Flood Control District of Maricopa County, Arizona
APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY OF WATERSHED "OO"
(FCD 2000C019)

Coyote Wash and Tributaries

TECHNICAL DATA NOTEBOOK
VOLUME 2 of 2

Submitted by:

JE Fuller / Hydrology and Geomorphology, Inc.
6101 S. Rural Road, Suite 110
Tempe, Arizona 85283
(480) 752-2124

In Association With:

Wood, Patel & Associates, Inc.
2051 West Northern Ave, Suite 100
Phoenix, Arizona 85021
(602) 335-8500

On behalf of:

Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, AZ 85009
(602) 506-1501

May 2003

Flood Control District of Maricopa County, Arizona
APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY OF WATERSHED "OO"
(FCD 2000C019)

Coyote Wash and Tributaries

TECHNICAL DATA NOTEBOOK
VOLUME 2 of 2

Submitted by:

JE Fuller / Hydrology and Geomorphology, Inc.
6101 S. Rural Road, Suite 110
Tempe, Arizona 85283
(480) 752-2124

In Association With:

Wood, Patel & Associates, Inc.
2051 West Northern Ave, Suite 100
Phoenix, Arizona 85021
(602) 335-8500

On behalf of:

Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, AZ 85009
(602) 506-1501

May 2003

TABLE OF CONTENTS
TECHNICAL DATA NOTEBOOK

VOLUME 1 OF 2

SECTION 1: INTRODUCTION 1-1
1.1 Purpose of study 1-1
1.2 Authority for study 1-1
1.3 Location of study reach 1-1
1.4 Methodology 1-2
1.5 Study Results 1-3

SECTION 2: ADWR/FEMA Forms and Local Government/ADWR Abstracts 2-1
2.1 Study Documentation Abstract for FEMA Submittals 2-1
2.2 FEMA Forms 2-3

SECTION 3: SURVEY AND MAPPING INFORMATION 3-1
3.1 Field Survey Information 3-1
3.2 Mapping 3-1

SECTION 4: HYDROLOGY 4-1
4.1 Method Description 4-1
4.2 Parameter Estimation 4-5
4.3 Problems Encountered During Study 4-10
4.4 Calibration 4-10
4.5 Final Results 4-10
4.6 References 4-12

SECTION 5: HYDRAULIC ANALYSIS 5-1
5.1 Method Description 5-1
5.2 Study Work Maps 5-1
5.3 Parameter Estimation 5-2
5.4 Cross-section descriptions 5-2
5.5 Modeling Considerations 5-3
5.6 Floodway modeling 5-4
5.7 Special problems encountered during the study 5-4
5.8 Calibration 5-4
5.9 Final Results 5-4
5.10 References 5-6

SECTION 6: EROSION AND SEDIMENT TRANSPORT 6-1

SECTION 7: DRAFT FIS REPORT DATA 7-1
7.1 Summary of Discharges 7-1
7.2 Floodway Data 7-6
7.3 Annotated Flood Insurance Rate Maps 7-7
7.4 Flood Profiles 7-8

LIST OF FIGURES

1.3.1 Location Map 1-4
1.3.2 Project Area Vicinity 1-5
4.1 Project Area 4-4

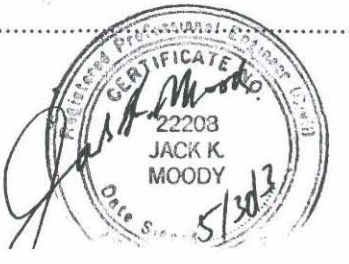


TABLE OF CONTENTS (Continued)

4.2.2 Example Delineation 4-5

LIST OF TABLES

1.1 Watershed "OO" Approximate Zone A Floodplain Delineation Studies 1-1
1.3-1 Study Reaches 1-2
4.1-1 List of Discharge-Drainage Area Relationships 4-2
4.1-2 Split Flow Summary Table 4-3
4.2.5.1-1: Monthly Precipitation Summary for FCDMC Gauge 5215, Jackrabbit Wash ... 4-8
4.2.5.1-2: Monthly Precipitation Summary for FCDMC Gauge 5260, Vulture Mine 4-8
4.2.5.1-3: Monthly Precipitation Summary for FCDMC Gauge 5130, Upper Tiger Wash 4-8
4.3.1 Impacted Downstream HEC-1 Concentration Points 4-10
4.5 Computed 100-Year Discharge 4-12
5.9.1 Hydraulic Results Summary 5-5

Y:\WP\Reports\Public Works Dept\001218 TDN_Coyote.doc

LIST OF APPENDICES

A REFERENCES
B GENERAL DOCUMENTATION & CORRESPONDENCE
- B.1 Special Problems Report
- B.2 Contact (Telephone) Reports
- B.3 Meeting Minutes or Reports
- B.4 General Correspondence
- B.5 Contract Documents

C SURVEY FIELD NOTES
D HYDROLOGIC ANALYSIS SUPPORTING DOCUMENTATION
- D.1 Discharge-Drainage Area Regression Analyses Results
- D.2 HEC-RAS Split Flow Analyses Results

E HYDRAULIC ANALYSIS SUPPORTING DOCUMENTATION
- E.1 Roughness Coefficient Estimation
- E.2 HEC-RAS Cross Section Plots and Hydraulic Calculations

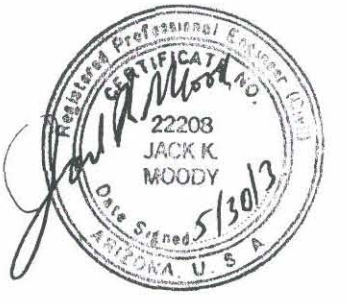


TABLE OF CONTENTS

VOLUME 2 OF 2

EXHIBITS

Exhibit A: Hydrology Study Work Map
Exhibit B: Hydraulics Study Work Maps
Exhibit C: Annotated Flood Insurance Rate Maps

PREFACE

This approximate Zone A floodplain delineation study was conducted for the Flood Control District of Maricopa County (FCDMC) by JE Fuller / Hydrology and Geomorphology, Inc. (JEF) in association with Wood, Patel & Associates, Inc. (Wood/Patel), and Argus Consulting (Argus). JEF was responsible for the overall management and integration of the work products from the other team members as well as for the performance of the hydrology for the entire study area and the approximate Zone A floodplain delineation of Hassayampa River Tributaries and Lower Jackrabbit Wash Tributaries located on the Hassayampa Plain. Wood/Patel concurrently performed the approximate Zone A floodplain delineations for both Coyote Wash and Upper Jackrabbit Wash and their tributaries. Argus assisted JEF with portions of the approximate Zone A floodplain delineation of Hassayampa River Tributaries and Lower Jackrabbit Wash Tributaries. All team members contributed to the development of the reconnaissance report. This study is presented in TDN format for Coyote Wash and Tributaries.

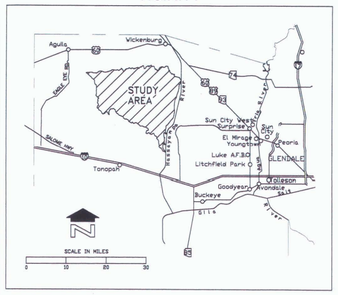
EXHIBIT A
HYDROLOGY STUDY WORK MAP

Approximate Zone A FDS of Watershed "OO"
Coyote Wash and Tributaries, FCD 2000C019
Wood, Patel & Associates, Inc.,

LEGEND

- BASIN BOUNDARY (from FCD 90-05)
- BASIN ID (from FCD 90-05) — 10K
- CONCENTRATION POINT (from FCD 90-05) — 89 / 2900 CFS
- BASIN BOUNDARY (from FCD 2000C019)
- BASIN ID (from FCD 2000C019) — 10K_1
- CONCENTRATION POINT (from FCD 2000C019) — 132 / 900 CFS
- APPROXIMATE ZONE A STUDY REACH — T5 R5 S33
- MODELED SPLIT FLOW LOCATION — 10K_1

VICINITY



4500' 0' 4500' 9000'

SCALE: 1 INCH = 4500 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

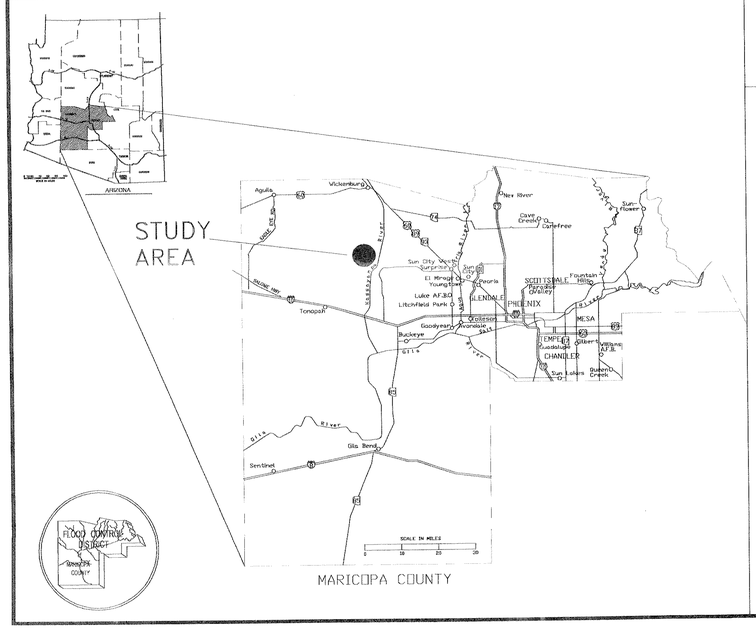
WATERSHED "OO"

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

EXHIBIT A
HYDROLOGY WORK MAP

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.
in association with
WOOD/PATEL ASSOCIATES
ARGUS CONSULTING

SHEET 1 OF 1



LEGEND

SECTION BOUNDARY

STUDY REACH AND REACH ID — T5 R5 S36

ROAD — Carefree Hwy.

SHEET OUTLINE AND NUMBER — 5

NOTES

1. HORIZONTAL PROJECTION IS ARIZONA STATE PLANE CENTRAL ZONE, NORTH AMERICAN DATUM OF 1983.
2. ALL ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988.

STATEMENT OF PROFESSIONAL REGISTRATION

THE APPROXIMATE ZONE A FLOODPLAIN AND FLOODWAY DELINEATION WERE PREPARED UNDER MY DIRECT SUPERVISION USING HYDROLOGY FROM FCD 90-05 AND NEW HYDROLOGY UNDER THIS CONTRACT.

SCALE
3750' 0' 3750' 7500'

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN
DELINEATION STUDY, FCD 2000C019
WATERSHED "OO"
MAY 2003

Registered Professional Engineer (Civil)
CERTIFICATE NO. 32854
SHIMIN ZOU
Date Signed 3/16/05
ARIZONA, U.S.A.

Registered Professional Engineer
CERTIFICATE NO. 10512
ASHOK C. PATEL
Date Signed 3/17/05
ARIZONA, U.S.A.

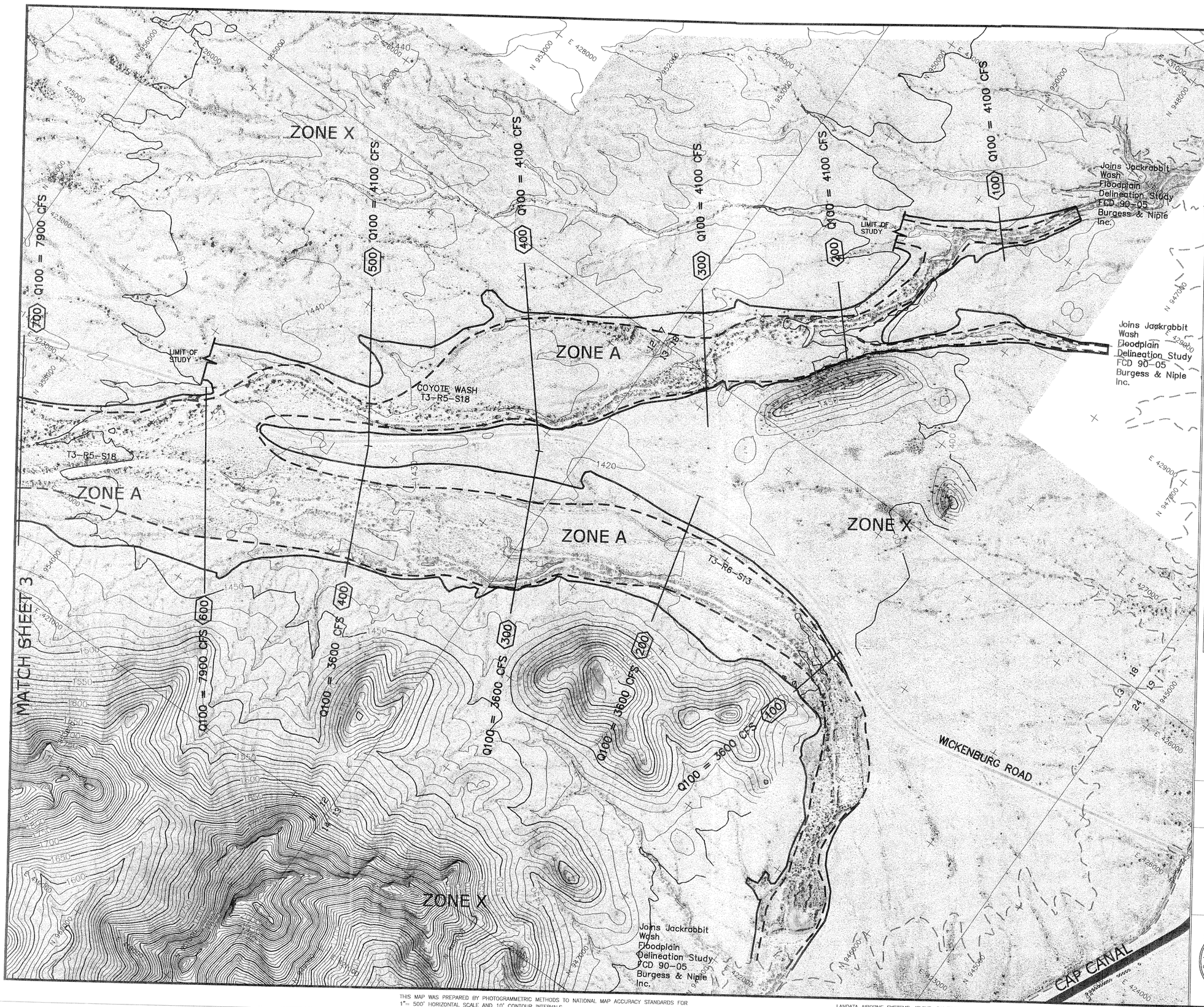
JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.
TEMPE, ARIZONA - 480-733-3124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES
Civil Engineers
Hydrologists
Land Surveyors
(602) 335-8500

ARGUS CONSULTING
A CIVIL ENGINEERING COMPANY, L.L.C.
Scottsdale, Arizona 480-598-1111

WP# 001218 SHEET 1 OF 13



LEGEND

100-YR FLOODPLAIN BOUNDARY	
100-YR ADMINISTRATIVE FLOODWAY	
100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)	
100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)	
CROSS SECTION	200
ZONE DESIGNATIONS	ZONE A
CORPORATE LIMITS	Corporate Limits
COUNTY BOUNDARY	County Boundary
SECTION BOUNDARY	12 7 / 13 18
ELEVATION REFERENCE MARK	AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

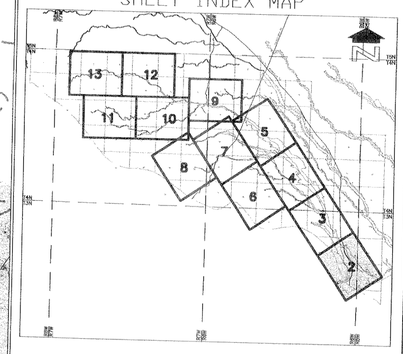
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3586	4GK2	961265.643	423657.208	1492.940

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 3/17/03 ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC. TEMPE, ARIZONA - 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 335-8500

ARGUS CONSULTING A.V.P.R. ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480-266-1111

WP# 001218

SHEET 2 OF 13

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA

LEGEND

100-YR FLOODPLAIN BOUNDARY	
100-YR ADMINISTRATIVE FLOODWAY	
100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)	
100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)	
CROSS SECTION	200
ZONE DESIGNATIONS	ZONE A
CORPORATE LIMITS	Corporate Limits
COUNTY BOUNDARY	County Boundary
SECTION BOUNDARY	12 7 / 13 18
ELEVATION REFERENCE MARK	AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

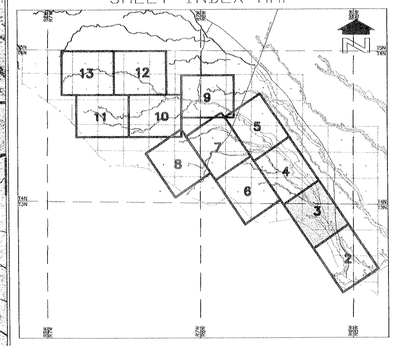
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3586	4GK2	961265.643	423657.208	1492.940

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 3/17/03 ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.

TEMPE, ARIZONA – 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 335-8500

ARGUS CONSULTING A CIVIL ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480-596-1111

WP# 001218

SHEET 3 OF 13

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA
PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA

LEGEND

100-YR FLOODPLAIN BOUNDARY	
100-YR ADMINISTRATIVE FLOODWAY	
100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)	
100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)	
CROSS SECTION	200
ZONE DESIGNATIONS	ZONE A
CORPORATE LIMITS	Corporate Limits
COUNTY BOUNDARY	County Boundary
SECTION BOUNDARY	12 7 / 13 18
ELEVATION REFERENCE MARK	AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

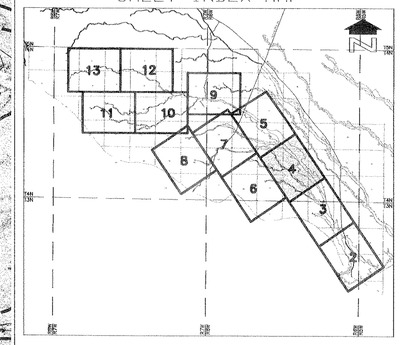
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3586	4GK2	961265.643	423657.208	1492.940

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 3/17/03 ARIZONA, U.S.A.

JE FULLER ENGINEERING & GEOMORPHOLOGY, INC.

TEMPE, ARIZONA – 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 335-8660

ARGUS CONSULTING A CIVIL ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480-538-1111

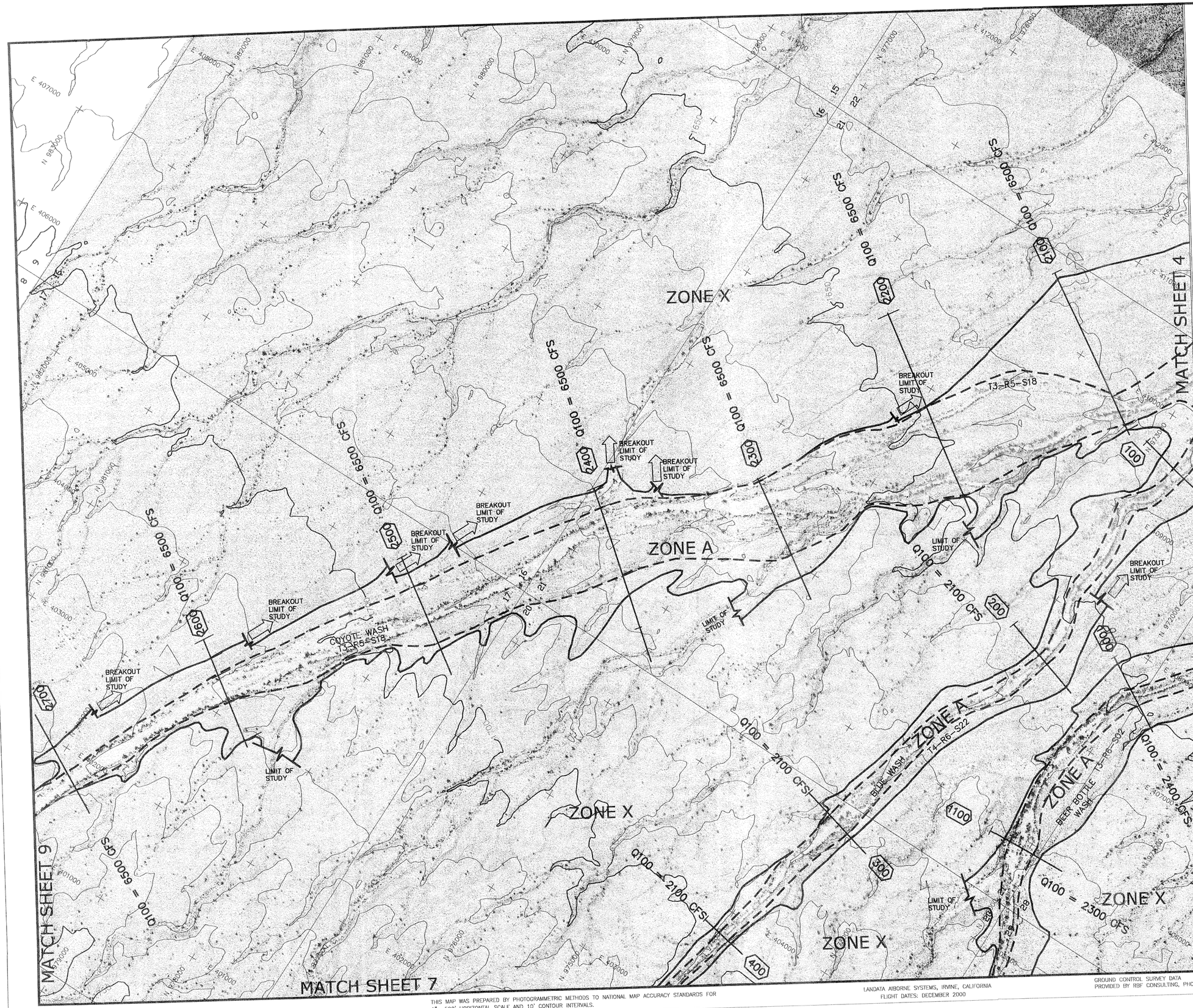
WP# 001218

SHEET 4 OF 13

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA
PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA



LEGEND

- 100-YR FLOODPLAIN BOUNDARY
- 100-YR ADMINISTRATIVE FLOODWAY
- 100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)
- 100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)
- CROSS SECTION (200)
- ZONE DESIGNATIONS: ZONE A
- CORPORATE LIMITS: Corporate Limits
- COUNTY BOUNDARY: County Boundary
- SECTION BOUNDARY: 12 | 7 / 13 | 18
- ELEVATION REFERENCE MARK: AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

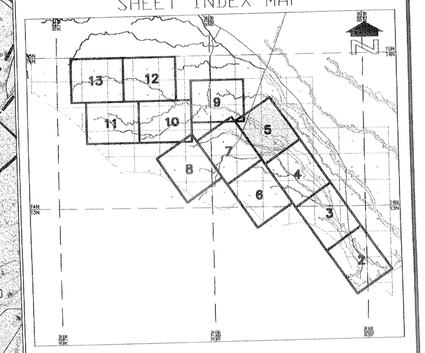
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (foot)	NAD 83 Easting (foot)	NAVD 88 Elevation (foot)
AJ3587	4GM6	96427.848	393713.018	2062.507

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 7/10/03 ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC. TEMPE, ARIZONA – 480-752-5124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 335-8500

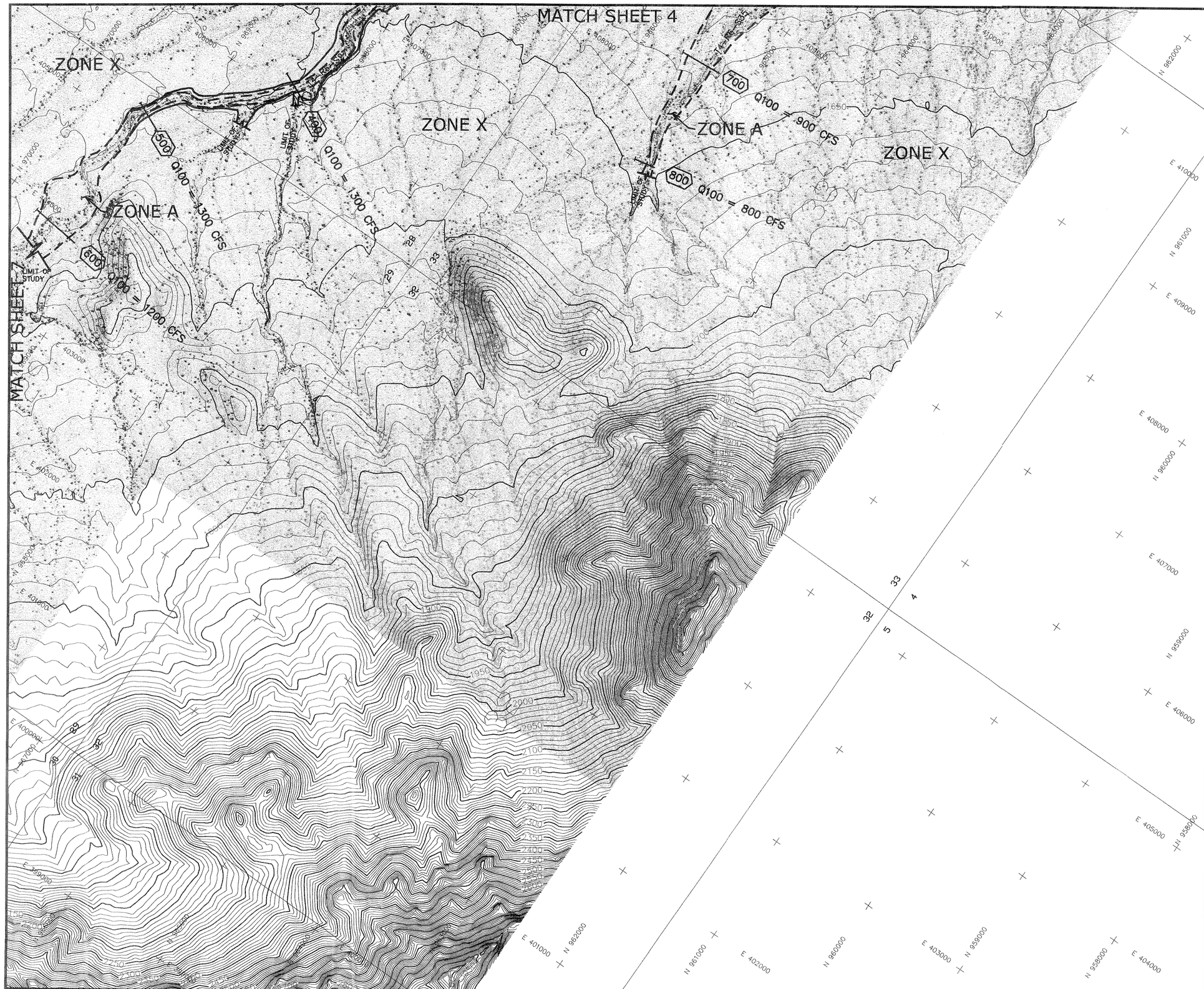
ARGUS CONSULTING A CRAM ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480-998-7177

WP# 001218

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA
PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA



LEGEND

100-YR FLOODPLAIN BOUNDARY	
100-YR ADMINISTRATIVE FLOODWAY	
100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)	
100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)	
CROSS SECTION	200
ZONE DESIGNATIONS	ZONE A
CORPORATE LIMITS	Corporate Limits
COUNTY BOUNDARY	County Boundary
SECTION BOUNDARY	12 7 / 13 18
ELEVATION REFERENCE MARK	AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

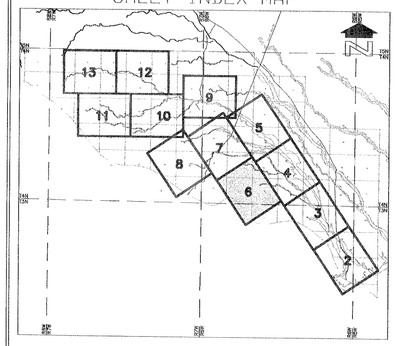
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3587	4GM5	964277.848	393713.018	2062.507

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 3/14/03 ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.

TEMPE, ARIZONA - 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 526-8650

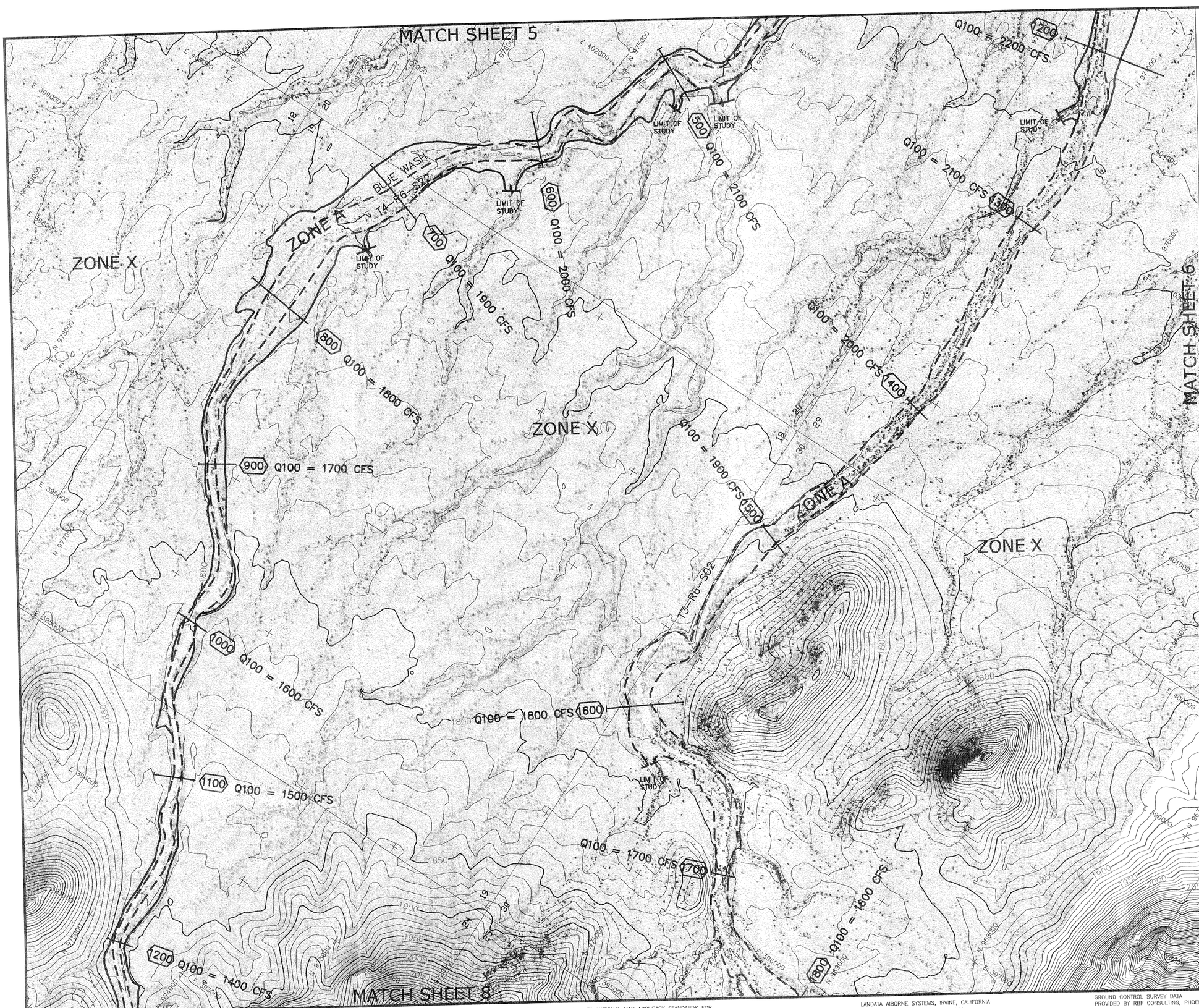
ARGUS CONSULTING A CIVIL ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480-398-1111

WP# 001218

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA
PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA



LEGEND

100-YR FLOODPLAIN BOUNDARY	
100-YR ADMINISTRATIVE FLOODWAY	
100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)	
100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)	
CROSS SECTION	200
ZONE DESIGNATIONS	ZONE A
CORPORATE LIMITS	Corporate Limits
COUNTY BOUNDARY	County Boundary
SECTION BOUNDARY	12 7 / 13 18
ELEVATION REFERENCE MARK	AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

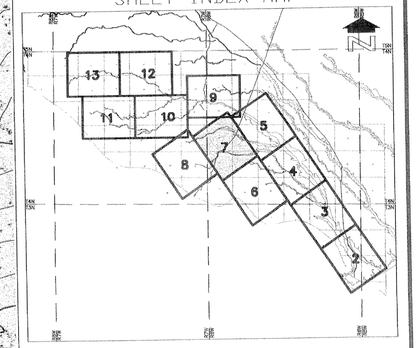
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3587	4GM5	964277.848	393713.018	2062.507

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 3/17/03 ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.

TEMPE, ARIZONA – 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 335-8600

ARGUS CONSULTING A CIVIL ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480-359-1111

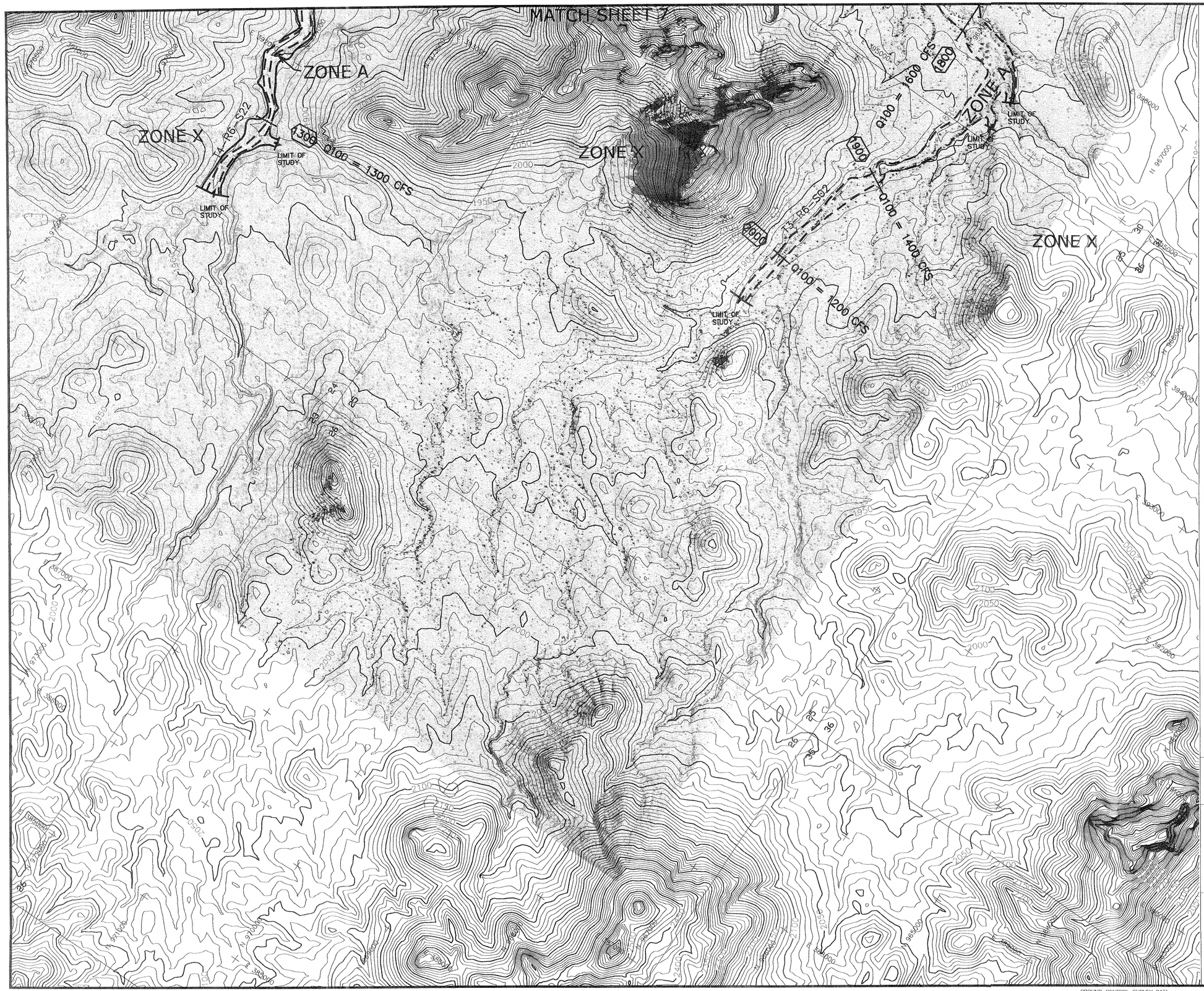
WP# 001218

SHEET 7 OF 13

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA



LEGEND

- 100-YR FLOODPLAIN BOUNDARY
- 100-YR ADMINISTRATIVE FLOODWAY
- 100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)
- 100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)
- CROSS SECTION — 200
- ZONE DESIGNATIONS — ZONE A
- CORPORATE LIMITS — Corporate Limits
- COUNTY BOUNDARY — County Boundary
- SECTION BOUNDARY — 12 | 7 / 13 | 18
- ELEVATION REFERENCE MARK — AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

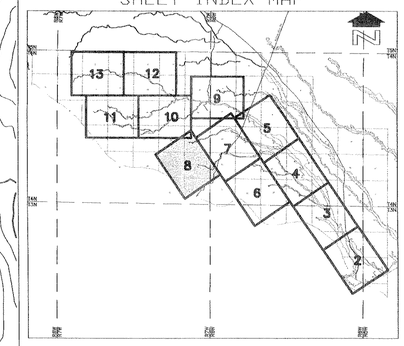
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3587	4GM5	964777.848	393713.018	2062.507

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) — CERTIFICATE NO. 32854 SHIMIN ZOU — Date Signed 12/31/03 — ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC. — TEMPE, ARIZONA — 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES — Civil Engineers, Hydrologists, Land Surveyors — (602) 335-8600

ARGUS CONSULTING — A CIVIL ENGINEERING COMPANY, L.L.C. — Scottsdale, Arizona 480-199-1211

WP# 001218

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIRBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA
PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA

LEGEND

- 100-YR FLOODPLAIN BOUNDARY
- 100-YR ADMINISTRATIVE FLOODWAY
- 100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)
- 100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)
- CROSS SECTION — (200)
- ZONE DESIGNATIONS — ZONE A
- CORPORATE LIMITS — Corporate Limits
- COUNTY BOUNDARY — County Boundary
- SECTION BOUNDARY — 12 | 7 / 13 | 18
- ELEVATION REFERENCE MARK — AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

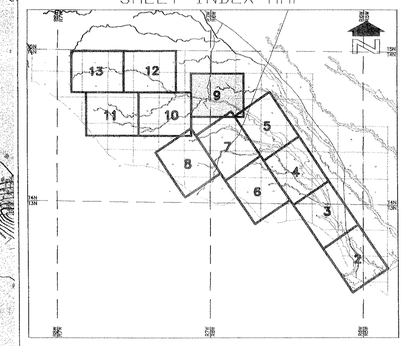
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3594	4HN2	9/67/01.821	3/8906.644	2059.646

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET
CONTOUR INTERVAL = 10 FEET
FLIGHT DATES: DECEMBER, 2000

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019
WATERSHED "OO"
MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 7-31-03 ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.
TEMPE, ARIZONA - 480-752-2124
IN ASSOCIATION WITH
WOOD/PATEL ASSOCIATES
Civil Engineers
Hydrologists
Land Surveyors
(602) 335-8500
ARGUS CONSULTING
A CWH ENGINEERING COMPANY, L.L.C.

WPH 001218 SHEET 9 OF 13

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIRBORNE SYSTEMS, IRVINE, CALIFORNIA

GROUND CONTROL SURVEY DATA PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA

MATCH SHEET 12

MATCH SHEET 9

MATCH SHEET 11

ZONE X

ZONE A

ZONE X

ZONE A

ZONE X

LIMIT OF STUDY

Q100 = 1200 CFS

Q100 = 1300 CFS

Q100 = 1400 CFS

Q100 = 1500 CFS

Q100 = 1600 CFS

Q100 = 1700 CFS

Q100 = 3000 CFS

Q100 = 4400 CFS

Q100 = 3000 CFS

Q100 = 2900 CFS

Q100 = 2700 CFS

Q100 = 2600 CFS

Q100 = 2500 CFS

Q100 = 2400 CFS

Q100 = 1400 CFS

Q100 = 1200 CFS

T3-R5-S18

T4-R5-S1

T4-R7-S13

T4-R7-S22

T4-R7-S13

LEGEND

- 100-YR FLOODPLAIN BOUNDARY
- 100-YR ADMINISTRATIVE FLOODWAY
- 100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)
- 100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)
- CROSS SECTION (200)
- ZONE DESIGNATIONS: ZONE A
- CORPORATE LIMITS: Corporate Limits
- COUNTY BOUNDARY: County Boundary
- SECTION BOUNDARY: 12|7 / 13|18
- ELEVATION REFERENCE MARK: AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

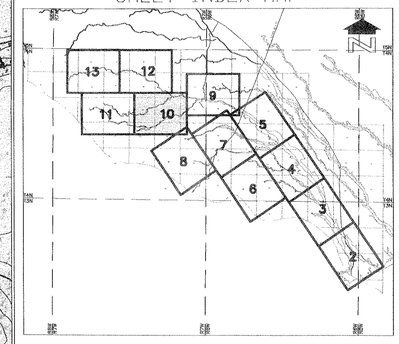
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3594	4HN2	976701.821	378906.644	2069.646

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.

TEMPE, ARIZONA – 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 335-8500

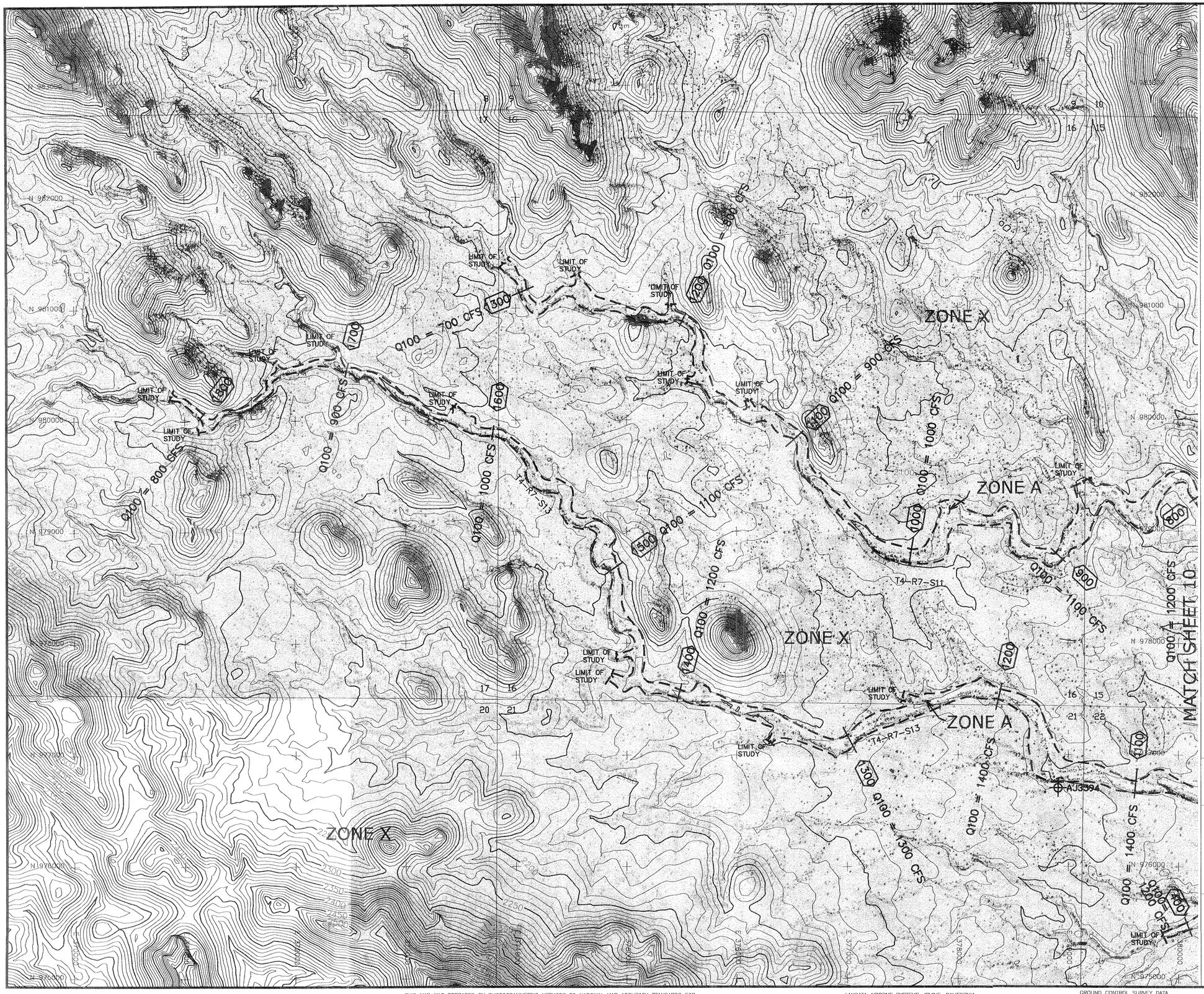
ARGUS CONSULTING A CIVIL ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480.596.1111

WP# 001218

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA
PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA



LEGEND

100-YR FLOODPLAIN BOUNDARY	
100-YR ADMINISTRATIVE FLOODWAY	
100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)	
100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)	
CROSS SECTION	200
ZONE DESIGNATIONS	ZONE A
CORPORATE LIMITS	Corporate Limits
COUNTY BOUNDARY	County Boundary
SECTION BOUNDARY	12 7 / 13 18
ELEVATION REFERENCE MARK	AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

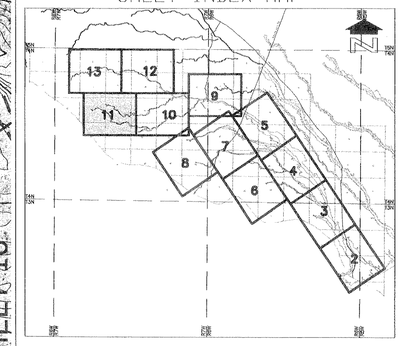
NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3594	4HN2	976701.821	378906.644	2059.646

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 3/17/03 ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.

TEMPE, ARIZONA - 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 335-8500

ARGUS CONSULTING A CIVIL ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480-998-1111

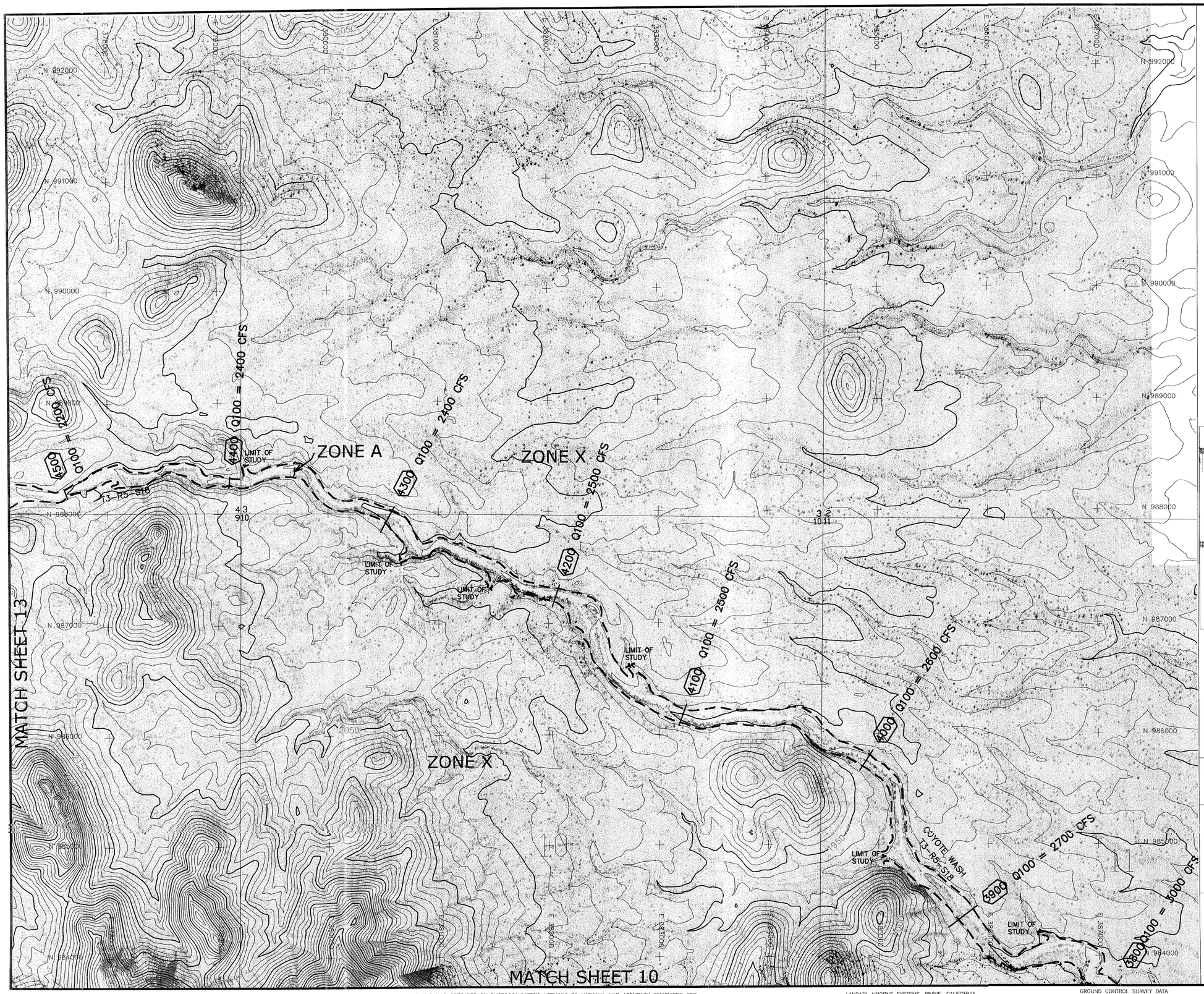
WP# 001218

SHEET 11 OF 13

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA
PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA



LEGEND

100-YR FLOODPLAIN BOUNDARY	
100-YR ADMINISTRATIVE FLOODWAY	
100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)	
100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)	
CROSS SECTION	200
ZONE DESIGNATIONS	ZONE A
CORPORATE LIMITS	Corporate Limits
COUNTY BOUNDARY	County Boundary
SECTION BOUNDARY	12 7 / 13 18
ELEVATION REFERENCE MARK	AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

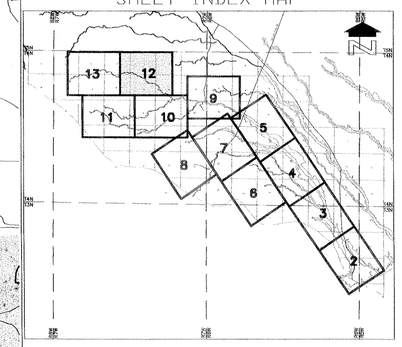
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3594	4HN2	976701.821	378906.644	2059.646

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 2/22/03 ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.

TEMPE, ARIZONA – 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 335-8500

ARGUS CONSULTING A CIVIL ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480-596-1111

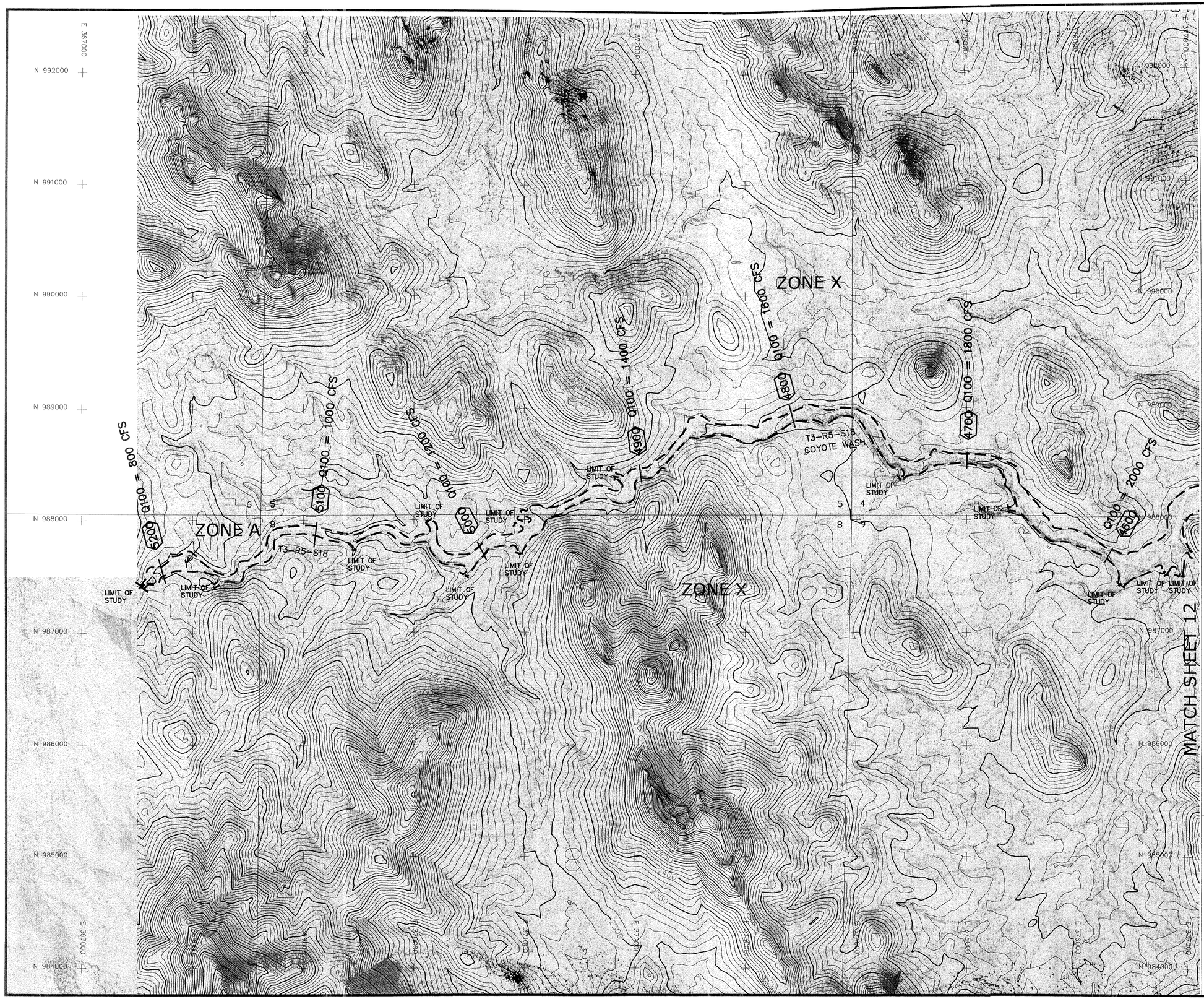
WP# 001218

SHEET 12 OF 13

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA
PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA



LEGEND

100-YR FLOODPLAIN BOUNDARY	
100-YR ADMINISTRATIVE FLOODWAY	
100-YR FLOODPLAIN BOUNDARY (EXISTING OR CONCURRENT STUDY)	
100-YR ADMINISTRATIVE FLOODWAY (EXISTING OR CONCURRENT STUDY)	
CROSS SECTION	200
ZONE DESIGNATIONS	ZONE A
CORPORATE LIMITS	Corporate Limits
COUNTY BOUNDARY	County Boundary
SECTION BOUNDARY	12 | 7 / 13 | 18
ELEVATION REFERENCE MARK	AJ3594

NOTES

NOTE: ALL ELEVATIONS ARE BASED ON NORTH AMERICAN GEODETIC VERTICAL DATUM OF 1988.

NOTE: ALL NORTHING AND EASTING MARKS ARE IN NAD83 STATE PLANE COORDINATE SYSTEM

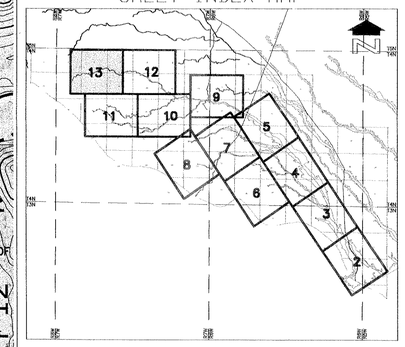
ELEVATION REFERENCE MARKS

GEODETIC DENSIFICATION CADASTRAL SURVEY (GDACS) CONTROL STATIONS

NGS PID	Station Designation	NAD 83 Northing (feet)	NAD 83 Easting (feet)	NAVD 88 Elevation (feet)
AJ3594	4HN2	976701.821	378906.644	2059.646

(Not Shown, Outside Boundary of Sheet)

SHEET INDEX MAP



400' 0' 400' 800'

SCALE: 1"= 400 FEET

CONTOUR INTERVAL = 10 FEET

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

COYOTE WASH AND TRIBUTARIES

APPROXIMATE ZONE A FLOODPLAIN DELINEATION STUDY, FCD 2000C019

WATERSHED "OO"

MAY 2003

Registered Professional Engineer (Civil) CERTIFICATE NO. 32854 SHIMIN ZOU Date Signed 3/12/03 ARIZONA, U.S.A.

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.

TEMPE, ARIZONA -- 480-752-2124

IN ASSOCIATION WITH

WOOD/PATEL ASSOCIATES Civil Engineers Hydrologists Land Surveyors (602) 335-8500

ARGUS CONSULTING A CIVIL ENGINEERING COMPANY, L.L.C. Scottsdale, Arizona 480-398-1141

WP# 001218

SHEET 13 OF 13

THIS MAP WAS PREPARED BY PHOTOGRAMMETRIC METHODS TO NATIONAL MAP ACCURACY STANDARDS FOR 1"= 500' HORIZONTAL SCALE AND 10' CONTOUR INTERVALS.

LANDATA AIBORNE SYSTEMS, IRVINE, CALIFORNIA
FLIGHT DATES: DECEMBER 2000

GROUND CONTROL SURVEY DATA PROVIDED BY RBF CONSULTING, PHOENIX, ARIZONA

EXHIBIT C
ANNOTATED FLOOD INSURANCE RATE MAPS

Approximate Zone A FDS of Watershed "OO"
Coyote Wash and Tributaries, FCD 2000C019
Wood, Patel & Associates, Inc.,

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM1051	1700.58	This station is located at the corner common to sections 8, 9, 16, and 17, T4N, R6W, GLO brass cap dated 1916, 1.2 feet above ground.
RM1052	1726.07	This station is located 10.1 miles north of the centerline of the CAP Canal along Wickenburg Road, a standard USGS brass cap in a concrete post 103 feet north of the roadway intersection with Vulture Mine Road, stamped 25 WLS 1957 1726.
RM3089	1752.08	GLO brass cap on 2-inch pipe, 0.8 foot above ground, common corner of sections 27, 28, 33, and 34, T5N, R6W, dated 1916.
RM3090	1726.32	GLO brass cap on 2-inch pipe, 1.1 feet above ground, common corner of sections 33 and 34, T5N, R6W, dated 1916.

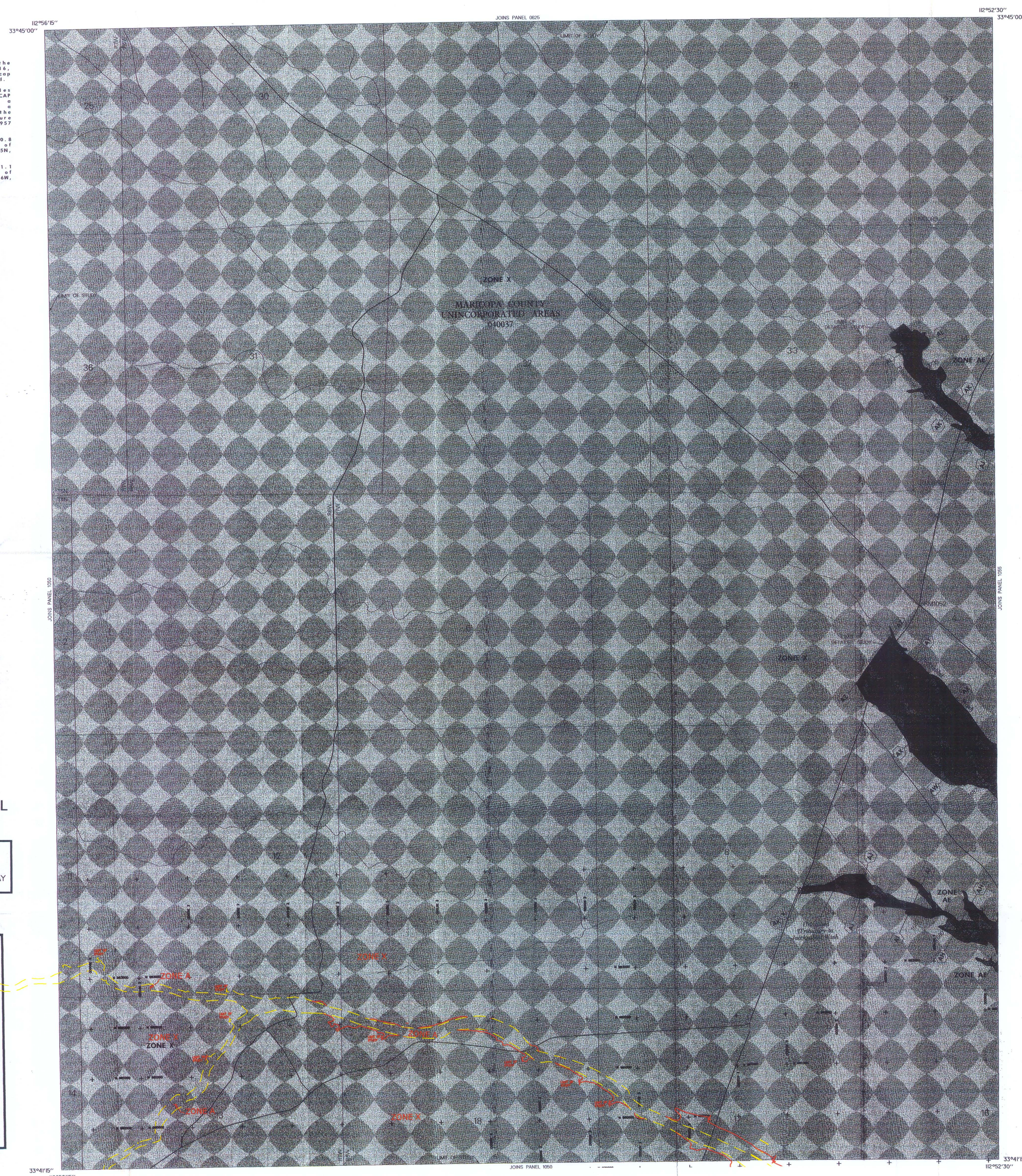


EXHIBIT C
ANNOTATED FIRM PANEL

LEGEND

100–YR FLOODPLAIN BOUNDARY
100–YR ADMINISTRATIVE FLOODWAY

WOOD/PATEL APRIL 2003

LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs)and /or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. BFEs shown on the FIRM are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and /or floodplain management.

ERM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevaton information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and / or floodplain management purposes when they are higher than the elevations shown on this FIRM.

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100–YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100–year flood by Federal flood protection system under construction ; no base flood elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500–year flood; areas of 100–year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100–year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500–year floodplain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 — Identified 1990 — Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

- Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
- ~513~ Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.
- (D)—(D) Cross Section Line
- (EL 987) Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.
- RM7 × Elevation Reference Mark
- • M2 River Mile
- 97°07'30", 32°22'30" Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100–year flood) include Zones A, AE, A1–A30, AH, AO, A99, V, VE and V1–V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101–591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
DECEMBER 3, 1993, SEPTEMBER 30, 1995

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

CLM 1035

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1035 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1035	G

MAP NUMBER
04013C1035 G

MAP REVISED:
JULY 19, 2001

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM1044	1469.45	Station is located at the corner common to section 1, T3N, R6W, section 6, T3N, R5W, section 31, T4N, R5W, and section 36, T4N, R6W. Mark is a GLO brass cap dated 1915 and is 1.1 feet above ground.
RM1045	1504.55	Station is located at the corner common to sections 25 and 36, T4N, R6W, and sections 30 and 31, T4N, R5W. Mark is a GLO brass cap dated 1916 and is 1.2 feet above ground.
RM1046	1575.30	Station is located 6.1 miles north of the centerline of the CAP Canal along Wickenburg Road. Mark is a standard USGS brass cap in a concrete post located 40 feet southwest of the roadway centerline and is stamped 29 WLS 1957 1575.
RM1047	1578.59	Station is located at the corner common to sections 22, 23, 26, and 27, T4N, R6W. Mark is a GLO brass cap dated 1916.
RM1048	1618.58	Station is located 7.2 miles north of the centerline of the CAP Canal along Wickenburg Road. Mark is a standard USGS brass cap in a concrete post located 42 feet northeast of the roadway centerline and is stamped 28 WLS 1957 1619.
RM1178	1513.41	Station is located 4.0 miles north of the centerline of the CAP Canal along Wickenburg Road. Mark is a standard USGS brass cap in a concrete post located 39 feet west of the roadway centerline and is stamped 31 WLS 1957 1513.
RM1179	1526.57	Station is located at the corner common to sections 25, 26, 35, and 36, T4N, R6W. Mark is a GLO brass cap dated 1916" and is 1.1 feet above ground.
RM1180	1532.40	Station is located 4.9 miles north of the centerline of the CAP Canal along Wickenburg Road. Mark is a standard USGS brass cap in a concrete post located 48 feet east of the roadway centerline and is stamped 30 WLS 1957 1532.
RM1181	1554.23	Station is located at the corner common to sections 23, 24, 25, and 26, T4N, R6W. Mark is a GLO brass cap dated 1916 and is 0.6 foot above ground.
RM1182	1572.39	Station is located at the quarter corner common to sections 23 and 26, T4N, R6W. Mark is a GLO brass cap dated 1916.
RM1183	1608.84	Station is located at the corner common to sections 14, 15, 22, and 23, T4N, R6W. Mark is a GLO brass cap dated 1916 and is 1.2 feet above ground.
RM1184	1619.88	Station is located at the quarter corner common to sections 15 and 22, T4N, R6W. Mark is a GLO brass cap dated 1916 and is 1.0 foot above ground.
RM1185	1637.92	Station is located at the corner common to sections 15, 16, 21, and 22, T4N, R6W. Mark is a GLO brass cap dated 1916 and is 1.3 feet above ground.
RM2079	1543.42	GLO brass cap on 2-inch pipe, 1.00 foot above ground, common corner of sections 13 and 24, T4N, R6W, and sections 18 and 19, T4N, R5W, dated 1916.
RM2080	1581.85	GLO brass cap on 2-inch pipe, 1.45 feet above ground, common corner of sections 13, 14, 23, and 24, T4N, R6W, dated 1916.

EXHIBIT C
ANNOTATED FIRM PANEL

LEGEND

100-YR FLOODPLAIN BOUNDARY

100-YR ADMINISTRATIVE FLOODWAY

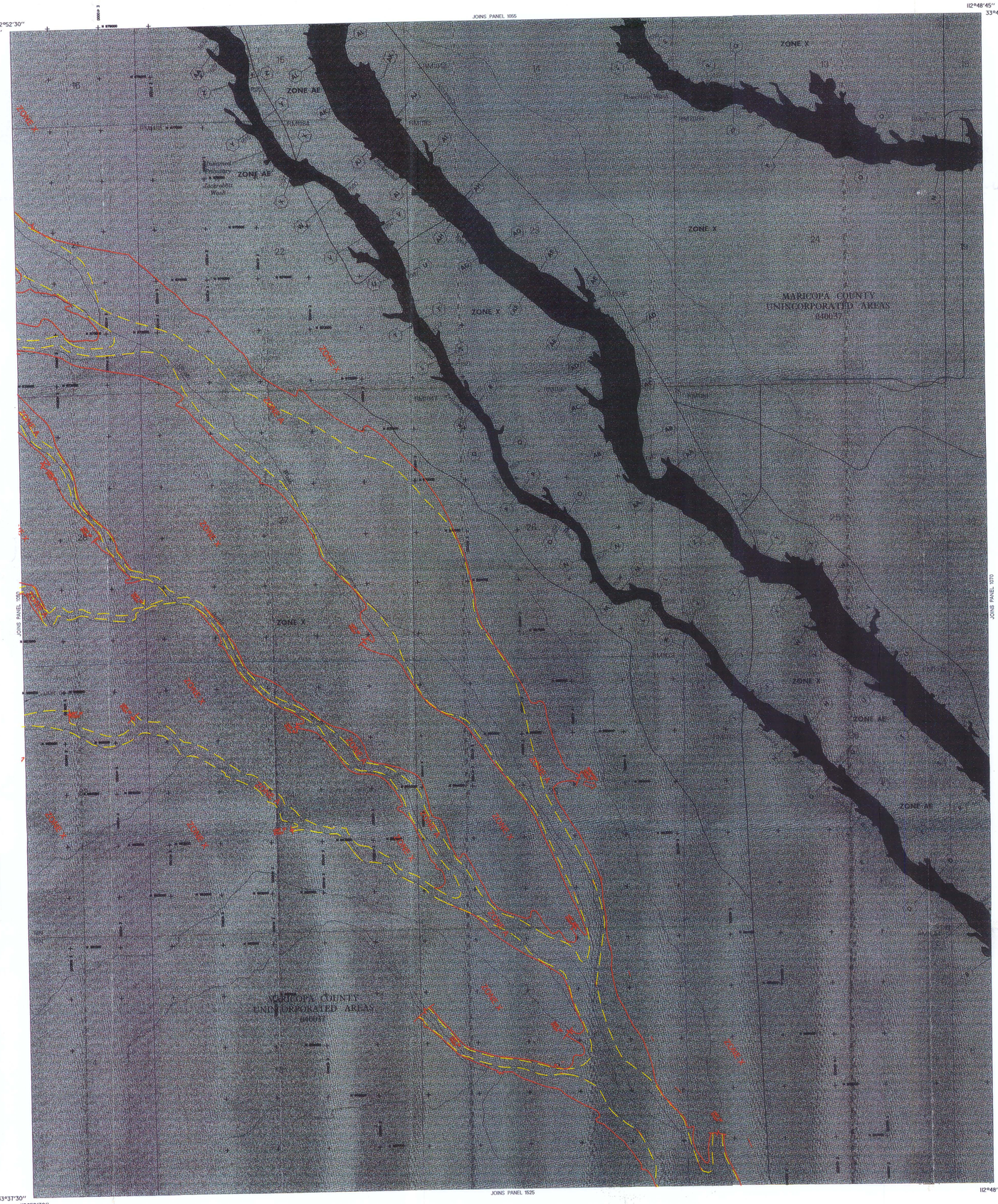
WOOD/PATEL APRIL 2003

LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs)and /or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. BFEs shown on the FIRM are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and /or floodplain management.

ERM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and / or floodplain management purposes when they are higher than the elevations shown on this FIRM.



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction ; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Area

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 — Elevation Reference Mark

M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at V20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
DECEMBER 3, 1993, SEPTEMBER 30, 1995

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

CLM 1065

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1065 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1065	G

MAP NUMBER
04013C1065 G

MAP REVISED:
JULY 19, 2001

Federal Emergency Management Agency

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM1039	1344.74	This station is located 3.9 miles east of Wickenburg Road along the north service road of the CAP Canal, mark is the northeast corner of a concrete headwall at the north inlet of a pipe culvert at CAP Station 561 + 50.
RM1040	1393.09	This station is located at the corner common to sections 4, 5, 8, and 9, T3N, R5W, mark is a GLO brass cap dated 1915 and is 0.6 foot above ground.
RM1041	1425.87	This station is located at the corner common to sections 5, 6, 7, and 8, T3N, R5W, mark is a GLO brass cap dated 1915 and is 1.3 feet above ground.

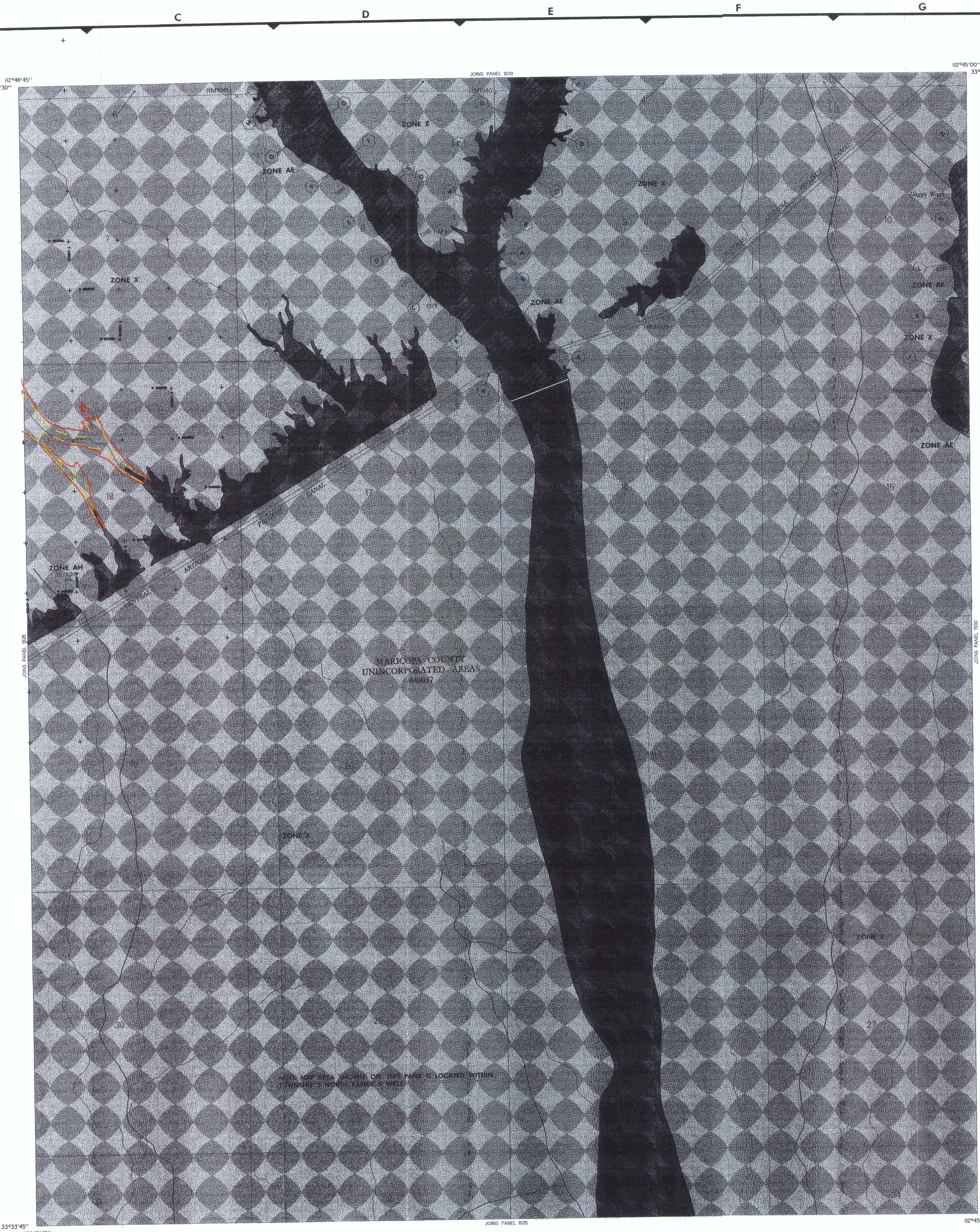


EXHIBIT C
ANNOTATED FIRM PANEL

LEGEND

100-YR FLOODPLAIN BOUNDARY

100-YR ADMINISTRATIVE FLOODWAY

WOOD/PATEL APRIL 2003

LEGEND

To obtain more detailed information in areas where Base Flood Elevations (BFEs)and /or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations and therefore may not exactly reflect the flood elevation data presented in the FIS. BFEs shown on the FIRM are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS should be utilized in conjunction with the FIRM for purposes of construction and /or floodplain management.

ERM elevations listed on this map were obtained and/or developed to establish vertical control for determination of flood elevations and floodplain boundaries portrayed on this map. Users should be aware that these ERM elevations may have changed since the publication of this map. To obtain up-to-date elevaton information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Coastal BFE's shown on this map may apply only landward of 0.0' NGVD. Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this community. Elevations shown in the Summary of Stillwater Elevations table should be used for construction, and / or floodplain management purposes when they are higher than the elevations shown on this FIRM.

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction ; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 — Identified 1990 — Otherwise Protected Areas

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

~513~ Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

(D)—(D) Cross Section Line

(EL 987) Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 × Elevation Reference Mark

• M2 River Mile

97°07'30", 32°22'30" Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1-A30, AH, AO, A99, V, VE and V1-V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
SEPTEMBER 4, 1991, DECEMBER 3, 1993, SEPTEMBER 30, 1995

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
1000 0 1000

CLM 1510

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY,
ARIZONA AND
INCORPORATED AREAS

PANEL 1510 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1510	H

**MAP NUMBER
04013C1510 H**

**MAP REVISED:
JULY 19, 2001**

Federal Emergency Management Agency

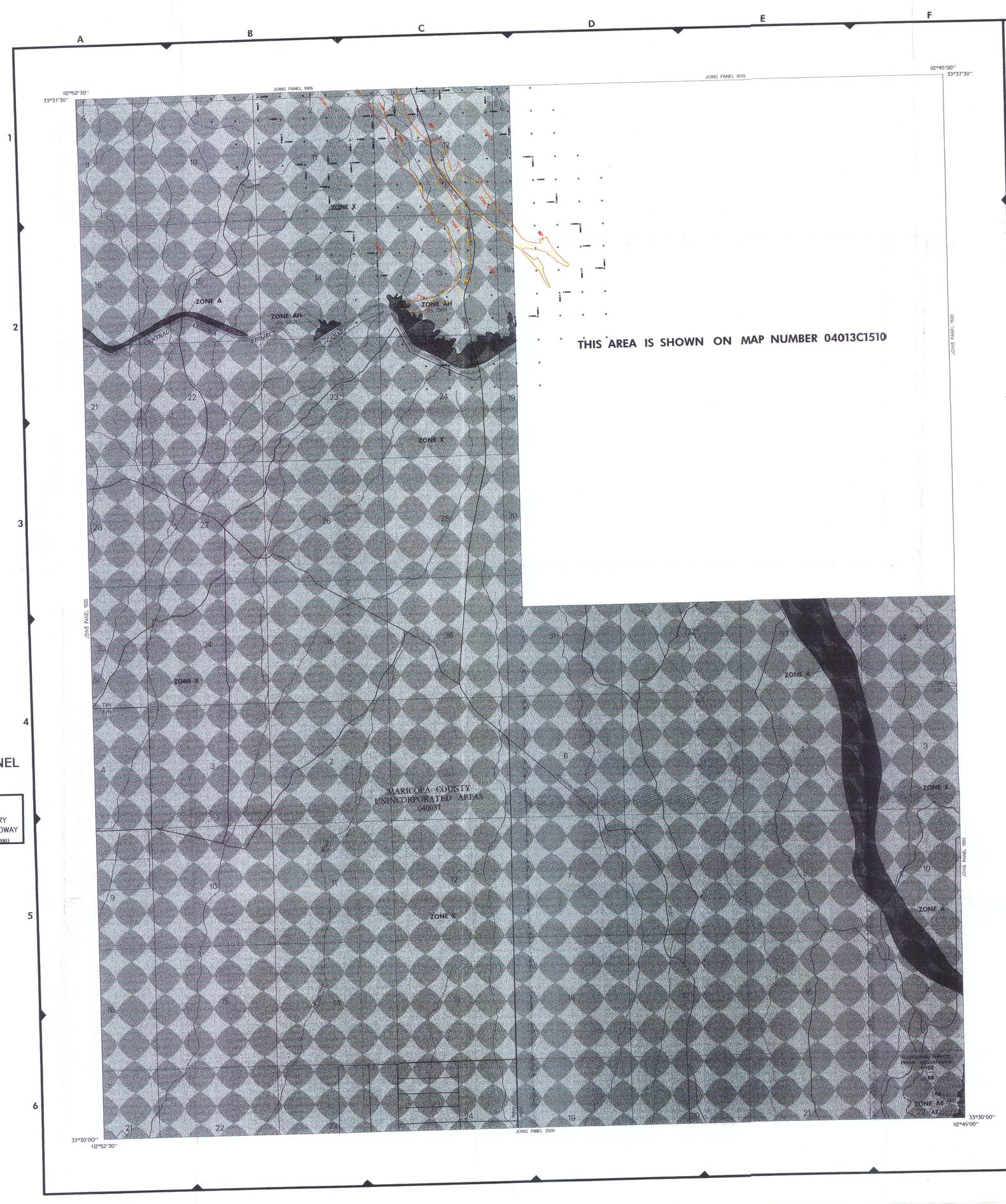


EXHIBIT C
ANNOTATED FIRM PANEL

LEGEND

100-YR FLOODPLAIN BOUNDARY

100-YR ADMINISTRATIVE FLOODWAY

WOOD/PATEL APRIL 2003

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction ; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Identified 1983 | Identified 1990 | Otherwise Protected Area

Coastal barrier areas are normally located within or adjacent to Special Flood Hazard Areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet. See Map Index for Elevation Datum.

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.

RM7 — Elevation Reference Mark

M2 — River Mile

97°07'30", 32°22'30" — Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection.

NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BFE's, and for any information on floodway delineations, prior to use of this map for property purchase or construction purposes.

Areas of Special Flood Hazard (100-year flood) include Zones A, AE, A1–A30, AH, AO, A99, V, VE and V1–V30.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Emergency Management Agency.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/01 inch.

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

This map may incorporate approximate boundaries of Coastal Barrier Resource System Units and /or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1990 (PL 101-591).

For community map revision history prior to countywide mapping, see Section 6.0 of the Flood Insurance Study Report.

For adjoining map panels and base map source see separately printed Map Index.

MAP REPOSITORY
Refer to Repository Listing on Map Index

EFFECTIVE DATE OF
COUNTYWIDE FLOOD INSURANCE RATE MAP:
APRIL 15, 1988

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:
SEPTEMBER 4, 1991 DECEMBER 3, 1993

Map revised July 19, 2001 to update corporate limits, to change base flood elevations, to add base flood elevations, to add Special Flood Hazard Areas, to change Special Flood Hazard Areas, to change zone designations, to update map format, to add roads and road names, and to incorporate previously issued Letters of Map Revision.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
2000 0 2000

CLH 1525

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 1525 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY, UNINCORPORATED AREAS	040037	1525	G

MAP NUMBER 04013C1525 G

MAP REVISED: JULY 19, 2001

Federal Emergency Management Agency