Conceptual Report

Cotton Lane Bridge Over Gila River

January 1988

COE & VAN LOO
CONSULTING ENGINEERS INC
ENGINEERING • PLANNING
4550 NORTH 12TH STREET
PHOENIX, ARIZONA 85014
PHONE (602) 264-6831

15. 0-00-9-01/88

Property of
Flood Control District of MC Library
Please Return to
2801 W. Durango
Phoenix, AZ 85009

Conceptual Report

Cotton Lane Bridge Over Gila River

January 1988

Prepared by:

Coe & Van Loo Consulting Engineers, Inc.
4550 North 12th Street
Phoenix, Arizona 85014
264-6831

Registered Professional Engineer (Civil)
CERTIFICATE NO.
10512
ASHOK C.
PATEL
Date Signed 1/15/88
ARIZONA, U.S.A.

FLOOD CONTROL DISTRICT
RECEIVED
FEB 1 1 '88
CH ENG
REMARKS

CVL-4-0093

CVL

YOST AND GARDNER ENGINEERS
2619 NORTH THIRD STREET
PHOENIX, ARIZONA 85004
(602) 264-6424

F. ROBERT STEVENS
WENDELL H. FOLKERTS
GLENN C. BUSH
T. B. GREER
LAURENCE K. PERRON

February 9, 1988

FLOOD CONTROL DISTRICT
RECEIVED
FEB 11 '88
CH ENG | P & PM
DEP | HYDRO
ADMIN | MGT
FINANCE
C & O
ENGR
REMARKS

2/22/88
PAC + Amm

Flood Control District
Maricopa County
3335 W. Durango Street
Phoenix, Arizona 85009

Attn: Greg Rodzenko

Re: Cotton Lane Bridge at Gila River

Dear Sir;

Enclosed herewith is a copy of the conceptual report for the above referenced proposed project. This report was submitted to the City of Goodyear for review.

Since your department is involved in the Gila River floodplain management we request that you please review this report for the City.

FLOOD CONTROL DISTRICT
RECEIVED
FEB 11 '88
CH ENG | P & PM
DEP | HYDRO
ADMIN | MGT
FINANCE
C & O
ENGR
REMARKS

1 SRL
2 GR

Yours truly,

Yost and Gardner Engineers
for the City of Goodyear
By Glenn C. Bush
Glenn C. Bush

COE & VAN LOO

Planning
Civil Engineering
Landscape Architecture
Hydrology
Sanitary Engineering
Surveying

FOUNDERS
P.E. COE, P.E. (1915-1977)
H.W. VAN LOO, P.E.

JOHN B. NELSON, P.E., L.S
RONALD J. MLNARIK, R.L.A.
DAVID L. MAGUIRE, R.L.A.
ASHOK C. PATEL, P.E., L.S.
KARL HIRLINGER, P.E.
RICHARD ALCOCER, L.S.
WILLIAM C. GILLASPY, L.S.
NEWELL ROUNDY, R.L.A.
MICHAEL G. RHODES, P.E.
ROBERT J. DARR, P.E., L.S.
RICHARD R. NORTON, P.E.
PAUL W.R. HOSKIN, P.E.
E.H. McDONIE, P.E.
JACK A. LEAVITT, P.E., L.S.

January 18, 1988

City of Goodyear
119 N. Litchfield Road
Goodyear, AZ 85338

Attn: Mr. Glenn Bush, P.E.

Dear Mr. Bush:

With this letter, we are submitting 5 copies of the conceptual report on Cotton Lane Bridge over Gila River for your review and approval. The purpose of this report is to establish hydraulic parameters on Gila River including floodplain, floodway and the bridge length. We have utilized the best available data to perform the hydraulic analysis. Additionally, all work has been performed in accordance with the Federal Emergency Management Administration (FEMA) Guidelines.

Please submit this report to the Flood Control District of Maricopa County for their review.

Should you have any questions regarding this submittal, please do not hesitate to contact me or Mr. Jack Moody at 264-6831.

Very truly yours,

COE & VAN LOO
Consulting Engineers, Inc.

Ashok C. Patel, P.E. L.S
Senior Vice President

ACP/sc
CVL-2-0515

Enclosures

CONCEPTUAL REPORT
COTTON LANE BRIDGE OVER GILA RIVER

TABLE OF CONTENTS

		Page
	Table of Contents	i
	List of Plates	ii
	Summary of Pertinent Data	iii
1.0	INTRODUCTION	1
2.0	DESIGN BACKGROUND	
	2.1 Background and Design Parameters	1
	2.2 Gila Basin Description	2
	2.3 Historical Flooding	2
	2.4 Flood Elevation Calibration	4
	2.5 Proposed Bridge Crossing	5
	2.6 Modeling Techniques	6
	2.7 Channelization	7
3.0	CONCLUSION/RECOMMENDATIONS	8
4.0	BIBLIOGRAPHY	9

APPENDICES

A. CORPS Hydrology For Flood Insurance Studies
B. February 1980 Flood (Ref. 9)
C. HEC-2 Run - Natural and Floodway Condition
D. HEC-2 Run - Proposed Floodway Condition with Bridge
E. HEC-2 Run - Manning's Roughness Calibration Based On 1980 Historical Flood

LIST OF PLATES

Plate Number	Description
1	Vicinity Map
2	Area of Study Map
3	Bridge Cross-section
4	HEC-2 Cross-sections
5	Backwater profile
6	Gila River Floodplain Delineation

Summary of Pertinent Data
Cotton Lane Crossing
Gila River

Design flow (100-year peak)	250,000 cfs
100-year Maximum Water Surface Elevation, Section 353.2	895.3 MSL
Bridge length, superstructure	3240 ft
Number of Spans	27
Pier Span	120 ft
Pier Type	5-foot diameter Circular Piers
Minimum Low Chord @ Abutments	899 MSL
Recommended Minimum Approach Elevation	
North Approach	897 MSL
South Approach	896 MSL

1.0 INTRODUCTION

This report is a summary of the hydraulic analysis for the proposed Cotton Lane Bridge Crossing over the Gila River, a part of the Estrella Improvement Project. This analysis includes detailed backwater analysis of approximately 2.3 miles of Gila River to substantiate that the bridge meets Federal Emergency Management Agency (FEMA) Guidelines.

2.0 DESIGN BACKGROUND

2.1 Background and Design Parameters

The hydraulic analysis utilized topographical data that was compiled from aerial photographs taken in 1984. Topographic mapping at a scale of 1-inch equal to 400-feet, with 4-foot contour intervals along with digitized cross-sections were furnished by the Flood Control District of Maricopa County (FCDMC). This data was used as the basis for the determination of hydraulic cross-sections to analyze backwater depth, velocities, and other hydraulic parameters under the natural as well as proposed bridge conditions, including the floodway. The bridge was sized per FEMA Guidelines such that its backwater effects would not create a raise in the water surface greater than one foot from the natural condition. This was demonstrated by initially creating a HEC-2 model of the natural run. A floodway model was then created from the natural run, such that the difference in water surface elevations were not greater than one foot. A bridge was then modeled to extend across the floodway, and coded in the special bridge format. The special bridge run demonstrates that with the bridge losses, the rise in water surface is still less

than one foot from the natural condition. The resulting U.S. Army Corps of Engineers (CORPS) HEC-2 analyses can be seen in Appendices C and D. The hydraulic analysis extends about 6000 feet in both the upstream and downstream directions from the proposed site of the bridge.

For the hydraulic analysis, a model of the bridge was based on a conceptual design. Bridge overtopping data (as provided on the BT cards) has been based on conceptual bridge and approach designs.

2.2 Gila Basin Description

The Gila River upstream of the site extends 450 miles into New Mexico, and encompasses nearly all the southern portion of Arizona. The Salt River, the largest tributary, joins the Gila seven miles upstream of the proposed site.

Based upon data taken approximately 25 miles downstream of the subject site (below Gillespie Dam), the greatest peak discharge of modern record was 178,000 cfs in February of 1980. (Ref. 9, Appendix B). The estimated 100-year event as determined by the U.S. Army Corps of Engineers is 250,000 cfs (Appendix A). This value was used in the determination of the bridge length included in this report.

2.3 Historical Flooding

In recent history, three major floods have occured on Gila River. The following is a brief summary of these flooding events:

Feb-March 1978 Flood (Ref 7):

The storms of February 27th - March 6th, 1978 produced heavy runoff in Gila River and its tributary, Salt River. The runoff resulted from heavy precipitation in Arizona and was generally caused by saturated ground condition, an ample snowpack, and rain in the upper watershed. Consequently, large volumes of flow were released from the Verde and Salt River storage reservoirs. The USGS recorded an estimated 92,900 cfs flow on Gila River at Gillespie Dam.

Dec 16-20, 1978 Flood (Ref 8):

This event occured generally due to the same reasons as described above. The Gila River Flooding was primarily caused by the large flood releases from the storage reservoirs on the Salt, Verde, and Agua Fria Rivers. An estimated 122,000 cfs was recorded on Gila River at Gillespie Dam.

Feb 13-22 1980 Flood (Ref. 9):

Runoff from the storms of February 13-22, 1980 was especially heavy in Central Arizona, and the greatest discharges of modern record occured on the Salt, Verde, Agua Fria, and Gila Rivers in the metropolitan Phoenix area.

Since most of the reservoirs on the Salt, Verde, and Agua Fria Rivers were full or virtually full at the beginning of February, 1980, almost all waters coming into these reservoirs during the month was necessarily released downstream. Heavy

precipitation, lowered infiltration rates, high snow levels and warm rains causing excessive snow melts were the reasons for this flood. Large releases from storage reservoirs contributed to estimated 178,000 cfs flow on Gila River at Gillespie Dam. Appendix B, indicates the extent of flooding in the vicinity of proposed Cotton Lane Bridge.

2.4 Flood Elevation Calibration:

The FEMA Guidelines suggest that if historical data is available, models should be calibrated using estimated profiles or measured highwater marks whenever possible. By calibration technique, a better handle on roughness coefficients (manning's "n") can be made.

For the calibration purposes the following available data was utilized at the subject study reach:

1. Historical flood value : 180,000 cfs
2. River cross-sections based on FCDMC topographic map. The mapping was performed subsequent to the 1980 flooding.
3. Estimated highwaters based on flood photographs in conjunction with estimated ground elevations in overbank areas.

Due to complexity involved in modeling, a more generalized "n" values were selected for the channel, and right and left overbanks and use of an NH card was avoided. The starting water surface was used by slope area method. An option was selected in HEC-2 modeling which computes "n" valves based on the known highwater and discharge. The results of calibration are included in Appendix E.

The following conclusions are drawn from the calibration: The calibrated "n" values appear to be very low as listed below:

	Range of "n"
Channel	0.017 to 0.024
Left & right overbanks	0.030 to 0.041

It is possible that due to river aggradation/degradation processes, the river bottom during the flood stage could have been much lower than that shown on the topographic map.

However, based on the available historical date, it is reasonable to conclude that the roughness coefficients "n" would be even lower than the calibrated "n" values at a higher flood stage (100-year storm).

It is recommended that somewhat conservative "n" values of 0.032 and 0.055 for the channel and overbanks be selected, respectively.

This will help in establishing a "reasonably expected floodplain" resulting from a complex watershed with series of controlled reservoirs.

2.5 Proposed Bridge Crossing

The proposed crossing is located approximately 3 miles downstream of the existing Bullard Avenue Bridge and approximately 4 miles upstream of Tuthill bridge. Presently, a bridge is being constructed 2 miles upstream at the Reems Road alignment. The Bullard Avenue bridge, constructed in 1982, spans

1808 feet, and was designed for flows of 250,000 cfs for the piers and 200,000 cfs for the abutments. The Tuthill bridge, constructed in 1980, spans 1770 feet, and was designed for a flow of 250,000 cfs. The Reems Road bridge that is presently being constructed has a design span of 2170 feet, and was designed for a flow of 250,000 cfs.

The proposed bridge will be constructed of precast, prestressed concrete beams designed under ASSHTO HS20-44 loading conditions, over dual drilled pier supports. These supports may extend to bedrock, should it be found within an economically feasible distance from the surface. 26 pairs of piers are proposed, approximately 120 feet apart for a total span width of 3240 feet (See Plate 4). The piers will be laterally spaced approximately 22 feet apart. A typical cross section can be seen on Plate 3 of this report.

The deck consists of cast-in-place concrete, with a dual lane, 36-foot roadway. A 4-foot pedestrian walkway is proposed, bringing the overall width (including concrete barrier guardrails) to 44-feet.

2.6 Modeling Techniques

Three profiles were modeled for the 100-year storm at the proposed bridge site:

1. Natural condition (Appendix C)
2. Floodway (Appendix C)
3. Floodway with bridge (Appendix D)

In the natural condition model, ineffective flow areas were blocked out using ET cards. In some cases, the flow area was

considered ineffective due to dikes that extended into the flood plain and are above the water surface. At these locations, the floodplain was encroached upstream and downstream from the dike per standard practices. The floodplain was then extended to where the computed water surface intersected with the natural ground elevation.

The floodway profile was generated from the natural condition using method four encroachments. The generated encroachment stations were slightly modified to smooth out the floodway line, and used in a method one encroachment run. The natural and floodway profiles were made in the same computer run (Appendix C).

The bridge at Cotton Lane was modeled using the special Bridge technique on the floodway run. A new section was added along the Cotton Lane alignment to better model the condition imposed by the bridge alignment including the skew condition. This section was used for both the upstream and downstream face of the bridge (Section 353.0 & 353.2). Section 354.0 was removed from this run. The Special Bridge trapezoid assumed 3:1 side slopes, a 3185 foot bottom width and a bottom elevation of 868.1 based on best fit geometry of the cross-section.

2.7 Channelization

For this bridge, there is no channelization planned. However, confinement of the Gila River will occur through the diversion of all flows under the bridge. Two pair of upstream and downstream spur dikes will be used for this purpose.

3.0 CONCLUSION/RECOMMENDATIONS

The HEC-2 analysis performed in conjunction with the bridge design was in accordance with FEMA Guidelines. It is recommended that the analysis presented in this report be reviewed and approved by both the City of Goodyear and FCDMC.

4.0 BIBLIOGRAPHY

1) Cooper Aerial Survey, Inc., Aerial photographs, May 1986.

2) Los Angeles County Flood Control District, Hydraulic Design Manual, August 1973.

3) Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study-Guidelines and Specifications for Study Contractors, Technical Publication Number 37, September 1985.

4) Maricopa County Flood Control District, topography and digitized cross sections for HEC-2 Analysis.

5) U.S. Army Corps of Engineers, Hydrologic Design Center, Water Surface Profiles, "HEC-2 User's Manual", September 1982.

6) U.S. Army Corps of Engineers, Hydrology for Flood Insurance Studies, Maricopa Streams, Arizona, June 1983, revised May 1985 (Appendix A).

7) U.S. Army Corps of Engineers, Los Angles District, Flood Damage Report, 28 February-6 March 1978 on the storm and floods in Maricopa County, Arizona, February 1978.

8) U.S. Army Corps of Engineers, Los Angeles District, Flood Damage Report Phoenix Metropolitan Area, December 1978 Flood, November 1979.

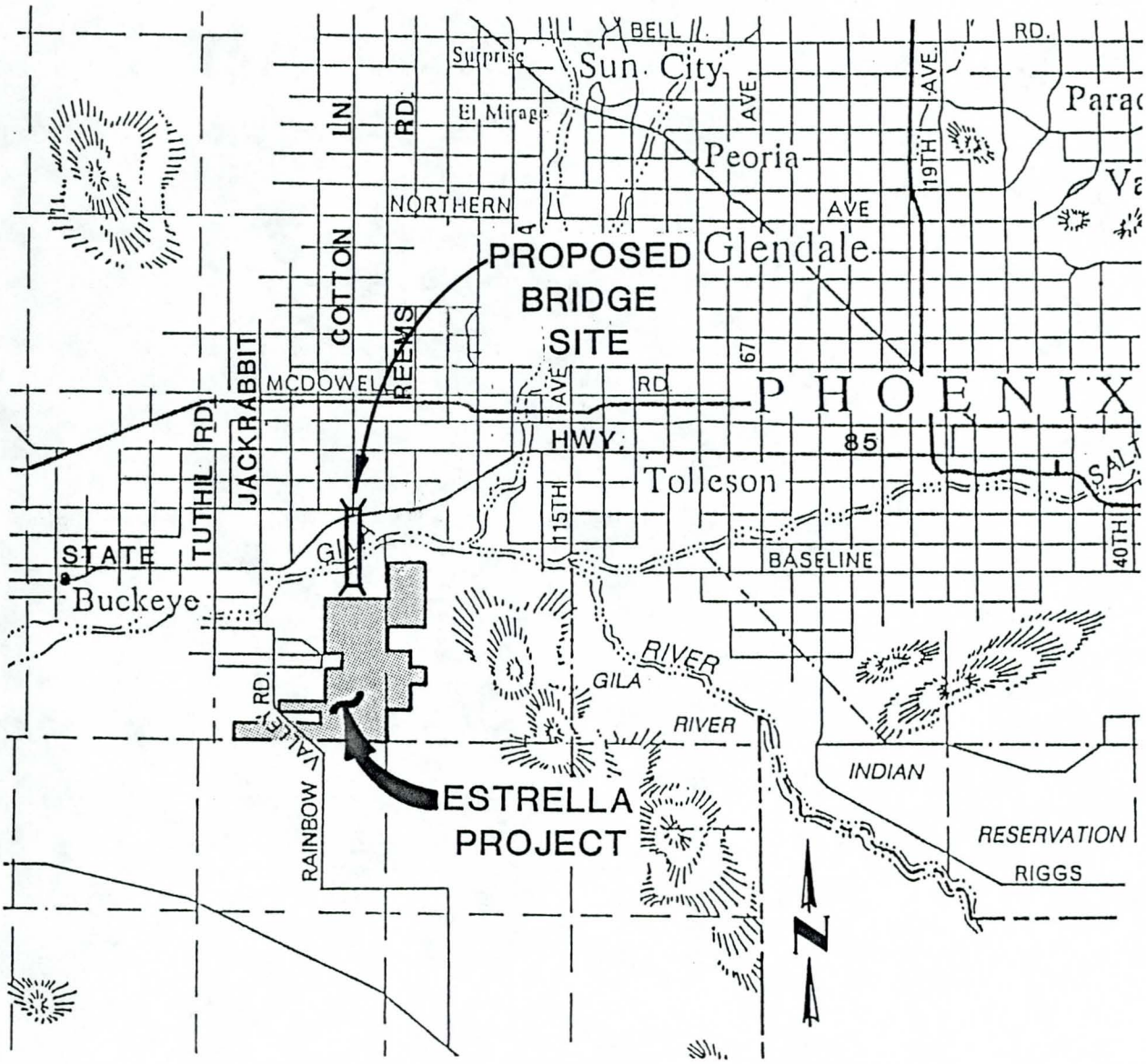
9) U.S. Army Corps of Engineers, Los Angeles District, Phoenix Flood Damage Survey, February 1980, April 1981.

10) U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Maricopa County, Arizona and Unincorporated Areas, May 1979.

11) U.S. Department of Transportation, Federal Highway Administration, Highways in the River Environment-Hydrological and Environmental Design Considerations, May 1975.

12) U.S. Department of Transportation, Federal Highway Administration, Hydraulics of Bridge Waterways, 1973.

PLATES



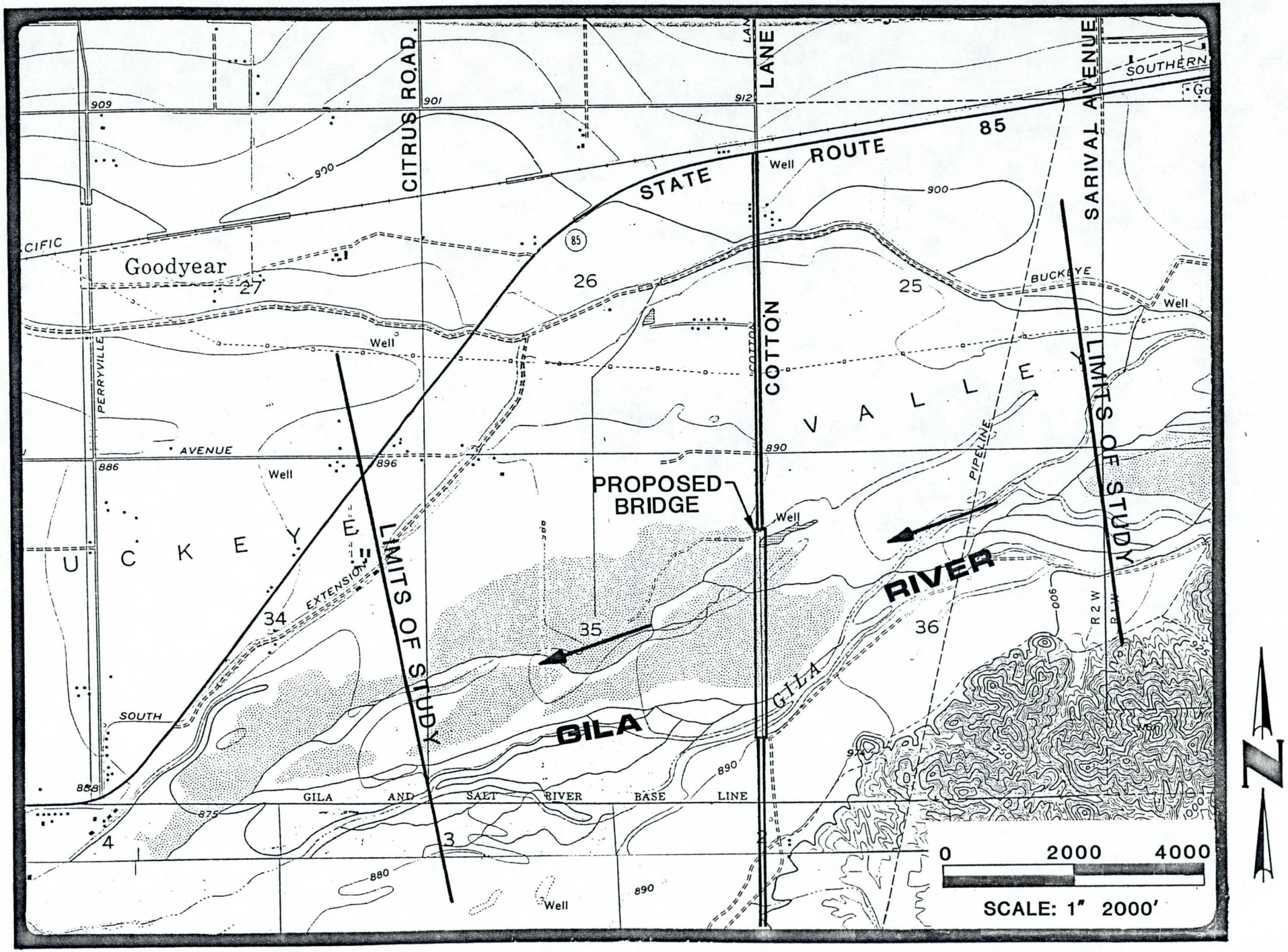
VICINITY MAP

COE & VAN LOO

Planning
Civil Engineering
Landscape Architecture
Hydrology
Sanitary Engineering
Surveying
Highway Engineering

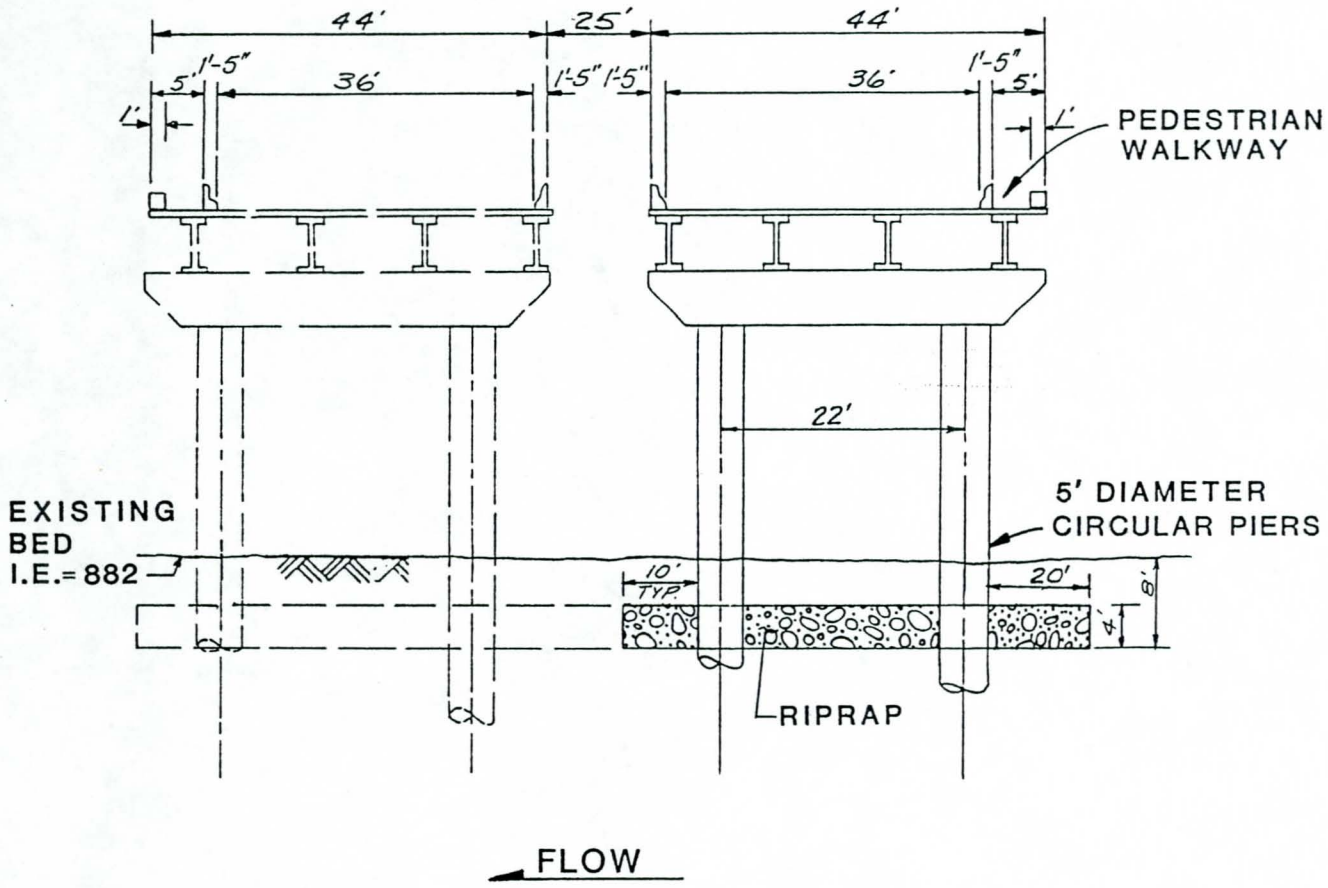
PLATE

1



AREA OF STUDY MAP

PLATE 2



PHASE II

2 LANES OF TRAFFIC/
ONEWAY ON EACH BRIDGE

PHASE I

2-WAY TRAFFIC
ON EAST BRIDGE

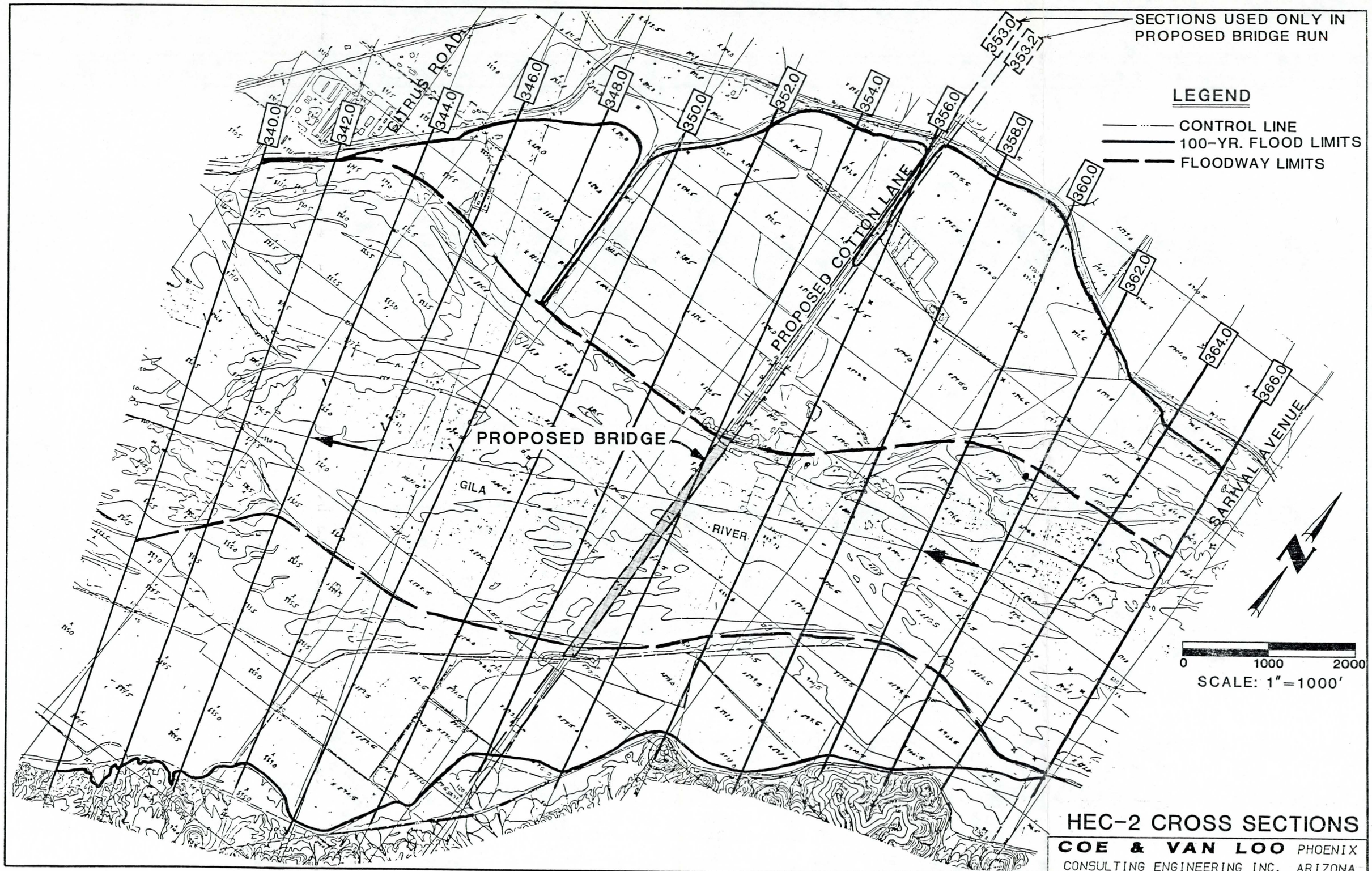
CROSS SECTION
GILA RIVER BRIDGE
COTTON LANE

COE & VAN LOO

Planning
Civil Engineering
Landscape Architecture
Hydrology
Sanitary Engineering
Surveying
Highway Engineering

PLATE

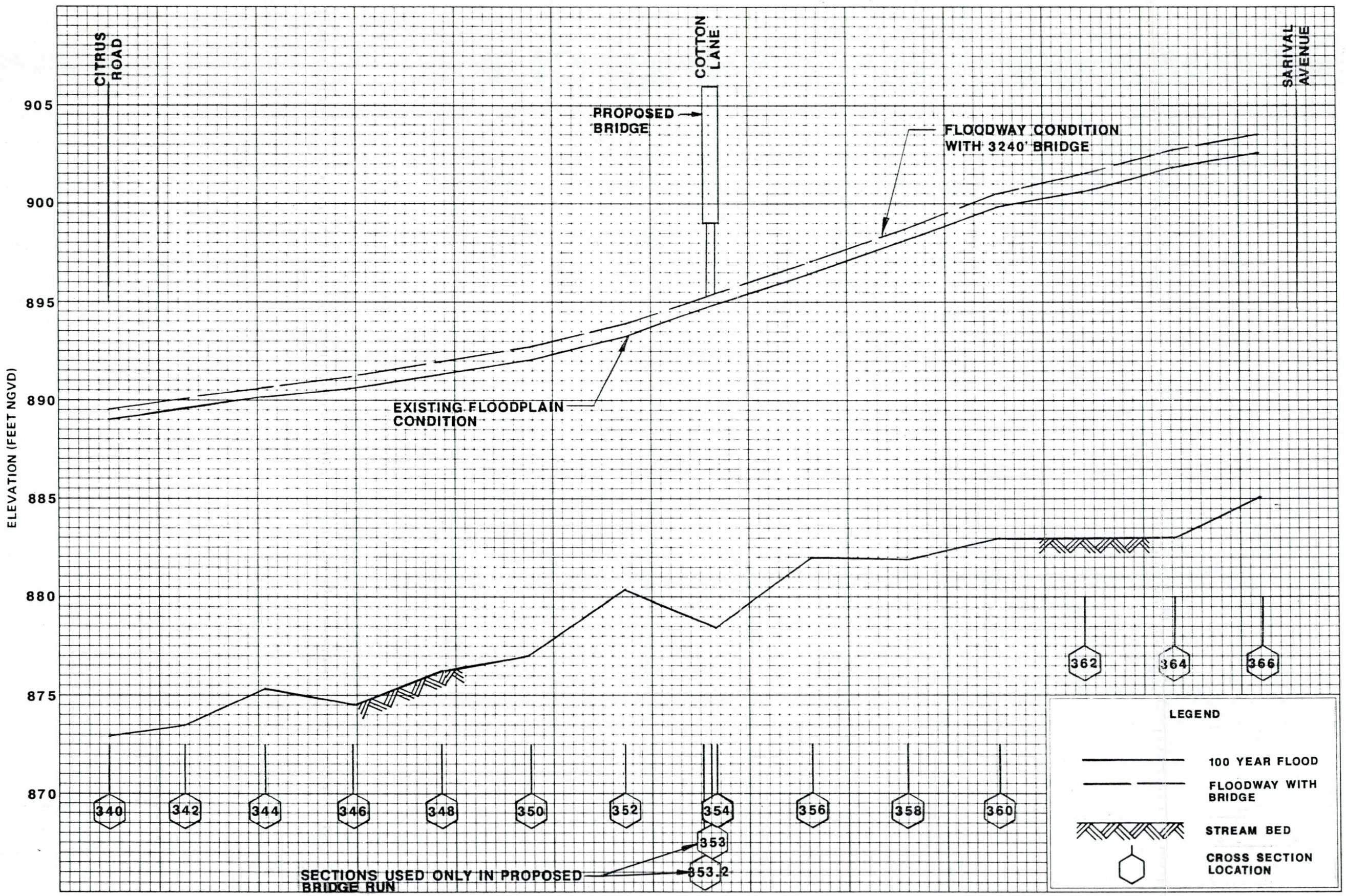
3



HEC-2 CROSS SECTIONS

COE & VAN LOO CONSULTING ENGINEERING INC. PHOENIX ARIZONA

PLATE 4



FLOOD PROFILES

GILA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
FLOOD PLAIN STUDY FOR GILA RIVER
AT COTTON LANE BRIDGE SITE
HEC-2 ANALYSIS EXISTING COND. &
FLOODWAY CONDITION WITH BRIDGE

PLATE 5

APPENDIX A

CORPS HYDROLOGY FOR

FLOOD INSURANCE STUDY

— SECTION —
PRELIMINARY
By..... Date 5-31-85
SUBJECT TO REVISION (R)

HYDROLOGY FOR FLOOD INSURANCE STUDIES
MARICOPA COUNTY STREAMS, ARIZONA
JUNE 1983
REVISED MAY 1985

1. References.

a. "Gila River Basin, New River and Phoenix City Streams, Arizona, Design Memorandum No. 2, Hydrology, Part 1", October 1974.

b. "Gila River Basin, Phoenix, Arizona and Vicinity (including New River), Design Memorandum No. 2, Hydrology, Part 2", April 1982.

c. "Gila River Basin, New River and Phoenix City Streams, Arizona, Adobe Dam (including Skunk Creek to the Arizona Canal), Design Memorandum No. 3, General Design Memorandum-Phase II, Project Design-Part 2", April 1979.

d. "Gila River and Tributaries, Central Arizona Water Control Study, Hydrology", May 1982.

(R) e. "Gila River Basin, Phoenix, Arizona and Vicinity (including New River), New River Dam (including New River to Skunk Creek), Design Memorandum No. 3, General Design Memorandum - Phase II, Project Design - Part 3", November 1982.

2. General.

a. Hydrologic studies as described in this report were made to determine the present condition SPF, 500-year, 100-year, 50-year, and 10-year flood peak discharges for flood insurance studies for selected streams in Maricopa County, Arizona. Drainage boundaries and concentration point locations for (R) the study streams--Scatter Wash, Skunk Creek, the New River, the Agua Fria River, the Salt River, and the Gila River—are shown on plates 1 through 3. Schematic flow diagrams are shown on plates 4 and 5. Peak discharges are (R) given in table 1. The 1985 revision to this report incorporates the New River (R) in the scope of work, but does not update any values on the other streams.

b. The required peak discharges were taken, where appropriate, directly (R) from references 1b through 1e, as noted in table 1. Where revisions or additional concentration points were required, the basic criteria and procedures discussed in the references were used. A brief description of the study area and procedures used to develop the peak discharges given in table 1 follows.

3. Physiography and Topography. The study area is located in the Phoenix region. The mountains above about 3000 feet are characterized by rugged terrain and steep gradients, while the lower areas consist of fairly flat valley land. A brief description of the physical characteristics of the major watercourses in the study area follows.

TABLE 1 (Cont'd)

PRESENT CONDITION
PEAK DISCHARGES

	Concentration Point	Location	Drainage Area (mi^2)	10-Year Flood (ft^3/s)	50-Year Flood (ft^3/s)	100-Year Flood (ft^3/s)	500-Year Flood (ft^3/s)	SPF (ft^3/s)
(R)		SALT RIVER(6):						
	109	At Gilbert Rd.	12,593	100,000	170,000	230,000	345,000	292,000
	110	At Tempe Bridge	12,783	93,000	160,000	215,000	330,000	289,000
	111	At Central Ave.	12,831	91,000	155,000	200,000	325,000	285,000
	112	At 67th Ave.	12,913	90,000	150,000	190,000	315,000	283,000
	113	Above Gila River	12,962	85,000	145,000	185,000	310,000	281,000
(R)		GILA RIVER(6)						
	1215	Below Agua Fria River	41,902	95,000	200,000	250,000	360,000	312,000

(1) Discharges taken from Ref. 1c.

(R) (2) Revision due to typographical error.

(R) (3) Flows determined in this revised report.

(R) (4) Discharges taken from Ref. 1e.

(R) (5) 50-Year through Standard Project Flood Peak Discharges taken from Ref. 1b; 10-Year Flood developed in this report.

(R) (6) Discharges taken from Ref. 1d.

APPENDIX B

FEBRUARY 1980 FLOOD

EXCERPT FROM

PHOENIX FLOOD DAMAGE SURVEY, FEBRUARY 1980
(Reference 9)

U.S. ARMY CORPS OF ENGINEERS

LOS ANGELES DISTRICT

FLOOD DAMAGE SURVEY

PHOENIX, ARIZONA

FEBRUARY 1980

April 1981

TABLE 2

PEAK DISCHARGES FOR FEBRUARY 1980

(Provisional Data from U.S. Geological Survey as of March 1981, Subject to Revision)

Station Gate	Stream-Gaging Stations	Peak of record through 1-80 Date	Peak of record through 1-80 Discharge (ft^3/s)	Drainage area (mi^2)	Date	Time	Gage Height (ft)	Discharge (ft^3/s)
09390500	Show Low Creek near Lakeside	12-18-78	5,550	68.6	2-15-80	2100	5.90	1,900
09424470	Kirkland Creek near Kirkland	3-1-78	7,890	109	2-19-80	2130	9.20	8,440*
09424900	Santa Maria River near Bagdad	3-1-78	24,600	1,210	2-15-80		6.84	18,500
09479500	Gila River near Laveen	1-2-41	11,900	20,615	2-23-80	0830	7.49	514
09489000	Santa Cruz River near Laveen	9-29-62	9,200	533	2-20-80	0430	8.36	115
09489100	Black River near Maverick	12-18-78	14,400	315	2-15-80		5.72	3,400
09489700	Big Bonito Creek near Fort Apache	12-18-78	4,510	119	2-15-80		8.19	3,360
09490500	Black River near Fort Apache (100 yr) 58,000, (50 yr) 35,000	12-18-78	40,200	1,232	2-15-80		24.00	40,000
09492400	East Fork White River nr Ft. Apache	12-18-78	751	38.8	2-15-80		2.65	280
09494000	White River near Ft. Apache	12-18-78	14,600	632	2-15-80	1900	12.24	8,400
09496500	Carrizo Creek near Show Low	12-18-78	19,400[a]	439	2-14-80	1815	7.26	4,300
09497500	Salt River near Chrysotile	12-18-78	70,400[b]	2,849	2-15-80	2000	16.2	60,000

PEAK DISCHARGES FOR FEBRUARY 1980 (Continued)

	Stream-Gaging Stations	Peak of record through 1-80 Date	Peak of record through 1-80 Discharge	Drainage area (mi^2)	Date	Time	Ght (ft)	Discharge (ft^3/s)
09497800	Cibecue Creek near Chrysotile	9- 2-77	22,200	295	2-20-80		11.67	10,600
09497980	Cherry Creek near Globe	1-17-79	15,700	200	2-15-80		13.8	8,100
09498500	Salt River near Roosevelt	3-14-41	117,000	4,306	2-15-80		28.2	85,000
09498870	Rye Creek near Gisela	9- 5-70	44,400	122	2-19-80	2300	5.75	4,550
09499000	Tonto Creek above Gun Creek, near Roosevelt	1-17-79	55,800	675	2-15-80	1500	17.00	55,800[c]
09502000	Salt River below Stewart Mountain Dam	1-18-79	65,000	6,232	2-16-80	2000	25.24	64,000
09504500	Oak Creek near Cornville	12-19-78	29,000	357	2-20-80			30,000*
09505550	Verde River below Camp Verde	12-19-78	47,000	4,670	2-15-80	0400	19.3	50,000*
09507980	East Verde River near Childs	9- 5-70	23,500	328	2-20-80	0130	15.1	14,100
09508000	Verde River below East Verde River, near Childs	3- 3-78	110,000	5,610	2-15-80	1400	25.26	74,600
09508300	Wet Bottom Creek near Childs	3- 1-78	6,660	36.4	2-19-80	2130	16.0	6,830*
09508500	Verde River below Tangle Creek, above Horsehoe Dam	12-19-78	94,000	5,872	2-15-80	1530	21.41	94,800*
09510000	Verde River below Bartlett Dam	3- 2-78	101,000[d]	6,185	2-15-80	1830	25.5	104,000

PEAK DISCHARGES FOR FEBRUARY 1980 (Continued)

	Stream-Gaging Stations	Peak of record through 1-80 Date	Peak of record through 1-80 Discharge	Drainage area (mi^2)	Date	Time	Ght (ft)	Discharge (ft^3/s)
09510200	Sycamore Creek near Fort McDowell	9- 5-70	24,200	164	2-15-80	1245	11.42	10,400
09511300	Verde River near Scottsdale	3- 2-78	96,000	6,600				
09512100	Indian Bend Wash at Scottsdale	6-22-72	21,000[e]	62[e]	2-20-80	0200	1.38	103
09512170	Salt River at Jointhead Dam, Phoenix	12-19-78	140,000	13,500	2-16-80	1200	9.30	170,000*
09512400	Cave Creek at Phoenix	12-19-67	4,080	252	2-19-80	2100	4.46	326
09512500	Agua Fria River near Mayer	9- 5-70	19,800	588	2-19-80	2130	15.76	33,100*
09512800	Agua Fria River near Rock Springs	12-18-78	52,800	1,130	2-19-80	2400	28.15	59,500*
09513650	Agua Fria River at Grand Ave., at El Mirage	12-19-78	58,400	1,637[f]	2-20-80		10.14	41,800
09513780	New River near Rock Springs	9- 5-70	18,600	67.3	2-19-80	2000	10.26	16,300
09513800	New River at New River	9- 5-70	19,500	83.3	2-19-80	2030	11.50	15,000
09513835	New River at Bell Road, near Peoria	12-19-67	14,600	187	2-20-80	0200	9.4	9,400
09513860	Skunk Creek near Pheonix	8- 1-64	11,500	64.6	2-20-80	0200	7.6	1,210
09513970	Agua Fria River at Avondale	12-19-78	29,300	2,013[f]	2-20-80	0800	6.77	44,200*
09515500	Hassayampa River at Box Damsite, near Wickenburg	9- 5-70	58,000	417	2-19-80	2300	18.9	24,900

PEAK DISCHARGES FOR FEBRUARY 1980 (Continued)

	Stream-Gaging Stations	Peak of record through 1-80 Date	Peak of record through 1-80 Discharge	Drainage area (mi^2)	Date	Time	Ght (ft)	Discharge (ft^3/s)
09517000	Hassayampa River near Arlington	9- 5-70	39,000	1,470	2-20-80	0600	4.9	9,500
09519502	Gila River below Gillespie Dam	12-20-78	125,000[g]	49,650	2-16-80	1800	18.81	178,000*

* Indicates new peak discharge of record.

a Prior to modern record: about 23,000 ft^3/s on 12-30-65.

b Prior to modern record: 74,000 ft^3/s before 1924, believed to be 1-19-16.

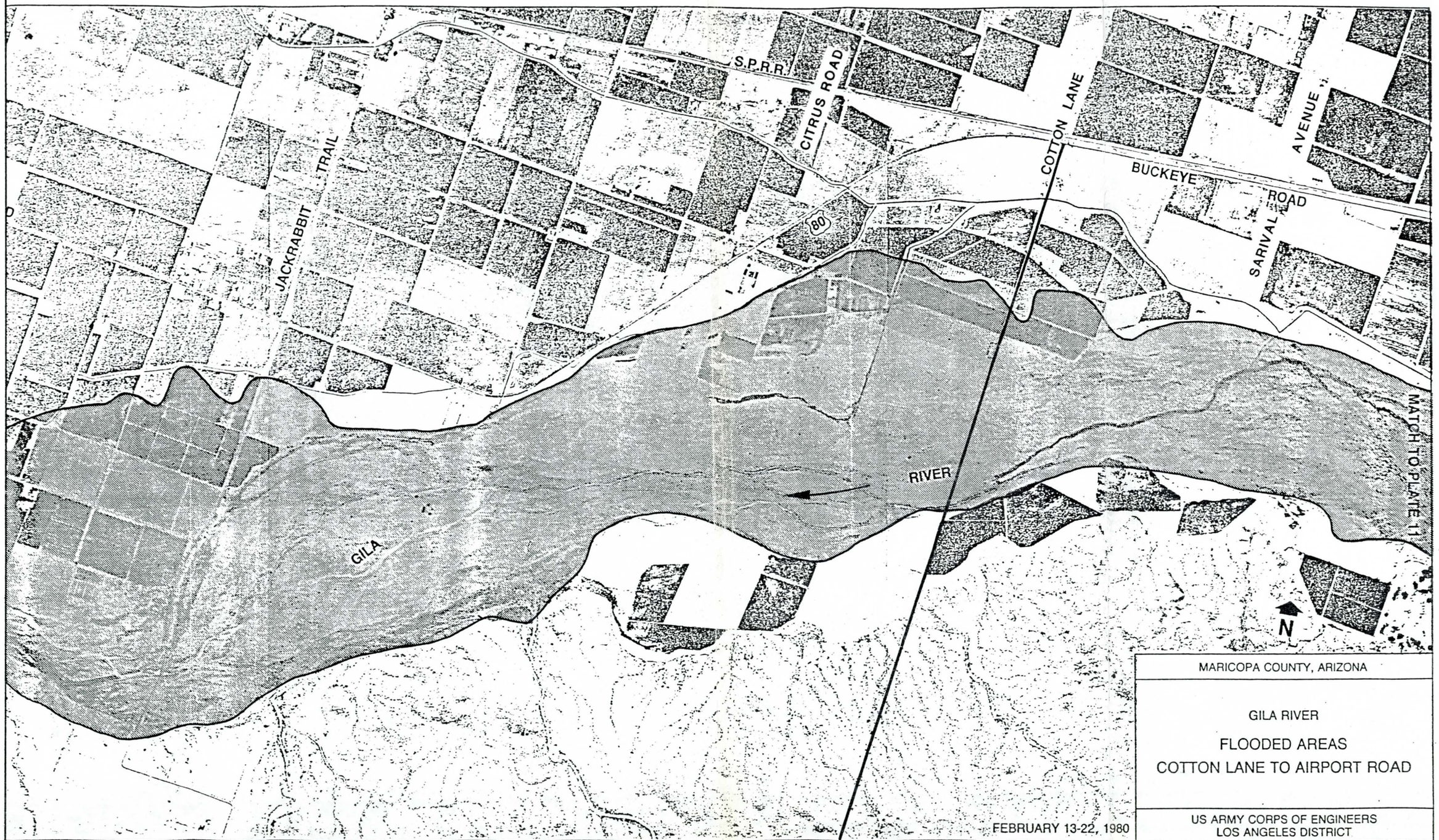
c Ties previous peak discharge of record.

d Prior to modern record: probably more than 150,000 ft^3/s on 2-24-1891.

e Drainage area prior to October 1975 was 139 mi^2. Upper portion of basin was cut off in October 1975 by construction of diversion canal and detention dike.

f Includes 1,459 mi^2 above Lake Pleasant.

g Prior to modern record: an estimated 250,000 ft^3/s in February 1891.



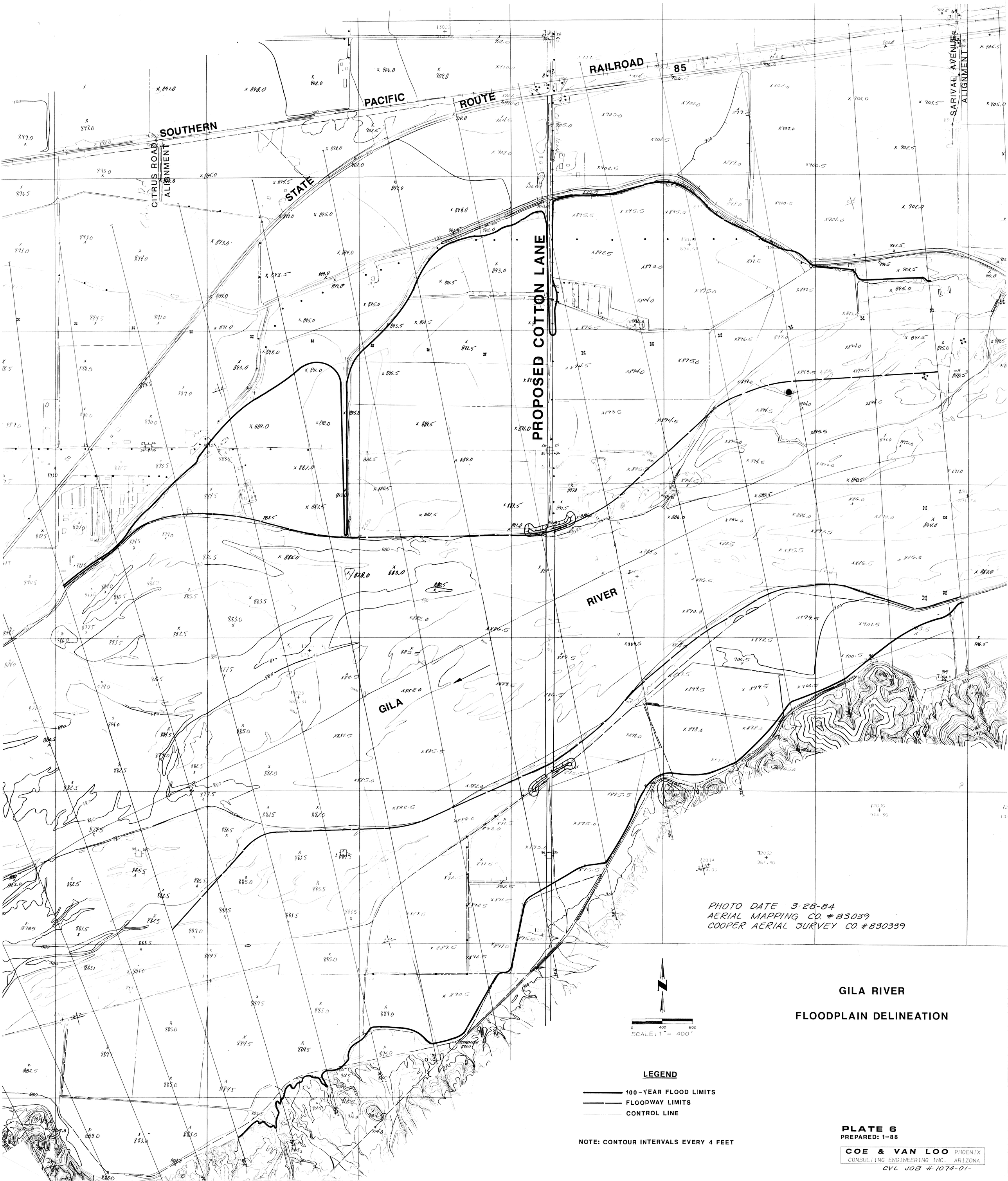
MARICOPA COUNTY, ARIZONA

GILA RIVER

FLOODED AREAS

COTTON LANE TO AIRPORT ROAD

US ARMY CORPS OF ENGINEERS
LOS ANGELES DISTRICT



GILA RIVER

FLOODPLAIN DELINEATION

PLATE 6
PREPARED: 1-88

COE & VAN LOO CONSULTING ENGINEERING INC. PHOENIX ARIZONA

CVL JOB #1074-01-

APPENDIX C

HEC-2 RUN

NATURAL AND FLOODWAY CONDITIONS

```
*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE FRI, JAN 15 1988 TIME 09:34:31          *
*****************************************************
```

```
*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616              *
*  (916) 440-2105 (FTS) 448-2105        *
*****************************************
```

INPUT FILE - GILA.COTTON

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

THIS RUN EXECUTED FRI, JAN 15 1988 09:34:33

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*************************************************


C
T1       1-5-87     ESTRELLA - ACRED
T2       COTTON LANE BRIDGE ANALYSIS
T3       GILA RIVER EXISTING CONDITIONS

X1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     G         WSEL      FQ

      0.        2.        0.        0.  0.000744      0.00      0.0       0.   889.100    0.000

X2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE

    1.000     0.000     0.000     0.000     0.000     0.000    -1.000     0.000     0.000    15.000

X3  VARIABLE CODES FOR SUMMARY PRINTOUT

   38.000    43.000     1.000     8.000    42.000     3.000     2.000    26.000     5.000    39.000


   53.000     4.000    54.000     0.000   200.000     0.000     0.000     0.000     0.000     0.000


NC     0.055     0.055     0.032     0.100     0.300     0.000     0.000     0.000     0.000     0.000
GT     2.000 250000.000 250000.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET   340.000     9.100     7.100     0.000     0.000     0.000  8407.000 13124.000  5186.000 13145.000
          FIRST RUN NATURAL, SECOND RUN FLOODWAY
          REACH LENGTHS ON X1 CARDS HAVE BEEN UPDATED 12-87.
          ALL SECTIONS LOOKING DOWNSTREAM
          CHANNEL STATIONS ARE FROM LEFT TO RIGHT WITH CONTROL LINE STATION
          10,000.
          THE 100-YEAR FLOOD PEAK (250,000) IS BASED ON THE ARMY CORPS OF
          ENGINEERS (CORPS) HYDROLOGY, MAY 1985.
          TOPO PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC).
          PHOTO DATE 3-28-84.   AERIAL MAPPING CO. #83039
          COOPER AERIAL SURVEY CO. #830339.
          CROSS SECTIONS DIGITIZED FROM AERIAL PHOTOS FURNISHED BY FCDMC.
X1   340.000    95.000  8408.000 13123.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   906.900  5135.000   906.800  5186.000   897.100  5264.000   896.100  5336.000   889.500  5369.000
GR   889.300  5510.000   885.300  5558.000   883.100  5621.000   887.300  5632.000   887.300  5651.000
GR   882.600  5668.000   882.600  5922.000   885.500  5930.000   885.300  5965.000   885.600  6850.000
GR   885.800  7030.000   886.300  7600.000   887.800  7662.000   888.100  7947.000   883.300  8013.000
GR   883.300  8039.000   886.300  8070.000   888.300  8220.000   888.300  8408.000   882.500  8446.000
GR   881.500  8532.000   879.500  8548.000   881.000  8624.000   882.100  8660.000   878.600  8729.000
GR   882.100  8810.000   883.500  9117.000   880.600  9153.000   883.600  9200.000   880.600  9219.000
GR   884.000  9299.000   883.800  9500.000   881.300  9542.000   882.600  9678.000   880.800  9763.000
GR   874.000  9784.000   877.300  9882.000   881.300 10000.000   879.100 10128.000   879.800 10342.000
GR   880.300 10631.000   881.800 10962.000   882.100 11320.000   882.800 11475.000   880.600 11627.000
```

GR	874.800	11649.000	874.300	11876.000	875.600	11933.000	875.400	12007.000	878.800	12037.000
GR	880.100	12096.000	883.300	12105.000	883.300	12275.000	881.300	12306.000	876.900	12323.000
GR	878.900	12542.000	874.800	12616.000	876.400	12639.000	875.400	12743.000	874.100	12822.000
GR	875.300	12832.000	874.400	12982.000	872.900	13001.000	894.700	13123.000	896.200	13145.000
GR	891.600	13158.000	891.600	13173.000	892.600	13180.000	893.100	13446.000	891.600	13462.000
GR	891.600	13595.000	892.900	13614.000	893.200	13628.000	892.600	14085.000	895.200	14131.000
GR	895.100	14161.000	891.100	14190.000	892.100	14216.000	892.100	14720.000	891.600	14926.000
GR	891.600	14980.000	889.100	14994.000	889.100	15736.000	889.100	16647.000	889.700	17289.000
GR	896.600	17309.000	896.600	17335.000	892.900	17340.000	892.600	17370.000	896.200	17377.000
ET	342.000	9.100	7.100	0.000	0.000	0.000	8707.000	13272.000	5608.000	13378.000
>1	342.000	94.000	8708.000	13271.000	740.000	830.000	780.000	0.000	0.000	0.000
GR	896.100	5334.000	899.600	5422.000	893.600	5471.000	897.400	5496.000	891.600	5521.000
GR	896.100	5544.000	896.900	5608.000	891.600	5647.000	887.800	5806.000	886.100	5814.000
GR	886.500	5921.000	887.300	5939.000	884.100	5953.000	884.500	6187.000	886.100	6202.000
GR	886.100	6226.000	885.900	6241.000	885.500	6936.000	886.600	7291.000	886.800	7437.000
GR	888.000	7461.000	888.300	7495.000	887.000	7514.000	888.300	7725.000	887.600	7862.000
GR	885.500	7914.000	884.100	7977.000	886.300	8060.000	882.000	8083.000	879.300	8117.000
GR	881.600	8399.000	880.800	8514.000	884.800	8708.000	878.600	8728.000	879.300	8764.000
GR	882.800	8823.000	884.000	8884.000	881.800	8943.000	885.000	9168.000	883.600	9278.000
GR	884.500	9374.000	885.300	9486.000	883.500	9526.000	880.800	9658.000	876.000	9680.000
GR	875.500	9764.000	877.100	9939.000	876.800	10000.000	880.600	10090.000	882.100	10305.000
GR	880.600	10465.000	877.600	10517.000	879.100	10645.000	876.000	10663.000	876.500	10691.000
GR	882.000	10713.000	881.600	10941.000	874.100	10992.000	875.000	11106.000	877.300	11209.000
GR	880.100	11228.000	878.800	11375.000	878.300	11627.000	882.400	11650.000	881.600	11784.000
GR	879.900	12064.000	882.400	12251.000	879.800	12340.000	881.800	12381.000	881.300	12452.000
GR	879.600	12519.000	880.100	12860.000	873.600	12871.000	879.900	12897.000	880.400	12941.000
GR	874.300	12999.000	874.400	13240.000	888.700	13271.000	890.700	13299.000	890.100	13352.000
GR	897.100	13378.000	897.100	13407.000	890.600	13413.000	890.600	13432.000	897.200	13446.000
GR	897.200	13463.000	893.600	13478.000	894.400	13643.000	894.400	14249.000	893.100	14557.000
GR	896.200	14586.000	896.200	14618.000	890.100	14677.000	889.900	16856.000	0.000	0.000
ET	344.000	9.100	7.100	0.000	0.000	0.000	9004.000	13311.000	5773.000	13843.000
>1	344.000	95.000	9069.000	13310.000	730.000	940.000	810.000	0.000	0.000	0.000
GR	908.100	5190.000	900.100	5249.000	907.300	5276.000	907.800	5330.000	903.100	5362.000
GR	906.400	5399.000	906.400	5429.000	898.400	5560.000	900.800	5590.000	889.600	5648.000
GR	891.600	5663.000	890.500	5738.000	895.400	5773.000	889.100	5788.000	889.100	5828.000
GR	886.100	5829.000	886.100	6100.000	887.600	7090.000	886.800	7584.000	887.600	7610.000
GR	880.600	7633.000	882.600	7769.000	883.500	7934.000	881.600	7967.000	881.600	8063.000
GR	882.600	8104.000	880.800	8150.000	884.600	8181.000	883.500	8309.000	885.100	8352.000
GR	884.500	8444.000	882.300	8503.000	884.600	8539.000	881.100	8564.000	884.600	8688.000
GR	881.800	8820.000	884.100	8959.000	885.300	9069.000	879.800	9107.000	878.800	9245.000
GR	881.500	9303.000	881.300	9434.000	879.100	9510.000	880.300	9580.000	876.500	9621.000
GR	877.600	9764.000	881.800	10000.000	882.500	10322.000	882.300	10639.000	881.600	10774.000
GR	877.100	10801.000	875.600	10830.000	876.000	11091.000	878.100	11165.000	879.500	11250.000
GR	883.300	11447.000	884.600	11635.000	883.900	12174.000	885.700	12389.000	882.400	12437.000
GR	881.600	12632.000	877.900	12650.000	877.800	12778.000	875.400	12873.000	878.600	12911.000
GR	878.600	12968.000	875.300	13020.000	877.100	13037.000	876.100	13268.000	886.200	13310.000
GR	885.200	13333.000	885.200	13710.000	895.400	13804.000	896.100	13843.000	891.100	13854.000
GR	891.100	13869.000	897.200	13881.000	896.100	13909.000	894.100	13922.000	894.100	14193.000
GR	894.100	14244.000	892.400	14259.000	892.400	15166.000	893.600	15186.000	894.100	15223.000
GR	889.900	15263.000	888.700	15287.000	888.100	15566.000	892.100	15583.000	892.100	15598.000
GR	890.900	15607.000	890.700	16286.000	896.900	16306.000	897.400	16322.000	893.400	16332.000

```
NC      0.055      0.055      0.032      0.300      0.500      0.000      0.000      0.000      0.000      0.000
ET    346.000      9.100      7.100      0.000      0.000      0.000   8713.000  12855.000   5749.000  13300.000
          A DIKE IN THE RIGHT OVERBANK BETWEEN SECTIONS 348 AND 350
          CONSTRICTS FLOW.  ET CARDS ARE USED TO MODEL EFFECTIVE FLOW
          IN THE NATURAL RUN, AT A 1:1 UPSTREAM AND 4:1 DOWNSTREAM.
X1    346.000     95.000   8714.000  12854.000    750.000    890.000    850.000      0.000      0.000      0.000
GR    903.100   5310.000    898.600   5383.000    896.400   5550.000    900.900   5587.000    890.300   5594.000
GR    893.600   5602.000    894.300   5649.000    894.800   5749.000    892.100   6011.000    890.600   6029.000
GR    890.600   6455.000    888.600   6489.000    888.600   6742.000    887.300   6755.000    887.300   7379.000
GR    883.000   7405.000    882.800   7603.000    882.500   7745.000    883.100   7883.000    880.300   7906.000
GR    882.500   7953.000    883.300   8045.000    883.800   8132.000    885.000   8280.000    882.600   8318.000
GR    885.300   8376.000    883.500   8423.000    883.500   8465.000    885.500   8538.000    885.500   8714.000
GR    879.100   8738.000    880.600   8862.000    881.300   8944.000    879.500   9123.000    878.800   9259.000
GR    885.600   9278.000    885.000   9388.000    879.300   9403.000    879.600   9484.000    878.100   9503.000
GR    880.600   9561.000    879.600   9655.000    880.600   9688.000    880.600   9931.000    880.800  10000.000
GR    881.800  10287.000    882.600  10628.000    882.000  10869.000    876.600  10901.000    874.600  10934.000
GR    876.100  11011.000    880.100  11101.000    881.400  11233.000    881.100  11298.000    878.300  11311.000
GR    878.300  11412.000    884.900  11437.000    882.900  12079.000    879.300  12139.000    879.300  12292.000
GR    884.100  12327.000    884.300  12468.000    877.400  12485.000    877.300  12567.000    875.600  12583.000
GR    875.600  12736.000    878.900  12801.000    887.900  12832.000    889.400  12854.000    887.600  12867.000
GR    887.600  13082.000    885.900  13086.000    884.300  13791.000    888.100  13805.000    888.700  13859.000
GR    888.600  14014.000    891.200  14036.000    890.100  14233.000    896.100  14252.000    896.200  14272.000
GR    892.900  14283.000    892.900  14312.000    896.600  14316.000    896.600  14338.000    892.700  14353.000
GR    889.700  15650.000    897.400  15708.000    897.600  15747.000    893.900  15780.000    896.700  15801.000
GR    896.900  15831.000    891.900  15840.000    891.900  15870.000    895.900  15878.000    896.700  15897.000

ET    348.000      9.100      7.100      0.000      0.000      0.000   8251.000  12159.000   5340.000  12300.000
X1    348.000     77.000   8252.000  12158.000    810.000    930.000    910.000      0.000      0.000      0.000
GR    902.100   5111.000    894.800   5211.000    893.400   5275.000    890.000   5299.000    894.400   5320.000
GR    894.400   5349.000    890.100   5371.000    890.100   6285.000    888.800   6319.000    888.100   7481.000
GR    889.300   7528.000    883.100   7584.000    881.500   7599.000    884.000   7705.000    881.500   7747.000
GR    884.100   7773.000    886.500   7864.000    882.600   7891.000    883.500   7974.000    885.100   8000.000
GR    884.300   8252.000    877.800   8272.000    878.500   8418.000    881.600   8437.000    881.500   8602.000
GR    881.600   8772.000    884.300   8816.000    884.500   8939.000    883.500   9042.000    883.000   9315.000
GR    882.100   9400.000    879.600   9428.000    881.100   9602.000    881.600   9840.000    883.600  10000.000
GR    881.100  10085.000    880.800  10235.000    879.300  10301.000    882.300  10469.000    883.600  10531.000
GR    882.100  10683.000    878.600  10711.000    880.800  10861.000    881.000  10900.000    878.600  11127.000
GR    878.600  11320.000    883.300  11376.000    884.900  11711.000    885.600  11776.000    883.400  11907.000
GR    878.900  11988.000    876.300  12010.000    876.400  12135.000    886.900  12158.000    887.100  13317.000
GR    889.100  13330.000    892.200  14762.000    895.100  14771.000    894.400  15188.000    895.600  15224.000
GR    897.400  15268.000    894.200  15280.000    894.200  15307.000    895.400  15317.000    895.100  15332.000
GR    894.200  15345.000    893.200  16127.000    894.600  16177.000    896.700  16191.000    896.700  16230.000
GR    892.700  16253.000    892.900  16309.000    894.900  16423.000    894.900  16550.000    893.900  16727.000
GR    894.900  16794.000    895.600  16905.000      0.000      0.000      0.000      0.000      0.000      0.000

ET    350.000      9.100      7.100      0.000      0.000      0.000   8102.000  11705.000   5500.000  12600.000
X1    350.000     88.000   8103.000  11704.000    880.000    940.000    940.000      0.000      0.000      0.000
GR    913.400   5036.000    907.300   5073.000    897.800   5142.000    897.600   5264.000    896.800   5394.000
GR    893.400   5399.000    897.800   5413.000    897.800   5438.000    895.900   5451.000    893.400   5675.000
GR    890.600   5716.000    890.600   5875.000    892.100   5897.000    890.800   5915.000    890.800   7098.000
GR    890.600   7179.000    891.100   7597.000    892.400   7643.000    884.300   7683.000    886.500   7769.000
GR    887.100   7904.000    884.800   7954.000    886.300   8103.000    880.800   8122.000    881.100   8200.000
GR    879.000   8380.000    883.300   8397.000    884.500   8505.000    884.000   8642.000    885.800   8671.000
```

GR	885.000	8817.000	884.800	9051.000	885.500	9107.000	884.100	9178.000	886.800	9240.000
GR	883.800	9290.000	885.500	9348.000	883.500	9385.000	885.600	9447.000	885.100	9628.000
GR	881.800	9645.000	882.300	9767.000	881.800	9938.000	881.600	10000.000	884.100	10167.000
GR	884.800	10363.000	882.800	10533.000	882.800	10770.000	881.900	10838.000	879.300	10860.000
GR	879.300	11066.000	883.400	11078.000	882.600	11110.000	880.900	11278.000	883.400	11384.000
GR	876.900	11592.000	876.900	11612.000	881.900	11685.000	887.900	11704.000	889.400	12807.000
GR	885.400	12826.000	885.400	12847.000	889.900	12858.000	889.900	13471.000	890.900	14013.000
GR	890.700	14039.000	889.600	14045.000	889.400	14173.000	893.200	14205.000	893.200	14227.000
GR	888.100	14244.000	889.400	14274.000	895.900	14305.000	895.700	15142.000	895.700	15187.000
GR	895.600	15212.000	893.600	15214.000	893.600	15244.000	898.200	15258.000	898.200	15277.000
GR	894.100	15282.000	894.100	15868.000	894.700	16452.000	897.700	16488.000	899.400	16525.000
GR	896.100	16544.000	897.100	16690.000	898.200	16839.000	0.000	0.000	0.000	0.000
ET	352.000	9.100	7.100	0.000	0.000	0.000	8059.000	11277.000	6000.000	13500.000
X1	352.000	80.000	8060.000	11276.000	930.000	880.000	930.000	0.000	0.000	0.000
GR	902.600	5400.000	901.400	5504.000	903.100	5616.000	900.900	5731.000	897.600	5752.000
GR	902.300	5767.000	902.300	5793.000	900.300	5815.000	899.400	5938.000	898.600	6304.000
GR	895.600	6403.000	893.300	6567.000	891.600	6627.000	892.300	6670.000	891.600	6683.000
GR	890.800	7789.000	892.600	7796.000	892.600	7825.000	887.800	7846.000	887.800	8060.000
GR	886.300	8086.000	881.800	8117.000	882.300	8271.000	884.500	8310.000	884.800	8496.000
GR	883.600	8535.000	885.800	8646.000	882.000	8663.000	884.600	8696.000	882.500	8761.000
GR	884.300	8780.000	884.300	8872.000	886.000	8885.000	887.300	8946.000	889.300	8991.000
GR	884.800	9045.000	888.100	9101.000	888.600	9180.000	888.600	9385.000	886.300	9485.000
GR	885.100	9604.000	886.300	9641.000	885.100	9826.000	885.100	10000.000	885.000	10220.000
GR	884.000	10530.000	883.000	10575.000	880.400	10580.000	880.400	10758.000	883.600	10856.000
GR	884.300	11065.000	884.300	11245.000	889.400	11276.000	891.100	11351.000	889.100	11367.000
GR	888.900	11870.000	888.900	12408.000	890.200	12427.000	890.200	13006.000	891.900	13019.000
GR	891.900	13569.000	892.200	14456.000	888.400	14483.000	887.600	14655.000	893.400	14662.000
GR	894.400	14735.000	889.600	14765.000	899.900	14809.000	898.900	15060.000	894.900	15064.000
GR	894.900	15094.000	901.400	15104.000	901.400	15119.000	895.900	15135.000	896.900	15767.000
GR	896.900	16477.000	903.100	16525.000	903.100	16569.000	899.700	16594.000	899.400	16748.000
ET	354.000	9.100	7.100	0.000	0.000	0.000	8100.000	10860.000	6460.000	13500.000

THE EXISTING COTTON LANE ALIGNMENT IS ELEVATED AND CONSTRICTS
FLOW. ET CARDS ARE USED TO MODEL EFFECTIVE FLOW IN THE NATURAL
RUN AT 1:1 UPSTREAM AND 4:1 DOWNSTREAM (SEC. 354 TO 358).

X1	354.000	81.000	8101.000	10859.000	910.000	930.000	950.000	0.000	0.000	0.000
GR	905.800	5744.000	904.900	5823.000	915.400	5878.000	915.400	5917.000	903.900	5979.000
GR	898.600	6147.000	895.800	6434.000	899.900	6453.000	899.900	6481.000	894.100	6495.000
GR	894.300	7683.000	895.300	7996.000	888.100	8031.000	888.500	8101.000	885.500	8108.000
GR	886.000	8136.000	888.100	8156.000	886.000	8190.000	886.800	8427.000	886.800	8611.000
GR	886.800	8713.000	885.500	8929.000	885.500	9029.000	891.100	9086.000	890.600	9134.000
GR	888.600	9252.000	888.600	9346.000	888.600	9491.000	886.600	9547.000	888.000	9589.000
GR	885.800	9621.000	885.500	9674.000	888.800	9705.000	888.000	9753.000	886.500	9842.000
GR	886.800	9877.000	882.600	9894.000	884.100	10000.000	880.800	10164.000	881.000	10248.000
GR	878.400	10255.000	879.000	10309.000	882.300	10322.000	880.300	10400.000	880.800	10481.000
GR	880.800	10639.000	882.400	10692.000	886.100	10793.000	886.900	10859.000	893.600	10902.000
GR	893.600	10927.000	890.200	10942.000	891.100	11408.000	891.100	12000.000	890.900	12027.000
GR	891.400	12556.000	892.900	12568.000	892.900	13123.000	893.700	13136.000	893.700	13987.000
GR	896.100	14004.000	895.100	14049.000	893.900	14076.000	891.600	14088.000	891.700	14798.000
GR	895.700	14820.000	895.700	14894.000	900.100	14920.000	900.600	14953.000	895.100	14963.000
GR	895.100	14994.000	900.400	14999.000	900.400	15019.000	898.600	15031.000	899.200	15324.000
GR	903.600	16409.000	908.600	16451.000	909.700	16474.000	906.900	16495.000	905.700	16532.000
GR	906.400	16647.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ET	356.000	9.100	7.100	0.000	0.000	0.000	8468.000	10800.000	7200.000	13300.000
X1	356.000	86.000	8469.000	10699.000	920.000	910.000	950.000	0.000	0.000	0.000
CR	915.600	6367.000	915.300	6397.000	908.100	6443.000	915.400	6507.000	906.700	6577.000
CR	909.200	6616.000	902.600	6672.000	904.900	6727.000	943.100	6904.000	954.200	7002.000
CR	957.200	7040.000	942.700	7109.000	894.400	7182.000	898.100	7196.000	898.100	7213.000
CR	895.200	7222.000	895.700	7556.000	897.100	7572.000	895.700	7879.000	896.700	7896.000
CR	896.200	8155.000	896.200	8213.000	894.600	8225.000	896.300	8245.000	896.200	8247.000
CR	890.900	8330.000	890.900	8469.000	886.100	8492.000	884.300	8672.000	887.100	8701.000
CR	887.100	8829.000	885.400	8892.000	888.400	8581.000	888.200	9183.000	887.600	9533.000
CR	884.700	9756.000	883.400	9924.000	882.100	9939.000	882.100	10000.000	883.100	10256.000
CR	883.800	10443.000	886.200	10542.000	885.700	10627.000	887.900	10644.000	887.100	10680.000
CR	891.700	10699.000	891.700	10810.000	892.000	10881.000	892.000	10994.000	892.200	11021.000
CR	894.600	11161.000	892.700	11274.000	892.000	11287.000	892.000	11446.000	893.100	11473.000
CR	892.100	11557.000	892.100	11593.000	893.200	12252.000	895.900	13393.000	895.900	13509.000
CR	896.200	13815.000	892.900	13833.000	892.400	14318.000	895.600	14352.000	897.600	14437.000
CR	897.900	14680.000	898.400	14828.000	900.200	14849.000	901.100	14875.000	897.900	14881.000
CR	897.900	14911.000	901.100	14922.000	901.600	14942.000	899.900	14985.000	899.100	15230.000
CR	902.200	15487.000	902.200	15751.000	903.900	16156.000	907.400	16191.000	907.900	16233.000
CR	906.900	16246.000	906.900	16355.000	909.100	16371.000	909.100	16386.000	911.200	16400.000
CR	910.700	16421.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	358.000	9.100	7.100	0.000	0.000	0.000	8706.000	11080.000	6919.000	13800.000
X1	358.000	85.000	8707.000	10919.000	1010.000	910.000	980.000	0.000	0.000	0.000
CR	914.400	6510.000	910.100	6533.000	914.200	6571.000	915.100	6621.000	912.400	6678.000
CR	904.200	6791.000	895.900	6903.000	899.200	6919.000	898.700	6945.000	897.200	6963.000
CR	896.600	7578.000	898.200	7588.000	898.100	8244.000	898.900	8273.000	900.200	8463.000
CR	898.200	8570.000	895.600	8707.000	893.900	8734.000	888.400	8759.000	888.200	8778.000
CR	884.100	8805.000	886.700	8823.000	889.400	8980.000	890.600	9136.000	885.600	9196.000
CR	885.100	9240.000	886.700	9407.000	886.200	9641.000	882.600	9650.000	882.400	9719.000
CR	883.800	9734.000	883.300	9765.000	881.900	9899.000	885.900	9929.000	887.400	10000.000
CR	887.700	10167.000	885.400	10382.000	888.400	10451.000	889.900	10530.000	886.900	10546.000
CR	890.400	10563.000	886.700	10584.000	891.200	10608.000	892.200	10700.000	886.900	10743.000
CR	890.900	10776.000	887.400	10864.000	894.100	10919.000	895.600	11078.000	892.700	11126.000
CR	894.700	11137.000	892.900	11160.000	894.900	11596.000	896.400	12720.000	896.500	12748.000
CR	896.600	12810.000	896.700	12845.000	897.200	12861.000	894.600	12874.000	894.400	12920.000
CR	893.400	13906.000	894.700	13930.000	895.400	13947.000	894.700	14500.000	898.700	14519.000
CR	900.700	14558.000	897.700	14565.000	897.700	14606.000	902.900	14610.000	902.900	14633.000
CR	901.400	14646.000	903.600	15872.000	907.400	15882.000	908.900	15919.000	908.600	15946.000
CR	905.200	15980.000	908.600	16005.000	909.200	16063.000	907.600	16079.000	909.100	16087.000
CR	909.100	16101.000	912.200	16112.000	911.600	16144.000	908.600	16152.000	909.700	16288.000
NC	0.055	0.055	0.032	0.100	0.300	0.000	0.000	0.000	0.000	0.000
ET	360.000	9.100	7.100	0.000	0.000	0.000	8797.000	11400.000	7271.000	14232.000
X1	360.000	78.000	8798.000	10890.000	900.000	960.000	930.000	0.000	0.000	0.000
CR	919.300	6706.000	913.300	6743.000	943.100	6920.000	917.600	7051.000	938.800	7149.000
CR	896.600	7255.000	900.100	7271.000	900.000	7282.000	895.000	7729.000	900.500	7742.000
CR	900.100	7787.000	899.000	7809.000	898.800	8182.000	898.800	8607.000	897.000	8655.000
CR	899.600	8721.000	895.500	8761.000	895.300	8798.000	890.300	8822.000	886.500	8880.000
CR	884.100	8915.000	883.600	9205.000	883.800	9409.000	883.500	9498.000	883.000	9516.000
CR	883.000	9649.000	888.000	9667.000	885.500	9684.000	887.100	9942.000	887.800	10000.000
CR	889.400	10126.000	887.900	10246.000	890.400	10304.000	892.700	10369.000	890.900	10424.000
CR	892.600	10464.000	893.900	10561.000	892.900	10683.000	890.900	10766.000	892.900	10802.000
CR	894.200	10890.000	892.200	10965.000	894.400	11041.000	889.700	11063.000	888.600	11114.000

GR	892.900	11143.000	892.900	11210.000	891.900	11337.000	889.400	11378.000	889.600	11459.000
GR	899.600	11499.000	895.600	11575.000	895.900	12336.000	893.400	13353.000	894.600	13369.000
GR	894.700	14157.000	898.400	14175.000	900.600	14199.000	901.700	14232.000	895.700	14241.000
GR	895.700	14290.000	900.200	14306.000	902.100	14328.000	899.100	14340.000	900.700	14954.000
GR	901.700	15586.000	904.900	15599.000	906.400	15629.000	905.900	15669.000	904.100	15702.000
GR	905.100	15721.000	904.900	15789.000	906.900	15794.000	906.700	15814.000	909.200	15821.000
GR	909.200	15849.000	906.600	15864.000	908.200	15966.000	0.000	0.000	0.000	0.000
ET	362.000	9.100	7.100	0.000	0.000	0.000	8585.000	11300.000	7343.000	13110.000
X1	362.000	87.000	8586.000	10518.000	770.000	960.000	880.000	0.000	0.000	0.000
GR	927.300	6859.000	916.600	6961.000	913.600	7003.000	920.800	7038.000	923.800	7094.000
GR	921.600	7150.000	924.900	7212.000	921.800	7246.000	907.400	7297.000	898.500	7330.000
GR	902.400	7343.000	902.800	7367.000	900.600	7378.000	900.100	7502.000	900.500	7634.000
GR	899.600	8421.000	898.600	8586.000	883.000	8637.000	883.100	8748.000	883.800	8800.000
GR	884.600	8892.000	886.100	9010.000	886.500	9035.000	884.500	9087.000	884.500	9191.000
GR	888.100	9199.000	888.500	9251.000	892.300	9260.000	891.000	9467.000	885.000	9494.000
GR	885.500	9618.000	888.300	9755.000	889.500	10000.000	890.100	10186.000	890.100	10412.000
GR	893.600	10466.000	895.400	10518.000	893.600	10547.000	893.600	10642.000	895.100	10672.000
GR	892.200	10737.000	893.100	10804.000	890.100	10822.000	894.900	10869.000	896.100	10921.000
GR	892.700	10940.000	897.100	10992.000	893.700	11036.000	893.700	11066.000	889.900	11089.000
GR	891.100	11168.000	895.200	11213.000	895.200	11371.000	893.600	11486.000	894.200	11613.000
GR	893.900	11694.000	890.700	11732.000	890.700	11791.000	899.100	11827.000	898.700	11850.000
GR	896.100	11876.000	897.700	12508.000	897.600	13085.000	901.200	13102.000	901.200	13135.000
GR	897.200	13143.000	897.200	13186.000	900.900	13194.000	900.900	13210.000	900.200	13610.000
GR	898.700	14343.000	899.700	14366.000	898.200	14382.000	899.400	14395.000	899.700	14638.000
GR	899.400	14842.000	899.600	15372.000	901.900	15379.000	901.900	15397.000	904.200	15412.000
GR	904.200	15454.000	903.400	15570.000	905.100	15583.000	905.100	15599.000	907.400	15616.000
GR	905.600	15640.000	906.400	15720.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	364.000	9.100	7.100	0.000	0.000	0.000	8164.000	11100.000	7350.000	12602.000
X1	364.000	91.000	8165.000	10594.000	700.000	1120.000	920.000	0.000	0.000	0.000
GR	934.900	7108.000	931.900	7152.000	921.800	7216.000	902.800	7293.000	901.600	7310.000
GR	905.400	7319.000	905.400	7357.000	903.600	7362.000	902.400	7513.000	899.600	8165.000
GR	892.300	8202.000	891.600	8300.000	888.300	8344.000	887.100	8408.000	883.800	8489.000
GR	883.500	8530.000	886.000	8552.000	885.000	8607.000	883.000	8616.000	885.600	8662.000
GR	885.600	8708.000	885.800	8933.000	889.100	8970.000	888.000	9013.000	891.500	9056.000
GR	892.300	9158.000	891.300	9249.000	890.100	9279.000	888.600	9375.000	888.600	9439.000
GR	887.500	9515.000	887.500	9657.000	889.100	9835.000	892.600	9876.000	891.600	9956.000
GR	891.800	10000.000	889.900	10159.000	890.900	10244.000	891.900	10451.000	894.600	10479.000
GR	895.600	10594.000	896.700	10854.000	894.400	10898.000	896.100	10978.000	890.400	11007.000
GR	893.700	11031.000	892.400	11068.000	897.100	11133.000	895.700	11181.000	891.400	11205.000
GR	891.200	11262.000	893.900	11282.000	893.200	11332.000	895.400	11395.000	891.700	11446.000
GR	894.900	11475.000	893.100	11594.000	893.100	11712.000	894.700	11746.000	894.700	11793.000
GR	893.400	11824.000	896.100	11858.000	894.100	11901.000	900.000	11936.000	900.000	12258.000
GR	900.400	12312.000	902.600	12369.000	903.900	12476.000	905.100	12602.000	899.100	12612.000
GR	899.100	12641.000	907.100	12654.000	906.400	12669.000	908.600	12681.000	901.600	12724.000
GR	902.100	12805.000	901.900	13000.000	902.400	13299.000	901.300	14089.000	900.900	14111.000
GR	903.400	15274.000	905.600	15309.000	905.300	15341.000	904.300	15353.000	903.800	15443.000
GR	904.900	15482.000	905.400	15499.000	908.900	15510.000	907.100	15531.000	905.800	15573.000
GR	906.600	15673.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ET	366.000	9.100	7.100	0.000	0.000	0.000	8087.000	11015.000	7100.000	12500.000
X1	366.000	73.000	8088.000	11014.000	1050.000	820.000	880.000	0.000	0.000	0.000
GR	907.400	7073.000	910.400	7084.000	909.600	7110.000	907.300	7120.000	905.300	7134.000
GR	905.800	7221.000	902.400	8059.000	892.800	8088.000	892.800	8215.000	888.500	8245.000
GR	889.100	8471.000	886.500	8579.000	886.500	8657.000	885.100	8660.000	885.100	8860.000
GR	888.500	8907.000	891.300	9083.000	893.800	9198.000	892.600	9288.000	889.500	9395.000
GR	891.100	9675.000	890.500	9889.000	888.000	9942.000	890.600	10000.000	892.100	10259.000
GR	893.100	10432.000	889.800	10449.000	889.800	10485.000	891.900	10508.000	891.900	10563.000
GR	891.000	10609.000	894.300	10627.000	896.900	10802.000	897.400	10841.000	897.400	11014.000
GR	896.600	11232.000	895.400	11342.000	893.600	11445.000	894.800	11496.000	893.100	11539.000
GR	893.100	11627.000	897.800	11641.000	897.400	11693.000	894.400	11751.000	896.600	11814.000
GR	896.900	11916.000	896.300	12166.000	903.800	12195.000	904.100	12325.000	904.100	12511.000
GR	911.100	12540.000	905.900	12548.000	905.900	12565.000	898.300	12581.000	898.300	12605.000
GR	906.600	12618.000	906.600	12642.000	902.900	12656.000	902.400	13070.000	902.100	13955.000
GR	901.300	13968.000	903.600	15239.000	905.300	15273.000	905.300	15299.000	903.800	15309.000
GR	903.800	15375.000	902.900	15429.000	905.400	15436.000	905.400	15445.000	903.900	15456.000
GR	906.900	15484.000	907.400	15550.000	908.100	15645.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAF     TOPWID      ENDST


*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=   0.100 CEHV=   0.300
*SECNO 340.000
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    5186.0   13145.0  TYPE=     1  TARGET=    7959.000
             FIRST RUN NATURAL, SECOND RUN FLOODWAY
             REACH LENGTHS ON X1 CARDS HAVE BEEN UPDATED 12-87.
             ALL SECTIONS LOOKING DOWNSTREAM
             CHANNEL STATIONS ARE FROM LEFT TO RIGHT WITH CONTROL LINE STATION
             10,000.
             THE 100-YEAR FLOOD PEAK (250,000) IS BASED ON THE ARMY CORPS OF
             ENGINEERS (CORPS) HYDROLOGY, MAY 1985.
             TOPO PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC).
             PHOTO DATE 3-28-84.   AERIAL MAPPING CO. #83039
             COOPER AERIAL SURVEY CO. #830339.
             CROSS SECTIONS DIGITIZED FROM AERIAL PHOTOS FURNISHED BY FCDMC.
   340.00     16.20   889.10   884.52     0.00   889.54     0.44     0.00     0.00   888.30
  250000.    16697.  233303.      0.     9328.   42433.       0.       0.       0.   894.70
     0.00      1.79     5.50     0.00     0.055    0.032    0.000    0.000   872.90  5512.40
 0.000744        0.       0.       0.         0       13        0     0.00  7579.26 13091.66


FLOW DISTRIBUTION FOR SECNO=    340.00          CWSEL=    889.10

STA=    5512.    6850.    8408.   13123.
  PER Q=      4.5      2.2     93.3
   AREA=   5594.1   3734.2  42432.7
    VEL=      2.0      1.5      5.5

*SECNO 342.000

3470 ENCROACHMENT STATIONS=    5608.0   13378.0  TYPE=     1  TARGET=    7770.000
   342.00     16.10   889.70   884.23     0.00   890.05     0.35     0.50     0.01   884.80
  250000.    27966.  222031.      3.    13867.   44249.       7.     973.     133.   888.70
     0.05      2.02     5.02     0.40     0.055    0.032    0.055    0.000   873.60  5726.93
 0.000566       740.     780.     830.         1       23        0     0.00  7557.92 13284.86
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=    342.00          CWSEL=    889.70

STA=    5727.    6936.    8399.    8708.   13271.   13285.
  PER Q=      3.6      5.3      2.3     88.8      0.0
   AREA=   5126.3   6427.7   2312.9  44249.1      6.9
    VEL=      1.7      2.1      2.5      5.0      0.4

*SECNO 344.000

3470 ENCROACHMENT STATIONS=    5773.0   13843.0  TYPE=     1  TARGET=    8070.000
   344.00    14.87   890.17   885.29     0.00   890.54     0.37     0.48     0.01   885.30
  250000.   35212.  210734.    4054.   16261.   40141.    2089.    2033.     272.   886.20
     0.09     2.17     5.25     1.94    0.055    0.032    0.055    0.000   875.30  5785.46
 0.000639     730.     810.     940.        2       14        0     0.00  7970.30 13755.77

FLOW DISTRIBUTION FOR SECNO=    344.00          CWSEL=    890.17

STA=    5785.    7584.    8063.    8539.    8959.    9069.   13310.   13756.
  PER Q=      3.6      3.9      3.0      3.1      0.5     84.3      1.6
   AREA=   5896.6   3629.4   3121.3   3012.6    601.3  40140.6   2088.6
    VEL=      1.5      2.7      2.4      2.5      2.1      5.2      1.9

CCHV=   0.300 CEHV=   0.500
*SECNO 346.000

3470 ENCROACHMENT STATIONS=    5749.0   13300.0  TYPE=     1  TARGET=    7551.000
             A DIKE IN THE RIGHT OVERBANK BETWEEN SECTIONS 348 AND 350
             CONSTRICTS FLOW.  ET CARDS ARE USED TO MODEL EFFECTIVE FLOW
             IN THE NATURAL RUN, AT A 1:1 UPSTREAM AND 4:1 DOWNSTREAM.
   346.00    16.09   890.69   885.84     0.00   891.10     0.41     0.55     0.02   885.50
  250000.   28608.  218177.    3215.   12207.   40113.    1787.    3101.     414.   889.40
     0.14     2.34     5.44     1.80    0.055    0.032    0.055    0.000   874.60  6027.89
 0.000666     750.     850.     890.        2       14        0     0.00  7272.11 13300.00

FLOW DISTRIBUTION FOR SECNO=    346.00          CWSEL=    890.69

STA=    6028.    7603.    7953.    8423.    8714.   12854.   13300.
  PER Q=      3.4      3.3      3.2      1.5     87.3      1.3
   AREA=   4445.9   2874.9   3218.4   1668.1  40113.4   1786.8
    VEL=      1.9      2.8      2.5      2.3      5.4      1.8
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      GCH       GROB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAR     TOPWID      ENDST

*SECNO 348.000

3470 ENCROACHMENT STATIONS=    5340.0    12300.0  TYPE=      1  TARGET=    6960.000
   348.00     15.00    891.30    886.45      0.00    891.81      0.51      0.65      0.05    884.30
 250000.    21040.   227713.     1247.     9753.    38085.      623.     4147.      557.    886.90
     0.18      2.16      5.98      2.00     0.055     0.032     0.055     0.000    876.30   5364.88
 0.000797      810.      910.      930.         2        14         0      0.00   6935.12  12300.00

FLOW DISTRIBUTION FOR SECNO=    348.00          CWSEL=    891.30

STA=    5365.    7705.    8252.   12158.   12300.
  PER Q=      4.1      4.3     91.1      0.5
   AREA=   5916.7   3836.6  38085.3    622.6
    VEL=      1.7      2.8      6.0      2.0

*SECNO 350.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    5500.0    12600.0  TYPE=      1  TARGET=    7100.000
   350.00     15.19    892.09    888.07      0.00    892.80      0.71      0.89      0.10    886.30
 250000.    11008.   232072.     6921.     5185.    33276.     3212.     5109.      702.    887.90
     0.22      2.12      6.97      2.15     0.055     0.032     0.055     0.000    876.90   5694.13
 0.001165      880.      940.      940.         2        19         0      0.00   6893.33  12600.00

FLOW DISTRIBUTION FOR SECNO=    350.00          CWSEL=    892.09

STA=    5694.    7954.    8103.   11704.   12600.
  PER Q=      3.1      1.3     92.8      2.8
   AREA=   4209.6    975.0  33275.5   3211.6
    VEL=      1.9      3.2      7.0      2.2

*SECNO 352.000

3470 ENCROACHMENT STATIONS=    6000.0    13500.0  TYPE=      1  TARGET=    7500.000
   352.00     12.90    893.30    890.63      0.00    894.22      0.92      1.32      0.10    887.80
 250000.     8855.   221186.    19958.     3730.    27276.     7389.     5958.      848.    889.40
     0.26      2.37      8.11      2.70     0.055     0.032     0.055     0.000    880.40   6566.68
 0.001765      930.      930.      880.         2        19         0      0.00   6933.32  13500.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        FL        OLOSS   BANK ELEV
   G         QLOB      QCH       GROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAF     TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=    352.00          CWSEL=    893.30

STA=    6567.    8060.   11276.   12408.   13500.
  PER Q=      3.5      88.5      5.8      2.2
   AREA=   3729.6  27275.8   4815.2   2573.8
    VEL=      2.4      8.1      3.0      2.2

*SECNO 354.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    6460.0   13500.0  TYPE=     1  TARGET=    7040.000
             THE EXISTING COTTON LANE ALIGNMENT IS ELEVATED AND CONSTRICTS
             FLOW.  ET CARDS ARE USED TO MODEL EFFECTIVE FLOW IN THE NATURAL
             RUN AT 1:1 UPSTREAM AND 4:1 DOWNSTREAM (SEC. 354 TO 356).
   354.00    16.49   894.89   891.92     0.00   895.95     1.06     1.66     0.07   888.50
  250000.    2851.  226160.   20990.    1447.   26131.    8168.    6761.     956.   886.90
     0.29     1.97     8.65     2.57    0.055    0.032    0.055    0.000   878.40  6493.10
 0.001735     910.     950.     930.        2        8        0     0.00  6876.18 13500.00

FLOW DISTRIBUTION FOR SECNO=    354.00          CWSEL=    894.89

STA=    6493.    8101.   10859.   12000.   13123.   13500.
  PER Q=      1.1      90.5      5.1      3.1      0.2
   AREA=   1446.5  26131.1   4494.8   3219.4    453.4
    VEL=      2.0      8.7      2.8      2.4      1.3

*SECNO 356.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    7200.0   13300.0  TYPE=     1  TARGET=    6100.000
   356.00    14.34   896.44   893.35     0.00   897.69     1.25     1.65     0.10   890.90
  250000.    3727.  225429.   20844.    1471.   23906.    8145.    7507.    1131.   891.70
     0.32     2.53     9.43     2.56    0.055    0.032    0.055    0.000   882.10  7218.16
 0.001746     920.     950.     910.        2       19        0     0.00  5789.50 13300.00

FLOW DISTRIBUTION FOR SECNO=    356.00          CWSEL=    896.44

STA=    7218.    8469.   10699.   11446.   12252.   13300.
  PER Q=      1.5      90.2      3.4      3.4      1.5
   AREA=   1471.1  23906.3   2970.0   3080.4   2094.7
    VEL=      2.5      9.4      2.9      2.8      1.8
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   G         GLOB      GCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAF     TOPWID      ENDST

*SECNO 358.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    6919.0   13800.0  TYPE=      1  TARGET=    6881.000
   358.00     16.29    898.19    895.09      0.00    899.36      1.17      1.64      3.03    895.60
  250000.     1267.   221000.   27733.     1010.   24070.    10451.     8270.     1265.    894.10
     0.35      1.25      9.18      2.65     0.055     0.032     0.055     0.000    881.90   6951.12
 0.001626     1010.      980.      910.         2        11         0      0.00   6456.89  13800.00

FLOW DISTRIBUTION FOR SECNO=    358.00          CWSEL=    898.19

STA=    6951.    8707.   10919.   11996.   13800.
  PER Q=      0.5      88.4      5.0      6.1
   AREA=   1010.0  24070.1   4461.2   5989.6
    VEL=      1.3      9.2      2.8      2.5

CCHV=    0.100 CEHV=    0.300
*SECNO 360.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    7271.0   14232.0  TYPE=      1  TARGET=    6961.000
   360.00     16.79    899.79    895.44      0.00    900.59      0.79      1.19      0.04    895.30
  250000.     1446.   200459.   48095.     1348.   25454.    17472.     9131.     1407.    894.20
     0.39      1.07      7.88      2.75     0.055     0.032     0.055     0.000    883.00   7374.07
 0.001029      900.      930.      960.         2        15         0      0.00   6758.90  14190.21

FLOW DISTRIBUTION FOR SECNO=    360.00          CWSEL=    899.79

STA=    7374.    8798.   10890.   11210.   11459.   12336.   13353.   14157.   14190.
  PER Q=      0.6      80.2      3.3      3.2      3.0      5.4      4.3      0.0
   AREA=   1347.7  25453.7   2425.5   2147.8   3452.0   5231.4   4146.2     69.0
    VEL=      1.1      7.9      3.4      3.7      2.2      2.6      2.6      1.7

*SECNO 362.000

3470 ENCROACHMENT STATIONS=    7343.0   13110.0  TYPE=      1  TARGET=    5767.000
   362.00     17.64    900.64    896.04      0.00    901.62      0.98      0.98      0.05    898.60
  250000.      652.   209269.   40080.      803.   24404.    13354.     9993.     1536.    895.40
     0.42      0.81      8.58      3.00     0.055     0.032     0.055     0.000    883.00   7377.79
 0.001163      770.      880.      960.         2        19         0      0.00   5721.58  13099.37
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   G         GLOB      QCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=    362.00          CWSEL=    900.64

STA=    7378.    8586.   10518.   10822.   11168.   11613.   12508.   13099.
  PER Q=      0.3      83.7       3.0       3.6       3.5       4.6       1.3
   AREA=    802.6  24404.5    2188.8    2511.0    2771.4    4134.2    1748.7
    VEL=      0.8       8.6       3.5       3.6       3.1       2.8       1.9

*SECNO 364.000

3470 ENCROACHMENT STATIONS=    7350.0   12602.0  TYPE=     1  TARGET=    5252.000
   364.00     18.85    901.85    896.21      0.00    902.57      0.72      0.93      0.03    899.60
  250000.      497.  218951.    30552.      589.    30329.    10593.    10890.      1651.    895.60
     0.46      0.84      7.22      2.88     0.055     0.032     0.055     0.000    883.00   7641.36
 0.000835      700.      920.     1120.         2        19         0      0.00   4708.18  12349.54

FLOW DISTRIBUTION FOR SECNO=    364.00          CWSEL=    901.85

STA=    7641.    8165.   10594.   11031.   11332.   11712.   12350.
  PER Q=      0.2      87.6       3.0       3.2       4.0       2.1
   AREA=    588.8  30329.3    2771.3    2449.9    3113.1    2259.1
    VEL=      0.8       7.2       2.7       3.2       3.2       2.3

*SECNO 366.000

3470 ENCROACHMENT STATIONS=    7100.0   12500.0  TYPE=     1  TARGET=    5400.000
   366.00     17.54    902.64    897.03      0.00    903.29      0.64      0.71      0.01    892.80
  250000.      316.  228195.    21489.      154.    34102.     7839.    11723.      1740.    897.40
     0.50      2.06      6.69      2.74     0.055     0.032     0.055     0.000    885.10   7998.74
 0.000786     1050.      880.      820.         2        14         0      0.00   4191.79  12190.53

FLOW DISTRIBUTION FOR SECNO=    366.00          CWSEL=    902.64

STA=    7999.    8088.   11014.   11496.   11916.   12191.
  PER Q=      0.1      91.3       3.5       3.5       1.6
   AREA=    153.7  34102.2    3230.9    3019.3    1588.9
    VEL=      2.1       6.7       2.7       2.9       2.5
```

PROFILE FOR STREAM GILA RIVER EXISTING COND

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

```
ELEVATION   870.     875.     880.     885.     890.     895.     900.     905.     910.     915.
   SECNO    CUMDIS
340.00        0.  .    I   .        .        C.      LWE.        R. M     .        .        .        .        .
            100.  .    I   .        .        C.     L WE.        R .M     .        .        .        .        .
            200.  .    I   .        .        C.    L   E.      R  M.      .        .        .        .        .
            300.  .    I   .        .        C.   L    E.     R  M .      .        .        .        .        .
            400.  .     I  .        .        C.  L     WE  R  M    .      .        .        .        .        .
            500.  .     I  .        .        C. L      WE R M      .      .        .        .        .        .
            600.  .     I  .        .        C.L       WE  M       .      .        .        .        .        .
            700.  .     I  .        .        CL        WEM         .      .        .        .        .        .
342.00      800.  .     I  .        .       C L       R WE         .      .        .        .        .        .
            900.  .      I .        .        CL       R WEM        .      .        .        .        .        .
           1000.  .      I .        .        CL      R   E M       .      .        .        .        .        .
           1100.  .      I .        .        CL      R   E M       .      .        .        .        .        .
           1200.  .       I.        .         C    R    WE M       .      .        .        .        .        .
           1300.  .       I.        .         C   R     WE  M      .      .        .        .        .        .
           1400.  .        I        .         C   R     WE   M     .      .        .        .        .        .
           1500.  .        I        .         C  R      WE    M    .      .        .        .        .        .
344.00     1600.  .        .I       .         .CR       WE     M   .      .        .        .        .        .
           1700.  .        I        .         .C R      WE      M  .      .        .        .        .        .
           1800.  .        I        .         .C  R     .E      M  .      .        .        .        .        .
           1900.  .        I        .         .C   R    .E       M.      .        .        .        .        .
           2000.  .        I        .         .C   R    .WE       M      .        .        .        .        .
           2100.  .        I        .         .C    R   .WE      .M      .        .        .        .        .
           2200.  .        I        .         .C     R  .WE      .M      .        .        .        .        .
           2300.  .       I.        .         .C      R .WE      . M     .        .        .        .        .
           2400.  .       I.        .         .LC     R .WE      .  M    .        .        .        .        .
346.00     2500.  .       I.        .         .LC      R.WE      .  M    .        .        .        .        .
           2600.  .        I        .         .LC     R . E      .  M    .        .        .        .        .
           2700.  .        I        .         L C     R . WE     .  M    .        .        .        .        .
           2800.  .        I        .         L C    R  . WE     .  M    .        .        .        .        .
           2900.  .        .I       .         L C    R  . WE     . M     .        .        .        .        .
           3000.  .        .I       .         L C   R   . WE     . M     .        .        .        .        .
           3100.  .        .I       .        L. C   R   . WE     . M     .        .        .        .        .
           3200.  .        . I      .        L.  C R    . WE     . M     .        .        .        .        .
           3300.  .        . I      .        L.  CR     . WE     .M      .        .        .        .        .
348.00     3400.  .        .  I     .        L.  CR     .  WE    .M      .        .        .        .        .
           3500.  .        .  I     .        L.  CR     .  WE    . M     .        .        .        .        .
           3600.  .        .  I     .        L.   C     .  WE    . M     .        .        .        .        .
           3700.  .        .  I     .         L   C     .  WE    .  M    .        .        .        .        .
           3800.  .        .  I     .         L   CR    .  WE    .  M    .        .        .        .        .
           3900.  .        .  I     .         .L   C    .  W E   .   M   .        .        .        .        .
           4000.  .        .  I     .         .L   C    .   WE   .    M  .        .        .        .        .
           4100.  .        .  I     .         . L  C    .   WE   .    M  .        .        .        .        .
           4200.  .        .   I    .         . L   C   .   WE   .     M .        .        .        .        .
350.00     4300.  .        .   I    .         .  L  C   .   W E  .     M .        .        .        .        .
           4400.  .        .    I   .         .  L  RC  .   W E  .      M .        .        .        .        .
           4500.  .        .    I   .         .  L  RC  .    WE  .      M .        .        .        .        .
           4600.  .        .     I  .         .   L  RC .    W E .      M .        .        .        .        .
           4700.  .        .      I .         .   L  RC .    W E .      M .        .        .        .        .
           4800.  .        .       I .        .   L  R C.    W E .       M .        .        .        .        .
           4900.  .        .       I .        .    L  RC.     WE .       M .        .        .        .        .
           5000.  .        .        I.        .    L  R C     W E .      M .        .        .        .        .
```

```
        54[redacted]. [redacted] [redacted] [redacted] [redacted] . [redacted]L R[redacted] [redacted] [redacted] [redacted]M[redacted] [redacted] [redacted]. [redacted] [redacted] [redacted] [redacted] [redacted]
        5500. .         .         I         .     L R . C     W E.         . M       .         .         .
        5600. .         .         I         .     LR  . C      W E         .  M      .         .         .
        5700. .         .        I.         .     LR  . C      W E         .    M    .         .         .
        5800. .         .        I.         .     L   .  C     W E         .     M   .         .         .
        5900. .         .       I .         .     L   .  C      W.E        .       M .         .         .
        6000. .         .       I .         .   R L   .  C      W.E        .        M.         .         .
        6100. .         .      I  .         .   R L   .  C      W.E        .         .M        .         .
354.00  6200. .         .      I  .         .  R  L   .   C      W E       .          . M      .         .
        6300. .         .       I .         .   R  L  .   C      W E       .          .  M     .         .
        6400. .         .       I .         .    R L  .   C      W  E      .          .   M    .         .
        6500. .         .        I.         .     R L.     C     .W E      .          .    M   .         .
        6600. .         .         I         .      RL.     C     .W E      .          .    M   .         .
        6700. .         .        .I         .       RL     C     .W  E     .          .     M  .         .
        6800. .         .        .I         .         L     C   . W E      .          .      M .         .
        6900. .         .        . I        .          .L   C   . W E      .          .       M.         .
        7000. .         .        .  I       .          .LR  C   . W  E     .          .        M         .
        7100. .         .        .   I      .          . LR  C  .  W E     .          .         .M       .
356.00  7200. .         .        .   I      .          . LR  C  .  W E     .          .         .M       .
        7300. .         .        .   I      .          . LR  C  .  W  E    .          .         .M       .
        7400. .         .        .   I      .          .  L  C  .   W E    .          .         .M       .
        7500. .         .        .   I      .          .   L  C .   W E    .          .         .M       .
        7600. .         .        .   I      .          .   RL C .   W  E   .          .         .M       .
        7700. .         .        .   I      .          .    RLC .    W E   .          .         M        .
        7800. .         .        .   I      .          .    R LC.    W E   .          .         M        .
        7900. .         .        .   I      .          .     R C.    W  E  .          .         M        .
        8000. .         .        .   I      .          .     R LC     W E  .          .         M        .
358.00  8100. .         .        .   I      .          .      R CL    W  E.          .        M.        .
        8200. .         .        .   I      .          .      R CL     W E.          .        M.        .
        8300. .         .        .   I      .          .      R CL     W E.          .        M.        .
        8400. .         .        .    I     .          .      R CL     W  E          .       M .        .
        8500. .         .        .    I     .          .      R CL      W E          .       M .        .
        8600. .         .        .    I     .          .      R .C      W E          .       M .        .
        8700. .         .        .    I     .          .      R .C      W E          .      M  .        .
        8800. .         .        .    I     .          .      R .C       W.E         .      M  .        .
        8900. .         .        .     I    .          .      R .C       W.E         .      M  .        .
        9000. .         .        .     I    .          .      R .C       W.E         .     M   .        .
360.00  9100. .         .        .     I    .          .      R .C        WE         .     M   .        .
        9200. .         .        .     I    .          .       R.C        WE         .     M   .        .
        9300. .         .        .     I    .          .       R.CL       W E        .     M   .        .
        9400. .         .        .     I    .          .       R.C L      W E        .    M    .        .
        9500. .         .        .     I    .          .       R.C  L     W E        .    M    .        .
        9600. .         .        .     I    .          .        R C L     .WE        .   M     .        .
        9700. .         .        .     I    .          .        R C  L    .W E       .   M     .        .
        9800. .         .        .     I    .          .        R C   L   .W E       .   M     .        .
        9900. .         .        .     I    .          .        .RC    L  .W E       . M      .        .
362.00 10000. .         .        .     I    .          .        .RC    L  .W E       . M      .        .
       10100. .         .        .     I    .          .        .RC    L  . WE       . M      .        .
       10200. .         .        .     I    .          .        .RC     L . W E       . M      .        .
       10300. .         .        .     I    .          .        .RC     L . W E       . M      .        .
       10400. .         .        .     I    .          .        .RC     L . W E       . M      .        .
       10500. .         .        .     I    .          .        .RC     L .  WE       . M      .        .
       10600. .         .        .     I    .          .        .RC      L.  WE       . M      .        .
       10700. .         .        .     I    .          .        .RC      L.  W E      . M      .        .
       10800. .         .        .     I    .          .        .RC      L.  W E      . M      .        .
364.00 10900. .         .        .     I    .          .        .RC      L.   WE      . M      .        .
       11000. .         .        .     I    .          .        . FC    L .   WE      .  M     .        .
       11100. .         .        .      I   .          .        . FC  L   .   WE      .  M     .        .
       11200. .         .        .      I   .          .        . FC L    .   W E     .  M     .        .
       11300. .         .        .       I  .          .        .  C      .   W E     .   M    .        .
       11400. .         .        .       I  .          .        .L C      .    WE     .   M    .        .
       11500. .         .        .        I.            .        L   C     .    WE     .   M    .        .
       11600. .         .        .        I.            .        L .  C    .    WE     .    M   .        .
```

THIS RUN EXECUTED FRI, JAN 15 1988 09:34:51

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**************************************************
```

T1 1-5-88 ESTRELLA -ACRED
T2 COTTON LANE BRIDGE ANALYSIS
T3 GILA RIVER FLOODWAY

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	G	WSEL	FQ
	0.	3.	0.	0.	0.000742	0.00	0.0	0.	889.490	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.000	0.000	0.000	0.000	0.000	-1.000	0.000	0.000	15.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAR     TOPWID      ENDST

*PRCF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=   0.100 CEHV=   0.300
*SECNO 340.000
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    8407.0   13124.0  TYPE=     1  TARGET=    4717.000
            FIRST RUN NATURAL, SECOND RUN FLOODWAY
            REACH LENGTHS ON X1 CARDS HAVE BEEN UPDATED 12-87.
            ALL SECTIONS LOOKING DOWNSTREAM
            CHANNEL STATIONS ARE FROM LEFT TO RIGHT WITH CONTROL LINE STATION
            10,000.
            THE 100-YEAR FLOOD PEAK (250,000) IS BASED ON THE ARMY CORPS OF
            ENGINEERS (CORPS) HYDROLOGY, MAY 1985.
            TOPO PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC).
            PHOTO DATE 3-28-84.   AERIAL MAPPING CO. #83035
            COOPER AERIAL SURVEY CO. #830339.
            CROSS SECTIONS DIGITIZED FROM AERIAL PHOTOS FURNISHED BY FCDMC.
   340.00    16.59   889.49   884.62   889.10   885.99     0.50     0.00     0.00   888.30
  250000.       1.  249999.       0.       1.   44260.       0.       0.       0.   894.70
     0.00     0.49     5.65     0.00    0.055    0.032    0.000    0.000   872.90  8407.00
 0.000742       0.       0.       0.        3       13        0     0.00  4686.84 13093.84

FLOW DISTRIBUTION FOR SECNO=    340.00          CWSEL=    889.49

STA=    8407.    8408.   13123.
  PER Q=      0.0    100.0
   AREA=      1.2  44259.8
    VEL=      0.5      5.6

*SECNO 342.000
3280 CROSS SECTION    342.00 EXTENDED      0.17 FEET

3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    8707.0   13272.0  TYPE=     1  TARGET=    4565.000
   342.00    16.46   890.06   884.35   889.70   890.52     0.46     0.53     0.00   884.80
  250000.       3.  249996.       1.       5.   45990.       1.     808.       83.   888.70
     0.04     0.60     5.44     0.47    0.055    0.032    0.055    0.000   873.60  8707.00
 0.000631      740.      780.      830.        9       23        0     0.00  4565.00 13272.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=    342.00          CWSEL=    890.06

STA=    8707.    8708.   13271.   13272.
  PER Q=       0.0     100.0       0.0
   AREA=       5.3   45990.3       1.3
    VEL=       0.6       5.4       0.5

*SECNO 344.000

3470 ENCROACHMENT STATIONS=    9004.0   13311.0  TYPE=      1  TARGET=    4307.000
   344.00     15.27    890.57    885.38    890.17    891.12      0.55      0.57      0.03    885.30
  250000.      821.   249176.        3.      365.    41836.        4.     1628.      165.    886.20
     0.08      2.25      5.96      0.65     0.055     0.032     0.055     0.000    875.30   9004.00
 0.000778      730.      810.      940.         2        14         0      0.00   4307.00  13311.00

FLOW DISTRIBUTION FOR SECNO=    344.00          CWSEL=    890.57

STA=    9004.    9069.   13310.   13311.
  PER Q=       0.3      99.7       0.0
   AREA=     365.3   41836.2       4.4
    VEL=       2.2       6.0       0.7

CCHV=   0.300 CEHV=   0.500
*SECNO 346.000

3470 ENCROACHMENT STATIONS=    8713.0   12855.0  TYPE=      1  TARGET=    4142.000
            A DIKE IN THE RIGHT OVERBANK BETWEEN SECTIONS 348 AND 350
            CONSTRICTS FLOW.  ET CARDS ARE USED TO MODEL EFFECTIVE FLOW
            IN THE NATURAL RUN, AT A 1:1 UPSTREAM AND 4:1 DOWNSTREAM.
   346.00     16.62    891.22    885.92    890.69    891.76      0.54      0.64      0.00    885.50
  250000.        4.   249995.       1.        6.    42278.        2.     2452.      248.    889.40
     0.12      0.66      5.91      0.54     0.055     0.032     0.055     0.000    874.60   8713.00
 0.000734      750.      850.      890.         2        14         0      0.00   4142.00  12855.00

FLOW DISTRIBUTION FOR SECNO=    346.00          CWSEL=    891.22

STA=    8713.    8714.   12854.   12855.
  PER Q=       0.0     100.0       0.0
   AREA=       5.7   42278.1       1.9
    VEL=       0.7       5.9       0.5
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        FL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 348.000
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    8251.0    12159.0  TYPE=      1  TARGET=    3908.000
   348.00     15.58    891.88    886.50    891.30    892.48      0.60      0.69      0.03    884.30
  250000.        5.   249991.        3.        8.   40378.        5.    3315.      332.    886.90
     0.16      0.70      6.19      0.67     0.055     0.032     0.055     0.000    876.30   8251.00
 0.000791      810.      910.      930.         0        14         0      0.00   3908.00  12159.00

FLOW DISTRIBUTION FOR SECNO=    348.00          CWSEL=    891.88

STA=     8251.     8252.    12158.    12159.
  PER Q=       0.0     100.0       0.0
   AREA=       7.6   40377.6       5.0
    VEL=       0.7       6.2       0.7

*SECNO 350.000

3470 ENCROACHMENT STATIONS=    8102.0    11705.0  TYPE=      1  TARGET=    3603.000
   350.00     15.76    892.66    888.07    892.09    893.44      0.78      0.87      0.09    886.30
  250000.        5.   249991.        4.        6.   35332.        5.    4132.      413.    887.90
     0.20      0.81      7.08      0.79     0.055     0.032     0.055     0.000    876.90   8102.00
 0.001107      880.      940.      940.         2        19         0      0.00   3603.00  11705.00

FLOW DISTRIBUTION FOR SECNO=    350.00          CWSEL=    892.66

STA=     8102.     8103.    11704.    11705.
  PER Q=       0.0     100.0       0.0
   AREA=       6.4   35331.7       4.8
    VEL=       0.8       7.1       0.8

*SECNO 352.000

3470 ENCROACHMENT STATIONS=    8059.0    11277.0  TYPE=      1  TARGET=    3218.000
   352.00     13.39    893.79    890.48    893.30    894.95      1.17      1.32      0.20    887.80
  250000.        6.   249989.        4.        6.   28825.        4.    4816.      486.    889.40
     0.23      1.05      8.67      1.02     0.055     0.032     0.055     0.000    880.40   8059.00
 0.001875      930.      930.      880.         2        14         0      0.00   3218.00  11277.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        FL        OLOSS    BANK ELEV
   G         GLOB      QCH       GROB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAF     TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=    352.00          CWSEL=    893.79

STA=    8059.    8060.   11276.   11277.
  PER Q=       0.0     100.0       0.0
   AREA=       6.0   28824.8       4.4
    VEL=       1.1       8.7       1.0

*SECNO 354.000

3470 ENCROACHMENT STATIONS=    8100.0   10860.0  TYPE=     1  TARGET=    2760.000
            THE EXISTING COTTON LANE ALIGNMENT IS ELEVATED AND CONSTRICTS
            FLOW.  ET CARDS ARE USED TO MODEL EFFECTIVE FLOW IN THE NATURAL
            RUN AT 1:1 UPSTREAM AND 4:1 DOWNSTREAM (SEC. 354 TO 358).
   354.00     17.06    895.46    891.65    894.89    896.72      1.27      1.72      0.05    888.50
  250000.        7.   249984.        9.        7.   27695.        8.     5434.      551.    886.90
     0.25      1.03      9.03      1.05     0.055     0.032     0.055     0.000    878.40   8100.00
 0.001746      910.      950.      930.         2         5         0      0.00   2760.00  10860.00

FLOW DISTRIBUTION FOR SECNO=    354.00          CWSEL=    895.46

STA=    8100.    8101.   10859.   10860.
  PER Q=       0.0     100.0       0.0
   AREA=       7.0   27694.7       8.5
    VEL=       1.0       9.0       1.1

*SECNO 356.000

3470 ENCROACHMENT STATIONS=    8468.0   10800.0  TYPE=     1  TARGET=    2332.000
   356.00     14.91    897.01    893.01    896.44    898.51      1.50      1.67      0.12    890.90
  250000.        6.   248195.    1799.        6.   25187.      537.     6017.      606.    891.70
     0.28      1.03      9.85      3.35     0.055     0.032     0.055     0.000    882.10   8468.00
 0.001778      920.      950.      910.         2        14         0      0.00   2332.00  10800.00

FLOW DISTRIBUTION FOR SECNO=    356.00          CWSEL=    897.01

STA=    8468.    8469.   10699.   10800.
  PER Q=       0.0      99.3       0.7
   AREA=       6.1   25187.2     536.6
    VEL=       1.0       9.9       3.4
```

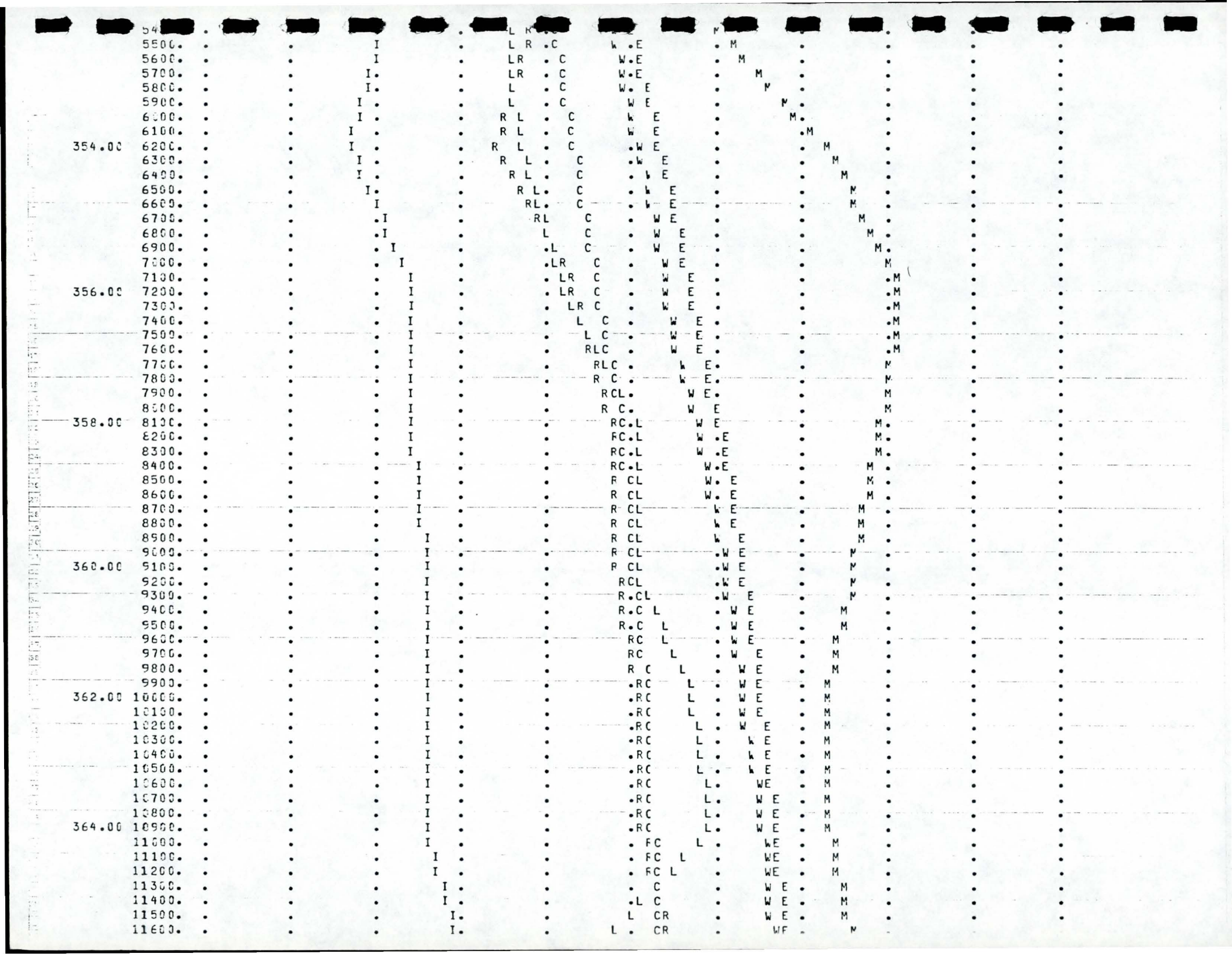
```
   SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        FV        FL        OLOSS    BANK ELEV
   G          GLOB      QCH       GROB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 358.000

3470 ENCROACHMENT STATIONS=    8706.0   11080.0  TYPE=      1  TARGET=    2374.000
   358.00     16.85   898.75   894.56   898.19   900.24     1.48      1.72      0.00    895.60
  250000.        3.  248259.    1738.       3.   25314.     627.     6597.      659.    894.10
     0.31      0.94     9.81     2.77    0.055    0.032    0.055     0.000   881.90   8706.00
 0.001734     1010.     980.     910.        2       15        0      0.00  2374.00  11080.00

FLOW DISTRIBUTION FOR SECNO=    358.00          CWSEL=    898.75

STA=     8706.    8707.   10919.   11078.   11080.
  PER Q=      0.0     99.3      0.7      0.0
   AREA=      3.1  25313.6    620.4      6.4
    VEL=      0.9      9.8      2.8      1.3

CCHV=   0.100 CEHV=   0.300
*SECNO 360.000

3470 ENCROACHMENT STATIONS=    8797.0   11400.0  TYPE=      1  TARGET=    2603.000
   360.00     17.47   900.47   895.14   899.79   901.58     1.11      1.31      0.04    895.30
  250000.        4.  233520.   16475.       5.   26875.    4314.     7209.      712.    894.20
     0.34      0.82     8.69     3.82    0.055    0.032    0.055     0.000   883.00   8797.00
 0.001165      900.     930.     960.        2       19        0      0.00  2603.00  11400.00

FLOW DISTRIBUTION FOR SECNO=    360.00          CWSEL=    900.47

STA=     8797.    8798.   10890.   10965.   11041.   11063.   11114.   11143.   11210.   11337.   11378.   11400.
  PER Q=      0.0     93.4      0.8      0.7      0.3      1.1      0.5      0.7      1.5      0.7      0.3
   AREA=      5.2  26875.0    545.5    545.2    185.3    577.5    282.0    507.4   1025.3    402.8    243.0
    VEL=      0.8      8.7      3.5      3.4      3.8      4.6      4.2      3.6      3.7      4.2      3.5

*SECNO 362.000

3470 ENCROACHMENT STATIONS=    8585.0   11300.0  TYPE=      1  TARGET=    2715.000
   362.00     18.49   901.45   896.01   900.64   902.59     1.10      1.01      0.00    898.60
  250000.        2.  227662.   22336.       3.   26047.    6175.     7859.      767.    895.40
     0.37      0.74     8.74     3.62    0.055    0.032    0.055     0.000   883.00   8585.00
 0.001107      770.     880.     960.        2       19        0      0.00  2715.00  11300.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      QCH       GROB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=    362.00          CWSEL=    901.49

STA=    8585.    8586.   10518.   10804.   11168.   11300.
  PER Q=       0.0      91.1       3.3       4.5       1.2
   AREA=       2.9  26047.3    2269.2    2983.3     922.9
    VEL=       0.7       8.7       3.6       3.8       3.2

*SECNO 364.000

3470 ENCROACHMENT STATIONS=    8164.0   11100.0  TYPE=      1  TARGET=    2936.000
   364.00     19.68    902.68    896.20    901.85    903.49      0.82      0.87      0.03    895.60
  250000.        2.   238908.     11090.        3.    32343.      3782.     8603.      830.    895.60
     0.41      0.63      7.39      2.93     0.055     0.032     0.055     0.000    883.00   8164.00
 0.000802      700.      920.     1120.         2        19         0      0.00   2936.00  11100.00

FLOW DISTRIBUTION FOR SECNO=    364.00          CWSEL=    902.68

STA=    8164.    8165.   10594.   10854.   10898.   10978.   11007.   11031.   11068.   11100.
  PER Q=       0.0      95.6       1.8       0.4       0.7       0.4       0.4       0.5       0.3
   AREA=       3.1  32343.1    1697.2     313.6     594.2     273.4     255.1     356.2     291.9
    VEL=       0.6       7.4       2.7       2.8       2.9       3.4       3.7       3.5       2.9

*SECNO 366.000

3470 ENCROACHMENT STATIONS=    8087.0   11015.0  TYPE=      1  TARGET=    2928.000
   366.00     18.36    903.46    896.82    902.64    904.19      0.73      0.68      0.01    892.80
  250000.        7.   245989.        4.       10.    36477.        6.     9334.      889.    897.40
     0.44      0.70      6.85      0.67     0.055     0.032     0.055     0.000    885.10   8087.00
 0.000754     1050.      880.      820.         2        14         0      0.00   2928.00  11015.00

FLOW DISTRIBUTION FOR SECNO=    366.00          CWSEL=    903.46

STA=    8087.    8088.   11014.   11015.
  PER Q=       0.0     100.0       0.0
   AREA=      10.5   36476.5       6.0
    VEL=       0.7       6.9       0.7
```

PROFILE FOR STREAM GILA RIVER FLOODWAY

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

```
ELEVATION   870.     875.     880.     885.     890.     895.     900.     905.     910.     915.
   SECNO   CUMDIS

 340.00       0.  .    I   .        .        C.      L WE       R. M       .        .        .        .        .
            100.  .    I   .        .        C.     L  WE       R .M       .        .        .        .        .
            200.  .    I   .        .        C.    L   WE     R  M.        .        .        .        .        .
            300.  .    I   .        .        C.   L    WE    R  M .        .        .        .        .        .
            400.  .     I  .        .        C.  L      WE R  M   .        .        .        .        .        .
            500.  .     I  .        .        C. L       WER M     .        .        .        .        .        .
            600.  .     I  .        .        C.L        WE M      .        .        .        .        .        .
            700.  .     I  .        .        CL         RWE       .        .        .        .        .        .
 342.00     800.  .     I  .        .        CL       R  WE       .        .        .        .        .        .
            900.  .      I .        .        CL       R  WE       .        .        .        .        .        .
           1000.  .      I .        .        CL      R   WEM      .        .        .        .        .        .
           1100.  .      I .        .        CL      R   .EM      .        .        .        .        .        .
           1200.  .       I.        .         C    R    .WEM      .        .        .        .        .        .
           1300.  .       I.        .         C   R     .WE M     .        .        .        .        .        .
           1400.  .        I        .         C   R     .WE  M    .        .        .        .        .        .
           1500.  .        I        .         C  R      .WE   M   .        .        .        .        .        .
 344.00    1600.  .        .I       .         .CR       .WE    M  .        .        .        .        .        .
           1700.  .        I        .         .C R      .WE     M .        .        .        .        .        .
           1800.  .        I        .         .C  R     .W E    M .        .        .        .        .        .
           1900.  .        I        .         .C   R    . WE     M.        .        .        .        .        .
           2000.  .        I        .         .C   R    . WE      M        .        .        .        .        .
           2100.  .        I        .         .C    R   . WE      .M       .        .        .        .        .
           2200.  .        I        .         .LC    R  . WE      .M       .        .        .        .        .
           2300.  .       I.        .         .LC     R . WE      . M      .        .        .        .        .
           2400.  .       I.        .         .LC     R . WE      .  M     .        .        .        .        .
 346.00    2500.  .       I.        .         .LC      R. W E     .  M     .        .        .        .        .
           2600.  .        I        .         .LC     R .  WE     .  M     .        .        .        .        .
           2700.  .        I        .         L C     R .  WE     .  M     .        .        .        .        .
           2800.  .        I        .         L C    R  .  WE     .  M     .        .        .        .        .
           2900.  .        .I       .         L C    R  .  WE     . M      .        .        .        .        .
           3000.  .        .I       .         L C   R   .  WE     . M      .        .        .        .        .
           3100.  .        .I       .        L.  C  R   .  WE     . M      .        .        .        .        .
           3200.  .        . I      .        L.  C R    .  W E    . M      .        .        .        .        .
           3300.  .        . I      .        L.  CR     .   WE    .M       .        .        .        .        .
 348.00    3400.  .        .  I     .        L.  CR     .   WE    .M       .        .        .        .        .
           3500.  .        .  I     .        L.  CR     .   WE    . M      .        .        .        .        .
           3600.  .        .  I     .        L.   C     .   WE    . M      .        .        .        .        .
           3700.  .        .  I     .         L   C     .   W E   .  M     .        .        .        .        .
           3800.  .        .  I     .         L   CR    .   W E   .  M     .        .        .        .        .
           3900.  .        .  I     .         .L   C    .    WE   .   M    .        .        .        .        .
           4000.  .        .  I     .         .L   C    .    WE   .    M   .        .        .        .        .
           4100.  .        .  I     .         . L  C    .    WE   .    M   .        .        .        .        .
           4200.  .        .   I    .         . L   C   .    W E  .     M  .        .        .        .        .
 350.00    4300.  .        .   I    .         .  L  C   .    W E  .     M  .        .        .        .        .
           4400.  .        .    I   .         .  L  RC  .     WE  .      M .        .        .        .        .
           4500.  .        .    I   .         .  L  RC  .     W E .      M .        .        .        .        .
           4600.  .        .     I  .         .   L  RC .     W E .      M .        .        .        .        .
           4700.  .        .      I .         .   L  RC .     W E .      M .        .        .        .        .
           4800.  .        .       I.         .   L  R C.      W E.       M .        .        .        .        .
           4900.  .        .       I.         .    L  RC.      W E.       M .        .        .        .        .
           5000.  .        .        I.        .    L  R C      W E.       M .        .        .        .        .
```


354.00
356.00
358.00
360.00
362.00
364.00

THIS RUN EXECUTED FRI, JAN 15 1988 09:35:09

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

GILA RIVER EXISTING COND

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10K*S	XLCH	SSTA	TOPWID	ENDST
*	340.000	250000.00	889.10	16.20	872.90	889.54	884.52	5.50	7.44	0.00	5512.40	7579.26	13091.66
*	340.000	250000.00	889.49	16.59	872.90	889.99	884.62	5.65	7.42	0.00	8407.00	4686.84	13093.84
	342.000	250000.00	889.70	16.10	873.60	890.05	884.23	5.02	5.66	780.00	5726.93	7557.92	13284.86
*	342.000	250000.00	890.06	16.46	873.60	890.52	884.35	5.44	6.31	780.00	8707.00	4565.00	13272.00
	344.000	250000.00	890.17	14.87	875.30	890.54	885.29	5.25	6.39	810.00	5785.46	7970.30	13755.77
	344.000	250000.00	890.57	15.27	875.30	891.12	885.38	5.96	7.78	810.00	9004.00	4307.00	13311.00
	346.000	250000.00	890.69	16.09	874.60	891.10	885.84	5.44	6.66	850.00	6027.89	7272.11	13300.00
	346.000	250000.00	891.22	16.62	874.60	891.76	885.92	5.91	7.34	850.00	8713.00	4142.00	12855.00
	348.000	250000.00	891.30	15.00	876.30	891.81	886.45	5.98	7.97	910.00	5364.88	6935.12	12300.00
*	348.000	250000.00	891.88	15.58	876.30	892.48	886.50	6.19	7.91	910.00	8251.00	3908.00	12159.00
	350.000	250000.00	892.09	15.19	876.90	892.80	888.07	6.97	11.65	940.00	5694.13	6893.33	12600.00
	350.000	250000.00	892.66	15.76	876.90	893.44	888.07	7.08	11.07	940.00	8102.00	3603.00	11705.00
	352.000	250000.00	893.30	12.90	880.40	894.22	890.63	8.11	17.65	930.00	6566.68	6933.32	13500.00
	352.000	250000.00	893.79	13.39	880.40	894.95	890.48	8.67	18.75	930.00	8059.00	3218.00	11277.00
	354.000	250000.00	894.89	16.49	878.40	895.95	891.52	8.65	17.35	950.00	6493.10	6876.18	13500.00
	354.000	250000.00	895.46	17.06	878.40	896.72	891.65	9.03	17.46	950.00	8100.00	2760.00	10860.00
	356.000	250000.00	896.44	14.34	882.10	897.69	893.35	9.43	17.46	950.00	7218.16	5789.50	13300.00
	356.000	250000.00	897.01	14.91	882.10	898.51	893.01	9.85	17.78	950.00	8468.00	2332.00	10800.00
	358.000	250000.00	898.19	16.29	881.90	899.36	895.09	9.18	16.26	980.00	6951.12	6456.89	13800.00
	358.000	250000.00	898.75	16.85	881.90	900.24	894.56	9.81	17.34	980.00	8706.00	2374.00	11080.00
	360.000	250000.00	899.79	16.79	883.00	900.59	895.44	7.88	10.29	930.00	7374.07	6758.90	14190.21
	360.000	250000.00	900.47	17.47	883.00	901.58	895.14	8.69	11.65	930.00	8797.00	2603.00	11400.00

SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10K*S	XLCH	SSTA	TOPWID	ENDST
362.000	250000.00	900.64	17.64	883.00	901.62	896.04	8.58	11.63	880.00	7377.79	5721.58	13099.37
362.000	250000.00	901.49	18.49	883.00	902.59	896.01	8.74	11.07	880.00	8585.00	2715.00	11300.00
364.000	250000.00	901.85	18.85	883.00	902.57	896.21	7.22	8.35	920.00	7641.36	4708.18	12349.54
364.000	250000.00	902.68	19.68	883.00	903.49	896.20	7.39	8.02	920.00	8164.00	2936.00	11100.00
366.000	250000.00	902.64	17.54	885.10	903.29	897.03	6.69	7.86	880.00	7998.74	4191.79	12190.53
366.000	250000.00	903.46	18.36	885.10	904.19	896.82	6.85	7.54	880.00	8087.00	2928.00	11015.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION  SECNO=   340.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=   340.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF

CAUTION  SECNO=   342.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF

CAUTION  SECNO=   348.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF
```

FLOODWAY DATA, GILA RIVER EXISTING COND
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
340.000	4687.	44261.	5.6	889.5	889.1	0.4
342.000	4565.	45997.	5.4	890.1	889.7	0.4
344.000	4307.	42206.	5.9	890.6	890.2	0.4
346.000	4142.	42286.	5.9	891.2	890.7	0.5
348.000	3908.	40350.	6.2	891.9	891.3	0.6
350.000	3603.	35343.	7.1	892.7	892.1	0.6
352.000	3218.	28835.	8.7	893.8	893.3	0.5
354.000	2760.	27710.	9.0	895.5	894.9	0.6
356.000	2332.	25730.	9.7	897.0	896.4	0.6
358.000	2374.	25944.	9.6	898.8	898.2	0.6
360.000	2603.	31194.	8.0	900.5	899.8	0.7
362.000	2715.	32226.	7.8	901.5	900.6	0.9
364.000	2936.	36128.	6.9	902.6	901.8	0.8
366.000	2928.	36493.	6.9	903.4	902.6	0.8

APPENDIX D

HEC-2 RUN

PROPOSED FLOODWAY CONDITION WITH BRIDGE

```
*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE FRI, JAN 15 1988 TIME 09:39:40          *
*****************************************************
```

```
*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616              *
*  (916) 440-2105 (FTS) 448-2105        *
*****************************************
```

INPUT FILE - GILA.COTTON.SB

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX   XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX  XXXXX              XXXXXXX
```

THIS RUN EXECUTED FRI, JAN 15 1988 09:39:42

```
**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
**************************************************


C
T1       1-5-87     ESTRELLA - ACRED
T2       COTTON LANE BRIDGE ANALYSIS
T3       GILA RIVER SPECIAL BRIDGE RUN

X1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        3.        0.        0.  0.000742      0.00      0.0       0.   889.490    0.000

X2  NPRCF     IPLOT     PRFVS     XSECV     XSECH      FN       ALLDC     IBW      CHNIM     ITRACE

    -1.000     0.000     0.000     0.000     0.000     0.000    -1.000    0.000     0.000    15.000

X3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000    43.000     1.000     8.000    42.000     3.000     2.000    26.000     5.000    39.000


    53.000     4.000    54.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000


NC     0.055     0.055     0.032     0.100     0.300     0.000     0.000     0.000     0.000     0.000
GT     2.000 250000.000 250000.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET   340.000     9.100     7.100     0.000     0.000     0.000  8407.000 13124.000  5186.000 13145.000
          REACH LENGTHS ON X1 CARDS HAVE BEEN UPDATED 12-87.
          ALL SECTIONS LOOKING DOWNSTREAM
          CHANNEL STATIONS ARE FROM LEFT TO RIGHT WITH CONTROL LINE STATION
          10,000.
          THE 100-YEAR FLOOD PEAK (250,000) IS BASED ON THE ARMY CORPS OF
          ENGINEERS (CORPS) HYDROLOGY, MAY 1985.
          TOPO PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC).
          PHOTO DATE 3-28-84.   AERIAL MAPPING CO. #83039
          COOPER AERIAL SURVEY CO. #830339.
          CROSS SECTIONS DIGITIZED FROM AERIAL PHOTOS FURNISHED BY FCDMC.
X1   340.000    95.000  8408.000 13123.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   906.900  5135.000   906.800  5186.000   897.100  5264.000   896.100  5336.000   889.500  5369.000
GR   889.300  5510.000   885.300  5558.000   883.100  5621.000   887.300  5632.000   887.300  5651.000
GR   882.600  5668.000   882.600  5922.000   885.500  5930.000   885.300  5965.000   885.600  6850.000
GR   885.800  7030.000   886.300  7600.000   887.800  7662.000   888.100  7947.000   883.300  8013.000
GR   883.300  8039.000   886.300  8070.000   888.300  8220.000   888.300  8408.000   882.500  8446.000
GR   881.500  8532.000   879.500  8548.000   881.000  8624.000   882.100  8660.000   878.600  8729.000
GR   882.100  8810.000   883.500  9117.000   880.600  9153.000   883.600  9200.000   880.600  9219.000
GR   884.000  9299.000   883.800  9500.000   881.300  9542.000   882.600  9678.000   880.800  9763.000
GR   874.000  9784.000   877.300  9862.000   881.000 10000.000   879.100 10128.000   879.800 10342.000
GR   880.300 10631.000   881.800 10962.000   882.100 11320.000   882.800 11475.000   880.600 11627.000
GR   874.800 11649.000   874.300 11876.000   875.600 11933.000   875.400 12007.000   878.800 12037.000
```

CR	880.100	12096.000	883.300	12105.000	883.300	12275.000	881.300	12306.000	876.900	12323.000
CR	878.900	12542.000	874.800	12616.000	876.400	12639.000	875.400	12743.000	874.100	12822.000
CR	875.300	12832.000	874.400	12982.000	872.900	13001.000	894.700	13123.000	896.200	13145.000
CR	891.600	13158.000	891.600	13173.000	892.600	13180.000	893.100	13446.000	891.600	13462.000
CR	891.600	13595.000	892.900	13614.000	893.200	13628.000	892.600	14085.000	895.200	14131.000
CR	895.100	14161.000	891.100	14190.000	892.100	14216.000	892.100	14720.000	891.600	14926.000
CR	891.600	14980.000	889.100	14994.000	889.100	15736.000	889.100	16647.000	889.700	17289.000
CR	896.600	17309.000	896.600	17335.000	892.900	17340.000	892.600	17370.000	896.200	17377.000
ET	342.000	9.100	7.100	0.000	0.000	0.000	8707.000	13272.000	5608.000	13378.000
X1	342.000	94.000	8708.000	13271.000	740.000	830.000	780.000	0.000	0.000	0.000
CR	896.100	5334.000	899.600	5422.000	893.600	5471.000	897.400	5496.000	891.600	5521.000
CR	896.100	5544.000	896.900	5608.000	891.600	5647.000	887.800	5806.000	886.100	5814.000
CR	886.500	5921.000	887.300	5939.000	884.100	5953.000	884.500	6187.000	886.100	6202.000
CR	886.100	6226.000	885.000	6241.000	885.500	6936.000	886.600	7291.000	886.800	7437.000
CR	888.000	7461.000	888.300	7495.000	887.000	7514.000	888.300	7725.000	887.600	7862.000
CR	885.500	7914.000	884.100	7977.000	886.300	8060.000	882.000	8083.000	879.300	8117.000
CR	881.600	8399.000	880.800	8514.000	884.800	8708.000	878.600	8728.000	879.300	8764.000
CR	882.800	8823.000	884.000	8884.000	881.800	8943.000	885.000	9168.000	883.600	9278.000
CR	884.500	9374.000	885.300	9486.000	883.500	9526.000	880.800	9658.000	876.000	9680.000
CR	875.500	9764.000	877.100	9939.000	876.800	10000.000	880.600	10090.000	882.100	10305.000
CR	880.600	10465.000	877.600	10517.000	879.100	10645.000	876.000	10663.000	876.500	10691.000
CR	882.000	10713.000	881.600	10941.000	874.100	10992.000	875.000	11106.000	877.300	11209.000
CR	880.100	11228.000	878.800	11375.000	878.300	11627.000	882.400	11650.000	881.600	11784.000
CR	879.900	12064.000	882.400	12251.000	879.800	12340.000	881.800	12381.000	881.300	12452.000
CR	879.600	12519.000	880.100	12860.000	873.600	12871.000	879.900	12897.000	880.400	12941.000
CR	874.300	12999.000	874.400	13240.000	888.700	13271.000	890.700	13299.000	890.100	13352.000
CR	897.100	13378.000	897.100	13407.000	890.600	13413.000	890.600	13432.000	897.200	13446.000
CR	897.200	13463.000	893.600	13478.000	894.400	13643.000	894.400	14249.000	893.100	14557.000
CR	896.200	14586.000	896.200	14618.000	890.100	14677.000	889.900	16856.000	0.000	0.000
ET	344.000	9.100	7.100	0.000	0.000	0.000	9004.000	13311.000	5773.000	13843.000
X1	344.000	95.000	9069.000	13310.000	730.000	940.000	810.000	0.000	0.000	0.000
CR	908.100	5190.000	900.100	5249.000	907.300	5276.000	907.800	5330.000	903.100	5362.000
CR	906.400	5399.000	906.400	5429.000	898.400	5560.000	900.800	5590.000	889.600	5648.000
CR	891.600	5663.000	890.500	5738.000	895.400	5773.000	889.100	5788.000	889.100	5828.000
CR	886.100	5829.000	886.100	6100.000	887.600	7090.000	886.800	7584.000	887.600	7610.000
CR	880.600	7633.000	882.600	7769.000	883.500	7934.000	881.600	7967.000	881.600	8063.000
CR	882.600	8104.000	880.800	8150.000	884.600	8181.000	883.500	8309.000	885.100	8352.000
CR	884.500	8444.000	882.300	8503.000	884.600	8539.000	881.100	8564.000	884.600	8688.000
CR	881.800	8820.000	884.100	8959.000	885.300	9069.000	879.800	9107.000	878.800	9245.000
CR	881.500	9303.000	881.300	9434.000	879.100	9510.000	880.300	9580.000	876.500	9621.000
CR	877.600	9764.000	881.800	10000.000	882.500	10322.000	882.300	10639.000	881.600	10774.000
CR	877.100	10801.000	875.600	10830.000	876.000	11091.000	878.100	11165.000	879.500	11250.000
CR	883.300	11447.000	884.600	11635.000	883.900	12174.000	885.700	12389.000	882.400	12437.000
CR	881.600	12632.000	877.900	12650.000	877.800	12778.000	875.400	12873.000	878.600	12911.000
CR	878.600	12968.000	875.300	13020.000	877.100	13037.000	876.100	13268.000	886.200	13310.000
CR	885.200	13333.000	885.200	13710.000	895.400	13804.000	896.100	13843.000	891.100	13854.000
CR	891.100	13869.000	897.200	13881.000	896.100	13909.000	894.100	13922.000	894.100	14193.000
CR	894.100	14244.000	892.400	14259.000	892.400	15166.000	893.600	15186.000	894.100	15223.000
CR	889.900	15263.000	888.700	15287.000	888.100	15566.000	892.100	15583.000	892.100	15598.000
CR	890.900	15607.000	890.700	16286.000	896.900	16306.000	897.400	16322.000	893.400	16332.000

NC	0.055	0.055	0.032	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	346.000	9.100	7.100	0.000	0.000	0.000	8713.000	12855.000	5749.000	13300.000
X1	346.000	95.000	8714.000	12854.000	750.000	890.000	850.000	0.000	0.000	0.000
GR	903.100	5310.000	898.600	5383.000	896.400	5550.000	900.900	5587.000	890.300	5594.000
GR	893.600	5602.000	894.300	5649.000	894.800	5749.000	892.100	6011.000	890.600	6029.000
GR	890.600	6455.000	888.600	6489.000	888.600	6742.000	887.300	6755.000	887.300	7379.000
GR	883.000	7405.000	882.800	7603.000	882.500	7745.000	883.100	7883.000	880.300	7906.000
GR	882.500	7953.000	883.300	8045.000	883.800	8132.000	885.000	8280.000	882.600	8318.000
GR	885.300	8376.000	883.500	8423.000	883.500	8465.000	885.500	8538.000	885.500	8714.000
GR	879.100	8738.000	880.600	8862.000	881.300	8944.000	879.500	9123.000	878.800	9259.000
GR	885.600	9278.000	885.000	9388.000	879.300	9403.000	879.600	9484.000	878.100	9503.000
GR	880.600	9561.000	879.600	9655.000	880.600	9688.000	880.600	9931.000	880.800	10000.000
GR	881.800	10287.000	882.600	10628.000	882.000	10869.000	876.600	10901.000	874.600	10934.000
GR	876.100	11011.000	880.100	11101.000	881.400	11233.000	881.100	11298.000	878.300	11311.000
GR	878.300	11412.000	884.900	11437.000	882.900	12079.000	879.300	12139.000	879.300	12292.000
GR	884.100	12327.000	884.300	12468.000	877.400	12485.000	877.300	12567.000	875.600	12583.000
GR	875.600	12736.000	878.900	12801.000	887.900	12832.000	889.400	12854.000	887.600	12867.000
GR	887.600	13082.000	885.900	13086.000	884.300	13791.000	888.100	13805.000	888.700	13859.000
GR	888.600	14014.000	891.200	14036.000	890.100	14233.000	896.100	14252.000	896.200	14272.000
GR	892.900	14283.000	892.900	14312.000	896.600	14316.000	896.600	14338.000	892.700	14353.000
GR	889.700	15650.000	897.400	15708.000	897.600	15747.000	893.900	15780.000	896.700	15801.000
GR	896.900	15831.000	891.900	15840.000	891.900	15870.000	895.900	15878.000	896.700	15897.000
ET	348.000	9.100	7.100	0.000	0.000	0.000	8251.000	12159.000	5340.000	12300.000
X1	348.000	77.000	8252.000	12158.000	810.000	930.000	910.000	0.000	0.000	0.000
GR	902.100	5111.000	894.800	5211.000	893.400	5275.000	890.000	5299.000	894.400	5320.000
GR	894.400	5349.000	890.100	5371.000	890.100	6285.000	888.800	6319.000	888.100	7481.000
GR	889.300	7528.000	883.100	7584.000	881.500	7599.000	884.000	7705.000	881.500	7747.000
GR	884.100	7773.000	886.500	7864.000	882.600	7891.000	883.500	7974.000	885.100	8000.000
GR	884.300	8252.000	877.800	8272.000	878.500	8418.000	881.600	8437.000	881.500	8602.000
GR	881.600	8772.000	884.300	8816.000	884.500	8939.000	883.500	9042.000	883.000	9315.000
GR	882.100	9400.000	879.600	9428.000	881.100	9602.000	881.600	9840.000	883.600	10000.000
GR	881.100	10085.000	880.800	10235.000	879.300	10301.000	882.300	10469.000	883.600	10531.000
GR	882.100	10683.000	878.600	10711.000	880.800	10861.000	881.000	10900.000	878.600	11127.000
GR	878.600	11320.000	883.300	11376.000	884.900	11711.000	885.600	11776.000	883.400	11907.000
GR	878.900	11988.000	876.300	12010.000	876.400	12135.000	886.900	12158.000	887.100	13317.000
GR	889.100	13330.000	892.200	14762.000	895.100	14771.000	894.400	15188.000	895.600	15224.000
GR	897.400	15268.000	894.200	15280.000	894.200	15307.000	899.400	15317.000	899.100	15332.000
GR	894.200	15345.000	893.200	16127.000	894.600	16177.000	896.700	16191.000	896.700	16230.000
GR	892.700	16253.000	892.900	16309.000	894.900	16423.000	894.900	16550.000	893.900	16727.000
GR	894.900	16794.000	895.600	16905.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	350.000	9.100	7.100	0.000	0.000	0.000	8102.000	11705.000	5500.000	12600.000
X1	350.000	88.000	8103.000	11704.000	880.000	940.000	940.000	0.000	0.000	0.000
GR	913.400	5036.000	907.300	5073.000	897.800	5142.000	897.600	5264.000	896.800	5394.000
GR	893.400	5399.000	897.800	5413.000	897.800	5438.000	895.900	5451.000	893.400	5675.000
GR	890.600	5716.000	890.600	5875.000	892.100	5897.000	890.800	5915.000	890.800	7098.000
GR	890.600	7179.000	891.100	7597.000	892.400	7643.000	884.300	7683.000	886.500	7769.000
GR	887.100	7904.000	884.800	7954.000	886.300	8103.000	880.800	8122.000	881.100	8200.000
GR	879.000	8380.000	883.300	8397.000	884.500	8505.000	884.000	8642.000	885.800	8671.000
GR	885.000	8817.000	884.800	9051.000	885.500	9107.000	884.100	9178.000	886.800	9240.000
GR	883.800	9290.000	885.500	9348.000	883.500	9385.000	885.600	9447.000	885.100	9628.000
GR	881.800	9645.000	882.300	9767.000	881.800	9938.000	881.600	10000.000	884.100	10167.000

[redacted], J[redacted]5 1[redacted] 09:[redacted]2 [redacted]

```
GR     884.800  10363.000    882.800  10533.000    882.800  10770.000    881.900  10838.000    879.300  10860.000
GR     879.300  11066.000    883.400  11078.000    882.600  11110.000    880.900  11278.000    883.400  11384.000
GR     876.900  11592.000    876.900  11612.000    881.900  11685.000    887.900  11704.000    889.400  12807.000
GR     885.400  12826.000    885.400  12847.000    889.900  12858.000    889.900  13471.000    890.900  14013.000
GR     890.700  14039.000    889.600  14045.000    889.400  14173.000    893.200  14205.000    893.200  14227.000
GR     888.100  14244.000    889.400  14274.000    895.900  14305.000    895.700  15142.000    895.700  15187.000
GR     895.600  15212.000    893.600  15214.000    893.600  15244.000    898.200  15258.000    898.200  15277.000
GR     894.100  15282.000    894.100  15868.000    894.700  16452.000    897.700  16488.000    899.400  16525.000
GR     896.100  16544.000    897.100  16690.000    898.200  16839.000      0.000      0.000      0.000      0.000

ET     352.000      9.100      7.100      0.000      0.000      0.000   8059.000  11277.000   6000.000  13500.000
X1     352.000     80.000   8060.000  11276.000    930.000    880.000    930.000      0.000      0.000      0.000
GR     902.600   5400.000    901.400   5504.000    903.100   5616.000    900.900   5731.000    897.600   5752.000
GR     902.300   5767.000    902.300   5793.000    900.300   5815.000    899.400   5938.000    898.600   6304.000
GR     895.600   6403.000    893.300   6567.000    891.600   6627.000    892.300   6670.000    891.600   6683.000
GR     890.800   7789.000    892.600   7796.000    892.600   7825.000    887.800   7846.000    887.800   8060.000
GR     886.300   8086.000    881.800   8117.000    882.300   8271.000    884.500   8310.000    884.800   8496.000
GR     883.600   8535.000    885.800   8646.000    882.000   8663.000    884.600   8696.000    882.500   8761.000
GR     884.300   8780.000    884.300   8872.000    886.000   8885.000    887.300   8946.000    889.300   8991.000
GR     884.800   9045.000    888.100   9101.000    888.600   9180.000    888.600   9385.000    886.300   9485.000
GR     885.100   9604.000    886.300   9641.000    885.100   9826.000    885.100  10000.000    885.000  10220.000
GR     884.000  10530.000    883.000  10575.000    880.400  10580.000    880.400  10758.000    883.600  10856.000
GR     884.300  11065.000    884.300  11245.000    889.400  11276.000    891.100  11351.000    889.100  11367.000
GR     888.900  11870.000    888.900  12408.000    890.200  12427.000    890.200  13006.000    891.900  13019.000
GR     891.900  13569.000    892.200  14456.000    888.400  14483.000    887.600  14655.000    893.400  14662.000
GR     894.400  14735.000    889.600  14765.000    899.900  14809.000    898.900  15060.000    894.900  15064.000
GR     894.900  15094.000    901.400  15104.000    901.400  15119.000    895.900  15135.000    896.900  15767.000
GR     896.900  16477.000    903.100  16525.000    903.100  16569.000    899.700  16594.000    899.400  16748.000

ET     353.000      9.100      7.100      0.000      0.000      0.000   7755.000  10995.000   6320.000  13490.000
          SPECIAL BRIDGE ROUTINE USED AT COTTON LANE (3240 FT.).
          SPECIAL BRIDGE TRAPAZOID USES 3:1 SIDE SLOPES, 3185' BOTTOM WIDTH,
          AND A BOTTOM ELEV. OF 886.1 .
X1     353.000     46.000   7920.000  10865.000    190.000   1240.000    690.000      0.000      0.000      0.000
GR     900.000   5765.000    898.500   5860.000    897.000   6015.000    896.000   6150.000    896.800   6720.000
GR     893.900   6960.000    893.200   7280.000    892.300   7650.000    892.000   7750.000    888.000   7840.000
GR     888.000   7920.000    884.200   8000.000    884.200   8190.000    887.000   8370.000    886.000   8515.000
GR     887.000   8625.000    886.500   8740.000    888.000   8900.000    889.000   9220.000    888.000   9565.000
GR     887.200   9585.000    887.800   9630.000    887.300   9680.000    888.000   9725.000    888.300   9780.000
GR     888.000   9840.000    884.600  10000.000    884.000  10040.000    882.200  10200.000    882.100  10350.000
GR     882.100  10480.000    882.200  10600.000    884.000  10800.000    888.000  10865.000    892.000  11000.000
GR     892.000  11485.000    891.700  11850.000    891.000  11985.000    891.700  12050.000    891.500  12360.000
GR     892.000  12530.000    896.000  13510.000    896.600  13930.000    897.800  14980.000    900.000  15200.000
GR     900.000  15250.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

ET     353.200      9.100      7.110      0.000      0.000      0.000      0.000   7755.000  10995.000   6320.000  13490.000
SB       1.050      1.560      2.700      0.000   3185.100    130.000  49324.000      3.000    886.100    886.100      0.000
X1     353.200     46.000   7920.000  10865.000    110.000    110.000    110.000      0.000      0.000      0.000      0.000
X2       0.000      0.000      1.000    905.000    906.000      0.000      0.000      1.330      0.000      0.000      0.000
BT      17.000   5765.000    900.000      0.000   5860.000    898.500      0.000   6015.000    897.000      0.000      0.000
BT    6150.000    896.000      0.000   6755.000    896.000      0.000   7754.000    906.000      0.000   7755.000
BT     906.000    899.000   8835.000    911.000    904.000   9375.000    912.000    905.000   9915.000    911.000
BT     904.000  10995.000    906.000    899.000  10996.000    906.000      0.000  11895.000    897.000      0.000
BT   14800.000    897.000      0.000  14980.000    897.800      0.000  15200.000    900.000      0.000  15250.000
```

SHAPE
TOT LOSS
TRAPAZOID WEIR "C"
RADIUSLY FLARED
BOTTOM WIDTH
PER
NET OPENING
SIDE SLOPE
INVERT DOWNSTREAM
SB
LOW CHORD
TOP ROAD
Δ WATER ELEV.
BRIDGE TABLE
DRAG COEFF.
INVERT UPSTR.
SKEW
TRACE

FRI, JAN 15 1988 09:39:42

ET	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	900.000	5765.000	898.500	5860.000	897.000	6015.000	896.000	6150.000	896.800	6720.000
GR	893.900	6960.000	893.200	7280.000	892.300	7650.000	892.000	7750.000	888.000	7840.000
GR	888.000	7920.000	884.200	8000.000	884.200	8190.000	887.000	8370.000	886.000	8515.000
GR	887.000	8625.000	886.500	8740.000	888.000	8900.000	889.000	9220.000	888.000	9565.000
GR	887.200	9585.000	887.800	9630.000	887.300	9680.000	888.000	9725.000	888.300	9780.000
GR	888.000	9840.000	884.600	10000.000	884.000	10040.000	882.200	10200.000	882.100	10350.000
GR	882.100	10480.000	882.200	10600.000	884.000	10800.000	888.000	10865.000	892.000	11000.000
GR	892.000	11485.000	891.700	11850.000	891.000	11985.000	891.700	12050.000	891.500	12360.000
GR	892.000	12530.000	896.000	13510.000	896.600	13930.000	897.800	14980.000	900.000	15200.000
GR	900.000	15250.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	356.000	9.100	7.100	0.000	0.000	0.000	8468.000	10800.000	7200.000	13300.000
X1	356.000	86.000	8469.000	10699.000	1600.000	500.000	1100.000	0.000	0.000	0.000
GR	915.600	6367.000	915.300	6397.000	908.100	6443.000	915.400	6507.000	906.700	6577.000
GR	909.200	6616.000	902.600	6672.000	904.900	6727.000	943.100	6904.000	954.200	7002.000
GR	957.200	7040.000	942.700	7109.000	894.400	7182.000	898.100	7196.000	898.100	7213.000
GR	895.200	7222.000	895.700	7556.000	897.100	7572.000	895.700	7879.000	896.700	7896.000
GR	896.200	8155.000	896.200	8213.000	894.600	8225.000	896.300	8245.000	896.200	8247.000
GR	890.900	8330.000	890.900	8469.000	886.100	8492.000	884.300	8672.000	887.100	8701.000
GR	887.100	8829.000	885.400	8892.000	888.400	8581.000	888.200	9183.000	887.600	9533.000
GR	884.700	9756.000	883.400	9924.000	882.100	9939.000	882.100	10000.000	883.100	10256.000
GR	883.800	10443.000	886.200	10542.000	885.700	10627.000	887.900	10644.000	887.100	10680.000
GR	891.700	10699.000	891.700	10810.000	892.000	10881.000	892.000	10994.000	892.200	11021.000
GR	894.600	11161.000	892.700	11274.000	892.000	11287.000	892.000	11446.000	893.100	11473.000
GR	892.100	11557.000	892.100	11593.000	893.200	12252.000	895.900	13393.000	895.900	13509.000
GR	896.200	13815.000	892.900	13833.000	892.400	14318.000	895.600	14352.000	897.600	14437.000
GR	897.900	14680.000	898.400	14828.000	900.200	14849.000	901.100	14875.000	897.900	14881.000
GR	897.900	14911.000	901.100	14922.000	901.600	14942.000	899.900	14985.000	899.100	15230.000
GR	902.200	15487.000	902.200	15751.000	903.900	16156.000	907.400	16191.000	907.900	16233.000
GR	906.900	16246.000	906.900	16355.000	909.100	16371.000	909.100	16386.000	911.200	16400.000
GR	910.700	16421.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	358.000	9.100	7.100	0.000	0.000	0.000	8706.000	11080.000	6919.000	13800.000
X1	358.000	85.000	8707.000	10919.000	1010.000	910.000	980.000	0.000	0.000	0.000
GR	914.400	6510.000	910.100	6533.000	914.200	6571.000	915.100	6621.000	912.400	6678.000
GR	904.200	6791.000	895.900	6903.000	899.200	6919.000	898.700	6945.000	897.200	6963.000
GR	896.600	7578.000	898.200	7588.000	898.100	8244.000	898.900	8273.000	900.200	8463.000
GR	898.200	8570.000	895.600	8707.000	893.900	8734.000	888.400	8759.000	888.200	8778.000
GR	884.100	8805.000	886.700	8823.000	889.400	8980.000	890.600	9136.000	885.600	9196.000
GR	885.100	9240.000	886.700	9407.000	886.200	9641.000	882.600	9650.000	882.400	9719.000
GR	883.800	9734.000	883.300	9765.000	881.900	9899.000	885.900	9929.000	887.400	10000.000
GR	887.700	10167.000	885.400	10382.000	888.400	10451.000	889.900	10530.000	886.900	10546.000
GR	890.400	10563.000	886.700	10584.000	891.200	10608.000	892.200	10700.000	886.900	10743.000
GR	890.900	10776.000	887.400	10864.000	894.100	10919.000	895.600	11078.000	892.700	11126.000
GR	894.700	11137.000	892.900	11160.000	894.900	11996.000	896.400	12720.000	896.500	12748.000
GR	896.600	12810.000	896.700	12845.000	897.200	12861.000	894.600	12874.000	894.400	12920.000
GR	893.400	13906.000	894.700	13930.000	895.400	13947.000	894.700	14500.000	898.700	14519.000
GR	900.700	14558.000	897.700	14565.000	897.700	14606.000	902.900	14610.000	902.900	14633.000
GR	901.400	14646.000	903.600	15872.000	907.400	15882.000	908.900	15919.000	908.600	15946.000
GR	905.200	15980.000	908.600	16005.000	909.200	16063.000	907.600	16079.000	909.100	16087.000
GR	909.100	16101.000	912.200	16112.000	911.600	16144.000	908.600	16152.000	909.700	16288.000

NC	0.055	0.055	0.032	0.100	0.300	0.000	0.000	0.000	0.000	0.000
ET	360.000	9.100	7.100	0.000	0.000	0.000	8797.000	11400.000	7271.000	14232.000
X1	360.000	78.000	8798.000	10890.000	900.000	960.000	930.000	0.000	0.000	0.000
GR	919.300	6706.000	913.300	6743.000	943.100	6920.000	917.600	7051.000	938.800	7149.000
GR	896.600	7255.000	900.100	7271.000	900.000	7282.000	899.000	7729.000	900.500	7742.000
GR	900.100	7787.000	899.000	7809.000	898.800	8182.000	898.800	8607.000	897.000	8655.000
GR	899.600	8721.000	895.500	8761.000	895.300	8798.000	890.300	8822.000	886.500	8880.000
GR	884.100	8915.000	883.600	9205.000	883.800	9409.000	883.500	9498.000	883.000	9516.000
GR	883.000	9649.000	888.000	9667.000	885.500	9684.000	887.100	9942.000	887.800	10000.000
GR	889.400	10126.000	887.900	10246.000	890.400	10304.000	892.700	10369.000	890.900	10424.000
GR	892.600	10464.000	893.900	10561.000	892.900	10683.000	890.900	10766.000	892.900	10802.000
GR	894.200	10890.000	892.200	10965.000	894.400	11041.000	889.700	11063.000	888.600	11114.000
GR	892.900	11143.000	892.900	11210.000	891.900	11337.000	889.400	11378.000	889.600	11459.000
GR	899.600	11499.000	895.600	11575.000	895.900	12336.000	893.400	13353.000	894.600	13369.000
GR	894.700	14157.000	898.400	14175.000	900.600	14199.000	901.700	14232.000	895.700	14241.000
GR	895.700	14290.000	900.200	14306.000	902.100	14328.000	899.100	14340.000	900.700	14954.000
GR	901.700	15586.000	904.900	15599.000	906.400	15629.000	905.900	15669.000	904.100	15702.000
GR	905.100	15721.000	904.900	15789.000	906.900	15794.000	906.700	15814.000	909.200	15821.000
GR	909.200	15849.000	906.600	15864.000	908.200	15966.000	0.000	0.000	0.000	0.000
ET	362.000	9.100	7.100	0.000	0.000	0.000	8585.000	11300.000	7343.000	13110.000
X1	362.000	87.000	8586.000	10518.000	770.000	960.000	880.000	0.000	0.000	0.000
GR	927.300	6859.000	916.600	6961.000	913.600	7003.000	920.800	7038.000	923.800	7094.000
GR	921.600	7150.000	924.900	7212.000	921.800	7246.000	907.400	7297.000	898.500	7330.000
GR	902.400	7343.000	902.800	7367.000	900.600	7378.000	900.100	7502.000	900.500	7634.000
GR	899.600	8421.000	898.600	8586.000	883.000	8637.000	883.100	8748.000	883.800	8800.000
GR	884.600	8892.000	886.100	9010.000	886.500	9035.000	884.500	9087.000	884.500	9191.000
GR	888.100	9199.000	888.500	9251.000	892.300	9260.000	891.000	9467.000	885.000	9494.000
GR	885.500	9618.000	888.300	9755.000	889.500	10000.000	890.100	10186.000	890.100	10412.000
GR	893.600	10466.000	895.400	10518.000	893.600	10547.000	893.600	10642.000	895.100	10672.000
GR	892.200	10737.000	893.100	10804.000	890.100	10822.000	894.900	10869.000	896.100	10921.000
GR	892.700	10940.000	897.100	10992.000	893.700	11036.000	893.700	11066.000	889.900	11089.000
GR	891.100	11168.000	895.200	11213.000	895.200	11371.000	893.600	11486.000	894.200	11613.000
GR	893.900	11694.000	890.700	11732.000	890.700	11791.000	899.100	11827.000	898.700	11850.000
GR	896.100	11876.000	897.700	12508.000	897.600	13085.000	901.200	13102.000	901.200	13135.000
GR	897.200	13143.000	897.200	13186.000	900.900	13194.000	900.900	13210.000	900.200	13610.000
GR	898.700	14343.000	899.700	14366.000	898.200	14382.000	899.400	14395.000	899.700	14638.000
GR	899.400	14842.000	899.600	15372.000	901.900	15379.000	901.900	15397.000	904.200	15412.000
GR	904.200	15454.000	903.400	15570.000	905.100	15583.000	905.100	15599.000	907.400	15616.000
GR	905.600	15640.000	906.400	15720.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	364.000	9.100	7.100	0.000	0.000	0.000	8164.000	11100.000	7350.000	12602.000
X1	364.000	91.000	8165.000	10594.000	700.000	1120.000	920.000	0.000	0.000	0.000
GR	934.900	7108.000	931.900	7152.000	921.800	7216.000	902.800	7293.000	901.600	7310.000
GR	905.400	7319.000	905.400	7357.000	903.600	7362.000	902.400	7513.000	899.600	8165.000
GR	892.300	8202.000	891.600	8300.000	888.300	8344.000	887.100	8408.000	883.800	8489.000
GR	883.500	8530.000	886.000	8552.000	885.000	8607.000	883.000	8616.000	885.600	8662.000
GR	885.600	8708.000	885.800	8933.000	889.100	8970.000	888.000	9013.000	891.500	9056.000
GR	892.300	9158.000	891.300	9249.000	890.100	9279.000	888.600	9375.000	888.600	9439.000
GR	887.500	9515.000	887.500	9657.000	889.100	9835.000	892.600	9876.000	891.600	9956.000
GR	891.800	10000.000	889.900	10159.000	890.900	10244.000	891.900	10451.000	894.600	10479.000
GR	895.600	10594.000	896.700	10854.000	894.400	10898.000	896.100	10978.000	890.400	11007.000
GR	893.700	11031.000	892.400	11068.000	897.100	11133.000	895.700	11181.000	891.400	11205.000

FRI, JAN 15 1968 09:59:42

CR	891.200	11262.000	893.900	11282.000	893.200	11332.000	895.400	11395.000	891.700	11446.000
CR	894.900	11475.000	893.100	11594.000	893.100	11712.000	894.700	11746.000	894.700	11793.000
CR	893.400	11824.000	896.100	11858.000	894.100	11901.000	900.000	11936.000	900.000	12258.000
CR	900.400	12312.000	902.600	12369.000	903.900	12476.000	905.100	12602.000	899.100	12612.000
CR	899.100	12641.000	907.100	12654.000	906.400	12669.000	908.600	12681.000	901.600	12724.000
CR	902.100	12805.000	901.900	13000.000	902.400	13299.000	901.300	14089.000	900.900	14111.000
CR	903.400	15274.000	905.600	15309.000	905.300	15341.000	904.300	15353.000	903.800	15443.000
CR	904.900	15482.000	905.400	15499.000	908.900	15510.000	907.100	15531.000	905.800	15573.000
CR	906.600	15673.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	366.000	9.100	7.100	0.000	0.000	0.000	8087.000	11015.000	7100.000	12500.000
X1	366.000	73.000	8088.000	11014.000	1050.000	820.000	880.000	0.000	0.000	0.000
CR	907.400	7073.000	910.400	7084.000	909.600	7110.000	907.300	7120.000	905.300	7134.000
CR	905.800	7221.000	902.400	8059.000	892.800	8088.000	892.800	8215.000	888.500	8245.000
CR	889.100	8471.000	886.500	8579.000	886.500	8657.000	885.100	8660.000	885.100	8860.000
CR	888.500	8907.000	891.300	9083.000	893.800	9198.000	892.600	9288.000	889.500	9395.000
CR	891.100	9675.000	890.500	9889.000	888.000	9942.000	890.600	10000.000	892.100	10259.000
CR	893.100	10432.000	885.800	10449.000	889.800	10485.000	891.900	10508.000	891.900	10563.000
CR	891.000	10609.000	894.300	10627.000	896.900	10802.000	897.400	10841.000	897.400	11014.000
CR	896.600	11232.000	895.400	11342.000	893.600	11445.000	894.800	11496.000	893.100	11539.000
CR	893.100	11627.000	897.800	11641.000	897.400	11693.000	894.400	11751.000	896.600	11814.000
CR	896.900	11916.000	896.300	12166.000	903.800	12195.000	904.100	12325.000	904.100	12511.000
CR	911.100	12540.000	905.900	12548.000	905.900	12565.000	898.300	12581.000	898.300	12605.000
CR	906.600	12618.000	906.600	12642.000	902.900	12656.000	902.400	13070.000	902.100	13955.000
CR	901.300	13968.000	903.600	15239.000	905.300	15273.000	905.300	15299.000	903.800	15309.000
CR	903.800	15375.000	902.900	15429.000	905.400	15436.000	905.400	15445.000	903.900	15456.000
CR	906.900	15484.000	907.400	15550.000	908.100	15645.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=   0.100 CEHV=   0.300
*SECNO 340.000
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    8407.0   13124.0  TYPE=     1  TARGET=    4717.000
            REACH LENGTHS ON X1 CARDS HAVE BEEN UPDATED 12-87.
            ALL SECTIONS LOOKING DOWNSTREAM
            CHANNEL STATIONS ARE FROM LEFT TO RIGHT WITH CONTROL LINE STATION
            10,000.
            THE 100-YEAR FLOOD PEAK (250,000) IS BASED ON THE ARMY CORPS OF
            ENGINEERS (CORPS) HYDROLOGY, MAY 1985.
            TOPO PROVIDED BY FLOOD CONTROL DISTRICT OF MARICOPA COUNTY (FCDMC).
            PHOTO DATE 3-28-84.  AERIAL MAPPING CO. #83039
            COOPER AERIAL SURVEY CO. #830339.
            CROSS SECTIONS DIGITIZED FROM AERIAL PHOTOS FURNISHED BY FCDMC.
   340.00    16.59   889.49   884.62     0.00   889.99     0.50     0.00     0.00   888.30
  250000.       1.  249999.       0.       1.   44260.       0.       0.       0.   894.70
     0.00     0.49     5.65     0.00    0.055    0.032    0.000    0.000   872.90  8407.00
 0.000742       0.       0.       0.        0       13        0     0.00  4686.84 13093.84


FLOW DISTRIBUTION FOR SECNO=    340.00          CWSEL=    889.49

STA=    8407.    8408.   13123.
  PER Q=      0.0    100.0
   AREA=      1.2  44259.8
    VEL=      0.5      5.6

*SECNO 342.000
3280 CROSS SECTION    342.00 EXTENDED       0.17 FEET

3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    8707.0   13272.0  TYPE=     1  TARGET=    4565.000
   342.00    16.46   890.06   884.35     0.00   890.52     0.46     0.53     0.00   884.80
  250000.       3.  249996.       1.       5.   45990.       1.     808.       83.   888.70
     0.04     0.60     5.44     0.47    0.055    0.032    0.055    0.000   873.60  8707.00
 0.000631     740.     780.     830.        0       23        0     0.00  4565.00 13272.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      GCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=    342.00          CWSEL=    890.06

STA=    8707.    8708.   13271.   13272.
  PER Q=       0.0    100.0      0.0
   AREA=       5.3  45990.3      1.3
    VEL=       0.6      5.4      0.5

*SECNO 344.000

3470 ENCROACHMENT STATIONS=    9004.0   13311.0  TYPE=      1  TARGET=    4307.000
   344.00     15.27    890.57    885.38      0.00    891.12      0.55      0.57      0.03    885.30
  250000.      821.   249176.        3.      365.   41836.        4.     1628.      165.    886.20
     0.08      2.25      5.96      0.65     0.055     0.032     0.055     0.000    875.30   9004.00
 0.000778      730.      810.      940.         2        14         0      0.00   4307.00  13311.00

FLOW DISTRIBUTION FOR SECNO=    344.00          CWSEL=    890.57

STA=    9004.    9069.   13310.   13311.
  PER Q=       0.3     99.7      0.0
   AREA=     365.3  41836.2      4.4
    VEL=       2.2      6.0      0.7

CCHV=    0.300 CEHV=    0.500
*SECNO 346.000

3470 ENCROACHMENT STATIONS=    8713.0   12855.0  TYPE=      1  TARGET=    4142.000
   346.00     16.62    891.22    885.92      0.00    891.76      0.54      0.64      0.00    885.50
  250000.        4.   249995.        1.        6.   42278.        2.     2452.      248.    889.40
     0.12      0.66      5.91      0.54     0.055     0.032     0.055     0.000    874.60   8713.00
 0.000734      750.      850.      890.         2        14         0      0.00   4142.00  12855.00

FLOW DISTRIBUTION FOR SECNO=    346.00          CWSEL=    891.22

STA=    8713.    8714.   12854.   12855.
  PER Q=       0.0    100.0      0.0
   AREA=       5.7  42278.1      1.9
    VEL=       0.7      5.9      0.5

*SECNO 348.000
3710 WSEL ASSUMED BASED ON MIN DIFF
```

```
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         FL         OLOSS     BANK ELEV
   Q          GLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3470 ENCROACHMENT STATIONS=    8251.0    12159.0  TYPE=      1  TARGET=     3908.000
   348.00     15.58    891.88    886.50      0.00    892.48      0.60       0.69       0.03    884.30
  250000.        5.   249991.        3.        8.   40378.        5.      3315.       332.    886.90
     0.16      0.70      6.19      0.67     0.055     0.032     0.055       0.00     876.30   8251.00
 0.000791      810.      910.      930.         0        14         0       0.00    3908.00  12159.00


FLOW DISTRIBUTION FOR SECNO=    348.00          CWSEL=    891.88

STA=     8251.     8252.    12158.    12159.
  PER Q=       0.0     100.0       0.0
   AREA=       7.6   40377.6       5.0
    VEL=       0.7       6.2       0.7

*SECNO 350.000

3470 ENCROACHMENT STATIONS=    8102.0    11705.0  TYPE=      1  TARGET=     3603.000
   350.00     15.76    892.66    888.07      0.00    893.44      0.78       0.87       0.09    886.30
  250000.        5.   249991.        4.        6.   35332.        5.      4132.       413.    887.90
     0.20      0.81      7.08      0.79     0.055     0.032     0.055       0.00     876.90   8102.00
 0.001107      880.      940.      940.         2        19         0       0.00    3603.00  11705.00


FLOW DISTRIBUTION FOR SECNO=    350.00          CWSEL=    892.66

STA=     8102.     8103.    11704.    11705.
  PER Q=       0.0     100.0       0.0
   AREA=       6.4   35331.7       4.8
    VEL=       0.8       7.1       0.8

*SECNO 352.000

3470 ENCROACHMENT STATIONS=    8059.0    11277.0  TYPE=      1  TARGET=     3218.000
   352.00     13.39    893.79    890.48      0.00    894.95      1.17       1.32       0.20    887.80
  250000.        6.   249989.        4.        6.   28825.        4.      4818.       486.    889.40
     0.23      1.05      8.67      1.02     0.055     0.032     0.055       0.00     880.40   8059.00
 0.001875      930.      930.      880.         2        14         0       0.00    3218.00  11277.00


FLOW DISTRIBUTION FOR SECNO=    352.00          CWSEL=    893.79

STA=     8059.     8060.    11276.    11277.
  PER Q=       0.0     100.0       0.0
   AREA=       6.0   28824.8       4.4
    VEL=       1.1       8.7       1.0
```

FRI, JAN 15 1988 09:39:42

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        FL        OLOSS    BANK ELEV
   G         GLOB      QCH       GRCB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAR     TOPWID      ENDST

*SECNO 353.000

3470 ENCROACHMENT STATIONS=    7755.0   10995.0  TYPE=      1  TARGET=    3240.000
             SPECIAL BRIDGE ROUTINE USED AT COTTON LANE (3240 FT.).
             SPECIAL BRIDGE TRAPAZOID USES 3:1 SIDE SLOPES, 3185' BOTTOM WIDTH,
             AND A BOTTOM ELEV. OF 886.1 .
   353.00    12.97   895.07   891.86     0.00   896.29     1.23      1.31      0.03   888.00
  250000.     3999.  243674.    2327.    1006.   27148.     668.     5273.      537.   888.00
     0.25      3.98     8.98     3.48    0.055    0.032    0.055     0.000   882.10  7755.00
 0.001933     190.     690.    1240.        2       19        0      0.00  3240.00 10995.00

FLOW DISTRIBUTION FOR SECNO=    353.00          CWSEL=    895.07

STA=    7755.    7840.    7920.   10865.   10995.
  PER Q=      0.6      1.0     97.5      0.9
   AREA=    440.2    565.5  27147.8    668.5
    VEL=      3.5      4.4      9.0      3.5

SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.56      2.70      0.00   3185.10    130.00  49324.00     3.00    886.10    886.10

*SECNO 353.200
     3700.   BRIDGE STENCL=   7755.00    STENCR=  10995.00
CLASS A LOW FLOW

3420 BRIDGE W.S.=    894.93 BRIDGE VELOCITY=,     9.19      CALCULATED CHANNEL AREA=,    27201.

 EGPRS     EGLWC     H3        QWEIR     QLOW      BAREA     TRAPEZOID     ELLC      ELTRD
                                                              AREA
      0.00    896.43      0.19        0.   250000.    49324.    58813.      905.00    906.00


3470 ENCROACHMENT STATIONS=    7755.0   10995.0  TYPE=      1  TARGET=    3240.000
   353.20    13.16   895.26     0.00     0.00   896.43     1.17      0.14      0.00   888.00
  250000.     4061.  243554.    2386.    1037.   27705.     693.     5346.      545.   888.00
     0.25      3.92     8.79     3.44    0.055    0.032    0.055     0.000   882.10  7755.00
 0.001805     110.     110.     110.        0        0        0      0.00  3240.00 10995.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=    353.20          CWSEL=    895.26

STA=    7755.    7840.    7920.   10865.   10995.
  PER Q=      0.6      1.0     97.4      1.0
  AREA=     456.3    580.6  27705.1    693.1
   VEL=       3.4      4.3      8.8      3.4

*SECNO 356.000

3470 ENCROACHMENT STATIONS=    8468.0   10800.0  TYPE=     1  TARGET=    2332.000
   356.00    14.96   897.06   892.59     0.00   898.54     1.49      1.56      0.16    890.90
  250000.       6.  248182.    1812.       6.   25286.     541.      6042.      614.    891.70
     0.28     1.02     9.82     3.35    0.055    0.032    0.055     0.000    882.10   8468.00
 0.001755    1600.    1100.     500.        2       15        0      0.00   2332.00  10800.00

FLOW DISTRIBUTION FOR SECNO=    356.00          CWSEL=    897.06

STA=    8468.    8469.   10699.   10800.
  PER Q=      0.0     99.3      0.7
  AREA=       6.2  25285.8    541.1
   VEL=       1.0      9.8      3.3

*SECNO 358.000
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    8706.0   11080.0  TYPE=     1  TARGET=    2374.000
   358.00    16.87   898.77   894.56     0.00   900.25     1.48      1.70      0.00    895.60
  250000.       3.  248246.    1751.       3.   25371.     631.      6624.      667.    894.10
     0.31     0.93     9.78     2.77    0.055    0.032    0.055     0.000    881.90   8706.00
 0.001721    1010.     980.     910.        0       15        0      0.00   2374.00  11080.00

FLOW DISTRIBUTION FOR SECNO=    358.00          CWSEL=    898.77

STA=    8706.    8707.   10919.   11078.   11080.
  PER Q=      0.0     99.3      0.7      0.0
  AREA=       3.2  25371.0    624.5      6.5
   VEL=       0.9      9.8      2.8      1.3

CCHV=    0.100 CEHV=    0.300
*SECNO 360.000
```

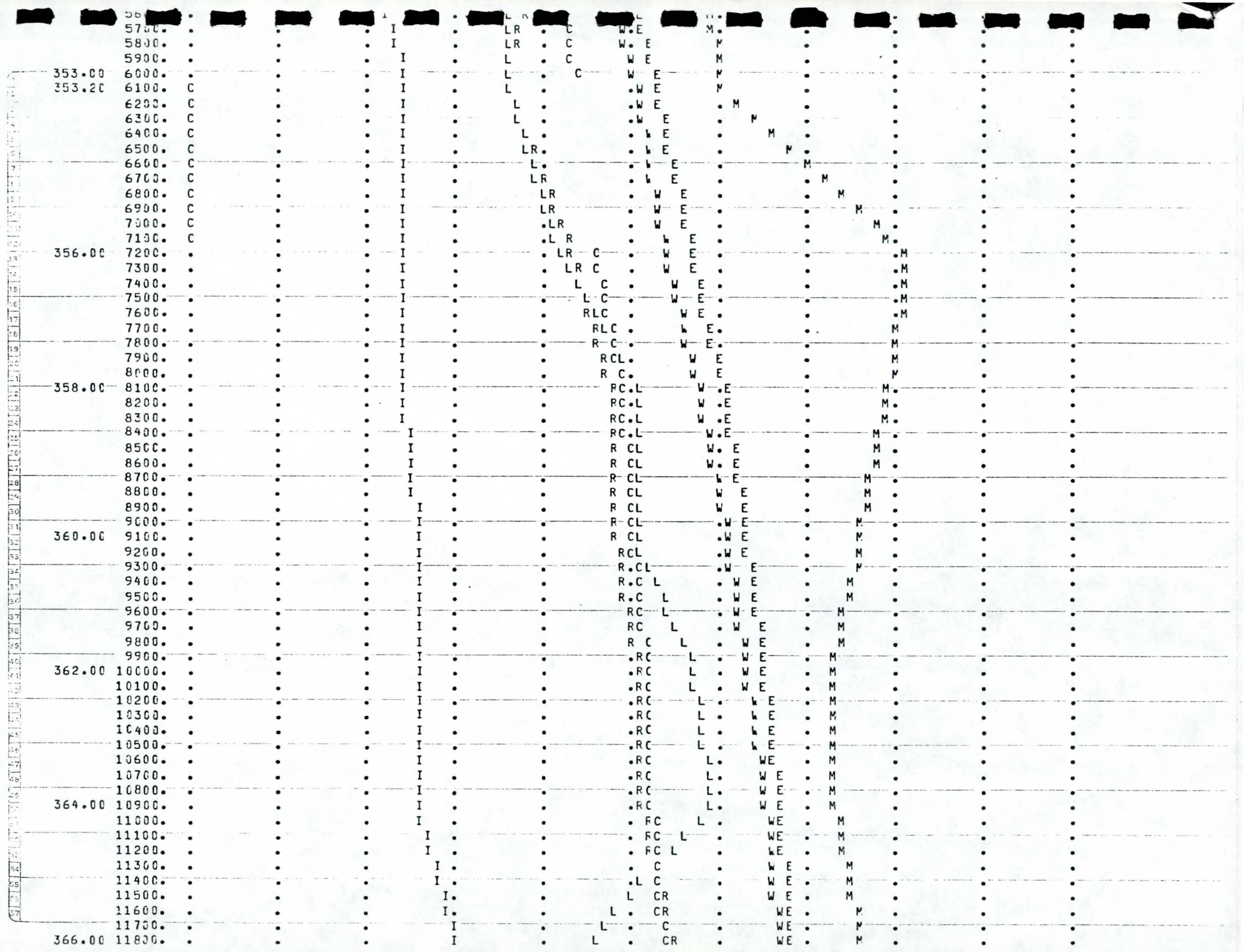
```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   G         GLOB      GCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=    8797.0    11400.0  TYPE=      1  TARGET=     2603.000
   360.00     17.48    900.48    895.14      0.00    901.59      1.11      1.30      0.04    895.30
  250000.        4.  233513.    16483.        5.    26892.     4318.     7236.      721.    894.20
     0.34      0.82      8.68      3.82     0.055     0.032     0.055     0.000    883.00   8797.00
 0.001162      900.      930.      960.         2        19         0      0.00   2603.00  11400.00


FLOW DISTRIBUTION FOR SECNO=    360.00          CWSEL=    900.48

STA=     8797.     8798.    10890.    10965.    11041.    11063.    11114.    11143.    11210.    11337.    11378.    11400.
  PER Q=      0.0      93.4       0.8       0.7       0.3       1.1       0.5       0.7       1.5       0.7       0.3
   AREA=      5.2  26891.7     546.1     545.8     185.5     577.9     282.2     508.0    1026.3     403.1     243.2
    VEL=      0.8       8.7       3.5       3.4       3.8       4.6       4.2       3.6       3.7       4.2       3.5

*SECNO 362.000

3470 ENCROACHMENT STATIONS=    8585.0    11300.0  TYPE=      1  TARGET=     2715.000
   362.00     18.50    901.50    896.01      0.00    902.60      1.10      1.00      0.00    898.60
  250000.        2.  227652.    22345.        3.    26058.     6180.     7887.      775.    895.40
     0.37      0.74      8.74      3.62     0.055     0.032     0.055     0.000    883.00   8585.00
 0.001106      770.      880.      960.         2        19         0      0.00   2715.00  11300.00


FLOW DISTRIBUTION FOR SECNO=    362.00          CWSEL=    901.50

STA=     8585.     8586.    10518.    10804.    11168.    11300.
  PER Q=      0.0      91.1       3.3       4.5       1.2
   AREA=      2.9  26058.2    2270.8    2985.3     923.7
    VEL=      0.7       8.7       3.6       3.8       3.2

*SECNO 364.000

3470 ENCROACHMENT STATIONS=    8164.0    11100.0  TYPE=      1  TARGET=     2936.000
   364.00     19.68    902.68    896.20      0.00    903.50      0.82      0.87      0.03    899.60
  250000.        2.  238904.    11094.        3.    32353.     3784.     8632.      838.    895.60
     0.41      0.63      7.38      2.93     0.055     0.032     0.055     0.000    883.00   8164.00
 0.000802      700.      920.     1120.         2        19         0      0.00   2936.00  11100.00


FLOW DISTRIBUTION FOR SECNO=    364.00          CWSEL=    902.68

STA=     8164.     8165.    10594.    10854.    10898.    10978.    11007.    11031.    11068.    11100.
  PER Q=      0.0      95.6       1.8       0.4       0.7       0.4       0.4       0.5       0.3
   AREA=      3.1  32352.9    1698.3     313.8     594.5     273.5     255.2     356.4     292.0
    VEL=      0.6       7.4       2.7       2.8       2.9       3.4       3.7       3.5       2.9
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      QCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 366.000

3470 ENCROACHMENT STATIONS=    8087.0    11015.0  TYPE=      1  TARGET=     2928.000
   366.00     18.36    903.46    896.82      0.00    904.19      0.73      0.68      0.01    892.80
  250000.        7.  249989.        4.       10.    36486.        6.     9363.      897.    897.40
     0.44      0.70      6.85      0.67     0.055     0.032     0.055     0.000    885.10   8087.00
 0.000753     1050.      880.      820.         2        14         0      0.00   2928.00  11015.00

FLOW DISTRIBUTION FOR SECNO=    366.00          CWSEL=    903.46

STA=     8087.     8088.    11014.    11015.
  PER Q=      0.0     100.0       0.0
   AREA=     10.5   36486.1       6.0
    VEL=      0.7       6.9       0.7
```

PROFILE FOR STREAM GILA RIVER SPECIAL BRIDG

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION SECNO	CUMDIS	870. 875. 880. 885. 890. 895. 900. 905. 910. 915.
340.00	0.	I C. L WE R. M
	100.	I C. L WE R .M
	200.	I C. L WE R M.
	300.	I C. L WE R M .
	400.	I C. L WE R M .
	500.	I C. L WER M .
	600.	I C.L WE M .
	700.	I CL RWE .
342.00	800.	I CL R WE .
	900.	I CL R WE .
	1000.	I CL R WEM .
	1100.	I CL R .EM .
	1200.	I C R .WEM .
	1300.	I C R .WE M .
	1400.	I C R .WE M .
	1500.	I C R .WE M .
344.00	1600.	.I .CR .WE M .
	1700.	I .C R .WE M .
	1800.	I .C R .W E M .
	1900.	I .C R . WE M.
	2000.	I .C R . WE M
	2100.	I .C R . WE .M
	2200.	I .LC R . WE .M
	2300.	I. .LC R . WE . M
	2400.	I. .LC R . WE . M
346.00	2500.	I. .LC R. W E . M
	2600.	I .LC R . WE . M
	2700.	I L C R . WE . M
	2800.	I L C R . WE . M
	2900.	.I L C R . WE . M
	3000.	.I L C R . WE . M
	3100.	.I L. C R . WE . M
	3200.	. I L. C R . W E . M
	3300.	. I L. CR . WE .M
348.00	3400.	. I L. CR . WE .M
	3500.	. I L. CR . WE . M
	3600.	. I L. C . WE . M
	3700.	. I L C . W E . M
	3800.	. I L CR . W E . M
	3900.	. I .L C . WE . M
	4000.	. I .L C . WE . M
	4100.	. I . L C . WE . M
	4200.	. I . L C . W E . M
350.00	4300.	. I . L C . W E . M
	4400.	I . L RC . WE . M
	4500.	I . L RC . W E . M
	4600.	I . L RC . W E . M
	4700.	I . L RC . W E . M
	4800.	I . L R C. W E. M .
	4900.	I . L RC. W E. M .
	5000.	I. L R C W E. M .
	5100.	I L R C W E. M .
	5200.	.I L R.C W E M.



5700.
5800.
5900.
353.00 6000.
353.20 6100.
6200.
6300.
6400.
6500.
6600.
6700.
6800.
6900.
7000.
7100.
356.00 7200.
7300.
7400.
7500.
7600.
7700.
7800.
7900.
8000.
358.00 8100.
8200.
8300.
8400.
8500.
8600.
8700.
8800.
8900.
9000.
360.00 9100.
9200.
9300.
9400.
9500.
9600.
9700.
9800.
9900.
362.00 10000.
10100.
10200.
10300.
10400.
10500.
10600.
10700.
10800.
364.00 10900.
11000.
11100.
11200.
11300.
11400.
11500.
11600.
11700.
366.00 11800.

THIS RUN EXECUTED FRI, JAN 15 1988 09:40:00

```
*************************************************
HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
ERROR CORR -  01,02,03,04,05,06
MODIFICATION -  50,51,52,53,54,55,56
*************************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

GILA RIVER SPECIAL BRIDG

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10K*S	XLCH	SSTA	TOPWID	ENDST
*	340.000	250000.00	889.49	16.59	872.90	889.99	884.62	5.65	7.42	0.00	8407.00	4686.84	13093.84
*	342.000	250000.00	890.06	16.46	873.60	890.52	884.35	5.44	6.31	780.00	8707.00	4565.00	13272.00
	344.000	250000.00	890.57	15.27	875.30	891.12	885.38	5.96	7.78	810.00	9004.00	4307.00	13311.00
	346.000	250000.00	891.22	16.62	874.60	891.76	885.92	5.91	7.34	850.00	8713.00	4142.00	12855.00
*	348.000	250000.00	891.88	15.58	876.30	892.48	886.50	6.19	7.91	910.00	8251.00	3908.00	12159.00
	350.000	250000.00	892.66	15.76	876.90	893.44	888.07	7.08	11.07	940.00	8102.00	3603.00	11705.00
	352.000	250000.00	893.79	13.39	880.40	894.95	890.48	8.67	18.75	930.00	8059.00	3218.00	11277.00
	353.000	250000.00	895.07	12.97	882.10	896.29	891.86	8.98	19.33	690.00	7755.00	3240.00	10995.00
	353.200	250000.00	895.26	13.16	882.10	896.43	0.00	8.79	18.05	110.00	7755.00	3240.00	10995.00
	356.000	250000.00	897.06	14.96	882.10	898.54	892.59	9.82	17.55	1100.00	8468.00	2332.00	10800.00
*	358.000	250000.00	898.77	16.87	881.90	900.25	894.56	9.78	17.21	980.00	8706.00	2374.00	11080.00
	360.000	250000.00	900.48	17.48	883.00	901.59	895.14	8.68	11.62	930.00	8797.00	2603.00	11400.00
	362.000	250000.00	901.50	18.50	883.00	902.60	896.01	8.74	11.06	880.00	8585.00	2715.00	11300.00
	364.000	250000.00	902.68	19.68	883.00	903.50	896.20	7.38	8.02	920.00	8164.00	2936.00	11100.00
	366.000	250000.00	903.46	18.36	885.10	904.19	896.82	6.85	7.53	880.00	8087.00	2928.00	11015.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION  SECNO=   340.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=   342.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=   348.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=   358.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
```

APPENDIX E

HEC-2 RUN

MANNING'S ROUGHNESS CALIBRATION BASED ON 1980 HISTORICAL FLOOD

```
*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE FRI, JAN 15 1988 TIME 10:11:52          *
*****************************************************
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  THE HYDROLOGIC ENGINEERING CENTER   *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616             *
*  (916) 440-2105 (FTS) 448-2105       *
****************************************
```

INPUT FILE - N.VAL

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X        XXXXX     XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
```

```
                                                                                THIS RUN EXECUTED FRI, JAN 15 1988  10:11:54
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*************************************************

C
T1       1-88   ESTRELLA - ACRED
T2       GILA RIVER, N-VALUE ANALYSIS NEAR COTTON LANE
T3       N-VALUE COMPUTED FROM GIVEN WSEL

C1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        2.        1.        0.  0.000736      0.00      0.0       0.   687.000    0.000

C2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000    -1.000     0.000     0.000    15.000

C3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000    43.000     1.000     8.000    42.000     3.000     2.000    26.000     5.000    39.000

    16.000    17.000    18.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.055     0.055     0.032     0.100     0.300     0.000     0.000     0.000     0.000     0.000
GT      2.000 180000.000 180000.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET    344.000     9.100     9.100     0.000     0.000     0.000     0.000     0.000  5773.000 13843.000
            MANNING'S ROUGHNESS CALIBRATION BASED ON 1980 HISTORICAL FLOOD.
            FIRST RUN; N-VALUES ARE COMPUTED FROM GIVEN HIGH WATER ELEVATIONS
            AND PEAK FLOW FROM FEBRUARY 1980 FLOOD (180,000 CFS).
            SECOND RUN; WATER SURFACE ELEVATIONS ARE COMPUTED FROM ESTIMATED
            N-VALUES AND PEAK FLOW FROM FEBRUARY 1980 FLOOD (180,000 CFS).
X1    344.000    95.000  8352.000 13310.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    908.100  5190.000   900.100  5249.000   907.300  5276.000   907.800  5330.000   903.100  5362.000
GR    906.400  5399.000   906.400  5429.000   898.400  5560.000   900.800  5590.000   889.600  5648.000
GR    891.600  5663.000   890.500  5738.000   895.400  5773.000   889.100  5788.000   889.100  5828.000
GR    886.100  5829.000   886.100  6100.000   887.600  7090.000   886.800  7584.000   887.600  7610.000
GR    880.600  7633.000   882.600  7769.000   883.500  7934.000   881.600  7967.000   881.600  8063.000
GR    882.600  8104.000   880.800  8150.000   884.600  8181.000   883.500  8309.000   885.100  8352.000
GR    884.500  8444.000   882.300  8503.000   884.600  8539.000   881.100  8564.000   884.600  8688.000
GR    881.800  8820.000   884.100  8959.000   885.300  9069.000   879.800  9107.000   878.800  9245.000
GR    881.500  9303.000   881.300  9434.000   879.100  9510.000   880.300  9580.000   876.500  9621.000
GR    877.600  9764.000   881.800 10000.000   882.500 10322.000   882.300 10639.000   881.600 10774.000
GR    877.100 10801.000   875.600 10830.000   876.000 11091.000   878.100 11165.000   879.500 11250.000
GR    883.300 11447.000   884.600 11635.000   883.900 12174.000   885.700 12389.000   882.400 12437.000
GR    881.600 12632.000   877.900 12650.000   877.800 12778.000   875.400 12873.000   878.600 12911.000
GR    878.600 12968.000   875.300 13020.000   877.100 13037.000   876.100 13268.000   886.200 13310.000
GR    885.200 13333.000   885.200 13710.000   895.400 13804.000   896.100 13843.000   891.100 13854.000
GR    891.100 13869.000   897.200 13881.000   896.100 13909.000   894.100 13922.000   894.100 14193.000
```

CR	894.100	14244.000	892.400	14259.000	892.400	15166.000	893.600	15186.000	894.100	15223.000
CR	889.900	15263.000	888.700	15287.000	888.100	15566.000	892.100	15583.000	892.100	15598.000
CR	890.900	15607.000	890.700	16286.000	896.900	16306.000	897.400	16322.000	893.400	16332.000
ET	346.000	9.100	9.100	0.000	0.000	0.000	0.000	0.000	5749.000	13300.000
X1	346.000	95.000	8376.000	12854.000	750.000	890.000	850.000	0.000	0.000	0.000
X2	0.000	888.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CR	903.100	5310.000	898.600	5383.000	896.400	5550.000	900.900	5587.000	890.300	5594.000
CR	893.600	5602.000	894.300	5649.000	894.800	5749.000	892.100	6011.000	890.600	6029.000
CR	890.600	6455.000	888.600	6489.000	888.600	6742.000	887.300	6755.000	887.300	7379.000
CR	883.000	7405.000	882.800	7603.000	882.500	7745.000	883.100	7883.000	880.300	7906.000
CR	882.500	7953.000	883.300	8045.000	883.800	8132.000	885.000	8280.000	882.600	8318.000
CR	885.300	8376.000	883.500	8423.000	883.500	8465.000	885.500	8538.000	885.500	8714.000
CR	879.100	8738.000	880.600	8862.000	881.300	8944.000	879.500	9123.000	878.800	9259.000
CR	885.600	9278.000	885.000	9388.000	879.300	9403.000	879.600	9484.000	878.100	9503.000
CR	880.600	9561.000	879.600	9655.000	880.600	9688.000	880.600	9931.000	880.800	10000.000
CR	881.800	10287.000	882.600	10628.000	882.000	10869.000	876.600	10901.000	874.600	10934.000
CR	876.100	11011.000	880.100	11101.000	881.400	11233.000	881.100	11298.000	878.300	11311.000
CR	878.300	11412.000	884.900	11437.000	882.900	12079.000	879.300	12139.000	879.300	12292.000
CR	884.100	12327.000	884.300	12468.000	877.400	12485.000	877.300	12567.000	875.600	12583.000
CR	875.600	12736.000	878.900	12801.000	887.900	12832.000	889.400	12854.000	887.600	12867.000
CR	887.600	13082.000	885.900	13086.000	884.300	13791.000	888.100	13805.000	888.700	13859.000
CR	888.600	14014.000	891.200	14036.000	890.100	14233.000	896.100	14252.000	896.200	14272.000
CR	892.900	14283.000	892.900	14312.000	896.600	14316.000	896.600	14338.000	892.700	14353.000
CR	889.700	15650.000	897.400	15708.000	897.600	15747.000	893.900	15780.000	896.700	15801.000
CR	896.900	15831.000	891.900	15840.000	891.900	15870.000	895.900	15878.000	896.700	15897.000
ET	348.000	9.100	9.100	0.000	0.000	0.000	0.000	0.000	5340.000	12300.000
X1	348.000	77.000	8252.000	12158.000	810.000	930.000	910.000	0.000	0.000	0.000
X2	0.000	889.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CR	902.100	5111.000	894.800	5211.000	893.400	5275.000	890.000	5299.000	894.400	5320.000
CR	894.400	5349.000	890.100	5371.000	890.100	6285.000	888.800	6319.000	888.100	7481.000
CR	889.300	7528.000	883.100	7584.000	881.500	7599.000	884.000	7705.000	881.500	7747.000
CR	884.100	7773.000	886.500	7864.000	882.600	7891.000	883.500	7974.000	885.100	8000.000
CR	884.300	8252.000	877.800	8272.000	878.500	8418.000	881.600	8437.000	881.500	8602.000
CR	881.600	8772.000	884.300	8816.000	884.500	8939.000	883.500	9042.000	883.000	9315.000
CR	882.100	9400.000	879.600	9428.000	881.100	9602.000	881.600	9840.000	883.600	10000.000
CR	881.100	10085.000	880.800	10235.000	879.300	10301.000	882.300	10469.000	883.600	10531.000
CR	882.100	10683.000	878.600	10711.000	880.800	10861.000	881.000	10900.000	878.600	11127.000
CR	878.600	11320.000	883.300	11376.000	884.900	11711.000	885.600	11776.000	883.400	11907.000
CR	878.900	11988.000	876.300	12010.000	876.400	12135.000	886.900	12158.000	887.100	13317.000
CR	889.100	13330.000	892.200	14762.000	895.100	14771.000	894.400	15188.000	895.600	15224.000
CR	897.400	15268.000	894.200	15280.000	894.200	15307.000	899.400	15317.000	899.100	15332.000
CR	894.200	15345.000	893.200	16127.000	894.600	16177.000	896.700	16191.000	896.700	16230.000
CR	892.700	16253.000	892.900	16309.000	894.900	16423.000	894.900	16550.000	893.900	16727.000
CR	894.900	16794.000	895.600	16905.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	350.000	9.100	9.100	0.000	0.000	0.000	0.000	0.000	5500.000	12600.000
X1	350.000	88.000	8103.000	11704.000	880.000	940.000	940.000	0.000	0.000	0.000
X2	0.000	889.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CR	913.400	5036.000	907.300	5073.000	897.800	5142.000	897.600	5264.000	896.800	5394.000
CR	893.400	5399.000	897.800	5413.000	897.800	5438.000	895.900	5451.000	893.400	5675.000
CR	890.600	5716.000	890.600	5875.000	892.100	5897.000	890.800	5915.000	890.800	7098.000
CR	890.600	7179.000	891.100	7597.000	892.400	7643.000	884.300	7683.000	886.500	7769.000

GR	887.100	7904.000	884.800	7954.000	886.300	8103.000	880.800	8122.000	881.100	8200.000
GR	879.000	8380.000	883.300	8397.000	884.500	8505.000	884.000	8642.000	885.800	8671.000
GR	885.000	8817.000	884.800	9051.000	885.500	9107.000	884.100	9178.000	886.800	9240.000
GR	883.800	9290.000	885.500	9348.000	883.500	9385.000	885.600	9447.000	885.100	9628.000
GR	881.800	9645.000	882.300	9767.000	881.800	9938.000	881.600	10000.000	884.100	10167.000
GR	884.800	10363.000	882.800	10533.000	882.800	10770.000	881.900	10838.000	879.300	10860.000
GR	879.300	11066.000	883.400	11078.000	882.600	11110.000	880.900	11278.000	883.400	11384.000
GR	876.900	11592.000	876.900	11612.000	881.900	11685.000	887.900	11704.000	889.400	12807.000
GR	885.400	12826.000	885.400	12847.000	889.900	12858.000	889.900	13471.000	890.900	14013.000
GR	890.700	14039.000	889.600	14045.000	889.400	14173.000	893.200	14205.000	893.200	14227.000
GR	888.100	14244.000	889.400	14274.000	895.900	14305.000	895.700	15142.000	895.700	15187.000
GR	895.600	15212.000	893.600	15214.000	893.600	15244.000	898.200	15258.000	898.200	15277.000
GR	894.100	15282.000	894.100	15868.000	894.700	16452.000	897.700	16488.000	899.400	16525.000
GR	896.100	16544.000	897.100	16690.000	898.200	16839.000	0.000	0.000	0.000	0.000
ET	352.000	9.100	9.100	0.000	0.000	0.000	0.000	0.000	6000.000	13500.000
X1	352.000	80.000	8310.000	11276.000	930.000	880.000	930.000	0.000	0.000	0.000
X2	0.000	890.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	902.600	5400.000	901.400	5504.000	903.100	5616.000	900.900	5731.000	897.600	5752.000
GR	902.300	5767.000	902.300	5793.000	900.300	5815.000	899.400	5938.000	898.600	6304.000
GR	895.600	6403.000	893.300	6567.000	891.600	6627.000	892.300	6670.000	891.600	6683.000
GR	890.800	7789.000	892.600	7796.000	892.600	7825.000	887.800	7846.000	887.800	8060.000
GR	886.300	8086.000	881.800	8117.000	882.300	8271.000	884.500	8310.000	884.800	8496.000
GR	883.600	8535.000	885.800	8646.000	882.000	8663.000	884.600	8696.000	882.500	8761.000
GR	884.300	8780.000	884.300	8872.000	886.000	8885.000	887.300	8946.000	889.300	8991.000
GR	884.800	9045.000	888.100	9101.000	888.600	9180.000	888.600	9385.000	886.300	9485.000
GR	885.100	9604.000	886.300	9641.000	885.100	9826.000	885.100	10000.000	885.000	10220.000
GR	884.000	10530.000	883.000	10575.000	880.400	10580.000	880.400	10758.000	883.600	10856.000
GR	884.300	11065.000	884.300	11245.000	889.400	11276.000	891.100	11351.000	889.100	11367.000
GR	888.900	11870.000	888.900	12408.000	890.200	12427.000	890.200	13006.000	891.900	13019.000
GR	891.900	13569.000	892.200	14456.000	888.400	14483.000	887.600	14655.000	893.400	14662.000
GR	894.400	14735.000	889.600	14765.000	899.900	14809.000	898.900	15060.000	894.900	15064.000
GR	894.900	15094.000	901.400	15104.000	901.400	15119.000	895.900	15135.000	896.900	15767.000
GR	896.900	16477.000	903.100	16525.000	903.100	16569.000	899.700	16594.000	899.400	16748.000
ET	354.000	9.100	9.100	0.000	0.000	0.000	0.000	0.000	6460.000	13300.000
X1	354.000	81.000	8156.000	10859.000	910.000	930.000	950.000	0.000	0.000	0.000
X2	0.000	892.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	905.800	5744.000	904.900	5823.000	915.400	5878.000	915.400	5917.000	903.900	5979.000
GR	898.600	6147.000	895.800	6434.000	899.900	6453.000	899.900	6481.000	894.100	6495.000
GR	894.300	7683.000	895.300	7996.000	888.100	8031.000	888.500	8101.000	885.500	8108.000
GR	886.000	8136.000	888.100	8156.000	886.000	8190.000	886.800	8427.000	886.800	8611.000
GR	886.800	8713.000	885.500	8929.000	885.500	9029.000	891.100	9086.000	890.600	9134.000
GR	888.600	9252.000	888.600	9346.000	888.600	9491.000	886.600	9547.000	888.000	9589.000
GR	885.800	9621.000	885.500	9674.000	888.800	9705.000	888.000	9753.000	886.500	9842.000
GR	886.800	9877.000	882.600	9894.000	884.100	10000.000	880.800	10164.000	881.000	10248.000
GR	878.400	10255.000	879.000	10309.000	882.300	10322.000	880.300	10400.000	880.800	10481.000
GR	880.800	10639.000	882.400	10692.000	886.100	10793.000	886.900	10859.000	893.600	10902.000
GR	893.600	10927.000	890.200	10942.000	891.100	11408.000	891.100	12000.000	890.900	12027.000
GR	891.400	12556.000	892.900	12568.000	892.900	13123.000	893.700	13136.000	893.700	13987.000
GR	896.100	14004.000	895.100	14049.000	893.900	14076.000	891.600	14088.000	891.700	14798.000
GR	895.700	14820.000	895.700	14894.000	900.100	14920.000	900.600	14953.000	895.100	14963.000
GR	895.100	14994.000	900.400	14999.000	900.400	15019.000	898.600	15031.000	899.200	15324.000
GR	903.600	16409.000	908.600	16451.000	909.700	16474.000	906.900	16495.000	905.700	16532.000

GR	906.400	16647.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	356.000	9.100	9.100	0.000	0.000	0.000	0.000	0.000	7200.000	14875.000
X1	356.000	86.000	8469.000	10699.000	920.000	910.000	950.000	0.000	0.000	0.000
X2	0.000	893.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	915.600	6367.000	915.300	6397.000	908.100	6443.000	915.400	6507.000	906.700	6577.000
GR	909.200	6616.000	902.600	6672.000	904.900	6727.000	943.100	6904.000	954.200	7002.000
GR	957.200	7040.000	942.700	7109.000	894.400	7182.000	898.100	7196.000	898.100	7213.000
GR	895.200	7222.000	895.700	7556.000	897.100	7572.000	895.700	7879.000	896.700	7896.000
GR	896.200	8155.000	896.200	8213.000	894.600	8225.000	896.300	8245.000	896.200	8247.000
GR	890.900	8330.000	890.900	8469.000	886.100	8492.000	884.300	8672.000	887.100	8701.000
GR	887.100	8829.000	885.400	8892.000	888.400	8581.000	888.200	9183.000	887.600	9533.000
GR	884.700	9756.000	883.400	9924.000	882.100	9939.000	882.100	10000.000	883.100	10256.000
GR	883.800	10443.000	886.200	10542.000	885.700	10627.000	887.900	10644.000	887.100	10680.000
GR	891.700	10699.000	891.700	10810.000	883.400	10881.000	884.400	10994.000	892.200	11021.000
GR	894.600	11161.000	892.700	11274.000	885.600	11287.000	885.200	11446.000	893.100	11473.000
GR	892.100	11557.000	892.100	11593.000	893.200	12252.000	895.900	13393.000	895.900	13509.000
GR	896.200	13815.000	892.900	13833.000	892.400	14318.000	895.600	14352.000	897.600	14437.000
GR	897.900	14680.000	898.400	14828.000	900.200	14849.000	901.100	14875.000	897.900	14881.000
GR	897.900	14911.000	901.100	14922.000	901.600	14942.000	899.900	14985.000	899.100	15230.000
GR	902.200	15487.000	902.200	15751.000	903.900	16156.000	907.400	16191.000	907.900	16233.000
GR	906.900	16246.000	906.900	16355.000	909.100	16371.000	909.100	16386.000	911.200	16400.000
GR	910.700	16421.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	358.000	9.100	9.100	0.000	0.000	0.000	0.000	0.000	6919.000	14558.000
X1	358.000	85.000	8707.000	10919.000	1010.000	910.000	980.000	0.000	0.000	0.000
X2	0.000	894.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	914.400	6510.000	910.100	6533.000	914.200	6571.000	915.100	6621.000	912.400	6678.000
GR	904.200	6791.000	895.900	6903.000	899.200	6919.000	898.700	6945.000	897.200	6963.000
GR	896.600	7578.000	898.200	7588.000	898.100	8244.000	898.900	8273.000	900.200	8463.000
GR	898.200	8570.000	895.600	8707.000	893.900	8734.000	888.400	8759.000	888.200	8778.000
GR	884.100	8805.000	886.700	8823.000	889.400	8980.000	890.600	9136.000	885.600	9196.000
GR	885.100	9240.000	886.700	9407.000	886.200	9641.000	882.600	9650.000	882.400	9719.000
GR	883.800	9734.000	883.300	9765.000	881.900	9895.000	885.900	9929.000	887.400	10000.000
GR	887.700	10167.000	885.400	10382.000	888.400	10451.000	889.900	10530.000	886.900	10546.000
GR	890.400	10563.000	886.700	10584.000	891.200	10608.000	892.200	10700.000	886.900	10743.000
GR	890.900	10776.000	887.400	10864.000	894.100	10919.000	895.600	11078.000	892.700	11126.000
GR	894.700	11137.000	892.900	11160.000	894.900	11996.000	896.400	12720.000	890.900	12748.000
GR	890.900	12810.000	896.700	12845.000	897.200	12861.000	894.600	12874.000	894.400	12920.000
GR	893.400	13906.000	894.700	13930.000	895.400	13947.000	894.700	14500.000	898.700	14519.000
GR	900.700	14558.000	897.700	14565.000	897.700	14606.000	902.900	14610.000	902.900	14633.000
GR	901.400	14646.000	903.600	15872.000	907.400	15882.000	908.900	15519.000	908.600	15946.000
GR	905.200	15980.000	908.600	16005.000	909.200	16063.000	907.600	16079.000	909.100	16087.000
GR	909.100	16101.000	912.200	16112.000	911.600	16144.000	908.600	16152.000	909.700	16288.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         GLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       KTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=   0.100 CEHV=   0.300
*SECNO 344.000
3710 WSEL ASSUMED BASED ON MIN DIFF
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    5773.0   13843.0  TYPE=     1  TARGET=    8070.000
            MANNING'S ROUGHNESS CALIBRATION BASED ON 1980 HISTORICAL FLOOD.
            FIRST RUN; N-VALUES ARE COMPUTED FROM GIVEN HIGH WATER ELEVATIONS
            AND PEAK FLOW FROM FEBRUARY 1980 FLOOD (180,000 CFS).
            SECOND RUN; WATER SURFACE ELEVATIONS ARE COMPUTED FROM ESTIMATED
            N-VALUES AND PEAK FLOW FROM FEBRUARY 1980 FLOOD (180,000 CFS).
   344.00  -875.30     0.00     0.00     0.00   888.61     0.31     0.00     0.00   885.10
  180000.   12207.  165860.    1933.    6759.   35638.    1273.       0.       0.   886.20
     0.00     1.81     4.65     1.52    0.055    0.032    0.055    0.000   875.30  5828.27
 0.000725       0.       0.       0.        0        0       13     0.00  7910.30 13738.57

FLOW DISTRIBUTION FOR SECNO=    344.00          CWSEL=      0.00

STA=    5828.    7934.    8352.   13310.   13739.
  PER Q=      3.9      2.9     92.1      1.1
   AREA=   4478.7   2280.4  35637.5   1272.8
    VEL=      1.6      2.3      4.7      1.5

*SECNO 346.000

3265 DIVIDED FLOW

3710 WSEL ASSUMED BASED ON MIN DIFF
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    5749.0   13300.0  TYPE=     1  TARGET=    7551.000
   346.00    14.10   888.70     0.00   888.70   889.06     0.36     0.43     0.01   885.30
  180000.   14048.  164720.    1232.    6406.   33157.     900.     807.     139.   889.40
     0.05     2.19     4.97     1.37    0.034    0.020    0.034    0.020   874.60  6487.30
 0.000295     750.     850.     890.        0        0        0     0.00  6797.37 13300.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST

FLOW DISTRIBUTION FOR SECNO=    346.00          CWSEL=    888.70

STA=    6487.    7745.    8132.    8376.   12854.   13300.
  PER Q=      3.3      3.2      1.3     91.5      0.7
   AREA=   3008.4   2299.9   1098.1  33157.2    899.8
    VEL=      2.0      2.5      2.1      5.0      1.4

*SECNO 348.000

3265 DIVIDED FLOW

3710 WSEL ASSUMED BASED ON MIN DIFF
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    5340.0   12300.0  TYPE=     1  TARGET=    6960.000
   348.00    12.70   889.00     0.00   889.00   889.50     0.50     0.40     0.04   884.30
  180000.    9581.  169992.     427.     4156.  29114.     296.     1568.     268.   886.90
     0.09     2.31     5.84     1.44     0.041    0.024    0.041    0.022   876.30  6313.77
 0.000598     810.     910.     930.        0        0        0     0.00  5971.77 12300.00

FLOW DISTRIBLTION FOR SECNO=    348.00          CWSEL=    889.00

STA=    6314.    7974.    8252.   12158.   12300.
  PER Q=      3.7      1.6     94.4      0.2
   AREA=   2949.6   1205.8  29114.0    296.5
    VEL=      2.3      2.4      5.8      1.4

*SECNO 350.000
3710 WSEL ASSUMED BASED ON MIN DIFF
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    5500.0   12600.0  TYPE=     1  TARGET=    7100.000
   350.00    12.60   889.50     0.00   889.50   890.30     0.80     0.71     0.09   886.30
  180000.    4346.  174594.    1060.     1550.  23936.     888.     2211.     384.   887.90
     0.13     2.80     7.29     1.19     0.037    0.022    0.037    0.022   876.90  7657.32
 0.000917     880.     940.     940.        0        0        0     0.00  4942.68 12600.00

FLOW DISTRIBUTION FOR SECNO=    350.00          CWSEL=    889.50

STA=    7657.    7683.    7769.    7904.    7954.    8103.   11704.   12600.
  PER Q=      0.1      0.6      0.5      0.3      1.0     97.0      0.6
   AREA=     66.8    352.6    364.5    177.5    588.5  23936.1    887.7
    VEL=      2.2      3.1      2.3      2.8      3.0      7.3      1.2
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST

*SECNO 352.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3710 WSEL ASSUMED BASED ON MIN DIFF
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    6000.0    13500.0  TYPE=      1  TARGET=    7500.000
   352.00     10.10    890.50      0.00    890.50    891.88      1.38      1.40      0.17    884.50
  180000.     15410.   160423.    4167.     2462.    16389.    1842.     2712.      490.     889.40
     0.16      6.26      9.79      2.26     0.037     0.022     0.037     0.022    880.40   7834.19
 0.002103      530.      930.      880.         0         0         0      0.00   5142.84  13008.29

FLOW DISTRIBUTION FOR SECNO=    352.00          CWSEL=    890.50

STA=     7834.     8271.     8310.    11276.    13008.
  PER Q=      7.5       1.0      89.1       2.3
   AREA=   2184.7     276.9  16388.6    1841.9
    VEL=      6.2       6.7       9.8       2.3

*SECNO 354.000

3265 DIVIDED FLOW

3710 WSEL ASSUMED BASED ON MIN DIFF
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    6460.0    13300.0  TYPE=      1  TARGET=    6840.000
   354.00     13.60    892.00      0.00    892.00    893.44      1.44      1.54      0.02    888.10
  180000.     2669.   174332.    2999.      605.    17855.    1731.     3155.      554.     886.90
     0.19      4.41      9.76      1.73     0.031     0.018     0.031     0.021    878.40   8012.04
 0.001150      910.      950.      930.         0         0         0      0.00   4506.43  12560.80

FLOW DISTRIBUTION FOR SECNO=    354.00          CWSEL=    892.00

STA=     8012.     8156.    10859.    12561.
  PER Q=      1.5      96.9       1.7
   AREA=    605.0   17854.9    1730.6
    VEL=      4.4       9.8       1.7
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         GLOB      QCH       GROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST


*SECNO 356.000

3265 DIVIDED FLOW

3710 WSEL ASSUMED BASED ON MIN DIFF
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    7200.0    14875.0  TYPE=      1  TARGET=    7675.000
   356.00     10.90    893.00      0.00    893.00    894.42      1.42      0.97      0.00    890.90
  180000.      792.  161464.     17743.      326.    16238.     3551.     3592.      687.    891.70
     0.21      2.43      9.94      5.00     0.029     0.017     0.029     0.020    882.10   8297.11
 0.000907      920.      950.      910.         0         0         0      0.00   4129.79  14324.37


FLOW DISTRIBUTION FOR SECNO=    356.00          CWSEL=    893.00

STA=     8297.    8469.   10699.   10994.   11446.   14324.
  PER Q=      0.4      89.7       5.0       4.4       0.5
   AREA=    326.4  16238.1    1559.6    1406.7     584.7
    VEL=      2.4       9.9       5.8       5.6       1.4

*SECNO 358.000

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS

3710 WSEL ASSUMED BASED ON MIN DIFF
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=    6919.0    14558.0  TYPE=      1  TARGET=    7639.000
   358.00     12.10    894.00      0.00    894.00    896.23      2.23      1.57      0.25    895.60
  180000.        0.  178532.      1468.        0.    14823.      706.     3990.      769.    894.10
     0.24      0.00     12.04      2.08     0.000     0.021     0.037     0.020    881.90   8732.41
 0.002316      1010.      980.      910.         0         0         0      0.00   3387.42  13917.08


FLOW DISTRIBUTION FOR SECNO=    358.00          CWSEL=    894.00

STA=     8732.   10919.   11126.   11620.   12748.   12810.   12829.   13906.   13917.
  PER Q=     99.2       0.0       0.2       0.0       0.4       0.0       0.1       0.0
   AREA=  14823.3      14.0     265.3      24.5     192.2      29.0     177.5       3.3
    VEL=     12.0       1.5       1.3       2.6       4.2       2.6       0.9       0.9
```

THIS RUN EXECUTED FRI, JAN 15 1988 10:12:04

```
*************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
*************************************************
```

T1 1-88 ESTRELLA - ACREC
T2 GILA RIVER, N-VALUE ANALYSIS NEAR COTTON LANE
T3 WSEL COMPUTED FROM GIVEN N-VALUE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	G	WSEL	FQ
	0.	3.	0.	0.	0.000736	0.00	0.0	0.	887.000	0.000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.000	-1.000	0.000	0.000	0.000	-1.000	0.000	0.000	0.000

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   G         QLOB      QCH       GROB      ALOB      ACH       ARCB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID     ENDST

*PROF 2

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV=   0.100 CEHV=   0.300
*SECNO 344.000
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    5773.0   13843.0  TYPE=     1  TARGET=    8070.000
            MANNING'S ROUGHNESS CALIBRATION BASED ON 1980 HISTORICAL FLOOD.
            FIRST RUN; N-VALUES ARE COMPUTED FROM GIVEN HIGH WATER ELEVATIONS
            AND PEAK FLOW FROM FEBRUARY 1980 FLOOD (180,000 CFS).
            SECOND RUN; WATER SURFACE ELEVATIONS ARE COMPUTED FROM ESTIMATED
            N-VALUES AND PEAK FLOW FROM FEBRUARY 1980 FLOOD (180,000 CFS).
   344.00     12.97   888.27   884.32     0.00   888.58     0.32      0.00      0.00   885.10
  180000.    12123.  165964.    1913.    6675.   35472.    1259.        0.        0.   886.20
     0.00      1.82     4.68     1.52    0.055    0.032    0.055     0.000    875.30  5828.28
 0.000737        0.       0.       0.        0       19        4      0.00   7909.98 13738.26

*SECNO 346.000

3265 DIVIDED FLOW

3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    5749.0   13300.0  TYPE=     1  TARGET=    7551.000
   346.00     14.27   888.87   884.67   888.70   889.21     0.34      0.62      0.01   885.30
  180000.    14352.  164314.    1334.    6744.   33954.     979.      816.      139.   889.40
     0.05      2.13     4.84     1.36    0.055    0.032    0.055     0.000    874.60  6484.27
 0.000729      750.     850.     890.        0       19        0      0.00   6804.31 13300.00

*SECNO 348.000
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS=    5340.0   12300.0  TYPE=     1  TARGET=    6960.000
   348.00     13.22   889.52   885.67   889.00   889.95     0.43      0.71      0.03   884.30
  180000.    10657.  168796.     547.    5160.   31135.     370.     1621.      268.   886.90
     0.10      2.07     5.42     1.48    0.055    0.032    0.055     0.000    876.30  6300.24
 0.000857      810.     910.     930.        0       18        0      0.00   5999.76 12300.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        FL        OLOSS     BANK ELEV
   Q         QLOB      QCH       CROB      ALOB      ACH       ARCB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       LTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST

*SECNO 350.000

3470 ENCROACHMENT STATIONS=    5500.0   12600.0  TYPE=      1  TARGET=    7100.000
   350.00     13.47    890.37   887.24   889.50   890.98     0.61      0.97      0.05    886.30
  180000.     5029.   172540.    2431.    1938.   27057.    1664.     2342.     385.    887.90
     0.14      2.59      6.38     1.46    0.055    0.032    0.055     0.000   876.90   7653.04
 0.001283     880.      940.     940.        2       14        0      0.00  4946.96  12600.00

*SECNO 352.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    6000.0   13500.0  TYPE=      1  TARGET=    7500.000
   352.00     11.34    891.74   889.48   890.50   892.57     0.84      1.53      0.07    884.50
  180000.     15079.   155821.    9100.    3650.   20057.    3581.     2962.     504.    889.40
     0.18      4.13      7.77     2.29    0.055    0.032    0.055     0.000   880.40   6622.17
 0.002191     930.      930.     880.        2       19        0      0.00  6314.41  13017.75

*SECNO 354.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    6460.0   13300.0  TYPE=      1  TARGET=    6840.000
   354.00     15.12    893.52   890.33   892.00   894.37     0.85      1.80      0.00    888.10
  180000.     2961.   167943.    9096.     830.   21968.    4624.     3559.     626.    886.90
     0.21      3.57      7.65     1.97    0.055    0.032    0.055     0.000   878.40   8004.64
 0.001660     910.      950.     930.        2        8        0      0.00  5102.61  13133.10

*SECNO 356.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    7200.0   14875.0  TYPE=      1  TARGET=    7675.000
   356.00     12.92    895.02   891.01   893.00   895.78     0.76      1.40      0.01    890.90
  180000.     1657.   154782.   23562.     707.   20742.    8251.     4175.     737.    891.70
     0.25      2.34      7.46     2.86    0.055    0.032    0.055     0.000   882.10   8221.85
 0.001321     920.      950.     910.        2       14        0      0.00  5288.10  14345.84
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        FL        OLOSS    BANK ELEV
   Q         GLOB      QCH       GROB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAF     TOPWID      ENDST

*SECNO 358.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    6915.0   14558.0  TYPE=     1  TARGET=    7639.000
   358.00     14.41    896.31    893.12    894.00    897.33      1.02      1.47      0.08    895.60
  180000.        8.   167197.    12796.       13.    19913.     6661.     4797.      857.    894.10
     0.29      0.57      8.40      1.92     0.055     0.032     0.055     0.000    881.90   8669.58
 0.001751     1010.      980.      910.         2        11         0      0.00   5771.37  14507.65
```

THIS RUN EXECUTED FRI, JAN 15 1988 10:12:15

```
*****************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

N-VALUE COMPUTED FROM GI

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	ELMIN	EG	CRIWS	VCH	10K*S	XLCH	K*XNL	K*XNCH	K*XNR
*	344.000	180000.00	0.00	-875.30	875.30	888.61	0.00	4.65	7.25	0.00	55.00	32.00	55.00
*	344.000	180000.00	888.27	12.97	875.30	888.58	884.32	4.68	7.37	0.00	55.00	32.00	55.00
*	346.000	180000.00	888.70	14.10	874.60	889.06	0.00	4.97	2.95	850.00	33.58	19.54	33.58
*	346.000	180000.00	888.87	14.27	874.60	889.21	884.67	4.84	7.29	850.00	55.00	32.00	55.00
*	348.000	180000.00	889.00	12.70	876.30	889.50	0.00	5.84	5.98	910.00	40.78	23.72	40.78
*	348.000	180000.00	889.52	13.22	876.30	889.95	885.67	5.42	8.57	910.00	55.00	32.00	55.00
*	350.000	180000.00	889.50	12.60	876.90	890.30	0.00	7.29	9.17	940.00	37.45	21.79	37.45
	350.000	180000.00	890.37	13.47	876.90	890.98	887.24	6.38	12.83	940.00	55.00	32.00	55.00
*	352.000	180000.00	890.50	10.10	880.40	891.88	0.00	9.79	21.03	930.00	37.38	21.75	37.38
	352.000	180000.00	891.74	11.34	880.40	892.57	889.48	7.77	21.91	930.00	55.00	32.00	55.00
*	354.000	180000.00	892.00	13.60	878.40	893.44	0.00	9.76	11.50	950.00	31.22	18.16	31.22
	354.000	180000.00	893.52	15.12	878.40	894.37	890.33	7.65	16.60	950.00	55.00	32.00	55.00
*	356.000	180000.00	893.00	10.90	882.10	894.42	0.00	9.94	9.07	950.00	29.05	16.90	29.05
	356.000	180000.00	895.02	12.92	882.10	895.78	891.01	7.46	13.21	950.00	55.00	32.00	55.00
*	358.000	180000.00	894.00	12.10	881.90	896.23	0.00	12.04	23.16	980.00	0.00	21.24	36.51
	358.000	180000.00	896.31	14.41	881.90	897.33	893.12	8.40	17.51	980.00	55.00	32.00	55.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION  SECNO=   344.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   344.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=   344.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF

CAUTION  SECNO=   346.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   346.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=   346.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF

CAUTION  SECNO=   348.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   348.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=   348.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF

CAUTION  SECNO=   350.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   350.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF

CAUTION  SECNO=   352.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   352.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF

CAUTION  SECNO=   354.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   354.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF

CAUTION  SECNO=   356.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   356.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF

CAUTION  SECNO=   358.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   358.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
```