

FLOOD INSURANCE STUDY
APPROXIMATE STUDIES
UNINCORPORATED AREAS OF
MARICOPA COUNTY, ARIZONA

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PREPARED BY:

HARRIS-TOUPS ASSOCIATES
4131 N. 24th Street
Phoenix, Arizona 85016

JANUARY, 1979

PROPERTY OF HUD
FEDERAL INS. ADM.
Prep. By: HARRIS TOUPS

REVIEW DRAFT

PREPARED FOR:

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

I. Study Contractor Information

Name of Study Contractor: Harris-Toups Associates
Street Address of Study Contractor: 4131 N. 24th Street, Phx., AZ 85016
Telephone No. of Study Contractor: (602) - 264-9665
Study Contractor Project Manager to be Contacted for Additional Information:
Edward A. Adair

II. FIS Contract Information

Name of FIS Community: N/A
County: Maricopa (Approximate Studies)
State: Arizona
Private Contractor's Contract No. H-4008
Public Agency Interagency Agreement Nos. _____
Public Agency Project Order Nos. _____

III. Coordination

List the positions of the Community Officials and names of the Federal and local agencies with whom the following aspects of the FIS were coordinated:

Base Maps N/A

Surveying N/A

Hydrology and Hydraulics Chief of Hydrology Section -

Maricopa County Flood Control District

Floodway N/A

Date of Time and Cost Meeting April 6, 1976

Date of Initial CCO Meeting _____

Additional Remarks: (Use separate sheet)

IV. Scope of Study

Areas excluded from study: _____

Areas of Extraterritorial Jurisdiction: _____

Water Courses Studied:

Name: Centennial Wash

Location: Western Maricopa County

Direction of Flow: To Southeast

Limits of Study: Maricopa County line to S.E. 5.8 miles

Type of Study: Approximate

Name: Copper Wash

Location: Western Maricopa County

Direction of Flow: to the South

Limits of Study: From Gila Bend Mountains to the South 10 miles.

Type of Study: Approximate

Name: Jackrabbit Wash

Location: Western Maricopa County

Direction of Flow: South

Limits of Study: From T-4-N, R-6-W, Section 25 to T-3-N, R-5-W Section 15.

Type of Study: Approximate

Additional Remarks: *(Use separate sheet)*

Water Courses Studied:

Name: Gila Bend Canal

Location: Southwestern Maricopa County

Direction of Flow: Canal flows to West

Limits of Study: Gila Bend to Smurr

Type of Study: Approximate

Name: Trilby Wash

Location: Central Maricopa County

Direction of Flow: South

Limits of Study: T-5-N, R-3-W, Section 27 to T-4-N, R-2-W, Section 19

Type of Study: Approximate

Name: Buckeye Dentention Dike

Location: Western Maricopa County

Direction of Flow: South

Limits of Study: From T-2-N, R-3-W, Section 36 to T-1-N, R-4-W, Section 13

Type of Study: Approximate

Additional Remarks: (Use separate sheet)

Water Courses Studied:

Name: Wash #1

Location: Central Maricopa County

Direction of Flow: Northwest

Limits of Study: From T-1-S, R-2-W, Section 20 to Gila River

Type of Study: Approximate

Name: Waterman Wash

Location: Central Maricopa County

Direction of Flow: Northwest

Limits of Study: From T-3-S, R-1-W, Section 28 to T-1-S, R-2-W, Section 30

Type of Study: Approximate

Name: Cline Creek

Location: Northern Maricopa County

Direction of Flow: Southwest

Limits of Study: From T-1-N, R-3-E, Section 35 to T-6-N, R-3-E, Section 7

Type of Study: Approximate

Additional Remarks: (Use separate sheet)

Water Courses Studied:

Name: Rodger Creek

Location: Northern Maricopa County

Direction of Flow: Southwest

Limits of Study: From T-6-N, R-3-E, Section 10 to T-6-N, R-3-E, Section 19

Type of Study: Approximate

Name: Grand Canal

Location: Central Maricopa County

Direction of Flow: Canal flows to the West

Limits of Study: City of Glendale to New River

Type of Study: Approximate

Name: Roosevelt Canal

Location: Central Maricopa County

Direction of Flow: Canal flows to the Northwest

Limits of Study: City of Phoenix to City of Tolleson

Type of Study: Approximate

Additional Remarks: (Use separate sheet)

Water Courses Studied:

Name: Rowe Wash

Location: Northern Maricopa County

Direction of Flow: West

Limits of Study: From T-6-N, R-4-E, Section 24 to Section 22

Type of Study: Approximate

Name: Wash # 6 (Ocotillo Wash)

Location: Northern Maricopa County

Direction of Flow: Southwest

Limits of Study: From T-6-N, R-4-E Section 11 to Section 15

Type of Study: Approximate

Name: Willow Springs Wash

Location: Northern Maricopa County

Direction of Flow: Southwest

Limits of Study: From T-6-N, R-4-E Section 15 to Section 16

Type of Study: Approximate

Additional Remarks: *(Use separate sheet)*

Water Courses Studied:

Name: Pinnacle Peak Wash

Location: Northern Maricopa County

Direction of Flow: From T-4-N, R-5-E Section 10 to Section 18

Limits of Study: _____

Type of Study: Approximate

Name: Kyrene Canal

Location: Southeastern Maricopa County

Direction of Flow: Canal flows to the South

Limits of Study: From Ray Road 2.1 miles to the South

Type of Study: Approximate

Name: Verde River

Location: Northeastern Maricopa County

Direction of Flow: To South

Limits of Study: From T-5-N, R-7-E Section 32 to T-4-N, R-7-E Section 5

Type of Study: Approximate

Additional Remarks: *(Use separate sheet)*

Water Courses Studied:

Name: Wash #9 (Tributary to Verde River)

Location: Northeastern Maricopa County

Direction of Flow: to the East

Limits of Study: From T-5-N, R-7-E Section 31 to Section 32

Type of Study: Approximate

Name: Wash #10 (Tributary to Verde River)

Location: Northeastern Maricopa County

Direction of Flow: to the East

Limits of Study: From T-4-N, R-6-E Section 1 to T-4-N, R-7-E Section 5

Type of Study: Approximate

Name: Wash #11 (Tributary to Verde River)

Location: Northeastern Maricopa County

Direction of Flow: to the East

Limits of Study: From T-4-N, R-7-E Section 6 to Section 8

Type of Study: Approximate

Additional Remarks: (Use separate sheet)

V. UNINCORPORATED COUNTY DESCRIPTION

A. Location and Population

1. South central Arizona
2. Major cities in Maricopa County; Phoenix, Tempe, Mesa.
3. Population 969,425
4. 1970 Census

B. Development

1. Residential development is expanding rapidly in the Phoenix metropolitan area. Most cities and towns have annexed large amounts of county land in anticipation of continued growth and developers are actively subdividing agricultural land both in the cities and on the surrounding county lands.

Commercial development has followed the trend away from the city centers to neighborhood shopping centers and large shopping malls.

2. Most of the streams studied in the unincorporated county lie in undeveloped areas. However, in areas with communities nearby both agricultural and residential development has occurred in the floodplains of the normally dry washes.
3. Most of the land area in Maricopa County is undeveloped but the major land use is agricultural.

C. Meterology

1. Temperature

Summer (July) Low = 78° High = 104°

Winter (January) Low = 38° High = 65°

2. Annual Rainfall = 7.4 inches
3. The only way snowmelt becomes a factor to flooding in Maricopa County is when the Salt River or the Gila River flow with runoff from snowmelt, flooding has occurred in Maricopa County in the past when warm spring rains have melted the snow in the higher elevations of the watersheds resulting in runoff which exceeds the capacity of the reservoirs along these rivers.
4. Flooding is caused by general storms of long duration and/or by local thunderstorms of high intensity and short duration.

D. Factors Affecting Flooding

1. Topography

The natural terrain in Maricopa County consists basically of scattered rugged mountain ranges which are encompassed by alluvial fans and desert valleys.

2. Geomorphology

Throughout the county there are many desert washes. The major streams that traverse the county are the Salt River, the Gila River, the Agua Fria River and the Verde River.

3. Soils

The alluvium comprising most of the desert valleys is predominantly sand and silty sand containing varying amounts of caliche. Recent alluvium is found along the streambed channels and consists of uncemented silts, sands, gravels, cobbles and boulders.

4. Vegetation

In general, vegetation is sparse. Cacti grow throughout the area along with other desert shrubs. The vegetation tends to be thicker along the stream courses and may include some small trees. Perennial grasses form a very small portion of the vegetation but a good cover of annual grasses occur after the winter rains.

5. Drainage Features

Bridges or culverts have been constructed at the major water courses along the principal roadways. Minor routes generally cross the water courses in dip sections.

VI. PRINCIPAL FLOOD PROBLEMS

Flooding sources for the approximate study reaches of the Maricopa County F.I.S. are as listed in Section IV of this letter report. All of these sources are located in relatively undeveloped areas and historical flooding information is not available.

VII. FLOOD PROTECTION MEASURES

None exist in the areas of these approximate studies.

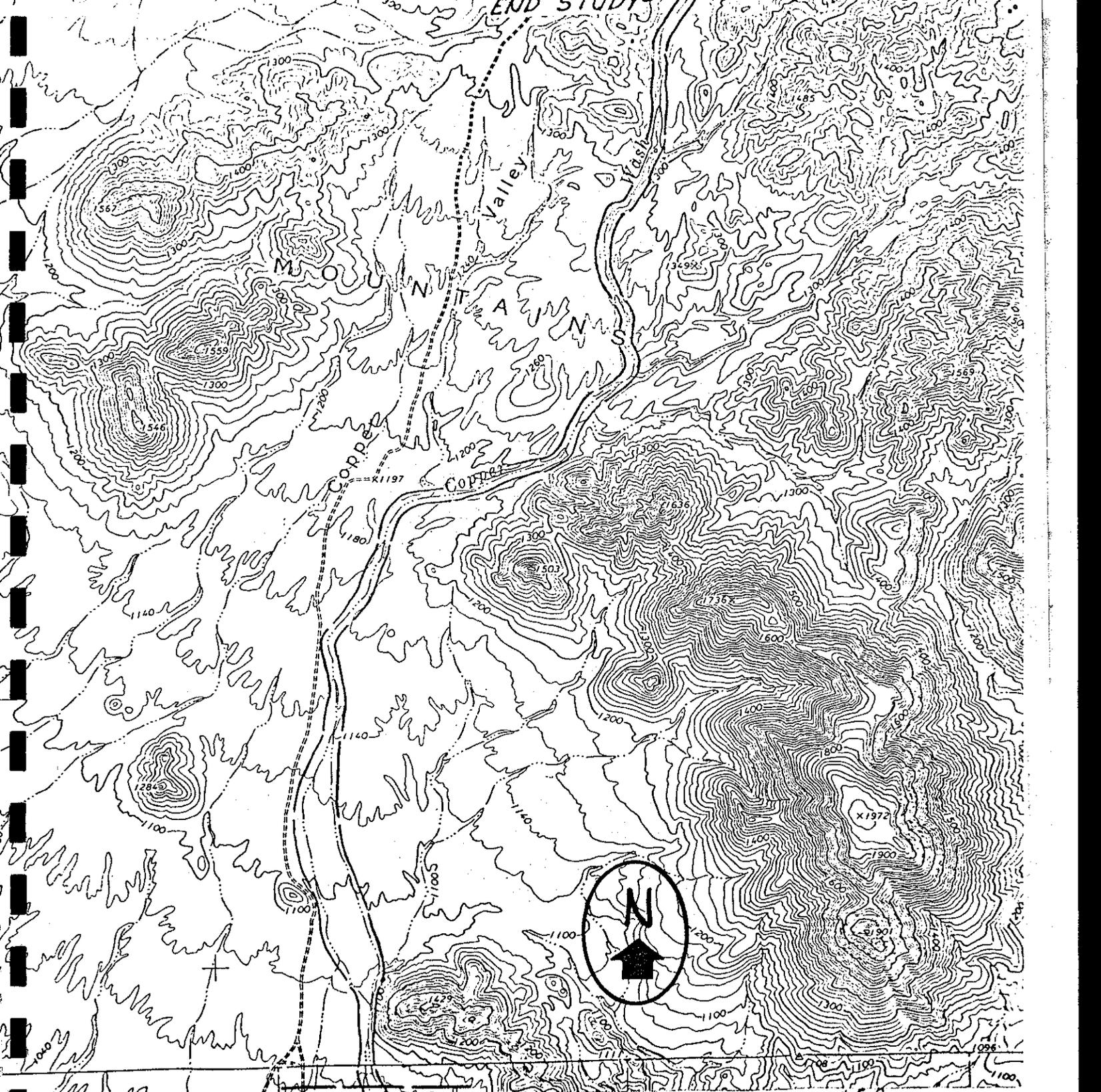
VIII. HYDROLOGIC ANALYSIS

Centennial Wash:

Peak discharge frequency relationships were established by a regional analysis approach using stream gauge data from gauges on Centennial Wash downstream from the study reach and on the Tiger Wash Tributary to Centennial Wash adjacent to the study reach. The results were found to be in reasonable agreement with the U.S. Corps of Engineers Discharge Drainage Area Curves from Reference 8.

Copper Wash:

Peak discharges were calculated on Copper Wash at the upper and lower ends of the study reach because there is a significant change in drainage area size from end to end. Hydrologic calculations were performed by the S.C.S. Method Part II as presented in Reference 5.



MATCH TO SHEET 4 ROAD CLASSIFICATION

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

————— APPROXIMATE 100 YEAR FLOOD BOUNDARY

SCALE: 1"=2000'

HYDER NE, ARIZ.

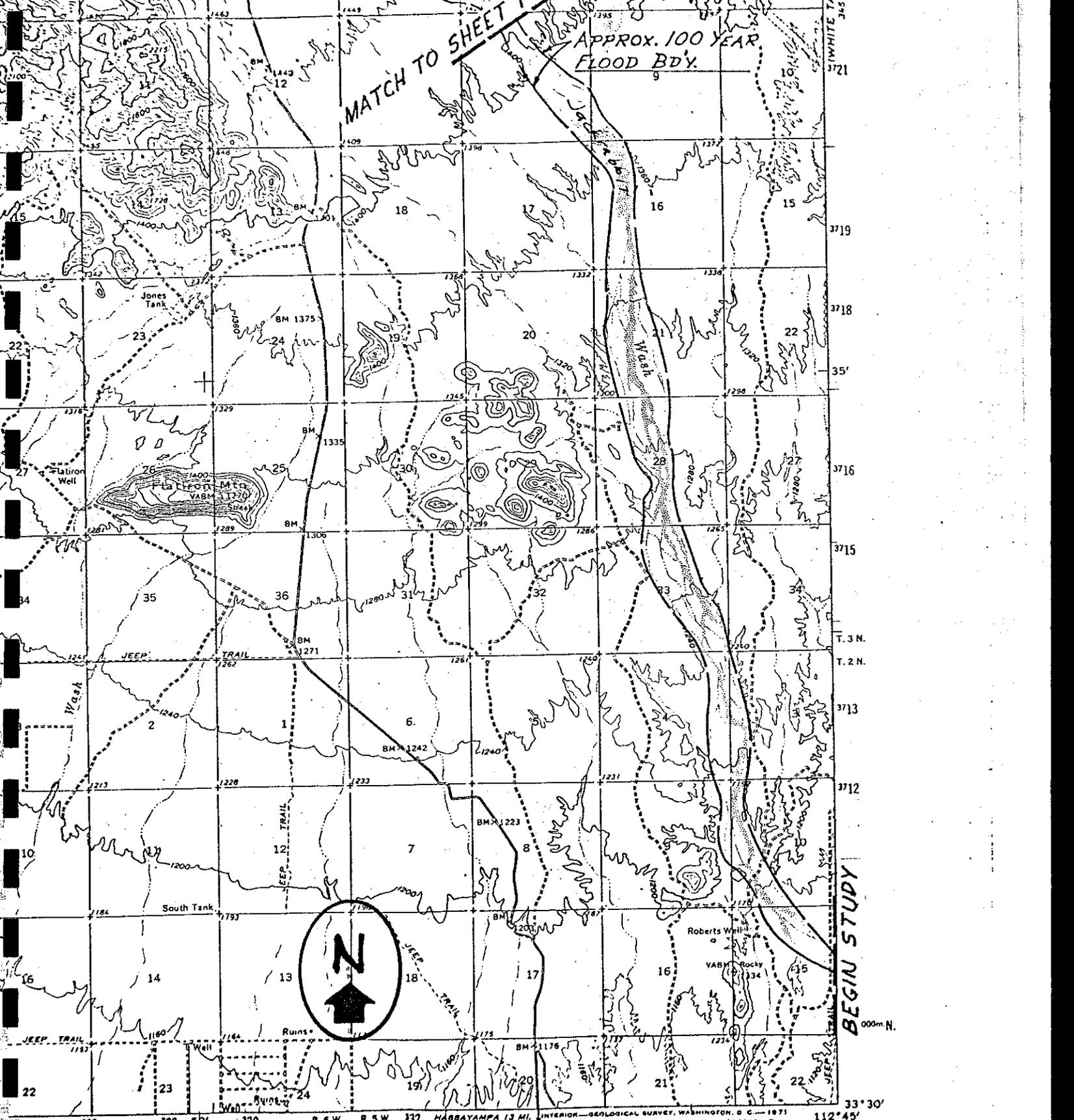
N3307.5-W11316/7.5 *COPPER WASH*

1964

AMS 3360 III NE-SERIES V894



QUADRANGLE LOCATION



SCALE: 1" = 1 mile

ROAD CLASSIFICATION

Light-duty ————— Unimproved dirt

——— APPROXIMATE 100 YEAR FLOOD BOUNDARY



QUADRANGLE LOCATION

BELMONT MTS., ARIZ.
N3330-W11245/16

1962

JACKRABBIT WASH

BEGIN STUDY

MATCH TO SHEET

APPROX. 100 YEAR FLOOD BDY.

WHITE T. 345 3721

3719

3718

35'

3716

3715

T. 3 N.

T. 2 N.

3713

3712

3711

3710

3709

33° 30'

112° 45'

BUCKEYED 3456'

R. 6 W. R. 5 W. 132 HARRAYMPA 13 MI. INTERIOR-GEOLOGICAL SURVEY, WASHINGTON, D. C. - 1871 336000m E.

Roosevelt Canal:

The S.C.S. Method Part II procedures indicate that the volume of runoff to the Roosevelt Canal exceeds the volume of storage behind the banks.

Rowe Wash:

Hydrology was done by S.C.S. Computer Program TR-20 in conjunction with the Cave Creek Wash Flood Insurance Study.

Wash #6 (Ocotillo Wash):

Same as for Rowe Wash

Willow Springs Wash:

Same as for Rowe Wash

Pinnacle Peak Wash:

Hydrology was done by the S.C.S. Method as outlined in Reference 5.

Kyrene Canal:

After field inspection it was decided that this reach of the canal does not require hydrologic analysis.

Verde River:

Hydrological data was taken from a Log Pearson Type III study done by the U.S.G.S. in July 1976 (Reference 10).

Wash #9, #10 and #11:

Hydrology was done by the S.C.S Method Part II as outlined in reference 5.

IX HYDRAULIC ANALYSES

For the approximate studies in unincorporated Maricopa County there were two types of hydraulic analyses: channel flow and ponding behind embankments. In the case of channel flow the 7 1/2 minute quadrangle maps were used to determine the cross sections necessary to analyse the flow through the reach. Manning's Equation was used

to determine stage elevation relationships using "n" = .035. From this the top width was estimated and plotted on the quad maps; care being taken to match up with any adjoining detail studies.

In the case of ponding behind embankments where the volume of runoff exceeds the volume of storage available the elevation of the top of the embankment was plotted on the contour maps.

No floodways were computed for these approximate studies.

X OTHER STUDIES

There are no published Flood Insurance Studies or reports available that deal with the streams being studied by approximate methods in the unincorporated Maricopa County area. However, reference 6 deals with an area adjacent to the Centennial Wash study area, reference 11 deals with the area around Cline Creek and Rodger Creek and reference 12 deals with the watershed around Rowe Wash, Ocotillo Wash and Willow Springs Wash. Also, as a part of this contract, Harris Toups Associates is performing Flood Insurance Studies for several communities in Maricopa County.

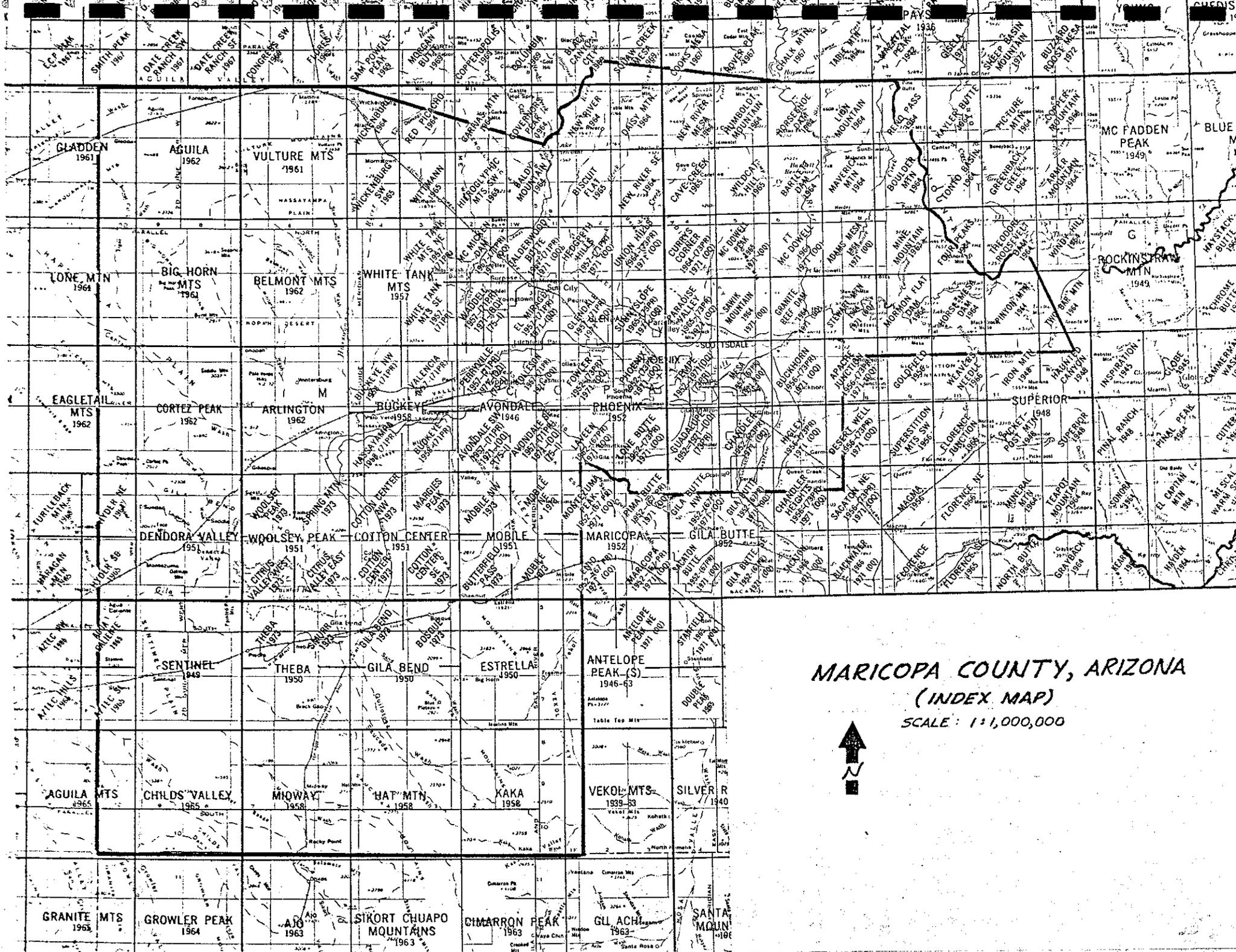
XI LOCATION OF DATA

Survey, Hydrologic, Hydraulic and other pertinent data used in this study can be obtained by contacting the office of the Federal Insurance Administration, Regional Director, Flood Insurance Office, 450 Golden Gate Avenue, P.O. Box 36003, San Francisco, California 94012.

XII BIBLIOGRAPHY AND REFERENCES

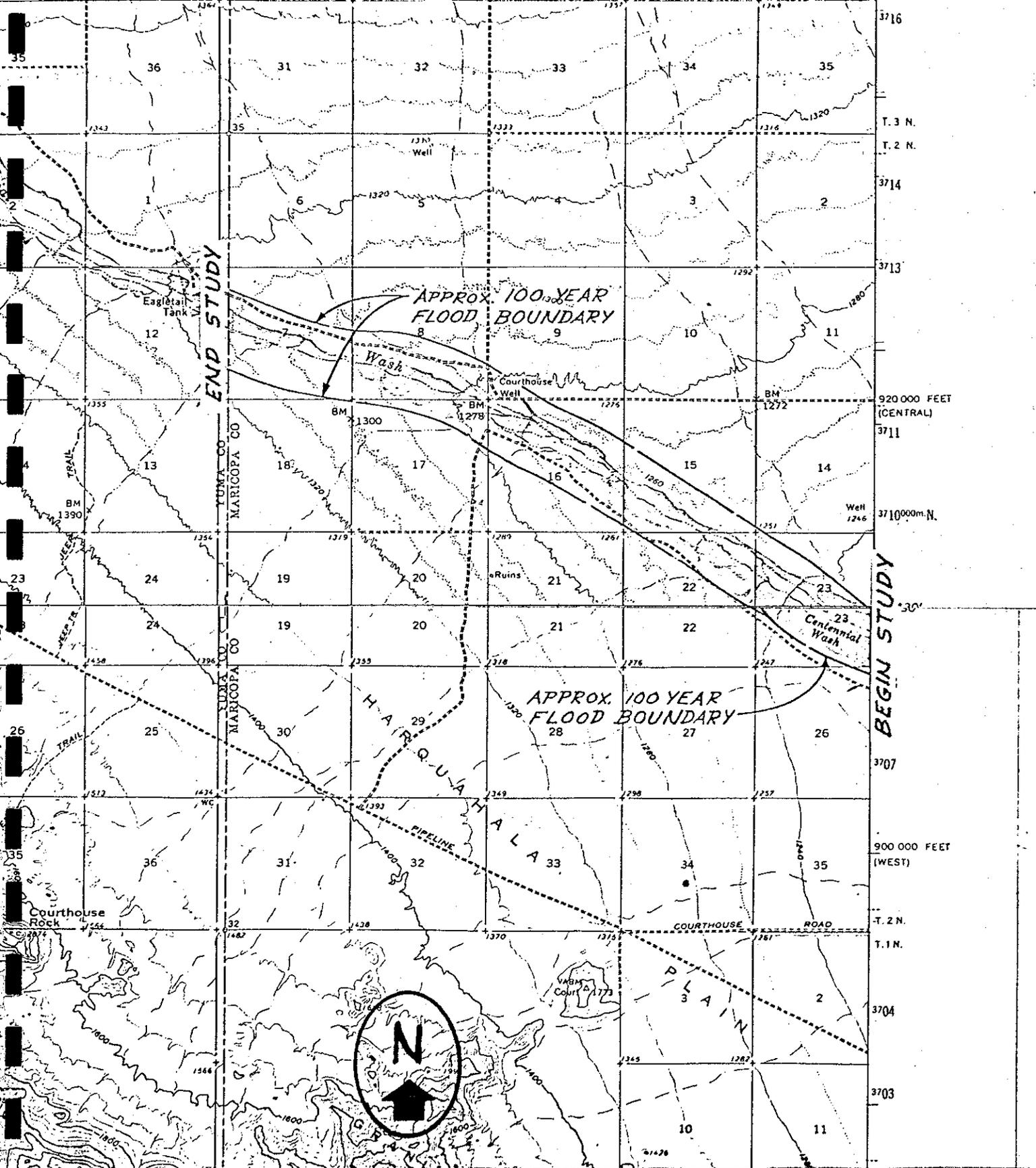
1. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Maricopa County, Arizona.
2. The Arizona Association of Counties and the League of Arizona Cities and Towns, Local Government Directory, March 1977.

3. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Local Climatological Data, Phoenix, Arizona, 1976
4. King & Brater, Handbook of Hydraulics, Fifth Edition.
5. Arizona Department of Transportation, Division of Highways, Hydrologic Design for Highway Drainage in Arizona, March 1969, as amended.
6. U.S.D.A. Soil Conservation Service, Final Environmental Impact Statement, Harquahala Valley Watershed, March 1977.
7. U.S.G.S. Quadrangle Maps of Arizona; Lone Mountain, Eagletail Mountains, Hyder N.E., Hyder S.E., Belmont Mountains, White Tank Mountains N.E., Valencia, Avondale S.W., Mobile, McDowell Peak, Fowler, Guadalupe, Fort McDowell and Cave Creek.
8. U.S. Army Corps of Engineers, Los Angeles District, Gila River Basin, New River and Phoenix City Streams, Design Memorandum Number 2, Hydrology Part 1, October 1974.
9. Maricopa County Flood Control District, Buckeye Watershed Protection and Flood Protection Project, Plans for the Construction of Floodwater Retarding Structures 2 & 3, March 1974.
10. U.S.G.S., Log Pearson Computer Analysis of Selected Gaged Streams in Arizona, July 1976
11. U.S. Army Corps of Engineers, Los Angeles District, Floodplain Information Study for Maricopa County, Arizona, Volume III, Skunk Creek Report, March 1965
12. U.S. Army Corps of Engineers, Los Angeles District, Floodplain Information Study for Maricopa County, Arizona, Volume II, Cave Creek Report, November 1964.
13. U.S.D.A. Soil Conservation Service, TR-20 Project Formulation - Hydrology, May 1965



MARICOPA COUNTY, ARIZONA
 (INDEX MAP)
 SCALE: 1:1,000,000





QUADRANGLE LOCATION

ROAD CLASSIFICATION
 Light duty ——— Unimproved dirt
 ——— APPROXIMATE 100 YEAR FLOOD BOUNDARY

SCALE: 1" = 1 mile
 LONE MOUNTAIN, ARIZ.
 N3330—W11315/15

CENTENNIAL WASH

1961

AMS 3561 III SERIES V79R

HYDER SE QUADRANGLE
ARIZONA
7.5 MINUTE SERIES (TOPOGRAPHIC)

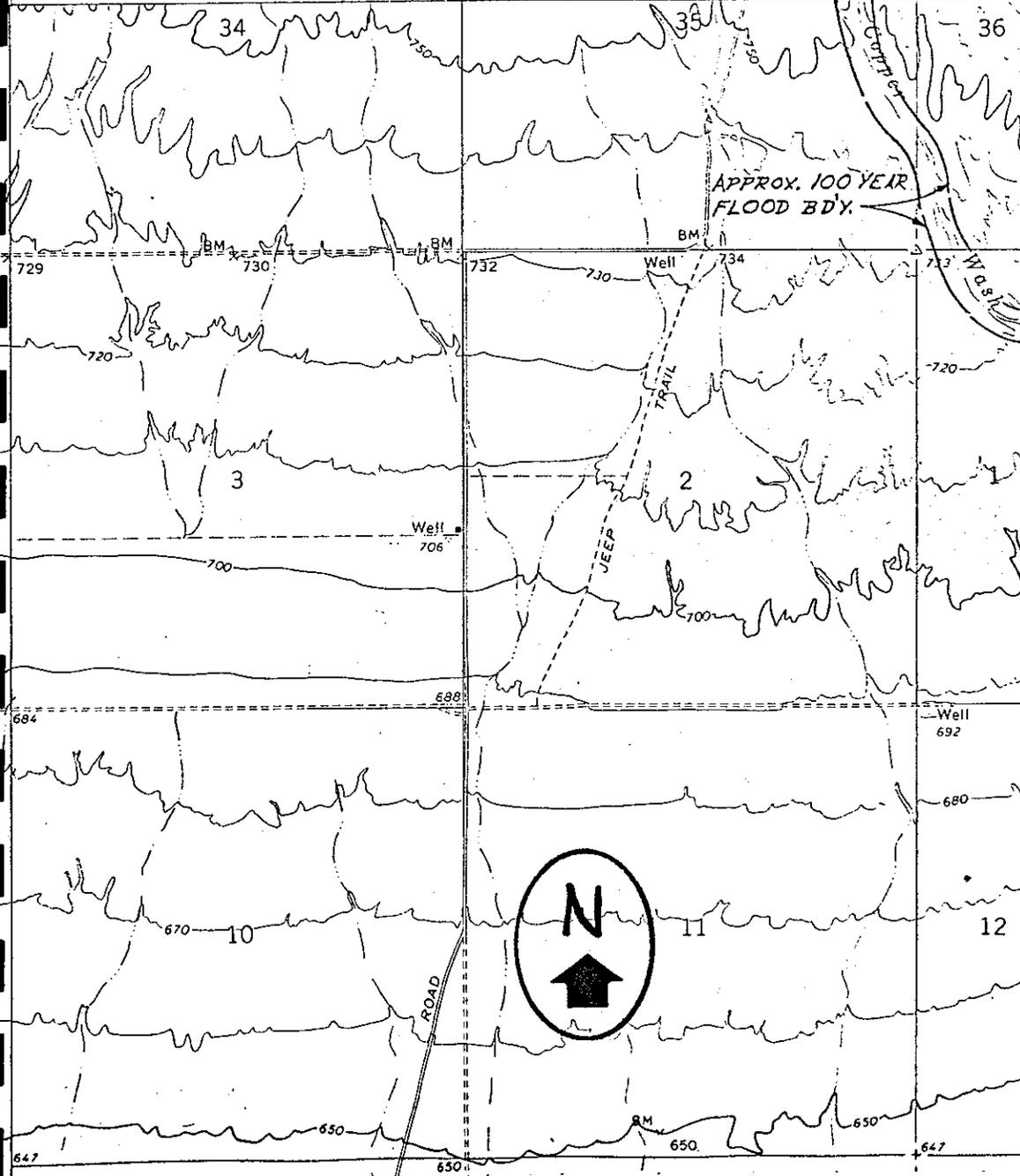
3350 II
IDENDORA VALLEY
1:62,500

80 000 FEET (CENTRAL)

288

ARLINS MATCH TO SHEET 3 113°15'

33°07'30"



BEGIN STUDY

770 000 FEET
(CENTRAL)

ROAD CLASSIFICATION

Light-duty

Unimproved dirt

APPROX. 100 YEAR
FLOOD BOUNDARY

SCALE: 1" = 2000'
HYDER SE, ARIZ.



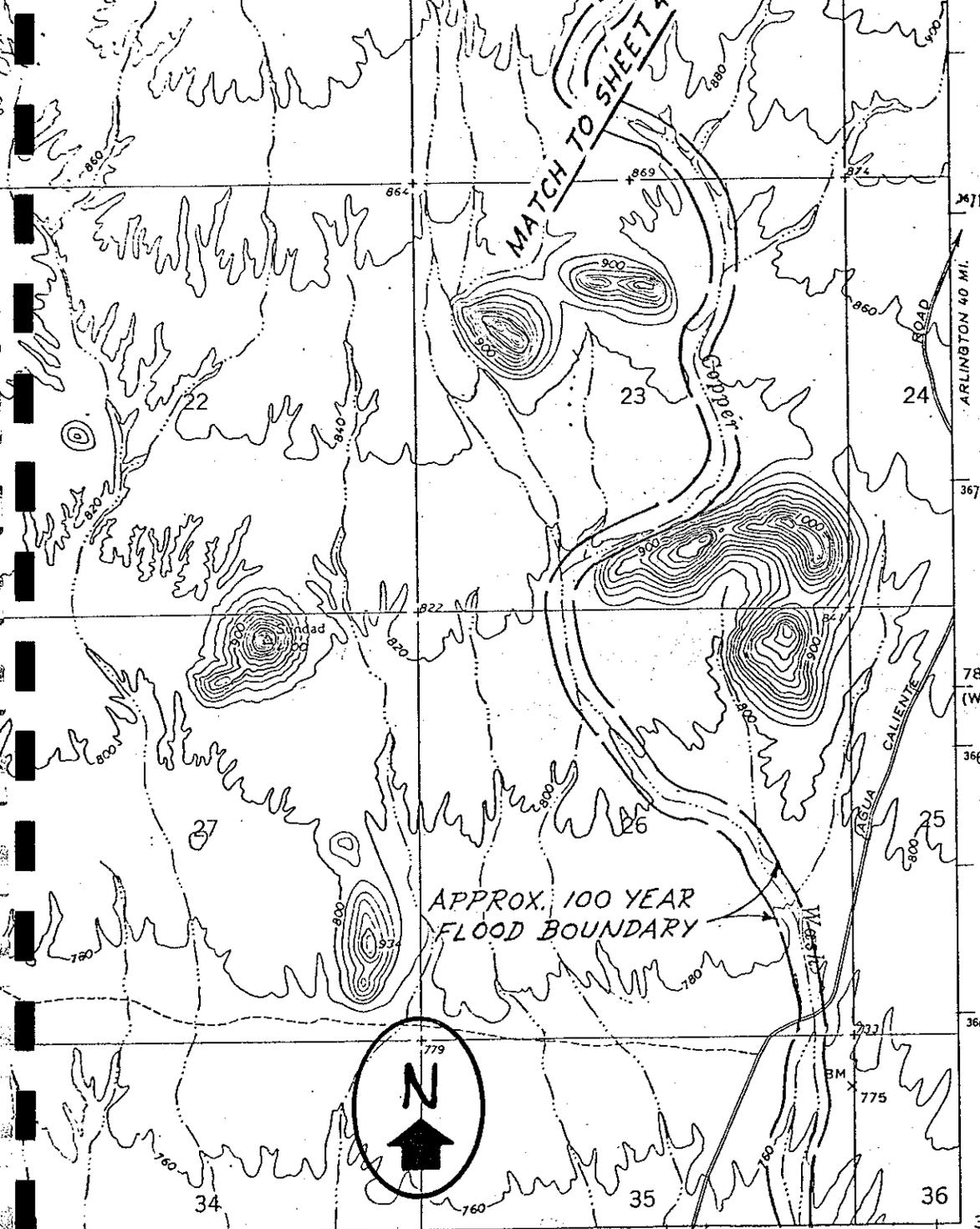
QUADRANGLE LOCATION

COPPER WASH

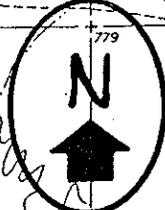
N3300--W11315/7.5

1965

AMS 5350 III SE. SERIES V8718



APPROX. 100 YEAR
FLOOD BOUNDARY



• • INTERIOR

HY1 MATCH TO SHEET 2

33°07'30"
113°15'

3350 II
1:62,500
(IDENDORA VALLEY)

ROAD CLASSIFICATION

Light-duty Unimproved dirt

APPROXIMATE 100 YEAR
FLOOD BOUNDARY

SCALE: 1" = 2000'

HYDER NE, ARIZ.

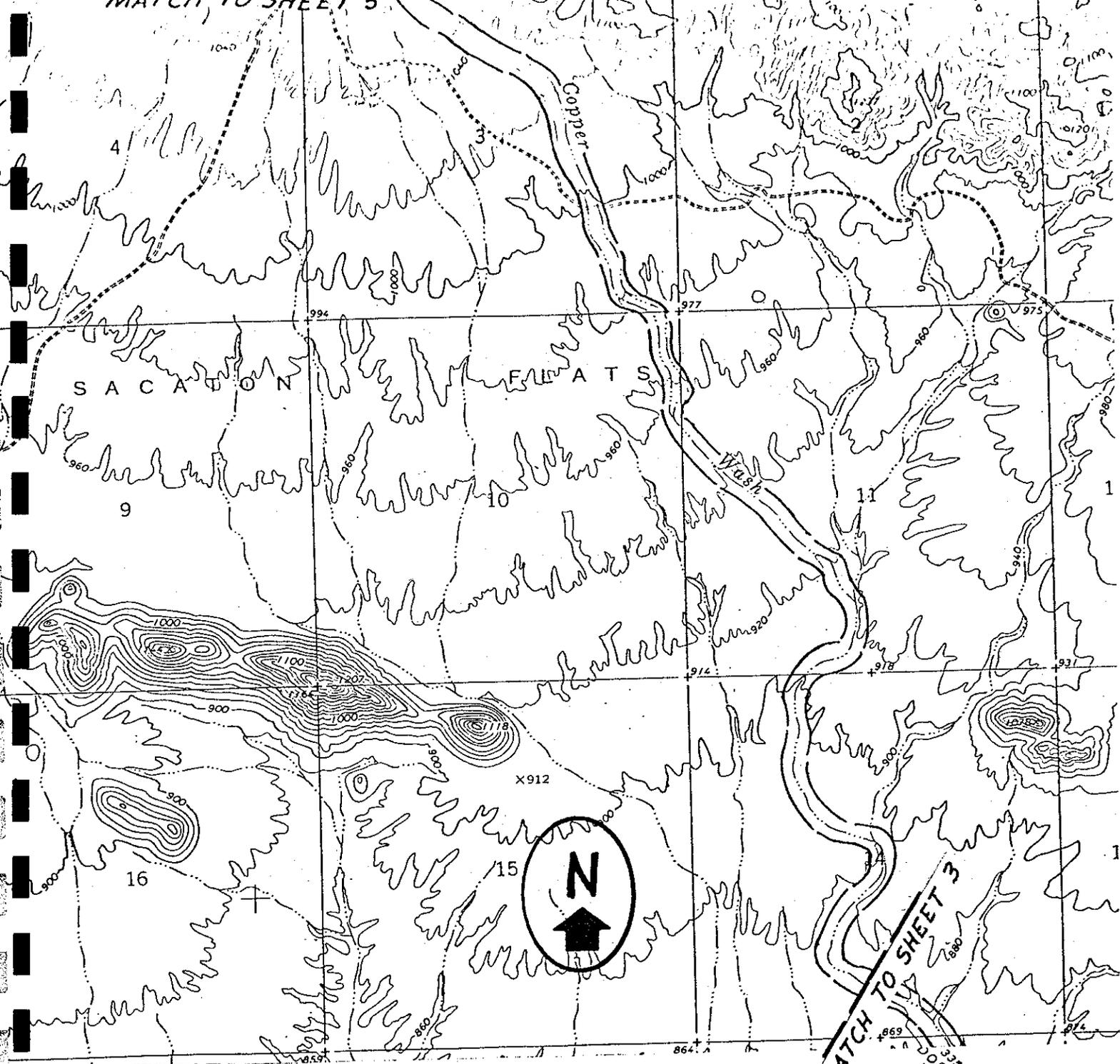
N3307.5—W11315/7.5 *COPPER WASH*

1964

AMS 3450 III NE—SERIES V804



QUADRANGLE LOCATION



ROAD CLASSIFICATION

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

— — — — — APPROXIMATE 100 YEAR FLOOD BOUNDARY

SCALE: 1" = 2000'

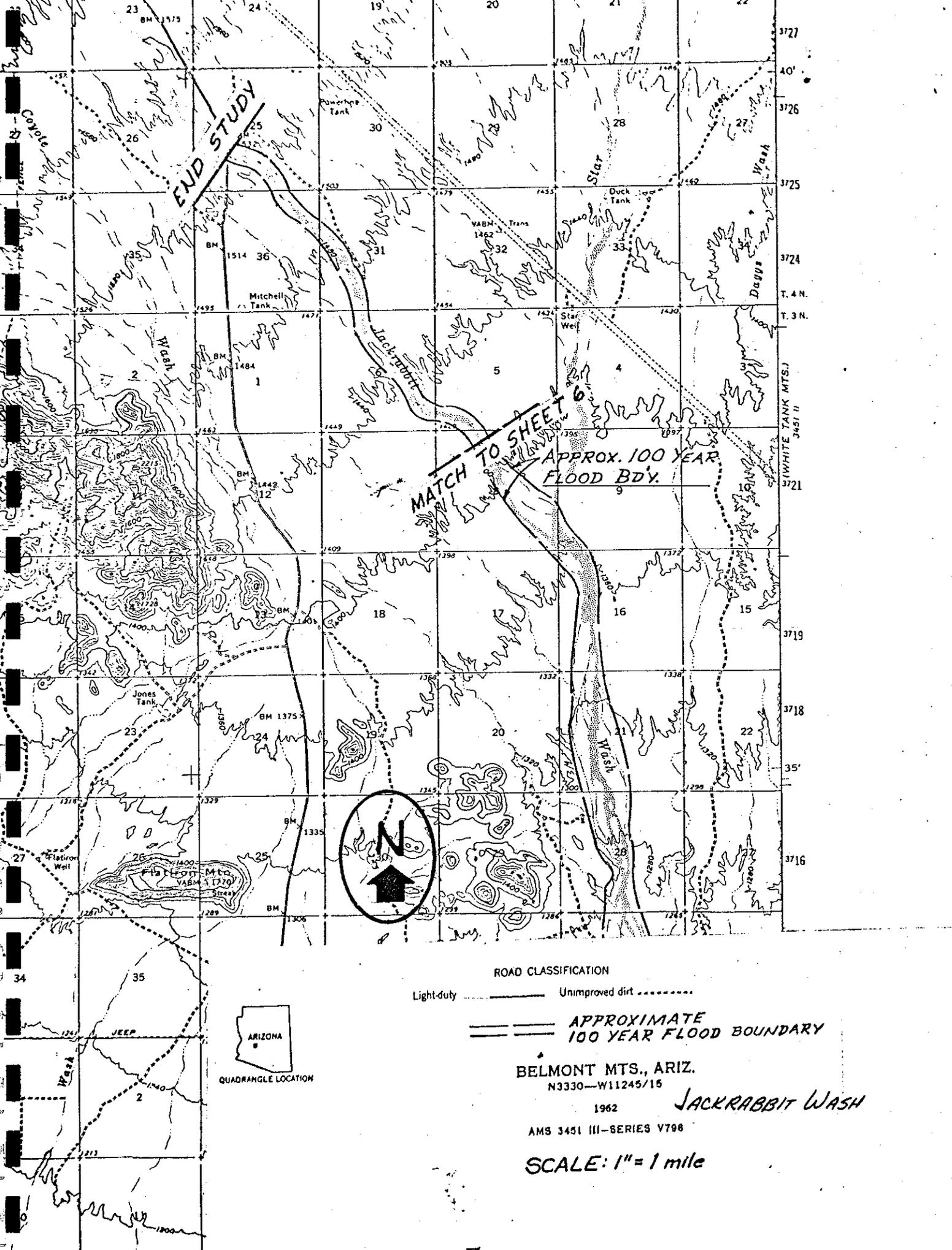
HYDER NE, ARIZ.

N3307.5—W11315/7.5 *COPPER WASH*

1964

AMS 3350 III NE—SERIES V898





END STUDY

MATCH TO SHEET 6
APPROX. 100 YEAR FLOOD B.D.Y.



ROAD CLASSIFICATION

Light-duty ——— Unimproved dirt

==== **APPROXIMATE 100 YEAR FLOOD BOUNDARY**



BELMONT MTS., ARIZ.
 N3330-W11245/15

1962

JACKRABBIT WASH

AMS 3451 III-SERIES V798

SCALE: 1" = 1 mile

Jackrabbit Wash:

For the study reach, the drainage area size for Jackrabbit Wash is fairly constant. Therefore only one discharge was calculated by S.C.S. Method Part II.

Gila Bend Canal:

The Gila Bend Canal interrupts the flow of runoff from 272 square miles in the six mile reach from Gila Bend to Smurr. S.C.S. procedures were used to determine the volume of runoff from the associated watershed.

Trilby Wash:

The hydrological determinations were performed by regional analysis procedures; using CSM rates developed for Trilby Wash in the Wittman, Arizona detail Flood Insurance Study.

Buckeye Detention Dike:

Flood elevations for the Buckeye Detention Dike were based on spillway elevations taken from construction plans.

Wash Number 1:

Hydrological calculations were made according to the S.C.S. Method Part II as outlined in Reference 5.

Waterman Wash:

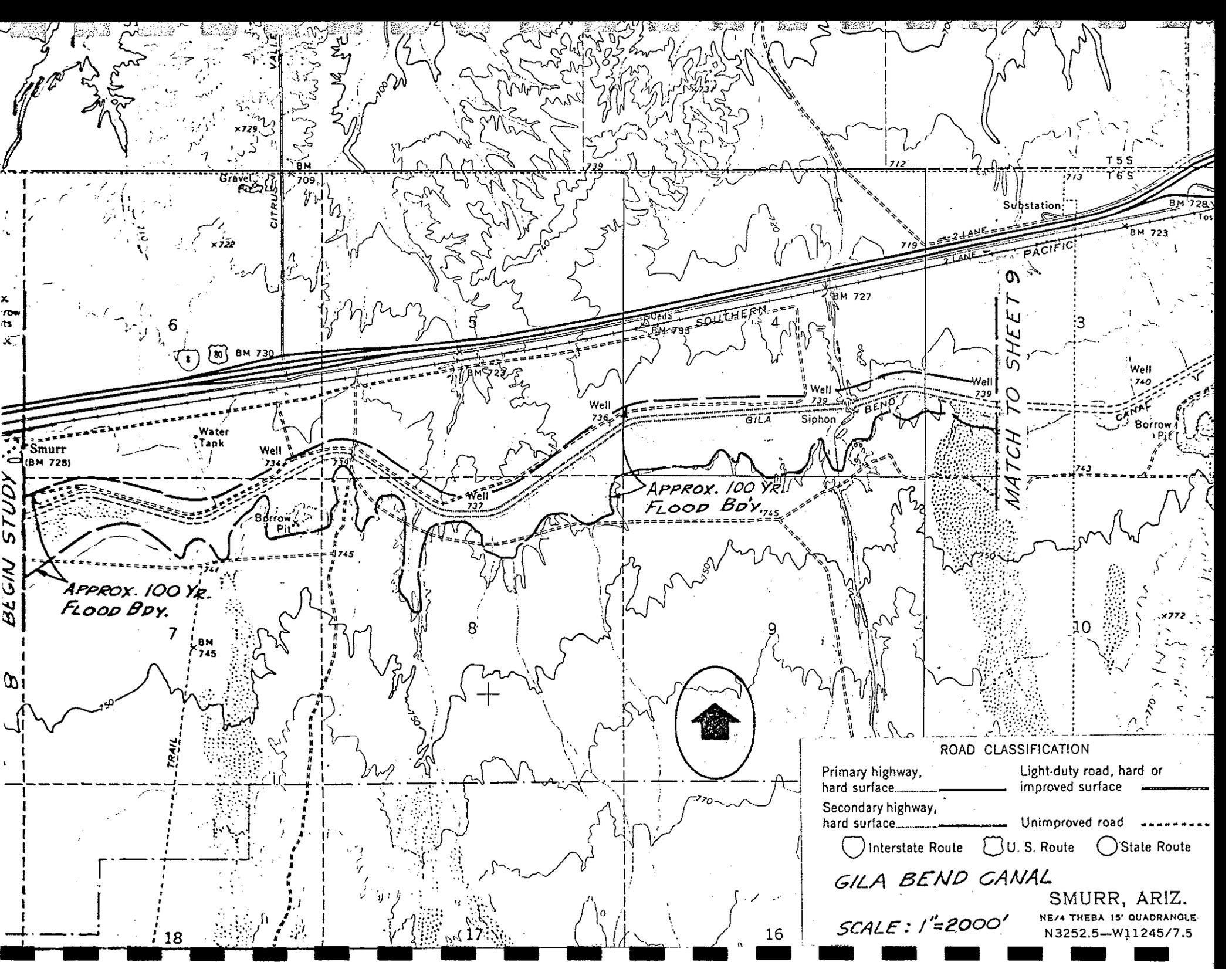
Hydrological determinations were made at the upper and lower ends of the study reach following S.C.S. Method Part II procedures as outlined in Reference 5.

Cline Creek and Rodger Creek:

Hydrologic calculations for both of these creeks were performed using the S.C.S. TR-20 Computer Program in conjunction with the detail Flood Insurance Study for Skunk Creek.

Grand Canal:

The portion of the canal studied has no elevated banks to pond and store floodwaters, therefore there are no flood hazards associated with the canal.



BEGIN STUDY

MATCH TO SHEET 9

APPROX. 100 YR. FLOOD BDY.

APPROX. 100 YR. FLOOD BDY.



ROAD CLASSIFICATION

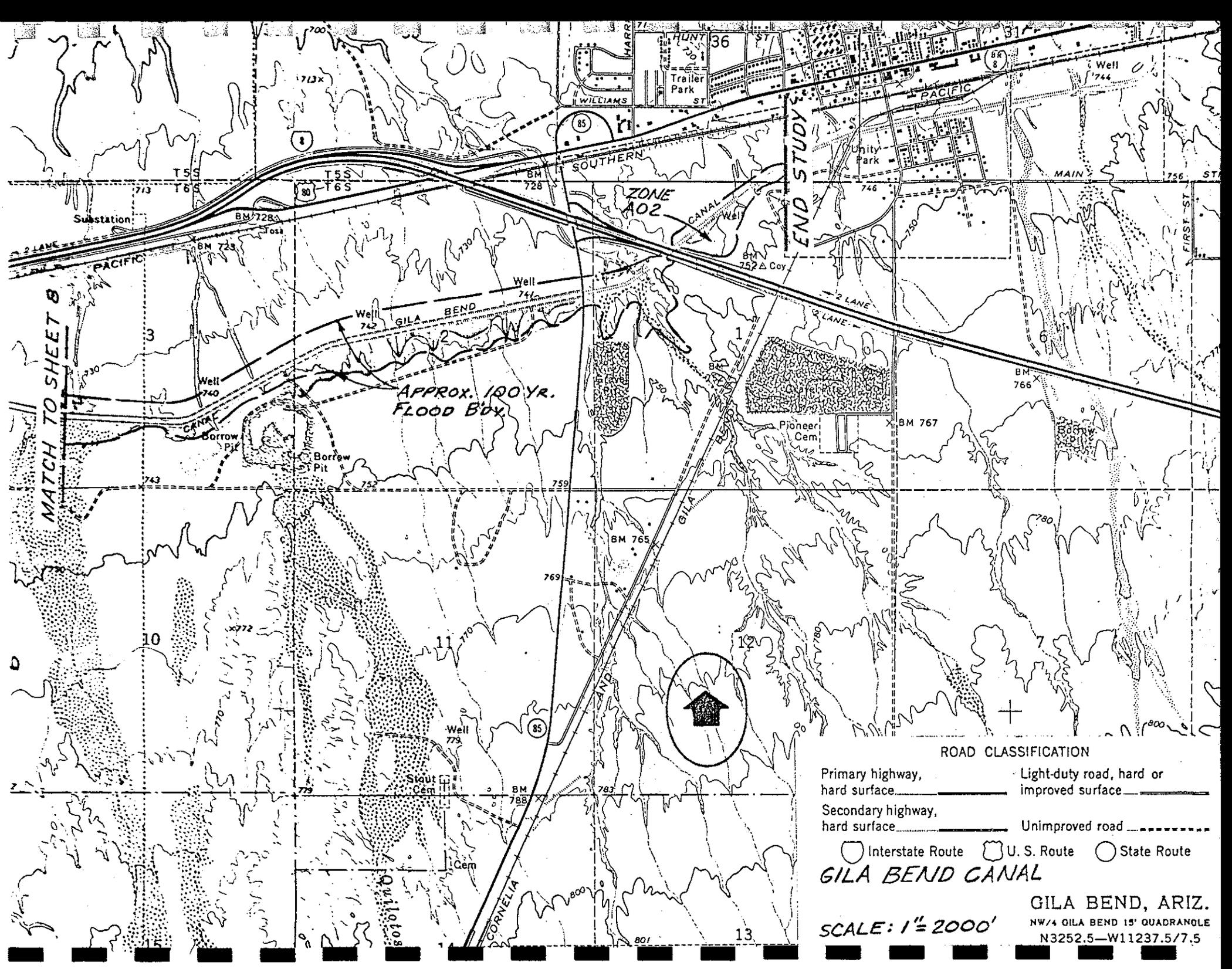
- Primary highway, hard surface _____
- Secondary highway, hard surface _____
- Light-duty road, hard or improved surface _____
- Unimproved road _____
- Interstate Route
- ◻ U. S. Route
- State Route

GILA BEND CANAL

SMURR, ARIZ.

SCALE: 1"=2000'

NE/4 THEBA 15' QUADRANGLE
N3252.5-W11245/7.5



MATCH TO SHEET 8

END STUDY

APPROX. 100 YR.
FLOOD BOX



- ROAD CLASSIFICATION**
- Primary highway, hard surface _____
 - Secondary highway, hard surface _____
 - Light-duty road, hard or improved surface _____
 - Unimproved road _____
 - Interstate Route ◻ U. S. Route ○ State Route

GILA BEND CANAL

SCALE: 1" = 2000'

GILA BEND, ARIZ.
NW/4 GILA BEND 15' QUADRANGLE
N3252.5-W11237.5/7.5

MATCH TO SHEET 11

12

7

3730

APPROX. 100 YEAR FLOOD BDY.

3729

14

13

18

Reservoir

(MC MICKEN DAM) 3551 III NW 3728

BM 1460

BM 1473

23

24

19

433

Reservoir

WADDELL 6.7 MI. BEGIN STUDY



26

25

30

ROAD CLASSIFICATION

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

— — — — — APPROXIMATE 100 YEAR FLOOD BOUNDARY

SCALE: 1" = 2000'

WHITE TANK MTS. NE, ARIZ.

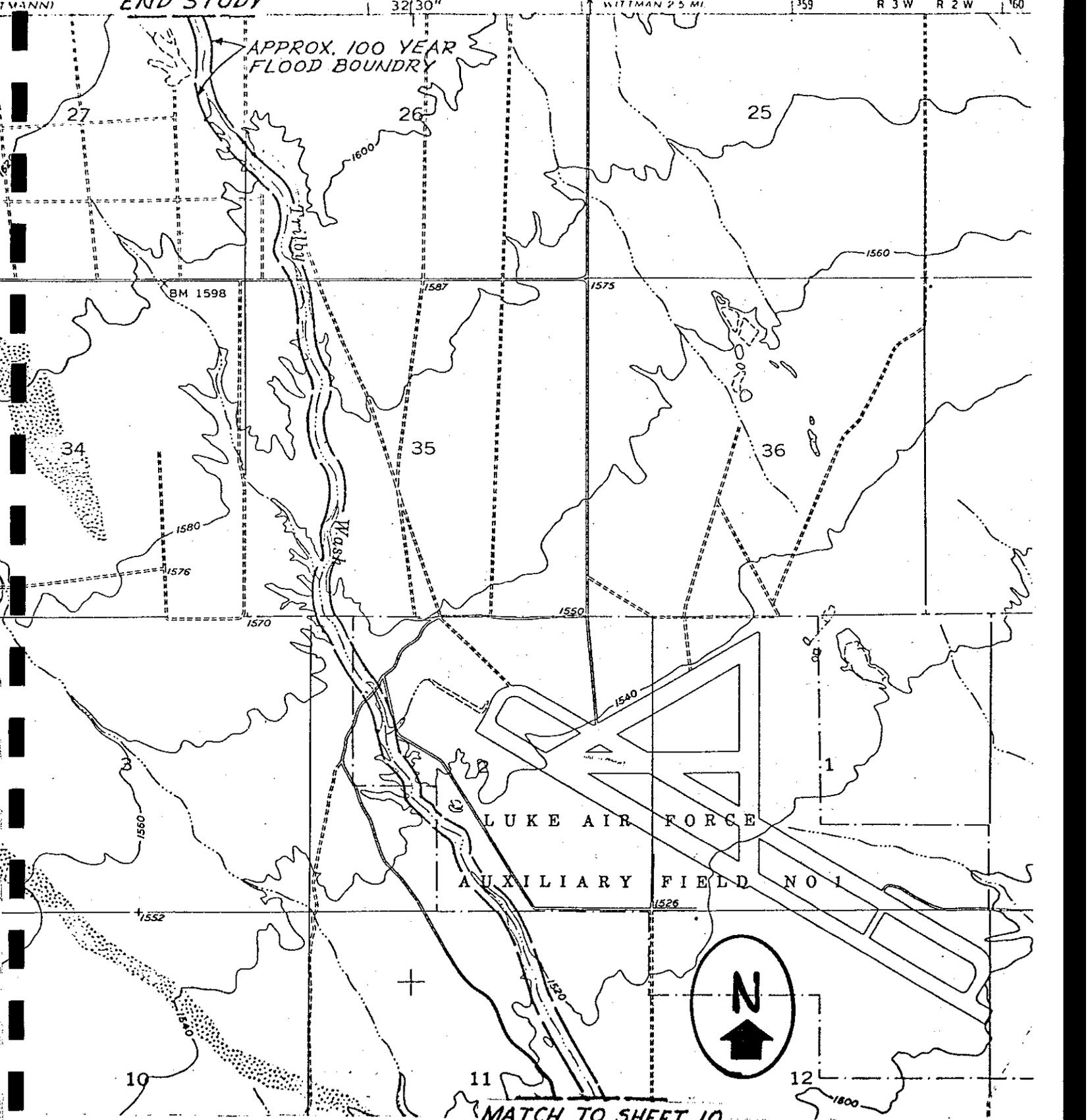
NE/4 WHITE TANK MTS. 15' QUADRANGLE N3337.5—W11230/7.5



QUADRANGLE LOCATION

TRILBY WASH

1957
PHOTOREVISED 1971
AMS 3451 II NE—SERIES V898



MATCH TO SHEET 10

ROAD CLASSIFICATION

Light-duty ————— Unimproved dirt

————— APPROXIMATE 100 YEAR FLOOD BOUNDARY

SCALE: 1" = 2000'

WHITE TANK MTS. NE, ARIZ.

NE 1/4 WHITE TANK MTS. 1st QUADRANGLE

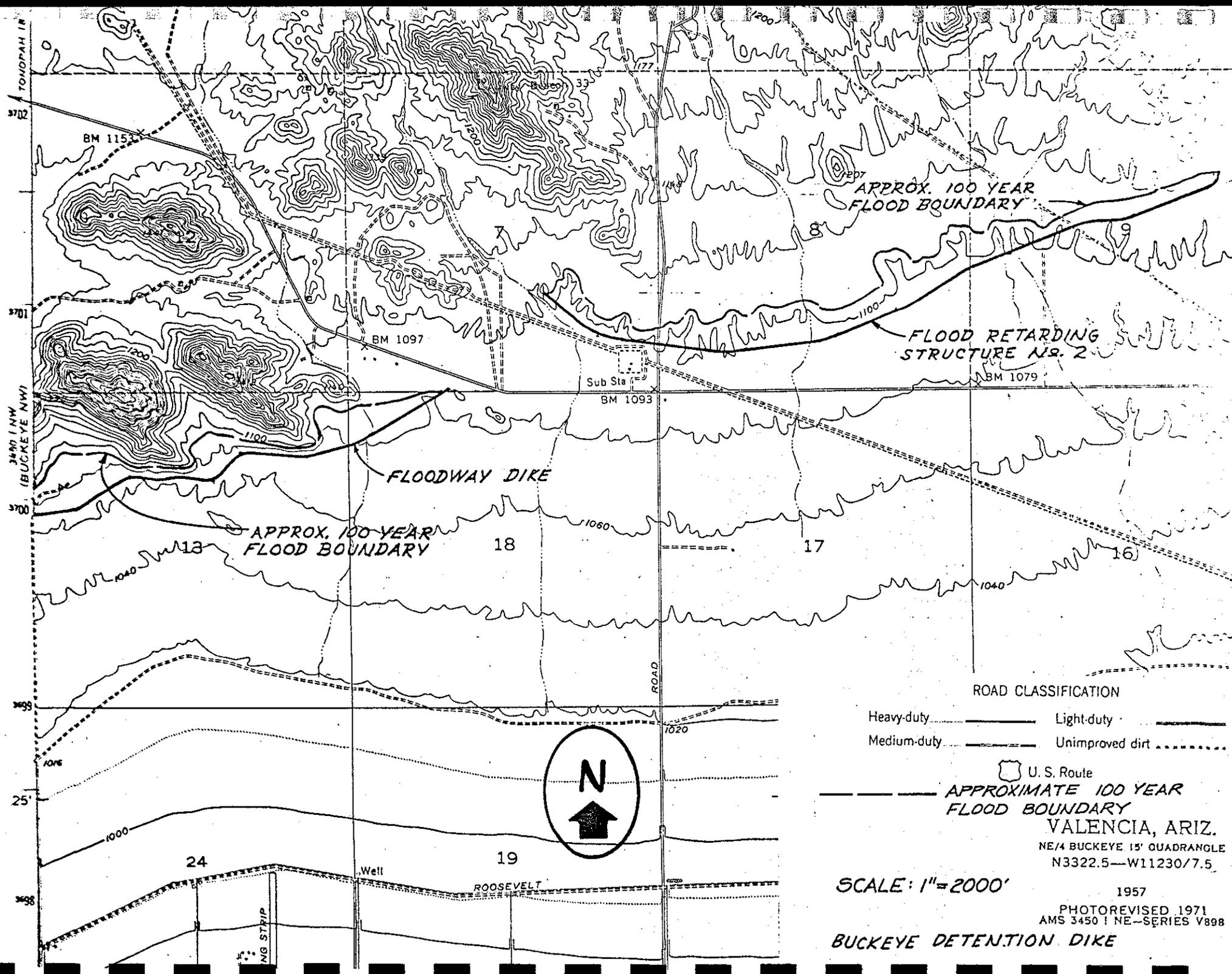
N3337.5-W11230/7.5



QUADRANGLE LOCATION

1957

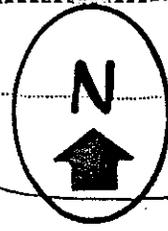
TRILBY WASH



ROAD CLASSIFICATION

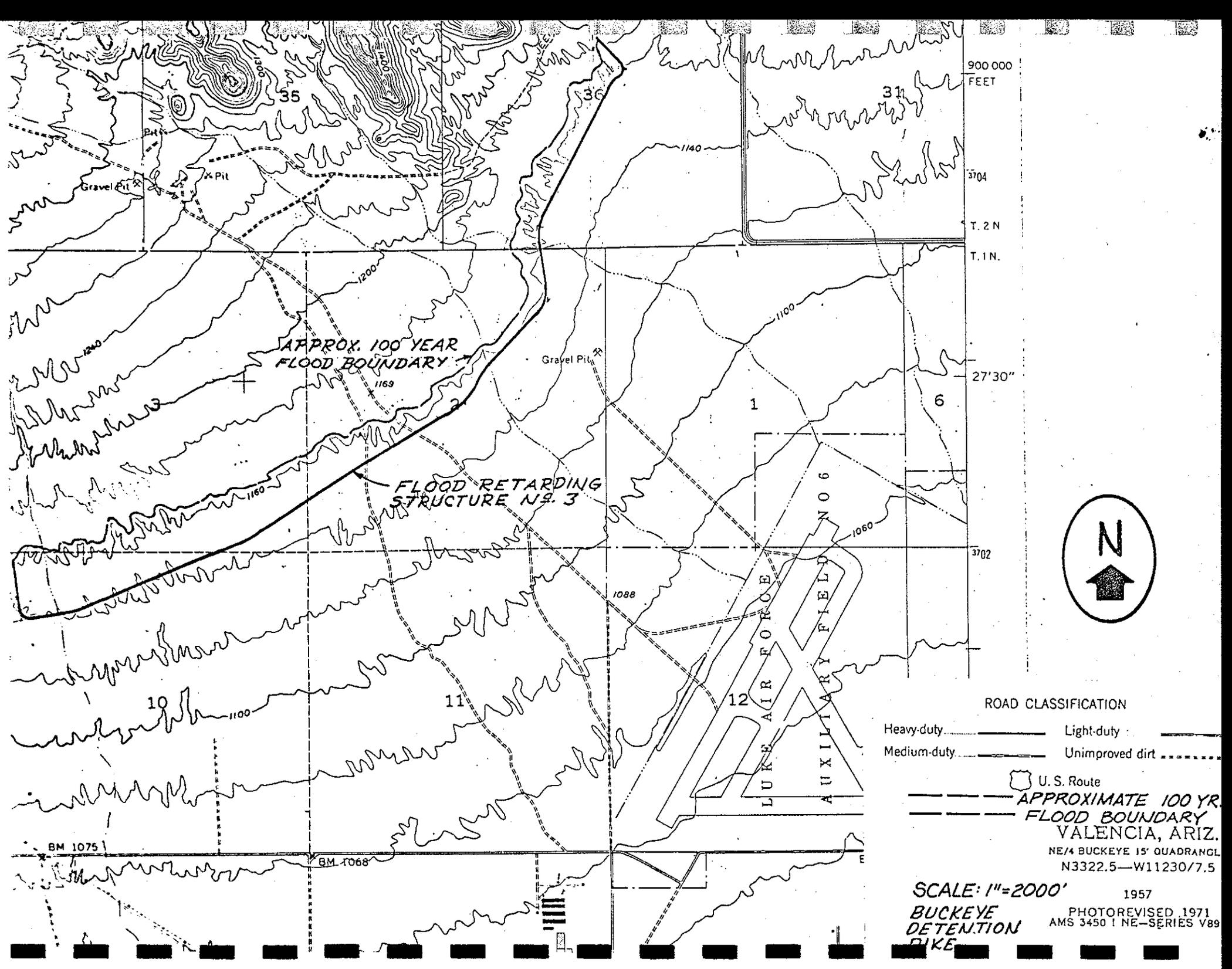
- Heavy-duty —————
- Medium-duty - - - - -
- Light-duty
- Unimproved dirt

 U. S. Route
APPROXIMATE 100 YEAR FLOOD BOUNDARY
VALENCIA, ARIZ.
 NE/4 BUCKEYE 15' QUADRANGLE
 N3322.5—W11230/7.5



SCALE: 1" = 2000'

1957
 PHOTOREVISED 1971
 AMS 3450 I NE—SERIES V898
BUCKEYE DETENTION DIKE



900 000
FEET

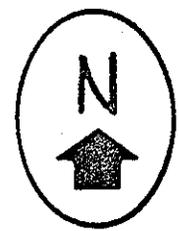
3704

T. 2 N.

T. 1 N.

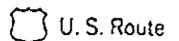
27'30"

3702



ROAD CLASSIFICATION

- Heavy-duty —————
- Medium-duty - - - - -
- Light-duty —————
- Unimproved dirt - - - - -



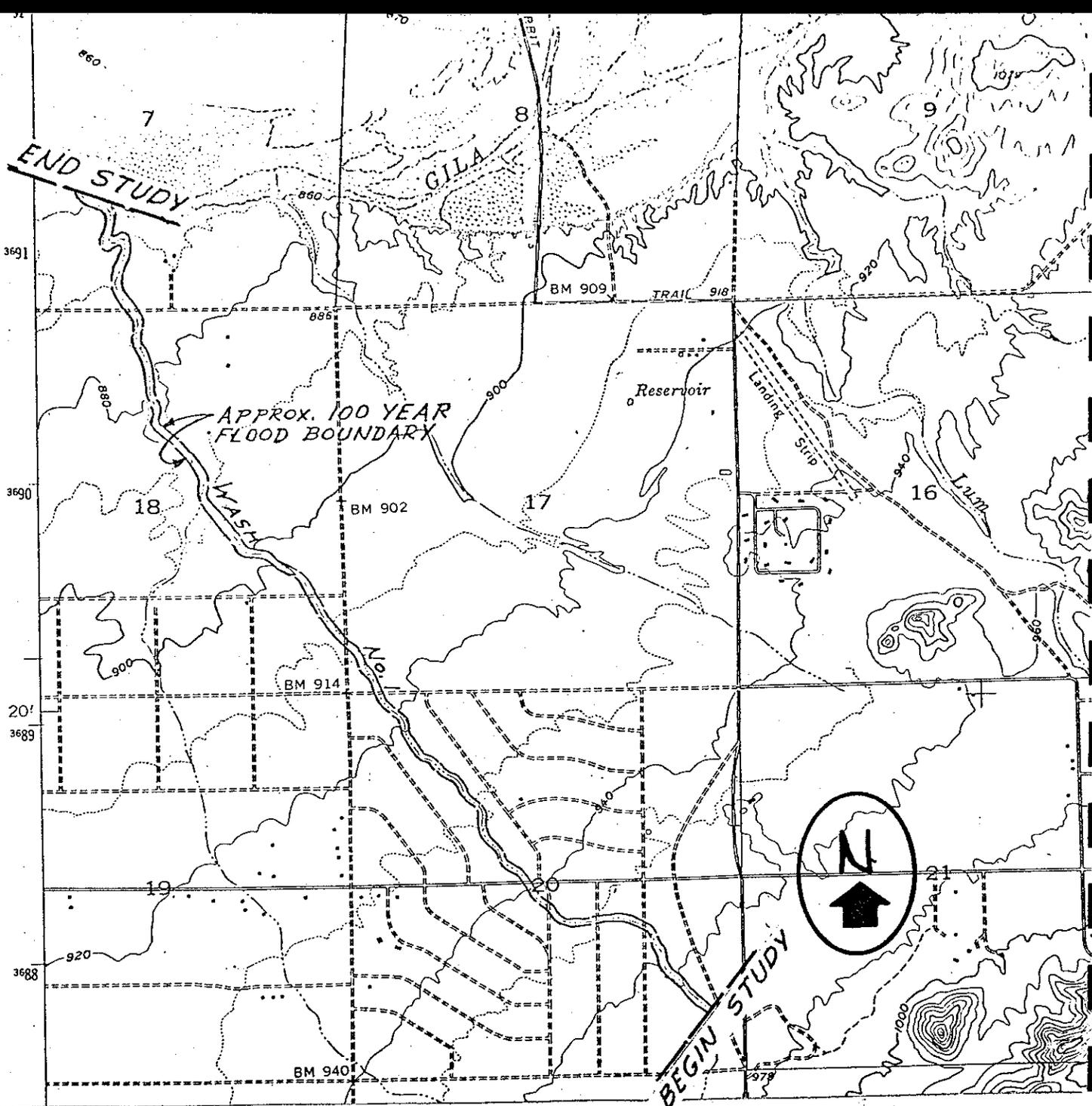
U. S. Route
**APPROXIMATE 100 YR.
 FLOOD BOUNDARY**
 VALENCIA, ARIZ.

NE/4 BUCKEYE 15' QUADRANGL
 N3322.5—W11230/7.5

SCALE: 1"=2000'

**BUCKEYE
 DETENTION
 DIKE**

1957
 PHOTOREVISED 1971
 AMS 3450 1 NE—SERIES V89



ROAD CLASSIFICATION

Medium-duty Light-duty
 Unimproved dirt

APPROX. 100 YEAR FLOOD BOUNDARY

SCALE: 1" = 2000'

AVONDALE SW, ARIZ.

5W/4 AVONDALE 15' QUADRANGLE

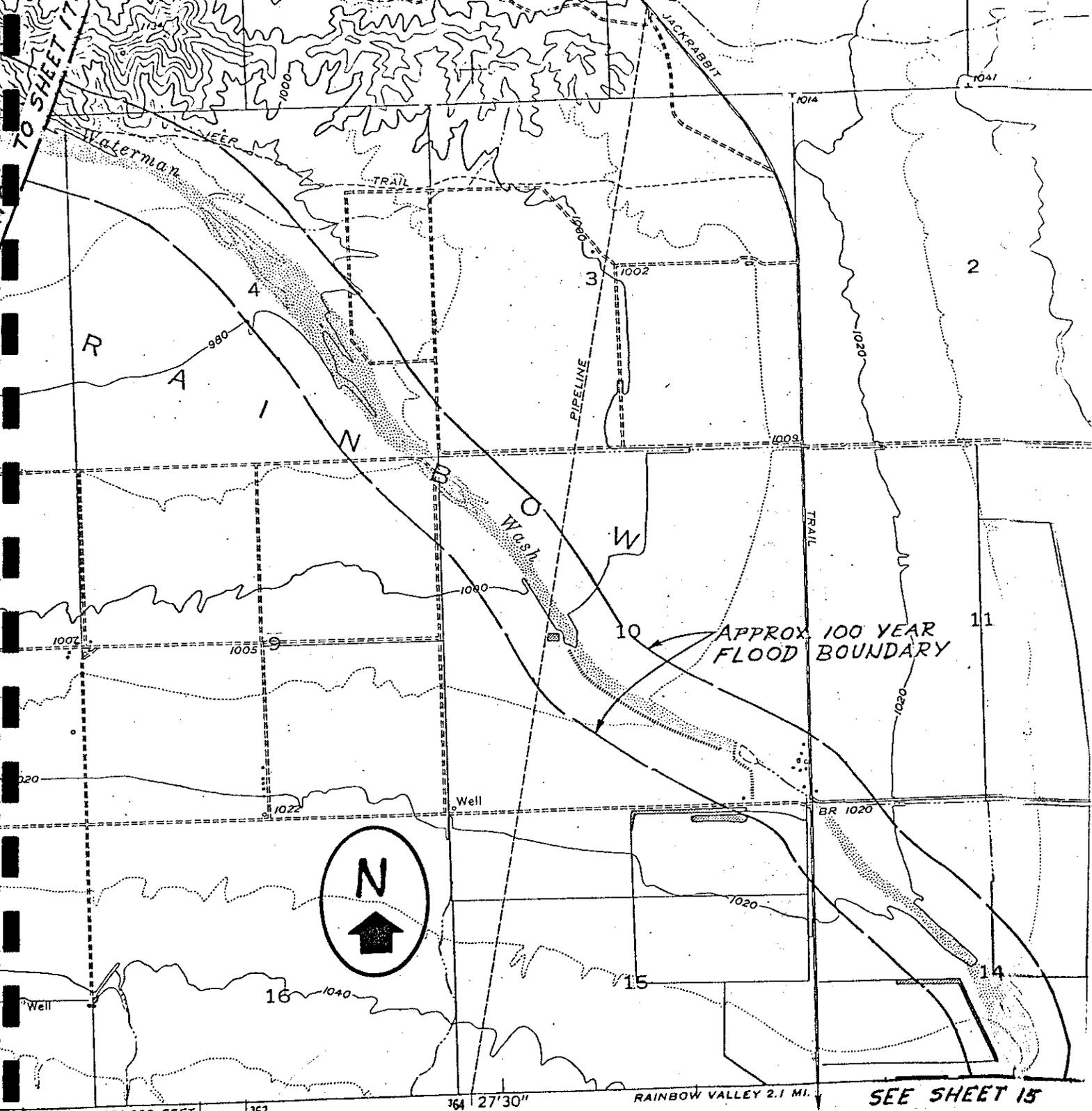
N3315—W11222.5/7.5

WASH N#1



QUADRANGLE LOCATION

1957
 PHOTOREVISED 1971
 AMS 3550 IV SW—SERIES V898



ROAD CLASSIFICATION

Medium-duty _____ Light-duty _____
 Unimproved dirt

===== APPROX. 100 YEAR FLOOD BOUNDARY

SCALE: 1" = 2000'

AVONDALE SW, ARIZ.

SW/4 AVONDALE 15' QUADRANGLE

N3315-W11222.5/7.5

WATERMAN WASH

1957

PHOTOREVISED 1971

AMS 3550 IV SW-SERIES V898



QUADRANGLE LOCATION

1362

330 000 FEET

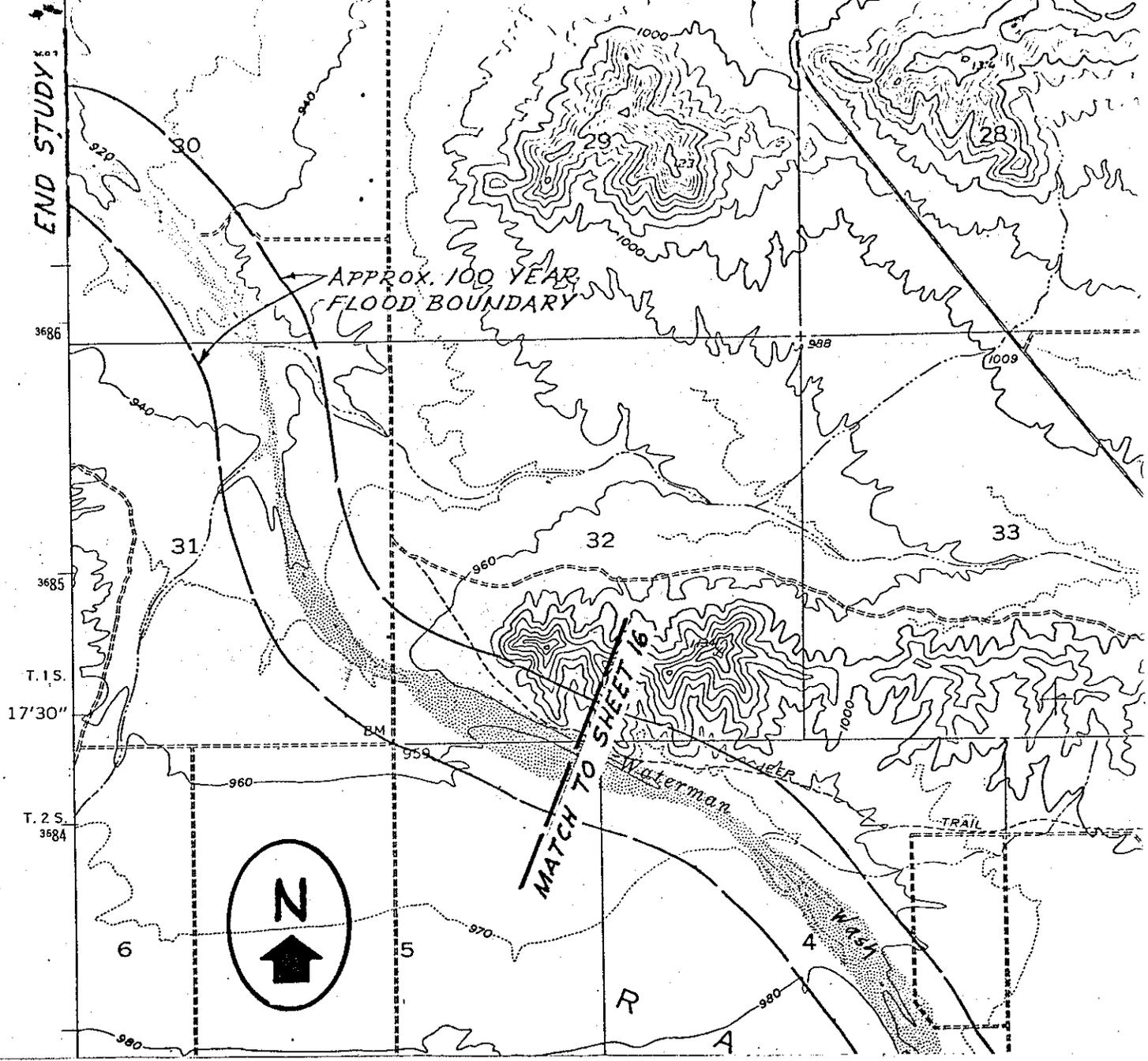
1363

364 27'30"

RAINBOW VALLEY 2.1 MI.

SEE SHEET 15

END STUDY



ROAD CLASSIFICATION

Medium-duty _____ Light-duty _____

Unimproved dirt - - - - -

=====
APPROX. 100 YEAR FLOOD BOUNDARY

SCALE: 1" = 2000'

AVONDALE SW, ARIZ.

SW/4 AVONDALE 15' QUADRANGLE

N3315—W11222.5/7.5

WATERMAN WASH

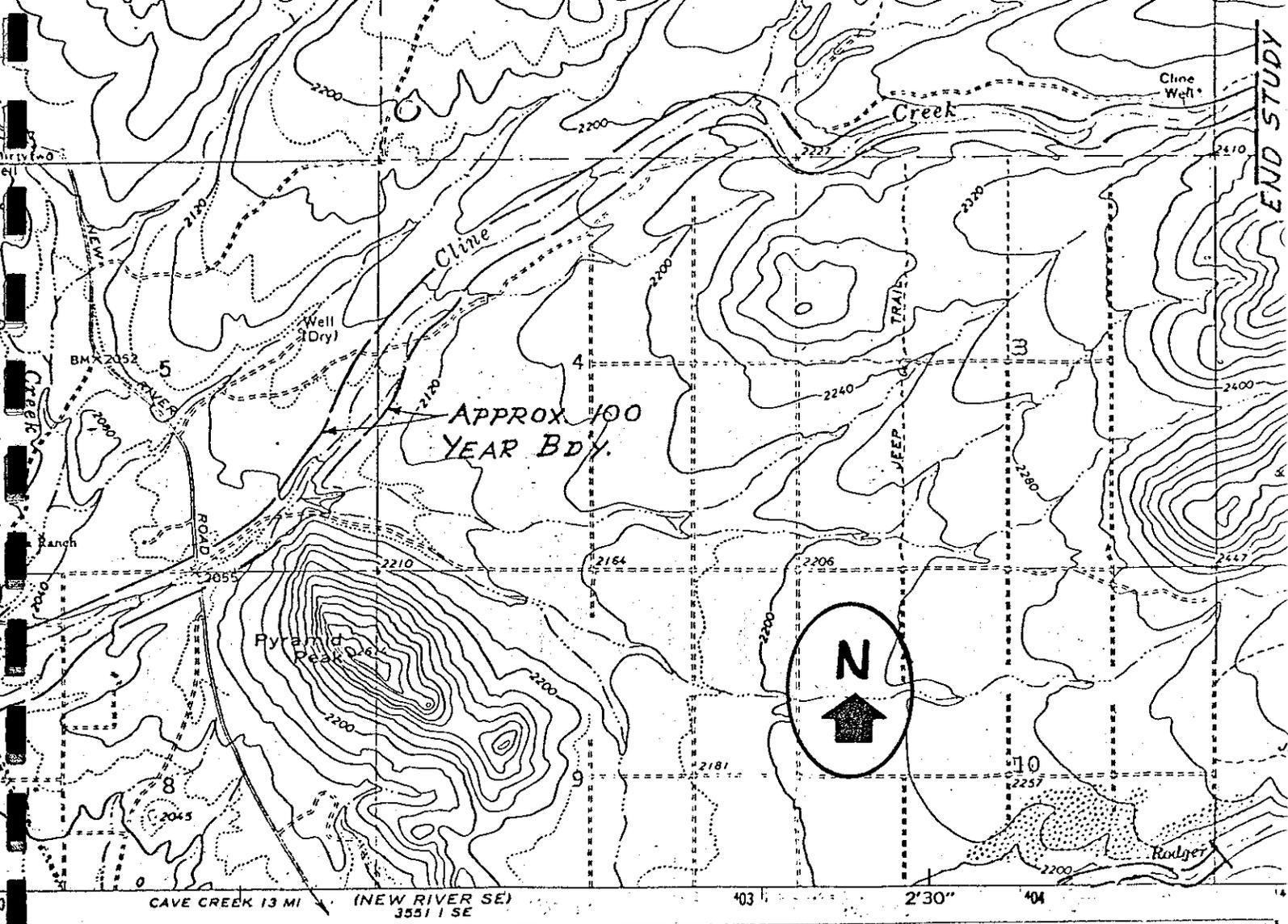
1957

PHOTOREVISED 1971

AMS 3550 IV SW—SERIES V898



QUADRANGLE LOCATION



END STUDY

CAVE CREEK 13 MI (NEW RIVER SE) 3551 SE

ROAD CLASSIFICATION

Medium-duty _____ Light-duty _____
 Unimproved dirt =

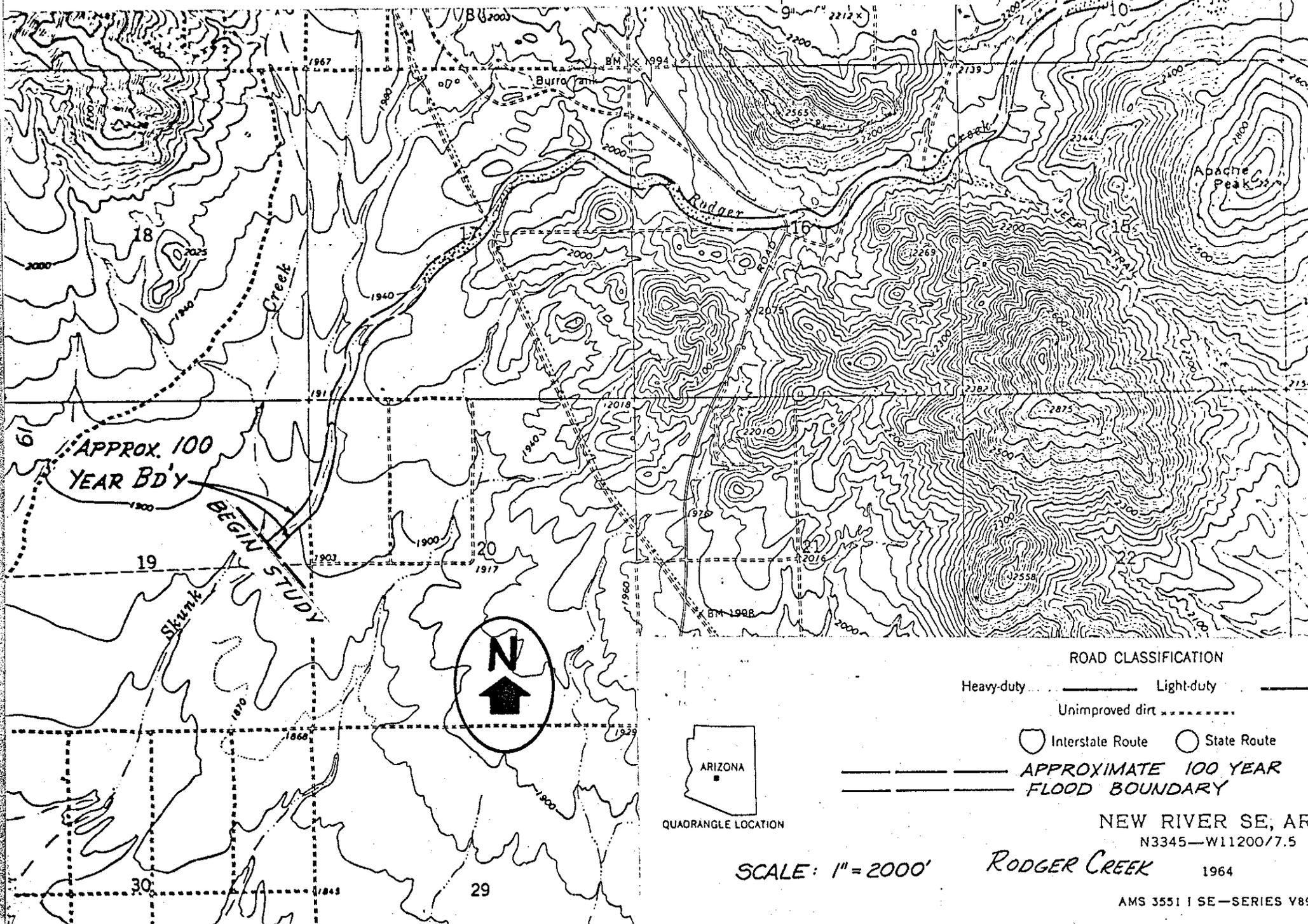
— — — — — APPROXIMATE 100 YEAR
 FLOOD BOUNDARY
 SCALE 1" = 2000'



DAISY MOUNTAIN, ARIZ.
 N3352.5—W11200/7.5

1964 CLINE CREEK

AMS 3551 NE—SERIES V898



QUAORANGLE LOCATION

ROAD CLASSIFICATION

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

○ Interstate Route ○ State Route

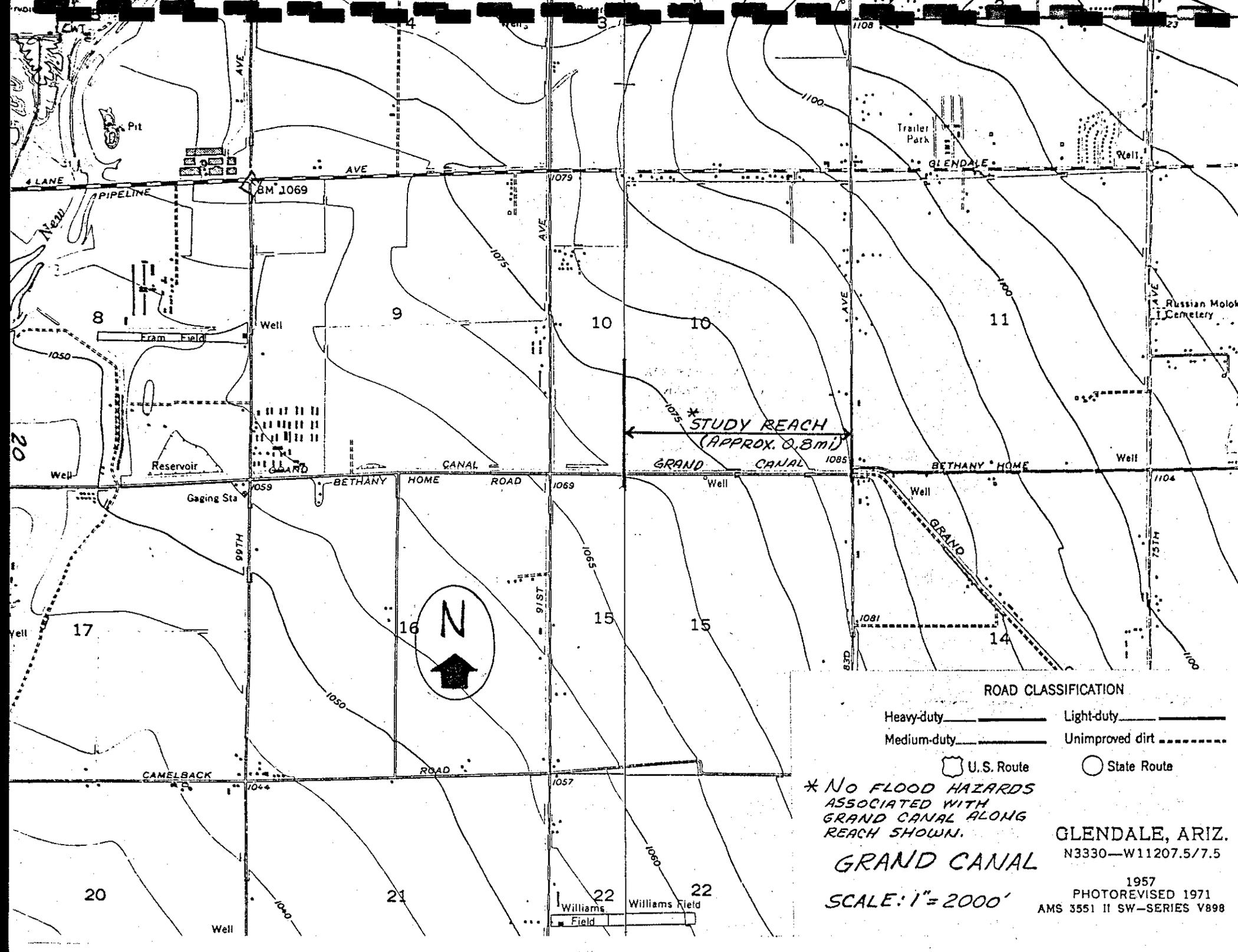
=====
 APPROXIMATE 100 YEAR
 FLOOD BOUNDARY

NEW RIVER SE, AR
 N3345—W11200/7.5

SCALE: 1" = 2000'

RODGER CREEK

1964



ROAD CLASSIFICATION

- Heavy-duty _____
- Medium-duty _____
- Light-duty _____
- Unimproved dirt _____

- U.S. Route
- State Route

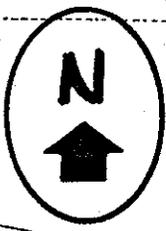
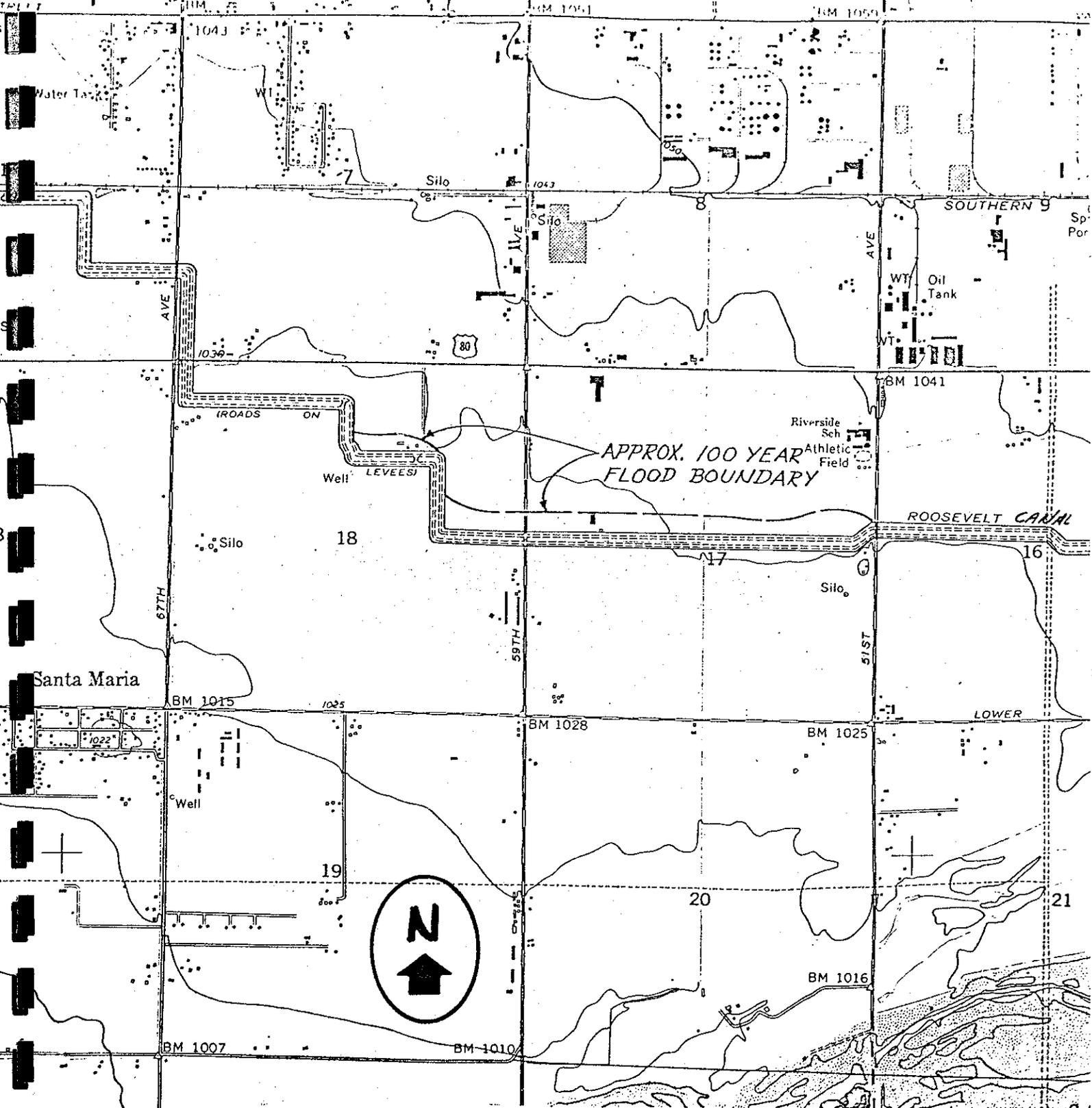
** NO FLOOD HAZARDS ASSOCIATED WITH GRAND CANAL ALONG REACH SHOWN.*

GRAND CANAL

SCALE: 1" = 2000'

GLENDALE, ARIZ.
N3330—W11207.5/7.5

1957
PHOTOREVISED 1971
AMS 3551 II SW—SERIES V898



QUADRANGLE LOCATION

ROAD CLASSIFICATION

- Heavy-duty ————
- Medium-duty ————
- Light-duty ————
- Unimproved dirt - - - - -

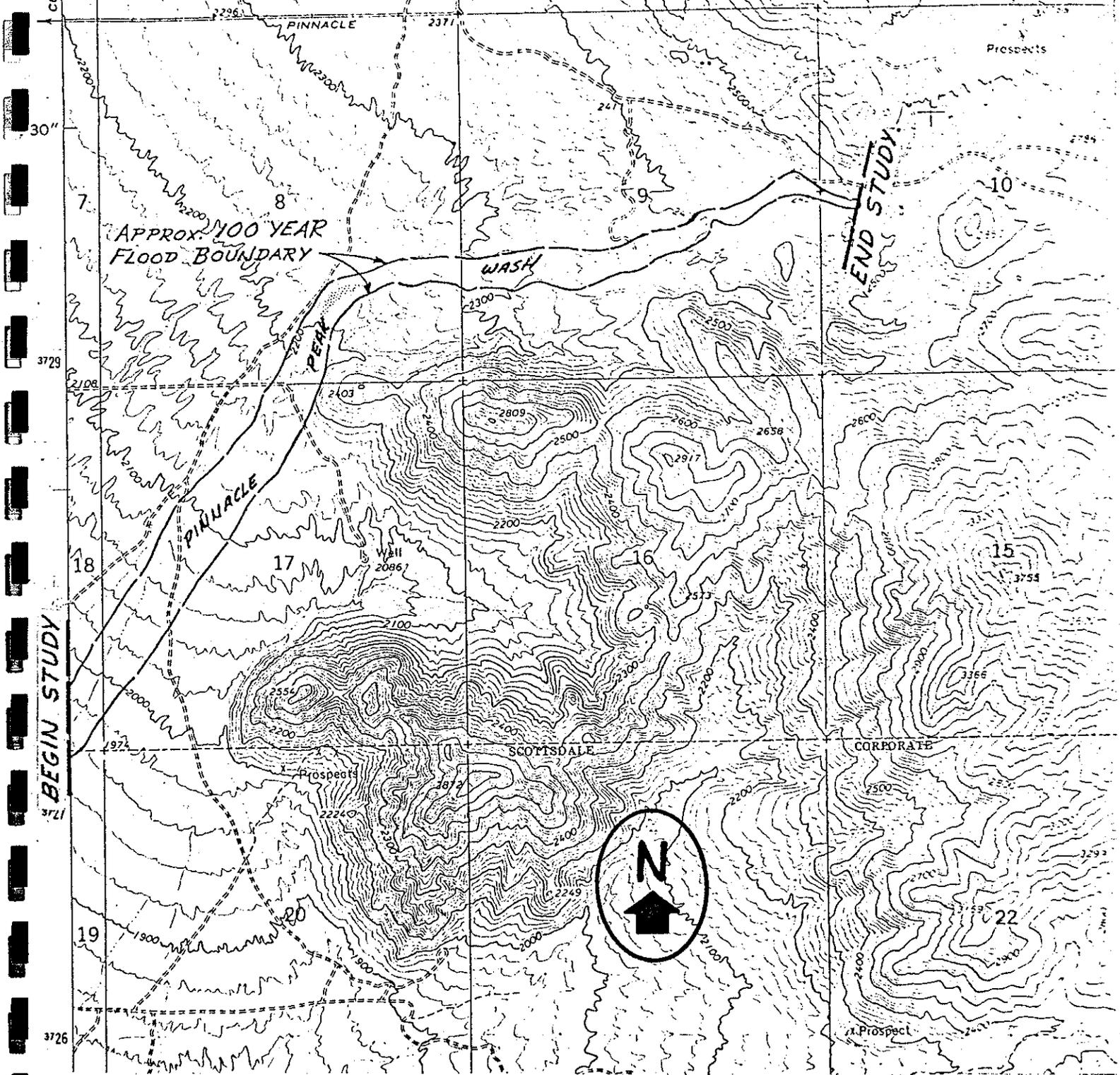
- U. S. Route (square symbol)
- State Route (circle symbol)

APPROXIMATE 100 YEAR FLOOD BOUNDARY

Roosevelt Canal
 FOWLER, ARIZ.
 NW/4 PHOENIX 15' QUADRANGLE
 N3322.5—W11207.5/7.5

SCALE: 1"=2000'
 21

1952
 PHOTOREVISED 1967 AND 1973
 AMS 3550 I NW SERIES V898

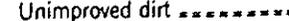


BEGIN STUDY

END STUDY

APPROX. 100 YEAR FLOOD BOUNDARY

ROAD CLASSIFICATION

Light-duty  Unimproved dirt 

 APPROX. 100 YEAR FLOOD BOUNDARY



QUADRANGLE LOCATION

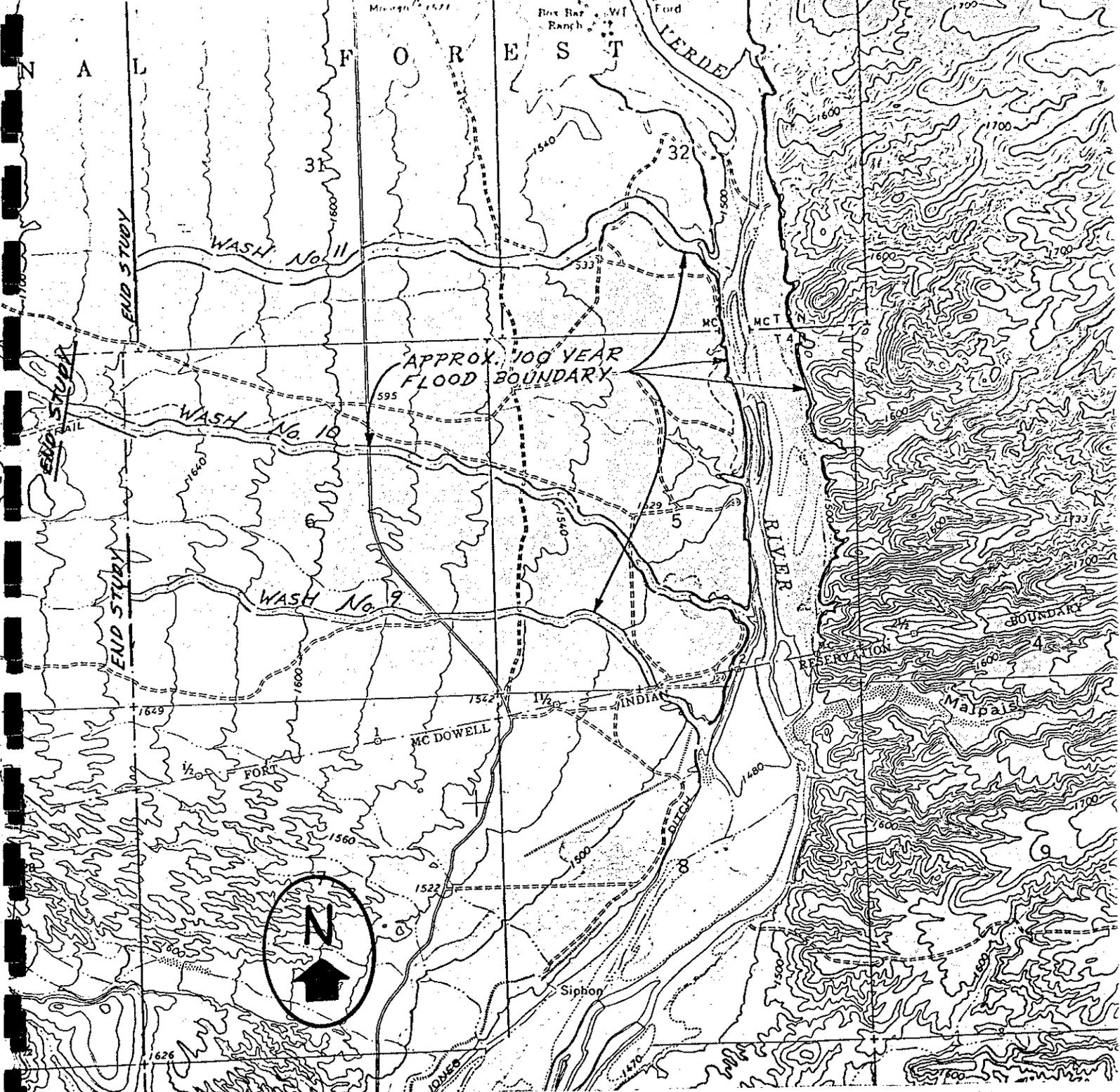
MC DOWELL PEAK, ARIZ.
NE/4 CAMELBACK 15' QUADRANGLE
N3337.5—W11145/7.5

SCALE: 1" = 2000'

1965

AMS 3651 III NE—SERIES V898

PINNACLE PEAK WASH



ROAD CLASSIFICATION

Medium-duty Light-duty

Unimproved dirt

APPROXIMATE 100 YEAR FLOOD BOUNDARY

FORT MC DOWELL, ARIZ

NW/4 FORT MC DOWELL 15' QUADRANGLE
N3337.5—W11137.5/7.5

SCALE: 1" = 2000'

1964

AMS 3651 II NW—SERIES V898

VERDE RIVER
WASH No 9
" " 10
" " 11