	

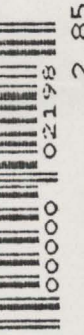
ROAD LEGEND

Improved Road
Unimproved Road
Trail
Interstate Route U.S. Route State Route

CHIEF BUTTE, ARIZONA
PROVISIONAL EDITION 1988

32111-F1-TF-024

Tucson Map and Flag Center



CHIEF BUTTE 7.5' 2.85

*Take Samples
of epidote - quartz
Send to Ed Williams*

To: Randy Moore & Dale Armstrong
Cambior U.S.A

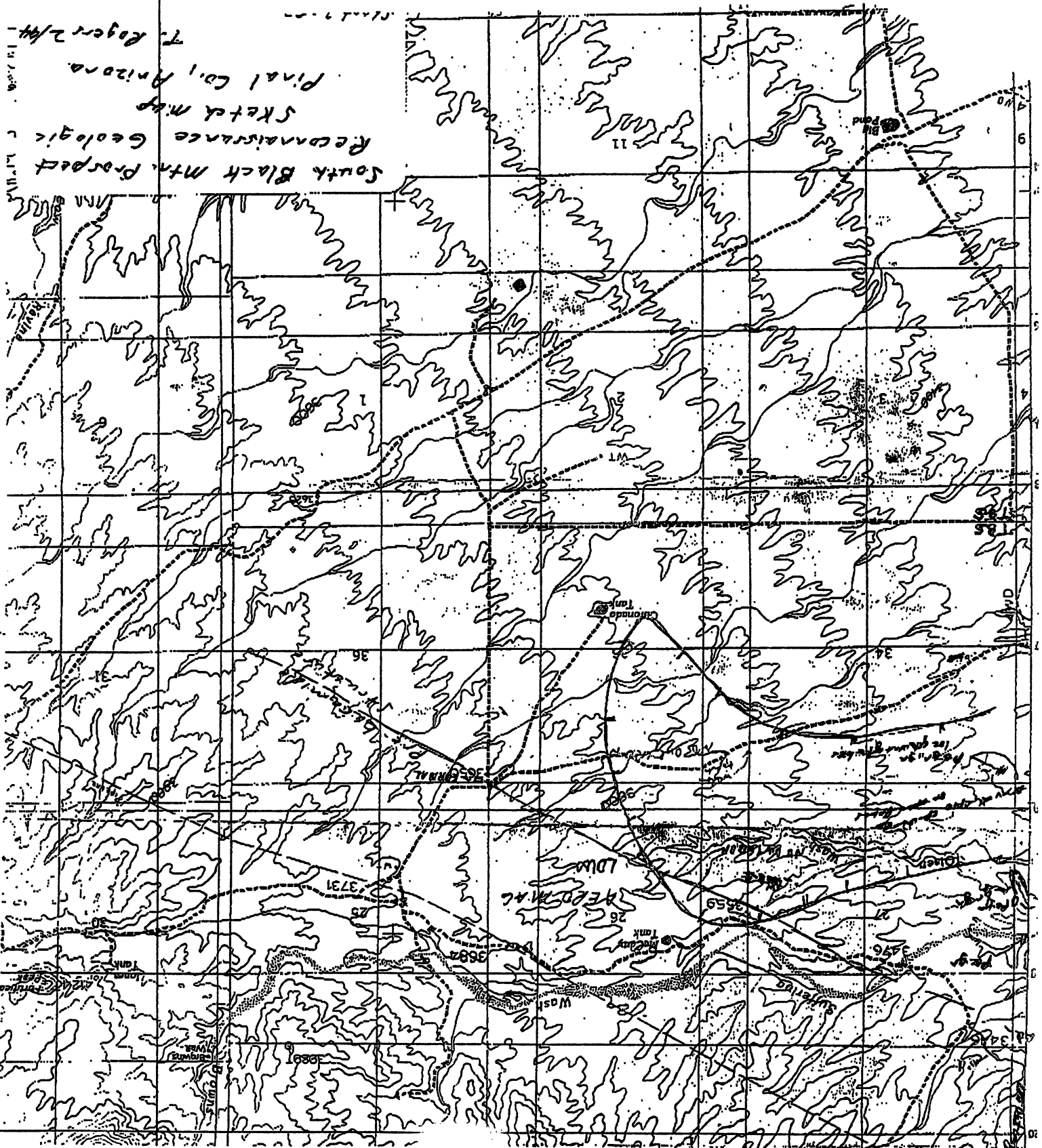
From: Thornwell Rogers
Geological Consultant

Subject: Geologic Observations and Thoughts on the South
Black Mountain Porphyry-Copper Target.

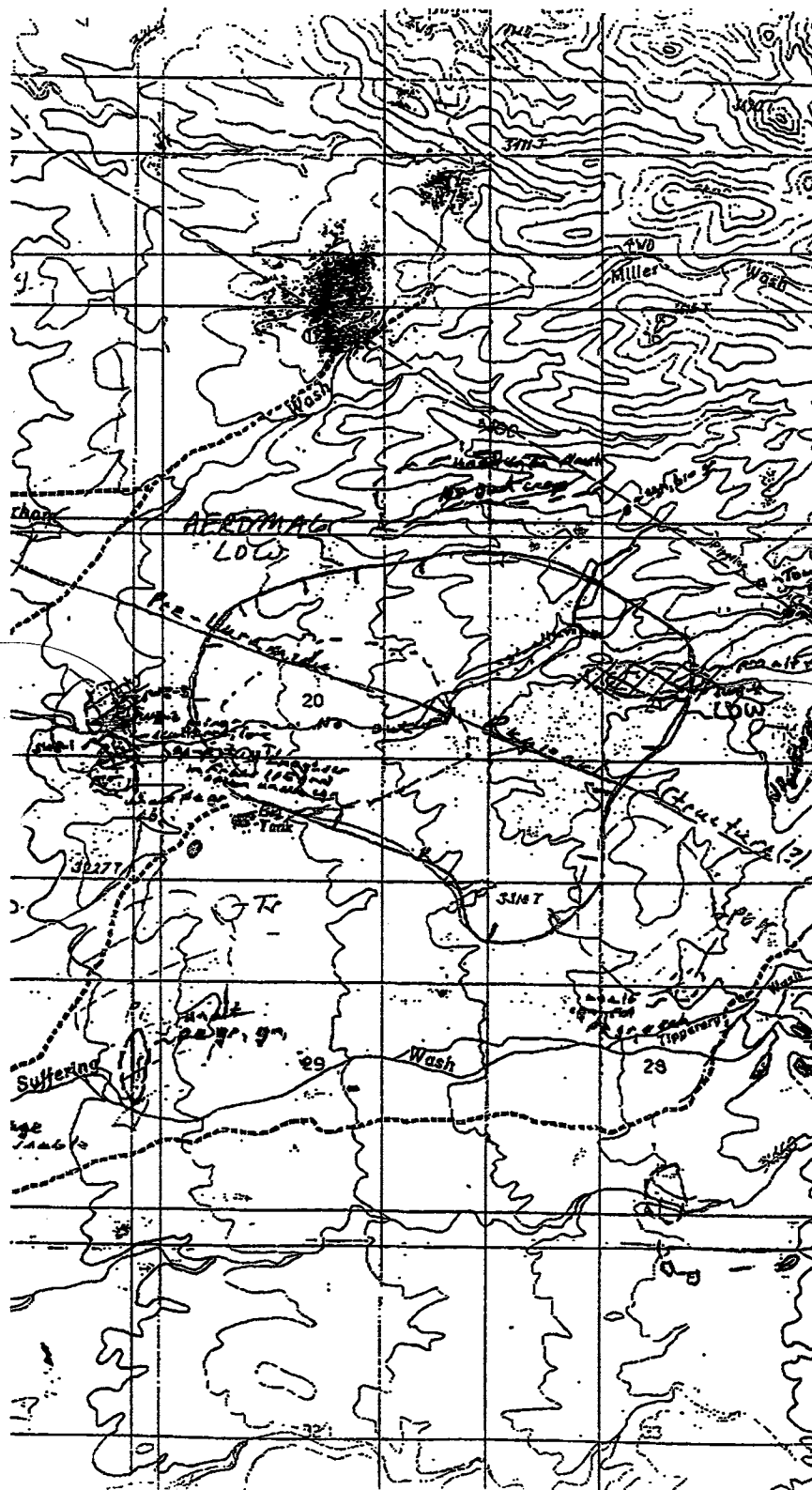
I thought it important to make some personal observations on the porphyry-copper targets to accompany the previous faxed geologic sketch map since it is likely that our schedules will not allow a joint property visit.

- 1) Alteration: Propylitic alteration PE granite (ep-qtz± ser) was observed in outcrop only in the area of the main drainage on the eastern edge of section 19 and sparsely in the NW 1/4 of section 34. However, no outcrop was observed in the pediment-covered area of the aeromagnetic low, east of the propylitic altered outcrops in section 19. A significant observation was the continued presence of propylitic-altered (epidote in fractures) granitic float on the east side of the aeromagnetic low in sections 21 and 22 but not in the unaltered PE granite outcrops in the range front between Tipperary Tank and Miller Wash. Probably a N-S basin and range fault truncated the range front and could this propylitic altered granite be from a shallow-buried porphyry system with large areal extent?
- 2) Structure: We would all probably agree that this terrain is structurally rotated during the mid-Tertiary and later cut by late Tertiary Basin and Range faulting. The northwest alignment of these three aeromagnetic anomalies is roughly parallel to the speculative (?) northwest Dagoon to Florence lineament.
- 3) Geophysics: The presence of the aeromagnetic lows within the high-magnetic susceptible, PE Ruin Granite (magnetite placer throughout the area) is strongly suggestive of alteration. Furthermore, analysis of gravity data by a another interested company, suggests favorable bedrock depths with gravel thicknesses of 100-200'.
- 4) Source for copper-oxides to the west As we discussed, Randy, could this be the possible Laramide porphyry-copper source for copper remobilized, transported, and deposited in Tertiary detachment faults such as Cambior's Last Chance property?
- 5) Land: Recent land checks show that most of the target area is within state land that is open for leasing and has not been previously leased. Hence, we can be assured that these aeromagnetic anomalies have never been drilled!

If your interested in this property, it would be to your advantage to contact me soon since one company expressed acquisition interest and another is soon to visit this property. I look forward to hearing from your soon.



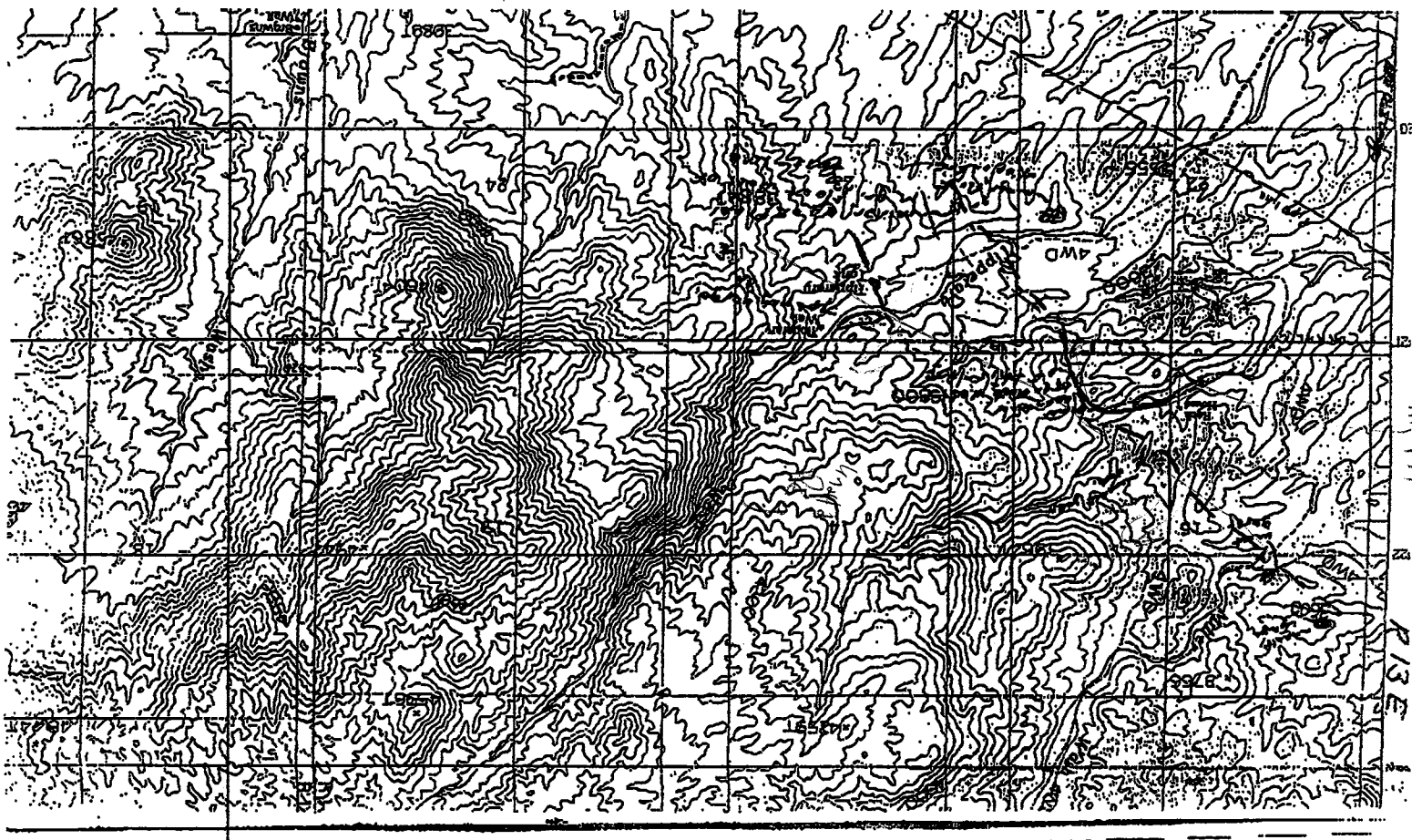
7



10 AM

epi ltn

propy ltn
11-7-11



41414

13 E

TO:

Cumbria

ATTENTION:

Randy Moore

FAX NUMBER:

702-856-4549PAGES INCLUDING
THIS ONE:

DATE:

3/29/94

TIME:

(MST)

FROM:

T. Rogers

REFERENCE:

S. Blk Mtn Target

COMMENTS:

Included geologic sketch
map for your interest + also
project area. Please FAX
me a signed cost agreement
followed by original in mail.
Give me a call if you have any
questions or want to talk further
about the geology.

ThanksT. Rogers

- copies FAX to Dale Armstrong

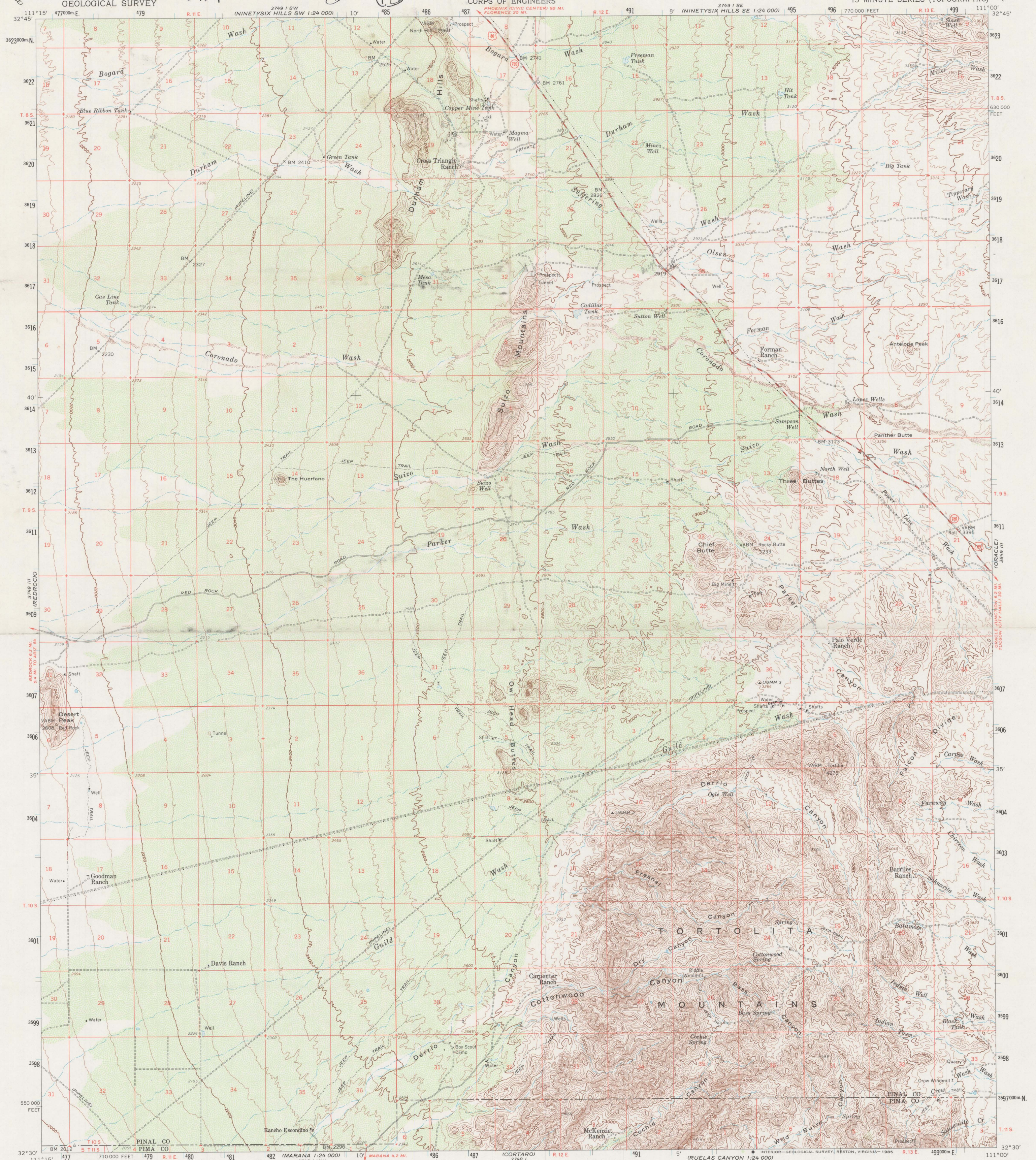
IF YOU ARE NOT RECEIVING OUR TRANSMISSION, PLEASE TELEPHONE
(602) 995-4400. OUR FAX NUMBER IS (602) 995-4444.

602 864-1761
BORZANSKY
2544 WEST STATE AVE
85051

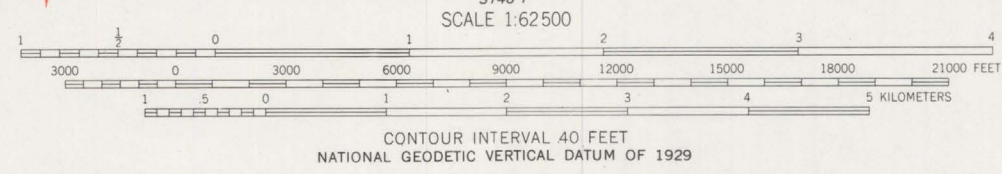
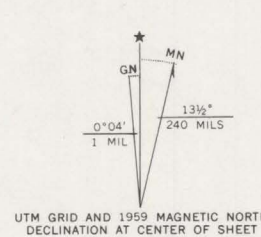
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

TORTOLITA MTS. QUADRANGLE
ARIZONA
15 MINUTE SERIES (TOPOGRAPHIC)



Maped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1958. Advance field check 1959
Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks,
zone 12, shown in blue
To place on the predicted North American Datum 1983
move the projection lines 4 meters north and
62 meters east



CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929



ROAD CLASSIFICATION
Medium-duty ——— Light-duty ———
Unimproved dirt ———
U.S. Route ——— State Route ———

TORTOLITA MTS., ARIZ.
N3230-W11100/15

1959

DMA 3749 II-SERIES V798