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James Doyle Sell Mining Collection

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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

ARIZONA
ANTELOPE PEAK QUADRANGLE
15-MINUTE SERIES

Mapped by the Geological Survey
1946

ROAD CLASSIFICATION
Heavy-duty ____ Light-duty ____
Unimproved dirt ========
State Route

TRUE NORTH
MAGNETIC NORTH
15°
APPROXIMATE MEAN DECLINATION, 1946

SCALE 1:62500
1 ½ 0 1 2 3 4 MILES
3000 0 3000 6000 9000 12000 15000 18000 21000 FEET
1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 25 FEET
DATUM IS MEAN SEA LEVEL

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona (Central) rectangular coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue
To join Casa Grande map use dotted projection corners

ANTELOPE PEAK, ARIZ.
N3245—W11200/15
1946

THIS MAP AVAILABLE WITH OR WITHOUT SHADED RELIEF OVERPRINT
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A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HAT MOUNTAIN, ARIZ.

N3230—W11230/15

1958

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1949. Field check 1958

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

Land lines unsurveyed in T. 10 S.–Rs. 2 and 3 W.
and T. 11 S.–Rs. 2, 3, and 4 W.

Unchecked elevations are shown in brown

SCALE 1:62500

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1958

ROAD CLASSIFICATION

Light-duty ——— Unimproved dirt - - - - -

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
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INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1959—NS
MR 7123

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ESTRELLA QUADRANGLE
ARIZONA-MARICOPA CO.
15 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods
Aerial photographs taken 1947. Field check 1950

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone

Unchecked elevations are shown in brown

TRUE NORTH
MAGNETIC NORTH
14½°
APPROXIMATE MEAN DECLINATION, 1950

SCALE 1:62500

1 ½ 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION

Heavy-duty — 4 LANE | 6 LANE — Light-duty
Medium-duty — 4 LANE | 6 LANE — Unimproved dirt
U. S. Route — State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER; DENVER, COLORADO OR WASHINGTON 25, D. C.
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ESTRELLA, ARIZ.
N3245—W11215/15

EDITION OF 1951

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

GILA BEND QUADRANGLE
ARIZONA-MARICOPA CO.
15 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by multiplex methods and plane-table surveys 1950. Aerial photographs taken 1948.

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona coordinate system, central zone

Dashed land lines indicate approximate location

APPROXIMATE MEAN DECLINATION, 1950

SCALE 1:62 500

CONTOUR INTERVAL 20 FEET
DOTTED LINES REPRESENT HALF-INTERVAL CONTOURS
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U. S. GEOLOGICAL SURVEY, FEDERAL CENTER, DENVER, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION
Heavy-duty — 4 LANE | 2 LANE
Medium-duty — 4 LANE | 2 LANE
Light-duty
Unimproved dirt
U. S. Route
State Route

GILA BEND, ARIZ.
N3245—W11230/15

EDITION OF 1951

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.
M R—0145
1955

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

KAKA QUADRANGLE
ARIZONA
15 MINUTE SERIES (TOPOGRAPHIC)

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1949. Field check 1958

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

Land lines unsurveyed in T. 10 and 11 S.–R. 1 and 2 W.,
T. 10 S.–R. 1 E., and parts of T. 9 S.–R. 1 E.

Unchecked elevations are shown in brown

TRUE NORTH
MAGNETIC NORTH
14°
APPROXIMATE MEAN
DECLINATION, 1958

SCALE 1:62500

1 ½ 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER 2, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ARIZONA
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Light-duty
Unimproved dirt

KAKA, ARIZ.
N3230—W11215/15

1958

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PHOENIX 70 MI.
CASA GRANDE 10 MI. ARIZONA

SILVER REEF MOUNTAINS QUADRANGLE
15-MINUTE SERIES

Topography by E. S. Rickard and C. W. Birdseye
Surveyed in 1939 and 1940

Scale 1/62500

1 0 1 2 3 4 Miles
1000 500 0 1000 2000 3000 4000 5000 6000 7000 Yards
1000 0 3000 6000 9000 12000 15000 18000 Feet
1 5 0 1 2 3 4 5 Kilometers

Contour interval 25 feet
Datum is mean sea level

APPROXIMATE MEAN DECLINATION, 1940
TRUE NORTH
MAGNETIC NORTH
14°

To join Casa Grande Map, use dotted projection corners

ROUTES USUALLY TRAVELED
HARD IMPERVIOUS SURFACES
OTHER SURFACE IMPROVEMENTS
1942
U. S. ROUTE
STATE ROUTE

Polyconic projection. 1927 North American datum
5000 yard grid based on U. S. zone system, F
10000 foot grid based on Arizona (Central) rectangular coordinate system

SILVER REEF MOUNTAINS, ARIZ.

N3230—W11145/15

Edition of 1942

Preliminary edition 1942

THE TOPOGRAPHIC MAPS OF THE UNITED STATES

The United States Geological Survey is making a series of standard topographic maps to cover the United States. This work has been in progress since 1882, and the published maps cover more than 47 percent of the country, exclusive of outlying possessions.

The maps are published on sheets that measure about 16½ by 20 inches. Under the general plan adopted the country is divided into quadrangles bounded by parallels of latitude and meridians of longitude. These quadrangles are mapped on different scales, the scale selected for each map being that which is best adapted to general use in the development of the country, and consequently, though the standard maps are of nearly uniform size, the areas that they represent are of different sizes. On the lower margin of each map are printed graphic scales showing distances in feet, meters, miles, and kilometers. In addition, the scale of the map is shown by a fraction expressing a fixed ratio between linear measurements on the map and corresponding distances on the ground. For example, the scale $\frac{1}{62,500}$ means that 1 unit on the map (such as 1 inch, 1 foot, or 1 meter) represents 62,500 of the same units on the earth's surface.

Although some areas are surveyed and some maps are compiled and published on special scales for special purposes, the standard topographic surveys and the resulting maps have for many years been of three types, differentiated as follows:

1. Surveys of areas in which there are problems of great public importance—relating, for example, to mineral development, irrigation, or reclamation of swamp areas—are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{31,680}$ (1 inch = one-half mile) or $\frac{1}{24,000}$ (1 inch = 2,000 feet), with a contour interval of 1 to 100 feet, according to the relief of the particular area mapped.

2. Surveys of areas in which there are problems of average public importance, such as most of the basin of the Mississippi and its tributaries, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile), with a contour interval of 10 to 100 feet.

3. Surveys of areas in which the problems are of minor public importance, such as much of the mountain or desert region of Arizona or New Mexico, and the high mountain area of the northwest, are made with sufficient detail to be used in the publication of maps on a scale of $\frac{1}{125,000}$ (1 inch = nearly 2 miles) or $\frac{1}{250,000}$ (1 inch = nearly 4 miles), with a contour interval of 20 to 250 feet.

The aerial camera is now being used in mapping. From the information recorded on the photographs, planimetric maps, which show only drainage and culture, have been made for some areas in the United States. By the use of stereoscopic plotting apparatus, aerial photographs are utilized also in the making of the regular topographic maps, which show relief as well as drainage and culture.

A topographic survey of Alaska has been in progress since 1898, and nearly 44 percent of its area has now been mapped. About 15 percent of the Territory has been covered by maps on a scale of $\frac{1}{500,000}$ (1 inch = nearly 8 miles). For most of the remainder of the area surveyed the maps published are on a scale of $\frac{1}{250,000}$ (1 inch = nearly 4 miles). For some areas of particular economic importance, covering about 4,300 square miles, the maps published are on a scale of $\frac{1}{62,500}$ (1 inch = nearly 1 mile) or larger. In addition to the area covered by topographic maps, about 11,300 square miles of southeastern Alaska has been covered by planimetric maps on scales of $\frac{1}{125,000}$ and $\frac{1}{250,000}$.

The Hawaiian Islands have been surveyed, and the resulting maps are published on a scale of $\frac{1}{62,500}$.

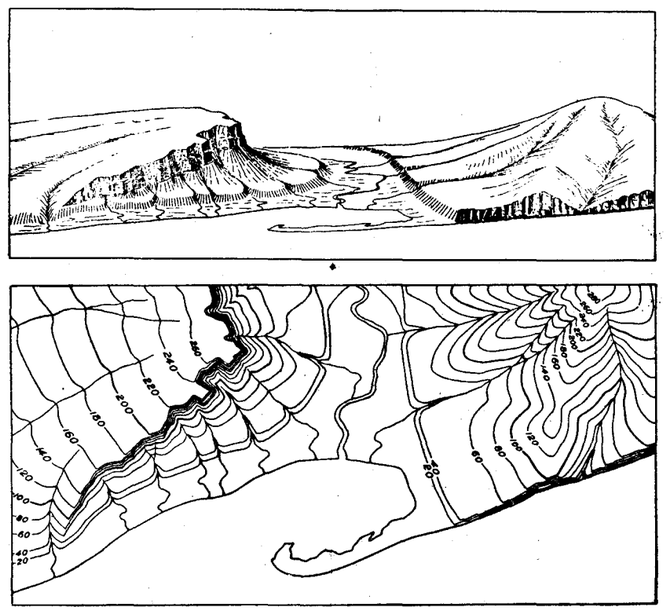
A survey of Puerto Rico is now in progress. The scale of the published maps is $\frac{1}{30,000}$.

The features shown on topographic maps may be arranged in three groups—(1) water, including seas, lakes, rivers, canals, swamps, and other bodies of water; (2) relief, including mountains, hills, valleys, and other features of the land surface; (3) culture (works of man), such as towns, cities, roads, railroads, and boundaries. The symbols used to represent these features are shown and explained below. Variations appear on some earlier maps, and additional features are represented on some special maps.

All the water features are represented in blue, the smaller streams and canals by single blue lines and the larger streams by double lines. The larger streams, lakes, and the sea are accentuated by blue water lining or blue tint. Intermittent streams—those whose beds are dry for a large part of the year—are shown by lines of blue dots and dashes.

Relief is shown by contour lines in brown, which on a few maps are supplemented by shading showing the effect of light thrown from the northwest across the area represented, for the purpose of giving the appearance of relief and thus aiding in the interpretation of the contour lines. A contour line represents an imaginary line on the ground (a contour) every part of which is at the same altitude above sea level. Such a line could be drawn at any altitude, but in practice only the contours at certain regular intervals of altitude are shown. The datum or zero of altitude of the Geological Survey maps is mean sea level. The 20-foot contour would be the shore line if the sea should rise 20 feet above mean sea level. Contour lines show the shape of the hills, mountains, and valleys, as well as their altitude. Successive contour lines that are far apart on the map indicate a gentle slope, lines that are close together indicate a steep slope, and lines that run together indicate a cliff.

The manner in which contour lines express altitude, form, and grade is shown in the figure below.



The sketch represents a river valley that lies between two hills. In the foreground is the sea, with a bay that is partly enclosed by a hooked sand bar. On each side of the valley is a terrace into which small streams have cut narrow gullies. The hill on the right has a rounded summit and gently sloping spurs separated by ravines. The spurs are truncated at their lower ends by a sea cliff. The hill at the left terminates abruptly at the valley in a steep scarp, from which it slopes gradually away and forms an inclined tableland that is traversed by a few shallow gullies. On the map each of these features is represented, directly beneath its position in the sketch, by contour lines.

The contour interval, or the vertical distance in feet between one contour and the next, is stated at the bottom of each map. This interval differs according to the topography of the area mapped: in a flat country it may be as small as 1 foot; in a mountainous region it may be as great as 250 feet. In order that the contours may be read more easily certain contour lines, every fourth or fifth, are made heavier than the others and are accompanied by figures showing altitude. The heights of many points—such as road intersections, summits, surfaces of lakes, and benchmarks—are also given on the map in figures, which show altitudes to the nearest foot only. More precise figures for the altitudes of benchmarks are given in the Geological Survey's bulletins on spirit leveling. The geodetic coordinates of triangulation and transit-traverse stations are also published in bulletins.

Lettering and the works of man are shown in black. Boundaries, such as those of a State, county, city, land grant, township, or reservation, are shown by continuous or broken lines of different kinds and weights. Public roads suitable for motor travel the greater part of the year are shown by solid double lines; poor public roads and private roads by dashed double lines; trails by dashed single lines. Additional public road classification if available is shown by red overprint.

Each quadrangle is designated by the name of a city, town, or prominent natural feature within it, and on the margins of the map are printed the names of adjoining quadrangles of which maps have been published. More than 4,100 quadrangles in the United States have been surveyed, and maps of them similar to the one on the other side of this sheet have been published.

Geologic maps of some of the areas shown on the topographic maps have been published in the form of folios. Each folio includes maps showing the topography, geology, underground structure, and mineral deposits of the area mapped, and several pages of descriptive text. The text explains the maps and describes the topographic and geologic features of the country and its mineral products. Two hundred twenty-five folios have been published.

Index maps of each State and of Alaska and Hawaii showing the areas covered by topographic maps and geologic folios published by the United States Geological Survey may be obtained free. Copies of the standard topographic maps may be obtained for 10 cents each; some special maps are sold at different prices. A discount of 40 percent is allowed on an order amounting to $5 or more at the retail price. The discount is allowed on an order for maps alone, either of one kind or in any assortment, or for maps together with geologic folios. The geologic folios are sold for 25 cents or more each, the price depending on the size of the folio. A circular describing the folios will be sent on request.

Applications for maps or folios should be accompanied by cash, draft, or money order (not postage stamps) and should be addressed to

THE DIRECTOR,
United States Geological Survey,
Washington, D. C.

November 1937.

STANDARD SYMBOLS

CULTURE
(printed in black)

City or village
Roads and buildings
Ruins
Cliff dwelling
Good Public road
Poor Public or private road
Trail
Railroads
Electric railroad
Tunnel
Power-transmission line
Wharves
Breakwater and jetties
Bridge
Drawbridges
Ferry *(point upstream)*
Ford
Dam
Dam with lock
Canal lock *(point upstream)*
U.S. township and section lines and recovered corners
State line
County line
Civil Township or district line
Reservation line
Land grant line
City, village, or borough line
Small park or cemetery line
Triangulation point or transit-traverse station
U.S. mineral monument
Boundary monument
Bench mark *(supplementary bench mark shown by cross and black figures without lettering)*
BM × 1232
Cemeteries
CEM
Church, School *(distinguished on recent maps)*
Coke ovens
Tanks and oil reservoirs
Oil and gas wells
Mine or quarry
Prospect
Shaft
Mine tunnel
Mine tunnel *(showing direction)*
Lighthouse or beacon
L.S.S.
C.G.S.
Coast Guard station

RELIEF
(printed in brown)

Elevation above mean sea level *(in black on recent maps)*
5463
Contours *(Contours showing depth of water printed in blue)*
Depression contours
Levee
Wash
Cliffs *(or shown by contours)*
Mine dumps
Tailings or mining debris
Sand and sand dunes

WATER
(printed in blue)

Streams
Falls and rapids
Intermittent streams and ditches
Canals or ditches
Aqueducts or waterpipes
Aqueduct tunnels
Lake or pond
Unsurveyed stream and abandoned canal
Intermittent lake
Glacier *(Or shown by contours printed in blue)*
Spring Well
Marsh
Submerged marsh

WOODS
(when shown, printed in green)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ARIZONA
VEKOL MOUNTAINS QUADRANGLE
15-MINUTE SERIES

(Casa Grande)

Topography by Adolph Fankhauser,
C. W. Birdseye, and J. W. Lenehan
Surveyed in 1938–1939

APPROXIMATE MEAN
DECLINATION, 1939

Scale 1/62500

1 0 1 2 3 4 Miles
1000 500 0 1000 2000 3000 4000 5000 6000 7000 Yards
1000 0 3000 6000 9000 12000 15000 18000 Feet
1 .5 0 1 2 3 4 5 Kilometers

Contour interval 25 feet
Datum is mean sea level

Polyconic projection. 1927 North American datum
5000 yard grid based on U. S. zone system, F
10000 foot grid based on Arizona (Central)
rectangular coordinate system

VEKOL MOUNTAINS, ARIZ.

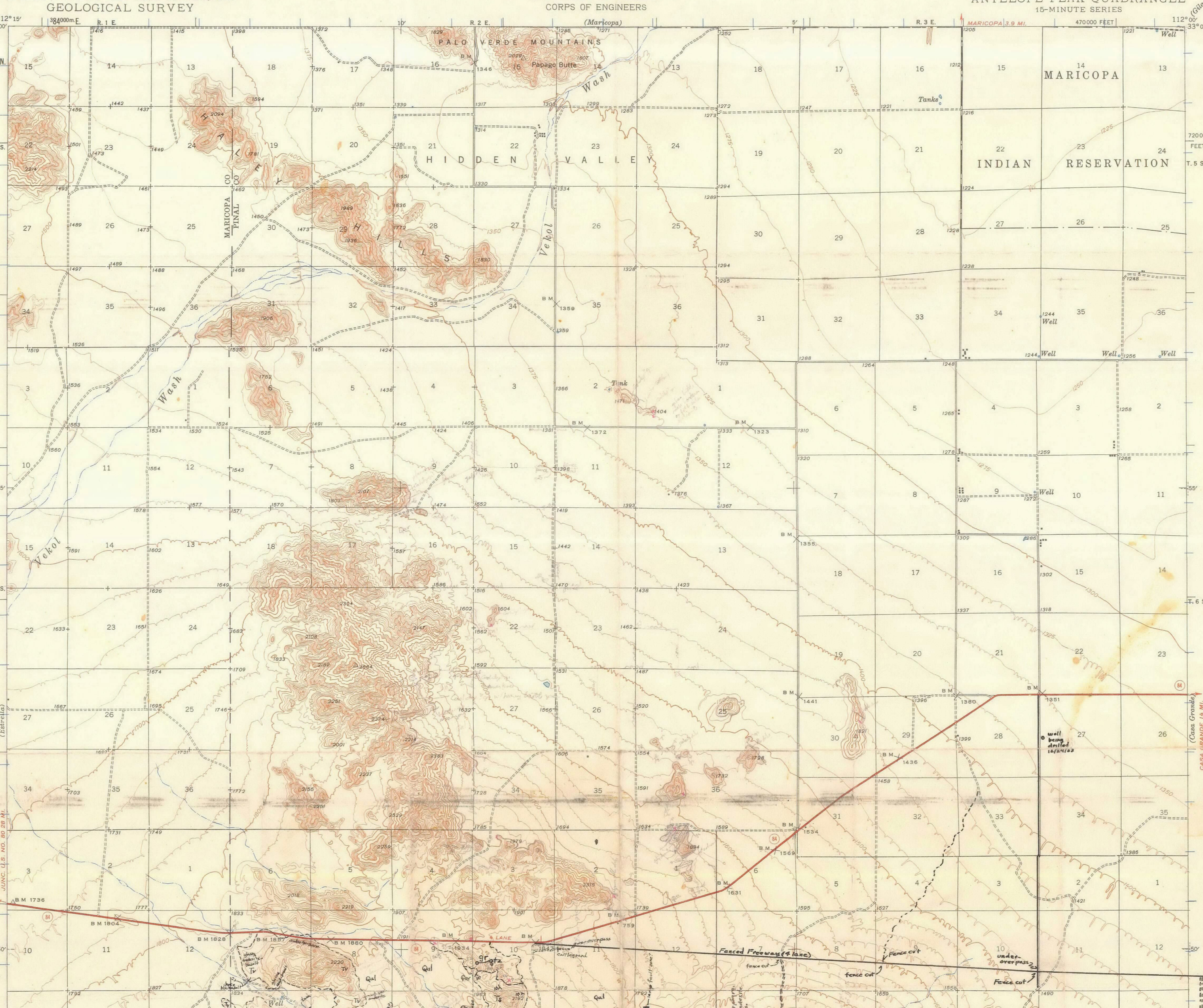
N3230—W11200/15

Preliminary edition 1942

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS

ARIZONA
ANTELOPE PEAK QUADRANGLE
15-MINUTE SERIES



Mapped by the Geological Survey
1946

ROAD CLASSIFICATION

Heavy-duty ____ Light-duty ____
Unimproved dirt ========
State Route

TRUE NORTH
MAGNETIC NORTH
15°
APPROXIMATE MEAN DECLINATION, 1946

SCALE 1:62500

1 ½ 0 1 2 3 4 MILES

3000 0 3000 6000 9000 12000 15000 18000 21000 FEET

1 .5 0 1 2 3 4 5 KILOMETERS

CONTOUR INTERVAL 25 FEET
DATUM IS MEAN SEA LEVEL

Ts: pre-dacite, sediment
TR: post-dacite & volcanic caliche-cemented rubble

Polyconic projection. 1927 North American datum
10,000-foot grid based on Arizona (Central) rectangular coordinate system
1000-meter Universal Transverse Mercator grid ticks, zone 12, shown in blue

To join Casa Grande map use dotted projection corners

ANTELOPE PEAK, ARIZ.
N3245—W11200/15
1946

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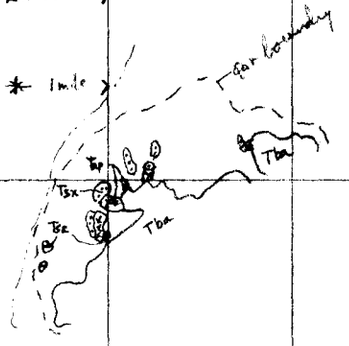
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



Tap dacite porphyry

Tsx Santa Maria Group

Tsr ~~granodiorite rhyolite~~

MINE _____ LOCATION _____ LEVEL _____

GEOLOGY BY _____ SURVEY _____ SCALE _____ DATE _____

R2E R3E R4E R5E

MARICOPA COUNTY
PINAL COUNTY

North Branch Santa Cruz

T6S

Stanfield

CASA GRANDE

T7S

TABLE TOP MOUNTAINS

PAPAGO INDIAN RESERVATION

VAIVA HILLS

Vaiva Vo

Chuichu

SILVER REEF MOUNTAINS

T8S

EXPLANATION

Quaternary	Qal	Alluvium
	Qar	Alluvial pebble material
	Qvt	Volcanic talus material
	Qs	Caliche-cemented sediments (Dissected alluvial fans)
	Qfs	Fossiliferous sediments
Tertiary	Tb	Basalt
	Tov	Older volcanics (red speckled andesite, scoria-agglomerate and dacite tuff)
	Tv	Extrusive vent
	Ts	Pebble conglomerate
	POST-ORE / PRE-ORE	
Laramide	La / Li	Andesite and latite
	Lgr	Granite
	Ld / qd	Diorite and quartz diorite (age relationship not established, except older than Laramide granite)
Paleozoic	Pal	Paleozoic sediments
Younger Precambrian	db	Diabase
	Au	Apache Group sediments
Older Precambrian	f gr / c gr	Fine grained granite and coarse-grained granite
	sch	Pinal schist
	gn	Granite gneiss

Dike
Fault
Mineralization

Schistosity
Crumpled or contorted schistosity
Bedding

GEOLOGICAL RECONNAISSANCE MAP
TABLE TOP REGION

Pinal County, Arizona

Scale 1 inch = 1 mile (approx)

Base – U.S.G.S. Topographic Sheets

J.D. Sell

August, 1964

1632

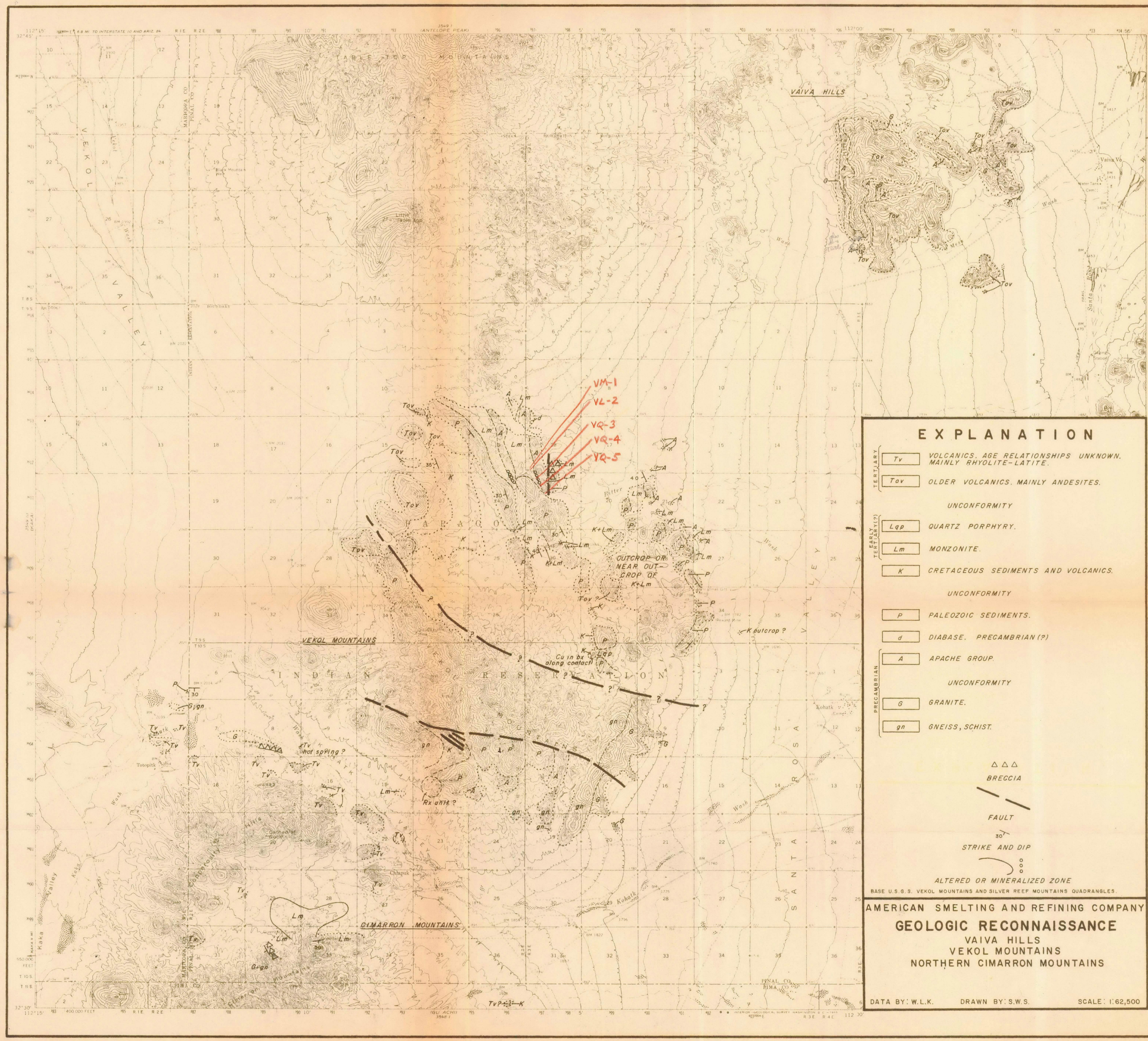
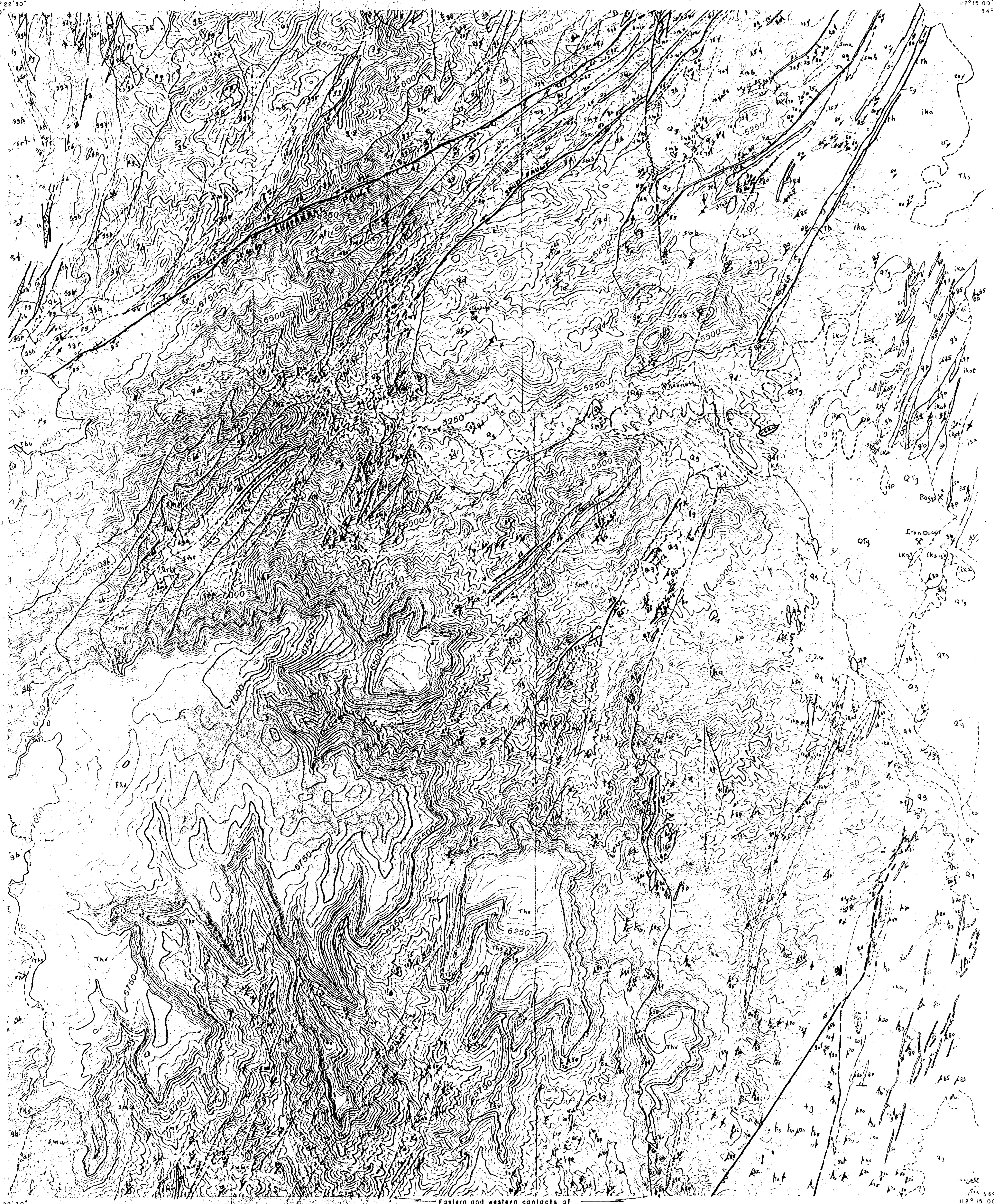


TABLE TOP MOUNTAINS
VAIVA HILLS
VEKOL VALLEY
VEKOL MOUNTAINS
PAPAGO INDIAN RESERVATION
SANTA ROSA VALLEY
CIMARRON MOUNTAINS
VM-1
VL-2
VQ-3
VQ-4
VQ-5
OUTCROP OR NEAR OUTCROP OF K+Lm
Cu in bx along contact?
K outcrop?
hot spring?
Rx unit?
EXPLANATION
TERTIARY
Tv VOLCANICS. AGE RELATIONSHIPS UNKNOWN. MAINLY RHYOLITE-LATITE.
Tov OLDER VOLCANICS. MAINLY ANDESITES.
UNCONFORMITY
EARLY TERTIARY (?)
Lqp QUARTZ PORPHYRY.
Lm MONZONITE.
K CRETACEOUS SEDIMENTS AND VOLCANICS.
UNCONFORMITY
P PALEOZOIC SEDIMENTS.
d DIABASE. PRECAMBRIAN (?)
PRECAMBRIAN
A APACHE GROUP.
UNCONFORMITY
G GRANITE.
gn GNEISS, SCHIST.
BRECCIA
FAULT
STRIKE AND DIP
ALTERED OR MINERALIZED ZONE
BASE U.S.G.S. VEKOL MOUNTAINS AND SILVER REEF MOUNTAINS QUADRANGLES.
AMERICAN SMELTING AND REFINING COMPANY
GEOLOGIC RECONNAISSANCE
VAIVA HILLS
VEKOL MOUNTAINS
NORTHERN CIMARRON MOUNTAINS
DATA BY: W.L.K.
DRAWN BY: S.W.S.
SCALE: 1:62,500
2151

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

OPEN FILE REPORT

Preliminary Geologic Map of the NE 1/4 Mount Union Quadrangle, Yavapai County, Arizona.



Eastern and western contacts of Texas Gulch Formation are faults

Geology by C. A. Anderson 1958-62 and P. M. Blacet, 1959, 1961

PRELIMINARY GEOLOGIC MAP OF THE NE 1/4 MOUNT UNION QUADRANGLE, YAVAPAI COUNTY, ARIZONA

By
C. A. Anderson and P. M. Blacet

APPROXIMATE MEAN DECLINATION, 1959

Scale 1:24000

Contour interval 50 feet
Datum is mean sea level

EXPLANATION

QUATERNARY

Recent

Qt — Terrace deposits

Pleistocene

Qg — Reddish gravels

Pliocene (?)

QTg — Gravel [illegible]

TERTIARY

Ths / Thv — Hickey Formation

Thv, basalt flows
Ths, conglomerate and sandstone

AGE UNKNOWN

d — Diorite

Rhyolite dikes

gdp — Granodiorite porphyry dikes

OLDER PRECAMBRIAN

fg — Fine-grained granite

Fine to medium-grained granodiorite

Medium to coarse-grained granodiorite

qd — Quartz diorite

[illegible]

qm, [illegible]

ap — Aplite

db — Diabase dikes

gb — [illegible]

gn — Gneissic granodiorite

qp — Quartz porphyry

Yavapai Series — Alder Group

ikat / ikc / ika — Iron King Volcanics

ikat, tuffaceous andesitic sedimentary rocks
ika, andesite and basalt flows
ikc, interbedded ferruginous chert and slate

Spud Mountain Volcanics

Upper unit

smt, fine-grained bedded andesitic tuffaceous sedimentary rock
smr, interbedded rhyolitic tuff

sma, intercalated andesite and basalt flows
smu, undifferentiated

Lower unit

smb, andesitic breccia and interbedded tuffaceous sedimentary rock
sma, intercalated andesite flows
smr, interbeds of rhyolite tuff
smv, massive volcanic sandstone

ggb / ggr — Green Gulch Volcanics

ggb, basaltic flows
ggr, rhyolitic tuffs and flows(?)

tg — Texas Gulch Formation

Gray slate, bedded rhyolitic sandstone, rhyolitic tuff, and interbedded conglomerate

PRODUCTS OF ALTERATION AND METALLIZATION

Qsiv — Quartz lenses, pods, and veins

ss — Silicified and sericitized rocks

Contact
Dashed where approximately located

Fault
Dashed where approximately located

Minor folds and plunge of axis

80 — Strike and dip of beds

90 — Strike of vertical beds

80 — Strike and dip of foliation

Strike of vertical foliation

cb 80 60 — 75 55 — Strike and dip of foliation and plunge of lineation

cb, intersection of cleavage and bedding

Approximate strike and top of pillow structure

Approximate strike of pillow structure

Mine — Prospect

VALLEY

OGC-53

ORC-5

ORC-4

RG-60 DGE-54

ORC-3

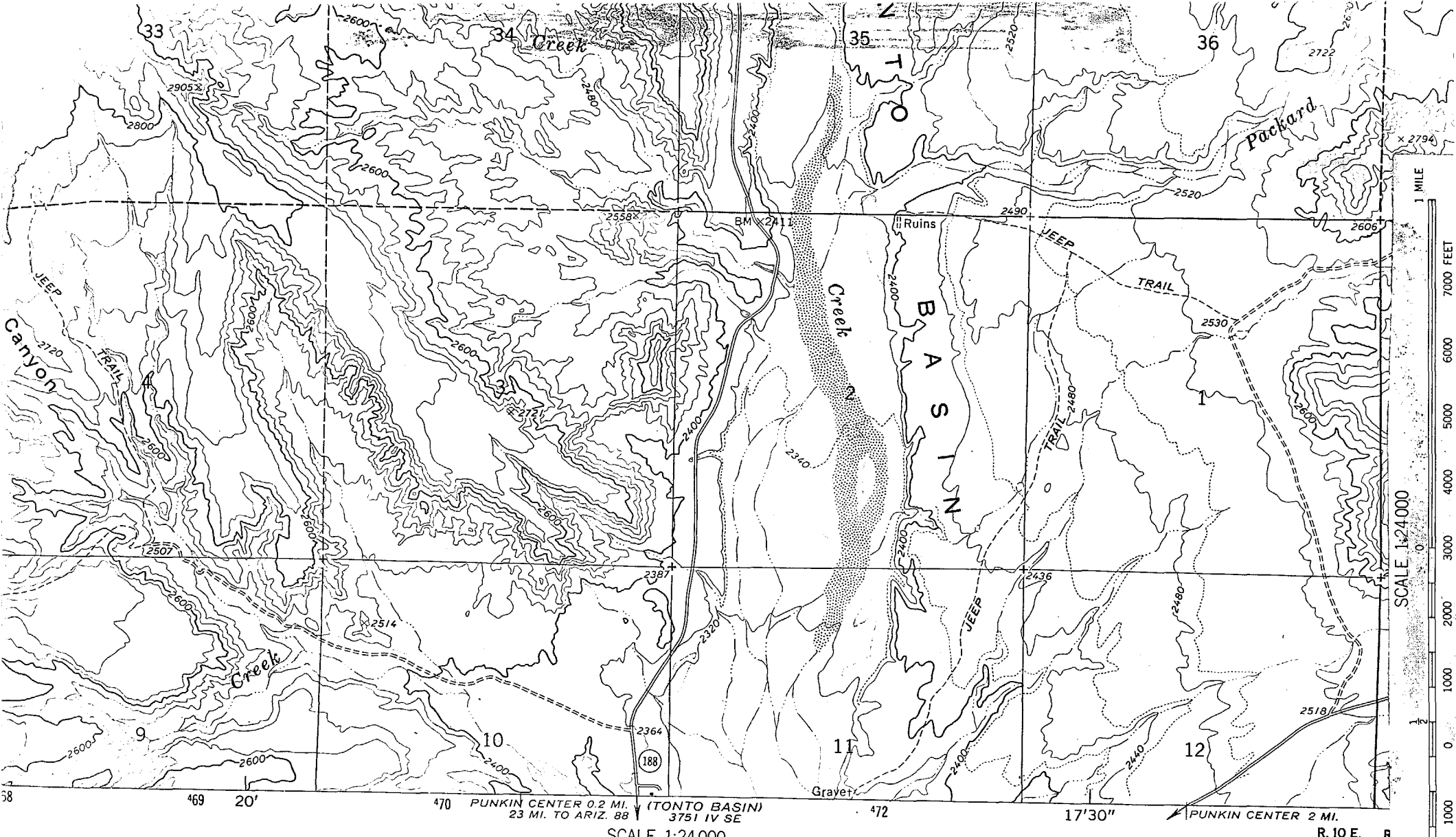
GL-51D

GG-52

RC-1

RC-2

Navajo Kaibab Area



SCALE 1:24000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

RID AND 1964 MAGNETIC NORTH
INATION AT CENTER OF SHEET

QUADRANGLE LOCATION