

**CLOMR-TO-LOMR SUPPLEMENTAL DATA
FOR
BULLARD WASH CHANNEL IMPROVEMENT**

OCTOBER 2000

**SUBMITTED BY
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
2801 WEST DURANGO STREET
PHOENIX, ARIZONA 85009**

(602) 506-1501



Federal Emergency Management Agency

Washington, D.C. 20472

MAR 05 '01

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CERTIFIED MAIL
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IN REPLY REFER TO:
Case No.: 01-09-124P

The Honorable Bill Arnold
Mayor, City of Goodyear
119 North Litchfield Road
Goodyear, AZ 85338

Community: City of Goodyear, AZ
Community No.: 040046
Panel Affected: 04013C2070 F
Effective Date of **FEB 27 2001**
This Revision:

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2801 W. Durango
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102-D-A

Dear Mayor Arnold:

This responds to a request that the Federal Emergency Management Agency (FEMA) revise the effective Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Maricopa County, Arizona and Incorporated Areas (the effective FIRM and FIS report for your community), in accordance with Part 65 of the National Flood Insurance Program (NFIP) regulations. In a letter dated October 6, 2000, Mr. Michael Duncan, P.E., Senior Civil Engineer, Flood Control District of Maricopa County, requested that FEMA revise the FIRM and FIS report to show the effects of new hydrology; construction of the Union Pacific Railroad and State Route 85 bridges over Bullard Wash; channelization along Bullard Wash from its mouth to approximately 2,100 feet downstream of Lower Buckeye Parkway (extended); and channelization along an unnamed tributary to Bullard Wash (East Tributary Channel). This request follows up on a Conditional Letter of Map Revision issued on October 15, 1999.

All data required to complete our review of this request were submitted with letters from Mr. Duncan. Because this Letter of Map Revision (LOMR) is based on a detailed hydrologic or hydraulic study conducted by a Federal, State, or local agency to replace an approximate study conducted by FEMA and shown on the flood map, fees were not assessed for the review.

We have completed our review of the submitted data and the flood data shown on the effective FIRM and in the effective FIS report. We have revised the FIRM and FIS report to modify the elevations and floodplain and floodway boundary delineations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) along Bullard Wash. As a result of the modifications, the Base Flood Elevations (BFEs) for Bullard Wash from approximately 3,300 feet downstream to approximately 450 feet downstream of Lower Buckeye Parkway (extended) and the widths of the Special Flood Hazard Area (SFHA), the area that would be inundated by the base flood, and the regulatory floodway decreased. The base flood is contained in the Bullard Wash channel from its mouth to approximately 2,100 feet downstream of Lower Buckeye Parkway (extended) and in East Tributary Channel from the confluence with Bullard Wash to approximately 2,000 feet upstream. A floodwater ponding area designated as Zone AH, an SFHA with flood depths between 1 foot and 3 feet and with BFEs determined, was added to the FIRM just northeast of the intersection of Buckeye Canal and the Bullard Wash channel. The modifications are shown on the enclosed annotated copies of FIRM

Panel 04013C2070 F, Profile Panels 626P through 631P, and affected portions of the Floodway Data Table. This LOMR hereby revises the above-referenced panel of the effective FIRM and the affected portions of the FIS report, both dated September 30, 1995.

The modifications are effective as of the date shown above. The map panel listed above and as modified by this letter will be used for all flood insurance policies and renewals issued for your community.

The following table is a partial listing of existing and modified BFEs:

Location	Existing BFE (feet)*	Modified BFE (feet)*
Bullard Wash:		
Approximately 3,400 feet downstream of Lower Buckeye Parkway (extended)	944	None**
Approximately 1,900 feet downstream of Lower Buckeye Parkway (extended)	948	947
Approximately 1,100 feet downstream of Lower Buckeye Parkway (extended)	951	949

*Referenced to the National Geodetic Vertical Datum, rounded to the nearest whole foot

**Base flood contained in the channel

Public notification of the modified BFEs will be given in the *West Valley View* on or about March 14 and March 21, 2001. A copy of this notification is enclosed. In addition, a notice of changes will be published in the *Federal Register*. Within 90 days of the second publication in the *West Valley View*, any interested party may request that FEMA reconsider the determination made by this LOMR. Any request for reconsideration must be based on scientific or technical data. All interested parties are on notice that, until the 90-day period elapses, the determination to modify the BFEs made by this LOMR may itself be modified.

Because this LOMR will not be printed and distributed to primary users, such as local insurance agents and mortgage lenders, your community will serve as a repository for these new data. We encourage you to disseminate the information reflected by this LOMR throughout the community, so that interested persons, such as property owners, local insurance agents, and mortgage lenders, may benefit from the information. We also encourage you to prepare a related article for publication in your community's local newspaper. This article should describe the assistance that officials of your community will give to interested persons by providing these data and interpreting the NFIP maps.

We are processing a revised FIRM and FIS report for Maricopa County; therefore, we will not physically revise and republish the FIRM and FIS report for your community to incorporate the modifications made by this LOMR at this time. Preliminary copies of the revised FIRM and FIS report were submitted to your community for review on December 23, 1997. Please note that updated road base information for your community has been incorporated into the Revised Preliminary FIRM. For display purposes, the updated road base information also is shown on the enclosed annotated copy of effective FIRM Panel 04013C2070 F. We will incorporate the modifications made by this LOMR into the revised FIRM and FIS report before they become effective.

The floodway is provided to your community as a tool to regulate floodplain development. Therefore, the floodway modifications described in this LOMR, while acceptable to FEMA, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

This LOMR is based on minimum floodplain management criteria established under the NFIP. Your community is responsible for approving all floodplain development and for ensuring all necessary permits required by Federal or State law have been received. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If the State, county, or community has adopted more restrictive or comprehensive floodplain management criteria, these criteria take precedence over the minimum NFIP criteria.

The basis of this LOMR is, in whole or in part, a channel-modification/culvert project. NFIP regulations, as cited in Paragraph 60.3(b)(7), require that communities ensure that the flood-carrying capacity within the altered or relocated portion of any watercourse is maintained. This provision is incorporated into your community's existing floodplain management regulations. Consequently, the ultimate responsibility for maintenance of the modified channel and culvert rests with your community.

This determination has been made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and is in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria are the minimum requirements and do not supersede any State or local requirements of a more stringent nature. This includes adoption of the effective FIRM and FIS report to which the regulations apply and the modifications described in this LOMR.

FEMA makes flood insurance available in participating communities; in addition, we encourage communities to develop their own loss reduction and prevention programs. Through the *Project Impact: Building Disaster Resistant Communities* initiative, launched by FEMA in 1997, we seek to focus the energy of businesses, citizens, and communities in the United States on the importance of reducing their susceptibility to the impact of all natural disasters, including floods, hurricanes, severe storms, earthquakes, and wildfires. Natural hazard mitigation is most effective when it is planned for and implemented at the local level, by the entities who are most knowledgeable of local conditions and whose economic stability and safety are at stake. For your information, we are enclosing a copy of a pamphlet describing this nationwide initiative. For additional information on *Project Impact*, please visit our website at www.fema.gov/impact.

If you have any questions regarding floodplain management regulations for your community or the NFIP in general, please contact the Consultation Coordination Officer (CCO) for your community. Information on the CCO for your community may be obtained by calling the Chief, Community

Mitigation Programs Branch, Mitigation Division of FEMA in San Francisco, California, at (415) 923-7184. If you have any questions regarding this LOMR, please call our Map Assistance Center, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,



Max H. Yuan, P.E., Project Engineer
Hazards Study Branch
Mitigation Directorate

For: Matthew B. Miller, P.E., Chief
Hazards Study Branch
Mitigation Directorate

Enclosures

cc: Mr. Michael Duncan, P.E.
Senior Civil Engineer
Flood Control District of Maricopa County

Ms. Terri Miller
Program Coordinator
Arizona Division of Emergency Management

Mr. Harvey Krauss
Community Development Director
City of Goodyear

CHANGES ARE MADE IN DETERMINATIONS OF BASE FLOOD ELEVATIONS FOR THE CITY OF GOODYEAR, MARICOPA COUNTY, ARIZONA UNDER THE NATIONAL FLOOD INSURANCE PROGRAM

On September 30, 1995, the Federal Emergency Management Agency identified Special Flood Hazard Areas (SFHAs) in the City of Goodyear, Maricopa County, Arizona through issuance of a Flood Insurance Rate Map (FIRM). The Mitigation Directorate has determined that modification of the elevations of the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood) for certain locations in this community is appropriate. The modified Base Flood Elevations (BFEs) revise the FIRM for the community.

The changes are being made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (Public Law 93-234) and are in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, Public Law 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65.

A hydraulic analysis was performed to incorporate the effects of new hydrology; construction of the Union Pacific Railroad and State Route 85 bridges over Bullard Wash; channelization along Bullard Wash from its mouth to approximately 2,100 feet downstream of Lower Buckeye Parkway (extended); and channelization along an unnamed tributary to Bullard Wash (East Tributary Channel). This has resulted in a revised delineation of the regulatory floodway, a decrease in SFHA width, and decreased BFEs for Bullard Wash from approximately 3,300 feet downstream to approximately 450 feet downstream of Lower Buckeye Parkway (extended). The base flood is contained in the Bullard Wash channel from its mouth to approximately 2,100 feet downstream of Lower Buckeye Parkway (extended) and in East Tributary Channel from the confluence with Bullard Wash to approximately 2,000 feet upstream. A floodwater ponding area, an SFHA designated Zone AH, was added to the FIRM just northeast of the intersection of Buckeye Canal and the Bullard Wash channel. The table below indicates existing and modified BFEs for selected locations along the affected lengths of the flooding source(s) cited above.

Location	Existing BFE (feet)*	Modified BFE (feet)*
Bullard Wash:		
Approximately 3,400 feet downstream of Lower Buckeye Parkway (extended)	944	None**
Approximately 1,900 feet downstream of Lower Buckeye Parkway (extended)	948	947
Approximately 1,100 feet downstream of Lower Buckeye Parkway (extended)	951	949

*National Geodetic Vertical Datum, rounded to nearest whole foot

**Base flood contained in channel

Under the above-mentioned Acts of 1968 and 1973, the Mitigation Directorate must develop criteria for floodplain management. To participate in the National Flood Insurance Program (NFIP), the community must use the modified BFEs to administer the floodplain management measures of the NFIP. These modified BFEs will also be used to calculate the appropriate flood insurance premium rates for new buildings and their contents and for the second layer of insurance on existing buildings and contents.

Upon the second publication of notice of these changes in this newspaper, any person has 90 days in which he or she can request, through the Chief Executive Officer of the community, that the Mitigation Directorate reconsider the determination. Any request for reconsideration must be based on knowledge of changed conditions or new scientific or technical data. All interested parties are on notice that until the 90-day period elapses, the Mitigation Directorate's determination to modify the BFEs may itself be changed.

Any person having knowledge or wishing to comment on these changes should immediately notify:

The Honorable Bill Arnold
Mayor, City of Goodyear
119 North Litchfield Road
Goodyear, AZ 85338



Need Information on Flood Hazard Maps

A wealth of information is only a
click away at: www.fema.gov/mit/tsd



Homeowners will find:

- A helpful tutorial: "How to Challenge a Flood Risk Determination"
- Answers to Frequently Asked Questions, including, "Why do I need flood insurance?" "What are the different flood hazard zone designations and what do they mean?" and "What is a base flood elevation?"



Insurance Agents and Bankers will find:

- Information on the National Flood Insurance Reform Act of 1994, which affects lenders
- Pages containing information on how to become a "Write Your Own" insurance agent
- Pages containing flood insurance rate information and a listing of map determination companies



Engineers and Surveyors will find:

- A listing of National Flood Insurance Program (NFIP) approved and test version software with links to free downloads
- Forms and fee schedules for requesting a map change or back-up study data
- A link to a listing of training courses and conferences related to emergency management



Floodplain Managers and Community Officials will find:

- The compendium of map change actions and the Guide for Community Officials
- A listing of key contacts at FEMA with direct e-mail links
- Forms necessary to initiate requests for back-up study data

All Four Constituent groups will find:

- NFIP policies and regulations
- Forms for making map change requests
- The answers to over 80 Frequently Asked Questions
- Access to a database containing the status of recent requests for map changes
- Numerous reports and guidance documents in both Adobe Acrobat .PDF and MS Word formats
- Information on Map Modernization initiatives with direct e-mail links to FEMA Task Leaders
- A subscription service providing free news on the latest developments in flood hazard mapping via e-mail
- E-mail links to Map Specialists at the FEMA Map Assistance Center (1-877-FEMA MAP)



Questions and suggestions? Contact John Magnotti at 202-646-3932, or john.magnotti@fema.gov



PROJECT IMPACT Building a Disaster Resistant Community

BACKGROUND

PROJECT IMPACT is an initiative developed by FEMA Director James Lee Witt to challenge the country to undertake actions that protect families, businesses and communities by reducing the effects of natural disasters. This initiative includes a national awareness campaign, the selection of pilot communities that demonstrate the benefits of hazard mitigation through a partnership approach, and an outreach effort to businesses and communities using a new guidebook that offers a formula for a community or business to follow to become disaster resistant.

RATIONALE

The increasing number and severity of natural disasters the past decade demands that action be taken to reduce the threat that hurricanes, severe storms, earthquakes, floods and wildfires impose upon the economic stability, economic future and safety of the citizens of the U.S. As the federal agency responsible for emergency management, FEMA is committed to reducing disaster losses by focusing the energy of businesses, citizens, and communities in the U.S. on the importance of reducing their susceptibility to the impact of natural disasters.

There are three primary tenets of the PROJECT IMPACT initiative:

- *Mitigation is a local issue.* It is best addressed by a local partnership that involves government, businesses and private citizens.
- *Private sector participation is essential.* Disasters threaten the economic and commercial growth of our cities, towns, villages and counties. Without the participation of the private sector, comprehensive solutions will not be developed.
- *Mitigation is a long-term effort that requires long-term investment.* Disaster losses will not be eliminated overnight.

PILOT COMMUNITIES

Director Witt and FEMA have worked closely with seven communities throughout the U.S. to develop a PROJECT IMPACT plan that localities, businesses and citizens can follow to build disaster resistant communities where they live and work. Director Witt will participate in events in each of these communities to congratulate them on their foresight, commitment, and contribution to a disaster resistant nation.

PROJECT IMPACT GUIDEBOOK

The guidebook presents that steps a community can take to become disaster resistant. It also provides examples of the actions and resources available to accomplish this goal.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	FLOODING SOURCE			
					REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE (FEET)
Bullard Wash								
A	0,004 ¹	420	1,212	4.0	943.7	943.7	943.6	0.1
B	5,200	415	1,378	2.3	947.9	947.9	948.7	0.8
C	7,213	287	812	3.9	955.6	955.6	956.4	0.8
D	9,433	323	1,090	2.5	962.6	962.6	963.6	1.0
E	11,283	481	857	3.2	968.7	968.7	969.7	1.0
F	13,373	206	754	3.6	974.5	974.5	975.5	1.0
G	15,423	260	637	4.3	980.1	980.1	980.6	0.5
H	17,492	230	813	3.4	985.2	985.2	986.1	0.9
I	19,717	175	525	5.2	990.4	990.4	991.1	0.7
J	21,882	287	995	3.4	996.3	996.3	997.1	0.8
K	23,182	306	888	3.8	1,000.8	1,000.8	1,001.8	1.0
L	24,417	379	1,241	2.7	1,003.6	1,003.6	1,004.6	1.0
M	39,520	515	991	4.3	1,050.2	1,050.2	1,050.4	0.2
N	41,400	815	1,170	3.2	1,058.8	1,058.8	1,059.1	0.3
O	43,260	310	665	1.1	1,060.6	1,060.6	1,061.0	0.4
P	44,840	85	224	3.4	1,062.9	1,062.9	1,062.9	0.0

REVISED DATA

THESE DATA WERE REVISED BY LOMR DATED DECEMBER 19, 2000

REVISED TO REFLECT LOMR

DATED FEB 27 2001

¹Feet above Southern Pacific Railroad

T
A
B
L
E

5

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

FLOODWAY DATA

BULLARD WASH

ELEVATION (FEET NGVD)

930

940

950

STREAM DISTANCE IN FEET ABOVE SOUTHERN PACIFIC RAILROAD

4000

5000

DOWNSTREAM OF THIS POINT
100-YEAR FLOOD CONTAINED
IN CHANNEL

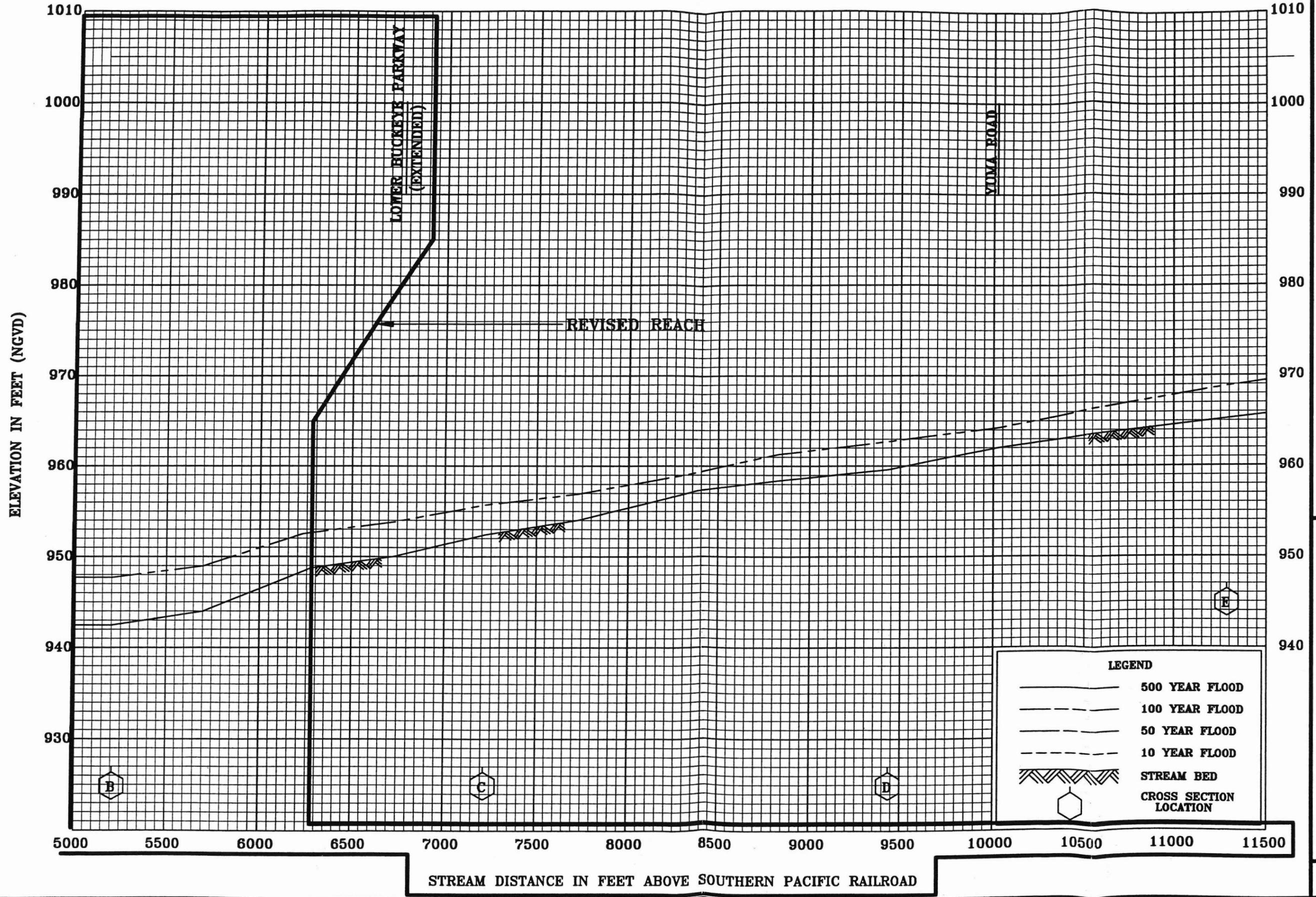
LEGEND

- 500-YEAR FLOOD
- 100-YEAR FLOOD
- 50-YEAR FLOOD
- 10-YEAR FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FEDERAL EMERGENCY MANAGEMENT AGENCY
MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

FLOOD PROFILES
BULLARD WASH

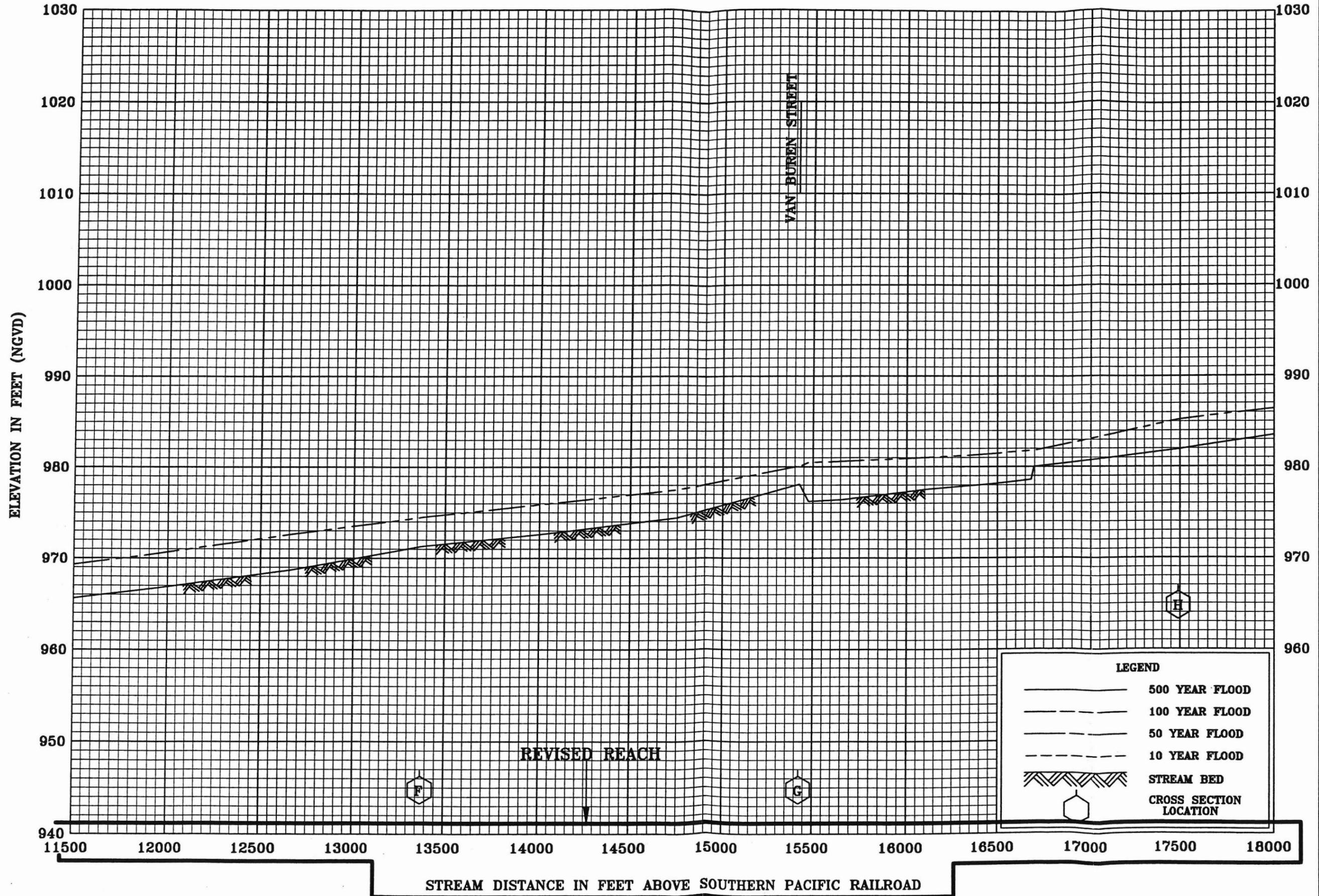
REVISED TO
REFLECT LOMR
DATED FEB 27 2001



FEDERAL EMERGENCY MANAGEMENT AGENCY
 MARICOPA COUNTY, AZ
 AND INCORPORATED AREAS

FLOOD PROFILES
 BULLARD WASH
 REVISED TO REFLECT LOMR
 DATED FEB 27 2001

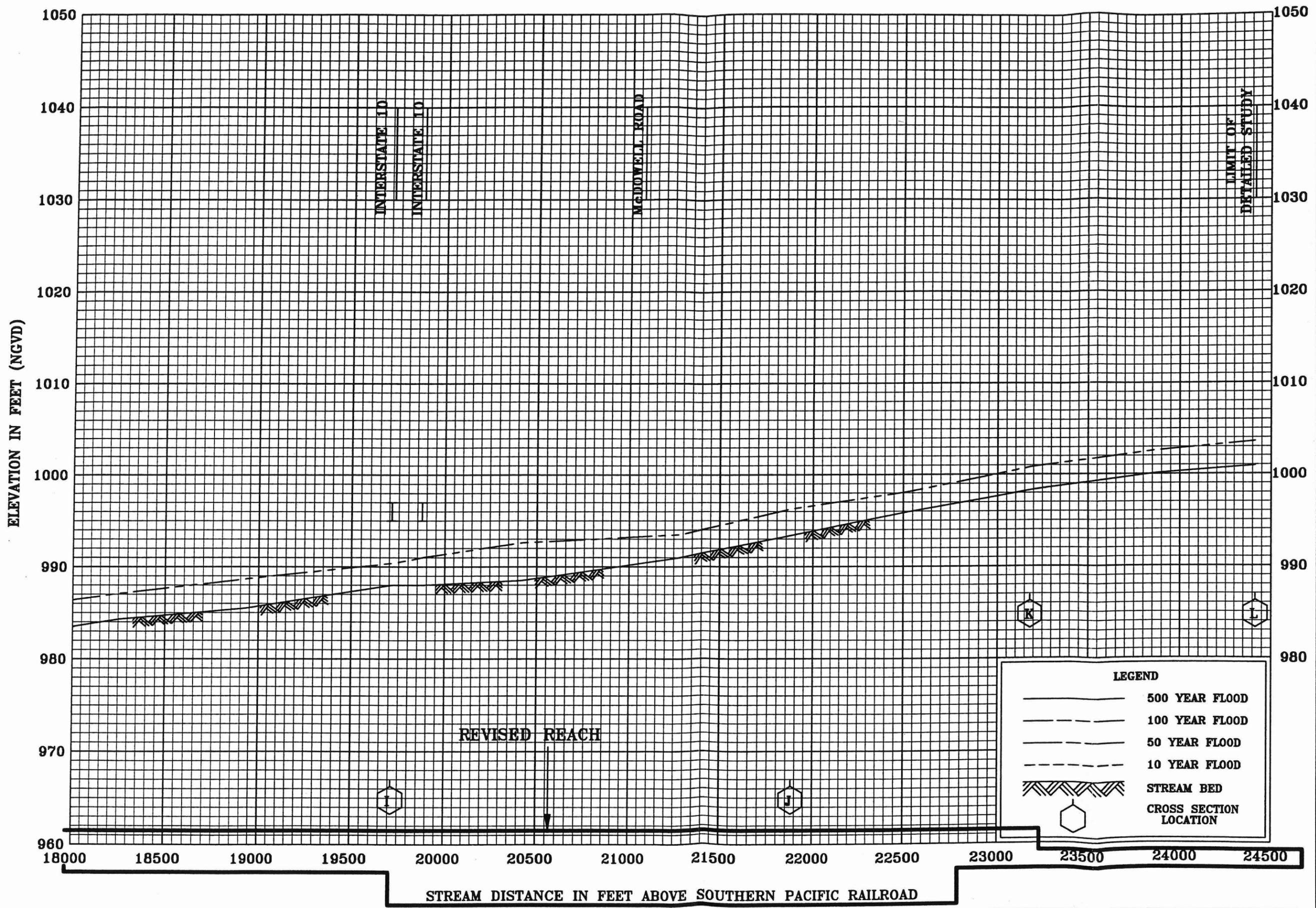
627P



FEDERAL EMERGENCY MANAGEMENT AGENCY
 MARICOPA COUNTY, AZ
 AND INCORPORATED AREAS

FLOOD PROFILES
 BULLARD WASH
 REVISED TO
 REFLECT LOMR
 DATED FEB 27 200

628P

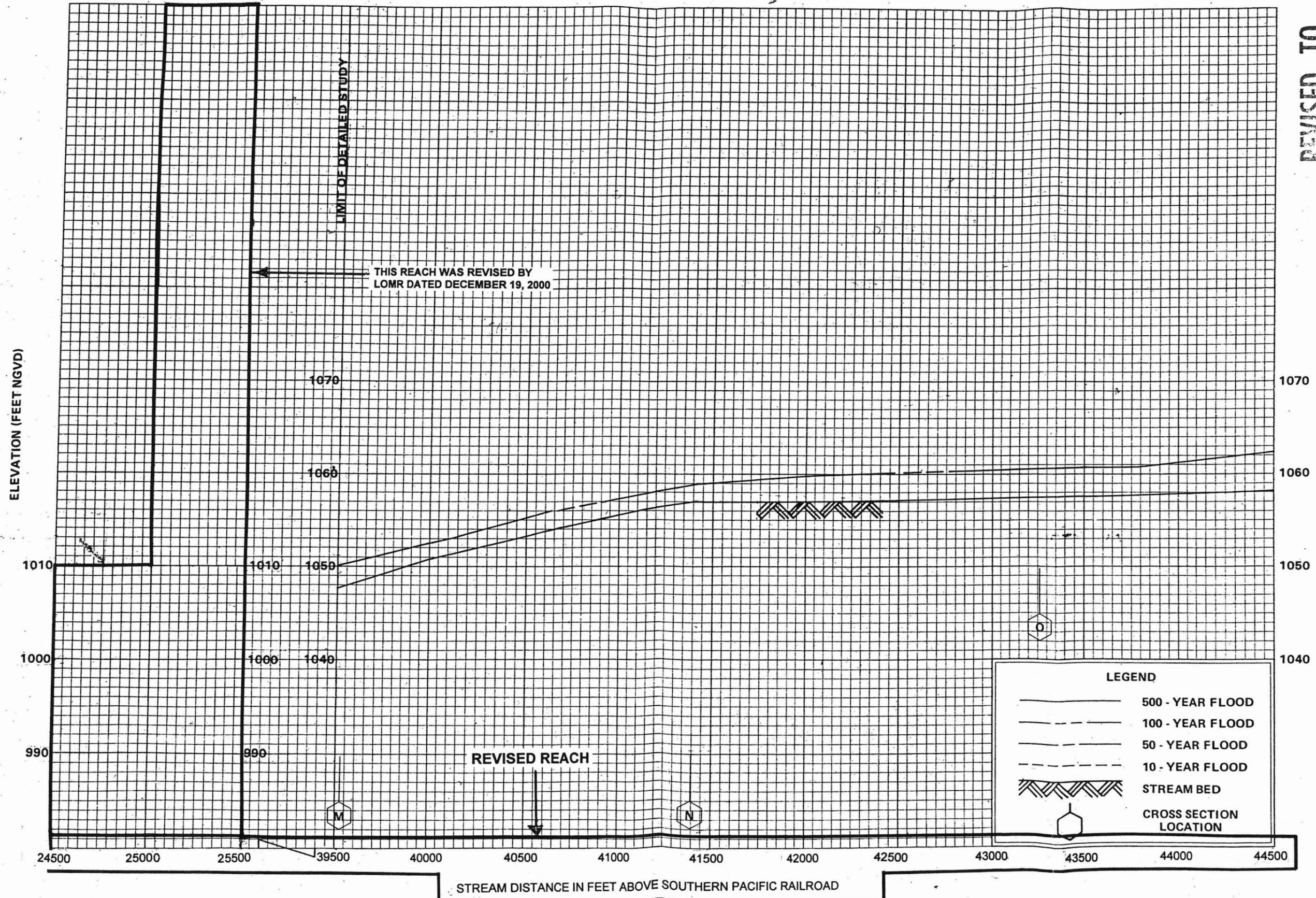


FEDERAL EMERGENCY MANAGEMENT AGENCY
 MARICOPA COUNTY, AZ
 AND INCORPORATED AREAS

FLOOD PROFILES
 BULLARD WASH
 REVISIED TO REFLECT LOMR
 DATED FEB 27 200

629P

REVISED TO
 FLOOD PROFILES REFLECT LOMR
 BULLARD WASH DATED FEB 27 2001



FEDERAL EMERGENCY MANAGEMENT AGENCY
 MARICOPA COUNTY, AZ
 AND INCORPORATED AREAS

ELEVATION (FEET NGVD)

1070

1060

1050

LIMIT OF DETAILED STUDY

REVISED REACH

44500

45000

STREAM DISTANCE IN FEET ABOVE SOUTHERN PACIFIC RAILROAD

LEGEND

-  500 - YEAR FLOOD
-  100 - YEAR FLOOD
-  50 - YEAR FLOOD
-  10 - YEAR FLOOD
-  STREAM BED
-  CROSS SECTION LOCATION

REVISED TO

APPROVED LOMR
DATED FEB 27 2001

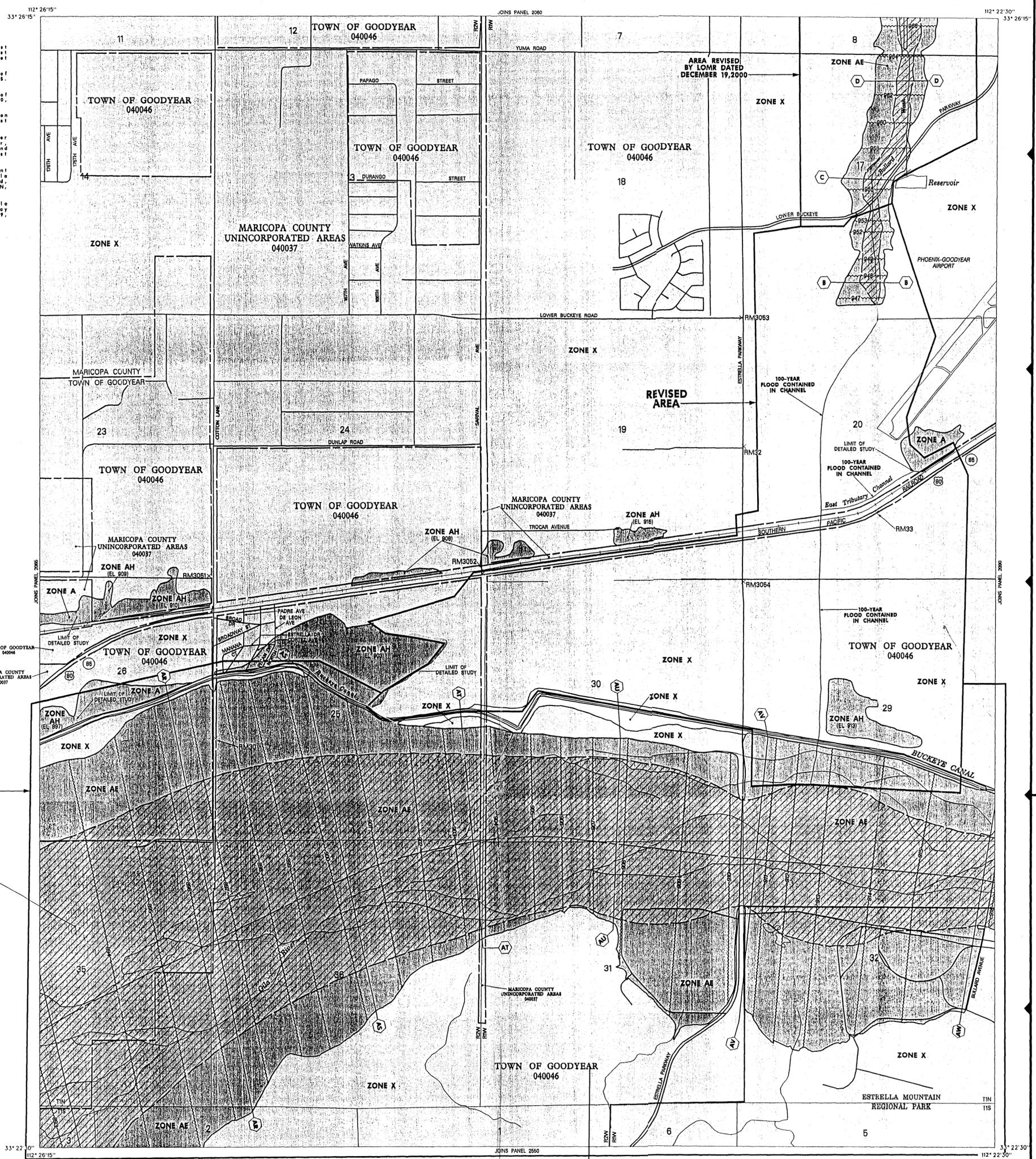
FLOOD PROFILES

BULLARD WASH

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARICOPA COUNTY, AZ
AND INCORPORATED AREAS

631P



ELEVATION REFERENCE MARKS

REFERENCE MARK (FEET NGVD)	DESCRIPTION OF LOCATION
RM30 895.63	ANPP lead plug No. 862 at northwest corner of chainlink fence on east side of Cotton Lane, 1130 feet south of Buckeye Canal.
RM32 934.97	Rim of handhole at centerline of Reams Road, 1800 feet north of U.S. Route 80.
RM33 916.54	AHD brass cap in south headwall of base culvert under U.S. Route 80, 3000 feet west of Willard Avenue.
RM3061 912.90	1-inch open pipe in gophole, Cotton Lane and Broadway Road, southeast corner section 24, T1N, R2W.
RM3052 910.17	Chiseled X on concrete base power pole at northeast corner, intersection of Sarival Avenue and Broadway Road, near southeast corner section 24, T1N, R2W.
RM3053 932.11	Maricopa County Highway Department brass cap in handhole, Estrella Parkway and Lower Buckeye Road, southeast corner section 18, T1N, R1W.
RM3054 913.18	Brass cap in handhole, Estrella Parkway (Reams Road) and Broadway Road, southeast corner section 19, T1N, R1W.

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 flooding terraces); 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 D** 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
[Symbol]	[Symbol]	[Symbol]

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

Boundary Symbols:

- 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.

Other Symbols:

- Base Flood Elevation Line: Elevation in Feet. See Map Index for Elevation Datum.
- Cross Section Line: Base Flood Elevation in Feet Where Uniform Within Zone. See Map Index for Elevation Datum.
- Elevation Reference Mark: RM7
- River Mile: M2
- Horizontal Coordinates Based on North American Datum of 1927 (NAD 27) Projection: 97° 07' 30", 32° 22' 30"

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 alluvial features outside Special Flood Hazard Areas. The community map repository should be consulted for more detailed data on BE'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, AI, A99, AH, AO, A99, V, VE and VI-V90.

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 which require 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 1/200 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 Resources System Units and/or Otherwise Protected Areas established under the Coastal Barrier Improvement Act of 1960 (PL 86-961).

For community map revision history prior to countywide mapping, see Section 8.0 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, 1998

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL:

SEPTEMBER 4, 1991; DECEMBER 2, 1993; JUNE 20, 2001

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

THIS AREA WAS REVISED BY LOMR DATED APRIL 20, 2000. SEE APRIL 20, 2000 LOMR ATTACHMENT FOR REVISED FLOODPLAIN INFORMATION.

MARICOPA COUNTY UNINCORPORATED AREAS 040037

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 the FIRM. Users should be aware that the 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. Adequately 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 BFEs shown on this map may apply only to 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.

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

MARICOPA COUNTY, ARIZONA AND INCORPORATED AREAS

PANEL 2070 OF 4350
(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS	COMMUNITY	NUMBER	PANEL	SUFFIX
GOODYEAR TOWN OF MARICOPA COUNTY	040046	2070	F	
UNINCORPORATED AREAS	040037	2070	F	

REVISED TO REFLECT LOMR DATED FEB 27 2001

MAP NUMBER 04013C2070 F

MAP REVISED: SEPTEMBER 30, 1995

Federal Emergency Management Agency



Federal Emergency Management Agency

Washington, D.C. 20472

November 30, 2000

Property of
Flood Control District of MC Library
Please Return to
2501 W. Durango
Phoenix, AZ 85009

Mr. Michael Duncan, P.E.
Senior Civil Engineer
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, AZ 85009-6399

IN REPLY REFER TO:
Case No.: 01-09-124P
Community: City of Goodyear, AZ
Community No.: 040046

316-ACK.FEX

Dear Mr. Duncan:

This responds to your request dated October 6, 2000, that the Federal Emergency Management Agency (FEMA) issue a revision to the Flood Insurance Rate Map (FIRM) for Maricopa County, Arizona and Incorporated Areas. Pertinent information about the request is listed below.

Identifier:	Bullard Wash Channel Improvements
Flooding Source:	Bullard Wash
FIRM Panel(s) Affected:	04013C2070 F

As you may know, FEMA has implemented a procedure to recover costs associated with reviewing and processing requests for modifications to published flood information and maps. However, because your request is based on a detailed hydrologic or hydraulic study conducted by a Federal, State, or local agency to replace an approximate study conducted by FEMA and shown on the flood map, no fees will be assessed for our review.

We have completed an inventory of the items that you submitted. We have received all the data we require to begin a detailed technical review of your request. If additional data are required, we will inform you within 60 days of the date of this letter.

Please direct all technical questions concerning your request to our Map Coordination Contractor at the following address:

Michael Baker Jr., Inc.
3601 Eisenhower Avenue, Suite 600
Alexandria, VA 22304-6425

When you write us about your request, you must include the case number referenced above in your letter.

NOV 30 2000

RECEIVED

DEC 04 '00

CH & CIV	FINANCE
PIO	LANDS
ADMN	IC & M
REG	P & PM
ENG	FILE
CONTRACTS	
ROUTING	

MWB

2-10
↓
Nov 30
57 days
+60
117 days

2

If you have any questions concerning your request, FEMA policy, or the National Flood Insurance Program in general, please call the Revisions Coordinator for your State, Pernille Buch-Pedersen, who may be reached, toll free, at 1-877-FEMA MAP (1-877-336-2627).

Sincerely,



Max H. Yuan, P.E., Project Engineer
Hazards Study Branch
Mitigation Directorate

cc: Mr. Harvey Krauss
Community Development Director
City of Goodyear



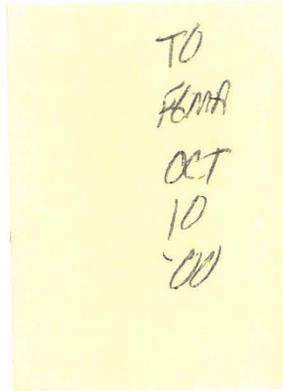
FLOOD CONTROL DISTRICT
of
Maricopa County

2801 West Durango Street • Phoenix, Arizona 85009-6399
Telephone (602) 506-1501
Fax (602) 506-4601
TT (602) 506-5897

BOARD OF DIRECTORS
Jan Brewer
Fulton Brock
Andrew Kunasek
Don Stapley
Mary Rose Garrido Wilcox

October 6, 2000

Max Yuan, P.E., Project Engineer
Hazards Study Branch
Mitigation Directorate
Federal Emergency Management Agency
500 C Street SW
Washington, D.C. 20472-0001



Regarding: Letter of Map Revision (LOMR) request for Bullard Wash Channel Improvement
Based on CLOMR case no. 99-09-862R

Flooding Source: Bullard Wash
Map Number: 04013C
FIRM Panel Affected: 2070F effective 9-30-95, with LOMR of 4-20-00
Jurisdiction: City of Goodyear, Arizona
Community No. 040046

Dear Mr. Yuan:

The improvements to Bullard Wash Channel have been completed. A LOMR is hereby requested based on As-Built Plans and a notebook of Supplemental Data that are enclosed in this package. Should additional information be required, please contact Michael Duncan, P.E., at 602-506-4732.

Sincerely,

Michael Duncan, P.E.
Senior Civil Engineer

Enclosures

COPIES TO: Terri Miller
Community Assistance Program Coordinator
Arizona Division of Emergency Management
5636 E. McDowell Road
Phoenix, AZ 85008

Harvey Krauss
Community Development Director
City of Goodyear
119 N. Litchfield Road
Goodyear, AZ 85338

COORD:

FILE:

FCD 95-39

**CLOMR-TO-LOMR SUPPLEMENTAL DATA
FOR
BULLARD WASH CHANNEL IMPROVEMENT**

OCTOBER 2000

SUBMITTED BY
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
2801 WEST DURANGO STREET
PHOENIX, ARIZONA 85009

(602) 506-1501

CLOMR-TO-LOMR SUPPLEMENTAL DATA
FOR

BULLARD WASH CHANNEL IMPROVEMENT

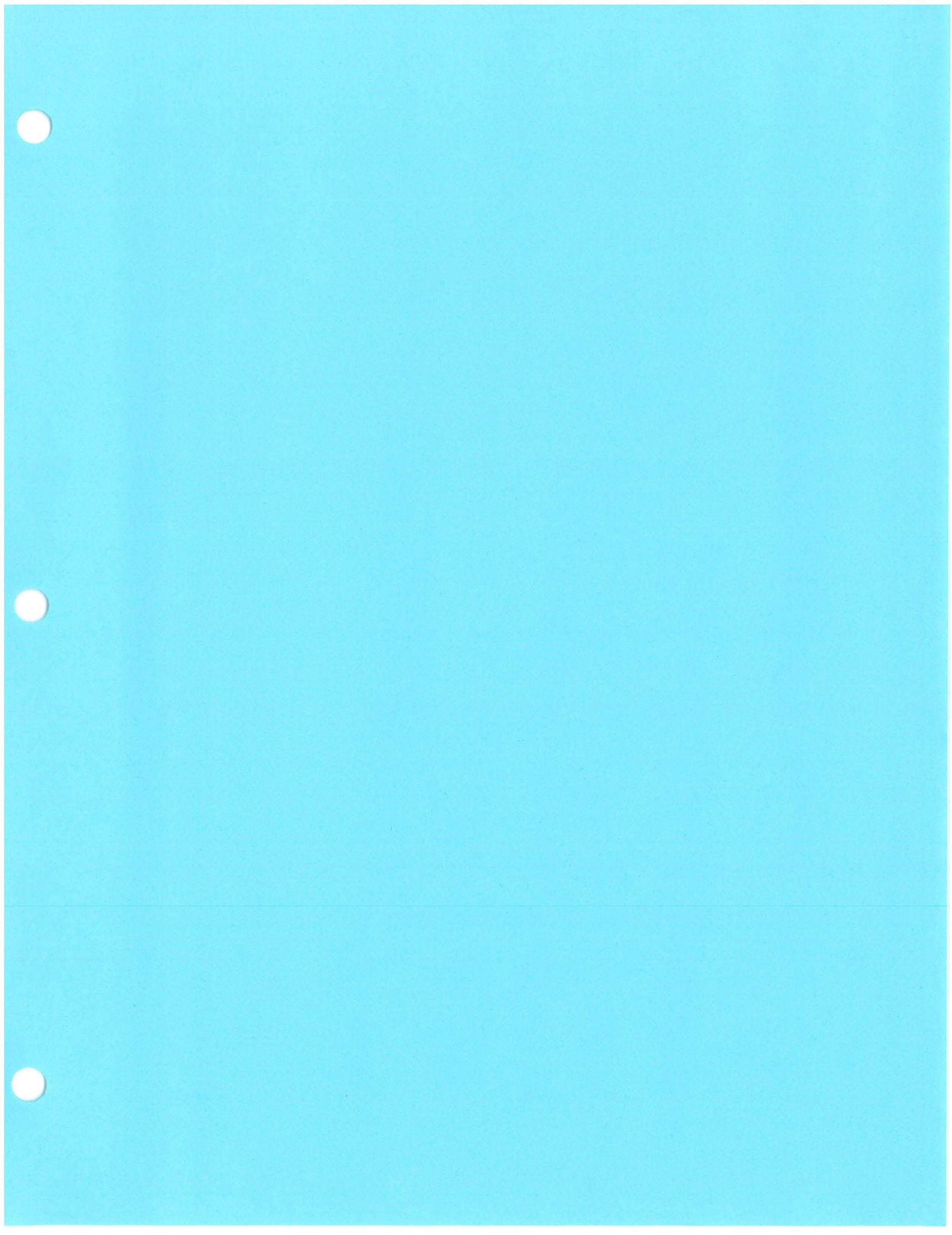
CONTENTS

- * FEMA FORM
- * REVISED WORK MAP
- * COMPACTION DENSITY REPORTS
- * MAINTENANCE PROCEDURES
- * COMMUNITY ADOPTION/ENFORCEMENT LETTER
- * PUBLIC NOTICES AND MAILINGS
- * AS-BUILT PLANS (SEPARATE ROLL OF FULL SIZE DRAWINGS)

RELATED FEMA CASES

CLOMR FOR THIS PROJECT: 99-09-862R
BULLARD WASH CHANNEL IMPROVEMENT

UP-WATERSHED LOMR: 00-09-200P
DYSART DRAIN IMPROVEMENTS
DATED MAY 2, 2000



Public reporting burden for this form is estimated to average 2.13 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington DC 20472; and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503.

You are not required to respond to this collection of information unless a valid OMB Control Number is displayed in the upper right corner of this form.

1. REQUESTED RESPONSE FROM FEMA

This request is for a:

- CLOMR A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision, or proposed hydrology changes (See 44 CFR Ch. 1, Parts 60,65 & 72).
- LOMR A letter from FEMA officially revising the current NFIP map to show the changes to floodplains, floodway or flood elevations. LOMRs typically decrease flood hazards. (See 44 CFR Ch. 1 Parts 60 & 65.)
- Other Describe: _____

2. OVERVIEW

1. The basis for this revision request is (are): (check all that apply)

- Physical Change Improved Methodology/Data Floodway Revision
- Other Describe: _____

Note: A photograph is not required, but is very helpful during review.

2. Flooding Source: Bullard Wash

3. Project Name/Identifier: Bullard Wash Channel Improvements

4. FEMA zone designations affected: A, AE
 (example: A, AH, AO, A1-A30, A99, AE, V, V1-V30, VE, B, C, D, X)

5. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	State	Map No.	Panel No.	Effective Date
Ex: 480301 480287	Katy, City Harris County	TX TX	480301 48201C	0005D 0220G	02/08/83 09/28/90
040046	Goodyear, City of	AZ	04013C	2070F	LOMR 04/20/00

6. The area of revision encompasses the following types of flooding and structures. Check all that apply.

<u>Types of Flooding</u>		<u>Structures</u>	
<input checked="" type="checkbox"/> Riverine	<input type="checkbox"/> Coastal	<input checked="" type="checkbox"/> Channelization	<input type="checkbox"/> Levee/Floodwall
<input type="checkbox"/> Alluvial fan	<input type="checkbox"/> Shallow Flooding (e.g. Zones AO and AH)	<input type="checkbox"/> Bridge/Culvert	<input type="checkbox"/> Dam
<input type="checkbox"/> Lakes	<input type="checkbox"/> Other (describe)	<input type="checkbox"/> Fill	<input type="checkbox"/> Other (describe)

PLEASE REFER TO THE INSTRUCTIONS FOR THE APPROPRIATE MAILING ADDRESS

4. ENCROACHMENT INFORMATION

1. Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
 Yes No

If Yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency.

2. Does the development in the floodway cause the 1% annual chance (base) elevation to increase at any location by more than 0.000 feet? Yes No N/A
3. Does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the base flood elevation to increase at any location by more than one foot (or other increase limit if community or state has adopted more stringent criteria - even if a floodway has not been delineated by FEMA)? Yes No

If the answer to either items is Yes, please attach documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted.

5. MAINTENANCE RESPONSIBILITY

The community is willing to assume responsibility for performing overseeing compliance with the maintenance and operation plans of the BULLARD WASH CHANNEL PROJECT
 (Name)

flood control structure. If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government.

Operation and maintenance plans are attached. Yes No N/A

6. REVIEW FEE

The review fee for the appropriate request category has been included. Yes No N/A Fee amount: \$ will send fee when new case no. is received

OR

This request is based on a federally sponsored flood-control project where 50 percent or more of the project's cost is federally sponsored, or the request is based on detailed hydrologic and hydraulic studies conducted by Federal, State, or local agencies to replace approximate studies conducted by FEMA and shown on the effective FIRM; thus the project is fee exempt. Yes

Please see Instructions for Fee Amounts

7. SIGNATURE

Note: I understand that my signature indicates that all information submitted in support of this request is correct

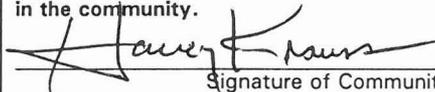

 Signature of Revision Requester

Michael W. Duncan, P.E., Senior Civil Engineer
 Printed Name and Title of Revision Requester

Flood Control District of Maricopa County, Arizona
 Company Name

Telephone No.: 602-506-4732 Date: 10-3-00

Note: Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.


 Signature of Community Official

Harvey Krauss, Community Development Director
 Printed Name and Title of Community Official

City of Goodyear, Arizona
 Community Name

Telephone No.: 623-932-3494 Date: 9-25-00

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR

This certification is in accordance with 44 CFR Ch. 1, Sect 65.2


 Signature

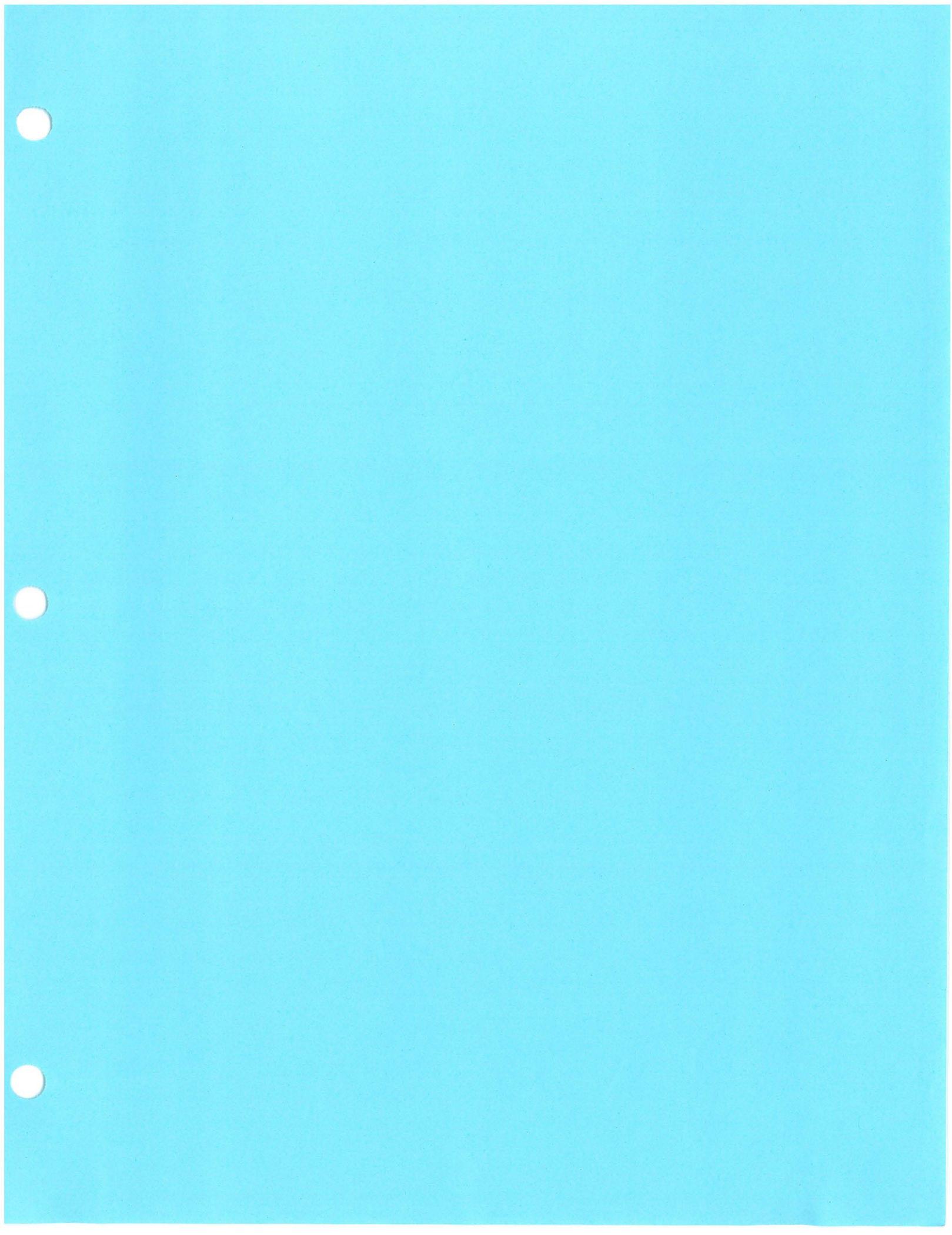
Michael W. Duncan, P.E., Senior Civil Engineer
 Printed Name and Title of Revision Requester

Registr No. 24124 Expires (Date) 09/30/2002 State AZ

Type of License/Expertise: Professional Civil Engineer

Check which forms have been included with this request

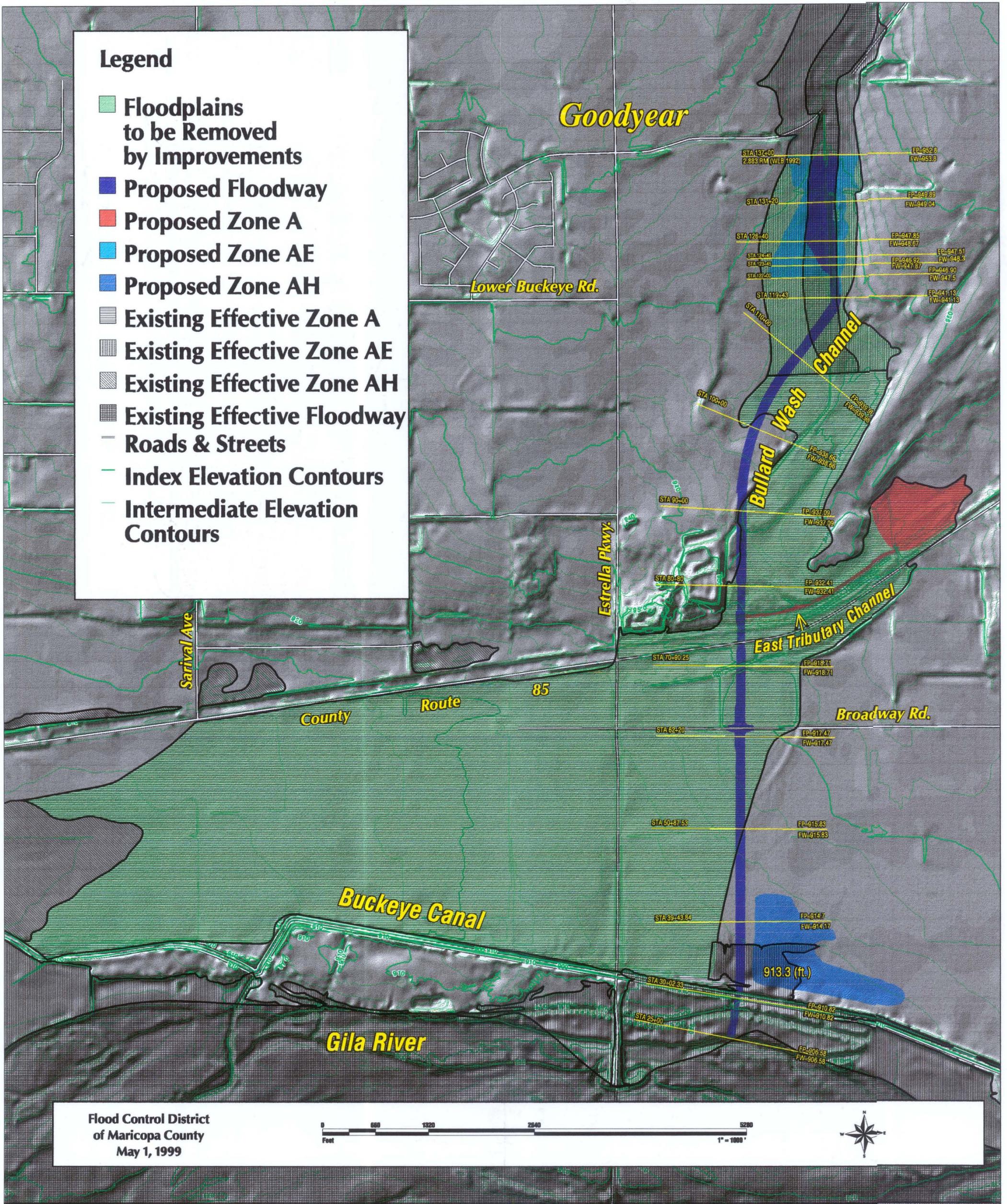
Form Name and (Number)	Required if
<input type="checkbox"/> Hydrologic (3)	new or revised discharges
<input type="checkbox"/> Hydraulic (4)	new or revised water-surface elevations
<input type="checkbox"/> Mapping (5)	floodplain/floodway changes
<input type="checkbox"/> Channelization (6)	channel is modified
<input type="checkbox"/> Bridge/Culvert (7)	addition/revision of bridge/culvert
<input type="checkbox"/> Levee/Floodwall (8)	addition/revision of levee/floodwall
<input type="checkbox"/> Coastal (9)	new or revised coastal elevations
<input type="checkbox"/> Coastal Structures (10)	addition/revision of coastal structure
<input type="checkbox"/> Dam (11)	addition/revision of dam
<input type="checkbox"/> Alluvial Fan (12)	structures proposed on alluvial fan



Bullard Wash Channel Improvements

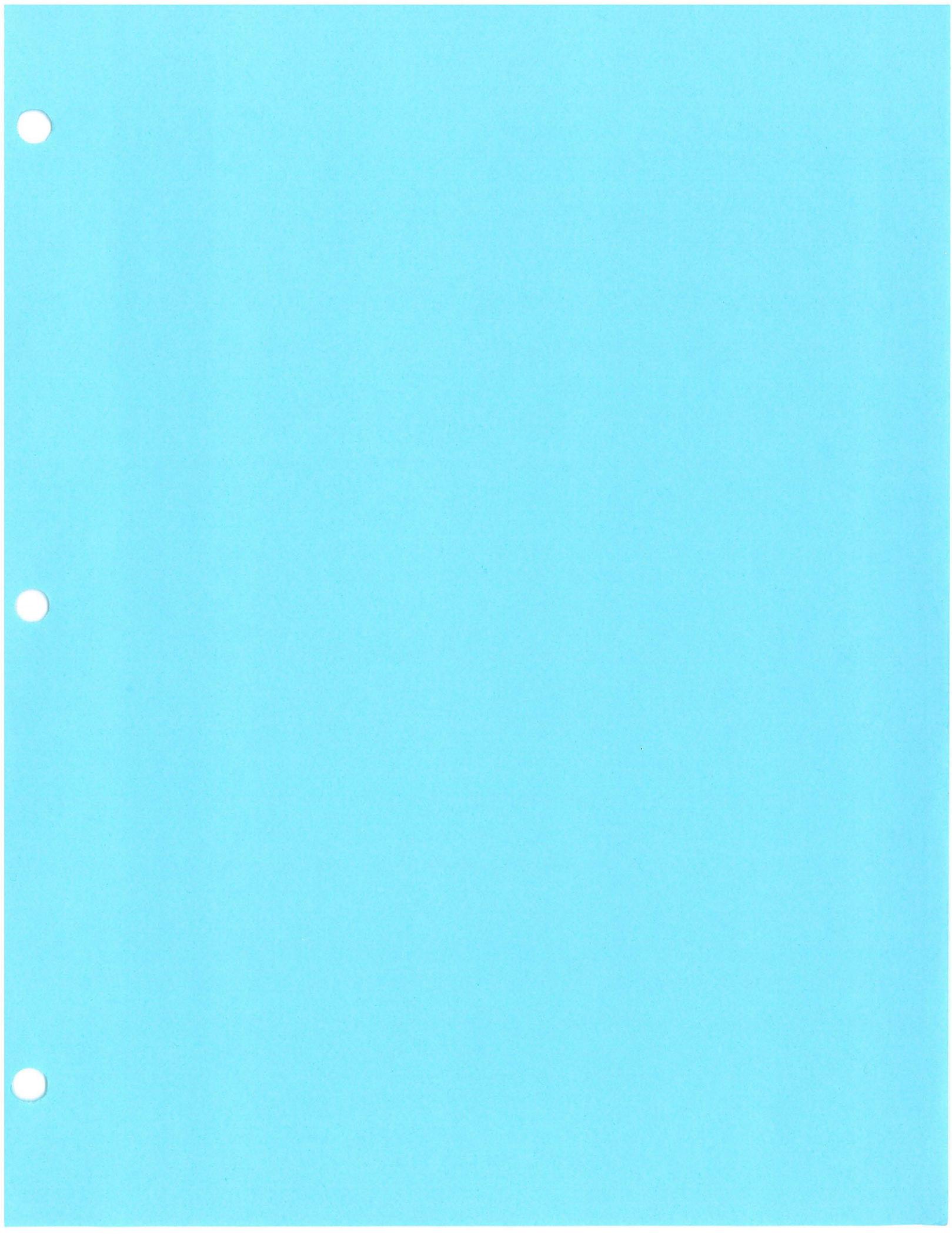
Legend

- Floodplains to be Removed by Improvements
- Proposed Floodway
- Proposed Zone A
- Proposed Zone AE
- Proposed Zone AH
- Existing Effective Zone A
- Existing Effective Zone AE
- Existing Effective Zone AH
- Existing Effective Floodway
- Roads & Streets
- Index Elevation Contours
- Intermediate Elevation Contours



Flood Control District
of Maricopa County
May 1, 1999





August 24, 2000
AGRA Job No. 9-119-000060

Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009

Attention: Mr. Mike Duncan

Gentlemen:

RE: **BULLARD WASH (FCD 98-09)**
GOODYEAR AIRPORT
GOODYEAR, ARIZONA

FLOOD CONTROL DISTRICT RECEIVED	
AUG 25 '00	
CH & CIV	FINANCE
PIO	LANDS
ADMIN	C & M
REG	P & PM
<input checked="" type="checkbox"/> ENG	FILE
<input type="checkbox"/> CONTRACTS	<i>MWD</i>
ROUTING	

As requested by Mike Towers and Mike Duncan of the Flood Control District of Maricopa County (MCFCD), AGRA Earth & Environmental, Inc. (AGRA) has reviewed our files for compaction testing in the Bullard Wash Channel, including the bank construction.

The Daily Progress Reports, including density tests results, are included in the attachment. The reports attached also include testing that was performed outside the area in question.

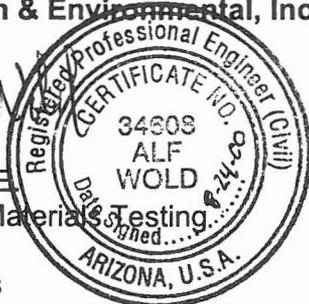
All density tests performed in the Bullard Wash Channel meet or exceed the required density specification of 95 percent of maximum dry density (ASTM D698).

Should any questions arise concerning this letter, please contact the undersigned.

Respectfully submitted,

AGRA Earth & Environmental, Inc.

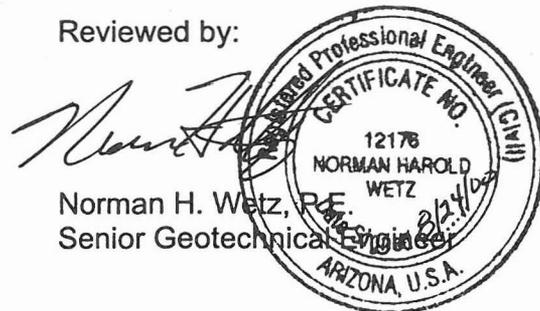
Alf Wold
Alf Wold, P.E.
Manager - Materials Testing



Attachments

m/field reports/field 1999/91190060/Density Letter

Reviewed by:



AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-000060 Report No. 28 Date March 25, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport; Goodyear, Arizona
Client Flood Control District of Maricopa County

On site in a.m. for on-call materials testing. Density tests were performed on irrigation pipe lines (RGRCP) and also on box culvert under MC-85.

Two density tests were taken on box culvert under MC-85 and failed to meet the minimum required compaction. FNF was notified and area will be recompacted and retested. Test taken on irrigation pipe lines met the minimum requirements.

A sample of native material was obtained for lab testing. It appears that there has been a change in material. CIT also obtained a sample for comparison.

AEE Representative Frank Hathaway

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 3-25-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:		DENS.	MOIST
			(PCF)	(%)
A	ABC CalMat		122.7	11.2
B	Native		110.8	17.3
C	ABC PS&G		120.6	12.0
D	ABC Sunward		117.6	9.9
E	Native		115.8	14.0
F	ABC Sunward		120.5	11.8
G	Native Sta. 131+50		103.8	20.7
H	ABC Stockpile - Yuma & Estrella		122.8	12.7
I	Native Water Retention Basin		118.0	12.5
J	Native West Embankment Sta.57+00		109.2	16.7

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV.	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV.	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	Culvert Under MC-85 E side of culvert	-0'	0	99.2	16.8	90	95	B
2	Culvert Under MC-85 W side of culvert	-0'	0	99.8	17.2	90	95	B
3	Irrigation Pipe Line along Estrella at Sta.116+51.13	-0'	0	107.3	13.5	97	95	B

* DEPTH OF REFERENCE POINT: Existing Grade

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-000060 Report No. 29 Date March 26, 1999

Project Bullard Wash (FCD 98-29)

Location Goodyear Airport; Goodyear, Arizona

Client Flood Control District of Maricopa County

On site in a.m. for on-call materials testing. Concrete was being placed on MC-85 on the west side abutment structure. Two sets of 4 test cylinders were cast. Two trucks were rejected due to high slumps.

Density testing was performed on manholes and box culvert with all meeting minimum required compaction.

AEE Representative Frank Hathaway

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 3-26-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:	DENS.	MOIST
		(PCF)	(%)
A	ABC CalMat	122.7	11.2
B	Native	110.8	17.3
C	ABC PS&G	120.6	12.0
D	ABC Sunward	117.6	9.9
E	Native	115.8	14.0
F	ABC Sunward	120.5	11.8
G	Native Sta. 131+50	103.8	20.7
H	ABC Stockpile - Yuma & Estrella	122.8	12.7
I	Native Water Retention Basin	118.0	12.5
J	Native West Embankment Sta. 57+00	109.2	16.7

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	Manhole along Estrella Sta. 119+00 5' N of Manhole	-0'	0	108.3	8.0	98	95	B
2	Manhole along Estrella 350' N of Test No. 1	-0'	0	104.8	8.6	95	95	B
3	Manhole along Estrella 350' N of Test No. 2	-0'	0	107.0	11.1	97	95	B
4	Manhole along Estrella 350' N of Test No. 3	-0'	0	113.6	6.0	100+	95	B
1A	Retest Failing Test No. 1 on 3-25-99	0'	0	105.5	5.1	95	95	B
2A	Retest Failing Test No. 2 on 3-25-99	-0'	0	107.3	11.4	97	95	B

* DEPTH OF REFERENCE POINT: Existing Grade

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-000060 Report No. 56 Date May 10, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport; Goodyear, Arizona
Client Flood Control District of Maricopa County

On site in a.m. for on-call materials testing. Concrete was being placed on Estrella Parkway for curb and gutter. One set of 4 cylinders (4x8) were cast.

Three density tests were performed on finish subgrade under MC-85 bridge. All tests taken met minimum required compaction.

AEE Representative Frank Hathaway

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 05-10-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:	DENS.	MOIST
		(PCF)	(%)
A	ABC CalMat	122.7	11.2
B	Native	110.8	17.3
C	ABC PS&G	120.6	12.0
D	ABC Sunward	117.6	9.9
E	Native	115.8	14.0
F	ABC Sunward	120.5	11.8
G	Native Sta. 131-50	103.8	20.7
H	ABC Stockpile - Yuma & Estrella	122.8	12.7
I	Native Water Retention Basin	118.0	12.5
Dudek	Native	119.0	13.0

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	Under MC-85 Bridge - 10' S of Pier #7	-0'	0	112.9	11.2	100+	95	B
2	Under MC-85 Bridge 10' S of Pier #11	-0'	0	111.0	6.8	100+	95	B
3	Under MC-85 Bridge - 10' N of Pier #3	-0'	0	110.8	8.4	100	95	B

* DEPTH OF REFERENCE POINT: Subgrade

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-000060 Report No. 58 Date May 12, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport, Goodyear, Arizona
Client Flood Control District of Maricopa County

On site for on-call materials testing. Upon arrival, density testing was performed on ABC material under MC-85 bridge. A total of 4 density tests were taken; all met the minimum required compaction.

Two sets of four concrete cylinders (4x8) were cast at the placement of the curb and gutter along Estrella Parkway just north of MC-85.

Three sets of four concrete cylinders (4x8) cast on 5-10-99 and 5-11-99 were picked up and transported to AEE's laboratory for compression testing.

AEE Representative Frank Hathaway

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 5-12-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:	DENS.	MOIST
		(PCF)	(%)
A	ABC CalMat	122.7	11.2
B	Native	110.8	17.3
C	ABC PS&G	120.6	12.0
D	ABC Sunward	117.6	9.9
E	Native	115.8	14.0
F	ABC Sunward	120.5	11.8
G	Native Sta. 131+50	103.8	20.7
H	ABC Stockpile - Yuma & Estrella	122.8	12.7
I	Native Water Retention Basin	118.0	12.5
Dudek	Native	119.0	13.0

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	Under MC-85 Bridge - 10' S of Pier #9	-0'	25	125.9	5.2	100+	95	D
2	Under MC-85 Bridge 10' S of Pier #5	-0'	25	126.3	6.8	100+	95	D
3	Under MC-85 Bridge - 10' S of Pier #11	-0'	25	122.8	5.5	98	95	D
4	Under MC-85 Bridge 10'N of Pier #3	-0'	25	123.8	5.4	99	95	D

* DEPTH OF REFERENCE POINT: Finished Grade

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-000060 Report No. 130 Date September 8, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport; Goodyear, Arizona
Client Flood Control District of Maricopa County

On site in early a.m. to pick up test cylinders cast 9-7-99 and transport them to the AEE laboratory.

Returned to project at 9:00 a.m. Mike Towers requested testing at east tributary wash. Performed one nuclear density test at invert (bottom of channel) which passed required density of 95%. Advised Mike Towers of results.

AEE Representative Gary Barber

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-000060 Report No. 131 Date September 9, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport; Goodyear, Arizona
Client Flood Control District of Maricopa County

On site in a.m. and began testing compaction of ABC at the east tributary channel. Tested two sites along channel invert (bottom). Both tests passed required density of 95%.

AEE Representative Gary Barber

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-00060A Report No. 145 Date October 8, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport; Goodyear, Arizona
Client Flood Control District of Maricopa County

On site to sample AC millings. No one on site; found no millings to be sampled in roadway of MC-85. Waited at FCD office for client to arrive. Talked with Eric of FNF concerning nuclear densities on millings. Eric informed me millings were placed in Bullard Wash channel north of MC-85 bridge.

Tested 3 locations of millings; one passed required compaction of 95% and two failed (using FNF Proctor). Sampled millings stockpile for Proctor, but have not been advised by client to have it tested.

AEE Representative Gary Barber

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 10-08-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:		DENS.	MOIST
			(PCF)	(%)
A	ABC CalMat		122.7	11.2
B	Native		110.8	17.3
C	ABC PS&G		120.6	12.0
D	ABC Sunward		117.6	9.9
E	Native		115.8	14.0
DP-1	AC Millings		127.9	10.9
J	Native South Wash Area		109.2	16.7
K	Native W Embankment Sta. 57+00		110.2	15.7
L	ABC - Yuma/Estrella Temporary Road		124.4	11.5
R	ABC CalMat BID Overchute		126.8	11.0

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	Channel Lining Sta. 75+73 Center	-0.8'	40	127.9	6.1	94	95	DP-1
2	Channel Lining Sta. 75+35 15'W of E Slope	-0.8'	40	125.3	5.8	92	95	DP-1
3	Channel Lining Sta. 74+60 20'W of E Slope	-0.8'	40	131.2	6.2	96	95	DP-1
1A	Retest of Test No. 1	-0.8'	40	130.2	7.0	96	95	DP-1
2A	Retest of Test No. 2	-0.8'	40	132.2	5.9	97	95	DP-1

* DEPTH OF REFERENCE POINT: Top of PCCP

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-00060A Report No. 153 Date October 26, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport; Goodyear, Arizona
Client Flood Control District of Maricopa County

Arrived on site for scheduled density testing on MC-85 finished grade, west of bridge. Performed 5 nuclear density tests. All tests met the required 95% compaction.

Performed 5 nuclear density tests on the east bank channel low flow. All tests met the required specification of 95% or above.

AEE Representative Marty Verquer

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 10-26-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:	DENS.	MOIST
		(PCF)	(%)
A	ABC CalMat	122.7	11.2
B	Native	110.8	17.3
C	ABC PS&G	120.6	12.0
D	ABC Sunward	117.6	9.9
E	Native	115.8	14.0
DP-1	AC Millings	127.9	10.9
I	Native Water Retention Basin	118.0	12.5
K	Native W Embankment Sta. 57+00	110.2	15.7
Q	ABC CalMat MC85 Grade	123.3	12.0
R	ABC CalMat BID Overchute	126.8	11.0

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	MC85 W of Culvert Sta. 644+80 Center	-6"	46	135.0	5.8	100	95	Q
2	MC85 W of Culvert Sta. 648+20 Center	-6"	46	132.9	1.9	98	95	Q
3	MC845W of Culvert Sta. 652+00 Center	-6"	46	134.3	2.3	99	95	Q
4	MC85 W of Culvert Sta. 656+10 Center	-6"	46	134.0	2.3	99	95	Q
5	MC85 W of Culvert Sta. 659+30 Center	-6"	46	132.0	2.6	98	95	Q
6	Channel Low Flow E Bank Sta. 81+50	-8"	0	118.3	4.1	100+	95	I
7	Channel Low Flow E Bank Sta. 83+00	-8"	0	114.6	5.3	97	95	I
8	Channel Low Flow E Bank Sta. 88+00	-8"	0	112.4	4.5	95	95	I
9	Channel Low Flow E Bank Sta. 102+00	-8"	0	114.4	4.6	97	95	I
10	Channel Low Flow E Bank Sta. 108+00	-8"	0	115.1	4.4	98	95	I

* DEPTH OF REFERENCE POINT: Finished Grade/Subgrade

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-00060A Report No. 159 Date November 3, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport; Goodyear, Arizona
Client Flood Control District of Maricopa County

Arrived on site in a.m. for scheduled concrete placement at the low flow channel. Cast two sets of test cylinders; monitored slump and temperature.

Mike Towers asked me to do some nuclear density testing but I did not have the nuclear gauge with me. Returned to AEE office to get nuclear gauge and returned to project in early afternoon to perform density testing. Performed six passing nuclear density tests.

AEE Representative Joe Morrissey

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 11-03-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AASHTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:	DENS.	MOIST
		(PCF)	(%)
A	ABC CalMat	122.7	11.2
B	Native	110.8	17.3
C	ABC PS&G	120.6	12.0
D	ABC Sunward	117.6	9.9
E	Native	115.8	14.0
DP-1	AC Millings	127.9	10.9
I	Native Water Retention Basin	118.0	12.5
K	Native W Embankment Sta. 57+00	110.2	15.7
Q	ABC CalMat MC85 Grade	123.3	12.0
R	ABC CalMat BID Overchute	126.8	11.0

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	Sta. 674+50	-12"	0	130.0	5.1	100+	95	DP-1
2	Sta. 665+0	-12"	0	122.0	5.2	95	95	DP-1
3	Sta. 670+00	-12"	0	126.0	4.8	99	95	DP-1
4	Sta. 665+00	-18"	0	116.0	8.5	100+	95	E
5	Sta. 674+50	-18"	0	120.0	9.4	100+	95	E
6	Sta. 670+00	-18"	0	133.9	4.1	100+	95	E

* DEPTH OF REFERENCE POINT: Finished Grade/Subgrade

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-00060A Report No. 163 Date November 10, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport; Goodyear, Arizona
Client Flood Control District of Maricopa County

Arrived on site in a.m. for scheduled concrete and asphalt testing. Cast two set of test cylinders at channel and monitored slump and temperature.

Performed two passing density tests at Bullard Wash channel and east tributary channel.

Paving was cancelled until further notice.

AEE Representative Juan Carrillo

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 11-10-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:	DENS.	MOIST
		(PCF)	(%)
A	ABC CalMat	122.7	11.2
B	Native	110.8	17.3
C	ABC PS&G	120.6	12.0
D	ABC Sunward	117.6	9.9
E	Native	115.8	14.0
DP-1	AC Millings	127.9	10.9
I	Native Water Retention Basin	118.0	12.5
K	Native W Embankment Sta. 57+00	110.2	15.7
Q	ABC CalMat MC85 Grade	123.3	12.0
R	ABC CalMat BID Overchute	126.8	11.0

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	Bullard Wash Channel Intersection with E Tributary Channel	-4"	43	138.0	4.0	100+	95	Q
2	East Tributary Channel 100'E of Bullard Channel	-4"	43	134.2	4.0	100	95	Q

* DEPTH OF REFERENCE POINT: Finished Grade

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-00060A Report No. 167A Date November 19, 1999

Project Bullard Wash (FCD 98-29)

Location Goodyear Airport; Goodyear, Arizona

Client Flood Control District of Maricopa County

Arrived on site in a.m. for scheduled density testing. Performed several nuclear density tests. All tests were passing the minimum compaction requirement. Two tests were taken around Sta. 33+00 and three at gabion invert and slopes. Noel/FCD was informed of results.

AEE Representative Juan Carrillo

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 11-19-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:	DENS. (PCF)	MOIST (%)
A	ABC CalMat	122.7	11.2
B	Native	110.8	17.3
C	ABC PS&G	120.6	12.0
D	ABC Sunward	117.6	9.9
E	Native	115.8	14.0
DP-1	AC Millings	127.9	10.9
I	Native Water Retention Basin	118.0	12.5
K	Native W Embankment Sta. 57+00	110.2	15.7
Q	ABC CalMat MC85 Grade	123.3	12.0
R	ABC CalMat BID Overchute	126.8	11.0

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	West Slope Sta. 33+20	-4"	0	111.8	13.2	100+	95	B
2	Bullard Channel Invert Sta. 32+85	-4"	0	107.8	13.7	97	95	B
3	East Ramp Sta. 32+00	-4"	0	122.5	5.3	100+	95	B
4	Gabion East Slope	-4"	0	109.2	3.6	99	95	B
5	Bullard Invert	-4"	0	107.7	4.4	97	95	B

* DEPTH OF REFERENCE POINT: Subgrade

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-00060A Report No. 170 Date December 2, 1999
Project Bullard Wash (FCD 98-29)
Location Goodyear Airport; Goodyear, Arizona
Client Flood Control District of Maricopa County

Arrived on site in a.m. for scheduled nuclear density testing at Sta. 657+50, 663+75, 666+00 and 72+50.

AEE Representative Tom Hoover, Jr.

AGRA Earth & Environmental

PROJECT: Bullard Wash
LOCATION: Goodyear Airport
CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
DATE: 12-02-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:	DENS.	MOIST
		(PCF)	(%)
A	ABC CalMat	122.7	11.2
B	Native	110.8	17.3
C	ABC PS&G	120.6	12.0
D	ABC Sunward	117.6	9.9
E	Native	115.8	14.0
DP-1	AC Millings	127.9	10.9
I	Native Water Retention Basin	118.0	12.5
J	Native So. Wash Area	109.2	16.7
Q	ABC CalMat MC85 Grade	123.3	12.0
R	ABC CalMat BID Overchute	126.8	11.0

SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
1	W of Bridge Sta. 657+50	-0'	42	133.0	4.5	99	95	Q
2	S of Existing Pavement Sta. 663+75	-0'	42	136.0	5.1	100+	95	Q
3	NE of Curb Sta. 666+00	-0'	42	124.5	4.8	93	95	Q
4	Below channel Bridge Floor Sta. 72+50	-6"	0	131.0	1.5	100+	95	J

* DEPTH OF REFERENCE POINT: Finish Grade/Subgrade

AGRA Earth & Environmental

DAILY PROGRESS REPORT

Job No. 9-119-00060A Report No. 173 Date December 7, 1999

Project Bullard Wash (FCD 98-29)

Location Goodyear Airport; Goodyear, Arizona

Client Flood Control District of Maricopa County

Arrived on site in a.m. for scheduled density testing. Tested west and east ends of bridge (MC-85) at Sta. 662+00 to 667+00 and Sta. 649+00 to 661+00. Tested 3 locations each side of bridge; tested westbound lane of intersection at Sta. 645+00 to 640+00, west end of channel at Sta. 117+00. Retested east side of bridge at Sta. 662+00 to 667+00.

AEE Representative Tom Hoover, Jr.

AGRA Earth & Environmental

PROJECT: Bullard Wash
 LOCATION: Goodyear Airport
 CLIENT: Flood Control District of Maricopa County

JOB NO: 9-119-00060A
 DATE: 12-07-99

**DENSITY OF SOIL IN PLACE BY THE SAND CONE METHOD (ASTM D1556, AAHSTO T217 & T224)
 DENSITY OF SOIL IN PLACE BY THE NUCLEAR METHOD (ASTM D2922 & D3017)**

CURVES:	DESCRIPTION:	DENS.	MOIST
		(PCF)	(%)
A	ABC CalMat	122.7	11.2
B	Native	110.8	17.3
C	ABC PS&G	120.6	12.0
D	ABC Sunward	117.6	9.9
E	Native	115.8	14.0
DP-1	AC Millings	127.9	10.9
I	Native Water Retention Basin	118.0	12.5
J	Native So. Wash Area	109.2	16.7
Q	ABC CalMat MC85 Grade	123.3	12.0
R	ABC CalMat BID Overchute	126.8	11.0

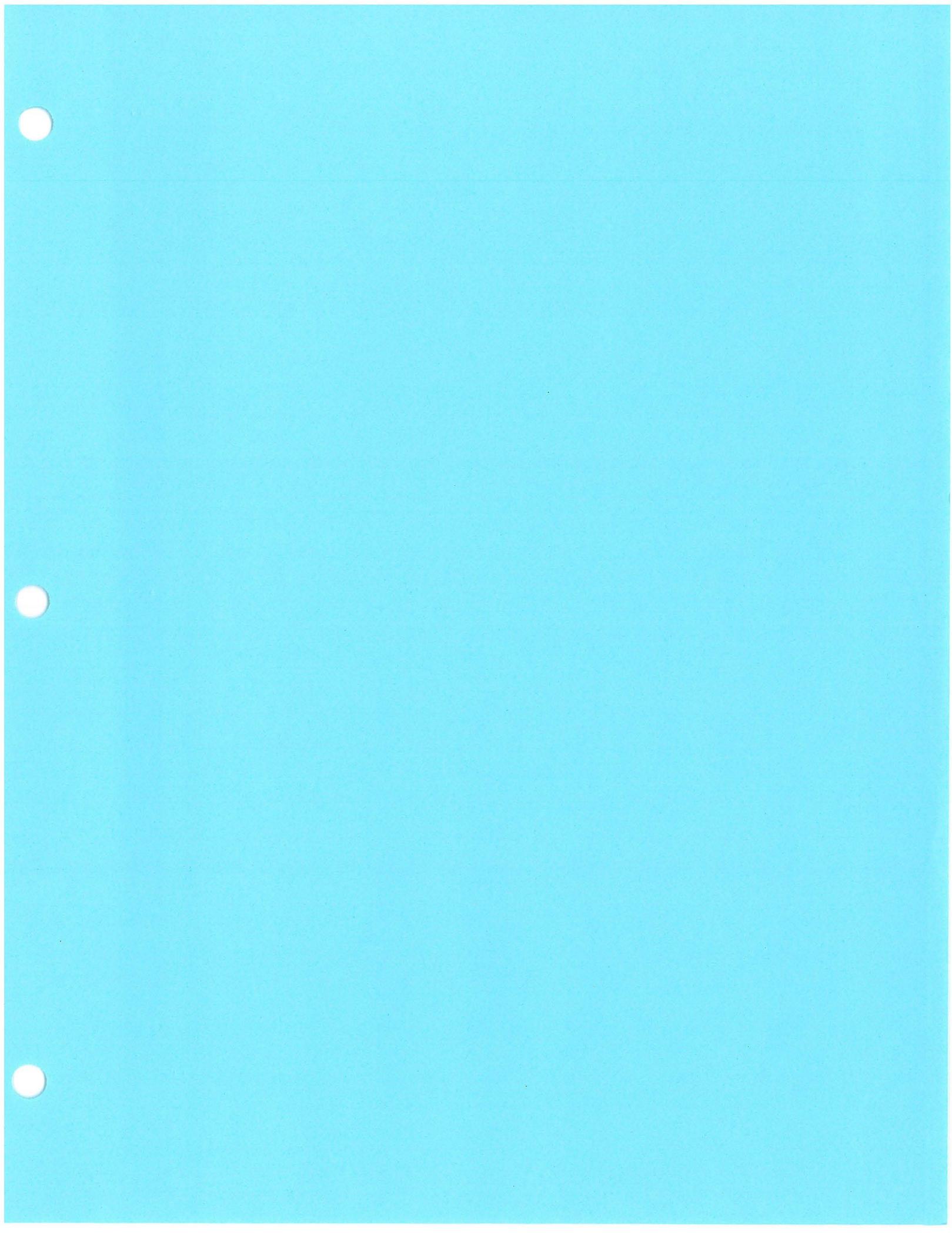
SAND CONE TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE

NUCLEAR TESTS:

TEST NO.	LOCATION:	ELEV. *	% ROCK	DRY DENS. (PCF)	MOIST (%)	COMP. (%)	REQ. COMP. (%)	CURVE
2A	Retest of Test No. 2	-0'	42	135.8	5.3	100+	95	Q
10	E Side of Bridge Sta. 662+00 to 667+00 100' from Test No.2A	-0'	42	138.6	5.3	100+	95	Q

* DEPTH OF REFERENCE POINT: Finish Grade



Standard Maintenance Procedures Prepared for the Bullard Wash Channel Project

FROM
APPENDIX B3
OF
CLOMR
PACKAGE
VOLUME 2

SUBJECT: Maintenance of Channels, Linings and Structures

PURPOSE: To insure the integrity of the project is preserved and will function as designed.

OWNERSHIP: The City of Goodyear, Arizona shall be responsible for the ownership, operation and maintenance of the completed project. The Interim Public Works Director, Andrew Cooper, will be the responsible person at the City.

LOCATION: Main Bullard Wash Channel, East Tributary Channel, Spillway at the BID Canal east of the Bullard Wash Channel, and the O&M Road and Berm at Lower Buckeye Road

PROCEDURE A: Channel and Inlet Pipes

1. **Vegetation** - Desert brush and grasses can be allowed to grow within the channel bottom. Desert brush must not exceed 2-3 feet in height and vegetation type must be able to break away during storm event (i.e. brittlebush) or be able to bend over and flatten (i.e. Desert Marigold). Vegetation types that must be removed include woody stemmed plants (i.e. Desert Broom, Salt Cedar, etc.). If grasses are established, maintain the height to a maximum of six inches.
2. **Sediment Deposits** – Remove deposits of loose material to obtain designed grades and cross sections. Loose deposited materials shall not be used within the channel unless tested to meet the earthfill criteria in the construction specifications. At a minimum, sediment deposits shall be removed annually, unless quarterly inspections identify a need for more frequent removal.
3. **Erosion** – Make repairs to eroded areas by replacing lost material with compacted earth, or other suitable erosion resistant material, in accordance with the original construction specifications.
4. **Debris/Trash** – During quarterly inspections and after storm events, all trash and organic debris is to be removed from the area as soon as possible. Inspect all drainage pipes that discharge into the channel. Remove all trash and organic debris from pipe inlets as soon as possible.
5. **Gabion Lining** – During quarterly inspections and after storm events, all gabion baskets or mattresses that have been damaged shall be repaired using the manufacturer procedures as soon as possible. The Polyvinyl Chloride (PVC)

coating on the gabion wire also requires inspection. Where the PVC coating has been damaged, the damaged coating shall be removed and the PVC coating reapplied per manufacturer's procedures. Yearly inspections will include excavation of buried gabions and a check of steel anchor stakes to inspect for corrosion. At a minimum, excavation locations will include one site south of the Buckeye Irrigation District (BID) South Maintenance Road, three sites between the BID Canal and the MC 85 Bridge, and three additional sites between the drop structure located north of the Union Pacific Railroad Bridge and Lower Buckeye Road. Each yearly inspection shall also stagger the excavation locations so that a comprehensive inspection is performed year-to-year.

6. **Grouted Riprap Lining** – During quarterly inspections and after storm events, riprap lining that has been damaged shall be repaired. Repairs shall include replacement of riprap material and grout, filter blankets, and the seepage/back drainage system. Inspections shall include a check of all weep holes and removal of any blockages.
7. **Concrete Lining** – During quarterly inspections and after storm events, the concrete lining shall be checked for damage and cracking. Hairline cracks are typically caused by shrinkage of the concrete, which is a normal condition. Cracks that are wide enough for a quarter to be inserted into the crack, should be repaired as soon as possible. Inspection shall include a check of the weep holes.
8. **BID Overchute / BID South Maintenance Road Box Culvert** – During quarterly inspections and after storm events, the concrete surfaces shall be checked for damage and cracking. Inspect the condition of all joints. Items requiring repair should be scheduled as soon as possible. Maintenance vehicle weights should be limited to that which is legal for operation on a highway. The box culvert has a height limitation of 10 feet.
9. **Levee** – Top of berm elevations along the earthen levee, located between the BID Canal and 450 feet south of Broadway Road, shall be surveyed annually for the first five (5) years of operation to check for settlement and/or subsidence, and then bi-annually in the following years. Areas requiring repair shall be scheduled as soon as possible. Caution must be given to overhead power lines. The maximum height of vehicles is 15 feet.

PROCEDURE B: Rodent Control

1. Gophers can damage embankments, berms and levees by burrowing deep holes with more than one outlet. Fresh mounds of soil can identify new gopher outlets.
2. Ground squirrels can also damage structures even with insignificant numbers and must be treated.

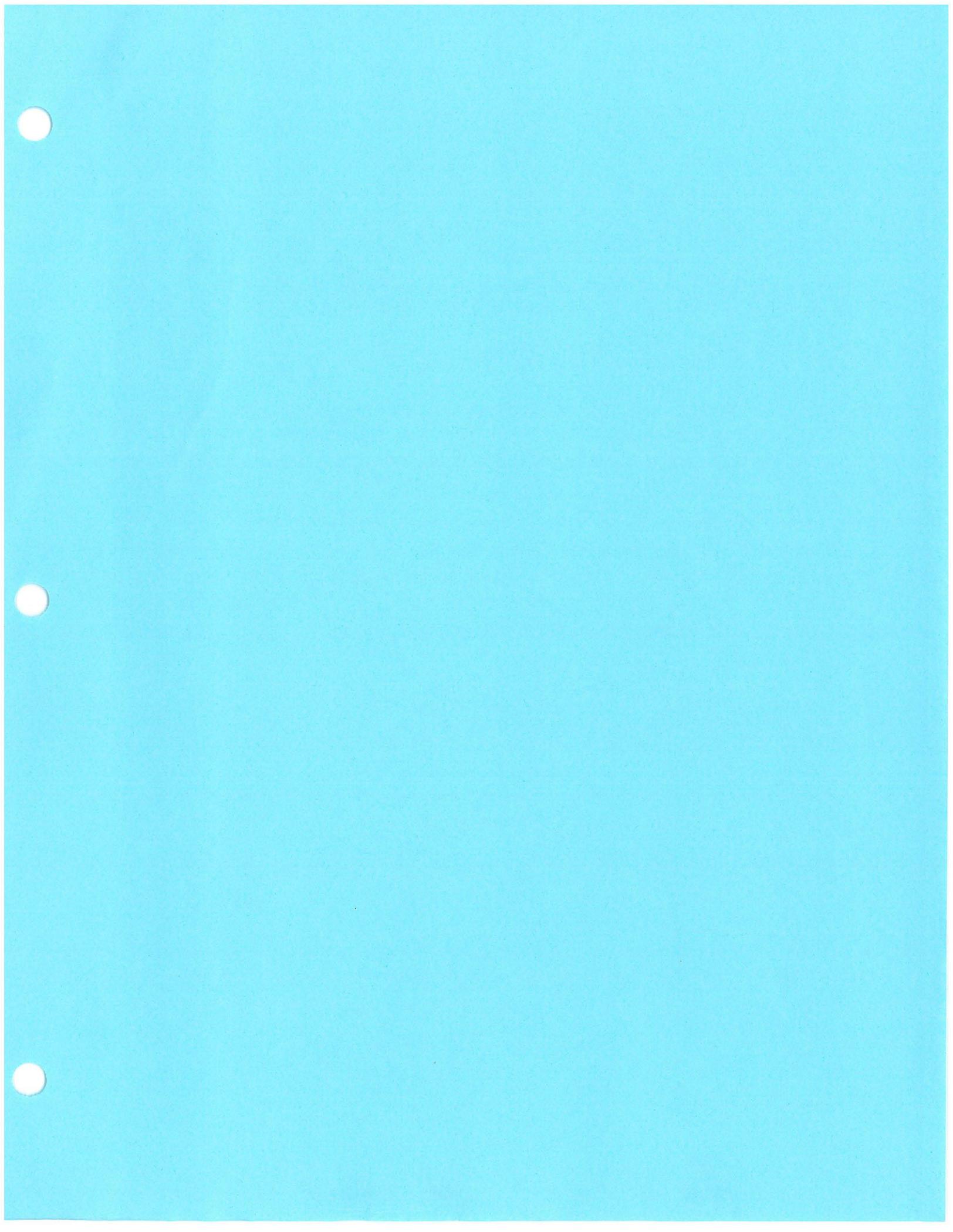
3. A licensed pesticide applicator shall apply the appropriate pesticide and the Material Safety Data Sheets shall be with the licensed applicator.
4. After rodent activity has been controlled, holes are to be filled and compacted.

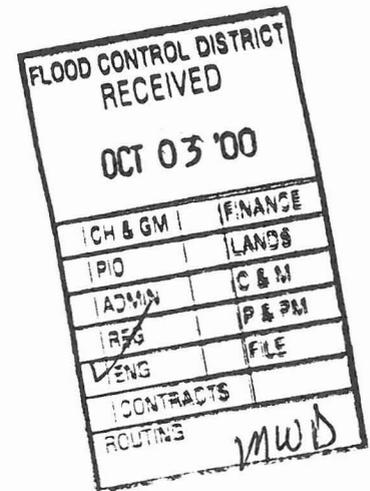
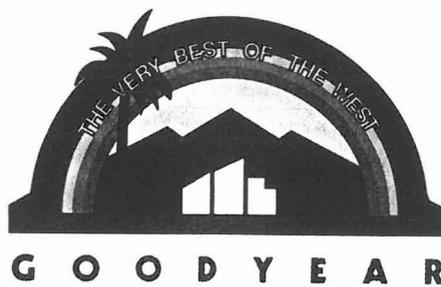
PROCEDURE C: General Vandalism and Graffiti

1. Graffiti needs to be removed as soon as possible to discourage repeated applications.
2. General vandalism to include cut or damaged fencing, damaged signs, illegal ingress, dumped trash, etc. are to be removed/repared as soon as noted for the safety of the general public and to control other forms of vandalism from occurring.
3. All vandalized signs are to be repaired or replaced to insure public safety and awareness.

INSPECTIONS:

1. Quarterly Operational Inspections:
 - a. List any discrepancies.
 - b. Review for action required.
 - c. Schedule necessary repairs.
2. Annual Maintenance Inspection:
 - a. List all needed maintenance and repairs.
 - b. Assign work orders for the noted repairs.
3. Formal Annual Inspection:
 - a. Inspect project to insure all maintenance and repairs are completed satisfactorily.
 - b. Complete annual inspection reports for file.
4. Major Storm Event:
 - a. Inspect project during or after every major storm event.
 - b. List any problems.
 - c. Record flow depths.
 - d. Schedule necessary repairs.
5. Citizen Complaints/Inquiries:
 - a. Investigate area of complaint.
 - b. Respond to citizen within 48 hours.
 - c. Take action if in-house/refer to proper agency, if not.





September 25, 2000

Max Yuan, P.E. Project Engineer
Hazard Studies Branch
Mitigation Directorate
Federal Emergency Management Agency
500 "C" Street, S.W.
Washington, D.C. 20472

Re: Case No. 99-09-862R
Bullard wash Channelization LOMR

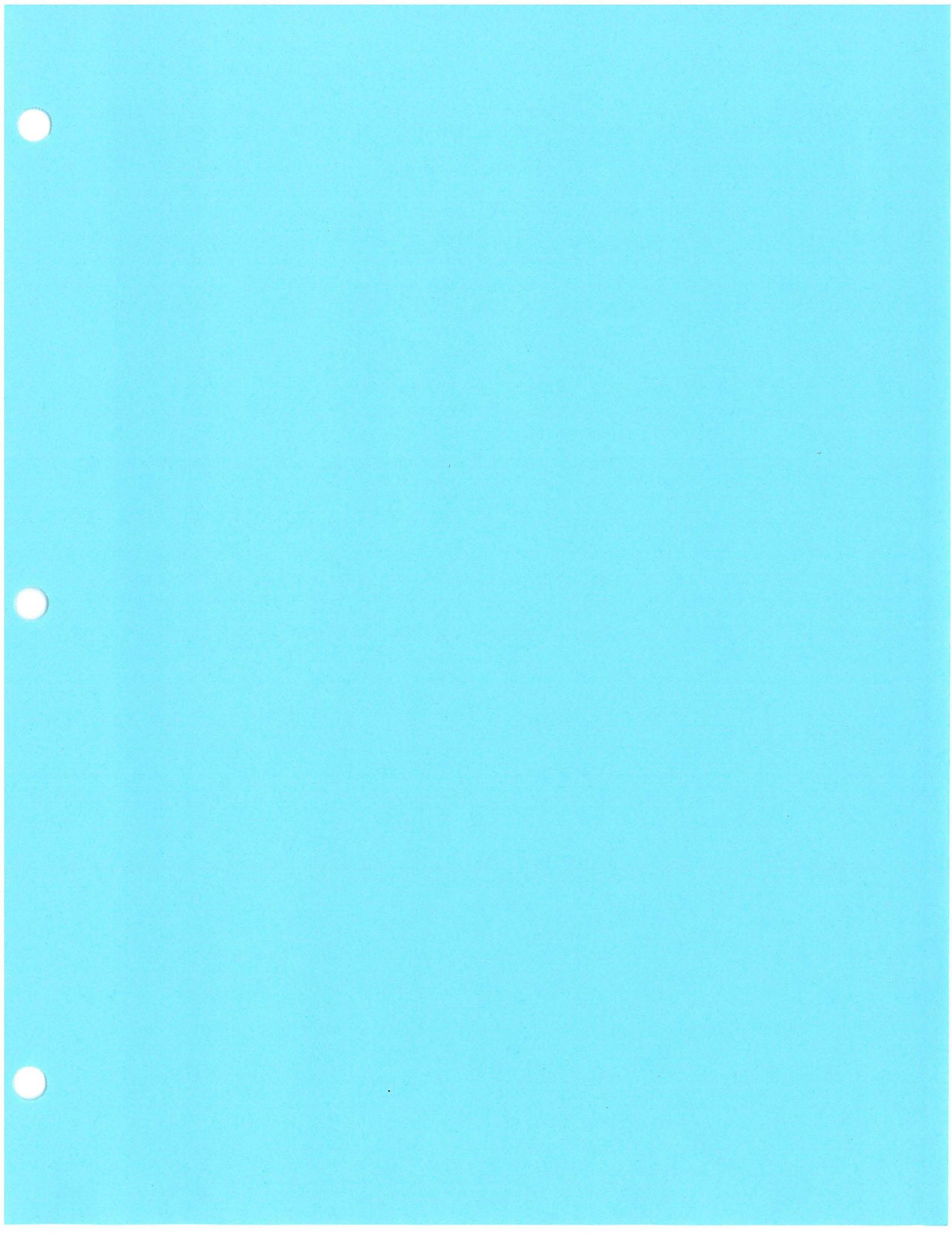
Dear Mr. Yuan;

Your letter requested that additional data be submitted prior to issuance of a Letter of Map Revision. One item requested was a letter stating that our community will adopt the modified floodway. This letter serves as the City of Goodyear verification that we will adopt and enforce the modified floodway as it appears on the revised FIRM maps per the Letter of Map Revision.

Sincerely,
CITY OF GOODYEAR

Harvey Krauss
Community Development Director

THE CITY OF GOODYEAR



THE ARIZONA REPUBLIC

ANNOUNCEMENT OF COM- PLETION OF FLOOD HAZ- ARD STUDY

The Flood Control District of Maricopa County and the City of Goodyear, under authority of the National Flood Insurance Act of 1968 (P. L. 90-448) as amended, and the Flood Disaster Protection Act of 1973 (P. L. 93-234), have completed a detailed floodplain delineation study for Bullard Wash (from approximately 1800 feet north of Lower Buckeye Road to the Gila River), City of Goodyear in Maricopa County, Arizona. The study has been performed by the Flood Control District and the City of Goodyear. The purpose of this study was to examine and evaluate flood hazards in areas which are developed or which are likely to be developed and to determine flood elevations for those areas. These flood elevations will be used by Maricopa County to carry out floodplain management and by the Federal Emergency Management Agency to determine flood insurance rates under the National Flood Insurance Program.

This announcement is intended to notify all interested persons of this study so that they may have an opportunity to bring any relevant facts and technical data concerning local flood hazards to the attention of the Flood Control District for consideration. Currently the study results have been submitted to FEMA for approval. The study results may be reviewed by contacting Mr. Harvey Krauss, Community Development Director and Floodplain Manager, City of Goodyear, 120 E. Western, Goodyear, Arizona 85338; Phone: (602) 932-3003; Email: harveyk@ci.goodyear.az.us. The study results may also be reviewed by contacting Mr. Donald Rerick, P.E., Project Manager or Dr. Bing Zhao, Ph.D., P.E., Civil Engineer, Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009. 799380-July 25, 1999

STATE OF ARIZONA }
 COUNTY OF MARICOPA } SS.

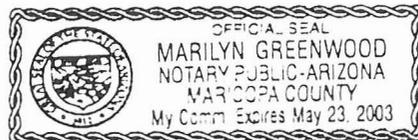
TOM BIANCO, being first duly sworn, upon oath deposes and says: That he is the legal advertising manager of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published at Phoenix, Arizona, by Phoenix Newspapers Inc., which also publishes The Arizona Republic, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates as indicated.

The Arizona Republic

07/25/99

T. Bianco

Sworn to before me this
 26th day of
 JULY A.D. 1999



Marilyn Greenwood

 Notary Public

Public Notice

ANNOUNCEMENT OF COMPLETION OF FLOOD HAZARD STUDY

The Flood Control District of Maricopa County and the City of Goodyear, under authority of the National Flood Insurance Act of 1968 (P.L. 90-448) as amended, and the Flood Disaster Protection Act of 1973 (P.L. 93-234), have completed a detailed floodplain delineation study for Bullard Wash (from approximately 1800 feet north of Lower Buckeye Road to the Gila River), City of Goodyear in Maricopa County, Arizona.

The study has been performed by the Flood Control District and the City of Goodyear. The purpose of this study was to examine and evaluate flood hazards in areas which are developed or which are likely to be developed and to determine flood elevations for those areas. These flood elevations will be used by Maricopa County to carry out floodplain management and by the Federal Emergency Management Agency to determine flood insurance rates under the National Flood Insurance Program.

This announcement is intended to notify all interested persons of this study so that they may have an opportunity to bring any relevant facts and technical data concerning local flood hazards to the attention of the Flood Control District for consideration. Currently the study results have been submitted to FEMA for approval. The study results may be reviewed by contacting Mr. Harvey Krauss, Community Development Director and Floodplain Manager, City of Goodyear, 120 E. Western, Goodyear, Arizona 85338, Phone: (602) 932-3005; Email: harveyk@ci.goodyear.az.us. The study results may also be reviewed by contacting Mr. Donald Rerick, P.E., Project Manager or Dr. Bing Zhao, Ph.D., P.E., Civil Engineer, Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009.

Published in West Valley View and West Valley Business on July 28, 1999.

WEST VALLEY BUSINESS

200 W. Wigwam Blvd., Litchfield Park, Az. 85340-4636 ❖ (602) 535-VIEW [535-8439]

Public Notice

ANNOUNCEMENT OF COMPLETION OF FLOOD HAZARD STUDY

The Flood Control District of Maricopa County and the City of Goodyear, under authority of the National Flood Insurance Act of 1968 (P.L. 90-448) as amended, and the Flood Disaster Protection Act of 1973 (P.L. 93-234), have completed a detailed floodplain delineation study for Bullard Wash (from approximately 1800 feet north of Lower Buckeye Road to the Gila River), City of Goodyear in Maricopa County, Arizona.

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harveyk@ci.goodyear.az.us. The study results may also be reviewed by contacting Mr. Donald Rerick, P.E., Project Manager or Dr. Bing Zhao, Ph.D., P.E., Civil Engineer, Flood Control District of Maricopa County, 2801 West Durango Street, Phoenix, Arizona 85009.

Published in West Valley View and West Valley Business on July 28, 1999.

AFFIDAVIT OF PUBLICATION

State of Arizona

County of Maricopa

I, Elliott Freireich, publisher of West Valley View and West Valley Business, newspapers of general circulation in Avondale, Buckeye, Goodyear, Litchfield Park and Tolleson, Arizona, attest that the legal advertisement for

Maricopa County Flood Control - Announcement of Flood Hazard Study

was published on July 28th, 1999

E Freireich
Elliott Freireich

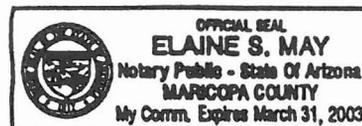
Date July 28th, 1999

Sworn and Subscribed to before me,

this 28th Day of July, 1999

Elaine S. May
Notary Public

My Commission Expires





*Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399
(602) 506-1501
FAX: (602) 506-4601
TT: (602) 506-5859
<http://www.fcd.maricopa.gov>*

July 8, 1999

**FLOODPLAIN DELINEATION STUDY FOR BULLARD WASH CHANNEL
IMPROVEMENT**

This notice has been mailed to persons (on record) whose properties may be affected by a recently completed floodplain delineation study along Bullard Wash from approximately 1800 feet north of Lower Buckeye Road to the Gila River (see the attached map).

The study results have been submitted to the Federal Emergency Management Agency (FEMA) for approval. Upon approval by FEMA, the study results will be used for revising Flood Insurance Rate Maps for the area and for regulating future development so as to reduce or prevent possible flood damage to property and structures. Buildings located within a 100-year floodplain are required by FEMA to have flood insurance coverage if they are financed by federally insured loans.

The floodplain delineation study involved topographic mapping, hydrologic analysis for the Bullard Wash Watershed, and hydraulic analysis for Bullard Wash from approximately 1800 feet north of Lower Buckeye Road to the Gila River. Persons wishing to view the study report or the detailed delineation exhibits should contact the City of Goodyear or the Flood Control District of Maricopa County. The contact persons are:

Mr. Harvey Krauss
Community Development Director and Floodplain Manager
City of Goodyear
120 East Western
Goodyear, Arizona 85338
Phone: (602) 932-3005; Email: harveyk@ci.goodyear.az.us

or

Mr. Donald Rerick, P.E., Project Manager
(or Dr. Bing Zhao, Ph.D., P.E., Civil Engineer)
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009
Phone: (602) 506-1501; E-mail: djr@mail.maricopa.gov; biz@mail.maricopa.gov

PIN	OWNERFIRST	OWNERLAST	MAILNUMBER	MAILSTREET	MAILCITY	MAILSMAIL	MAILZIP
500 07 022B	AZ SUN HOLDINGS INC		2525	E Camelback Rd #888	Phoenix	AZ	85016
500 81 004E	AZ SUN HOLDINGS INC		2525	E Camelback Rd #888	Phoenix	AZ	85016
500 81 004F	AZ SUN HOLDINGS INC		2525	E Camelback Rd #888	Phoenix	AZ	85016
500 81 006F	AZ SUN HOLDINGS INC		2525	E Camelback Rd #888	Phoenix	AZ	85016
500 83 003	AZ SUN HOLDINGS INC		2525	E Camelback Rd #888	Phoenix	AZ	85016
500 83 004	AZ SUN HOLDINGS INC		2525	E Camelback Rd #888	Phoenix	AZ	85016
500 83 005	AZ SUN HOLDINGS INC		2525	E Camelback Rd #888	Phoenix	AZ	85016
500 83 006	AZ SUN HOLDINGS INC		2525	E Camelback Rd #888	Phoenix	AZ	85016
500 06 033	Daniel E & Gail E	Luellig					
500 83 002F	Daniel E & Gail E	Luellig					
500 07 015C	ESTRELLA AEROSPACE CENTER INC		23150	N Pima Rd	Scottsdale	AZ	85255
500 07 030	ESTRELLA PARKWAY INVESTMENT CO		4455	E Camelback Rd #C240	Phoenix	AZ	85018
500 07 026	Flint B & Debbie	Brown	909	E Jasmine St	Mesa	AZ	85203
500 07 006H	FLOOD CONTROL DISTRICT OF MARI						
500 07 031E	FLOOD CONTROL DISTRICT OF MARI						
500 06 034A	GOODYEAR 10 PARTNERSHIP		6134	E Calle Del Norte	Scottsdale	AZ	85251
500 06 034B	GOODYEAR 10 PARTNERSHIP		6134	E Calle Del Norte	Scottsdale	AZ	85251
500 83 002E	GOODYEAR CITY OF		119	N Litchfield Rd	Goodyear	AZ	85338
500 83 008M	GOODYEAR CITY OF		119	N Litchfield Rd	Goodyear	AZ	85338
500 83 007B	GOODYEAR TOWN OF		119	N Litchfield Rd	Goodyear	AZ	85338
500 83 008H	GOODYEAR TOWN OF		119	N Litchfield Rd	Goodyear	AZ	85338
500 07 018D	IMSAMET INC		345	E Palm Ln #100	Phoenix	AZ	85004
500 07 027B	James V & Jeanette	Stanton	2721	N Central Ave	Phoenix	AZ	85004
500 06 040	MARICOPA COUNTY						
500 06 041C	MARICOPA COUNTY						
500 07 025	MARICOPA COUNTY		4041	E Thomas Rd #200	Phoenix	AZ	85018
500 06 041B	MARICOPA COUNTY DEPT OF TRANSP		2901	W Durango St	Phoenix	AZ	85009
500 83 002C	Paul J	Luellig Jr.	2020	Ruby Dr	Barstow	CA	92311
500 07 009A	SUNCHASE ESTRELLA LIMITED PART		6001	N 24Th St #A	Phoenix	AZ	85016
500 06 041D	William Z & H Ramona	Wade	4366	S 157Th Ave	Goodyear	AZ	85338
500 06 041E	William Z & H Ramona	Wade	4366	S 157Th Ave	Goodyear	AZ	85338
500 83 008F	William Z & H Romona	Wade	4366	S 157Th Ave	Goodyear	AZ	85338
500 83 008L	William Z & H Romona	Wade	4366	S 157Th Ave	Goodyear	AZ	85338
500 06 021L	Wm & Patricia	Shawver		PO Box 5	Goodyear	AZ	85338

500 07 015A WOOD FAMILY ENTERPRISES LTD PA

500 83 002B

500 83 007A

500 83 008B

500 84 013D

500 84 013G

PO Box 1118

Avondale AZ 85323

