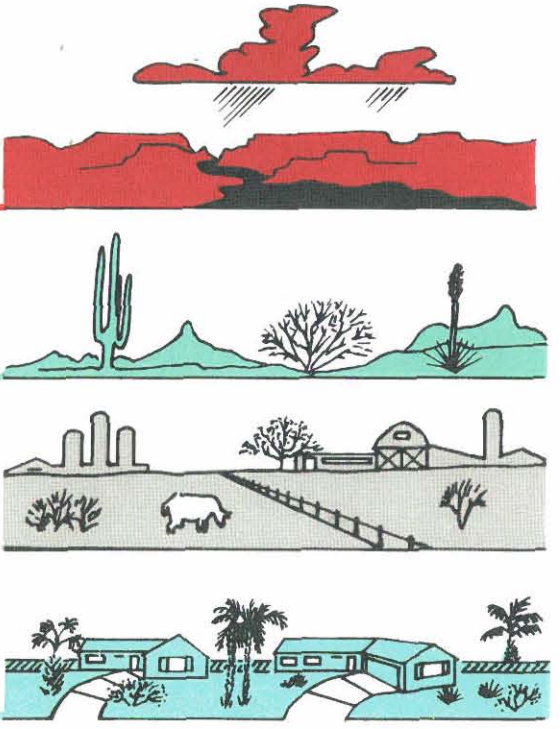


FLOOD CONTROL
DISTRICT OF
MARICOPA COUNTY

CONDITIONAL LETTER OF MAP REVISION (CLOMR) APPLICATION PACKAGE

for

Dysart Drain of White Tanks/Agua Fria ADMS

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

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

FEMA FORMS

FLOODING SOURCE: **Dysart Drain wash**

MT-2 Form 1: **Revision Requestor & Community Official Form**

MT-2 Form 2: **Certification By Registered Professional Engineer And/Or Land Surveyor Form**

MT-2 Form 3: **Hydrologic Analysis Form**

MT-2 Form 4: **Riverine Hydraulic Analysis Form**

MT-2 Form 5: **Riverine and Coastal Mapping Form**

MT-2 Form 6: **Channelization Form**

MT-2 Form 7: **Bridge/Culvert Form**

Send diskette To:

Massoud Rezakhani / C.B. Dexter
M. B. Jr. Inc
3601 Eisenhower Ave.
Suite 600
Alex VA 22304

Ref: Case # 96 09 345 R

Ph. 1-703-960-8800

FLOOD CONTROL DISTRICT
OF MARICOPA COUNTY
2801 West Durango Street
Phoenix, Arizona 85009

(602) 506-1501

LETTER OF TRANSMITTAL

DATE 1/29/96	JOB NO #9609345R
ATTENTION C. B. Dexter	
RE CLOMR Application for Dysart Drain.	

TO Massoud Rezakhani
Michael Baker Jr. Inc.
Alexandria VA 22304

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			Diskette of HEC-1 Model.
1			Schematic Diagram of Peak Discharges.

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS DUE _____ 19 _____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS This HEC-1 model will provide you with the peak discharges south of Dysart Drain. The previous model 'DYSMOD.DAT' is a truncated model of the attached model for the concentration points along Dysart Drain only (fig 2 attached)

COPY TO _____

SIGNED: _____

6910-009 R8-93

If enclosures are not as noted, kindly notify us at once.

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

SUPER BOWL XXX

CLEAN AIR CHALLENGE

Dysart District
John Roach
935-9018
Need to know
if people are
out in the field
Close the office
against LAER

LET'S CLEAR THAT AIR

Complete the quiz on the reverse side and inter-office it by January 31, 1996 to: ECOP/MCDOT, 2901 W. Durango. A random drawing will be held and a number of prizes given away.

Name:_____

Department:_____

Phone #:_____

CARPOOL **BUS** **BIKE** **WALK** **SKATE** **CARPOOL**

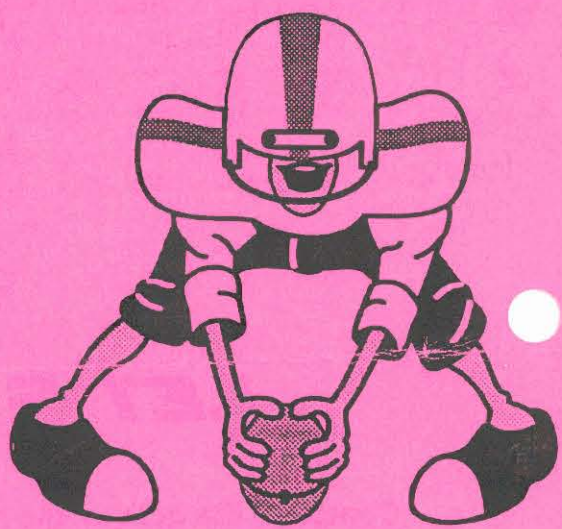
BUS **BIKE** **WALK** **SKATE** **CARPOOL**

Employee Commute Options Program, MCDOT, 2901 W. Durango, Phoenix, AZ 85009
Ph: 506-8566 Fax: 506-4035

THE TEAM HUDDLE

Are you an expert in the football "field?" Test your skills by taking our test. Match the City to the correct team name.

Arizona	_____	1. Raiders
Atlanta	_____	2. Chargers
Buffalo	_____	3. Buccaneers
Carolina	_____	4. Jets
Chicago	_____	5. Broncos
Cincinnati	_____	6. Dolphins
Cleveland	_____	7. Rams
Dallas	_____	8. Packers
Denver	_____	9. Falcons
Detroit	_____	10. Chiefs
Green Bay	_____	11. Jaguars
Houston	_____	12. Giants
Indianapolis	_____	13. Oilers
Jacksonville	_____	14. Cowboys
Kansas City	_____	15. Cardinals
Miami	_____	16. Lions
Minnesota	_____	17. Eagles
New England	_____	18. Steelers
New Orleans	_____	19. Bills
New York	_____	20. Browns
New York	_____	21. Saints
Oakland	_____	22. Bengals
Philadelphia	_____	23. Vikings
Pittsburgh	_____	24. Colts
San Francisco	_____	25. Seahawks
San Diego	_____	26. Patriots
Seattle	_____	27. Forty-niners
St. Louis	_____	28. Redskins
Tampa Bay	_____	29. Bears
Washington	_____	30. Panthers



EXTRA CREDIT:

What two teams were in the 1st Super Bowl?_____

Who won?_____

Who is the 1995 Super Bowl champion?_____

FEDERAL EMERGENCY MANAGEMENT AGENCY **REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

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.

1. OVERVIEW

1. The basis for this revision request is (are): *(check all that apply)*
   - ☒ Physical change
     - ☐ Existing
     - ☒ Proposed
   - ☐ Improved methodology
   - ☐ Improved data
   - ☐ Floodway revision
   - ☐ Other _____

   Explain Detention Basin and Channels to contain the base flood.

2. Flooding Source: Dysart Drain Wash
3. Project Name/Identifier: White Tanks/Agua Fria ADMS - Dysart Drain Improvements
4. FEMA zone designations affected: A
   (example: A, AH, AO, A1-A30, A99, AE, V, V1-30, VE, B, C, D, X)
5. The NFIP map panel(s) affected for all impacted communities is (are):

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
EX: 480301	Katy,City	Harris, Fort Bend	TX	480301	0005D	02/08/83
480287	Harris County	Harris	TX	48201C	0220G	09/28/90
(See attached sheet)						

6. The area of revision encompasses the following types of flooding, structures, and associated disciplines: *(check all that apply)*

Types of Flooding	Structures	Disciplines*
☒ Riverine	☒ Channelization	☒ Water Resources
☐ Coastal	☐ Levee/Floodwall	☒ Hydrology
☐ Alluvial Fan	☒ Bridge/Culvert	☒ Hydraulics
☐ Shallow Flooding *(e.g. Zones AO and AH)*	☐ Dam	☐ Sediment Transport
☐ Lakes	☐ Coastal	☐ Interior Drainage
	☐ Fill	☒ Structural
Affected by wind/wave action	☐ Pump Station	☐ Geotechnical
☐ Yes	☐ None	☐ Land Surveying
☒ No	☐ Channel Relocation	☐ Other *(describe)*
	☐ Excavation	
	☒ Other *(describe)*	
☐ Other(describe) _____	Detention Basin	

*** Attach completed "Certification by Registered Professional Engineer and/or Land Surveyor" Form for each discipline checked. (Form 2)**

2. FLOODWAY INFORMATION Not Applicable

7. Does the affected flooding source have a floodway designated on the effective FIRM or FBFM? ☐ Yes ☐ No
8. Does the revised floodway delineation differ from that shown on the effective FIRM or FBFM ☐ Yes ☐ No
   If yes, give reason: _____

MT-2 Form 1, Item 5

Flooding Source: ***Dysart Drain***

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
040037	Maricopa Co. Unincorp. Area	Maricopa	AZ	04013C	1595F	9/30/95
040025	Glendale, City	Maricopa	AZ	04013C	1595F	9/30/95
040037	Maricopa Co. Unincorp. Area	Maricopa	AZ	04013C	1605G	9/30/95
040045	Glendale, City	Maricopa	AZ	04013C	1605G	9/30/95
040053	Surprise, Town	Maricopa	AZ	04013C	1605G	9/30/95
040037	Maricopa Co. Unincorp. Area	Maricopa	AZ	04013C	1615H	9/30/95
040045	Glendale, City	Maricopa	AZ	04013C	1615H	9/30/95

Attach copy of either a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions. N/A

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

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.

3. PROPOSED ENCROACHMENTS

10. With floodways: N/A

1A. Does the revision request involve fill, new construction, substantial improvement, or other development in the floodway? ☐ Yes ☐ No

1B. If yes, does the development cause the 100-year water surface elevation to increase at any location by more than 0.000 feet? ☐ Yes ☐ No

11. Without floodways:

2A. Does the revision request involve fill, new construction, substantial improvement, or other development in the 100-year floodplain? ☒ Yes ☐ No

2B. If yes, does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the 100-year water surface elevation to increase at any location by more than one foot (*or other surcharge limit if community or state has adopted more stringent criteria*)? ☐ Yes ☒ No

If the answer to either Items 1B or 2B is yes, please provide 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.

4. REVISION REQUESTOR ACKNOWLEDGMENT

12. Having read NFIP Regulations, 44 CFR Ch. I, parts 59, 60, 61, and 72, I believe that the proposed revision ☒ is ☐ is not in compliance with the requirements of the aforementioned NFIP Regulations.

5. COMMUNITY OFFICIAL ACKNOWLEDGMENT

13. Was this revision request reviewed by the community for compliance with the community's adopted floodplain management ordinances? ☒ Yes ☐ No

14. Does this revision request have the endorsement of the community? ☒ Yes ☐ No

If no to either of the above questions, please explain: _____

Please note that community acknowledgment and /or notification is required for all requests as outlined in Section 65.4 (b) of the NFIP Regulations.

6. OPERATION AND MAINTENANCE

15. Does the physical change involve a flood control structure (e.g., levees, floodwalls, channelization, basins, dams)? ☒ Yes ☐ No

If yes, please provide the following information for each of the new flood control structures:

A. Inspection of the flood control project will be conducted periodically by U.S.A.F. at Luke AFB (entity) with a maximum interval of 6 months between inspections.

B. Based on the results of scheduled periodic inspections, appropriate maintenance of the flood control facilities will be conducted by U.S.A.F. at Luke AFB (entity) to ensure the integrity and degree of flood protection of the structure.

C. A formal plan of operation, including documentation of the flood warning system, specific actions and assignments of responsibility by individual name or title, and provisions for testing the plan at intervals not less than one year, ☒ has ☐ has not been prepared for the flood control structure.

D. The community is willing to assume responsibility for ☐ performing ☒ overseeing compliance with the maintenance and operation plans of the Dysart Drain Improvements (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.

Attach operation and maintenance plans

7. REQUESTED RESPONSE FROM FEMA

16. After examining the pertinent NFIP regulations and reviewing the document entitled "Appeals, Revisions, and Amendments to Flood Insurance Maps: A guide for Community Officials," dated January 1990, this request is for a:

X	a.	CLOMR	A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision *(LOMR or PMR)*, or proposed hydrology changes *(see 44 CFR Ch. I, Parts 60, 65, and 72)*.
	b.	LOMR	A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. LOMRs typically depict decreased flood hazards. *(See 44 CFR Ch. I Parts 60 and 65.)*
	c.	PMR	A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects increased flood hazards or large-scope changes. *(See 44 CFR Ch. I, Parts 60 and 65.)*
	d.	Other:	Describe

8. FORMS INCLUDED

17. Form 2 entitled, "Certification By Registered Professional Engineer and/or Land Surveyor" must be submitted.

The following forms should be included with this request if (check the included forms):

• Hydrologic analysis for flooding source differs from that used to develop FIRM	☒ Hydrologic Analysis Form (Form 3)
• Hydraulic analysis for riverine flooding differs from that used to develop FIRM	☒ Riverine Hydraulic Analysis Form (Form 4)
• The request is based on updated topographic information or a revised floodplain or floodway delineation is requested	☒ Riverine /Coastal Mapping Form (Form 5)
• The request involves any type of channel modification	☒ Channelization Form (Form 6)
• The request involves new bridge or culvert or revised analysis of an existing bridge or culvert	☒ Bridge/Culvert Form (Form 7)
• The request involves a new revised levee/floodwall system	☐ Levee/Floodwall System Analysis Form (Form 8)
• The request involves analysis of coastal flooding	☐ Coastal Analysis Form (Form 9)
• The request involves coastal structures credited as providing protection from the 100-year flood	☐ Coastal Structures (Form 10)
• The request involves an existing, proposed, or modified dam	☐ Dam Form (Form 11)
• The request involves structures credited as providing protection from the 100-year flood on an alluvial fan	☐ Alluvial Fan Flooding Form (Form 12)

9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. ☐ Yes ☒ No

Initial fee amount: $ _____

Check or money order only. Make check or money order payable to : **National Flood Insurance Program.** If paying by Visa or Mastercard please refer to the credit card information form which follows this form.

or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. ☒ Yes ☐ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazard, or solely to provide more detailed data. ☐ Yes ☐ No

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

Signature of Revision Requester

Stanley L. Smith, Jr., P.E.
Interim Chief Engineer and General Manager
Printed Name and Title of Revision Requester

Flood Control District of Maricopa County
Company Name

(602) 506-1501 1/16/96
Telephone No. Date

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

P.E.
Signature of Community Official

Grant I. Anderson, P.E.; City Engineer
Printed Name and Title of Community Official

City of Glendale, Arizona
Community Name

(602) 930-3630 Dec. 4, 1995
Date

Does this request impact any other communities? ☒ Yes ☐ No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

MT-2 Form 1, Signature of Community Official

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

Shirley Berg, Community Development Director
Printed Name and Title of Community Official

City of Surprise, Arizona
Community Name

January 8, 1995
Date

Dysart Drain Improvement Project:
Luke Air Force Base Area FEMA CLOMR
Application and City of Surprise
Community Approval

Operations and Maintenance Plan for the Dysart Drain

56th Civil Engineer Squadron; Luke AFB, Arizona

Inspection of the flood control project will be conducted periodically by the United States Air Force at Luke Air Force Base with a maximum interval of six months between inspections.

Based on the results of scheduled periodic inspections, appropriate maintenance of the flood control facilities will be conducted by the United States Air Force at Luke Air Force Base to ensure the integrity and degree of flood protection of the structure.

POC: 56 CES/CC
13970 W LIGHTNING STREET
LUKE AFB, AZ 85309-1149
Lt Col Raymond E. Dinsmore

13 Dec 95

Inspection/Maintenance Plan for the Dysart Drain

56th Civil Engineer Squadron; Luke AFB, Arizona

Date of Inspection: _____

Date of Last Inspection: _____

Inspectors: _____

Concrete Channel

1. Existence of silt, vegetation, and standing water.
2. Existence of spalled areas on liner, settlement, or physical damage.
3. Existence of burrowing animals in right-of-way or at liner's edge.

Stilling Basin at Agua Fria River

1. Existence of accumulative silt or vegetative deposits in outlet area.

All Weir Inlet Structures

1. Existence of spalled or cracked concrete, loss of fill material at the abutments.
2. Existence of dislocated RIPRAP.
3. Existence of unwanted vegetative growth, non-organic debris.

All Box Culverts

1. Existence of spalled or cracked concrete, loss of fill material at the abutments.
2. Existence of dislocated RIPRAP.
3. Existence of unwanted vegetative growth, non-organic debris.

All C.M.P. And R.C.P. Stormdrains

1. Existence of silt, debris, or blockage.
2. Existence of damaged pipe.
3. Existence of unwanted vegetative growth, debris.

Access Roadways

1. Existence of need of grading or existence of surface collected runoff entering top of concrete liner on non-designated areas.

2. Existence of down or damaged fencing abutments, loss of fill materials.

Fencing and Signage

1. Existence of down or damaged fencing or signage.

FEDERAL EMERGENCY MANAGEMENT AGENCY **CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average . 23 hour 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.

1. This certification is in accordance with 44 CFR Ch. I, Section 65.2
2. I am licensed with an expertise in Structural, Bridge Design
   [example: water resources *(hydrology, hydraulics, sediment transport, interior drainage)** structural, geotechnical, land surveying.]
3. I have 14 years experience in the expertise listed above.
4. I have ☒ prepared ☐ reviewed the attached supporting data and analyses related to my expertise.
5. I ☐ have ☒ have not visited and physically viewed the project.
6. In my opinion, the following analyses and /or designs, is/are being certified:
   Dysart Road Bridge, El Mirage Road Bridge, Morton Salt Bridge, Box culverts and walls associated with them.
7. Base upon the following review, the modifications in place have been constructed in general accordance with plans and specifications. N/A

   Basis for above statement: (check all that apply)

   a. ☐ Viewed all phases of actual construction.

   b. ☐ Compared plans and specifications with as-built survey information.

   c. ☐ Examined plans and specifications and compared with completed projects.

   d. ☐ Other _____
8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Oscar A. Oliden
(please print or type)

Title: Structures Department Manager Associate
(please print or type)

Registration No. 20940 Expiration Date: July 97

State Arizona

Type of License Civil Engineer

Signature

December 6, 1995
Date

Registered Professional Engineer (Civil)
CERTIFICATE NO.
20940
OSCAR A.
OLIDEN
Date Signed
ARIZONA, U.S.A.

Seal
(Optional)

*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

FEDERAL EMERGENCY MANAGEMENT AGENCY **CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average . 23 hour 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.

1. This certification is in accordance with 44 CFR Ch. I, Section 65.2
2. I am licensed with an expertise in Water Resources
   [example: water resources *(hydrology, hydraulics, sediment transport, interior drainage)** structural, geotechnical, land surveying.]
3. I have 5 years experience in the expertise listed above.
4. I have ☒ prepared ☒ reviewed the attached supporting data and analyses related to my expertise.
5. I ☒ have ☐ have not visited and physically viewed the project.
6. In my opinion, the following analyses and /or designs, is/are being certified:

   Hydrologic and Hydraulic Analyses, Channel Design, Detention Basin Design
7. Base upon the following review, the modifications in place have been constructed in general accordance with plans and specifications. N/A

   Basis for above statement: (check all that apply)

   a. ☐ Viewed all phases of actual construction.

   b. ☐ Compared plans and specifications with as-built survey information.

   c. ☐ Examined plans and specifications and compared with completed projects.

   d. ☐ Other _____
8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Kofi Awumah
(please print or type)

Title: Civil Engineer
(please print or type)

Registration No. 28148 Expiration Date: July 1997

State Arizona

Type of License Professional Engineer (Civil)

Kofi Awumah
Signature

December 28, 1995
Date

Registered Professional Engineer (Civil)
CERTIFICATE NO.
28148
KOFI
AWUMAH
Date Signed
ARIZONA U.S.A.

Seal
(Optional)

*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain Wash
(One form for each flooding source)

Project Name /Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. HYDROLOGIC ANALYSIS IN FIS

☐ Approximate study stream (Zone A)
☐ Detailed study stream (briefly explain methodology) U.S. Army Corps of Engineers HEC-1 Flood Hydrograph Package

2. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis
☐ Improved data *(see data revision on page 3)*
☒ Changed physical conditions of watershed *(explain)* Detention Basin at Subbasin 194, Diversion Channel along Reems Road. Channel Improvement for Dysart Drain.

☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*

☒ Evaluation of proposed conditions (CLOMRs only) (explain) Proposed conditions would result in revision of Zone A's on attached FIRM Maps.

☐ Other

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

☒ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Study prepared under direct contract with Flood Control District of Maricopa County.)
Attach evidence of approval.

☐ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

Stream: Dysart Drain Watershed

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
CP193	0.91	2347	1248
CP194	0.99	875	448
CP195	0.49	2559	1772
CP196	0.47	945	2300
CP202	0.48	565	2287

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

N/A (Ponding areas revised)

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

Stream: Dysart Drain Watershed

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
CP204	0.27	1721	3984
CP205	0.06	1721	3979
CP206	0.12	1722	3978

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☒ Yes ☐ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☒ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

N/A (None available)

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)* _____

ATTACHMENT A: STATISTICAL ANALYSIS OF GAGE RECORDS

Gaging Station: N/A

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data	_____	_____
Systematic	_____	_____
Historical	_____	_____
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers	_____	_____
Low outliers	_____	_____
Zero events	_____	_____
5. Generalized skew	_____	_____
6. Station skew	_____	_____
7. Adopted skew	_____	_____
8. Probability distribution used (justify if log-Pearson III was not used)	_____	_____
9. Transfer equations to ungaged sites		☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. Expected probability* ☐ Yes ☐ No

11. Comparison of results with other analyses ☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

***FEMA** does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

1. Bibliographical Reference:

N/A

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

		FIS:		Revised:	
5.	Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6	Percent of watershed urbanization	_____		_____	
7.	Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
8.	Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

		FIS:	Revised
1.	Method or model used:	HEC-1	HEC-1
	Version:	4.0	4.6.2
	Date:	June 1988	May 1991
2.	Source of rainfall depth:	NOAA Atlas II	NOAA Atlas II
3.	Source of rainfall distribution:	SCS Type II	SCS Type II
4.	Rainfall duration:	24 hrs	24 hrs
5.	Areal adjustment to precipitation (%):	NOAA AtlasII-Varies	NOAA Atlas II
6.	Maximum overland flow length	1.42 miles	1.42 miles
7.	Hydrograph development method:	Phoenix Valley S-Graph	Phoenix Valley S-Graph
8.	Loss rate method:	Green-Ampt	Green-Ampt
	Source of soils information:	Maricopa Co. Hydrologic Manual	Maricopa Co. Hydrologic Manual
	Source of land use information	Maricopa Co. Zoning Maps	Maricopa Co. Zoning Maps
9.	Channel routing method:	Normal Depth	Normal Depth
10.	Reservoir routing:	☒ Yes ☐ No	☒ Yes ☐ No
11.	Baseflow considerations:	☐ Yes ☒ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

12. Snowmelt considerations: ☐ Yes ☒ No ☐ Yes ☒ No

13. Model calibration: ☐ Yes ☒ No ☐ Yes ☒ No

If yes, explain how calibration was performed

14. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

ATTACHMENT D: CONFIDENCE LIMITS EVALUATION

Stream: Dysart Drain Watershed

Select one location for Confidence Limits Evaluation (*describe location*): N/A

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval: 5% limit _____ cfs

95% limit _____ cfs

50% Confidence Interval: 25% limit _____ cfs

75% limit _____ cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE HYDRAULIC ANALYSIS FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	**FEMA USE ONLY**

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain Wash
(One form for each flooding source)

Project Name/Identifier: White Tanks/Agua Fria ADMS - Dysart Drain Improvement

1. REACH TO BE REVISED

Downstream limit: Agua Fria River - Section 0.00 (mile no.)

Upstream limit: Reems Road - Section 4.565 (mile no.)

2. EFFECTIVE FIS

☐ Not studied

☒ Studied by approximate methods

Downstream limit of study: Agua Fria River

Upstream limit of study: Reems Road

☐ Studied by detailed methods

Downstream limit of study: _____

Upstream limit of study: _____

☐ Floodway delineated

Downstream limit of Floodway: _____

Upstream limit of Floodway: _____

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis. Explain: _____

☐ Improved hydraulic analysis. Explain: _____

☒ Flood control structure. Explain: Detention Basin with Collector Channels. Dysart Drain Improved with concrete lining, culverts and bridges replaced with larger openings.

☐ Other. Explain: _____

For areas which have detailed flooding:

Full input and output listings along with files on diskette (if available) for each of the models listed below (items 1, 2, 3, 4, and 5) and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model (e.g. duplicate effective model to corrected effective model) At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required.

For areas which do not have detailed flooding:

Only the 100-year flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted.

If hydraulic models are not developed, hydraulic analyses for existing or pre-project conditions and revised or post-project conditions must be submitted. All calculations must be submitted for these analyses. (See item 6 below)

1. Duplicate Effective Model — Natural ☐ Floodway ☐

Copies of the hydraulic analysis used in the effective FIS, referred to as the *effective models (10-, 50-, 100-, and 500-year multi-profile runs and the floodway run)* must be obtained and then reproduced on the requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

2. Corrected Effective Model — Natural ☐ Floodway ☐

The corrected effective model is the model that corrects any errors that occur in the duplicate effective model, adds any additional cross sections to the duplicate effective model, or incorporates more detailed topographic information than that used in the currently effective model. The corrected effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

3. Existing or Pre-Project Conditions Model — Natural ☒ Floodway ☐

The duplicate effective or corrected model is modified to produce the existing or pre-project conditions model to reflect any modifications that have occurred within the floodplain since the date of the effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the corrected effective or duplicate effective model.

4. Revised or Post-Project Conditions Model — Natural ☒ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective or corrected effective model, as appropriate)* is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for proposed project this model should reflect proposed conditions.

5. Other: Please attach a sheet describing all other models submitted. — Natural ☐ Floodway ☐

6. Hydraulic Analyses (Only if Hydraulic Models are not developed)

Please attach all calculations for the existing or pre-project conditions and the revised or post-project conditions. Proceed to Form 5, "Riverine/Coastal Mapping Form".

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

1. Discharges:

	Upstream Limit	Downstream Limit
10-year		
50-year		
100-year	550 cfs	3962 cfs
500-year		

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Agua Fria River 100-year Water Surface Elevation (Post New Waddel Dam) Revised hydrology by U.S. Army Corps of Engineers

3. Give range of friction loss coefficients (*Manning's "N"*) Channel 0.016

Overbanks 0.016

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined *(e.g., field survey, topographic map, taken from previous study)* and list cross sections that were added.

Topographic Mapping of Previous Study.

5. Were natural channel banks selected as the location of the left and right channel banks in the model?

☐ Yes ☒ No If no, explain why not: Natural Channel widened and deepened to contain 100-year discharge along entire channel.

3. Explain how reach lengths for channel and overbanks were determined:

Channel reach lengths were measured along the hydraulic control line. No overbank flows for this channel, therefore overbank reach lengths are equal to channel reach lengths.

5. RESULTS (from model used to revise 100-year water surface elevations)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ☐ Yes ☒ No

b. Supercritical depth? ☐ Yes ☒ No

c. Critical depth? ☒ Yes ☐ No

d. Other unique situations ☐ Yes ☐ No

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps. (see attached sheet)

2. What is the maximum change in energy gradient between cross-sections? 1.79 ft

Specify location 1025.4 - 1067.4

3. What is the distance between the cross-sections in 2 above? 42 ft

4. What is the maximum distance between cross-sections? 350 ft

Specify location 16650 & 17000

5. Floodway determination (Not Applicable)

a. What is the maximum surcharge allowed by the community or State? _____ foot

b. What is the maximum surcharge for the revised conditions? _____ foot

Specify location _____

c. What is the maximum velocity? _____ fps

Specify location _____

d. Are there any negeative surcharge values at any cross-section? ☐ Yes ☐ No

If yes, the floodway may need to be widened. If it is not widened, please explain and indicate the maximum negative surcharge.

Explain: _____

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☒ No

If Yes, explain:

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☒ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases. *(For example: State if the increase is due to fill placed within the floodway fringe or placed within the currently adopted floodway limits)*

_____

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6) N/A

6. REVISED FIRM/FBFM AND FLOOD PROFILES

Not Applicable

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section_____ within_____feet *(vertical)* and upstream of the project at cross section_____within_____feet *(vertical)*.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section_____within_____feet *(vertical)* and upstream of the project at cross section_____ within_____feet *(vertical)*.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS:

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

MT-2 FORM 4

Item 5.1.c. Explanation for Occurrence of Critical flow Depth

Critical flow depths occurred at several cross sections throughout the channel. These occurred at cross sections 966.0, 1025.4, 1067.4, and 12615.0 through 14900.0 However, this is not a problem since this is a reinforced concrete lined channel and the flow velocities are within the range recommended for this type of lining. Also the freeboard applied for these critical flow locations are higher than other locations (freeboard for subcritical flow reaches is 1.0 foot while for critical flow reaches it is between 3.5 and 4.0 feet). This will ensure that the base flood is contained by the channel for all flow regimes.

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE/COASTAL MAPPING FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.5 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable)*:

		Included		
A.	Revised approximate 100-year floodplain boundaries (Zone A)	☒ Yes	☐ No	☐ N/A
B.	Revised detailed 100- and 500-year floodplain boundaries	☐ Yes	☐ No	☒ N/A
C.	Revised 100-year floodway boundaries	☐ Yes	☐ No	☒ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E.	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F.	Current community boundaries	☒ Yes	☐ No	☐ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☒ Yes	☐ No	☐ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
I.	The requestor's property boundaries and community easements	☒ Yes	☐ No	☐ N/A
J.	The signed certification of a registered professional engineer	☒ Yes	☐ No	☐ N/A
K.	Location and description of reference marks	☒ Yes	☐ No	☐ N/A
L.	Vertical datum (example: NGVD, NAVD etc.)	☒ Yes	☐ No	☐ N/A
M.	Coastal zone designations tie into adjacent areas not being revised	☐ Yes	☐ No	☒ N/A
N.	Location and alignment of all coastal transects used to revise the coastal analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain: B. Detailed analysis not performed. C. Floodway analysis not performed. M. & N. Floodplain not a Costal zone.

2. What is the source and date of the updated topographic information *(example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.)*? FIS Information

3. What is the scale and contour interval of the following workmaps?
   a. Effective FIS 400 scale 2 feet Contour interval
   b. Revision Request 400 scale 2 feet Contour interval

   NOTE: Revised topographic information must be of equal or greater detail.

4. Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

   Attach additional pages if needed.

Flood Boundaries and 100-year water surface elevations:

Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's ? ☐ Yes ☒ No

If yes, please give the location of shift or increase and an explanation for the increase.

a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? ..... ☐ Yes ☐ No

If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

b. What is the number of insurable structures that will be impacted by this shift or increase?_____

6. Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM? ..... ☐ Yes ☒ No

If yes, explain:

7. If a V- zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ☐ Yes ☒ No

If no, explain:

8. Manual or digital map submission:

☒ Manual

☐ Digital

Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance of submission as possible.

2. EARTH FILL PLACEMENT N/A

1. The fill is: ☐ Existing ☐ Proposed

2. Has fill been/will be placed in the regulatory floodway? ..... ☐ Yes ☐ No
   If yes, please attach completed Riverine Hydraulic Analysis Form.

3. Has fill been/will be placed in floodway fringe *(area between the floodway and 100-year floodplain boundaries)*? ..... ☐ Yes ☐ No

   If yes, then complete A, B, C, and D below.

   A. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ..... ☐ Yes ☐ No

      If yes, justify steeper slopes_____

      _____

   B. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? *(Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)* ..... ☐ Yes ☐ No

      If no, describe erosion protection provided_____

      _____

   C. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

   D. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

   If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

4. Has fill been/will be placed in a V-zone? ☐ Yes ☐ No

   If yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall? ☐ Yes ☐ No

   If yes, attach the coastal structures form.

FEDERAL EMERGENCY MANAGEMENT AGENCY **CHANNELIZATION FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.75 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain Wash

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. EXTENT OF CHANNELIZATION

Downstream limit: Agua Fria River

Upstream limit: Reems Road

2. CHANNEL DESCRIPTION

1. Describe the inlet to the channel From Detention Basin: Outlet Channel thru Box Culvert 6'x6' Double Barrel Reinforced Concrete Box Culvert

2. Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)* Trapezoidal Cross Section Side Slope varies from 1½H:1 to 2H:1, bottom width varies from 10 ft to 15 ft.

3. Describe the outlet from the channel Sloping spillway with stilling basin of grouted riprap - outfalls into Agua Fria River

4. The channelization includes:

   - ☐ Levees *(Attach Levee Form)*
   - ☐ Drop structures
   - ☒ Superelevated sections
   - ☒ Transitions in cross sectional geometry
   - ☒ ~~Debris basin~~/detention basin
   - ☒ Energy dissipater
   - ☐ Other

5. Attach the following:

   a. Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4

   b. Typical cross sections and profiles of channel banks and invert

3. HYDRAULIC CONSIDERATIONS

1. What is the 100-year discharge? .....Varies along channel - 550 cfs to 3962 cfs
2. Do the cross sections in the hydraulic model match the typical cross sections in the plans? ☒ Yes ☐ No
3. Are the channel banks higher than the 100- year flood elevations everywhere? ..... ☒ Yes ☐ No
4. Are the channel banks higher than the 100-year flood energy grade lines everywhere? .. ☒ Yes ☐ No
5. Is the land on both sides of the channel above the adjacent 100-year flood elevation at all points along the channel? ..... ☐ Yes ☒ No
6. What is the range of freeboard? ..... 1.0 – 3.0 feet
7. What is the range of the 100-year flood velocities? ..... 3.8 – 13.9 ft/sec
8. What is the lining type? (both bottom and sides) Reinforced Concrete

   Explain how the channel lining prevents erosion and maintains channel stability *(attach documentation)*
   Velocities below allowable mzximum for concrete of the class proposed for this channel

9. What is the design elevation in the channel based on?

   ☒ Subcritical flow
   ☐ Critical flow
   ☐ Supercritical flow
   ☐ Energy grade line

   Is 100-year flood profile based on the above type of flow? ..... ☒ Yes ☐ No

   If no, explain:

10. Is there the potential for a hydraulic jump at the following locations?

    Inlet to channel ..... ☐ Yes ☒ No
    Outlet of channel ..... ☒ Yes ☐ No
    At Drop Structures ..... ☐ Yes ☒ No
    At Transitions ..... ☐ Yes ☒ No
    Other locations. Explain:

    If the answer to any of the above is yes, please explain how the hydraulic jump is controlled and the effects of the hydraulic jump on the stability of the channel.

    Explain: Hydraulic Jump may occur at the outlet sloping spillway. The basin of the spillway will be protected with grouted riprap to prevent scour and undermining of the outlet structure.

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water surface elevations and/or the capacity of the channel? ..... ☐ Yes ☒ No

   B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water surface elevations and /or the capacity of the channel? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment (bed) load?
   _____cfs (attach gradation curve)

   Explain method used to estimate load_____

   _____

   _____

   _____

   _____

   B. Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet? ☐ Yes ☐ No

   C. Will sediment accumulate anywhere within the channel? ☐ Yes ☐ No

   D. Will deposition or scour occur at or near the inlet? ☐ Yes ☐ No

   E. Will deposition or scour occur at or near the outlet? ☐ Yes ☐ No

Attach documentation showing affects on the Hydrologic and Hydraulic analyses

FEDERAL EMERGENCY MANAGEMENT AGENCY **CHANNELIZATION FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.75 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, City of Surprise

Flooding Source: North Collector Channel - Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. EXTENT OF CHANNELIZATION

Downstream limit: Detention Basin

Upstream limit: Reems Road

2. CHANNEL DESCRIPTION

1. Describe the inlet to the channel Concrete Trapezoidal Channel transistioning into Channel through invert slopes of 0.1 ft/ft, 0.0185 ft/ft and 0.0014 ft/ft.

2. Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)* Trapezoidal with bottom width of 12 ft and side slope 1½H:1V. Lining reinforced concrete but grouted riprap at the outlet.

3. Describe the outlet from the channel Grouted Riprap Lined Channel at 1½H:1V side slope transitions into a grouted riprap line outfall at 4H:1V side slope in the basin.

4. The channelization includes:

   - ☐ Levees *(Attach Levee Form)*
   - ☐ Drop structures
   - ☐ Superelevated sections
   - ☒ Transitions in cross sectional geometry
   - ☒ ~~Debris basin~~/detention basin
   - ☐ Energy dissipater
   - ☐ Other

5. Attach the following:

   a. Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4

   b. Typical cross sections and profiles of channel banks and invert

3. HYDRAULIC CONSIDERATIONS

1. What is the 100-year discharge? ..... 1-1000 cfs
2. Do the cross sections in the hydraulic model match the typical cross sections in the plans? ☒ Yes ☐ No
3. Are the channel banks higher than the 100- year flood elevations everywhere? ..... ☒ Yes ☐ No

   Are the channel banks higher than the 100-year flood energy grade lines everywhere? .. ☒ Yes ☐ No
5. Is the land on both sides of the channel above the adjacent 100-year flood elevation at all points along the channel? ..... ☒ Yes ☐ No
6. What is the range of freeboard? ..... 1 – 2 feet
7. What is the range of the 100-year flood velocities? ..... 1.0 – 10.7 ft/sec
8. What is the lining type? (both bottom and sides) Reinforced Concrete & Grouted Riprap

   Explain how the channel lining prevents erosion and maintains channel stability *(attach documentation)*

   _____

   _____
9. What is the design elevation in the channel based on?

   ☒ Subcritical flow
   ☐ Critical flow
   ☐ Supercritical flow
   ☐ Energy grade line

   Is 100-year flood profile based on the above type of flow? ..... ☒ Yes ☐ No

   If no, explain: _____

   _____

0. Is there the potential for a hydraulic jump at the following locations?

   Inlet to channel ..... ☐ Yes ☒ No
   Outlet of channel ..... ☐ Yes ☒ No
   At Drop Structures ..... ☐ Yes ☒ No
   At Transitions ..... ☐ Yes ☒ No
   Other locations. Explain: _____

   If the answer to any of the above is yes, please explain how the hydraulic jump is controlled and the effects of the hydraulic jump on the stability of the channel.

   Explain: _____

   _____

   _____

   _____

   _____

   _____

   _____

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water surface elevations and/or the capacity of the channel? ..... ☐ Yes ☒ No

   B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water surface elevations and /or the capacity of the channel? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment (bed) load?
   _____cfs (attach gradation curve)

   Explain method used to estimate load_____

   _____

   _____

   _____

   _____

   B. Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet? ☐ Yes ☐ No

   C. Will sediment accumulate anywhere within the channel? ☐ Yes ☐ No

   D. Will deposition or scour occur at or near the inlet? ☐ Yes ☐ No

   E. Will deposition or scour occur at or near the outlet? ☐ Yes ☐ No

Attach documentation showing affects on the Hydrologic and Hydraulic analyses

FEDERAL EMERGENCY MANAGEMENT AGENCY **CHANNELIZATION FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

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Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: East Collector Channel - Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS; Dysart Drain Improvements

1. EXTENT OF CHANNELIZATION

Downstream limit: Detention Basin

Upstream limit: Olive Avenue

2. CHANNEL DESCRIPTION

1. Describe the inlet to the channel Concrete Collector Spilleay, 30 ft x 0.5 ft, sloping 4.73% into main channel through a 10:1 bed slope transition.

2. Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)* Channel materials are reinforced concrete trapezoidal in cross section at 2:1 side slopes and bottom widths of 20 ft reducing to 15 ft near Olive Avenue.

3. Describe the outlet from the channel Channel outlets into the basin via grouted riprap lining for energy dissipation.

4. The channelization includes:

   - ☐ Levees *(Attach Levee Form)*
   - ☐ Drop structures
   - ☐ Superelevated sections
   - ☒ Transitions in cross sectional geometry
   - ☐ Debris basin/detention basin
   - ☐ Energy dissipater
   - ☐ Other

5. Attach the following:

   a. Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4

   b. Typical cross sections and profiles of channel banks and invert

3. HYDRAULIC CONSIDERATIONS

1. What is the 100-year discharge? ..... 480 cfs
2. Do the cross sections in the hydraulic model match the typical cross sections in the plans? ☒ Yes ☐ No

   Are the channel banks higher than the 100- year flood elevations everywhere? ..... ☒ Yes ☐ No
4. Are the channel banks higher than the 100-year flood energy grade lines everywhere? .. ☒ Yes ☐ No
5. Is the land on both sides of the channel above the adjacent 100-year flood elevation at all points along the channel? ..... ☒ Yes ☐ No
6. What is the range of freeboard? ..... 1.0 – 1.5 feet
7. What is the range of the 100-year flood velocities? ..... 4.2 – 8.4 ft/sec
8. What is the lining type? (both bottom and sides) Reinforced Concrete

   Explain how the channel lining prevents erosion and maintains channel stability *(attach documentation)*

   Velocities well below critical velocity for concrete design.

9. What is the design elevation in the channel based on?

   ☒ Subcritical flow
   ☐ Critical flow
   ☐ Supercritical flow
   ☐ Energy grade line

   Is 100-year flood profile based on the above type of flow? ..... ☒ Yes ☐ No

   If no, explain:

10. Is there the potential for a hydraulic jump at the following locations?

    Inlet to channel ..... ☐ Yes ☒ No
    Outlet of channel ..... ☐ Yes ☒ No
    At Drop Structures ..... ☐ Yes ☒ No
    At Transitions ..... ☐ Yes ☒ No
    Other locations. Explain:

    If the answer to any of the above is yes, please explain how the hydraulic jump is controlled and the effects of the hydraulic jump on the stability of the channel.

    Explain:

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water surface elevations and/or the capacity of the channel? ..... ☐ Yes ☒ No

   B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water surface elevations and /or the capacity of the channel? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment (bed) load?
   _____cfs (attach gradation curve)

   Explain method used to estimate load_____

   _____

   _____

   _____

   _____

   B. Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet? ☐ Yes ☐ No

   C. Will sediment accumulate anywhere within the channel? ☐ Yes ☐ No

   D. Will deposition or scour occur at or near the inlet? ☐ Yes ☐ No

   E. Will deposition or scour occur at or near the outlet? ☐ Yes ☐ No

Attach documentation showing affects on the Hydrologic and Hydraulic analyses

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	**FEMA USE ONLY**

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain Wash

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. IDENTIFIER

1. Name of roadway, railroad, etc.: El Mirage Road
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): 0.187 (Existing Model) 1950 (Revised Model)
3. This revision reflects *(check one of the following)*:
   - ☐ New bridge/culvert not modeled in the FIS
   - ☒ Modified bridge/culvert previously modeled in the FIS
   - ☐ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed) Channel Modified, bridge span changed, invert changed, discharge changed.

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) 84 ft long, 71 ft wide, single span reinforced concrete bridge (no piers).

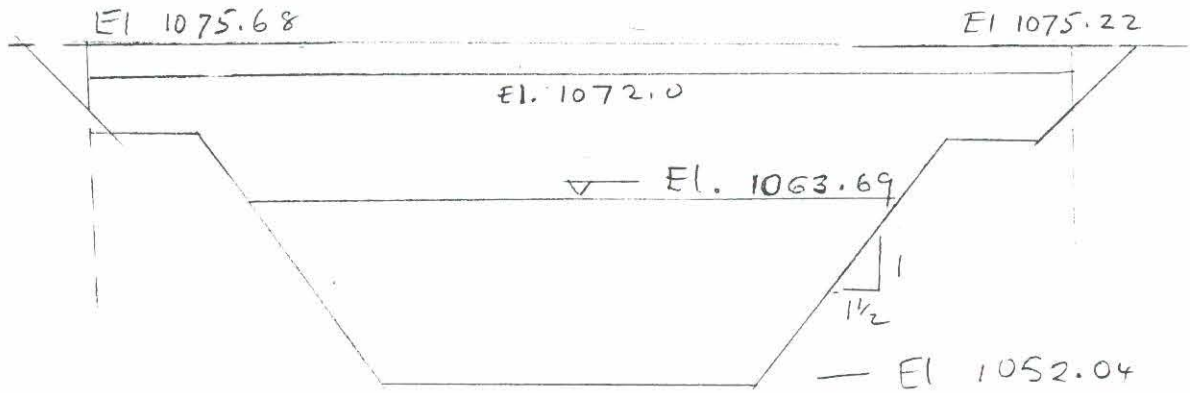
2. Entrance geometry of culvert/type of bridge opening (e.g. 30°-75° wing walls with square top edge, sloping embankments and vertical abutments) Unobstructed Entrance - channel unconstricted through bridge, deck above the 100-year W.S.E.

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 without special bridge routing (Clear Span)

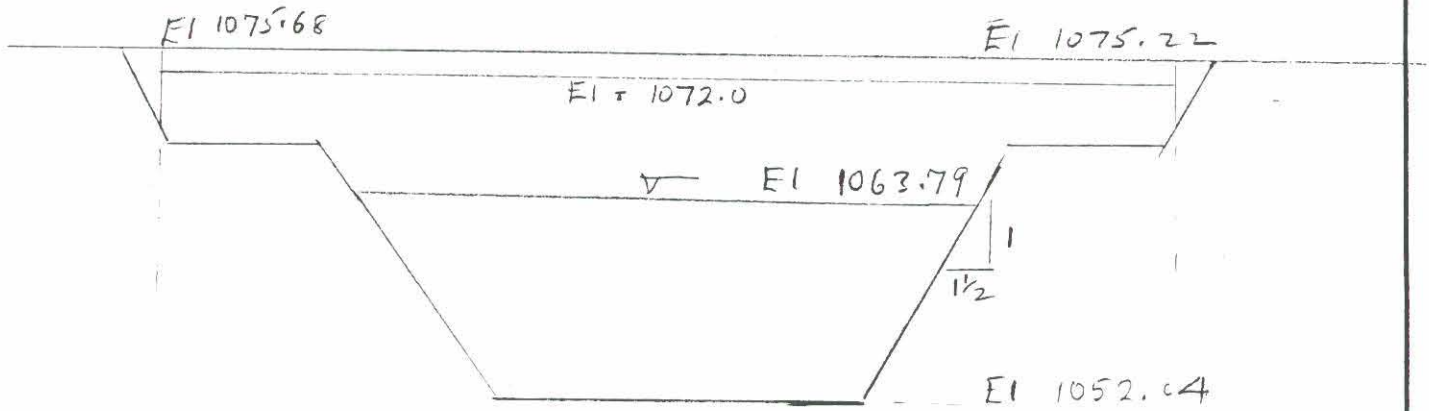
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

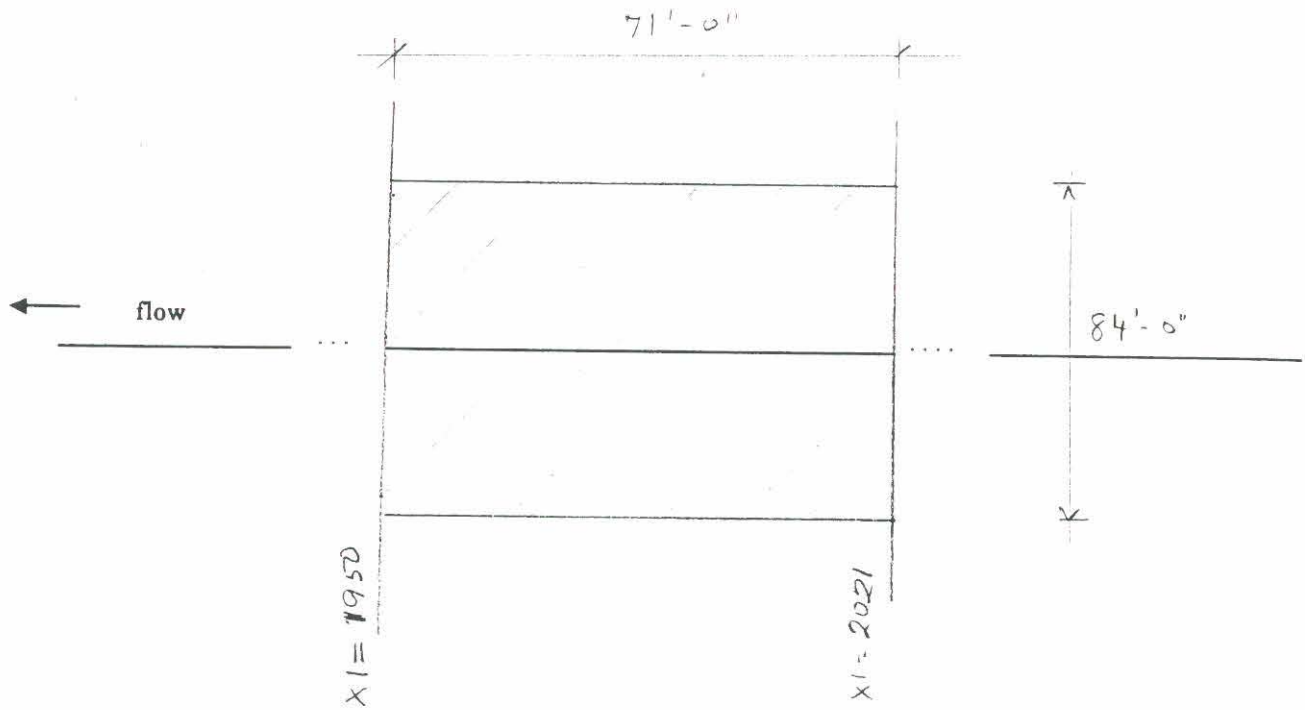
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	71'-0"
Calculated culvert/bridge area (ft ²) by the hydraulic model, if applicable	N/A
Total culvert/bridge area (ft ²)	N/A

Elevations Above Which Flow is Effective for Overbanks

	N/A Left Overbank	Right Overbank
Upstream face		
Downstream face		

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face		
Downstream face		

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face		
Downstream face		

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	3962	0	0	3962

The maximum depth of flow over the roadway/railroad (ft.) .....

Weir length (ft.) .....

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face			
Downstream face			

Loss Coefficients

	N/A
Entrance loss coefficient	
Manning's "n" value assigned to the structure(s)	
Friction loss coefficient through structure (s)	
Other loss coefficients (e.g., bend manhole, etc.)	
Total loss coefficient	
Weir coefficient	
Pier coefficient	
Contraction loss coefficient	
Expansion loss coefficient	

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

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Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain Wash

Project Name/Identifier: White Tanks/Agua Fria ADMS - Dysart Drain Improvement

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Morton Salt Road (Farm Bridge)
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): 0.938 (Original Model) 5920 (Revised Model)
3. This revision reflects *(check one of the following)*:

   ☐ New bridge/culvert not modeled in the FIS

   ☒ Modified bridge/culvert previously modeled in the FIS

   ☐ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed) Channel and Bridge Modified. Discharge changed.

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) 71 ft long, 25 ft wide, single span concrete deck bridge (no piers)

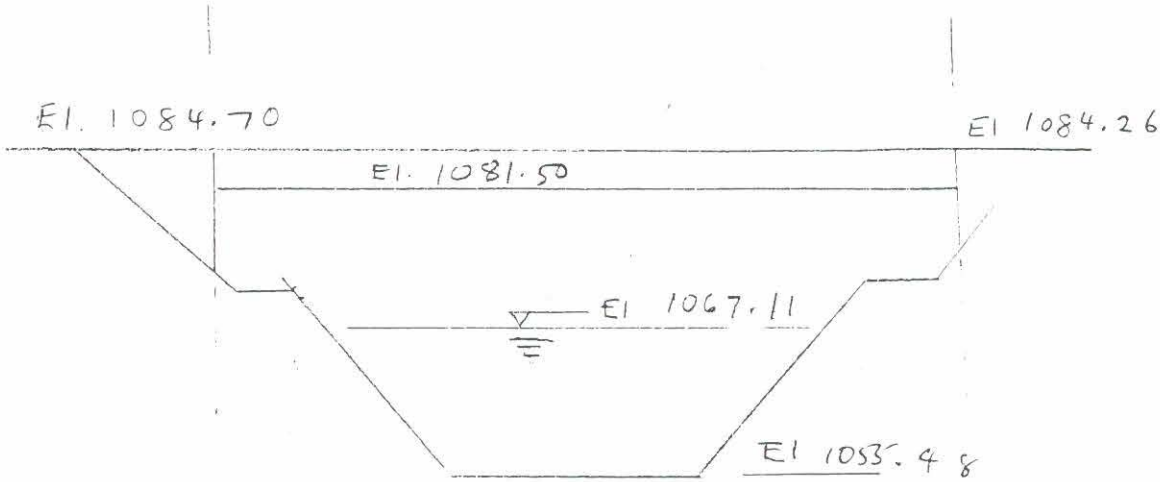
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Unobstructed Entrance - Channel unconstricted through bridge, deck above 100 year W.S.E.

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 without bridge routine (Clear Span)

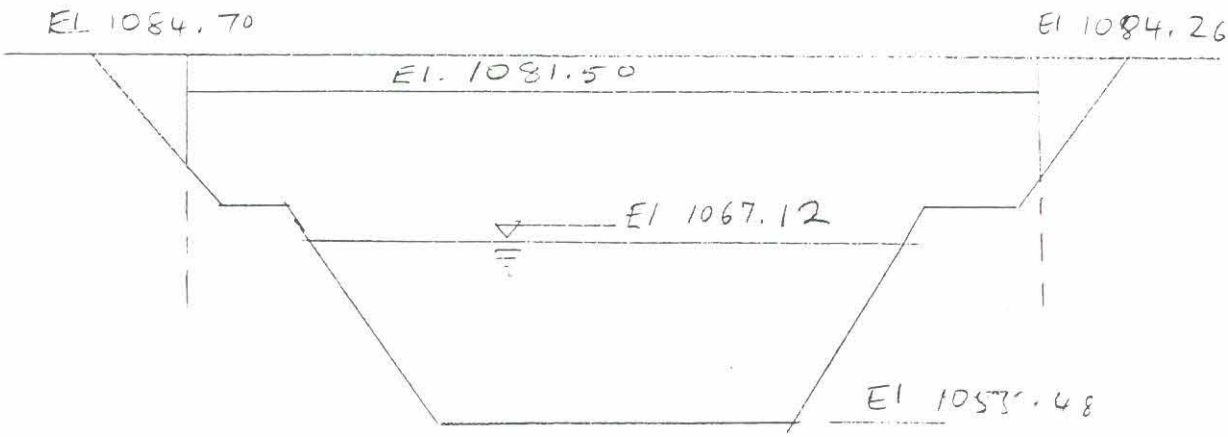
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

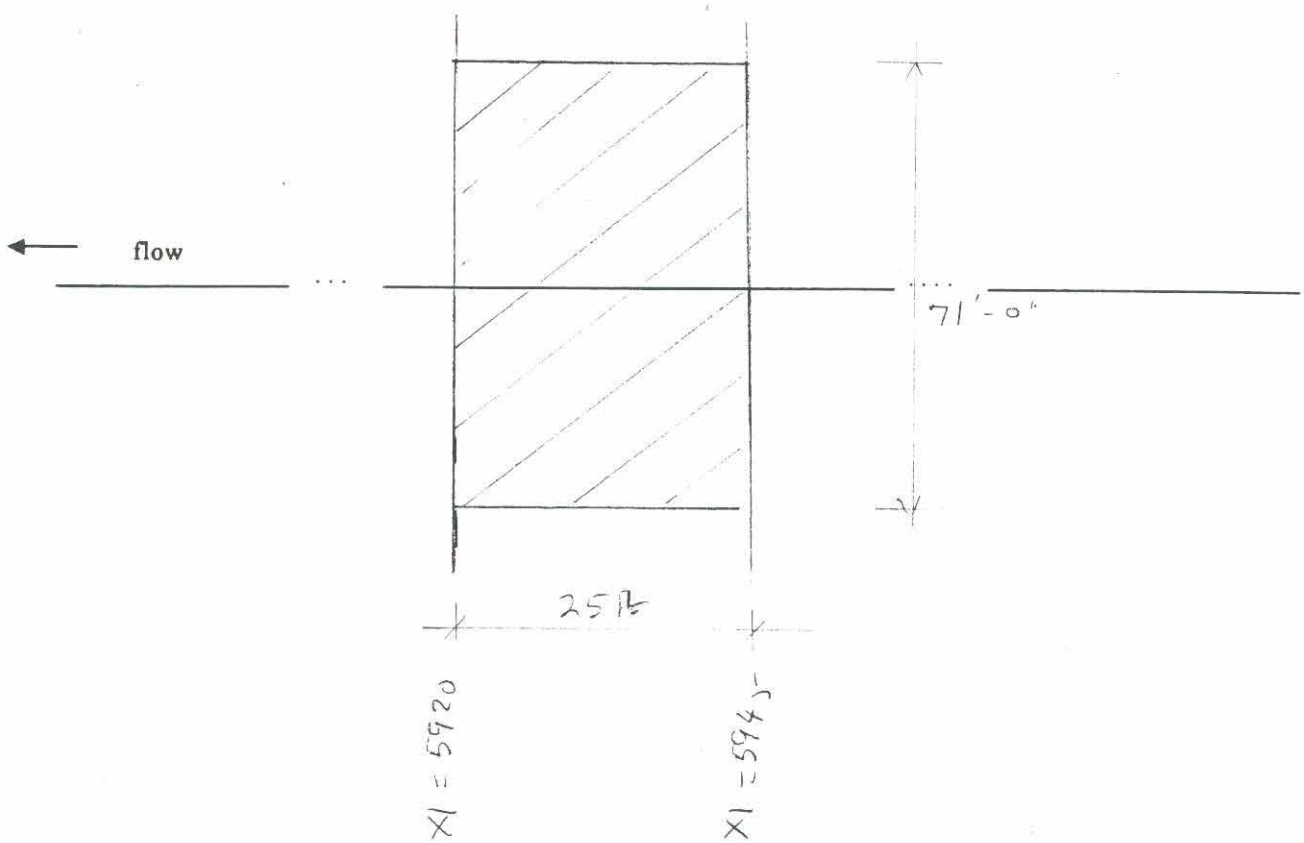
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	25 ft
Calculated culvert/bridge area (ft 2) by the hydraulic model, if applicable	N/A
Total culvert/bridge area (ft 2)	N/A

Elevations Above Which Flow is Effective for Overbanks

N / A

	Left Overbank	Right Overbank
Upstream face		
Downstream face		

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face		
Downstream face		

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face		
Downstream face		

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	2280	0	0	2280

The maximum depth of flow over the roadway/railroad (ft.) .....

Weir length (ft.) .....

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face			
Downstream face			

Loss Coefficients

N/A

Entrance loss coefficient _____

Manning's "n" value assigned to the structure(s) _____

Friction loss coefficient through structure (s) _____

Other loss coefficients (e.g., bend manhole, etc.) _____

Total loss coefficient _____

Weir coefficient _____

Pier coefficient _____

Contraction loss coefficient _____

Expansion loss coefficient _____

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	**FEMA USE ONLY**

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Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain Wash

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Dysart Road
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): 1.184 (Original Model) 7200 (Revised Model)
3. This revision reflects *(check one of the following)*:
   - ☐ New bridge/culvert not modeled in the FIS
   - ☒ Modified bridge/culvert previously modeled in the FIS
   - ☐ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed) Channel and Bridge Modified. Discharge changed.

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) 84 ft long, 71 ft wide single span concrete deck bridge (no piers).

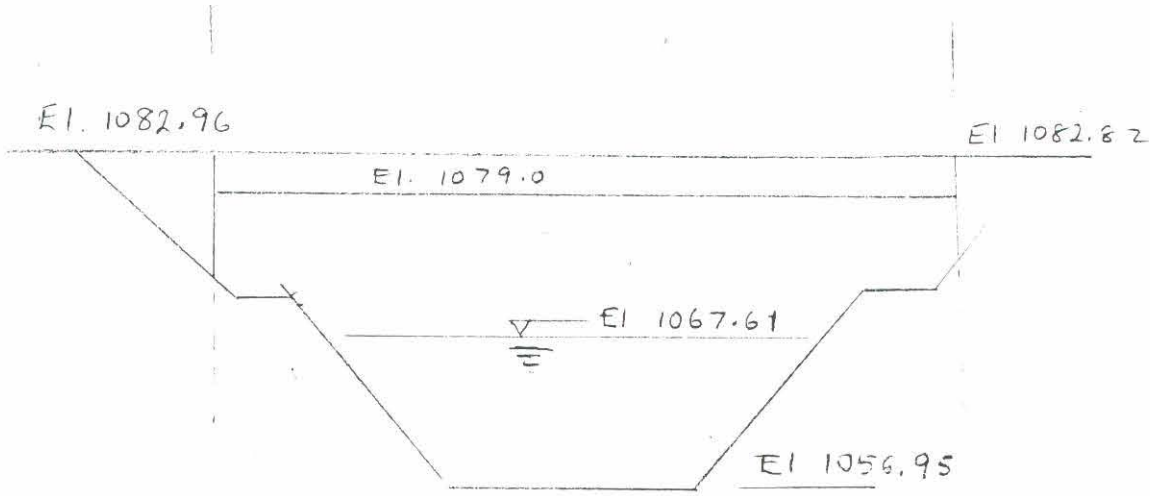
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Unobstructed Entrance - Channel unconstricted through bridge, deck above 100-year W.S.E.

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 without special bridge routing (Clear Span Deck)

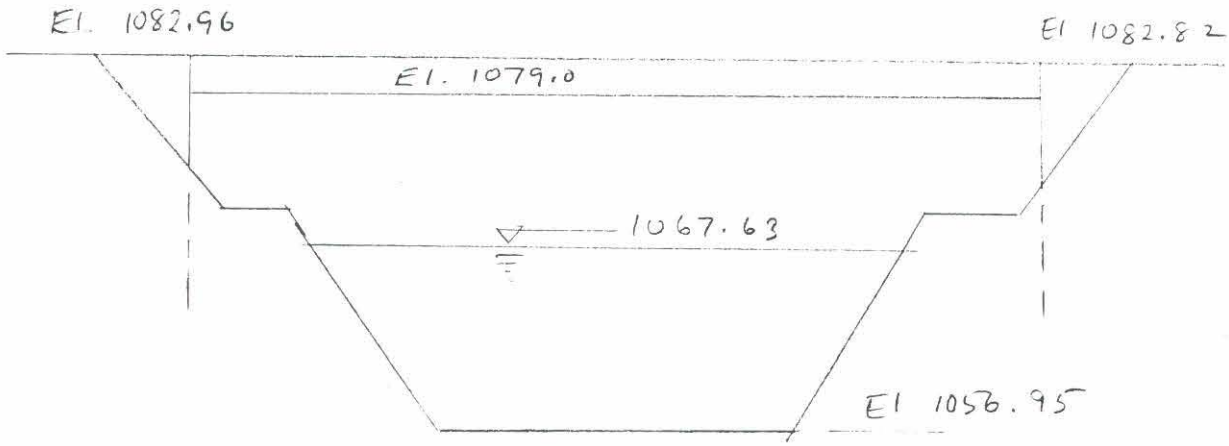
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

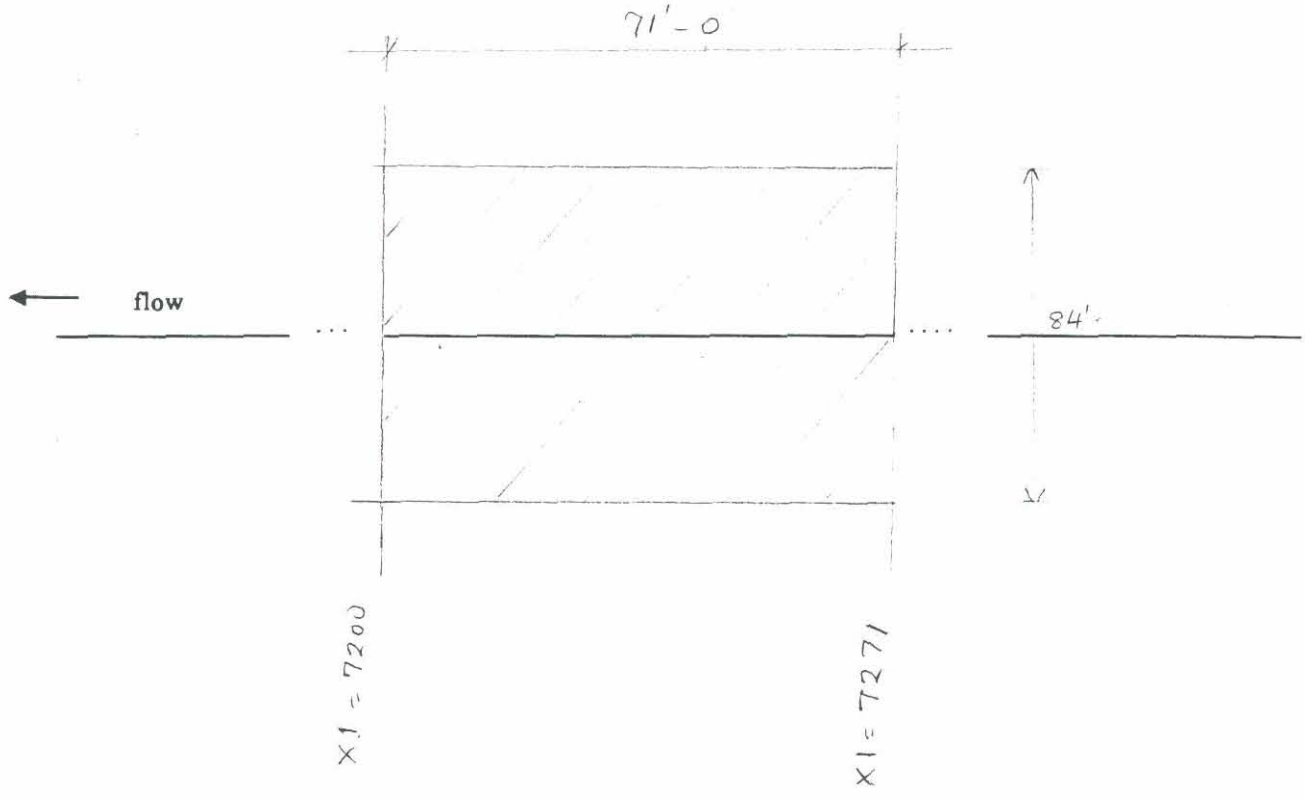
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	71'-0
Calculated culvert/bridge area (ft 2) by the hydraulic model, if applicable	N/A
Total culvert/bridge area (ft 2)	N/A

Elevations Above Which Flow is Effective for Overbanks N / A

	Left Overbank	Right Overbank
Upstream face		
Downstream face		

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face		
Downstream face		

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face		
Downstream face		

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	2280	0	0	2280

The maximum depth of flow over the roadway/railroad (ft.) .....

Weir length (ft.) .....

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face			
Downstream face			

Loss Coefficients

Entrance loss coefficient _____

Manning's "n" value assigned to the structure(s) _____

Friction loss coefficient through structure (s) _____

Other loss coefficients (e.g., bend manhole, etc.) _____

Total loss coefficient _____

Weir coefficient _____

Pier coefficient _____

Contraction loss coefficient _____

Expansion loss coefficient _____

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N / A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	**FEMA USE ONLY**

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Litchfield Road
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): 2.203 (Original Model) 12615 (Revised Model)
3. This revision reflects *(check one of the following)*:
   - ☐ New bridge/culvert not modeled in the FIS
   - ☐ Modified bridge/culvert previously modeled in the FIS
   - ☒ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed) Channel Modified, Discharge changed.

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) 42 ft wide, 127 ft long Concrete Bridge with 1.5 ft diameter circular pier.

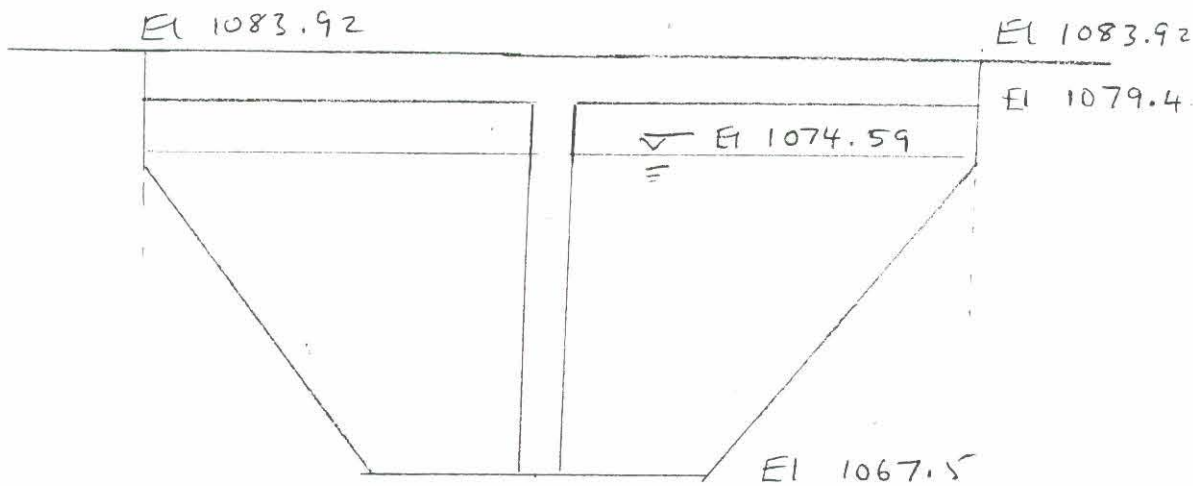
2. Entrance geometry of culvert/type of bridge opening (e.g. 30 ° - 75 ° wing walls with square top edge, sloping embankments and vertical abutments)

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with Special Bridge Routine

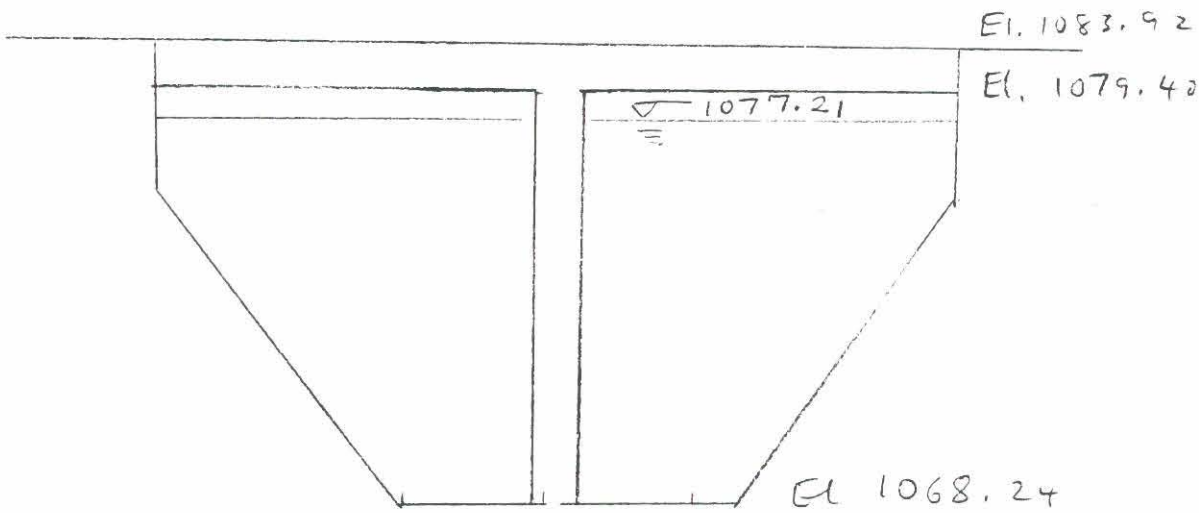
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

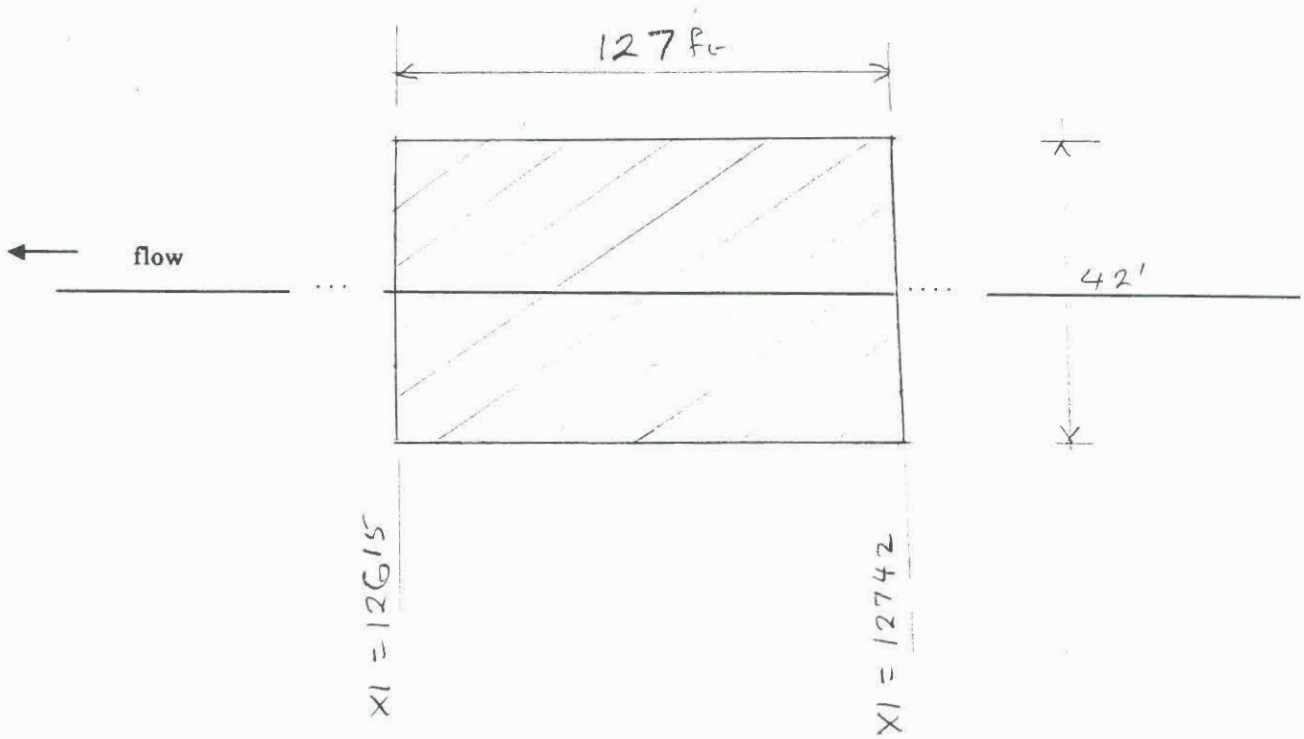
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	127 ft.
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	344 ft²
Total culvert/bridge area (ft²)	325 ft²

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face	1079.90	1079.90
Downstream face	1079.16	1079.16

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1083.92	1083.92
Downstream face	1083.92	1083.92

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1077.21	1078.35
Downstream face	1074.59	1076.96

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	2280	0	0	2280

The maximum depth of flow over the roadway/railroad (ft.) 0

Weir length (ft.) 0

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face	47.2	47.2	47.2
Downstream face	39.7	39.7	47.2

Loss Coefficients

Entrance loss coefficient	
Manning's "n" value assigned to the structure(s)	0.016
Friction loss coefficient through structure (s)	
Other loss coefficients (e.g., bend manhole, etc.)	
Total loss coefficient	1.60
Weir coefficient	2.60
Pier coefficient	1.05
Contraction loss coefficient	0.10
Expansion loss coefficient	0.30

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments (*explain any unusual situations*):

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	**FEMA USE ONLY**

PUBLIC BURDEN DISCLOSURE NOTICE

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Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Luke Air Force Base Access Road
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): 2.459 (Original Model) 13942 (Revised Model)
3. This revision reflects *(check one of the following)*:
   - ☐ New bridge/culvert not modeled in the FIS
   - ☐ Modified bridge/culvert previously modeled in the FIS
   - ☒ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed) Channel modified, Discharge changed

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) 34 ft long 26 ft wide, SIngle Span Bridge (no piers)

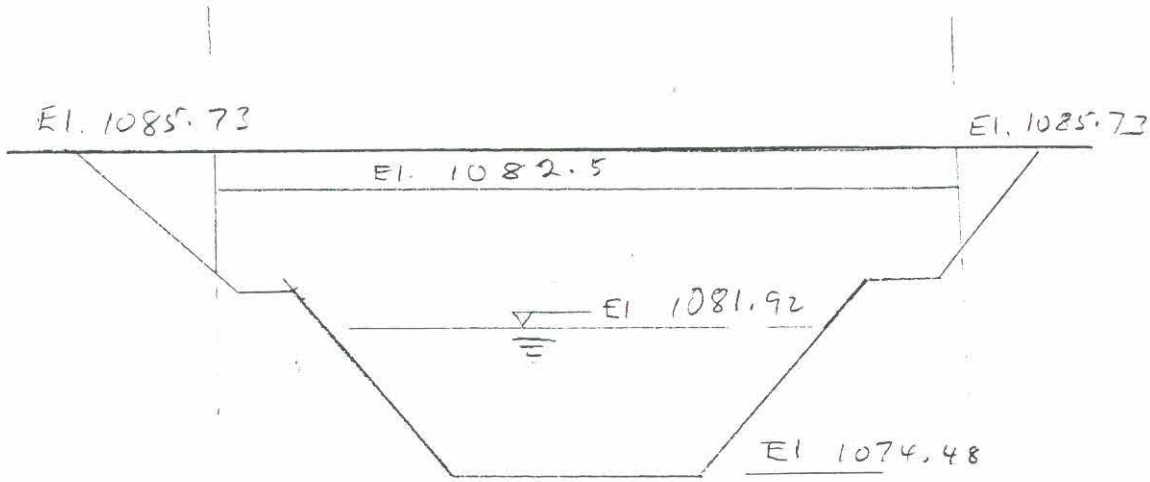
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments)

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with no Routines (Clear Span Dock only)

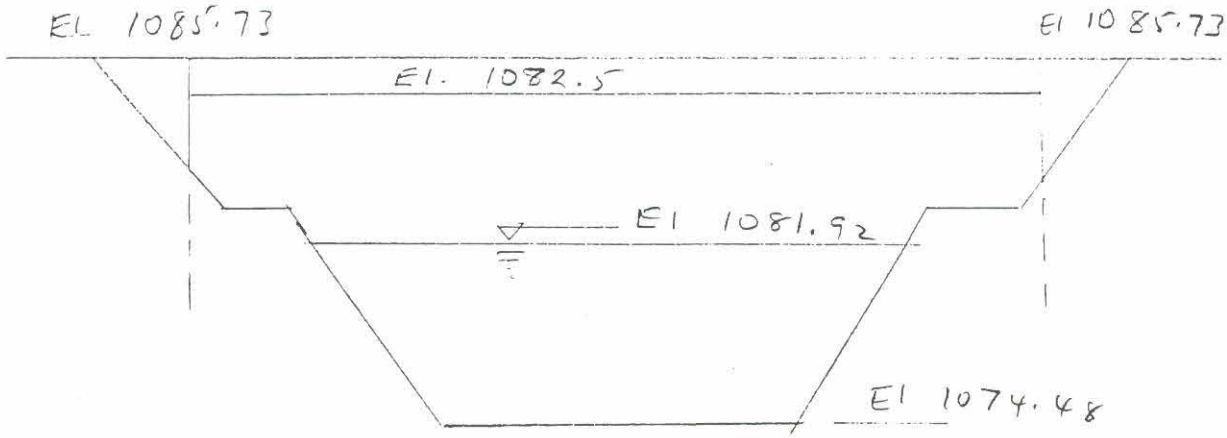
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

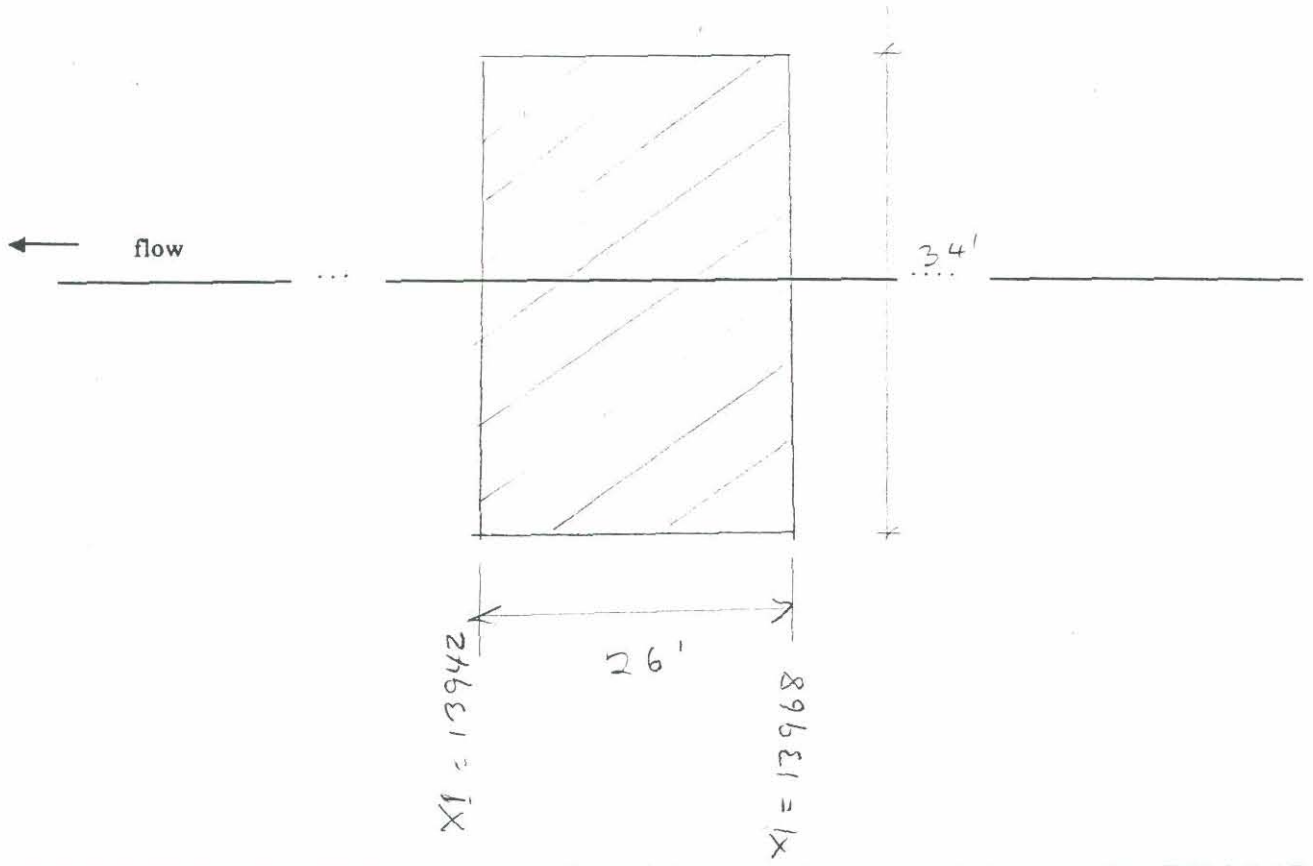
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	26'
Calculated culvert/bridge area (ft ²) by the hydraulic model, if applicable	N/A
Total culvert/bridge area (ft ²)	N/A

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face	1085.73	1085.73
Downstream face	1085.73	1085.73

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1085.73	1085.73
Downstream face	1085.73	1085.73

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1081.92	1084.28
Downstream face	1081.92	

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	2280	0	0	2280

The maximum depth of flow over the roadway/railroad (ft.) 0

Weir length (ft.) 0

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face	39.75	39.75	N/A
Downstream face	39.75	39.75	N/A

Loss Coefficients

	N/A
Entrance loss coefficient	
Manning's "n" value assigned to the structure(s)	
Friction loss coefficient through structure (s)	
Other loss coefficients (e.g., bend manhole, etc.)	
Total loss coefficient	
Weir coefficient	
Pier coefficient	
Contraction loss coefficient	
Expansion loss coefficient	

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (*including scour and deposition*) can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions (*such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions*), is there a potential for debris and sediment transport (*including scour and deposition*) to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment (*bed material*) load?
   _____cfs (*attach gradation curve*)

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	FEMA USE ONLY

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Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain Wash

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. IDENTIFIER

1. Name of roadway, railroad, etc.: AF - SF Railroad
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): 15067 Revised Model (2.672 Previous Model)
3. This revision reflects (*check one of the following*):

   ☐ New bridge/culvert not modeled in the FIS

   ☐ Modified bridge/culvert previously modeled in the FIS

   ☒ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed) Culvert modified. New headwalls, length reduced, and flow changed due to addition of parallel 12' x 6' Double Culvert at X-Sec. 15121.

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) 2# 10 ft x 5.5 ft, 575 ft RCB Culvert

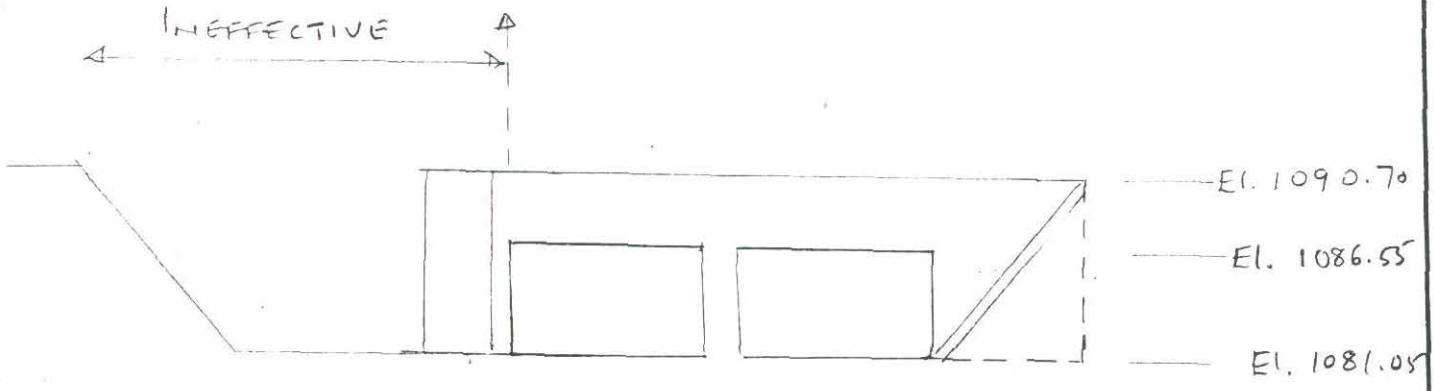
2. Entrance geometry of culvert/type of bridge opening (e.g. 30°- 75° wing walls with square top edge, sloping embankments and vertical abutments) Wings at 60° and 26° with headwall.

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with Special Culvert Routine

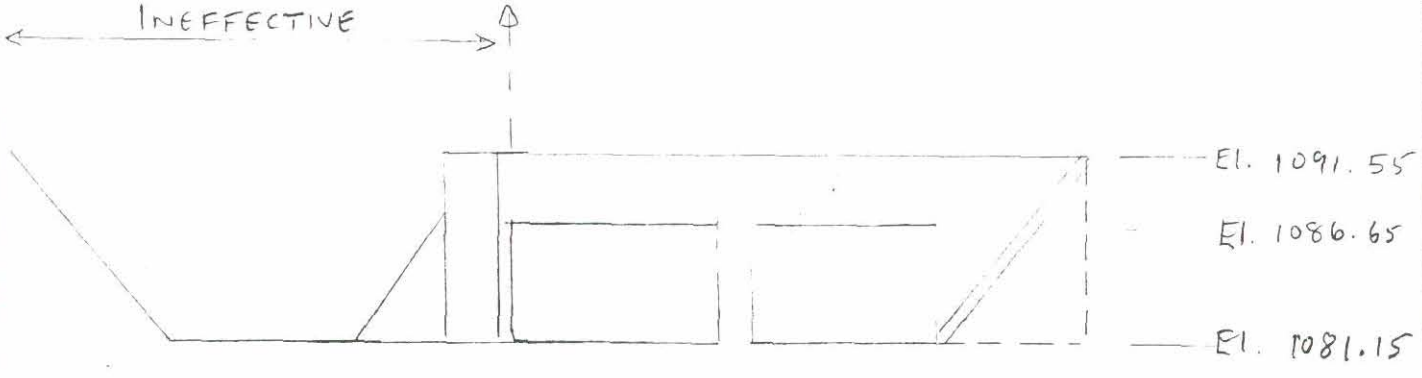
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

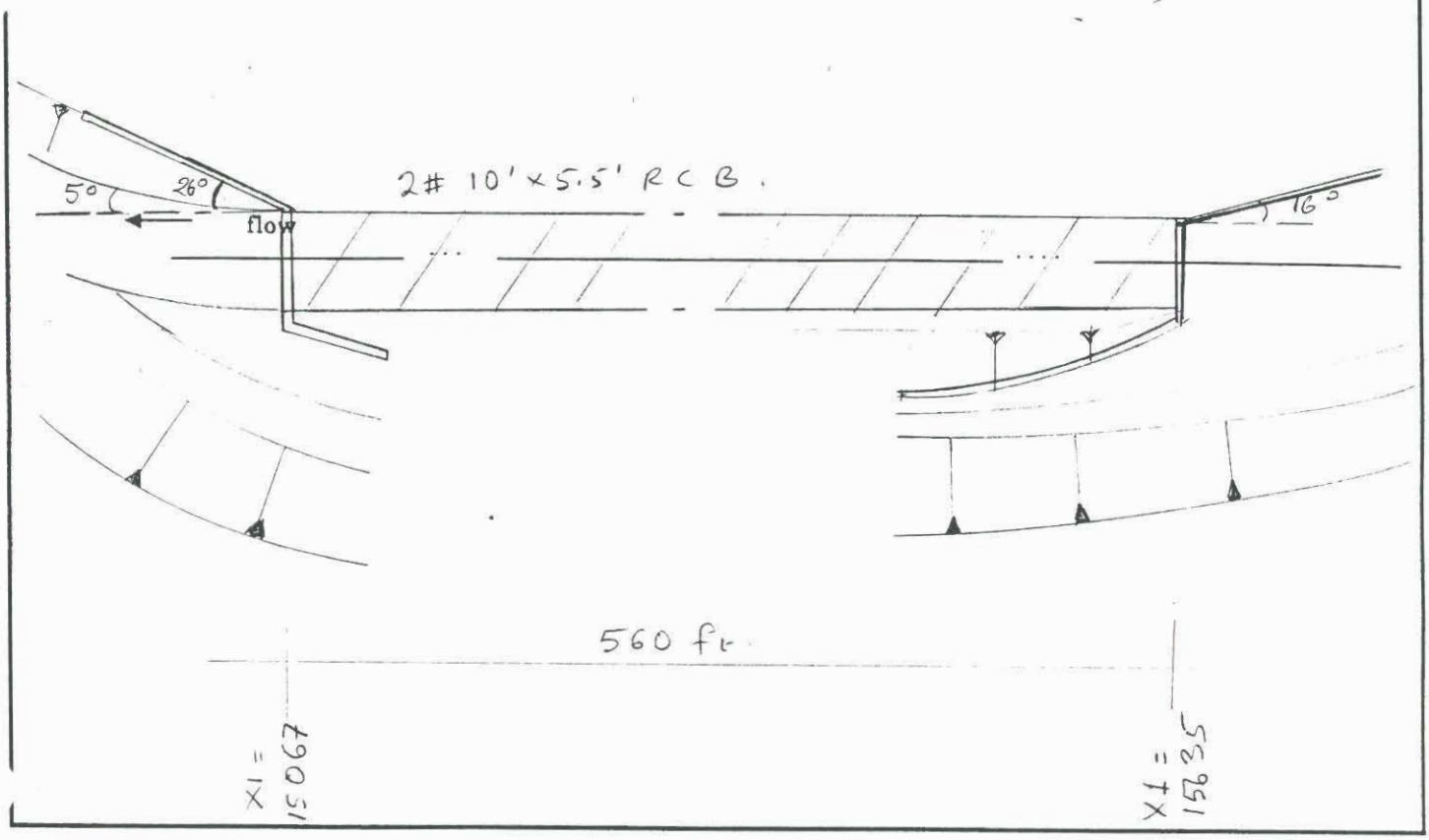
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	560 ft.
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	
Total culvert/bridge area (ft²)	110. ft²

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face		
Downstream face		

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1091.55	1091.55
Downstream face	1090.70	1090.70

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1089.23	1089.43
Downstream face	1088.22	1088.36

Discharge	Low Flow	Pressure Flow Culvert Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)		610	0	610.0

The maximum depth of flow over the roadway/railroad (ft.) 0.0

Weir length (ft.) 0.0

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face	25	25	
Downstream face	21	21	

Loss Coefficients

Entrance loss coefficient	0.20
Manning's "n" value assigned to the structure(s)	0.013
Friction loss coefficient through structure (s)	
Other loss coefficients (e.g., bend manhole, etc.)	
Total loss coefficient	
Weir coefficient	3.0
Pier coefficient	
Contraction loss coefficient	0.1
Expansion loss coefficient	0.3

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	FEMA USE ONLY

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Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. IDENTIFIER

1. Name of roadway, railroad, etc.: AF - SF Railroad
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): 15121 (Revised Model)
3. This revision reflects *(check one of the following)*:

   ☒ New bridge/culvert not modeled in the FIS

   ☐ Modified bridge/culvert previously modeled in the FIS

   ☐ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed) Let existing 2# 10' x 5.5' x 638 ft RCB @ Cross Section 2.672 remain and construct a new parallel 2# 12 ft x 6 ft x 107 ft long box culvert at Section 15121

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) Two 12 x 6 foot Reinforced Concrete Box Culverts.

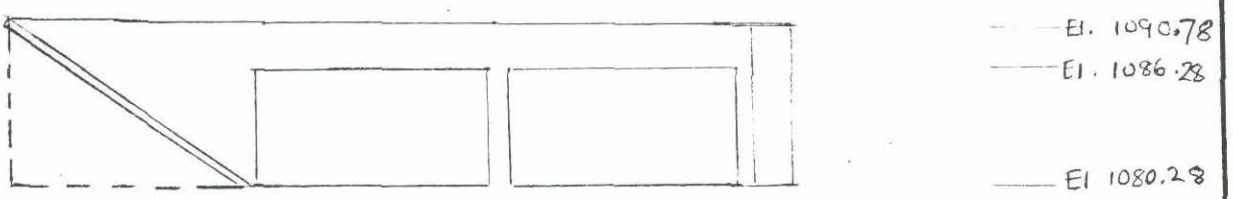
2. Entrance geometry of culvert/type of bridge opening (e.g. 30°- 75° wing walls with square top edge, sloping embankments and vertical abutments) Upstream Wing Walls, 0° and 40°. Downstream Wing Walls 25°, with square top edge.

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with Special Culvert Routine

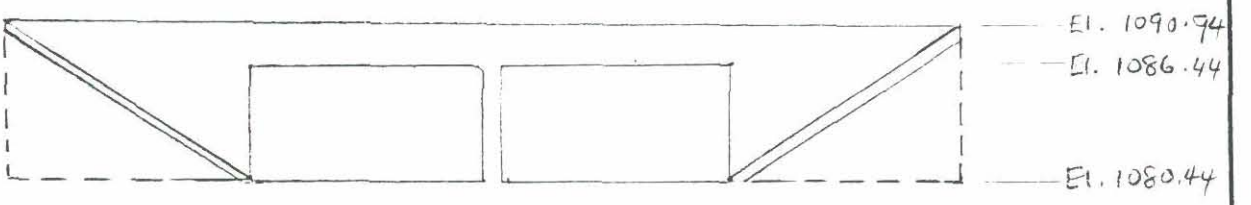
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

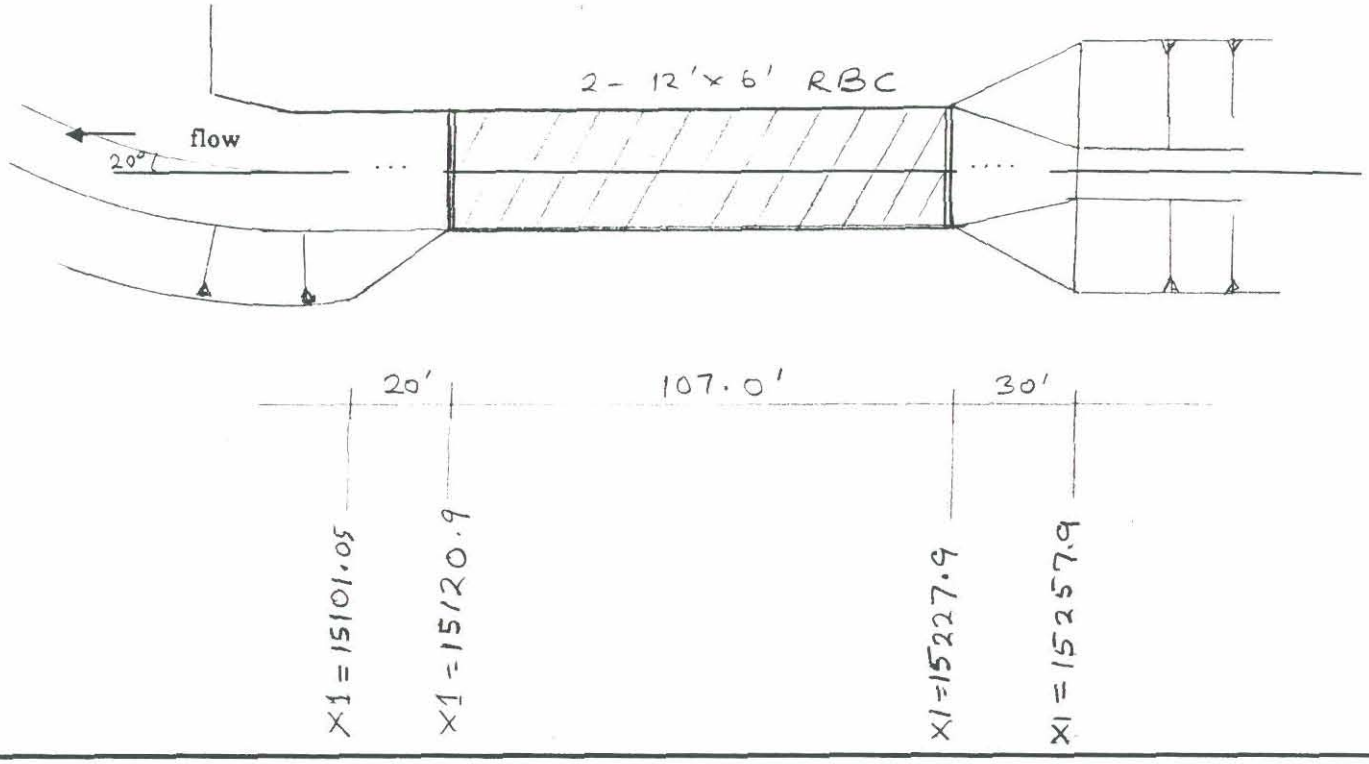
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	107 ft
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	N/A
Total culvert/bridge area (ft²)	144 ft²

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face	1090.9	1090.9
Downstream face	1090.8	1090.8

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1090.9	1090.9
Downstream face	2090.8	1090.8

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1088.8	1089.3
Downstream face	1087.8	1088.5

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	0	1143	0	1143

The maximum depth of flow over the roadway/railroad (ft.) 0

Weir length (ft.) 0

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face	25	25	N/A
Downstream face	25	25	N/A

Loss Coefficients

Entrance loss coefficient	0.2
Manning's "n" value assigned to the structure(s)	0.013
Friction loss coefficient through structure (s)	N/A
Other loss coefficients (e.g., bend manhole, etc.)	
Total loss coefficient	
Weir coefficient	3.0
Pier coefficient	
Contraction loss coefficient	0.10
Expansion loss coefficient	0.30

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvements

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Luke AFB Perimeter Road Access to Northern Avenue
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Section 20100 Revised Model (Previous Model: Sta 3.978)
3. This revision reflects *(check one of the following)*:
   - ☐ New bridge/culvert not modeled in the FIS
   - ☒ Modified bridge/culvert previously modeled in the FIS
   - ☐ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed) Replace 2# 66 in diameter RCP with new 6' x 7' Double Box Culvert

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) Double 6 ft wide x 7 ft x 50 ft long RCB

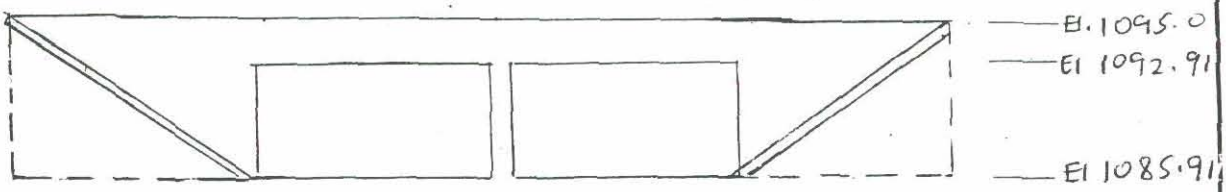
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Square top edge with concrete headwall and wing walls at 45°

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 Special Culvert Routine

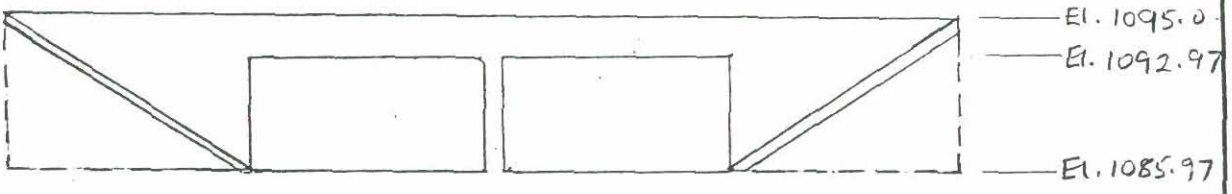
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

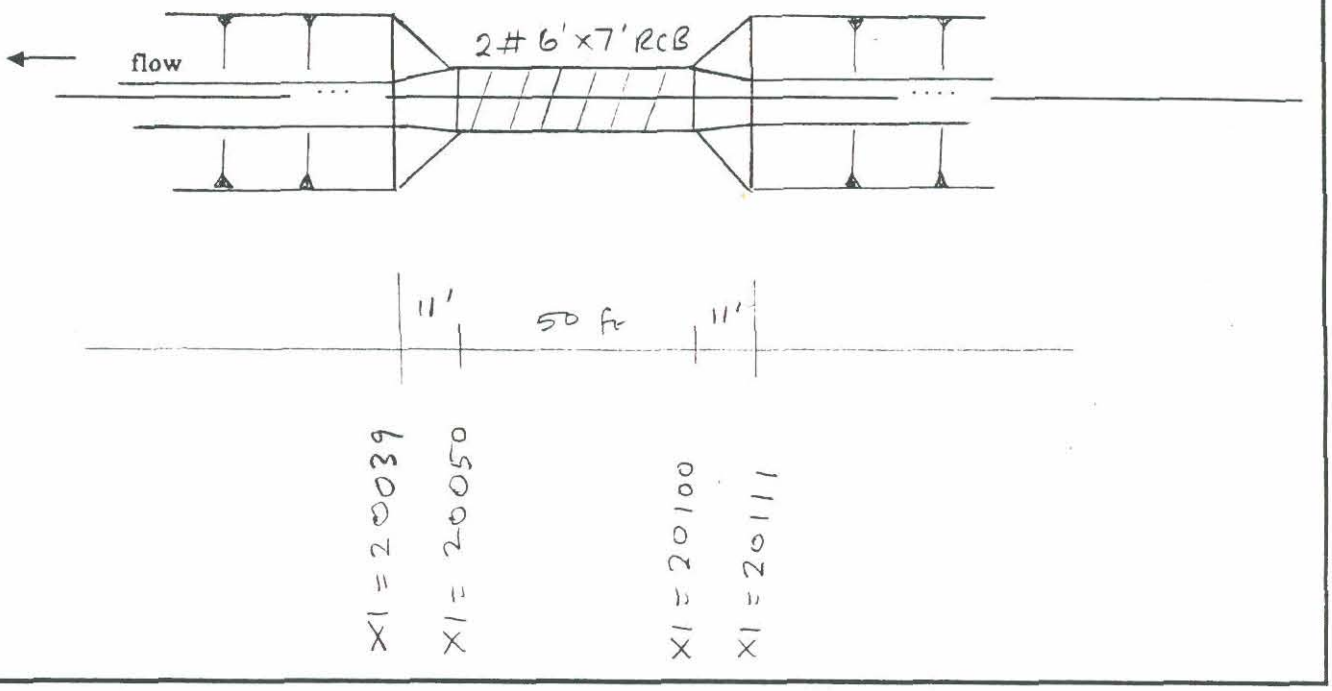
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	50 ft
Calculated culvert/bridge area (ft ²) by the hydraulic model, if applicable	N/A
Total culvert/bridge area (ft ²)	84 ft²

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face	1095.0	1095.0
Downstream face	1095.0	1095.0

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1095.0	1095.0
Downstream face	1095.0	1095.0

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1091.91	1092.68
Downstream face	1092.41	1093.08

Discharge	Low Flow Culv Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)	550		0	550

The maximum depth of flow over the roadway/railroad (ft.) 0

Weir length (ft.) 0

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face	13 ft	13 ft	N/A
Downstream face	13 ft	13 ft	N/A

Loss Coefficients

Entrance loss coefficient	0.20
Manning's "n" value assigned to the structure(s)	0.013
Friction loss coefficient through structure (s)	N/A
Other loss coefficients (e.g., bend manhole, etc.)	
Total loss coefficient	
Weir coefficient	3.0
Pier coefficient	
Contraction loss coefficient	0.1
Expansion loss coefficient	0.3

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	FEMA USE ONLY

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Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS - Dysart Drain Improvement

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Farm Road Butler Extension
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): X-Section 951 of Collector Channel
3. This revision reflects *(check one of the following)*:
   - [X] New bridge/culvert not modeled in the FIS
   - [ ] Modified bridge/culvert previously modeled in the FIS
   - [ ] New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway)
Double 10' x 4' Reinforced Concrets Box Culvert

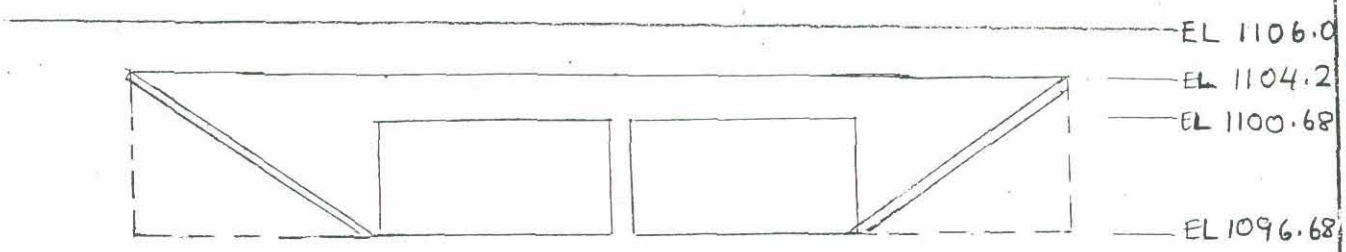
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) 45° Wing Walls with Headwall

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*)
HEC-2 without Special Culvert Routine

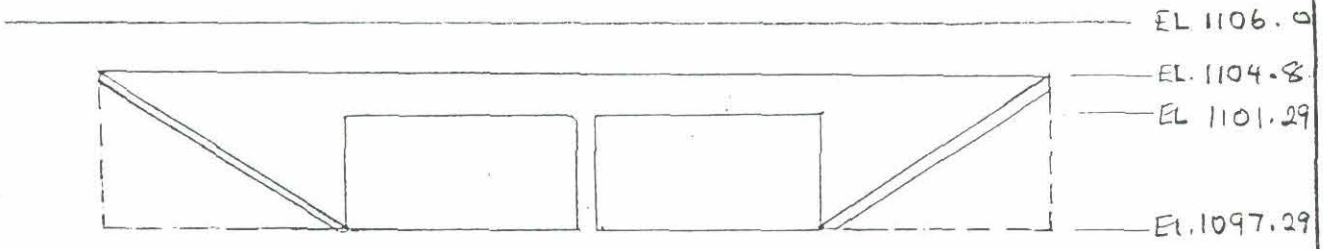
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

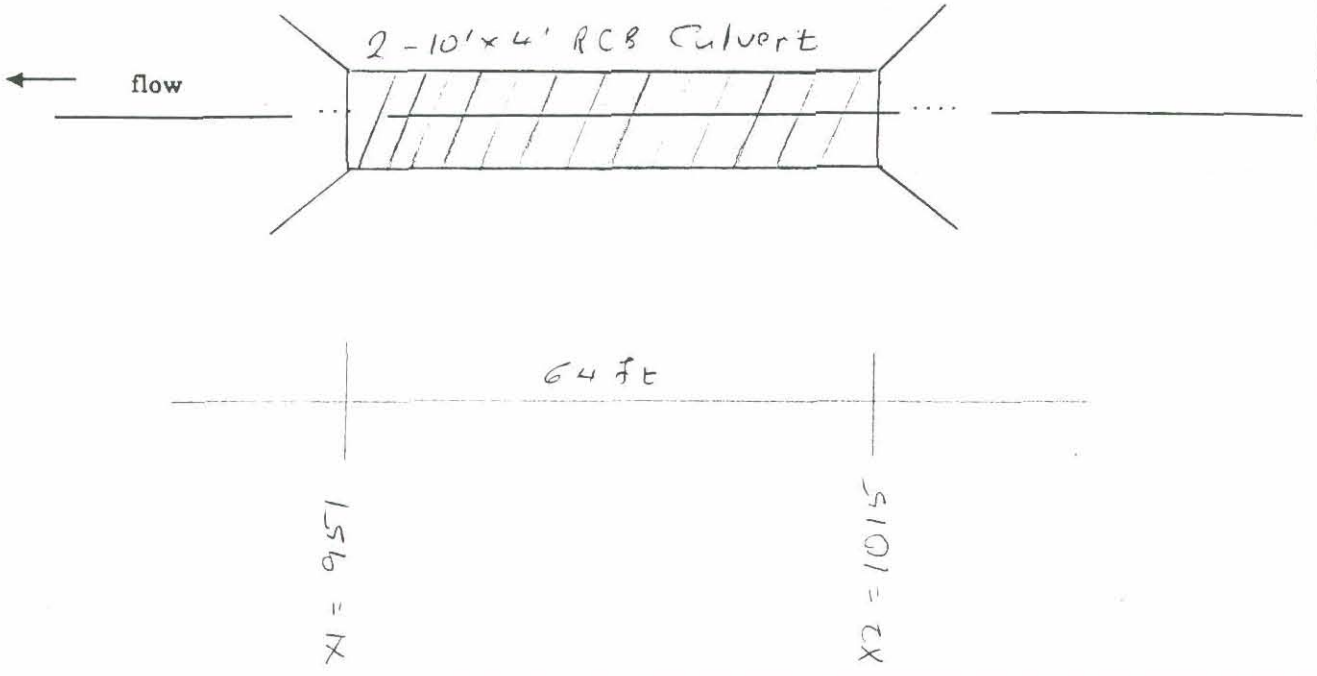
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	64 ft
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	
Total culvert/bridge area (ft²)	80 ft²

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face	1101.29	1101.29
Downstream face	1100.68	1100.68

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1106.0	1106.0
Downstream face	1106.0	1106.0

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1101.18	1103.03
Downstream face	1100.57	1102.42

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)		850	0	850

The maximum depth of flow over the roadway/railroad (ft.) 0

Weir length (ft.) 0

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face	20	20	
Downstream face	20	20	

Loss Coefficients

Entrance loss coefficient	
Manning's "n" value assigned to the structure(s)	0.012
Friction loss coefficient through structure (s)	
Other loss coefficients (e.g., bend manhole, etc.)	
Total loss coefficient	
Weir coefficient	
Pier coefficient	
Contraction loss coefficient	0.3
Expansion loss coefficient	0.5

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	**FEMA USE ONLY**

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Community Name: Maricopa County Unincorporated Areas, CIty of Glendale, Town of Surprise

Flooding Source: Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvements

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Leyton Farm Road on COllector Channel
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): Section 2245
3. This revision reflects *(check one of the following)*:
   - [X] New bridge/culvert not modeled in the FIS
   - [ ] Modified bridge/culvert previously modeled in the FIS
   - [ ] New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) Double 10' x 4' Reinforced Concrete Box Culvert

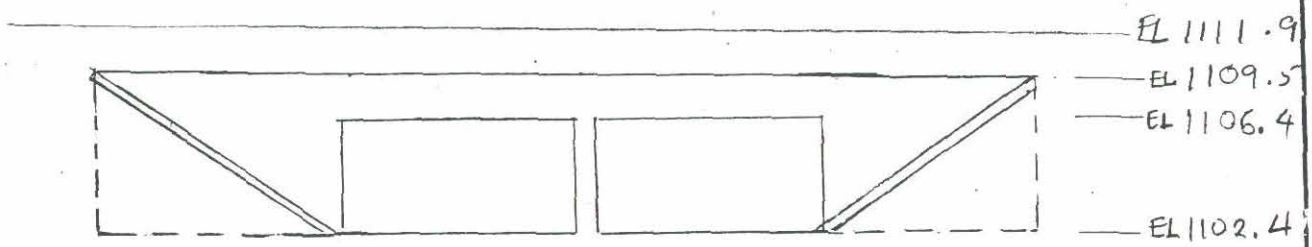
2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Wing Walls at 45° with square top edge.

3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 without Special CUlvert Routine due to supercritical Flow (i.e., Normal Bridge)

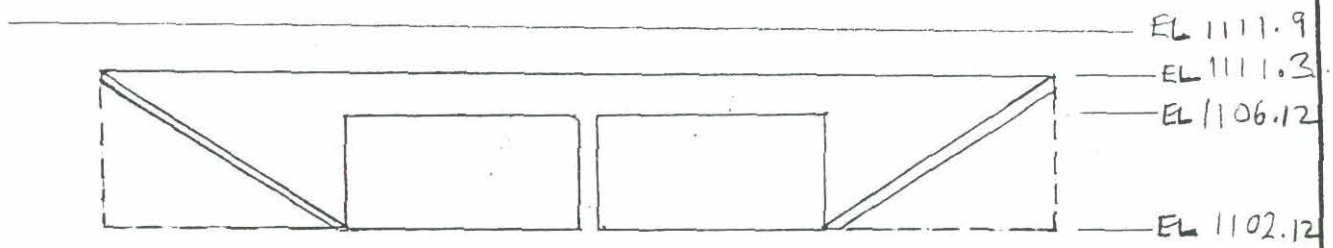
   If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

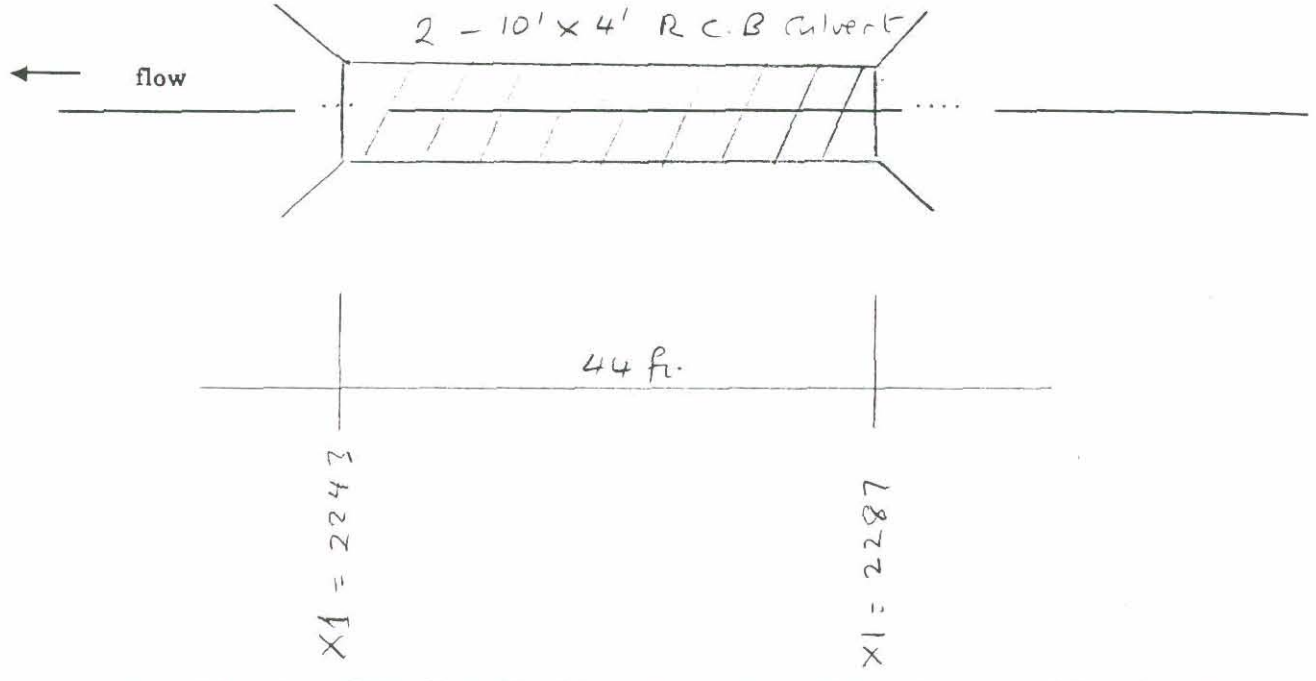
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s).



Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	44 ft.
Calculated culvert/bridge area (ft 2) by the hydraulic model, if applicable	
Total culvert/bridge area (ft 2)	80 ft 2

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face	1111.30	1111.30
Downstream face	1109.50	1109.50

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1111.9	1111.90
Downstream face	1111.9	1111.90

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1106.31	1107.18
Downstream face	1106.21	1107.08

Discharge	Low Flow	Pressure Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)		600	0	600

The maximum depth of flow over the roadway/railroad (ft.) 0

Weir length (ft.) 0

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face	20	20	
Downstream face	20	20	

3. ANALYSIS (Cont'd)

Loss Coefficients

Entrance loss coefficient	
Manning's "n" value assigned to the structure(s)	0.012
Friction loss coefficient through structure (s)	
Other loss coefficients (e.g., bend manhole, etc.)	
Total loss coefficient	
Weir coefficient	
Pier coefficient	
Contraction loss coefficient	0.3
Expansion loss coefficient	0.5

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **BRIDGE/CULVERT FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	**FEMA USE ONLY**

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Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Dysart Drain

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysart Drain Improvement

1. IDENTIFIER

1. Name of roadway, railroad, etc.: Outlet Channel of Detention Basin
2. Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier): X-Section 21721 of Dysart Drain (3067.0 for Outlet Channel)
3. This revision reflects *(check one of the following)*:

   ☒ New bridge/culvert not modeled in the FIS

   ☐ Modified bridge/culvert previously modeled in the FIS

   ☐ New analysis of bridge/culvert previously modeled in the FIS

   (Explain why new analysis was performed)

2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway) Two 6' x 6' Reinforced Concrete Box Culverts, Headwall

2. Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Wing Walls at 45° with square top edge

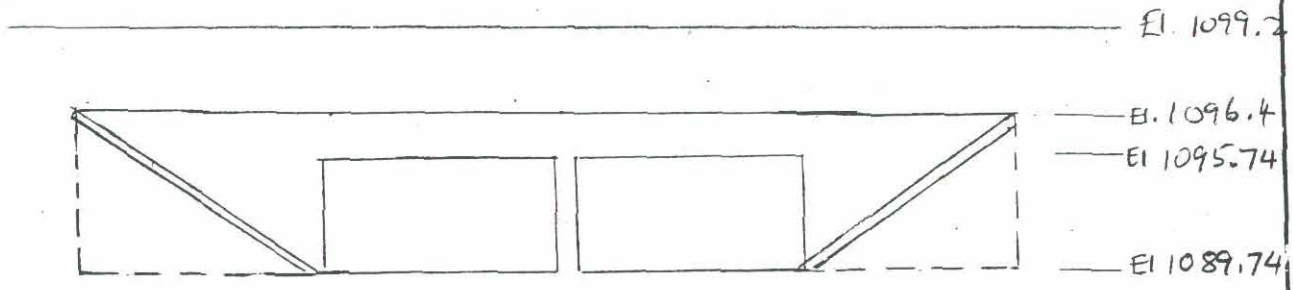
3. Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*) HEC-2 with Special Culvert Routine

   If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s). *(Attach justification)*

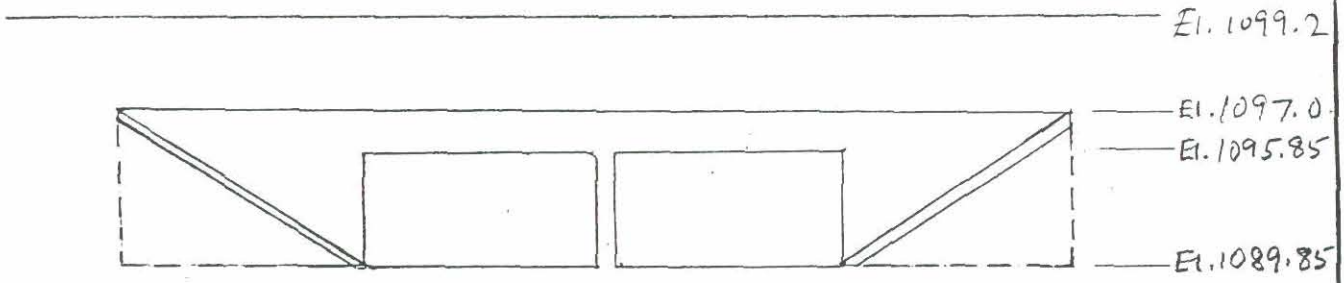
Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A
*** One form per new/revised bridge/culvert**

3. ANALYSIS

Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths.



Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



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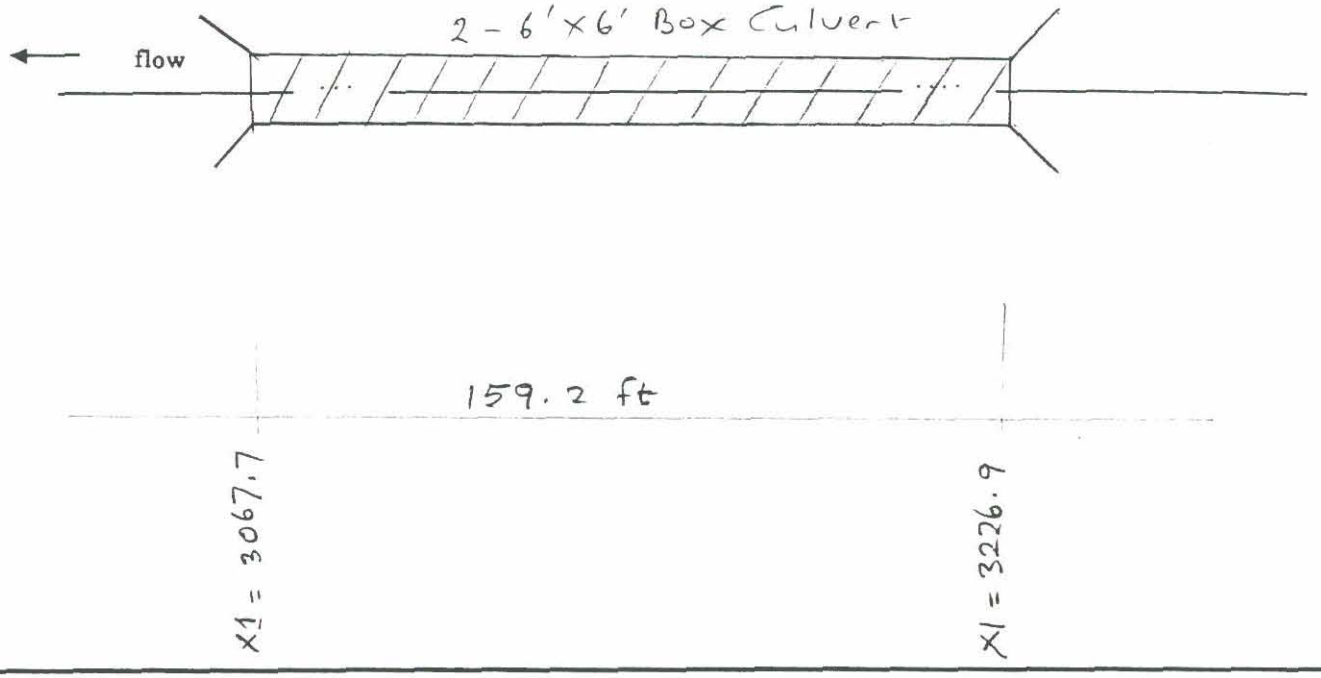


Attach plans of the structure (s) certified by a registered Professional Engineer.

Culvert length or bridge width (ft)	159.2 ft
Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable	
Total culvert/bridge area (ft²)	72 ft²

Elevations Above Which Flow is Effective for Overbanks

	Left Overbank	Right Overbank
Upstream face	1097.0	1097.0
Downstream face	1096.4	1096.4

Minimum Top of Road Elevation

	Left Overbank	Right Overbank
Upstream face	1099.2	1099.2
Downstream face	1099.2	1099.2

100-Year Elevations	Water Surface Elevations	Energy Gradient Elevations
Upstream face	1095.04	1095.75
Downstream face	1093.20	1094.96

Discharge	Low Flow	Pressure Flow Culvert Flow	Weir Flow	Total Flow
Amount of flow through/over the structure (s) (cfs)		446		446

The maximum depth of flow over the roadway/railroad (ft.) 0

Weir length (ft.) 0

Top Widths	Total Floodplain Width	Total Effective Flow Width	Floodway Width
Upstream face	12 ft	12 ft	
Downstream face	12 ft	12 ft	

Loss Coefficients

Entrance loss coefficient	0.3
Manning's "n" value assigned to the structure(s)	0.014
Friction loss coefficient through structure (s)	
Other loss coefficients (e.g., bend manhole, etc.)	
Total loss coefficient	
Weir coefficient	2.6
Pier coefficient	
Contraction loss coefficient	0.1
Expansion loss coefficient	0.3

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ..... ☐ Yes ☒ No

   B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment *(bed material)* load?
   _____cfs *(attach gradation curve)*

   Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

   B. Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

   If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

5. FLOODWAY ANALYSIS N/A

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*:

Attach analysis.

CITY OF GLENDALE ANNEXATION OF LUKE AIR FORCE BASE

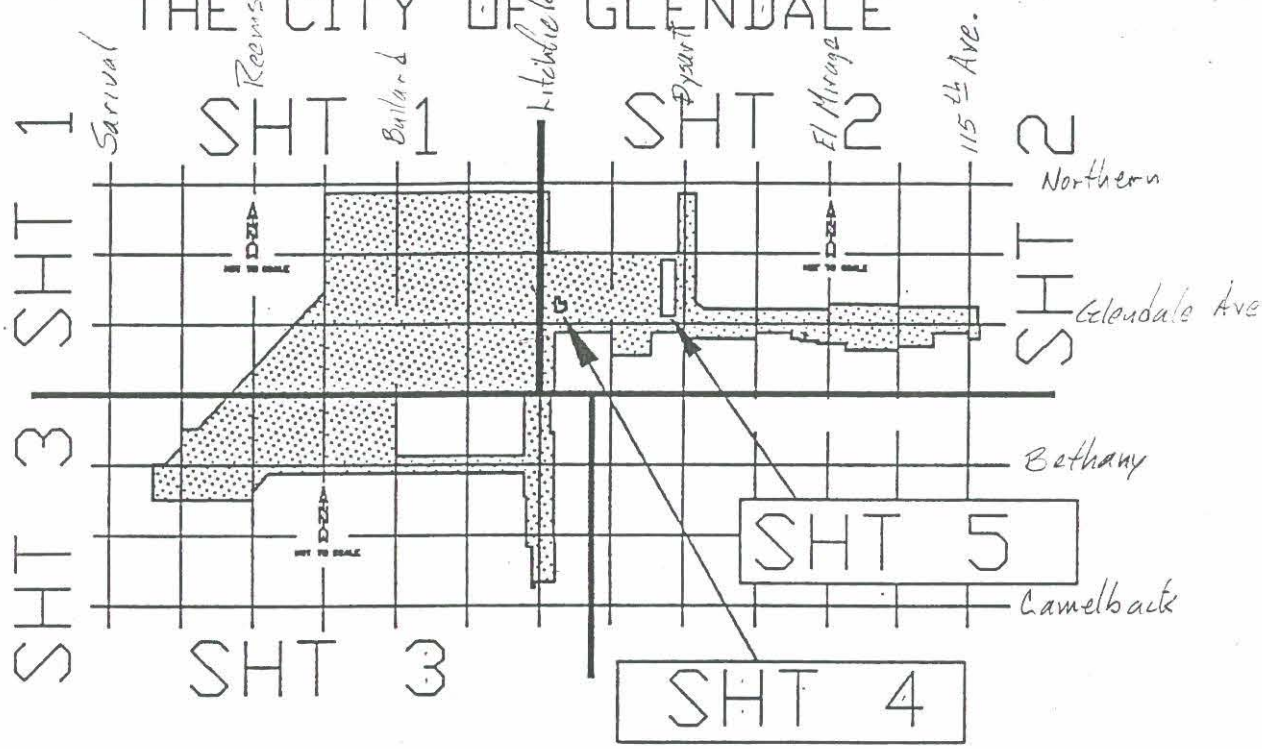
ANNEXATION MAPS AND DOCUMENTS

950465074

RECEIVED
JUL 20 1995
7:55 a.m.

OFFICIAL RECORDS OF
MARICOPA COUNTY RECORDER
HELEN PURCELL
95-0422112 07/20/95 08:33
KATHERINE 1 OF 1

PROPOSED ANNEXATION BY THE CITY OF GLENDALE



I, Elaine M. Scruggs, MAYOR OF THE CITY OF GLENDALE, DO HEREBY CERTIFY THAT THE ACCOMPANYING PLAT IS A TRUE, CORRECT, AND ACCURATE MAP OF THE TERRITORY ANNEXED UNDER ORDINANCE NO. 1846 NEW SERIES, DULY ENACTED BY THE MAYOR AND COUNCIL OF THE CITY OF GLENDALE, COUNTY OF MARICOPA, STATE OF ARIZONA, ON THE 25TH DAY OF JULY, 1995, AND SHOWN ON SAID MAP AS PART OF THE TERRITORY TO BE INCLUDED WITHIN THE CORPORATE LIMITS OF THE CITY OF GLENDALE.

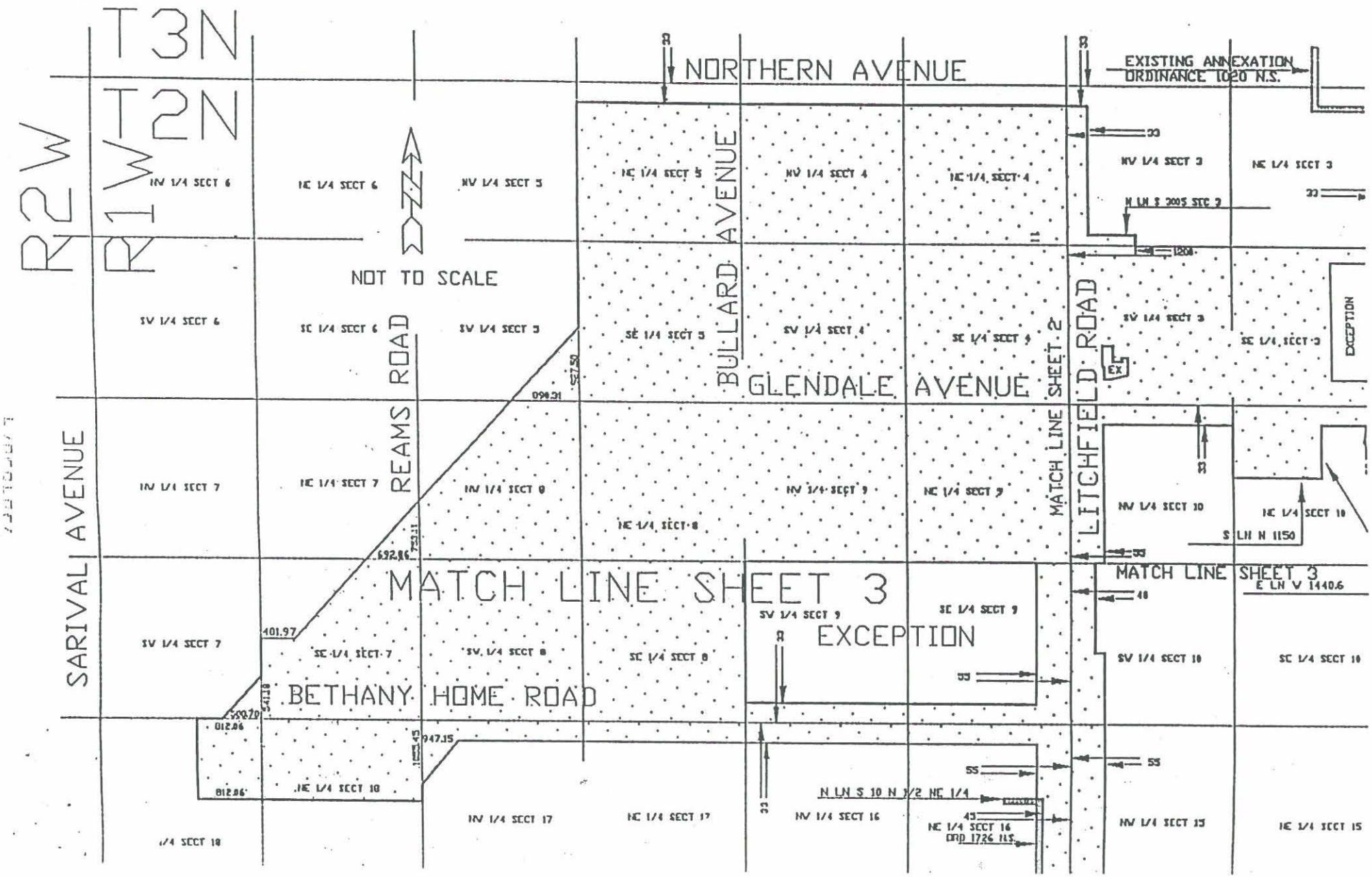
Elaine M. Scruggs
MAYOR

ATTEST
CITY CLERK

Two Constr. prj's Glendale - Litchfield to 115th
Nov 96 Bid
Cant Do Rec & Dedicate

Litchfield - 1/4 mi S/o Glendale to 1/2 mi N/o Glendale

SHEET 1


T3N
T2N
R2W
R1W
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NOT TO SCALE
BULLARD AVENUE
GLENDALE AVENUE
LITCHFIELD ROAD
REAMS ROAD
SARIVAL AVENUE
MATCH LINE SHEET 2
MATCH LINE SHEET 3
EXCEPTION
BETHANY HOME ROAD
NV 1/4 SECT 6
NE 1/4 SECT 6
NV 1/4 SECT 5
NE 1/4 SECT 5
NV 1/4 SECT 4
NE 1/4 SECT 4
NV 1/4 SECT 3
NE 1/4 SECT 3
SV 1/4 SECT 6
SC 1/4 SECT 6
SV 1/4 SECT 5
SE 1/4 SECT 5
SV 1/4 SECT 4
SC 1/4 SECT 4
SV 1/4 SECT 3
SC 1/4 SECT 3
NV 1/4 SECT 7
NE 1/4 SECT 7
NV 1/4 SECT 8
NV 1/4 SECT 9
NE 1/4 SECT 9
NE 1/4 SECT 8
NV 1/4 SECT 10
NE 1/4 SECT 10
SV 1/4 SECT 7
SC 1/4 SECT 7
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SV 1/4 SECT 9
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SV 1/4 SECT 10
SC 1/4 SECT 10
NE 1/4 SECT 10
NV 1/4 SECT 17
NE 1/4 SECT 17
NV 1/4 SECT 16
NV 1/4 SECT 15
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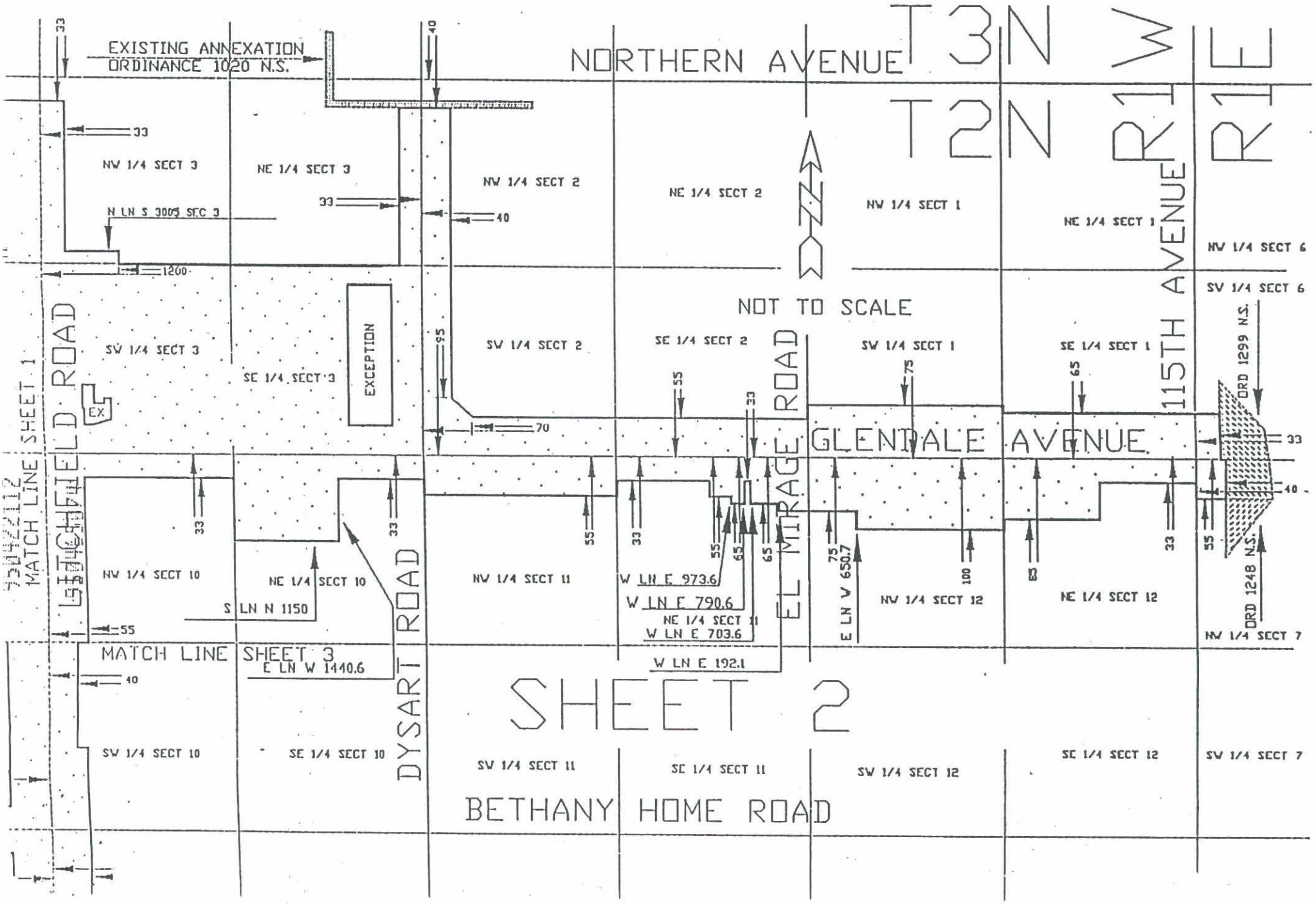
N LN S 10 N 1/2 NE 1/4
S LN N 1150
E LN V 1440.6
N LN S 2005 SEC 2
EX


EXISTING ANNEXATION
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T2N R1E
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NW 1/4 SECT 2
NE 1/4 SECT 2
NW 1/4 SECT 1
NE 1/4 SECT 1
NW 1/4 SECT 6
SW 1/4 SECT 6
N LN S 3005 SEC 3
NOT TO SCALE
SW 1/4 SECT 3
SE 1/4 SECT 3
EXCEPTION
SW 1/4 SECT 2
SE 1/4 SECT 2
SW 1/4 SECT 1
SE 1/4 SECT 1
115TH AVENUE
ORD 1299 N.S.
LITCHFIELD ROAD
MATCH LINE SHEET 1
GLENDALE AVENUE
EL MIRAGE ROAD
NW 1/4 SECT 10
NE 1/4 SECT 10
S LN N 1150
NW 1/4 SECT 11
W LN E 973.6
W LN E 790.6
NE 1/4 SECT 11
W LN E 703.6
E LN W 650.7
NW 1/4 SECT 12
NE 1/4 SECT 12
ORD 1248 N.S.
NW 1/4 SECT 7
MATCH LINE SHEET 3
E LN W 1440.6
DYSART ROAD
W LN E 192.1
SHEET 2
SW 1/4 SECT 10
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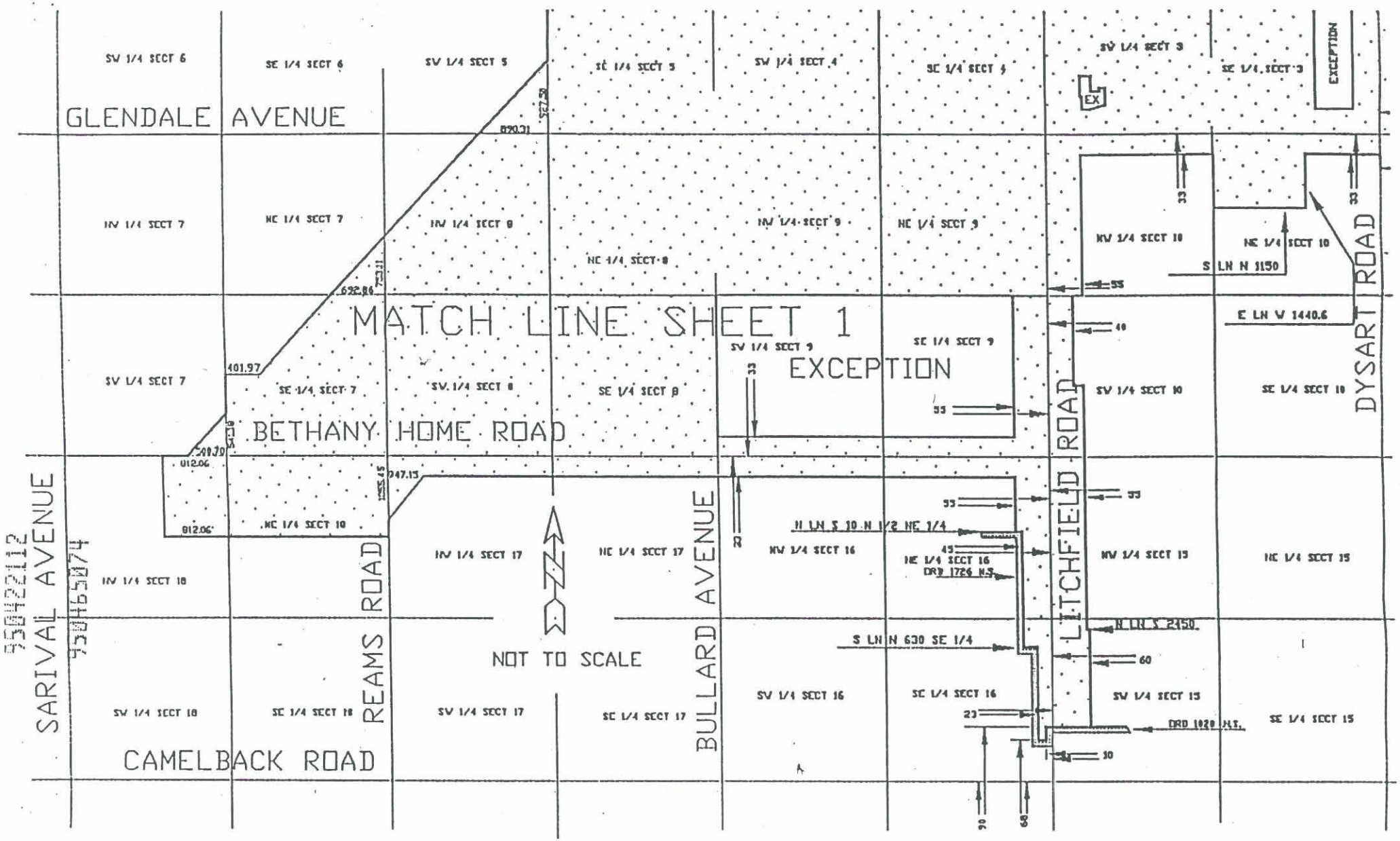
SW 1/4 SECT 12
SE 1/4 SECT 12
SW 1/4 SECT 7
BETHANY HOME ROAD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MATCH LINE SHEET 1
EXCEPTION
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SARIVAL AVENUE
REAMS ROAD
BULLARD AVENUE
LITCHFIELD ROAD
DYSART ROAD
CAMELBACK ROAD
NOT TO SCALE
SV 1/4 SECT 6
SE 1/4 SECT 6
SV 1/4 SECT 5
SE 1/4 SECT 5
SV 1/4 SECT 4
SE 1/4 SECT 4
SV 1/4 SECT 3
SE 1/4 SECT 3
EXCEPTION
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SV 1/4 SECT 15
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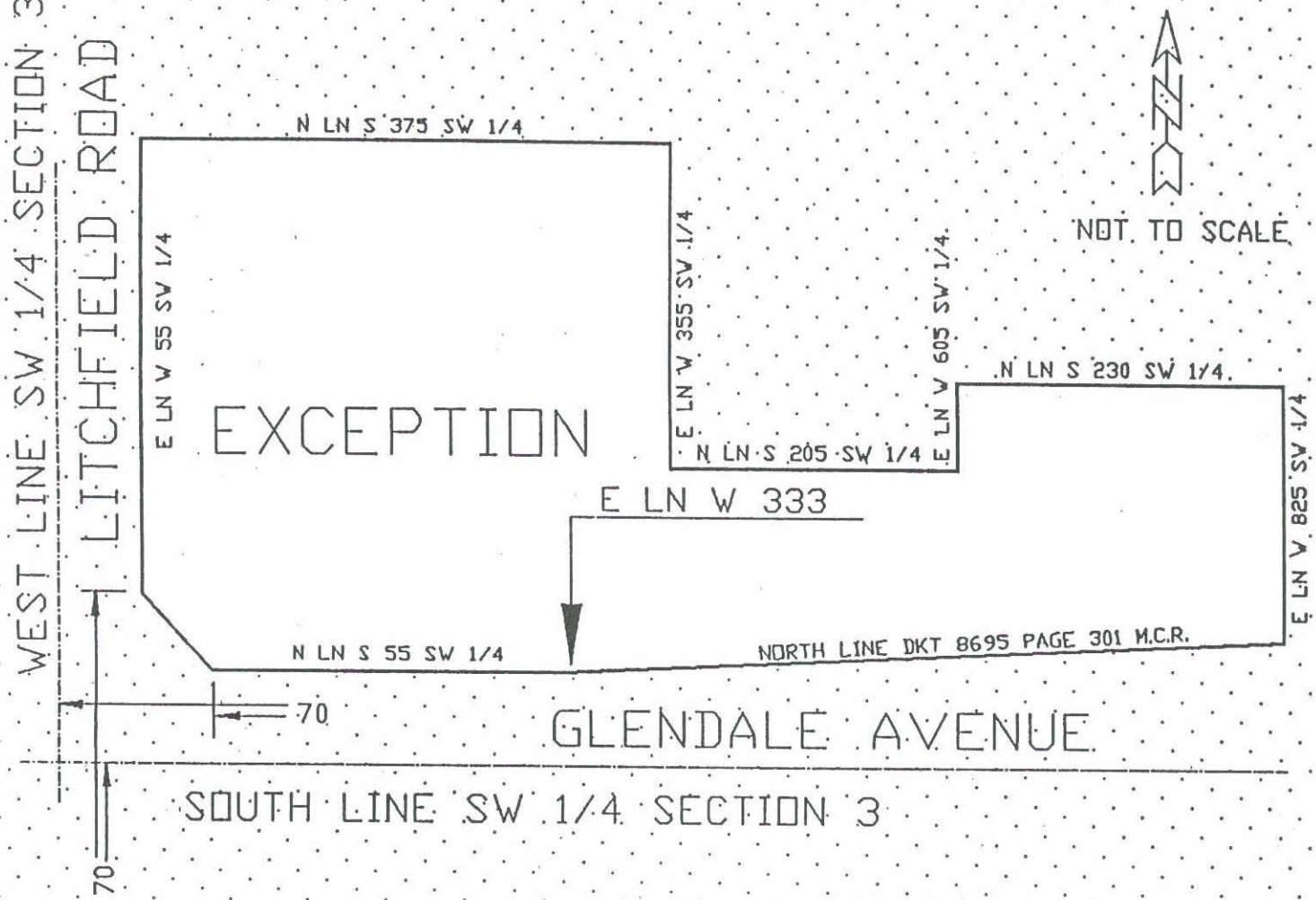
SE 1/4 SECT 18
SV 1/4 SECT 17
SE 1/4 SECT 17

SHEET 3



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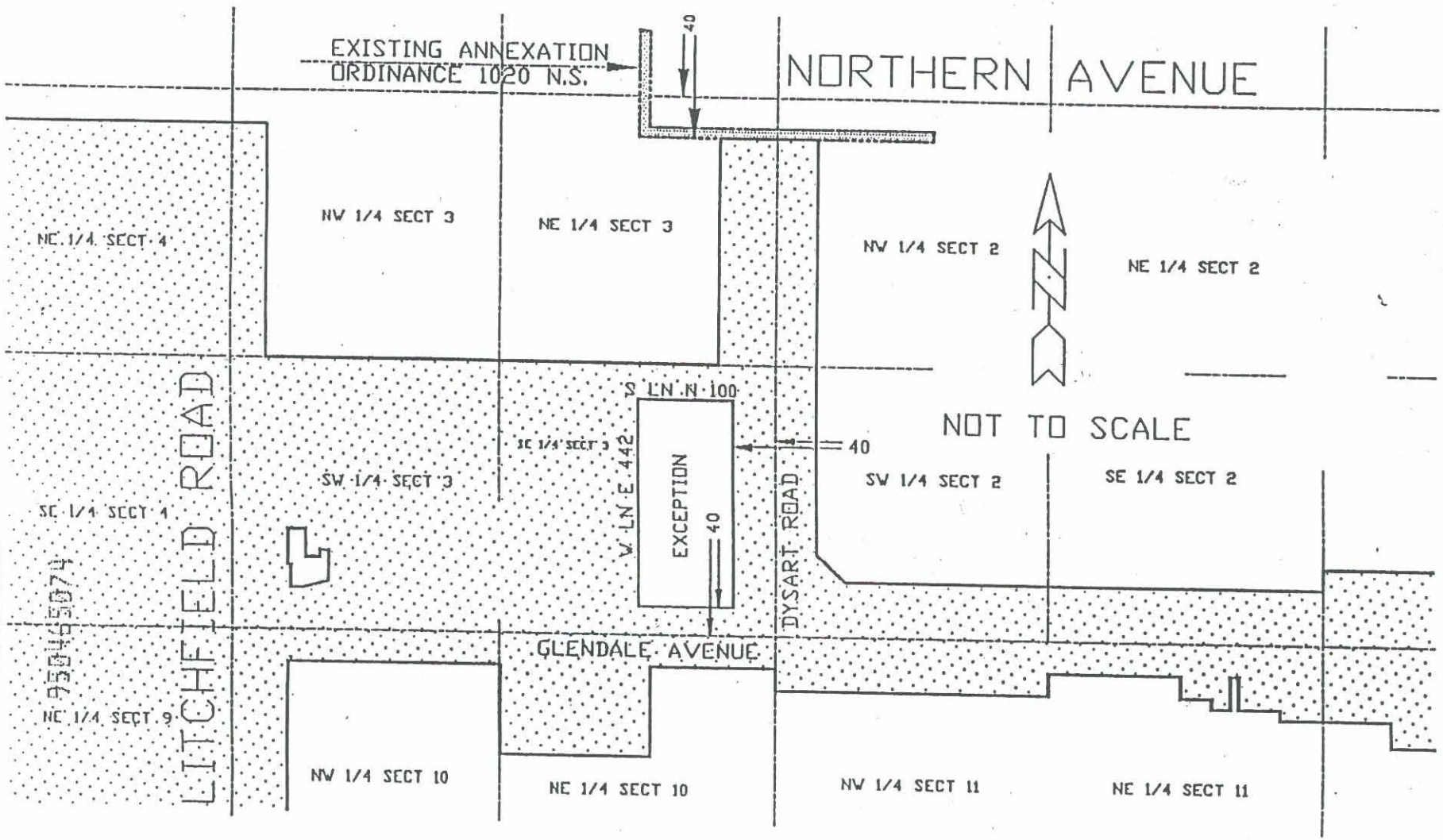
SHEET 4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ORDINANCE 1020 N.S.
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NE 1/4 SECT 4
NW 1/4 SECT 2
NE 1/4 SECT 2
NOT TO SCALE
S LN N 100
SE 1/4 SECT 3
W LN E 442
EXCEPTION
40
40
SW 1/4 SECT 3
SW 1/4 SECT 2
SE 1/4 SECT 2
SE 1/4 SECT 4
LITCHFIELD ROAD
DYSART ROAD
GLENDALE AVENUE
NE 1/4 SECT 9
NW 1/4 SECT 10
NE 1/4 SECT 10
NW 1/4 SECT 11
NE 1/4 SECT 11

SHEET 5

950465074

ORDINANCE NO. 1846 NEW SERIES

AN ORDINANCE OF THE COUNCIL OF THE CITY OF GLENDALE, MARICOPA COUNTY, ARIZONA, EXTENDING AND INCREASING THE CORPORATE LIMITS OF THE CITY OF GLENDALE, MARICOPA COUNTY, STATE OF ARIZONA, PURSUANT TO THE PROVISIONS OF TITLE 9, CHAPTER 4, ARTICLE 7, ARIZONA REVISED STATUTES AND AMENDMENTS THERETO, BY ANNEXING THERETO CERTAIN TERRITORY CONTIGUOUS TO THE EXISTING CITY LIMITS OF THE CITY OF GLENDALE (ANNEXATION AREA NO. 125).

WHEREAS, the City of Glendale on June 12, 1995, filed in the Maricopa County Recorder's Office a blank petition requesting annexation and setting forth a description and an accurate map of all the exterior boundaries of the territory contiguous to the City proposed to be annexed;

WHEREAS, after filing the blank petition, the City of Glendale held a public hearing on July 11, 1995, to discuss the annexation proposal. The public hearing was held in accordance with applicable state law;

WHEREAS, signatures on petitions filed for annexation were not obtained for a waiting period of thirty (30) days after filing of the blank petition;

WHEREAS, within one year after the last day of the thirty day waiting period, a petition in writing was circulated and signed by the owners of one-half or more in value of the real and personal property and more than one-half of the persons owning real and personal property that would be subject to taxation by the City of Glendale in the event of annexation, as shown by the last assessment of the property, and filed in the office of the Maricopa County Recorder's Office on July 20, 1995;

WHEREAS, no alterations increasing or reducing the territory sought to be annexed were made after the petition had been signed by a property owner;

WHEREAS, all information contained in the filings, the notices, the petition, tax and property rolls and other matters regarding a proposed or final annexation were made available by the Clerk of the City of Glendale for public inspection during regular business hours; and

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WHEREAS, the Mayor and Council of the City of Glendale, Arizona, are desirous of complying with said petitions and extending and increasing the corporate limits of the City of Glendale to include said territory.

NOW, THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF GLENDALE as follows:

SECTION 1. That the following described territory be, and the same hereby is, annexed to the City of Glendale, and that the present corporate limits be, and the same hereby are, extended and increased to include the following described territory contiguous to the present City limits of Glendale, to wit:

[See Exhibit A attached hereto and incorporated herein by this reference.]

SECTION 2. That a copy of this ordinance, together with an accurate map of the territory hereby annexed to the City of Glendale, certified by the Mayor of said City, be forthwith filed and recorded in the office of the County Recorder of Maricopa County, Arizona.

PASSED, ADOPTED AND APPROVED by the Mayor and Council of the City of Glendale, Maricopa County, Arizona, this 25th day of July, 1995.

Edwin M. Gruggs
MAYOR

ATTEST:

Pamela Oliveira
City Clerk (SEAL)

APPROVED AS TO FORM:

Peter Van Haren
City Attorney

REVIEWED BY:

Pamela J. Kavanagh
City Manager

1846

950465074

GLENDALE ANNEXATION PETITION

TO THE HONORABLE MAYOR AND COUNCIL OF THE CITY OF GLENDALE:

WE, THE UNDERSIGNED, BEING THE OWNERS OF REAL AND PERSONAL PROPERTY WITHIN THE TERRITORY HEREAFTER DESCRIBED, REQUEST THE CITY OF GLENDALE TO ANNEX OUR PROPERTY, SAID PROPERTY BEING IN A TERRITORY WHICH IS CONTIGUOUS TO BUT NOT NOW EMBRACED WITHIN THE TERRITORIAL LIMITS OF THE CITY OF GLENDALE, ALL OF WHICH TERRITORY IS WITHIN THE FOLLOWING DESCRIBED AREA, T0-WIT:

That Portion of Sections One (1), Two (2), Three (3), Four (4), Five (5), Seven (7), Eight (8), Nine (9), Ten (10), Eleven (11), Twelve (12), Fifteen (15), Sixteen (16), Seventeen (17), and Eighteen (18), Township Two (2) North, Range One (1) West, and Sections Six (6), and Seven (7) Township Two (2) North, Range One (1) East, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, more particularly described as follows:

BEGINNING at a point on the South line of the Southwest quarter of Section 6, Township 2 North, Range 1 East, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, said point being 33.00 feet East of the West line of the Southwest quarter of said Section 6, and said point also being the Southwest corner of existing annexation Ordinance #1299 N.S.;

THENCE Northerly, along the East line of the West 33.00 feet of the Southwest quarter of said Section 6, also being the West line of said existing annexation, to the North line of the South 65.00 feet of the Southwest quarter of said Section 6;

THENCE Westerly, leaving the West line of said existing annexation, along the North line of the South 65.00 feet of the Southwest quarter of said Section 6, to the West line of the Southwest quarter of said Section 6;

THENCE continuing Westerly, along the North line of the South 65.00 feet of the Southeast quarter of Section 1, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, to the West line of the Southeast quarter of said Section 1;

THENCE Northerly, along the West line Southeast quarter of said Section 1, to a point on the North line of the South 75.00 feet of the Southwest quarter of said Section 1;

THENCE Westerly, along the North line of the South 75.00 feet of the Southwest quarter of said Section 1, to the West line of the Southwest quarter of said Section 1;

THENCE Southerly, along the West line of the Southwest quarter of said Section 1, to a point on the North line of the South 55.00 feet of the Southeast quarter of Section 2, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona;

THENCE Westerly, along the North line of the South 55.00 feet of the Southeast quarter of said Section 2, to the West line of the Southeast quarter of said Section 2;

THENCE continuing Westerly, along the North line of the South 55.00 feet of the Southwest quarter of said Section 2, to the East line of the West 70.00 feet of the Southwest quarter of said Section 2;

THENCE Northwesterly to a point on the East line of the West 40.00 feet of the Southwest quarter of said Section 2, said point being 95.00 feet North of the South line of the Southwest quarter of said Section 2;

THENCE Northerly, along the East line of the West 40.00 feet of the Southwest quarter of said Section 2, to a point on the North line of the Southwest quarter of said Section 2;

THENCE continuing Northerly, along the East line of the West 40.00 feet of the Northwest quarter of said Section 2, to a point on the South line of the North 40.00 feet of the Northwest quarter of said Section 2, said point also being on the South line of existing annexation Ordinance 1020 N.S.;

THENCE Westerly, along the South line of the North 40.00 feet of the Northwest quarter of said Section 2, also being the South line of said existing annexation, to the West line of the Northwest quarter of said Section 2;

THENCE continuing Westerly, along the South line of the North 40.00 feet of the Northeast quarter of Section 3, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, also being the South line of said existing annexation, to the West line of the East 33.00 feet of the Northeast quarter of said Section 3;

THENCE Southerly, leaving the South line of said existing annexation, along the West line of the East 33.00 feet of the Northeast quarter of said Section 3, to a point on the South line of the Northeast quarter of said Section 3;

THENCE Westerly, along the South line of the Northeast quarter of said Section 3, to the West line of the Northeast quarter of said Section 3;

THENCE continuing Westerly, along the South line of the Northwest quarter of said Section 3, to the East line of the West 1200 feet of said Section 3;

THENCE Northerly, along the East line of the West 1200.00 feet of said Section 3, to a point on the North line of the South 3005.00 feet of said Section 3;

THENCE Westerly, along the North line of the South 3005.00 feet of said Section 3, to a point on the East line of the West 33.00 feet of the Northwest quarter of said Section 3;

THENCE Northerly, along the East line of the West 33.00 feet of the Northwest quarter said Section 3, to a point on the South line of the North 33.00 feet of the Northwest quarter said Section 3;

THENCE Westerly, along the South line of the North 33.00 feet of the Northwest quarter of said Section 3, to the West line of the Northwest quarter of said Section 3;

THENCE continuing Westerly, along the South line of the North 33.00 feet of the Northeast quarter of Section 4, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, to the West line of the Northeast quarter of said Section 4;

THENCE continuing Westerly, along the South line of the North 33.00 feet of the Northwest quarter of said Section 4, to the West line of the Northwest quarter of said Section 4;

THENCE continuing Westerly, along the South line of the North 33.00 feet of the Northeast quarter of Section 5, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, to the West line of the Northeast quarter of said Section 5;

THENCE Southerly along the West line of the Northeast quarter of said Section 5, to a point on the South line of the Northeast quarter of said Section 5;

THENCE continuing Southerly along the West line of the Southeast quarter of said Section 5, to a point being 927.50 feet North of the Southwest corner of the Southeast quarter of said Section 5;

THENCE Southwesterly to a point on the South line of the Southwest quarter of said Section 5, being 890.31 feet Westerly from the Southeast corner of the Southwest quarter of said Section 5;

THENCE continuing Southwesterly to a point on the West line of the Northwest quarter of Section 8, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, being 753.11 Northerly from the Southwest corner of the Northwest quarter of said Section 8;

THENCE continuing Southwesterly to a point on the South line of the Northeast quarter of Section 7, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, being 692.86 feet Westerly from the Southeast corner of the Northeast quarter of said Section 7;

THENCE continuing Southwesterly to a point on the North line of the South half of the Southeast quarter of said Section 7, being 401.97 feet Easterly from the Northwest corner of the South half of the Southeast quarter of said Section 7;

THENCE Westerly, along the North line of the South half of the Southeast quarter of said Section 7, to the Northwest corner of the South half of the Southeast quarter of said Section 7;

THENCE Southerly along the West line of the Southeast quarter of said Section 7, to a point being 541.18 feet North of the Southwest corner of the Southeast quarter of said Section 7;

THENCE Southwesterly to a point on the North line of the Northeast quarter of the Northwest quarter of Section 18, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, being 500.70 feet Westerly from the Northeast corner of the Northeast quarter of the Northwest quarter of said Section 18;

THENCE Westerly, along the North line of the Northeast quarter of the Northwest quarter of said Section 18, to the Northwest corner of the East 812.06 feet of the Northeast quarter of the Northwest quarter of said Section 18;

THENCE Southerly along the West line of the East 812.06 feet of the Northeast quarter of the Northwest quarter of said Section 18, to the Southwest corner of the East 812.06 feet of the Northeast quarter of the Northwest quarter of said Section 18;

THENCE Easterly, along the South line of the Northeast quarter of the Northwest quarter of said Section 18, to the East line of the Northeast quarter of the Northwest quarter of said Section 18;

THENCE continuing Easterly, along the South line of the North half of the Northeast quarter of said Section 18, to the East line of the Northeast quarter of said Section 18;

THENCE Northerly, along the East line of the Northeast quarter of said Section 18, to a point being 1055.45 feet Southerly from the Northeast corner of the Northeast quarter of said Section 18;

THENCE Northeasterly, to a point being on the South line of the North 33.00 feet of the Northwest quarter of Section 17, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, being 947.15 feet Easterly from the West line of the Northwest quarter of said Section 17;

THENCE Easterly, along the South line of the North 33.00 feet of the Northwest quarter of said Section 17, to the East line of the Northwest quarter of said Section 17;

THENCE continuing Easterly, along the South line of the North 33.00 feet of the Northeast quarter of said Section 17, to the East line of the Northeast quarter of said Section 17;

THENCE continuing Easterly, along the South line of the North 33.00 feet of the Northwest quarter of Section 16, Township 2 North, Range 1 West, of the

Gila and Salt River Base and Meridian, Maricopa County, Arizona, to the East line of the Northwest quarter of said Section 16;

THENCE continuing Easterly, along the South line of the North 33.00 feet of the Northeast quarter of said Section 16, to the West line of the East 55.00 feet of the Northeast quarter of said Section 16;

THENCE Southerly, along the West line of the East 55.00 feet of the Northeast quarter of said Section 16, to the North line of the South 10.00 feet of the North half of the Northeast quarter of said Section 16, said point being on the North line of existing annexation Ordinance #1726 N.S.;

THENCE Easterly, along the North line of the South 10.00 feet of the North half of the Northeast quarter of said Section 16, being also along the North line of said existing annexation to a point on the West line of the East 45.00 feet of the Northeast quarter of said Section 16, said point being a corner of said existing annexation;

THENCE Southerly, along the West line of the East 45.00 feet of the Northeast quarter of said Section 16, being also along the East line of said existing annexation, to the South line of the Northeast quarter of said Section 16;

THENCE continuing Southerly, along the West line of the East 45.00 feet of the Southeast quarter of said Section 16, to the South line of the North 630.00 feet of the Southeast quarter of said Section 16, said point being a corner of said existing annexation;

THENCE Easterly, along the South line of the North 630.00 feet of the Southeast quarter of said Section 16, to the West line of the East 23.00 feet of the Southeast quarter of said Section 16, said point being a corner of said existing annexation;

THENCE Southerly, along the West line of the East 23.00 feet of the Southeast quarter of said Section 16, to the North line of the South 68.00 feet of the Southeast quarter of said Section 16, said point being the Southeast corner of said existing annexation and also being on the North line of existing annexation Ordinance #1020 N.S.;

THENCE Easterly, along the North line of the South 68.00 feet of the Southeast quarter of said Section 16, being also the North line of said existing annexation, to the West line of the East 10.00 feet of the Southeast quarter of said Section 16, said point being a corner of said existing annexation;

THENCE Northerly, along the West line of the East 10.00 feet of the Southeast quarter of said Section 16, being also the West line of said existing annexation, to a point on the North line of the South 90.00 feet of said Section 16, said point being a corner of said existing annexation;

THENCE Easterly, along the North line of the South 90.00 feet of the Southeast quarter of said Section 16, being also the North line of said existing annexation, to a point on the East line of the Southeast quarter said Section 16;

THENCE continuing Easterly, along the North line of the South 90.00 feet of the Southwest quarter of Section 15, Township 2 North, Range 1 West, of the

Gila and Salt River Base and Meridian, Maricopa County, Arizona, being also the North line of said existing annexation, to the East line of the West 60.00 feet of the Southwest quarter of said Section 15;

THENCE Northerly, leaving the North line of said existing annexation, along the East line of the West 60.00 feet of the Southwest quarter of said Section 15, to the North line of the South 2450.00 feet of the Southwest quarter of said Section 15;

THENCE Westerly, along the North line of the South 2450.00 feet of the Southwest quarter of said Section 15, to the East line of the West 55.00 feet of the Southwest quarter of said Section 15;

THENCE Northerly, along the East line of the West 55.00 feet of the Southwest quarter of said Section 15, to the North line of the Southwest quarter of said Section 15;

THENCE continuing Northerly, along the East line of the West 55.00 feet of the Northwest quarter of said Section 15, to the North line of the Northwest quarter of said Section 15;

THENCE continuing Northerly, along the East line of the West 55.00 feet of the Southwest quarter of Section 10, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, to the North line of the South half of the Southwest quarter of said Section 10;

THENCE Westerly, along the North line of the South half of the Southwest quarter of said Section 10, to the East line of the West 40.00 feet of the Southwest quarter of said Section 10;

THENCE Northerly, along the East line of the West 40.00 feet of the Southwest quarter of said Section 10, to the North line of the Southwest quarter of said Section 10;

THENCE Easterly along the South line of the Northwest quarter of said Section 10, to the East line of the West 55.00 feet of the Northwest quarter of said Section 10;

THENCE Northerly, along the East line of the West 55.00 feet of the Northwest quarter of said Section 10, to the South line of the North 33.00 feet of the Northwest quarter of said Section 10;

THENCE Easterly, along the South line of the North 33.00 feet of the Northwest quarter of said Section 10, to the East line of the Northwest quarter of said Section 10;

THENCE Southerly, along the East line of the Northwest quarter of said Section 10, to the South line of the North 1150.00 feet of the Northeast quarter of said Section 10;

THENCE Easterly, along the South line of the North 1150.00 feet of the Northeast quarter of said Section 10, to the East line of the West 1440.60 feet of the Northeast quarter of said Section 10;

THENCE Northerly, along the East line of the West 1440.60 feet of the Northeast quarter of said Section 10, to the South line of the North 33.00 feet of the Northeast quarter of said Section 10;

THENCE Easterly, along the South line of the North 33.00 feet of the Northeast quarter of said Section 10, to the East line of the Northeast quarter of said Section 10;

THENCE Southerly, along the East line of the Northeast quarter of said Section 10, to the South line of the North 55.00 feet of the Northeast quarter of said Section 10;

THENCE Easterly, along the South line of the North 55.00 feet of the Northwest quarter of Section 11, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, to the East line of the Northwest quarter of said Section 11;

THENCE Northerly, along the East line of the Northwest quarter of said Section 11, to the South line of the North 33.00 feet of the Northwest quarter of said Section 11;

THENCE Easterly, along the South line of the North 33.00 feet of the Northeast quarter of said Section 11, to the East line of the Northwest quarter of the Northeast quarter of said Section 11;

THENCE Southerly, along the East line of the Northwest quarter of the Northeast quarter of said Section 11, to the South line of the North 55.00 feet of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE Easterly, along the South line of the North 55.00 feet of the Northeast quarter of the Northeast quarter of said Section 11, to the West line of the East 973.60 feet of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE Southerly, along the West line of the East 973.60 feet of the Northeast quarter of the Northeast quarter of said Section 11, to the South line of the North 65.00 feet of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE Easterly, along the South line of the North 65.00 feet of the Northeast quarter of the Northeast quarter of said Section 11, to the West line of the East 790.60 feet of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE Northerly, along the West line of the East 790.60 feet of the Northeast quarter of the Northeast quarter of said Section 11, to the South line of the North 33.00 feet of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE Easterly, along the South line of the North 33.00 feet of the Northeast quarter of the Northeast quarter of said Section 11, to the West line of the East 703.60 feet of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE Southerly, along the West line of the East 703.60 feet of the Northeast quarter of the Northeast quarter of said Section 11, to the South line of the North 65.00 feet of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE Easterly, along the South line of the North 65.00 feet of the Northeast quarter of the Northeast quarter of said Section 11, to the West line of the East 192.10 feet of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE Southerly, along the West line of the East 192.10 feet of the Northeast quarter of the Northeast quarter of said Section 11, to the South line of the North 75.00 feet of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE Easterly, along the South line of the North 75.00 feet of the Northeast quarter of the Northeast quarter of said Section 11, to the East line of the Northeast quarter of the Northeast quarter of said Section 11;

THENCE continuing Easterly, along the South line of the North 75.00 feet of the Northwest quarter of Section 12, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, to the East line of the West 650.70 feet of the Northwest quarter of said Section 12;

THENCE Southerly, along the East line of the West 650.70 feet of the Northwest quarter of said Section 12, to the South line of the North 100.00 feet of the Northwest quarter of said Section 12;

THENCE Easterly, along the South line of the North 100.00 feet of the Northwest quarter of Section 12, to the East line of the Northwest quarter of said Section 12;

THENCE Northerly, along the East line of the Northwest quarter of said Section 12, to the South line of the North 85.00 feet of the Northeast quarter of said Section 12;

THENCE Easterly, along the South line of the North 85.00 feet of the Northeast quarter of said Section 12, to the East line of the Northwest quarter of the Northeast quarter of said Section 12;

THENCE Northerly, along the East line of the Northwest quarter of the Northeast quarter of said Section 12, to the South line of the North 33.00 feet of the Northeast quarter of said Section 12;

THENCE Easterly, along the South line of the North 33.00 feet of the Northeast quarter of said Section 12, to the East line of the Northeast quarter of said Section 12;

THENCE Southerly, along the East line of the Northeast quarter of said Section 12, to the South line of the North 55.00 feet of the Northwest quarter of Section 7, Township 2 North, Range 1 East, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona;

THENCE Easterly, along the South line of the North 55.00 feet of the Northwest quarter of Section 7, Township 2 North, Range 1 East, of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, to the East line of the West 40.00 feet of the Northwest quarter of said Section 7, said point being the Northwest corner of existing annexation Ordinance 1248 N.S., said point being also a corner of existing annexation Ordinance 1299 N.S.;

THENCE Northerly, along the East line of the West 40.00 feet of the Northwest quarter of said Section 7, being also the West line of said existing annexation Ordinance 1299 N.S., to the North line of the Northwest quarter of said Section 7, said point being on the South line of existing annexation Ordinance 1299 N.S.;

THENCE Westerly, along the North line of the Northwest quarter of said Section 7, being the South line of said existing annexation, to the POINT OF BEGINNING;

EXCEPT that portion of the South half of Section 9, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, more particularly described as follows;

BEGINNING at a point on the North line of the South 33.00 feet of the Southeast quarter of said Section 9, being 55.00 feet West of the East line of the Southeast quarter of said Section 9;

THENCE Northerly, along the West line of the East 55.00 feet of the Southeast quarter of said Section 9, to the North line of the Southeast quarter of said Section 9;

THENCE Westerly, along the North line of the Southeast quarter of said Section 9, to the West line of the Southeast quarter of said Section 9;

THENCE continuing Westerly, along the North line of the Southwest quarter of said Section 9, to the West line of the Southwest quarter of said Section 9;

THENCE Southerly, along the West line of the Southwest quarter of said Section 9, to the North line of the South 33.00 feet of the Southwest quarter of said Section 9;

THENCE Easterly, along the North line of the South 33.00 feet of the Southwest quarter of said Section 9, to the East line of the Southwest quarter of said Section 9;

THENCE continuing Easterly, along the North line of the South 33.00 feet of the Southeast quarter of said Section 9, to the POINT OF BEGINNING;

AND ALSO EXCEPT that portion of the Southwest quarter of Section 3, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, more particularly described as follows;

BEGINNING at a point on the North line of the South 55.00 feet of the Southwest quarter of said Section 3, said point being on the East line of the West 70.00 feet of the Southwest quarter of said Section 3;

THENCE Easterly, along the North line of the South 55.00 feet of the Southwest quarter of said Section 3, to the East line of the West 333 feet of the Southwest quarter of said Section 3;

THENCE Northeasterly, along the North line of that parcel described in Docket 8695, page 301, Records of Maricopa County, Arizona, to a point on the East line of the West 825.00 feet of the Southwest quarter of said Section 3;

THENCE Northerly, along the East line of the West 825.00 feet of the Southwest quarter of said Section 3, to the North line of the South 230.00 feet of the Southwest quarter of said Section 3;

THENCE Westerly, along the North line of the South 230.00 feet of the Southwest quarter of said Section 3, to the East line of the West 605.00 feet of the Southwest quarter of said Section 3;

THENCE Southerly, along the East line of the West 605.00 feet of the Southwest quarter of said Section 3, to the North line of the South 205.00 feet of the Southwest quarter of said Section 3;

THENCE Westerly, along the North line of the South 205.00 feet of the Southwest quarter of said Section 3, to the East line of the West 355.00 feet of the Southwest quarter of said Section 3;

THENCE Northerly, along the East line of the West 355.00 feet of the Southwest quarter of said Section 3, to the North line of the South 375.00 feet of the Southwest quarter of said Section 3;

THENCE Westerly, along the North line of the South 375.00 feet of the Southwest quarter of said Section 3, to the East line of the West 55.00 feet of the Southwest quarter of said Section 3;

THENCE Southerly, along the East line of the West 55.00 feet , to a point being 70.00 feet North of the South line of the Southwest quarter of said Section 3;

THENCE Southeasterly, to the POINT OF BEGINNING;

AND ALSO EXCEPT that portion of the Southeast quarter of Section 3, Township 2 North, Range 1 West, of the Gila and Salt River Base and Meridian, more particularly described as follows;

BEGINNING at a point on the North line of the South 40.00 feet of the Southeast quarter of said Section 3, said point being on the West line of the East 40.00 feet of the Southeast quarter of said Section 3;

THENCE Westerly, along the North line of the South 40.00 feet of the Southeast quarter of said Section 3, to the West line of the East 442.00 feet of the Southeast quarter of said Section 3;

THENCE Northerly, along the West line of the East 442.00 feet of the Southeast quarter of said Section 3, to the South line of the North 100.00 feet of the Southeast quarter of said Section 3;

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JUL 20 1995
7:55 a.m.
P.O.

95-3295
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THENCE Easterly, along the South line of the North 100.00 feet of the Southeast quarter of said Section 3, to the West line of the East 40.00 feet of the Southeast quarter of said Section 3;

THENCE Southerly, along the West line of the East 40.00 feet of the Southeast quarter of said Section 3, to the POINT OF BEGINNING.

THE COUNCIL MAY DETERMINE THE EXACT BOUNDARY OF SAID TERRITORY TO BE ANNEXED: PROVIDED, HOWEVER, THAT SAID ANNEXED AREA LIES WHOLLY WITHIN THE ABOVE DESCRIBED AREA AND PROVIDED, FURTHER, THAT THE PROVISIONS OF SECTION 9-471, ARIZONA REVISED STATUTES ARE FULLY OBSERVED AND COMPLIED WITH.

DATE	SIGNATURE OF OWNER	LOT, BLOCK, SUBDIVISION OR ADDRESS
7-14-95		3033 N. 3rd St. #1001 Phx. Az. 85012
	Wayne G. Allcott	Wayne G. Allcott
	For U S WEST Cimmunications	

THENCE Easterly, along the South line of the North 100.00 feet of the Southeast quarter of said Section 3, to the West line of the East 40.00 feet of the Southeast quarter of said Section 3;

THENCE Southerly, along the West line of the East 40.00 feet of the Southeast quarter of said Section 3, to the POINT OF BEGINNING.

THE COUNCIL MAY DETERMINE THE EXACT BOUNDARY OF SAID TERRITORY TO BE ANNEXED: PROVIDED, HOWEVER, THAT SAID ANNEXED AREA LIES WHOLLY WITHIN THE ABOVE DESCRIBED AREA AND PROVIDED , FURTHER, THAT THE PROVISIONS OF SECTION 9-471, ARIZONA REVISED STATUTES ARE FULLY OBSERVED AND COMPLIED WITH.

DATE	SIGNATURE OF OWNER	LOT, BLOCK, SUBDIVISION OR ADDRESS
7/14	[illegible]	Southwest Gas Corp
95 7/14	Edith L Denny	501-59-002
7/14/95	[illegible] Denny	" " "
7/14/95	Nancy C Light	Arizona Public Service

MT-2 FORMS 3, 4, 5 & 6

FLOODING SOURCE: Dysart Drain, Reems Road & Bullard Wash

HEC-1 and HEC-2 Input/Output file Diskette

MT-2 FORM 4, ITEM 3

FLOODING SOURCE: Dysart Drain Wash

HEC-2 OUTPUT FILES

Dysart Drain Channel:	**Dysart.out**
Collector Channel:	**Collect.out**
East Collector Channel:	**Eastch.out**
North Collector Channel:	**North502.out**
Outlet Channel:	**Outchan.out**

Dysart.out

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*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
                                            *
*  RUN DATE    17OCT95    TIME   15:53:26   *
*********************************************
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***************************************
*  U.S. ARMY CORPS OF ENGINEERS       *
*  HYDROLOGIC ENGINEERING CENTER      *
*  609 SECOND STREET, SUITE D         *
*  DAVIS, CALIFORNIA 95616-4687       *
*          (916) 756-1104             *
***************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X         XXXXX    XXXXX
X     X  X        X                 X
X     X  X        X     X           X
X     X  XXXXXXX   XXXXX            XXXXXXX
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THIS RUN EXECUTED 17OCT95 15:53:26

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T1  FLOOD CONTROL DISTRICT OF MARICOPA COUNTY          CONSULTANT: NBS/LOWRY
T2  FCD 93-01 DYSART DRAIN IMPROVEMENT PROJECT         JOB NO: P81-194-019
T3      DYSART DRAIN - 60% DESIGN                      FILE NAME: DYSART.DAT
T4  (NBS slope, 2:1 SS E. of El Mirage, 1.5:1 SS W. of El Mirage,
T5   Trap Section around 575' box)
T6   Q's Updated based on WPA 30% Detention Basin Analysis Results.

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         0         0         0         0         0     56.72         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     -1         0        -1                                                  6


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38        43         1         2         3        26        68        42        33

NC    .030      .030      .030        .3        .5
QT       1      3962
X1     936         4       931      1069         0         0         0
GR      60       931     49.25     952.5     49.25   1049.25        60      1069

X1     966         4     956.5    1043.5        30        30        30
GR      60     956.5     50.75       975     50.75      1025        60    1043.5

NC    .016      .016      .016
X1   967.5         4     956.5    1043.5         1         1         1
GR      60     956.5     45.75       985     45.75      1015        60    1043.5

X1   997.7         4       960      1040        30        30        30
GR      60       960        46       988        46      1012        60      1040

NC                                    .1        .3
X1  1025.4         4       965      1035      27.7      27.7      27.7
GR   64.15       965     51.15       991     51.15      1009     64.15      1035
    10' BOTTOM WIDTH, 2:1 SS

    1067.4         5     969.7    1030.3        42        42        42         0     51.19
        13     969.7      0.33       995         0      1000      0.33      1005        13    1030.3
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X1     1075                                    7.6       7.6       7.6        0     0.0068

X1     1100                                     25        25        25        0     0.0225

X1     1200                                    100       100       100        0       0.09

X1     1300                                    100       100       100        0       0.09

X1     1500                                    200       200       200        0       0.18

X1     1700                                    200       200       200        0       0.18

X1     1900                                    200       200       200        0       0.18
    15' BOTTOM WIDTH, 1.5:1 SS

X1     1950         5     970.5    1029.5       50        50        50               51.99
GR       15     970.5      0.33     992.5        0      1000      0.33    1007.5        15     1029.5

X1     2100                                    150       150       150        0      0.135

X1     2300                                    200       200       200        0       0.18

X1     2500                                    200       200       200        0       0.18

       2700                                    200       200       200        0       0.18

X1     2900                                    200       200       200        0       0.18

X1     3100                                    200       200       200        0       0.18

QT        1      2280
X1     3200                                    100       100       100        0       0.09

X1     3400                                    200       200       200        0       0.18

X1     3600                                    200       200       200        0       0.18

X1     3800                                    200       200       200        0       0.18

X1     4000                                    200       200       200        0       0.18

X1     4200                                    200       200       200        0       0.18

X1     4400                                    200       200       200        0       0.18

X1     4600                                    200       200       200        0       0.18

X1     4800                                    200       200       200        0       0.18
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X1	5000				200	200	200	0	0.18	
X1	5200				200	200	200	0	0.18	
X1	5400				200	200	200	0	0.18	
X1	5600				200	200	200	0	0.18	
X1	5800				200	200	200	0	0.18	
X1	6000				200	200	200	0	0.18	
X1	6200				200	200	200	0	0.18	
X1	6400				200	200	200	0	0.18	
X1	6600				200	200	200	0	0.18	
X1	6800				200	200	200	0	0.18	
X1	7000				200	200	200	0	0.18	
X1	7130				130	130	130		0.117	
	7180	5	972	1028	100	100	100		56.70	
	14	972	0.33	992.5	0	1000	0.33	1007.5	14	1028
X1	7200				20	20	20		0.018	
X1	7300				100	100	100	0	0.19	
X1	7400				100	100	100	0	0.19	
X1	7600				200	200	200	0	0.38	
X1	7800				200	200	200	0	0.38	
X1	8000				200	200	200	0	0.38	
X1	8200				200	200	200	0	0.38	
X1	8400				200	200	200	0	0.38	
X1	8600				200	200	200	0	0.38	
X1	8800				200	200	200	0	0.38	
X1	9000				200	200	200	0	0.38	

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X1     9200                                  200       200       200         0       0.38

X1     9400                                  200       200       200         0       0.38

X1     9600                                  200       200       200         0       0.38

X1     9800                                  200       200       200         0       0.38

X1     9900                                  100       100       100         0       0.19

X1     9950        5       975      1025      50        50        50                 61.96
GR       12      975      0.33     992.5       0      1000      0.33    1007.5        12       1025

X1    10000                                   50        50        50         0      0.095

X1    10200                                  200       200       200         0       0.38

X1    10400                                  200       200       200         0       0.38

X1    10600                                  200       200       200         0       0.38

X1    10800                                  200       200       200         0       0.38

X1    11000                                  200       200       200         0       0.38

      11200                                  200       200       200         0       0.38

X1    11300                                  100       100       100         0       0.19

X1    11400                                  100       100       100                0.104

X1    11600                                  200       200       200                0.207

X1    11800                                  200       200       200                0.207

X1    12000                                  200       200       200                0.207

X1    12200                                  200       200       200                0.207
   Sta. 122+61, begin Transition to Exist. section

X1    12261                                   61        61        61                0.063
   Sta. 123+11, match exist. channel section

X1    12311        4       971      1029      50        50        50                 65.56
GR       12      971         0       995       0      1005        12      1029

X1    12463                                  152       152       152                 0.70
   Litchfield Road Bridge - Special Bridge Method
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X1    12615                                  152       152       152                0.9
X3       10

SB     1.05      1.6       2.6        42       10       1.5       325         2     68.24      67.5
X1    12742                                  127       127       127                 .74
X2                        1      79.4     83.92
X3       10

X1    12760                                   18        18        18                0.06

X1    12870                                  100       100       100               0.493

X1    12920        4      973      1027       50        50        50               68.97
GR       11      973        0       995        0      1005        11      1027

X1    13000                                   80        80        80                0.42

X1    13100                                  100       100       100                0.53

X1    13200                                  100       100       100                0.53

X1    13300                                  100       100       100                0.52

X1    13400                                  100       100       100                0.53

      13500                                  100       100       100                0.53

X1    13700                                  200       200       200                1.14

X1    13800                                  100       100       100                0.57

X1    13895                                   95        95        95                0.49
   On Base Single Span Bridge, Low Chord is 7.3 ft above invert

X1    13942        4      975      1025       47        47        47               74.48
GR       10      975        0       995        0      1005        10      1025

QT        1     1753
X1    14000                                   58        58        58                0.30

X1    14100                                  100       100       100                0.52

X1    14200                                  100       100       100                0.51

X1    14300                                  100       100       100                0.52

X1    14400                                  100       100       100                0.52
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X1    14500                                   100       100       100                 0.52

X1    14600                                   100       100       100                 0.52

X1    14700                                   100       100       100                 0.52

X1    14800                                   100       100       100                 0.52

X1    14900                                   100       100       100                 0.52

X1    14973        4     968.48     1033.5       73        73        73
GR    90.19    968.48     79.83      989.2    79.83    1012.5     90.33    1033.5

X1    14995        4      966.5     1033.5       22        22        22
GR    90.41     966.5     79.91      987.5    79.91    1012.5     90.41    1033.5
    15066 Is full x-sect with total Q as starting point for culvert analysis

X1    15066        4      966.5     1037.5       71        71        71
GR    90.65     966.5     80.15      987.5    80.15    1037.5      90.7    1037.5
    15067 Is effective area for culvert with culvert Q.

QT        1      610
X1    15067        5     1012.5     1037.5       .1        .1        .1
X3       10                        1012.5
      90.65     966.5     80.15      987.5    80.15    1012.5     80.15    1037.5      90.7    1037.5

SC    2.013      0.2       3.0         25      5.5        10       575       8.1     81.05    80.15
X1    15635        5      1016       1037      560       560       560
X2                          2
X3       10                          1016
GR    91.54      972     81.04        993    81.04      1016     81.04      1037     91.55     1037

QT        1     1753
X1    15636                                      .1        .1        .1
    Transition to 24' bottom, 1.5:1 SS, and 0.3' crossfall in invert.

X1    15689        4     974.25       1045       53        53        53
GR    91.11    974.25     81.11        990    81.11      1024     91.61      1045

X1    15750        4     974.25     1027.5       61        61        61
GR    91.66    974.25     81.16        990    81.16    1012.5     91.16    1027.5
   24' BOTTOM WIDTH

X1    15800        5      974.5       1027       50        50        50                81.23
GR     9.33    974.5        0.5        988        0      1000       0.5      1012     10.33     1027

X1    15990                                    190       190       190                 .209
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X1    16000       6     977.4     1027      10      10      10            81.45
GR      7.1   972.4      7.05    977.4     0.5     988       0    1000      0.5     1012
GR    10.33    1027

X1    16300       6     977.9     1027     300     300     300            81.78
GR     6.77   972.9      6.72    977.9     0.5     988       0    1000      0.5     1012
GR    10.33    1027

X1    16650       6     978.5     1027     350     350     350            82.17
GR     6.39   973.5      6.34    978.5     0.5     988       0    1000      0.5     1012
GR    10.33    1027

X1    17000       6     979.1     1027     350     350     350            82.55
GR     6.00   974.1      5.95    979.1     0.5     988       0    1000      0.5     1012
GR    10.33    1027

X1    17300       6     979.6     1027     300     300     300            82.88
GR     5.67   974.6      5.62    979.6     0.5     988       0    1000      0.5     1012
GR    10.33    1027

X1    17315       5     974.5     1027      15      15      15            82.90
GR     9.33   974.5       0.5     988       0    1000     0.5    1012    10.33     1027

X1    17400                                 85      85      85            0.094

,     17600                                200     200     200             0.22
   TRANSITION TO 10' BOTTOM WIDTH

QT        1     642
X1    17650       5     980.5    1019.5     50      50      50            83.27
GR       10   980.5       0.5     995       0    1000     0.5    1005       10    1019.5

X1    17700                                 50      50      50            0.055

X1    17900                                200     200     200             0.22

X1    18100                                200     200     200             0.22

X1    18300                                200     200     200             0.22

X1    18500                                200     200     200             0.22

X1    18700                                200     200     200             0.22

X1    18750       5       982     1018     50      50      50            84.48
GR        9     982       0.5     995       0    1000     0.5    1005        9     1018

X1    18800                                 50      50      50            0.055
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X1    19000                                   200       200       200                 0.22

X1    19200                                   200       200       200                 0.22

X1    19400                                   200       200       200                 0.22

X1    19600                                   200       200       200                 0.22

X1    19800                                   200       200       200                 0.22

X1    20000                                   200       200       200                 0.22

QT        1       550
X1    20039                                    39        39        39               0.0429
  BOX CULVERT CROSSING

X1    20050         4     993.5    1006.5      11        11        11               85.91
X3       10                                                                  95        95
GR        9     993.5         0     993.5       0    1006.5         9    1006.5
SC    2.013       0.2       3.0        50       7         6        50       8.1     85.97     85.91
X1    20100         4     993.5    1006.5      50        50        50               85.97
X2                            2                95
X3       10                                                                  95        95
          9     993.5         0     993.5       0    1006.5         9    1006.5

X1    20111         5       982      1018      11        11        11               85.98
GR        9       982       0.5       995       0      1000       0.5      1005         9      1018

X1    20200                                    89        89        89               0.0979

X1    20400                                   200       200       200                 0.22

X1    20600                                   200       200       200                 0.22

X1    20800                                   200       200       200                 0.22

X1    21000                                   200       200       200                 0.22

X1    21200                                   200       200       200                 0.22

X1    21400                                   200       200       200                 0.22

X1    21600                                   200       200       200                 0.22

X1    21711                                   111       111       111                0.122

QT        1      1753
    15066 Is full x-sect with total Q as starting point for culvert analysis
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     -15066        4     966.5    1037.5        71        71        71
GR    90.65    966.5     80.15     987.5     80.15    1037.5      90.7    1037.5

QT        1     1143
X1    15067        5     966.5    1012.5        .1        .1        .1
X3       10                                   1012.5
GR    90.65    966.5     80.15     987.5     80.15    1012.5     80.15    1037.5      90.7    1037.5

X1    15097        4     966.5    1012.5        30        30        30
GR    90.74    966.5     80.24     987.5     80.24    1012.5     90.74    1012.5

NC                                   0.3       0.5
   2 - 12' X 6' X 106' RCBC'S
X1    15121        4     987.5    1012.5        24        24        24              80.28
X3       10
GR     10.5    987.5         0     987.5         0    1012.5      10.5    1012.5

SC    2.013      0.2       3.0        25         6        12       107       8.1     80.44     80.28
X1    15228                                    107       107       107                .16
X2                           2
X3       10

X1    15258        4       975      1025        30        30        30              80.49
GR     10.5      975         0       996         0      1004      10.5      1025

      15300                                     42        42        42               .063

X1    15500                                    200       200       200                .30

X1    15568                                     68        68        68               .102

X1    15635        5       972      1016        67        67        67
X3       10                                   1016
GR    91.54      972     81.04       993     81.04      1016     81.04      1037     91.55      1037
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 ECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


*PROF 1



CCHV=     .300 CEHV=     .500
*SECNO 936.000
  936.000      7.47     56.72       .00     56.72     57.07       .35       .00       .00     60.00
   3962.0        .0    3962.0        .0       .0     829.8        .0        .0        .0     60.00
      .00       .00      4.77       .00      .000      .030      .000      .000     49.25    937.56
  .000777        0.        0.        0.         0         0         0       .00    125.41   1062.97


*SECNO 966.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
  966.000      5.37     56.12     56.12       .00     58.41      2.29       .05       .97     60.00
   3962.0        .0    3962.0        .0       .0     326.5        .0        .4        .1     60.00
      .00       .00     12.13       .00      .000      .030      .000      .000     50.75    964.25
  .008298       30.       30.       30.         5        15         0       .00     71.50   1035.75


*SECNO 967.500

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.07

  967.500     12.71     58.46       .00       .00     58.95       .49       .00       .54     60.00
   3962.0        .0    3962.0        .0       .0     703.7        .0        .4        .1     60.00
      .00       .00      5.63       .00      .000      .016      .000      .000     45.75    959.60
  .000226        1.        1.        1.         3         0         0       .00     80.81   1040.40


*SECNO 997.700
  997.700     12.38     58.38       .00       .00     59.05       .67       .01       .09     60.00
   3962.0        .0    3962.0        .0       .0     603.5        .0        .9        .1     60.00
      .00       .00      6.57       .00      .000      .016      .000      .000     46.00    963.24
  .000334       30.       30.       30.         2         0         0       .00     73.51   1036.76
```

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

CCHV= .100 CEHV= .300
*SECNO 1025.400

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1025.400	8.39	59.54	59.54	.00	62.40	2.86	.02	.66	64.15
3962.0	.0	3962.0	.0	.0	291.9	.0	1.1	.2	64.15
.00	.00	13.57	.00	.000	.016	.000	.000	51.15	974.22
.002337	28.	28.	28.	20	14	0	.00	51.56	1025.78

*SECNO 1067.400
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1067.400	10.00	61.19	61.19	.00	64.19	3.00	.10	.04	64.19
3962.0	.0	3962.0	.0	.0	285.3	.0	1.4	.2	64.19
.00	.00	13.89	.00	.000	.016	.000	.000	51.19	975.68
.002384	42.	42.	42.	20	11	0	.00	48.64	1024.32

*SECNO 1075.000

3301 HV CHANGED MORE THAN HVINS

1075.000	10.67	61.86	.00	.00	64.26	2.40	.02	.06	64.20
3962.0	.0	3962.0	.0	.0	318.6	.0	1.5	.2	64.20
.00	.00	12.43	.00	.000	.016	.000	.000	51.20	974.35
.001773	8.	8.	8.	7	0	0	.00	51.30	1025.65

*SECNO 1100.000

1100.000	10.77	61.99	.00	.00	64.32	2.33	.04	.01	64.22
3962.0	.0	3962.0	.0	.0	323.8	.0	1.7	.2	64.22
.00	.00	12.24	.00	.000	.016	.000	.000	51.22	974.15
.001699	25.	25.	25.	2	0	0	.00	51.70	1025.85

*SECNO 1200.000

1200.000	11.09	62.40	.00	.00	64.50	2.10	.16	.02	64.31
3962.0	.0	3962.0	.0	.0	340.6	.0	2.4	.4	64.31
.01	.00	11.63	.00	.000	.016	.000	.000	51.31	973.51
01483	100.	100.	100.	2	0	0	.00	52.99	1026.49

,ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 1300.000									
1300.000	11.25	62.65	.00	.00	64.65	2.00	.14	.01	64.40
3962.0	.0	3962.0	.0	.0	348.9	.0	3.2	.5	64.40
.01	.00	11.35	.00	.000	.016	.000	.000	51.40	973.20
.001391	100.	100.	100.	2	0	0	.00	53.61	1026.80
*SECNO 1500.000									
1500.000	11.49	63.07	.00	.00	64.93	1.86	.26	.01	64.58
3962.0	.0	3962.0	.0	.0	362.0	.0	4.8	.7	64.58
.01	.00	10.94	.00	.000	.016	.000	.000	51.58	972.71
.001261	200.	200.	200.	2	0	0	.00	54.57	1027.29
*SECNO 1700.000									
1700.000	11.65	63.41	.00	.00	65.18	1.77	.24	.01	64.76
3962.0	.0	3962.0	.0	.0	370.6	.0	6.5	1.0	64.76
.02	.00	10.69	.00	.000	.016	.000	.000	51.76	972.40
.001184	200.	200.	200.	2	0	0	.00	55.20	1027.60
*SECNO 1900.000									
1900.000	11.77	63.71	.00	.00	65.42	1.71	.23	.01	64.94
3962.0	.0	3962.0	.0	.0	377.2	.0	8.2	1.2	64.94
.02	.00	10.50	.00	.000	.016	.000	.000	51.94	972.16
.001130	200.	200.	200.	2	0	0	.00	55.67	1027.84
*SECNO 1950.000									
1950.000	11.70	63.69	.00	.00	65.50	1.81	.06	.03	66.99
3962.0	.0	3962.0	.0	.0	367.1	.0	8.7	1.3	66.99
.03	.00	10.79	.00	.000	.016	.000	.000	51.99	975.44
.001101	50.	50.	50.	2	0	0	.00	49.12	1024.56
*SECNO 2100.000									
2100.000	11.76	63.89	.00	.00	65.67	1.78	.16	.00	67.13
3962.0	.0	3962.0	.0	.0	370.1	.0	9.9	1.5	67.13
.03	.00	10.71	.00	.000	.016	.000	.000	52.13	975.35
.001077	150.	150.	150.	2	0	0	.00	49.30	1024.65

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

*SECNO 2300.000

2300.000	11.83	64.14	.00	.00	65.89	1.75	.21	.00	67.31
3962.0	.0	3962.0	.0	.0	373.4	.0	11.6	1.7	67.31
.03	.00	10.61	.00	.000	.016	.000	.000	52.31	975.25
.001052	200.	200.	200.	2	0	0	.00	49.50	1024.75

*SECNO 2500.000

2500.000	11.88	64.37	.00	.00	66.10	1.73	.21	.00	67.49
3962.0	.0	3962.0	.0	.0	375.4	.0	13.4	1.9	67.49
.04	.00	10.56	.00	.000	.016	.000	.000	52.49	975.19
.001037	200.	200.	200.	1	0	0	.00	49.62	1024.81

*SECNO 2700.000

2700.000	11.94	64.60	.00	.00	66.30	1.70	.20	.00	67.67
3962.0	.0	3962.0	.0	.0	378.8	.0	15.1	2.2	67.67
.05	.00	10.46	.00	.000	.016	.000	.000	52.67	975.09
.001012	200.	200.	200.	2	0	0	.00	49.82	1024.91

*SECNO 2900.000

2900.000	11.97	64.82	.00	.00	66.51	1.69	.20	.00	67.85
3962.0	.0	3962.0	.0	.0	380.0	.0	16.8	2.4	67.85
.05	.00	10.43	.00	.000	.016	.000	.000	52.85	975.05
.001003	200.	200.	200.	0	0	0	.00	49.90	1024.95

*SECNO 3100.000

3100.000	12.01	65.04	.00	.00	66.71	1.67	.20	.00	68.03
3962.0	.0	3962.0	.0	.0	381.8	.0	18.6	2.6	68.03
.06	.00	10.38	.00	.000	.016	.000	.000	53.03	975.00
.000990	200.	200.	200.	1	0	0	.00	50.01	1025.00

*SECNO 3200.000

3301 HV CHANGED MORE THAN HVINS

3200.000	13.38	66.49	.00	.00	66.88	.39	.05	.13	68.12
2280.0	.0	2280.0	.0	.0	453.4	.0	19.5	2.7	68.12
.06	.00	5.03	.00	.000	.016	.000	.000	53.12	972.94
.000207	100.	100.	100.	3	0	0	.00	54.13	1027.06

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

*SECNO 3400.000

3400.000	13.23	66.52	.00	.00	66.93	.41	.04	.00	68.30
2280.0	.0	2280.0	.0	.0	445.4	.0	21.6	3.0	68.30
.07	.00	5.12	.00	.000	.016	.000	.000	53.30	973.16
.000217	200.	200.	200.	2	0	0	.00	53.69	1026.84

*SECNO 3600.000

3600.000	13.08	66.56	.00	.00	66.98	.42	.04	.00	68.48
2280.0	.0	2280.0	.0	.0	438.1	.0	23.6	3.2	68.48
.08	.00	5.20	.00	.000	.016	.000	.000	53.48	973.36
.000227	200.	200.	200.	0	0	0	.00	53.27	1026.64

*SECNO 3800.000

3800.000	12.94	66.59	.00	.00	67.03	.44	.05	.00	68.66
2280.0	.0	2280.0	.0	.0	430.5	.0	25.6	3.5	68.66
.09	.00	5.30	.00	.000	.016	.000	.000	53.66	973.58
.000238	200.	200.	200.	0	0	0	.00	52.84	1026.42

*SECNO 4000.000

4000.000	12.80	66.63	.00	.00	67.08	.45	.05	.00	68.84
2280.0	.0	2280.0	.0	.0	423.0	.0	27.6	3.7	68.84
.10	.00	5.39	.00	.000	.016	.000	.000	53.84	973.79
.000249	200.	200.	200.	0	0	0	.00	52.42	1026.21

*SECNO 4200.000

4200.000	12.66	66.67	.00	.00	67.14	.47	.05	.00	69.02
2280.0	.0	2280.0	.0	.0	415.7	.0	29.5	4.0	69.02
.11	.00	5.48	.00	.000	.016	.000	.000	54.02	974.00
.000261	200.	200.	200.	0	0	0	.00	52.00	1026.00

*SECNO 4400.000

4400.000	12.52	66.71	.00	.00	67.20	.48	.05	.00	69.20
2280.0	.0	2280.0	.0	.0	408.6	.0	31.4	4.2	69.20
.12	.00	5.58	.00	.000	.016	.000	.000	54.20	974.21
.000273	200.	200.	200.	0	0	0	.00	51.58	1025.79

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

*SECNO 4600.000

4600.000	12.38	66.76	.00	.00	67.26	.50	.06	.01	69.38
2280.0	.0	2280.0	.0	.0	401.6	.0	33.3	4.4	69.38
.13	.00	5.68	.00	.000	.016	.000	.000	54.38	974.41
.000286	200.	200.	200.	0	0	0	.00	51.18	1025.59

*SECNO 4800.000

4800.000	12.25	66.80	.00	.00	67.32	.52	.06	.01	69.56
2280.0	.0	2280.0	.0	.0	394.8	.0	35.1	4.7	69.56
.14	.00	5.78	.00	.000	.016	.000	.000	54.56	974.61
.000300	200.	200.	200.	0	0	0	.00	50.78	1025.39

*SECNO 5000.000

5000.000	12.12	66.85	.00	.00	67.39	.54	.06	.01	69.74
2280.0	.0	2280.0	.0	.0	388.2	.0	36.9	4.9	69.74
.15	.00	5.87	.00	.000	.016	.000	.000	54.74	974.81
.000314	200.	200.	200.	0	0	0	.00	50.38	1025.19

*SECNO 5200.000

5200.000	11.99	66.90	.00	.00	67.46	.55	.06	.01	69.92
2280.0	.0	2280.0	.0	.0	381.7	.0	38.7	5.1	69.92
.16	.00	5.97	.00	.000	.016	.000	.000	54.92	975.00
.000328	200.	200.	200.	0	0	0	.00	50.00	1025.00

*SECNO 5400.000

5400.000	11.86	66.96	.00	.00	67.53	.57	.07	.01	70.10
2280.0	.0	2280.0	.0	.0	375.2	.0	40.4	5.4	70.10
.17	.00	6.08	.00	.000	.016	.000	.000	55.10	975.20
.000344	200.	200.	200.	1	0	0	.00	49.61	1024.80

*SECNO 5600.000

5600.000	11.74	67.02	.00	.00	67.61	.59	.07	.01	70.28
2280.0	.0	2280.0	.0	.0	369.4	.0	42.1	5.6	70.28
.18	.00	6.17	.00	.000	.016	.000	.000	55.28	975.37
.000359	200.	200.	200.	0	0	0	.00	49.25	1024.63

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

*SECNO 5800.000

5800.000	11.62	67.07	.00	.00	67.69	.61	.07	.01	70.46
2280.0	.0	2280.0	.0	.0	363.2	.0	43.8	5.8	70.46
.19	.00	6.28	.00	.000	.016	.000	.000	55.46	975.56
.000375	200.	200.	200.	1	0	0	.00	48.88	1024.44

*SECNO 6000.000

6000.000	11.50	67.14	.00	.00	67.77	.63	.08	.01	70.64
2280.0	.0	2280.0	.0	.0	357.8	.0	45.4	6.0	70.64
.20	.00	6.37	.00	.000	.016	.000	.000	55.64	975.73
.000391	200.	200.	200.	0	0	0	.00	48.54	1024.27

*SECNO 6200.000

6200.000	11.39	67.20	.00	.00	67.85	.65	.08	.01	70.82
2280.0	.0	2280.0	.0	.0	352.0	.0	47.1	6.3	70.82
.21	.00	6.48	.00	.000	.016	.000	.000	55.82	975.91
.000408	200.	200.	200.	1	0	0	.00	48.18	1024.09

*SECNO 6400.000

6400.000	11.28	67.27	.00	.00	67.94	.67	.08	.01	71.00
2280.0	.0	2280.0	.0	.0	346.7	.0	48.7	6.5	71.00
.22	.00	6.58	.00	.000	.016	.000	.000	56.00	976.07
.000425	200.	200.	200.	1	0	0	.00	47.85	1023.93

*SECNO 6600.000

6600.000	11.17	67.35	.00	.00	68.04	.69	.09	.01	71.18
2280.0	.0	2280.0	.0	.0	341.6	.0	50.3	6.7	71.18
.22	.00	6.68	.00	.000	.016	.000	.000	56.18	976.24
.000443	200.	200.	200.	1	0	0	.00	47.53	1023.76

*SECNO 6800.000

6800.000	11.07	67.42	.00	.00	68.13	.71	.09	.01	71.36
2280.0	.0	2280.0	.0	.0	336.6	.0	51.8	6.9	71.36
.23	.00	6.77	.00	.000	.016	.000	.000	56.36	976.39
.000460	200.	200.	200.	1	0	0	.00	47.22	1023.61

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

*SECNO 7000.000

7000.000	10.97	67.50	.00	.00	68.23	.73	.09	.01	71.54
2280.0	.0	2280.0	.0	.0	331.9	.0	53.4	7.1	71.54
.24	.00	6.87	.00	.000	.016	.000	.000	56.54	976.54
.000478	200.	200.	200.	1	0	0	.00	46.92	1023.46

*SECNO 7130.000

7130.000	10.90	67.55	.00	.00	68.30	.75	.06	.00	71.65
2280.0	.0	2280.0	.0	.0	329.0	.0	54.3	7.3	71.65
.24	.00	6.93	.00	.000	.016	.000	.000	56.65	976.63
.000490	130.	130.	130.	0	0	0	.00	46.73	1023.37

*SECNO 7180.000

7180.000	10.90	67.60	.00	.00	68.35	.75	.05	.00	70.70
2280.0	.0	2280.0	.0	.0	328.7	.0	55.1	7.4	70.70
.25	.00	6.94	.00	.000	.016	.000	.000	56.70	976.64
.000491	100.	100.	100.	0	0	0	.00	46.71	1023.36

*SECNO 7200.000

7200.000	10.89	67.61	.00	.00	68.36	.75	.01	.00	70.72
2280.0	.0	2280.0	.0	.0	328.3	.0	55.2	7.4	70.72
.25	.00	6.94	.00	.000	.016	.000	.000	56.72	976.66
.000493	20.	20.	20.	0	0	0	.00	46.69	1023.34

*SECNO 7300.000

7300.000	10.73	67.64	.00	.00	68.42	.79	.05	.01	70.91
2280.0	.0	2280.0	.0	.0	320.6	.0	56.0	7.5	70.91
.25	.00	7.11	.00	.000	.016	.000	.000	56.91	976.91
.000525	100.	100.	100.	2	0	0	.00	46.19	1023.09

*SECNO 7400.000

7400.000	10.57	67.66	.00	.00	68.49	.82	.05	.01	71.10
2280.0	.0	2280.0	.0	.0	313.1	.0	56.7	7.6	71.10
.26	.00	7.28	.00	.000	.016	.000	.000	57.10	977.15
.000560	100.	100.	100.	2	0	0	.00	45.70	1022.85

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 7600.000									
7600.000	10.25	67.73	.00	.00	68.63	.90	.12	.02	71.48
2280.0	.0	2280.0	.0	.0	298.8	.0	58.1	7.8	71.48
.26	.00	7.63	.00	.000	.016	.000	.000	57.48	977.63
.000635	200.	200.	200.	2	0	0	.00	44.75	1022.37
*SECNO 7800.000									
7800.000	9.94	67.80	.00	.00	68.79	.99	.14	.03	71.86
2280.0	.0	2280.0	.0	.0	285.2	.0	59.5	8.0	71.86
.27	.00	7.99	.00	.000	.016	.000	.000	57.86	978.09
.000720	200.	200.	200.	2	0	0	.00	43.83	1021.91
*SECNO 8000.000									
8000.000	9.65	67.89	.00	.00	68.97	1.09	.15	.03	72.24
2280.0	.0	2280.0	.0	.0	272.5	.0	60.7	8.2	72.24
.28	.00	8.37	.00	.000	.016	.000	.000	58.24	978.53
.000815	200.	200.	200.	2	0	0	.00	42.95	1021.47
*SECNO 8200.000									
8200.000	9.37	67.99	.00	.00	69.18	1.19	.17	.03	72.62
2280.0	.0	2280.0	.0	.0	260.7	.0	62.0	8.4	72.62
.28	.00	8.75	.00	.000	.016	.000	.000	58.62	978.94
.000919	200.	200.	200.	2	0	0	.00	42.12	1021.06
*SECNO 8400.000									
8400.000	9.11	68.11	.00	.00	69.40	1.29	.19	.03	73.00
2280.0	.0	2280.0	.0	.0	249.9	.0	63.1	8.6	73.00
.29	.00	9.12	.00	.000	.016	.000	.000	59.00	979.33
.001031	200.	200.	200.	2	0	0	.00	41.34	1020.67
*SECNO 8600.000									
8600.000	8.87	68.25	.00	.00	69.65	1.40	.22	.03	73.38
2280.0	.0	2280.0	.0	.0	240.1	.0	64.3	8.8	73.38
.30	.00	9.49	.00	.000	.016	.000	.000	59.38	979.69
.001148	200.	200.	200.	2	0	0	.00	40.63	1020.31

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

*SECNO 8800.000

8800.000	8.66	68.42	.00	.00	69.93	1.51	.24	.03	73.76
2280.0	.0	2280.0	.0	.0	231.6	.0	65.3	9.0	73.76
.30	.00	9.85	.00	.000	.016	.000	.000	59.76	980.01
.001267	200.	200.	200.	2	0	0	.00	39.99	1019.99

*SECNO 9000.000

9000.000	8.48	68.61	.00	.00	70.22	1.61	.26	.03	74.14
2280.0	.0	2280.0	.0	.0	224.2	.0	66.4	9.2	74.14
.31	.00	10.17	.00	.000	.016	.000	.000	60.14	980.28
.001384	200.	200.	200.	2	0	0	.00	39.43	1019.72

*SECNO 9200.000

9200.000	8.32	68.84	.00	.00	70.53	1.70	.29	.03	74.52
2280.0	.0	2280.0	.0	.0	218.0	.0	67.4	9.3	74.52
.31	.00	10.46	.00	.000	.016	.000	.000	60.52	980.52
.001492	200.	200.	200.	2	0	0	.00	38.96	1019.48

*SECNO 9400.000

9400.000	8.19	69.09	.00	.00	70.87	1.78	.31	.02	74.90
2280.0	.0	2280.0	.0	.0	213.0	.0	68.4	9.5	74.90
.32	.00	10.70	.00	.000	.016	.000	.000	60.90	980.71
.001589	200.	200.	200.	2	0	0	.00	38.58	1019.29

*SECNO 9600.000

9600.000	8.09	69.37	.00	.00	71.21	1.84	.33	.02	75.28
2280.0	.0	2280.0	.0	.0	209.2	.0	69.4	9.7	75.28
.32	.00	10.90	.00	.000	.016	.000	.000	61.28	980.86
.001670	200.	200.	200.	2	0	0	.00	38.27	1019.14

*SECNO 9800.000

9800.000	8.02	69.68	.00	.00	71.56	1.89	.34	.01	75.66
2280.0	.0	2280.0	.0	.0	206.9	.0	70.3	9.9	75.66
.33	.00	11.02	.00	.000	.016	.000	.000	61.66	980.95
.001722	200.	200.	200.	1	0	0	.00	38.09	1019.05

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 9900.000									
9900.000	7.99	69.83	.00	.00	71.75	1.91	.17	.01	75.85
2280.0	.0	2280.0	.0	.0	205.5	.0	70.8	10.0	75.85
.33	.00	11.09	.00	.000	.016	.000	.000	61.85	981.01
.001752	100.	100.	100.	1	0	0	.00	37.99	1018.99
*SECNO 9950.000									
9950.000	7.93	69.89	.00	.00	71.85	1.96	.09	.01	73.96
2280.0	.0	2280.0	.0	.0	203.2	.0	71.0	10.0	73.96
.33	.00	11.22	.00	.000	.016	.000	.000	61.96	981.10
.001808	50.	50.	50.	2	0	0	.00	37.80	1018.90
*SECNO 10000.000									
10000.000	7.92	69.98	.00	.00	71.94	1.96	.09	.00	74.06
2280.0	.0	2280.0	.0	.0	203.0	.0	71.3	10.0	74.06
.33	.00	11.23	.00	.000	.016	.000	.000	62.06	981.11
.001813	50.	50.	50.	0	0	0	.00	37.78	1018.89
*SECNO 10200.000									
10200.000	7.90	70.33	.00	.00	72.31	1.97	.36	.00	74.43
2280.0	.0	2280.0	.0	.0	202.2	.0	72.2	10.2	74.43
.34	.00	11.28	.00	.000	.016	.000	.000	62.44	981.14
.001831	200.	200.	200.	0	0	0	.00	37.72	1018.86
*SECNO 10400.000									
10400.000	7.88	70.69	.00	.00	72.68	1.99	.37	.01	74.81
2280.0	.0	2280.0	.0	.0	201.3	.0	73.1	10.4	74.81
.34	.00	11.32	.00	.000	.016	.000	.000	62.82	981.17
.001853	200.	200.	200.	0	0	0	.00	37.65	1018.83
*SECNO 10600.000									
10600.000	7.86	71.05	.00	.00	73.06	2.01	.37	.00	75.19
2280.0	.0	2280.0	.0	.0	200.6	.0	74.0	10.6	75.19
.35	.00	11.37	.00	.000	.016	.000	.000	63.20	981.20
.001872	200.	200.	200.	0	0	0	.00	37.60	1018.80

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 10800.000									
10800.000	7.85	71.42	.00	.00	73.44	2.02	.38	.00	75.57
2280.0	.0	2280.0	.0	.0	200.1	.0	75.0	10.7	75.57
.35	.00	11.39	.00	.000	.016	.000	.000	63.58	981.22
.001885	200.	200.	200.	0	0	0	.00	37.55	1018.78
*SECNO 11000.000									
11000.000	7.84	71.79	.00	.00	73.82	2.02	.38	.00	75.95
2280.0	.0	2280.0	.0	.0	199.8	.0	75.9	10.9	75.95
.36	.00	11.41	.00	.000	.016	.000	.000	63.96	981.24
.001893	200.	200.	200.	0	0	0	.00	37.53	1018.76
*SECNO 11200.000									
11200.000	7.84	72.17	.00	.00	74.20	2.03	.38	.00	76.33
2280.0	.0	2280.0	.0	.0	199.6	.0	76.8	11.1	76.33
.36	.00	11.42	.00	.000	.016	.000	.000	64.34	981.24
.001897	200.	200.	200.	0	0	0	.00	37.52	1018.76
*SECNO 11300.000									
11300.000	7.84	72.36	.00	.00	74.39	2.03	.19	.00	76.52
2280.0	.0	2280.0	.0	.0	199.5	.0	77.3	11.2	76.52
.37	.00	11.43	.00	.000	.016	.000	.000	64.53	981.24
.001899	100.	100.	100.	0	0	0	.00	37.51	1018.76
*SECNO 11400.000									
11400.000	8.15	72.78	.00	.00	74.58	1.81	.18	.02	76.63
2280.0	.0	2280.0	.0	.0	211.5	.0	77.7	11.3	76.63
.37	.00	10.78	.00	.000	.016	.000	.000	64.63	980.77
.001622	100.	100.	100.	3	0	0	.00	38.45	1019.23
*SECNO 11600.000									
11600.000	8.45	73.28	.00	.00	74.90	1.62	.30	.02	76.84
2280.0	.0	2280.0	.0	.0	223.2	.0	78.7	11.4	76.84
.37	.00	10.22	.00	.000	.016	.000	.000	64.84	980.32
.001401	200.	200.	200.	2	0	0	.00	39.35	1019.68

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 11800.000									
11800.000	8.60	73.65	.00	.00	75.18	1.54	.27	.01	77.04
2280.0	.0	2280.0	.0	.0	229.3	.0	79.8	11.6	77.04
.38	.00	9.94	.00	.000	.016	.000	.000	65.04	980.09
.001302	200.	200.	200.	2	0	0	.00	39.82	1019.91
*SECNO 12000.000									
12000.000	8.71	73.96	.00	.00	75.44	1.48	.25	.01	77.25
2280.0	.0	2280.0	.0	.0	233.6	.0	80.8	11.8	77.25
.38	.00	9.76	.00	.000	.016	.000	.000	65.25	979.93
.001237	200.	200.	200.	2	0	0	.00	40.14	1020.07
*SECNO 12200.000									
12200.000	8.79	74.25	.00	.00	75.69	1.44	.24	.00	77.46
2280.0	.0	2280.0	.0	.0	236.8	.0	81.9	12.0	77.46
.39	.00	9.63	.00	.000	.016	.000	.000	65.46	979.81
.001192	200.	200.	200.	2	0	0	.00	40.38	1020.19
*SECNO 12261.000									
12261.000	8.81	74.33	.00	.00	75.76	1.43	.07	.00	77.52
2280.0	.0	2280.0	.0	.0	237.3	.0	82.2	12.0	77.52
.39	.00	9.61	.00	.000	.016	.000	.000	65.52	979.79
.001186	61.	61.	61.	0	0	0	.00	40.41	1020.21
*SECNO 12311.000									
12311.000	9.01	74.57	.00	.00	75.84	1.26	.06	.02	77.56
2280.0	.0	2280.0	.0	.0	252.7	.0	82.5	12.1	77.56
.39	.00	9.02	.00	.000	.016	.000	.000	65.56	976.97
.001097	50.	50.	50.	2	0	0	.00	46.06	1023.03
*SECNO 12463.000									
12463.000	8.19	74.45	.00	.00	76.18	1.72	.20	.14	78.26
2280.0	.0	2280.0	.0	.0	216.5	.0	83.3	12.2	78.26
.40	.00	10.53	.00	.000	.016	.000	.000	66.26	978.60
.001662	152.	152.	152.	2	0	0	.00	42.80	1021.40

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

*SECNO 12615.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 79.16 ELREA= 79.16

12615.000	7.43	74.59	74.59	.00	76.96	2.37	.31	.19	79.16
2280.0	.0	2280.0	.0	.0	184.7	.0	84.0	12.4	79.16
.40	.00	12.35	.00	.000	.016	.000	.000	67.16	980.14
.002549	152.	152.	152.	20	11	0	.00	39.71	1019.86

SPECIAL BRIDGE

7 DOWNSTREAM ELEV IS 74.07 , NOT 74.59 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	2.60	42.00	10.00	1.50	325.00	2.00	68.24	67.50

*SECNO 12742.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.64

CLASS B LOW FLOW

3420 BRIDGE W.S.= 75.60 BRIDGE VELOCITY= 12.30 CALCULATED CHANNEL AREA= 171.

EGPRS	EGLWC	H3	QWEIR	QLOW	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
.00	78.35	.00	0.	2280.	325.	344.	79.40	83.92	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 79.90 ELREA= 79.90

12742.000	9.31	77.21	.00	.00	78.35	1.14	1.39	.00	79.90
2280.0	.0	2280.0	.0	.0	266.6	.0	84.7	12.5	79.90
.40	.00	8.55	.00	.000	.016	.000	.000	67.90	976.38
.000951	127.	127.	127.	0	0	0	.00	47.25	1023.63

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

*SECNO 12760.000

12760.000	9.25	77.21	.00	.00	78.37	1.16	.02	.01	79.96
2280.0	.0	2280.0	.0	.0	263.8	.0	84.8	12.5	79.96
.41	.00	8.64	.00	.000	.016	.000	.000	67.96	976.49
.000978	18.	18.	18.	2	0	0	.00	47.01	1023.51

*SECNO 12870.000

12870.000	8.68	77.14	.00	.00	78.57	1.43	.11	.08	80.45
2280.0	.0	2280.0	.0	.0	237.7	.0	85.4	12.6	80.45
.41	.00	9.59	.00	.000	.016	.000	.000	68.45	977.63
.001292	100.	100.	100.	2	0	0	.00	44.74	1022.37

*SECNO 12920.000

3301 HV CHANGED MORE THAN HVINS

12920.000	7.87	76.84	.00	.00	78.81	1.97	.08	.16	79.97
2280.0	.0	2280.0	.0	.0	202.6	.0	85.6	12.7	79.97
.41	.00	11.26	.00	.000	.016	.000	.000	68.97	979.26
.001987	50.	50.	50.	3	0	0	.00	41.48	1020.74

*SECNO 13000.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

13000.000	7.43	76.82	76.82	.00	79.19	2.37	.18	.12	80.39
2280.0	.0	2280.0	.0	.0	184.7	.0	86.0	12.8	80.39
.41	.00	12.35	.00	.000	.016	.000	.000	69.39	980.14
.002550	80.	80.	80.	3	11	0	.00	39.71	1019.86

*SECNO 13100.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

13100.000	7.44	77.36	77.36	.00	79.72	2.36	.25	.00	80.92
2280.0	.0	2280.0	.0	.0	185.1	.0	86.4	12.9	80.92
.41	.00	12.32	.00	.000	.016	.000	.000	69.92	980.12
.002534	100.	100.	100.	20	5	0	.00	39.76	1019.88

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

*SECNO 13200.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

13200.000	7.44	77.89	77.89	.00	80.25	2.36	.25	.00	81.45
2280.0	.0	2280.0	.0	.0	185.0	.0	86.8	12.9	81.45
.42	.00	12.33	.00	.000	.016	.000	.000	70.45	980.13
.002538	100.	100.	100.	20	5	0	.00	39.75	1019.87

*SECNO 13300.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

13300.000	7.44	78.41	78.41	.00	80.77	2.36	.25	.00	81.97
2280.0	.0	2280.0	.0	.0	185.0	.0	87.3	13.0	81.97
.42	.00	12.32	.00	.000	.016	.000	.000	70.97	980.13
.002537	100.	100.	100.	20	5	0	.00	39.75	1019.87

*SECNO 13400.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

13400.000	7.44	78.94	78.94	.00	81.30	2.36	.25	.00	82.50
2280.0	.0	2280.0	.0	.0	185.0	.0	87.7	13.1	82.50
.42	.00	12.32	.00	.000	.016	.000	.000	71.50	980.13
.002537	100.	100.	100.	20	5	0	.00	39.75	1019.87

*SECNO 13500.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

13500.000	7.44	79.47	79.47	.00	81.83	2.36	.25	.00	83.03
2280.0	.0	2280.0	.0	.0	185.0	.0	88.1	13.2	83.03
.42	.00	12.33	.00	.000	.016	.000	.000	72.03	980.13
.002537	100.	100.	100.	20	5	0	.00	39.75	1019.87

*SECNO 13700.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY

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


3720 CRITICAL DEPTH ASSUMED
 13700.000     7.44     80.61     80.61       .00     82.97      2.36       .51       .00     84.17
    2280.0       .0    2280.0       .0        .0     185.0        .0      89.0      13.4     84.17
       .43      .00     12.32      .00      .000      .016      .000      .000     73.17    980.13
   .002537     200.      200.     200.        20         5         0       .00     39.75   1019.87


*SECNO 13800.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 13800.000     7.44     81.18     81.18       .00     83.54      2.36       .25       .00     84.74
    2280.0       .0    2280.0       .0        .0     185.0        .0      89.4      13.5     84.74
       .43      .00     12.32      .00      .000      .016      .000      .000     73.74    980.13
   .002537     100.      100.     100.        20         5         0       .00     39.75   1019.87


*SECNO 13895.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
     PROBABLE MINIMUM SPECIFIC ENERGY
     CRITICAL DEPTH ASSUMED
 13895.000     7.44     81.67     81.67       .00     84.03      2.36       .24       .00     85.23
    2280.0       .0    2280.0       .0        .0     185.0        .0      89.8      13.6     85.23
       .43      .00     12.33      .00      .000      .016      .000      .000     74.23    980.13
   .002537      95.       95.      95.        20         5         0       .00     39.75   1019.87


*SECNO 13942.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 13942.000     7.44     81.92     81.92       .00     84.28      2.36       .12       .00     84.48
    2280.0       .0    2280.0       .0        .0     185.0        .0      90.0      13.6     84.48
       .43      .00     12.32      .00      .000      .016      .000      .000     74.48    980.13
   .002537      47.       47.      47.        20         5         0       .00     39.75   1019.87


*SECNO 14000.000

3301 HV CHANGED MORE THAN HVINS
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ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.50

14000.000	8.97	83.75	.00	.00	84.51	.76	.07	.16	84.78
1753.0	.0	1753.0	.0	.0	250.4	.0	90.3	13.7	84.78
.44	.00	7.00	.00	.000	.016	.000	.000	74.78	977.07
.000665	58.	58.	58.	4	0	0	.00	45.86	1022.93

*SECNO 14100.000

14100.000	8.40	83.70	.00	.00	84.64	.94	.08	.05	85.30
1753.0	.0	1753.0	.0	.0	225.1	.0	90.8	13.8	85.30
.44	.00	7.79	.00	.000	.016	.000	.000	75.30	978.20
.000885	100.	100.	100.	2	0	0	.00	43.60	1021.80

*SECNO 14200.000

14200.000	7.82	83.63	.00	.00	84.82	1.19	.10	.07	85.81
1753.0	.0	1753.0	.0	.0	200.5	.0	91.3	13.9	85.81
.44	.00	8.74	.00	.000	.016	.000	.000	75.81	979.36
.001207	100.	100.	100.	2	0	0	.00	41.28	1020.64

*SECNO 14300.000

14300.000	7.19	83.52	.00	.00	85.07	1.55	.14	.11	86.33
1753.0	.0	1753.0	.0	.0	175.3	.0	91.7	14.0	86.33
.44	.00	10.00	.00	.000	.016	.000	.000	76.33	980.62
.001734	100.	100.	100.	2	0	0	.00	38.76	1019.38

*SECNO 14400.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

14400.000	6.52	83.37	83.37	.00	85.48	2.12	.21	.17	86.85
1753.0	.0	1753.0	.0	.0	150.1	.0	92.1	14.1	86.85
.45	.00	11.68	.00	.000	.016	.000	.000	76.85	981.97
.002634	100.	100.	100.	3	11	0	.00	36.07	1018.03

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


*SECNO 14500.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 14500.000      6.53     83.90     83.90       .00     86.00      2.11       .26       .00     87.37
    1753.0        .0    1753.0        .0        .0     150.4        .0      92.5      14.1     87.37
       .45       .00     11.65       .00      .000      .016      .000      .000     77.37    981.95
   .002619      100.      100.      100.        20         5         0       .00     36.10   1018.05


*SECNO 14600.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 14600.000      6.52     84.41     84.41       .00     86.52      2.11       .26       .00     87.89
    1753.0        .0    1753.0        .0        .0     150.3        .0      92.8      14.2     87.89
       .45       .00     11.66       .00      .000      .016      .000      .000     77.89    981.95
   .002623      100.      100.      100.        20         5         0       .00     36.09   1018.05


    O 14700.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 14700.000      6.52     84.93     84.93       .00     87.04      2.11       .26       .00     88.41
    1753.0        .0    1753.0        .0        .0     150.4        .0      93.2      14.3     88.41
       .45       .00     11.66       .00      .000      .016      .000      .000     78.41    981.95
   .002622      100.      100.      100.        20         5         0       .00     36.10   1018.05


*SECNO 14800.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 14800.000      6.52     85.45     85.45       .00     87.56      2.11       .26       .00     88.93
    1753.0        .0    1753.0        .0        .0     150.4        .0      93.5      14.4     88.93
       .46       .00     11.66       .00      .000      .016      .000      .000     78.93    981.95
   .002622      100.      100.      100.        20         5         0       .00     36.10   1018.05


*SECNO 14900.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
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ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3720 CRITICAL DEPTH ASSUMED

14900.000	6.52	85.97	85.97	.00	88.08	2.11	.26	.00	89.45
1753.0	.0	1753.0	.0	.0	150.4	.0	93.8	14.5	89.45
.46	.00	11.66	.00	.000	.016	.000	.000	79.45	981.95
.002622	100.	100.	100.	20	5	0	.00	36.10	1018.05

*SECNO 14973.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.59

14973.000	7.99	87.82	.00	.00	88.31	.49	.06	.16	90.19
1753.0	.0	1753.0	.0	.0	313.4	.0	94.2	14.5	90.33
.46	.00	5.59	.00	.000	.016	.000	.000	79.83	973.24
.000391	73.	73.	73.	3	0	0	.00	55.23	1028.46

NO 14995.000

14995.000	7.96	87.87	.00	.00	88.32	.45	.01	.00	90.41
1753.0	.0	1753.0	.0	.0	325.1	.0	94.4	14.6	90.41
.46	.00	5.39	.00	.000	.016	.000	.000	79.91	971.60
.000358	22.	22.	22.	1	0	0	.00	56.80	1028.40

*SECNO 15066.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.55

15066.000	7.98	88.13	.00	.00	88.36	.22	.02	.02	90.65
1753.0	.0	1753.0	.0	.0	463.0	.0	95.0	14.7	90.70
.47	.00	3.79	.00	.000	.016	.000	.000	80.15	971.53
.000149	71.	71.	71.	2	0	0	.00	65.97	1037.50

*SECNO 15067.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .38

3470 ENCROACHMENT STATIONS= 1012.5 1037.5 TYPE= 1 TARGET= -1012.500

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 80.15 ELREA= 100000.00

15067.000	8.07	88.22	.00	.00	88.36	.14	.00	.01	80.15
610.0	.0	610.0	.0	.0	201.8	.0	95.0	14.7	100000.00
.47	.00	3.02	.00	.000	.016	.000	.000	80.15	1012.50
.000127	0.	0.	0.	2	0	0	.00	25.00	1037.50

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	2	.013	.20	3.00	25.00	5.50	10.00	575.00	8	1	81.05	80.15

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE 1 - WINGWALLS FLARED 30 TO 75 DEGREES

*SECNO 15635.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 85.986 EGOC = 89.426 PCWSE= 88.223 ELTRD= **********

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
85.99	89.43	1.06	0.	610.	3.547	110.09999999.00		0.

3470 ENCROACHMENT STATIONS= 1016.0 1037.0 TYPE= 1 TARGET= -1016.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 81.04 ELREA= 100000.00

15635.000	8.19	89.23	.00	.00	89.43	.20	1.06	.00	81.04
610.0	.0	610.0	.0	.0	172.0	.0	97.4	15.0	100000.00
.51	.00	3.55	.00	.000	.016	.000	.000	81.04	1016.00
.000191	560.	560.	560.	2	0	0	.00	21.00	1037.00

*SECNO 15636.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.09

36.000	8.14	89.18	.00	.00	89.45	.27	.00	.02	81.04
1753.0	1090.1	662.9	.0	253.5	171.0	.0	97.4	15.0	91.55
.51	4.30	3.88	.00	.016	.016	.000	.000	81.04	976.72
.000165	0.	0.	0.	2	0	0	.00	60.28	1037.00

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

*SECNO 15689.000

15689.000	8.05	89.16	.00	.00	89.47	.31	.01	.01	91.11
1753.0	.0	1753.0	.0	.0	389.4	.0	97.9	15.0	91.61
.52	.00	4.50	.00	.000	.016	.000	.000	81.11	977.33
.000225	53.	53.	53.	2	0	0	.00	62.77	1040.09

*SECNO 15750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .64

15750.000	7.76	88.92	.00	.00	89.60	.68	.02	.11	91.66
1753.0	.0	1753.0	.0	.0	265.1	.0	98.4	15.1	91.16
.52	.00	6.61	.00	.000	.016	.000	.000	81.16	978.35
.000555	61.	61.	61.	2	0	0	.00	45.79	1024.15

*SECNO 15800.000

15800.000	7.70	88.93	.00	.00	89.64	.72	.03	.01	90.56
1753.0	.0	1753.0	.0	.0	258.2	.0	98.7	15.2	91.56
.52	.00	6.79	.00	.000	.016	.000	.000	81.23	976.98
.000604	50.	50.	50.	1	0	0	.00	46.01	1022.99

*SECNO 15990.000

15990.000	7.58	89.02	.00	.00	89.77	.75	.12	.01	90.77
1753.0	.0	1753.0	.0	.0	253.0	.0	99.8	15.4	91.77
.53	.00	6.93	.00	.000	.016	.000	.000	81.44	977.16
.000639	190.	190.	190.	1	0	0	.00	45.66	1022.82

*SECNO 16000.000

3280 CROSS SECTION 16000.00 EXTENDED .49 FEET

16000.000	7.60	89.05	.00	.00	89.78	.73	.01	.00	88.50
1753.0	3.5	1749.5	.0	2.6	254.8	.0	99.9	15.4	91.78
.53	1.38	6.87	.00	.016	.016	.000	.000	81.45	972.40
.000613	10.	10.	10.	1	0	0	.00	50.41	1022.81

*SECNO 16300.000

3280 CROSS SECTION 16300.00 EXTENDED .66 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
16300.000	7.43	89.21	.00	.00	89.98	.77	.19	.01	88.50
1753.0	5.8	1747.2	.0	3.4	247.4	.0	101.6	15.7	92.11
.54	1.70	7.06	.00	.016	.016	.000	.000	81.78	972.90
.000659	300.	300.	300.	2	0	0	.00	49.67	1022.57

*SECNO 16650.000
3280 CROSS SECTION 16650.00 EXTENDED .86 FEET

16650.000	7.24	89.41	.00	.00	90.23	.82	.24	.01	88.51
1753.0	9.1	1743.9	.0	4.4	239.2	.0	103.6	16.1	92.50
.55	2.06	7.29	.00	.016	.016	.000	.000	82.17	973.50
.000713	350.	350.	350.	1	0	0	.00	48.80	1022.30

*SECNO 17000.000
3280 CROSS SECTION 17000.00 EXTENDED 1.10 FEET

17000.000	7.09	89.64	.00	.00	90.51	.87	.26	.01	88.50
1753.0	13.6	1739.4	.0	5.6	232.0	.0	105.5	16.5	92.88
.57	2.43	7.50	.00	.016	.016	.000	.000	82.55	974.10
.000764	350.	350.	350.	1	0	0	.00	47.97	1022.07

*SECNO 17300.000
3280 CROSS SECTION 17300.00 EXTENDED 1.30 FEET

17300.000	6.97	89.85	.00	.00	90.75	.90	.24	.01	88.50
1753.0	18.2	1734.8	.0	6.6	226.3	.0	107.2	16.8	93.21
.58	2.73	7.67	.00	.016	.016	.000	.000	82.88	974.60
.000807	300.	300.	300.	1	0	0	.00	47.28	1021.88

*SECNO 17315.000

17315.000	6.92	89.82	.00	.00	90.78	.96	.01	.02	92.23
1753.0	.0	1753.0	.0	.0	223.2	.0	107.2	16.9	93.23
.58	.00	7.85	.00	.000	.016	.000	.000	82.90	978.18
.000908	15.	15.	15.	2	0	0	.00	43.62	1021.80

*SECNO 17400.000

17400.000	6.90	89.90	.00	.00	90.86	.97	.08	.00	92.32
1753.0	.0	1753.0	.0	.0	222.3	.0	107.7	16.9	93.32
.58	.00	7.89	.00	.000	.016	.000	.000	82.99	978.21
.000919	85.	85.	85.	0	0	0	.00	43.56	1021.77

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


*SECNO 17600.000
 17600.000     6.86     90.07       .00       .00     91.05       .98       .19       .00     92.54
    1753.0       .0    1753.0       .0       .0     220.6       .0     108.7      17.1     93.54
       .59      .00      7.95      .00      .000      .016      .000      .000     83.21    978.27
   .000938     200.      200.     200.         0         0         0       .00     43.44   1021.71


*SECNO 17650.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .63

 17650.000     7.60     90.87       .00       .00     91.15       .28       .03       .07     93.27
     642.0       .0     642.0       .0       .0     150.5       .0     108.9      17.2     93.27
       .59      .00      4.27      .00      .000      .016      .000      .000     83.27    984.16
   .000313      50.       50.      50.         3         0         0       .00     31.68   1015.84


   NO 17700.000
 17700.000     7.56     90.88       .00       .00     91.17       .29       .02       .00     93.32
     642.0       .0     642.0       .0       .0     149.5       .0     109.1      17.2     93.32
       .59      .00      4.30      .00      .000      .016      .000      .000     83.32    984.21
   .000319      50.       50.      50.         1         0         0       .00     31.58   1015.79


*SECNO 17900.000
 17900.000     7.39     90.94       .00       .00     91.24       .31       .07       .01     93.54
     642.0       .0     642.0       .0       .0     144.1       .0     109.7      17.4     93.54
       .61      .00      4.46      .00      .000      .016      .000      .000     83.54    984.47
   .000352     200.      200.     200.         1         0         0       .00     31.05   1015.53


*SECNO 18100.000
 18100.000     7.23     90.99       .00       .00     91.32       .33       .07       .01     93.76
     642.0       .0     642.0       .0       .0     139.2       .0     110.4      17.5     93.76
       .62      .00      4.61      .00      .000      .016      .000      .000     83.76    984.72
   .000386     200.      200.     200.         0         0         0       .00     30.57   1015.28


*SECNO 18300.000
 18300.000     7.07     91.06       .00       .00     91.41       .35       .08       .01     93.99
     642.0       .0     642.0       .0       .0     134.5       .0     111.0      17.6     93.99
       .63      .00      4.77      .00      .000      .016      .000      .000     83.99    984.95
   )00424     200.      200.     200.         0         0         0       .00     30.10   1015.05
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 18500.000									
18500.000	6.93	91.13	.00	.00	91.51	.38	.09	.01	94.21
642.0	.0	642.0	.0	.0	130.1	.0	111.6	17.8	94.21
.64	.00	4.94	.00	.000	.016	.000	.000	84.21	985.18
.000464	200.	200.	200.	0	0	0	.00	29.64	1014.82
*SECNO 18700.000									
18700.000	6.78	91.21	.00	.00	91.61	.40	.10	.01	94.43
642.0	.0	642.0	.0	.0	125.9	.0	112.2	17.9	94.43
.65	.00	5.10	.00	.000	.016	.000	.000	84.43	985.39
.000506	200.	200.	200.	0	0	0	.00	29.21	1014.61
*SECNO 18750.000									
18750.000	6.75	91.23	.00	.00	91.64	.41	.03	.00	93.48
642.0	.0	642.0	.0	.0	124.8	.0	112.4	18.0	93.48
.66	.00	5.14	.00	.000	.016	.000	.000	84.48	985.44
.000518	50.	50.	50.	0	0	0	.00	29.13	1014.56
*SECNO 18800.000									
18800.000	6.72	91.25	.00	.00	91.67	.42	.03	.00	93.54
642.0	.0	642.0	.0	.0	123.9	.0	112.5	18.0	93.54
.66	.00	5.18	.00	.000	.016	.000	.000	84.54	985.49
.000529	50.	50.	50.	0	0	0	.00	29.03	1014.51
*SECNO 19000.000									
19000.000	6.59	91.34	.00	.00	91.79	.44	.11	.01	93.76
642.0	.0	642.0	.0	.0	120.3	.0	113.1	18.1	93.76
.67	.00	5.34	.00	.000	.016	.000	.000	84.76	985.68
.000573	200.	200.	200.	1	0	0	.00	28.65	1014.32
*SECNO 19200.000									
19200.000	6.47	91.45	.00	.00	91.91	.47	.12	.01	93.98
642.0	.0	642.0	.0	.0	117.0	.0	113.6	18.2	93.98
.68	.00	5.49	.00	.000	.016	.000	.000	84.98	985.86
.000618	200.	200.	200.	0	0	0	.00	28.29	1014.14

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


*SECNO 19400.000
 19400.000     6.36     91.56      .00       .00     92.05      .49       .13       .01     94.20
     642.0      .0     642.0      .0        .0     113.9       .0     114.1      18.4     94.20
       .69     .00      5.64      .00      .000      .016     .000      .000     85.20    986.02
   .000664     200.     200.     200.        0         0        0       .00     27.95   1013.98


*SECNO 19600.000
 19600.000     6.26     91.67      .00       .00     92.19      .52       .14       .01     94.42
     642.0      .0     642.0      .0        .0     111.1       .0     114.7      18.5     94.42
       .70     .00      5.78      .00      .000      .016     .000      .000     85.42    986.18
   .000710     200.     200.     200.        0         0        0       .00     27.64   1013.82


*SECNO 19800.000
 19800.000     6.17     91.80      .00       .00     92.35      .54       .15       .01     94.64
     642.0      .0     642.0      .0        .0     108.6       .0     115.2      18.6     94.64
       .71     .00      5.91      .00      .000      .016     .000      .000     85.64    986.32
   .000756     200.     200.     200.        0         0        0       .00     27.37   1013.68


*SECNO 20000.000
 20000.000     6.09     91.94      .00       .00     92.51      .57       .16       .01     94.86
     642.0      .0     642.0      .0        .0     106.4       .0     115.7      18.8     94.86
       .72     .00      6.04      .00      .000      .016     .000      .000     85.86    986.44
   .000799     200.     200.     200.        0         0        0       .00     27.12   1013.56


*SECNO 20039.000
 20039.000     6.28     92.17      .00       .00     92.55      .38       .03       .02     94.90
     550.0      .0     550.0      .0        .0     111.4       .0     115.8      18.8     94.90
       .72     .00      4.94      .00      .000      .016     .000      .000     85.90    986.16
   .000518      39.      39.      39.         2         0        0       .00     27.68   1013.84


*SECNO 20050.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .64


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        95.00 ELREA=        95.00

 20050.000     6.00     91.91      .00       .00     92.68      .77       .01       .12     94.91
     550.0      .0     550.0      .0        .0      78.0       .0     115.8      18.8     94.91
       .72     .00      7.05      .00      .000      .016     .000      .000     85.91    993.50
    J01264      11.      11.      11.         2         0        0       .00     13.00   1006.50
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	2	.013	.20	3.00	50.00	7.00	6.00	50.00	8	1	85.97	85.91

CHART 8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE 1 - WINGWALLS FLARED 30 TO 75 DEGREES

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
*SECNO 20100.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 92.455 EGOC = 93.082 PCWSE= 91.908 ELTRD= 95.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
92.45	93.08	.40	0.	550.	6.555	84.0	95.00	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 95.00 ELREA= 95.00

20100.000	6.44	92.41	.00	.00	93.08	.67	.40	.00	94.97
550.0	.0	550.0	.0	.0	83.9	.0	115.9	18.8	94.97
.72	.00	6.56	.00	.000	.016	.000	.000	85.97	993.50
.001040	50.	50.	50.	2	0	0	.00	13.00	1006.50

*SECNO 20111.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.71

20111.000	6.86	92.84	.00	.00	93.13	.29	.01	.04	94.98
550.0	.0	550.0	.0	.0	128.1	.0	115.9	18.8	94.98
.72	.00	4.29	.00	.000	.016	.000	.000	85.98	985.27
.000355	11.	11.	11.	2	0	0	.00	29.47	1014.73

*SECNO 20200.000

20200.000	6.79	92.86	.00	.00	93.16	.30	.03	.00	95.08
550.0	.0	550.0	.0	.0	125.8	.0	116.2	18.9	95.08
.73	.00	4.37	.00	.000	.016	.000	.000	86.08	985.39
000372	89.	89.	89.	2	0	0	.00	29.23	1014.61

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 20400.000									
20400.000	6.63	92.93	.00	.00	93.25	.32	.08	.01	95.30
550.0	.0	550.0	.0	.0	121.5	.0	116.7	19.0	95.30
.74	.00	4.53	.00	.000	.016	.000	.000	86.30	985.61
.000409	200.	200.	200.	0	0	0	.00	28.78	1014.39
*SECNO 20600.000									
20600.000	6.48	93.00	.00	.00	93.34	.34	.09	.01	95.52
550.0	.0	550.0	.0	.0	117.2	.0	117.3	19.1	95.52
.75	.00	4.69	.00	.000	.016	.000	.000	86.52	985.84
.000451	200.	200.	200.	0	0	0	.00	28.32	1014.16
*SECNO 20800.000									
20800.000	6.34	93.07	.00	.00	93.44	.37	.09	.01	95.74
550.0	.0	550.0	.0	.0	113.2	.0	117.8	19.3	95.74
.76	.00	4.86	.00	.000	.016	.000	.000	86.74	986.06
.000495	200.	200.	200.	0	0	0	.00	27.88	1013.94
*SECNO 21000.000									
21000.000	6.20	93.16	.00	.00	93.55	.39	.10	.01	95.96
550.0	.0	550.0	.0	.0	109.5	.0	118.3	19.4	95.96
.77	.00	5.02	.00	.000	.016	.000	.000	86.96	986.27
.000542	200.	200.	200.	0	0	0	.00	27.47	1013.73
*SECNO 21200.000									
21200.000	6.08	93.26	.00	.00	93.67	.42	.11	.01	96.18
550.0	.0	550.0	.0	.0	106.1	.0	118.8	19.5	96.18
.79	.00	5.19	.00	.000	.016	.000	.000	87.18	986.46
.000591	200.	200.	200.	0	0	0	.00	27.09	1013.54
*SECNO 21400.000									
21400.000	5.96	93.36	.00	.00	93.80	.44	.12	.01	96.40
550.0	.0	550.0	.0	.0	103.0	.0	119.3	19.6	96.40
.80	.00	5.34	.00	.000	.016	.000	.000	87.40	986.63
.000640	200.	200.	200.	0	0	0	.00	26.73	1013.37

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


*SECNO 21600.000
 21600.000     5.86     93.48       .00       .00     93.94       .47       .13       .01     96.62
     550.0       .0     550.0       .0       .0     100.2       .0     119.8      19.8     96.62
       .81      .00      5.49      .00      .000      .016      .000      .000     87.62    986.79
   .000689     200.      200.     200.         0         0         0       .00     26.41   1013.21


*SECNO 21711.000
 21711.000     5.80     93.54       .00       .00     94.03       .48       .08       .00     96.74
     550.0       .0     550.0       .0       .0      98.7       .0     120.0      19.8     96.74
       .81      .00      5.57      .00      .000      .016      .000      .000     87.74    986.88
   .000718     111.      111.     111.         0         0         0       .00     26.24   1013.12


*SECNO -15066.000
START TRIB COMP
 -15066.000 15066.000    88.134
-15066.000     7.98     88.13       .00       .00     88.36       .22       .00       .00     90.65
    1753.0       .0    1753.0       .0       .0     462.9       .0     120.5      19.9     90.70
       .82      .00      3.79      .00      .000      .016      .000      .000     80.15    971.53
    J00149      71.       71.      71.         0         0         0       .00     65.97   1037.50


*SECNO 15067.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .50


3470 ENCROACHMENT STATIONS=         .0    1012.5  TYPE=      1  TARGET=     1012.499

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       140.65 ELREA=    100000.00

 15067.000     7.93     88.08       .00       .00     88.38       .30       .00       .02    140.65
    1143.0       .0    1143.0       .0       .0     261.2       .0     120.5      19.9 100000.00
       .82      .00      4.38      .00      .000      .016      .000      .000     80.15    971.64
   .000249       0.        0.       0.         2         0         0       .00     40.86   1012.50


*SECNO 15097.000
 15097.000     7.84     88.08       .00       .00     88.39       .31       .01       .00     90.74
    1143.0       .0    1143.0       .0       .0     257.8       .0     120.6      19.9     90.74
       .82      .00      4.43      .00      .000      .016      .000      .000     80.24    971.80
   .000259      30.       30.      30.         0         0         0       .00     40.70   1012.50
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 :CNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    L-BANK ELEV
Q         QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA      R-BANK ELEV
TIME      VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN    SSTA
SLOPE     XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST


CCHV=     .300 CEHV=     .500
*SECNO 15121.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       90.78 ELREA=       90.78

 15121.000     7.69    87.97      .00      .00    88.52      .55      .01      .12    90.78
    1143.0       .0   1143.0       .0       .0    192.3       .0    120.8     19.9    90.78
       .82      .00     5.94      .00     .000     .016     .000     .000    80.28   987.50
   .000511      24.      24.      24.        2        0        0      .00    25.00  1012.50



SPECIAL CULVERT

SC  CUNO      CUNV     ENTLC     COFQ     RDLEN     RISE     SPAN    CULVLN    CHRT      SCL     ELCHU    ELCHD
     2         .013      .20     3.00     25.00     6.00    12.00    107.00       8        1     80.44    80.28

CHART  8 - BOX CULVERT WITH FLARED WINGWALLS; NO INLET TOP EDGE BEVEL
SCALE  1 - WINGWALLS FLARED 30 TO 75 DEGREES

    ,O 15228.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =     87.136  EGOC =     89.349  PCWSE=     87.970  ELTRD= **********

SPECIAL CULVERT

     EGIC     EGOC       H4    QWEIR    QCULV      VCH    ACULV    ELTRD   WEIRLN
    87.14    89.35      .83       0.    1143.    5.406   144.09999999.00       0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       90.94 ELREA=       90.94

 15228.000     8.46    88.90      .00      .00    89.35      .45      .83      .00    90.94
    1143.0       .0   1143.0       .0       .0    211.4       .0    121.3     20.0    90.94
       .83      .00     5.41      .00     .000     .016     .000     .000    80.44   987.50
   .000392     107.     107.     107.        2        0        0      .00    25.00  1012.50


*SECNO 15258.000
 15258.000     8.41    88.90      .00      .00    89.37      .46      .01      .01    90.99
    1143.0       .0   1143.0       .0       .0    209.1       .0    121.4     20.0    90.99
       .83      .00     5.47      .00     .000     .016     .000     .000    80.49   979.16
    000455      30.      30.      30.        0        0        0      .00    41.68  1020.84
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 SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
 Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
 TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
 SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 15300.000
 15300.000     8.36      88.92       .00        .00      89.39       .47        .02        .00      91.05
    1143.0       .0     1143.0       .0         .0      207.0        .0      121.6       20.1      91.05
       .83      .00       5.52      .00       .000       .016      .000       .000      80.55     979.26
   .000468      42.        42.      42.          0          0         0        .00      41.47    1020.74


*SECNO 15500.000
 15500.000     8.14      88.99       .00        .00      89.51       .52        .10        .02      91.35
    1143.0       .0     1143.0       .0         .0      198.0        .0      122.5       20.3      91.35
       .84      .00       5.77      .00       .000       .016      .000       .000      80.85     979.70
   .000527     200.       200.     200.          1          0         0        .00      40.60    1020.30


*SECNO 15568.000
 15568.000     8.07      89.02       .00        .00      89.56       .53        .04        .01      91.46
    1143.0       .0     1143.0       .0         .0      195.0        .0      122.8       20.3      91.46
       .84      .00       5.86      .00       .000       .016      .000       .000      80.96     979.85
   .000549      68.        68.      68.          0          0         0        .00      40.29    1020.15


*SECNO 15635.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.49


3470 ENCROACHMENT STATIONS=          .0    1016.0  TYPE=      1  TARGET=     1015.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       141.54 ELREA=    100000.00

 15635.000     8.31      89.35       .00        .00      89.65       .30        .02        .07     141.54
    1143.0       .0     1143.0       .0         .0      260.3        .0      123.2       20.4  100000.00
       .85      .00       4.39      .00       .000       .016      .000       .000      81.04     976.37
   .000247      67.        67.      67.          2          0         0        .00      39.62    1016.00
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THIS RUN EXECUTED 17OCT95 15:53:30

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

DYSART DRAIN - 60% DESIG

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	CRIWS	EG	VCH	FRCH	ELMIN	K*CHSL
	936.000	3962.00	56.72	.00	57.07	4.77	.33	49.25	.00
*	966.000	3962.00	56.12	56.12	58.41	12.13	1.00	50.75	50.00
*	967.500	3962.00	58.46	.00	58.95	5.63	.34	45.75	-5000.00
	997.700	3962.00	58.38	.00	59.05	6.57	.40	46.00	8.33
*	1025.400	3962.00	59.54	59.54	62.40	13.57	1.01	51.15	185.92
*	1067.400	3962.00	61.19	61.19	64.19	13.89	1.01	51.19	.95
	1075.000	3962.00	61.86	.00	64.26	12.43	.88	51.20	.89
	1100.000	3962.00	61.99	.00	64.32	12.24	.86	51.22	.90
	1200.000	3962.00	62.40	.00	64.50	11.63	.81	51.31	.90
	1300.000	3962.00	62.65	.00	64.65	11.35	.78	51.40	.90
	1500.000	3962.00	63.07	.00	64.93	10.94	.75	51.58	.90
	1700.000	3962.00	63.41	.00	65.18	10.69	.73	51.76	.90
	1900.000	3962.00	63.71	.00	65.42	10.50	.71	51.94	.90
	1950.000	3962.00	63.69	.00	65.50	10.79	.70	51.99	1.01
	2100.000	3962.00	63.89	.00	65.67	10.71	.69	52.13	.90
	2300.000	3962.00	64.14	.00	65.89	10.61	.68	52.31	.90
	2500.000	3962.00	64.37	.00	66.10	10.56	.68	52.49	.90

SECNO	Q	CWSEL	CRIWS	EG	VCH	FRCH	ELMIN	K*CHSL
2700.000	3962.00	64.60	.00	66.30	10.46	.67	52.67	.90
2900.000	3962.00	64.82	.00	66.51	10.43	.67	52.85	.90
3100.000	3962.00	65.04	.00	66.71	10.38	.66	53.03	.90
3200.000	2280.00	66.49	.00	66.88	5.03	.31	53.12	.90
3400.000	2280.00	66.52	.00	66.93	5.12	.31	53.30	.90
3600.000	2280.00	66.56	.00	66.98	5.20	.32	53.48	.90
3800.000	2280.00	66.59	.00	67.03	5.30	.33	53.66	.90
4000.000	2280.00	66.63	.00	67.08	5.39	.33	53.84	.90
4200.000	2280.00	66.67	.00	67.14	5.48	.34	54.02	.90
4400.000	2280.00	66.71	.00	67.20	5.58	.35	54.20	.90
4600.000	2280.00	66.76	.00	67.26	5.68	.36	54.38	.90
4800.000	2280.00	66.80	.00	67.32	5.78	.37	54.56	.90
5000.000	2280.00	66.85	.00	67.39	5.87	.37	54.74	.90
5200.000	2280.00	66.90	.00	67.46	5.97	.38	54.92	.90
5400.000	2280.00	66.96	.00	67.53	6.08	.39	55.10	.90
5600.000	2280.00	67.02	.00	67.61	6.17	.40	55.28	.90
5800.000	2280.00	67.07	.00	67.69	6.28	.41	55.46	.90
6000.000	2280.00	67.14	.00	67.77	6.37	.41	55.64	.90
6200.000	2280.00	67.20	.00	67.85	6.48	.42	55.82	.90
6400.000	2280.00	67.27	.00	67.94	6.58	.43	56.00	.90
6600.000	2280.00	67.35	.00	68.04	6.68	.44	56.18	.90
6800.000	2280.00	67.42	.00	68.13	6.77	.45	56.36	.90
7000.000	2280.00	67.50	.00	68.23	6.87	.46	56.54	.90
7130.000	2280.00	67.55	.00	68.30	6.93	.46	56.65	.90
7180.000	2280.00	67.60	.00	68.35	6.94	.46	56.70	.48
7200.000	2280.00	67.61	.00	68.36	6.94	.46	56.72	.90

SECNO	Q	CWSEL	CRIWS	EG	VCH	FRCH	ELMIN	K*CHSL
7300.000	2280.00	67.64	.00	68.42	7.11	.48	56.91	1.90
7400.000	2280.00	67.66	.00	68.49	7.28	.49	57.10	1.90
7600.000	2280.00	67.73	.00	68.63	7.63	.52	57.48	1.90
7800.000	2280.00	67.80	.00	68.79	7.99	.55	57.86	1.90
8000.000	2280.00	67.89	.00	68.97	8.37	.59	58.24	1.90
8200.000	2280.00	67.99	.00	69.18	8.75	.62	58.62	1.90
8400.000	2280.00	68.11	.00	69.40	9.12	.65	59.00	1.90
8600.000	2280.00	68.25	.00	69.65	9.49	.69	59.38	1.90
8800.000	2280.00	68.42	.00	69.93	9.85	.72	59.76	1.90
9000.000	2280.00	68.61	.00	70.22	10.17	.75	60.14	1.90
9200.000	2280.00	68.84	.00	70.53	10.46	.78	60.52	1.90
9400.000	2280.00	69.09	.00	70.87	10.70	.80	60.90	1.90
9600.000	2280.00	69.37	.00	71.21	10.90	.82	61.28	1.90
9800.000	2280.00	69.68	.00	71.56	11.02	.83	61.66	1.90
9900.000	2280.00	69.83	.00	71.75	11.09	.84	61.85	1.90
9950.000	2280.00	69.89	.00	71.85	11.22	.85	61.96	2.24
10000.000	2280.00	69.98	.00	71.94	11.23	.85	62.06	1.90
10200.000	2280.00	70.33	.00	72.31	11.28	.86	62.44	1.90
10400.000	2280.00	70.69	.00	72.68	11.32	.86	62.82	1.90
10600.000	2280.00	71.05	.00	73.06	11.37	.87	63.20	1.90
10800.000	2280.00	71.42	.00	73.44	11.39	.87	63.58	1.90
11000.000	2280.00	71.79	.00	73.82	11.41	.87	63.96	1.90
11200.000	2280.00	72.17	.00	74.20	11.42	.87	64.34	1.90
11300.000	2280.00	72.36	.00	74.39	11.43	.87	64.53	1.90
11400.000	2280.00	72.78	.00	74.58	10.78	.81	64.63	1.04
11600.000	2280.00	73.28	.00	74.90	10.22	.76	64.84	1.04

	SECNO	Q	CWSEL	CRIWS	EG	VCH	FRCH	ELMIN	K*CHSL
	11800.000	2280.00	73.65	.00	75.18	9.94	.73	65.04	1.04
	12000.000	2280.00	73.96	.00	75.44	9.76	.71	65.25	1.04
	12200.000	2280.00	74.25	.00	75.69	9.63	.70	65.46	1.04
	12261.000	2280.00	74.33	.00	75.76	9.61	.70	65.52	1.03
	12311.000	2280.00	74.57	.00	75.84	9.02	.68	65.56	.80
	12463.000	2280.00	74.45	.00	76.18	10.53	.83	66.26	4.61
*	12615.000	2280.00	74.59	74.59	76.96	12.35	1.01	67.16	5.92
*	12742.000	2280.00	77.21	.00	78.35	8.55	.63	67.90	5.83
	12760.000	2280.00	77.21	.00	78.37	8.64	.64	67.96	3.33
	12870.000	2280.00	77.14	.00	78.57	9.59	.73	68.45	4.93
	12920.000	2280.00	76.84	.00	78.81	11.26	.90	68.97	10.34
*	13000.000	2280.00	76.82	76.82	79.19	12.35	1.01	69.39	5.25
	3100.000	2280.00	77.36	77.36	79.72	12.32	1.01	69.92	5.30
*	13200.000	2280.00	77.89	77.89	80.25	12.33	1.01	70.45	5.30
*	13300.000	2280.00	78.41	78.41	80.77	12.32	1.01	70.97	5.20
*	13400.000	2280.00	78.94	78.94	81.30	12.32	1.01	71.50	5.30
*	13500.000	2280.00	79.47	79.47	81.83	12.33	1.01	72.03	5.30
*	13700.000	2280.00	80.61	80.61	82.97	12.32	1.01	73.17	5.70
*	13800.000	2280.00	81.18	81.18	83.54	12.32	1.01	73.74	5.70
*	13895.000	2280.00	81.67	81.67	84.03	12.33	1.01	74.23	5.16
*	13942.000	2280.00	81.92	81.92	84.28	12.32	1.01	74.48	5.32
*	14000.000	1753.00	83.75	.00	84.51	7.00	.53	74.78	5.17
	14100.000	1753.00	83.70	.00	84.64	7.79	.60	75.30	5.20
	14200.000	1753.00	83.63	.00	84.82	8.74	.70	75.81	5.10
	14300.000	1753.00	83.52	.00	85.07	10.00	.83	76.33	5.20
*	14400.000	1753.00	83.37	83.37	85.48	11.68	1.01	76.85	5.20

	SECNO	Q	CWSEL	CRIWS	EG	VCH	FRCH	ELMIN	K*CHSL
*	14500.000	1753.00	83.90	83.90	86.00	11.65	1.01	77.37	5.20
*	14600.000	1753.00	84.41	84.41	86.52	11.66	1.01	77.89	5.20
*	14700.000	1753.00	84.93	84.93	87.04	11.66	1.01	78.41	5.20
*	14800.000	1753.00	85.45	85.45	87.56	11.66	1.01	78.93	5.20
*	14900.000	1753.00	85.97	85.97	88.08	11.66	1.01	79.45	5.20
*	14973.000	1753.00	87.82	.00	88.31	5.59	.41	79.83	5.21
	14995.000	1753.00	87.87	.00	88.32	5.39	.40	79.91	3.64
*	15066.000	1753.00	88.13	.00	88.36	3.79	.25	80.15	3.38
*	15067.000	610.00	88.22	.00	88.36	3.02	.19	80.15	.00
	15635.000	610.00	89.23	.00	89.43	3.55	.22	81.04	1.59
*	15636.000	1753.00	89.18	.00	89.45	3.88	.24	81.04	.00
	15689.000	1753.00	89.16	.00	89.47	4.50	.32	81.11	1.32
	750.000	1753.00	88.92	.00	89.60	6.61	.48	81.16	.82
	15800.000	1753.00	88.93	.00	89.64	6.79	.51	81.23	1.40
	15990.000	1753.00	89.02	.00	89.77	6.93	.52	81.44	1.10
	16000.000	1753.00	89.05	.00	89.78	6.87	.51	81.45	1.10
	16300.000	1753.00	89.21	.00	89.98	7.06	.53	81.78	1.10
	16650.000	1753.00	89.41	.00	90.23	7.29	.55	82.17	1.11
	17000.000	1753.00	89.64	.00	90.51	7.50	.57	82.55	1.09
	17300.000	1753.00	89.85	.00	90.75	7.67	.58	82.88	1.10
	17315.000	1753.00	89.82	.00	90.78	7.85	.61	82.90	1.33
	17400.000	1753.00	89.90	.00	90.86	7.89	.62	82.99	1.11
	17600.000	1753.00	90.07	.00	91.05	7.95	.62	83.21	1.10
*	17650.000	642.00	90.87	.00	91.15	4.27	.34	83.27	1.12
	17700.000	642.00	90.88	.00	91.17	4.30	.35	83.32	1.10
	17900.000	642.00	90.94	.00	91.24	4.46	.36	83.54	1.10

SECNO	Q	CWSEL	CRIWS	EG	VCH	FRCH	ELMIN	K*CHSL
18100.000	642.00	90.99	.00	91.32	4.61	.38	83.76	1.10
18300.000	642.00	91.06	.00	91.41	4.77	.40	83.99	1.10
18500.000	642.00	91.13	.00	91.51	4.94	.42	84.21	1.10
18700.000	642.00	91.21	.00	91.61	5.10	.43	84.43	1.10
18750.000	642.00	91.23	.00	91.64	5.14	.44	84.48	1.10
18800.000	642.00	91.25	.00	91.67	5.18	.44	84.54	1.10
19000.000	642.00	91.34	.00	91.79	5.34	.46	84.76	1.10
19200.000	642.00	91.45	.00	91.91	5.49	.48	84.98	1.10
19400.000	642.00	91.56	.00	92.05	5.64	.49	85.20	1.10
19600.000	642.00	91.67	.00	92.19	5.78	.51	85.42	1.10
19800.000	642.00	91.80	.00	92.35	5.91	.52	85.64	1.10
20000.000	642.00	91.94	.00	92.51	6.04	.54	85.86	1.10
,039.000	550.00	92.17	.00	92.55	4.94	.43	85.90	1.10
* 20050.000	550.00	91.91	.00	92.68	7.05	.51	85.91	1.10
20100.000	550.00	92.41	.00	93.08	6.56	.45	85.97	1.20
* 20111.000	550.00	92.84	.00	93.13	4.29	.36	85.98	.91
20200.000	550.00	92.86	.00	93.16	4.37	.37	86.08	1.10
20400.000	550.00	92.93	.00	93.25	4.53	.39	86.30	1.10
20600.000	550.00	93.00	.00	93.34	4.69	.41	86.52	1.10
20800.000	550.00	93.07	.00	93.44	4.86	.42	86.74	1.10
21000.000	550.00	93.16	.00	93.55	5.02	.44	86.96	1.10
21200.000	550.00	93.26	.00	93.67	5.19	.46	87.18	1.10
21400.000	550.00	93.36	.00	93.80	5.34	.48	87.40	1.10
21600.000	550.00	93.48	.00	93.94	5.49	.50	87.62	1.10
?1711.000	550.00	93.54	.00	94.03	5.57	.51	87.74	1.10
-15066.000	1753.00	88.13	.00	88.36	3.79	.25	80.15	.00

	SECNO	Q	CWSEL	CRIWS	EG	VCH	FRCH	ELMIN	K*CHSL
*	15067.000	1143.00	88.08	.00	88.38	4.38	.31	80.15	.00
	15097.000	1143.00	88.08	.00	88.39	4.43	.31	80.24	3.00
	15121.000	1143.00	87.97	.00	88.52	5.94	.38	80.28	1.67
	15228.000	1143.00	88.90	.00	89.35	5.41	.33	80.44	1.50
	15258.000	1143.00	88.90	.00	89.37	5.47	.43	80.49	1.67
	15300.000	1143.00	88.92	.00	89.39	5.52	.44	80.55	1.50
	15500.000	1143.00	88.99	.00	89.51	5.77	.46	80.85	1.50
	15568.000	1143.00	89.02	.00	89.56	5.86	.47	80.96	1.50
*	15635.000	1143.00	89.35	.00	89.65	4.39	.30	81.04	1.27

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION SECNO=    966.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    966.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

WARNING SECNO=    967.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1025.400  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1025.400  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1025.400  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1067.400  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1067.400  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1067.400  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  12615.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  12615.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  12615.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  12742.000  PROFILE=  1  HYDRAULIC JUMP D.S.
WARNING SECNO=  12742.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

    ON SECNO=  13000.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
    ION SECNO=  13000.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=  13100.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13100.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13100.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  13200.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13200.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13200.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  13300.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13300.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13300.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  13400.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13400.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13400.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  13500.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13500.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13500.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  13700.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13700.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13700.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  13800.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13800.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13800.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=  13895.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13895.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13895.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  13942.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  13942.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  13942.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  14000.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  14400.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  14400.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=  14500.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  14500.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  14500.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  14600.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  14600.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  14600.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  14700.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  14700.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  14700.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 . ION SECNO=  14800.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  14800.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  14800.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=  14900.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  14900.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  14900.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=  14973.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15066.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15067.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15636.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15750.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  17650.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  20050.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  20111.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15067.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  15635.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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Collect.out

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*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    25OCT95    TIME   12:53:16 *
*******************************************
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****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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THIS RUN EXECUTED 25OCT95 12:53:16

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T1  FLOOD CONTROL DISTRICT OF MARICOPA COUNTY   CONSULTANT: NBS/LOWRY
T2  FCD 93-01 DYSART DRAIN IMPROVEMENT PROJECT  JOB NO: P81-194-019
T3         COLLECTOR CHANNEL                    FILE NAME: COLLECT.DAT

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         2         0         0        -1         0         0         0     98.47         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    -1         0        -1


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38        43         1         8        26        10         5        42        68

NC    .035      .035      .035        .3        .5
QT       1       850
X1  741.84         6       980      1020         0         0         0
GR   102.7       970     100.7       980      94.7       992      94.7      1008     100.7      1020
GR   102.7      1030

X1     750                                   8.16      8.16      8.16                0.0775

X1     800                                     50        50        50                 0.475

X1     850                                     50        50        50                 0.475

X1     900                                     50        50        50                 0.475

X1   941.8                                   41.8      41.8      41.8                 0.397
   Farm Road Butler Extension          2 10'x 4' RCBC's

NC    .012      .012      .012       0.3       0.5
X1     950         4   988.625   1011.37         9         9         9
X3      10                                                                 106       106
GR  100.68   988.625     96.68   989.541     96.68   1010.45    100.68   1011.37

NC   0.012     0.012     0.012       0.3       0.5
       951        10   988.625   1011.37         1         1         1
                                  100.68       106
GR  100.68   988.625    100.68   989.541     96.68   989.541     96.68   999.541    100.68   999.541
GR  100.68   1000.45     96.68   1000.45     96.68   1010.45    100.68   1010.45    100.68   1011.37
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X1    1015       10   988.625   1011.37      64      64      64
X2                            101.29     106
GR  101.29  988.625    101.29   989.541   97.29  989.541   97.29  999.541   101.29  999.541
GR  101.29  1000.45     97.29   1000.45   97.29  1010.45  101.29  1010.45   101.29  1011.37

X1    1016        4   988.625   1011.37       1       1       1
X3      10                                                      106      106
GR  101.29  988.625     97.29   989.541   97.29  1010.45  101.29  1011.37

NC   0.016    0.016     0.016       0.1     0.3
X1    1025        4       980      1020      10      10      10
GR  104.60     980     99.60       990   99.60    1010  104.60    1020

X1    1050                                  25      25      25              0.05

X1    1100                                  50      50      50              0.10

X1    1150                                  50      50      50              0.10

X1    1200                                  50      50      50              0.10

X1    1300                                 100     100     100              0.20

X1    1400                                 100     100     100              0.20

.     1500                                 100     100     100              0.20

X1    1600                                 100     100     100              0.20

X1    1700                                 100     100     100              0.20

X1    1800                                 100     100     100              0.20

X1    1900                                 100     100     100              0.20

X1    2000                                 100     100     100              0.20

X1    2100                                 100     100     100              0.20

X1    2200                                 100     100     100              0.20

X1    2240                                  40      40      40              0.08

QT       1       600
   Leyton Farm Road          2 10'x 4' RCBC's
NC   0.012   0.012     0.012       0.3     0.5
X1    2242        4   988.625   1011.37       2       2       2
X3      10                                                      112.2    112.2
GR  106.04  988.625    102.04   989.541  102.04  1010.45  106.04  1011.37
```

NC	0.012	0.012	0.012	0.3	0.5					
X1	2243	10	988.625	1011.37	1	1	1			
X2				106.04	111.9					
GR	106.04	988.625	106.04	989.541	102.04	989.541	102.04	999.541	106.04	999.541
GR	106.04	1000.45	102.04	1000.45	102.04	1010.45	106.04	1010.45	106.04	1011.37
X1	2287	10	988.625	1011.37	44	44	44			
X2				106.12	111.9					
GR	106.12	988.625	106.12	989.541	102.12	989.541	102.12	999.541	106.12	999.541
GR	106.12	1000.45	102.12	1000.45	102.12	1010.45	106.12	1010.45	106.12	1011.37
X1	2288	4	988.625	1011.37	1	1	1			
X3	10							112.2	112.2	
GR	106.12	988.625	102.12	989.541	102.12	1010.45	106.12	1011.37		
NC	0.016	0.016	0.016	0.1	0.3					
X1	2297	4	982.5	1017.5	10	10	10			
GR	110.18	982.5	105.18	992.5	105.18	1007.5	110.18	1017.5		
X1	2325				28	28	28		0.1204	
X1	2350				25	25	25		0.1075	
X1	2400				50	50	50		0.215	
,	2500				100	100	100		0.43	
X1	2600				100	100	100		0.43	
X1	2700				100	100	100		0.43	
X1	2800				100	100	100		0.43	
X1	2900				100	100	100		0.43	
X1	3000				100	100	100		0.43	
X1	3050				50	50	50		0.215	
QT	1	400								
X1	3100	4	985	1015	50	50	50			
GR	113.63	985	108.63	995	108.63	1005	113.63	1015		
X1	3150				50	50	50		0.215	
X1	3200				50	50	50		0.215	
X1	3300				100	100	100		0.43	

X1	3400	100	100	100	0.43
X1	3500	100	100	100	0.43
X1	3533	33	33	33	0.142

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

*PROF 1

CCHV= .300 CEHV= .500

*SECNO 741.840

3720 CRITICAL DEPTH ASSUMED

741.840	3.75	98.45	98.45	98.47	99.89	1.44	.00	.00	100.70
850.0	.0	850.0	.0	.0	88.2	.0	.0	.0	100.70
.00	.00	9.64	.00	.000	.035	.000	.000	94.70	984.49
.013759	0.	0.	0.	0	4	0	.00	31.01	1015.51

*SECNO 750.000

3301 HV CHANGED MORE THAN HVINS

750.000	4.42	99.20	.00	.00	100.13	.93	.08	.15	100.78
850.0	.0	850.0	.0	.0	109.8	.0	.0	.0	100.78
.00	.00	7.74	.00	.000	.035	.000	.000	94.78	983.16
007455	8.	8.	8.	6	0	0	.00	33.68	1016.84

*SECNO 800.000

800.000	4.30	99.55	.00	.00	100.56	1.00	.39	.04	101.25
850.0	.0	850.0	.0	.0	105.8	.0	.1	.0	101.25
.00	.00	8.03	.00	.000	.035	.000	.000	95.25	983.40
.008263	50.	50.	50.	3	0	0	.00	33.20	1016.60

*SECNO 850.000

850.000	4.23	99.96	.00	.00	101.01	1.05	.43	.03	101.73
850.0	.0	850.0	.0	.0	103.1	.0	.3	.1	101.73
.00	.00	8.24	.00	.000	.035	.000	.000	95.73	983.56
.008878	50.	50.	50.	0	0	0	.00	32.88	1016.44

*SECNO 900.000

900.000	4.19	100.40	.00	.00	101.47	1.08	.45	.01	102.20
850.0	.0	850.0	.0	.0	102.1	.0	.4	.1	102.20
.01	.00	8.33	.00	.000	.035	.000	.000	96.20	983.63
.009142	50.	50.	50.	1	0	0	.00	32.75	1016.37

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


*SECNO 941.800
   941.800      4.18    100.77       .00       .00    101.86      1.09       .38       .01    102.60
     850.0        .0     850.0        .0        .0     101.6        .0        .5        .2    102.60
       .01       .00      8.37       .00      .000      .035      .000      .000     96.60    983.66
   .009263       42.       42.       42.         0         0         0       .00     32.69   1016.34


CCHV=     .300 CEHV=     .500
*SECNO 950.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.44


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       106.00 ELREA=       106.00

   950.000      3.89    100.57       .00       .00    102.12      1.55       .03       .23    100.68
     850.0        .0     850.0        .0        .0      85.0        .0        .5        .2    100.68
       .01       .00     10.00       .00      .000      .012      .000      .000     96.68    988.65
   .001550        9.        9.        9.         2         0         0       .00     22.70   1011.35


CCHV=     .300 CEHV=     .500
*SECNO 951.000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=   106.00 MAX ELLC=   100.68

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   951.000      3.89    100.57    100.57       .00    102.42      1.86       .00       .15    100.68
     850.0        .0     850.0        .0        .0      77.7        .0        .5        .2    100.68
       .01       .00     10.94       .00      .000      .012      .000      .000     96.68    989.54
   .002749        1.        1.        1.         3         9         0       .00     20.00   1010.45


*SECNO 1015.000

3265 DIVIDED FLOW
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ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE, NRD= 0 MIN ELTRD= 106.00 MAX ELLC= 101.29

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1015.000	3.89	101.18	101.18	.00	103.03	1.86	.18	.00	101.29
850.0	.0	850.0	.0	.0	77.7	.0	.6	.2	101.29
.01	.00	10.94	.00	.000	.012	.000	.000	97.29	989.54
.002749	64.	64.	64.	20	9	0	.00	20.00	1010.45

*SECNO 1016.000
3280 CROSS SECTION 1016.00 EXTENDED 1.19 FEET

3301 HV CHANGED MORE THAN HVINS

[illegible] WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.12

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 106.00 ELREA= 106.00

1016.000	5.19	102.48	100.96	.00	103.33	.86	.00	.30	101.29
850.0	.0	850.0	.0	.0	114.4	.0	.6	.2	101.29
.01	.00	7.43	.00	.000	.012	.000	.000	97.29	988.63
.000613	1.	1.	1.	22	8	0	.00	22.74	1011.37

CCHV= .100 CEHV= .300
*SECNO 1025.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1025.000	3.38	102.98	102.98	.00	104.35	1.37	.01	.15	104.60
850.0	.0	850.0	.0	.0	90.6	.0	.6	.2	104.60
.01	.00	9.38	.00	.000	.016	.000	.000	99.60	983.23
.002887	10.	10.	10.	20	14	0	.00	33.54	1016.77

ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 1050.000									
1050.000	3.66	103.31	.00	.00	104.44	1.13	.06	.02	104.65
850.0	.0	850.0	.0	.0	99.6	.0	.7	.2	104.65
.01	.00	8.53	.00	.000	.016	.000	.000	99.65	982.70
.002196	25.	25.	25.	3	0	0	.00	34.60	1017.30
*SECNO 1100.000									
1100.000	3.70	103.45	.00	.00	104.55	1.10	.11	.00	104.75
850.0	.0	850.0	.0	.0	101.0	.0	.8	.3	104.75
.01	.00	8.41	.00	.000	.016	.000	.000	99.75	982.62
.002111	50.	50.	50.	1	0	0	.00	34.76	1017.38
*SECNO 1150.000									
1150.000	3.72	103.57	.00	.00	104.65	1.08	.10	.00	104.85
850.0	.0	850.0	.0	.0	101.8	.0	.9	.3	104.85
.01	.00	8.35	.00	.000	.016	.000	.000	99.85	982.57
.002065	50.	50.	50.	1	0	0	.00	34.85	1017.43
*SECNO 1200.000									
1200.000	3.74	103.69	.00	.00	104.76	1.07	.10	.00	104.95
850.0	.0	850.0	.0	.0	102.3	.0	1.0	.3	104.95
.01	.00	8.31	.00	.000	.016	.000	.000	99.95	982.55
.002037	50.	50.	50.	0	0	0	.00	34.91	1017.45
*SECNO 1300.000									
1300.000	3.75	103.90	.00	.00	104.96	1.06	.20	.00	105.15
850.0	.0	850.0	.0	.0	102.8	.0	1.3	.4	105.15
.02	.00	8.27	.00	.000	.016	.000	.000	100.15	982.52
.002008	100.	100.	100.	0	0	0	.00	34.97	1017.48
*SECNO 1400.000									
1400.000	3.76	104.11	.00	.00	105.16	1.05	.20	.00	105.35
850.0	.0	850.0	.0	.0	103.2	.0	1.5	.5	105.35
.02	.00	8.24	.00	.000	.016	.000	.000	100.35	982.49
.001986	100.	100.	100.	0	0	0	.00	35.01	1017.51

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 1500.000									
1500.000	3.76	104.31	.00	.00	105.36	1.05	.20	.00	105.55
850.0	.0	850.0	.0	.0	103.4	.0	1.8	.6	105.55
.02	.00	8.22	.00	.000	.016	.000	.000	100.55	982.48
.001975	100.	100.	100.	0	0	0	.00	35.03	1017.52
*SECNO 1600.000									
1600.000	3.76	104.51	.00	.00	105.56	1.05	.20	.00	105.75
850.0	.0	850.0	.0	.0	103.5	.0	2.0	.7	105.75
.03	.00	8.22	.00	.000	.016	.000	.000	100.75	982.48
.001973	100.	100.	100.	0	0	0	.00	35.04	1017.52
*SECNO 1700.000									
1700.000	3.76	104.71	.00	.00	105.76	1.05	.20	.00	105.95
850.0	.0	850.0	.0	.0	103.4	.0	2.2	.7	105.95
.03	.00	8.22	.00	.000	.016	.000	.000	100.95	982.49
.001978	100.	100.	100.	0	0	0	.00	35.03	1017.51
*SECNO 1800.000									
1800.000	3.75	104.90	.00	.00	105.95	1.05	.20	.00	106.15
850.0	.0	850.0	.0	.0	103.3	.0	2.5	.8	106.15
.04	.00	8.23	.00	.000	.016	.000	.000	101.15	982.49
.001984	100.	100.	100.	0	0	0	.00	35.01	1017.51
*SECNO 1900.000									
1900.000	3.75	105.10	.00	.00	106.15	1.05	.20	.00	106.35
850.0	.0	850.0	.0	.0	103.1	.0	2.7	.9	106.35
.04	.00	8.24	.00	.000	.016	.000	.000	101.35	982.50
.001990	100.	100.	100.	0	0	0	.00	35.00	1017.50
*SECNO 2000.000									
2000.000	3.75	105.30	.00	.00	106.35	1.06	.20	.00	106.55
850.0	.0	850.0	.0	.0	103.1	.0	2.9	1.0	106.55
.04	.00	8.25	.00	.000	.016	.000	.000	101.55	982.50
.001995	100.	100.	100.	0	0	0	.00	34.99	1017.50

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


*SECNO 2100.000
  2100.000     3.75    105.50       .00       .00    106.55      1.06       .20       .00    106.75
     850.0       .0     850.0        .0        .0     103.0        .0       3.2       1.1    106.75
       .05      .00      8.25       .00      .000      .016      .000      .000    101.75    982.51
   .001997     100.      100.      100.         0         0         0       .00     34.99   1017.49


*SECNO 2200.000
  2200.000     3.75    105.70       .00       .00    106.75      1.06       .20       .00    106.95
     850.0       .0     850.0        .0        .0     103.0        .0       3.4       1.1    106.95
       .05      .00      8.25       .00      .000      .016      .000      .000    101.95    982.51
   .001999     100.      100.      100.         0         0         0       .00     34.98   1017.49


*SECNO 2240.000
  2240.000     3.75    105.78       .00       .00    106.83      1.06       .08       .00    107.03
     850.0       .0     850.0        .0        .0     103.0        .0       3.5       1.2    107.03
       .05      .00      8.25       .00      .000      .016      .000      .000    102.03    982.51
   .001999      40.       40.       40.         0         0         0       .00     34.98   1017.49


CCHV=     .300 CEHV=     .500
*SECNO 2242.000
3280 CROSS SECTION   2242.00 EXTENDED       .28 FEET


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       112.20 ELREA=       112.20

  2242.000     4.28    106.32       .00       .00    106.96       .64       .00       .13    106.04
     600.0       .0     600.0        .0        .0      93.6        .0       3.5       1.2    106.04
       .05      .00      6.41       .00      .000      .012      .000      .000    102.04    988.63
   .000572       2.        2.        2.         3         0         0       .00     22.74   1011.37


CCHV=     .300 CEHV=     .500
*SECNO 2243.000
3280 CROSS SECTION   2243.00 EXTENDED       .17 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .50
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 ECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=   111.90 MAX ELLC=   106.04

 2243.000     4.17    106.21       .00       .00    107.08       .87       .00       .12    106.04
    600.0       .0     600.0       .0       .0      80.0       .0       3.5       1.2    106.04
      .05      .00      7.50      .00      .000      .012      .000      .000    102.04    988.63
  .002280       1.        1.       1.         2         0         0     -3.79     22.74   1011.37


*SECNO 2287.000
3280 CROSS SECTION   2287.00 EXTENDED       .19 FEET


3370 NORMAL BRIDGE, NRD=   0 MIN ELTRD=   111.90 MAX ELLC=   106.12

 2287.000     4.19    106.31       .00       .00    107.18       .87       .10       .00    106.12
    600.0       .0     600.0       .0       .0      80.0       .0       3.6       1.2    106.12
      .05      .00      7.50      .00      .000      .012      .000      .000    102.12    988.63
  .002280      44.       44.      44.         2         0         0     -4.26     22.74   1011.37


*SECNO 2288.000
3280 CROSS SECTION   2288.00 EXTENDED       .61 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.26


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       112.20 ELREA=       112.20

 2288.000     4.61    106.73       .00       .00    107.28       .55       .00       .10    106.12
    600.0       .0     600.0       .0       .0      101.3       .0       3.6       1.2    106.12
      .05      .00      5.92      .00      .000      .012      .000      .000    102.12    988.63
  .000447       1.        1.       1.         3         0         0       .00     22.74   1011.37


CCHV=     .100 CEHV=     .300
*SECNO 2297.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
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ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3720 CRITICAL DEPTH ASSUMED

2297.000	3.16	108.34	108.34	.00	109.57	1.23	.01	.21	110.18
600.0	.0	600.0	.0	.0	67.4	.0	3.6	1.2	110.18
.05	.00	8.90	.00	.000	.016	.000	.000	105.18	986.18
.003002	10.	10.	10.	20	14	0	.00	27.65	1013.82

*SECNO 2325.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2325.000	3.16	108.46	108.46	.00	109.69	1.23	.08	.00	110.30
600.0	.0	600.0	.0	.0	67.4	.0	3.7	1.2	110.30
.05	.00	8.91	.00	.000	.016	.000	.000	105.30	986.18
.003007	28.	28.	28.	2	5	0	.00	27.64	1013.82

*SECNO 2350.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

50.000	3.16	108.57	108.57	.00	109.80	1.23	.08	.00	110.41
600.0	.0	600.0	.0	.0	67.4	.0	3.7	1.2	110.41
.05	.00	8.91	.00	.000	.016	.000	.000	105.41	986.18
.003006	25.	25.	25.	2	5	0	.00	27.64	1013.82

*SECNO 2400.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2400.000	3.16	108.78	108.78	.00	110.01	1.23	.15	.00	110.62
600.0	.0	600.0	.0	.0	67.4	.0	3.8	1.3	110.62
.06	.00	8.90	.00	.000	.016	.000	.000	105.62	986.18
.003006	50.	50.	50.	2	5	0	.00	27.64	1013.82

*SECNO 2500.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2500.000	3.16	109.21	109.21	.00	110.44	1.23	.30	.00	111.05
600.0	.0	600.0	.0	.0	67.4	.0	3.9	1.3	111.05
.06	.00	8.91	.00	.000	.016	.000	.000	106.05	986.18
.003006	100.	100.	100.	3	5	0	.00	27.64	1013.82

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

*SECNO 2600.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2600.000	3.16	109.64	109.64	.00	110.87	1.23	.30	.00	111.48
600.0	.0	600.0	.0	.0	67.4	.0	4.1	1.4	111.48
.06	.00	8.90	.00	.000	.016	.000	.000	106.48	986.18
.003006	100.	100.	100.	3	5	0	.00	27.64	1013.82

*SECNO 2700.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2700.000	3.16	110.07	110.07	.00	111.30	1.23	.30	.00	111.91
600.0	.0	600.0	.0	.0	67.4	.0	4.2	1.5	111.91
.06	.00	8.91	.00	.000	.016	.000	.000	106.91	986.18
.003006	100.	100.	100.	3	5	0	.00	27.64	1013.82

*SECNO 2800.000
MINIMUM SPECIFIC ENERGY
CRITICAL DEPTH ASSUMED

2800.000	3.16	110.50	110.50	.00	111.73	1.23	.30	.00	112.34
600.0	.0	600.0	.0	.0	67.4	.0	4.4	1.5	112.34
.07	.00	8.90	.00	.000	.016	.000	.000	107.34	986.18
.003006	100.	100.	100.	3	5	0	.00	27.64	1013.82

*SECNO 2900.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

2900.000	3.16	110.93	110.93	.00	112.16	1.23	.30	.00	112.77
600.0	.0	600.0	.0	.0	67.4	.0	4.5	1.6	112.77
.07	.00	8.91	.00	.000	.016	.000	.000	107.77	986.18
.003006	100.	100.	100.	3	5	0	.00	27.64	1013.82

*SECNO 3000.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3000.000	3.16	111.36	111.36	.00	112.59	1.23	.30	.00	113.20
600.0	.0	600.0	.0	.0	67.4	.0	4.7	1.6	113.20
.07	.00	8.90	.00	.000	.016	.000	.000	108.20	986.18
.003006	100.	100.	100.	3	5	0	.00	27.64	1013.82

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


*SECNO 3050.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 3050.000     3.16    111.58    111.58       .00    112.81      1.23       .15       .00    113.42
    600.0       .0     600.0       .0       .0      67.4        .0       4.8       1.7    113.42
      .08      .00      8.91      .00      .000      .016      .000      .000    108.42    986.18
  .003006      50.       50.       50.         2         5         0       .00     27.64   1013.82


*SECNO 3100.000

3301 HV CHANGED MORE THAN HVINS

 3100.000     3.79    112.42       .00       .00    112.98       .56       .10       .07    113.63
    400.0       .0     400.0       .0       .0      66.6        .0       4.9       1.7    113.63
      .08      .00      6.01      .00      .000      .016      .000      .000    108.63    987.42
  .001252      50.       50.       50.         5         0         0       .00     25.15   1012.58


   0 3150.000
   50.000     3.57    112.42       .00       .00    113.08       .66       .07       .03    113.84
    400.0       .0     400.0       .0       .0      61.2        .0       4.9       1.7    113.84
      .08      .00      6.53      .00      .000      .016      .000      .000    108.84    987.86
  .001576      50.       50.       50.         2         0         0       .00     24.29   1012.14


*SECNO 3200.000
 3200.000     3.36    112.42       .00       .00    113.21       .79       .09       .04    114.06
    400.0       .0     400.0       .0       .0      56.1        .0       5.0       1.8    114.06
      .08      .00      7.13      .00      .000      .016      .000      .000    109.06    988.29
  .002009      50.       50.       50.         2         0         0       .00     23.42   1011.71


*SECNO 3300.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 3300.000     2.98    112.47    112.47       .00    113.57      1.10       .25       .09    114.49
    400.0       .0     400.0       .0       .0      47.6        .0       5.1       1.8    114.49
      .09      .00      8.41      .00      .000      .016      .000      .000    109.49    989.04
  .003173     100.      100.      100.         2        11         0       .00     21.92   1010.96
```

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

*SECNO 3400.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3400.000	2.98	112.90	112.90	.00	114.00	1.10	.32	.00	114.92
400.0	.0	400.0	.0	.0	47.6	.0	5.2	1.9	114.92
.09	.00	8.41	.00	.000	.016	.000	.000	109.92	989.04
.003166	100.	100.	100.	2	5	0	.00	21.93	1010.96

*SECNO 3500.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3500.000	2.98	113.33	113.33	.00	114.43	1.10	.32	.00	115.35
400.0	.0	400.0	.0	.0	47.6	.0	5.3	1.9	115.35
.09	.00	8.41	.00	.000	.016	.000	.000	110.35	989.04
.003167	100.	100.	100.	3	5	0	.00	21.92	1010.96

*SECNO 3533.000
MINIMUM SPECIFIC ENERGY
CRITICAL DEPTH ASSUMED

3533.000	2.98	113.47	113.47	.00	114.57	1.10	.10	.00	115.49
400.0	.0	400.0	.0	.0	47.6	.0	5.4	1.9	115.49
.09	.00	8.41	.00	.000	.016	.000	.000	110.49	989.04
.003167	33.	33.	33.	2	5	0	.00	21.92	1010.96

THIS RUN EXECUTED 25OCT95 12:53:17

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

COLLECTOR CHANNEL

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	DEPTH	VCH	HV	10*KS	ELMIN	FRCH
*	741.840	850.00	98.45	3.75	9.64	1.44	137.59	94.70	1.01
	750.000	850.00	99.20	4.42	7.74	.93	74.55	94.78	.76
	800.000	850.00	99.55	4.30	8.03	1.00	82.63	95.25	.79
	850.000	850.00	99.96	4.23	8.24	1.05	88.78	95.73	.82
	900.000	850.00	100.40	4.19	8.33	1.08	91.42	96.20	.83
	941.800	850.00	100.77	4.18	8.37	1.09	92.63	96.60	.84
*	950.000	850.00	100.57	3.89	10.00	1.55	15.50	96.68	.91
*	951.000	850.00	100.57	3.89	10.94	1.86	27.49	96.68	1.00
*	1015.000	850.00	101.18	3.89	10.94	1.86	27.49	97.29	1.00
*	1016.000	850.00	102.48	5.19	7.43	.86	6.13	97.29	.58
*	1025.000	850.00	102.98	3.38	9.38	1.37	28.87	99.60	1.01
	1050.000	850.00	103.31	3.66	8.53	1.13	21.96	99.65	.89
	1100.000	850.00	103.45	3.70	8.41	1.10	21.11	99.75	.87
	1150.000	850.00	103.57	3.72	8.35	1.08	20.65	99.85	.86
	1200.000	850.00	103.69	3.74	8.31	1.07	20.37	99.95	.86
	1300.000	850.00	103.90	3.75	8.27	1.06	20.08	100.15	.85
	1400.000	850.00	104.11	3.76	8.24	1.05	19.86	100.35	.85

	SECNO	Q	CWSEL	DEPTH	VCH	HV	10*KS	ELMIN	FRCH
	1500.000	850.00	104.31	3.76	8.22	1.05	19.75	100.55	.84
	1600.000	850.00	104.51	3.76	8.22	1.05	19.73	100.75	.84
	1700.000	850.00	104.71	3.76	8.22	1.05	19.78	100.95	.84
	1800.000	850.00	104.90	3.75	8.23	1.05	19.84	101.15	.84
	1900.000	850.00	105.10	3.75	8.24	1.05	19.90	101.35	.85
	2000.000	850.00	105.30	3.75	8.25	1.06	19.95	101.55	.85
	2100.000	850.00	105.50	3.75	8.25	1.06	19.97	101.75	.85
	2200.000	850.00	105.70	3.75	8.25	1.06	19.99	101.95	.85
	2240.000	850.00	105.78	3.75	8.25	1.06	19.99	102.03	.85
	2242.000	600.00	106.32	4.28	6.41	.64	5.72	102.04	.56
*	2243.000	600.00	106.21	4.17	7.50	.87	22.80	102.04	.70
	2287.000	600.00	106.31	4.19	7.50	.87	22.80	102.12	.70
*	2288.000	600.00	106.73	4.61	5.92	.55	4.47	102.12	.49
*	2297.000	600.00	108.34	3.16	8.90	1.23	30.02	105.18	1.00
*	2325.000	600.00	108.46	3.16	8.91	1.23	30.07	105.30	1.01
*	2350.000	600.00	108.57	3.16	8.91	1.23	30.06	105.41	1.01
*	2400.000	600.00	108.78	3.16	8.90	1.23	30.06	105.62	1.01
*	2500.000	600.00	109.21	3.16	8.91	1.23	30.06	106.05	1.01
*	2600.000	600.00	109.64	3.16	8.90	1.23	30.06	106.48	1.01
*	2700.000	600.00	110.07	3.16	8.91	1.23	30.06	106.91	1.01
*	2800.000	600.00	110.50	3.16	8.90	1.23	30.06	107.34	1.01
*	2900.000	600.00	110.93	3.16	8.91	1.23	30.06	107.77	1.01
*	3000.000	600.00	111.36	3.16	8.90	1.23	30.06	108.20	1.01
*	3050.000	600.00	111.58	3.16	8.91	1.23	30.06	108.42	1.01
	3100.000	400.00	112.42	3.79	6.01	.56	12.52	108.63	.65
	3150.000	400.00	112.42	3.57	6.53	.66	15.76	108.84	.72

	SECNO	Q	CWSEL	DEPTH	VCH	HV	10*KS	ELMIN	FRCH
	3200.000	400.00	112.42	3.36	7.13	.79	20.09	109.06	.81
*	3300.000	400.00	112.47	2.98	8.41	1.10	31.73	109.49	1.01
*	3400.000	400.00	112.90	2.98	8.41	1.10	31.66	109.92	1.01
*	3500.000	400.00	113.33	2.98	8.41	1.10	31.67	110.35	1.01
*	3533.000	400.00	113.47	2.98	8.41	1.10	31.67	110.49	1.01

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=    741.840  PROFILE=  1  CRITICAL DEPTH ASSUMED

WARNING SECNO=    950.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    951.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    951.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   1015.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1015.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1015.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   1016.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=   1016.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   1025.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   1025.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   1025.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   2243.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

     NG SECNO=   2288.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   2297.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2297.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2297.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=   2325.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2325.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   2350.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2350.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   2400.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2400.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   2500.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2500.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   2600.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2600.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   2700.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2700.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   2800.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
 ~ ~ION SECNO=   2800.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   2900.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2900.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   3000.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
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     ON SECNO=   3000.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   3050.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3050.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   3300.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3300.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   3400.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3400.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   3500.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3500.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=   3533.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3533.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
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Eastch.out

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*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    17OCT95    TIME   16:12:04 *
*******************************************
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***************************************
*  U.S. ARMY CORPS OF ENGINEERS       *
*  HYDROLOGIC ENGINEERING CENTER      *
*  609 SECOND STREET, SUITE D         *
*  DAVIS, CALIFORNIA 95616-4687       *
*          (916) 756-1104             *
***************************************
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X     X  XXXXXXX   XXXXX             XXXXX
X     X  X        X     X           X     X
X     X  X        X                       X
XXXXXXX  XXXX     X         XXXXX    XXXXX
X     X  X        X                 X
X     X  X        X     X           X
X     X  XXXXXXX   XXXXX            XXXXXXX
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THIS RUN EXECUTED 17OCT95 16:12:04

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T2      DYSART DRAIN IMPROVEMENT PROJECT
T3      EAST COLLECTOR CHANNEL
T4      THIS MODEL WAS STARTED USING THE PEAK STAGE IN DETENTION BASIN SR193
T4      CROSS SECTIONS ARE STATIONED ACCORDING TO CONSTRUCTION PLAN STATIONING
T4      CHANNEL CENTERLINE STATION = 100
T4      FILENAME = EASTCH.DAT

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2         0         0         0         0       0.0       840    1099.5

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     -1         0        -1       0.0       0.0       0.0       0.0      -6.0       0.0


    /ARIABLE CODES FOR SUMMARY PRINTOUT

     38        42         1        43        26        51         4         8        10        53
     54        13        15                  150

J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********

    -10       -10
  RIPRAP LINING; n = 0.035

NC    0.035     0.035     0.035       0.1       0.3
X1        0         4      47.0     153.0       0.0       0.0       0.0       1.0       0.0         0
GR   1103.0      47.0    1094.7      92.0    1094.7     108.0    1103.0     153.0

        IN DETENTION BASIN @ NORTH COLLECTOR CHANNEL OUTLET
X1       50         6      72.0     128.0      50.0      50.0      50.0       1.0       0.0         0
GR   1102.2      72.0    1100.2      82.0    1095.2      92.0    1095.2     108.0    1100.2     118.0
GR   1102.2     128.0

X1      100         0         0         0      50.0      50.0      50.0       1.0     0.475         0

X1      150         0         0         0      50.0      50.0      50.0       1.0     0.475         0

X1      200         0         0         0      50.0      50.0      50.0       1.0     0.475         0
```

THIS RUN EXECUTED 17OCT95 16:12:04

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

EAST COLLECTOR CHANNEL

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	.000	1094.70	1099.50	840.00	4.16	.00	68.05	4.80	.27	65.98	134.02	.00	.00
*	50.000	1095.20	1098.93	840.00	9.62	-.57	30.90	3.73	1.44	84.55	115.45	.00	.00
	100.000	1095.67	1099.92	840.00	8.08	1.00	32.97	4.25	1.01	83.51	116.49	.00	.00
	150.000	1096.15	1100.33	840.00	8.25	.41	32.72	4.18	1.06	83.64	116.36	.00	.00
	200.000	1096.62	1100.77	840.00	8.35	.44	32.56	4.14	1.08	83.72	116.28	.00	.00

COLLECTOR CHANNEL

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	.000	.00	.00	.00	1094.70	840.00	1099.50	.00	1099.77	22.98	4.16	201.72	175.23
*	50.000	50.00	.00	.00	1095.20	840.00	1098.93	1098.93	1100.36	138.13	9.62	87.36	71.47
	100.000	50.00	.00	.00	1095.67	840.00	1099.92	.00	1100.94	84.87	8.08	103.92	91.18
	150.000	50.00	.00	.00	1096.15	840.00	1100.33	.00	1101.39	89.77	8.25	101.85	88.66
	200.000	50.00	.00	.00	1096.62	840.00	1100.77	.00	1101.85	93.08	8.35	100.54	87.07

E)LLECTOR CHANNEL

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.000	840.00	1099.50	.00	.00	.00	68.05	.00
*	50.000	840.00	1098.93	.00	-.57	.00	30.90	50.00
	100.000	840.00	1099.92	.00	1.00	.00	32.97	50.00
	150.000	840.00	1100.33	.00	.41	.00	32.72	50.00
	200.000	840.00	1100.77	.00	.44	.00	32.56	50.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=     50.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     50.000  PROFILE=  1  MINIMUM SPECIFIC ENERGY
```

North502.out

```
*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
*                                         *
*  RUN DATE    02MAY94    TIME   17:34:18 *
*******************************************
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
****************************************
```

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

THIS RUN EXECUTED 02MAY94 17:34:18

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*************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
*************************************


T2      DYSART DRAIN IMPROVEMENT PROJECT
T3      NORTH COLLECTOR CHANNEL - PROPOSED CONDITION
T4      THIS MODEL WAS STARTED USING THE PEAK STAGE IN DETENTION BASIN
T4      CROSS SECTIONS ARE STATIONED ACCORDING TO CONSTRUCTION PLAN STATIONING
T4      CHANNEL CENTERLINE STATION = 1000
T4      MODEL REVISED MAY 2, 1994; CHANNEL SLOPES = 0.0014 FT/FT & 0.0185 FT/FT
T4      FILENAME = NORTH502.DAT

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0        0        0       0.0     1000    1099.5

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     -1        0       -1       0.0      0.0      0.0      0.0     -6.0      0.0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       42        1       43       26       51        4        8       10       53
     54       13       15                150

J5  LPRNT    NUMSEC                 ********REQUESTED SECTION NUMBERS********

    -10      -10
  EXPOSED GROUTED RIPRAP LINING; n = 0.035

NC    0.035    0.035    0.035     0.1      0.3
X1      -35        4      840     1160      0.0      0.0      0.0      1.0      0.0        0
GR   1104.0      840   1095.5      905   1095.5     1095   1104.0     1160

X1     7.15        4      964     1036    42.15    42.15    42.15      1.0      0.0        0
GR   1104.0      964   1095.5      994   1095.5     1006   1104.0     1036

X1       50        4      982     1018    42.85    42.85    42.85      1.0      0.0        0
GR   1103.9      982  1095.86      994  1095.86     1006  1103.86     1018

X1      100        0        0        0     50.0     50.0     50.0      1.0    0.415        0

X1      150        0        0        0     50.0     50.0     50.0      1.0    0.415        0
```

```
X1      200         0         0         0      50.0      50.0      50.0       1.0     0.415         0

X1      250         0         0         0      50.0      50.0      50.0       1.0     0.415         0

X1      300         0         0         0      50.0      50.0      50.0       1.0     0.415         0

X1    360.8         0         0         0      60.8      60.8      60.8       1.0     0.505         0
  CONCRETE LINING; n = 0.014

NC    0.014     0.014      .014
X1      400         0         0         0      39.2      39.2      39.2       1.0    .05488         0

X1      500         0         0         0     100.0     100.0     100.0       1.0      0.14         0

X1      600         0         0         0     100.0     100.0     100.0       1.0      0.14         0

X1      800         0         0         0     200.0     200.0     200.0       1.0      0.28         0

X1     1000         0         0         0     200.0     200.0     200.0       1.0      0.28         0

X1     1200         0         0         0     200.0     200.0     200.0       1.0      0.28         0

X1     1400         0         0         0     200.0     200.0     200.0       1.0      0.28         0

       1600         0         0         0     200.0     200.0     200.0       1.0      0.28         0

X1     1800         0         0         0     200.0     200.0     200.0       1.0      0.28         0

X1     2000         0         0         0     200.0     200.0     200.0       1.0      0.28         0

X1   2103.9         0         0         0    103.87    103.87    103.87       1.0     .1454         0

X1   2135.0         0         0         0      31.1      31.1      31.1       1.0     .5754         0

QT        1     909.1
X1   2153.2         0         0         0      18.2      18.2      18.2       1.0     .3367         0

QT        1     818.2
X1   2171.4         0         0         0      18.2      18.2      18.2       1.0     .3367         0

QT        1     727.3
X1   2189.5         0         0         0      18.2      18.2      18.2       1.0     .3367         0

QT        1     636.4
X1   2207.7         0         0         0      18.2      18.2      18.2       1.0     .3367         0

QT        1     545.5
X1   2225.9         0         0         0      18.2      18.2      18.2       1.0     .3367         0
```

QT	1	454.5								
X1	2244.1	0	0	0	18.2	18.2	18.2	1.0	.3367	0
QT	1	363.6								
X1	2262.3	0	0	0	18.2	18.2	18.2	1.0	.3367	0
QT	1	272.7								
X1	2280.5	0	0	0	18.2	18.2	18.2	1.0	.3367	0
QT	1	181.8								
X1	2298.6	0	0	0	18.2	18.2	18.2	1.0	.3367	0
QT	1	90.9								
X1	2320.0	0	0	0	21.4	21.4	21.4	1.0	.3959	0
QT	1	1								
X1	2349.5	0	0	0	29.5	29.5	29.5	1.0	2.95	0

THIS RUN EXECUTED 02MAY94 17:34:20

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

NORTH COLLECTOR CHANNEL

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	-35.000	1095.50	1099.50	1000.00	1.13	.00	251.18	4.00	.02	874.41	1125.59	.00	.00
*	7.150	1095.50	1099.60	1000.00	9.23	.10	40.91	4.10	1.32	979.54	1020.46	.00	.00
*	50.000	1095.86	1100.71	1000.00	10.72	1.11	26.50	4.85	1.78	986.77	1013.27	.00	.00
	100.000	1096.28	1101.85	1000.00	8.83	1.15	28.66	5.58	1.21	985.69	1014.35	.00	.00
	150.000	1096.69	1102.25	1000.00	8.84	.40	28.65	5.56	1.21	985.69	1014.35	.00	.00
	200.000	1097.11	1102.65	1000.00	8.87	.40	28.61	5.55	1.22	985.72	1014.33	.00	.00
	250.000	1097.52	1103.05	1000.00	8.90	.40	28.57	5.53	1.23	985.74	1014.30	.00	.00
	300.000	1097.94	1103.46	1000.00	8.92	.41	28.54	5.53	1.24	985.75	1014.29	.00	.00
	360.800	1098.44	1103.96	1000.00	8.93	.50	28.53	5.52	1.24	985.75	1014.29	.00	.00
*	400.000	1098.50	1104.16	1000.00	8.62	.19	28.95	5.66	1.15	985.55	1014.50	.00	.00
	500.000	1098.64	1104.26	1000.00	8.71	.11	28.82	5.63	1.18	985.61	1014.43	.00	.00
	600.000	1098.78	1104.38	1000.00	8.74	.12	28.78	5.61	1.19	985.63	1014.41	.00	.00
	800.000	1099.06	1104.62	1000.00	8.83	.24	28.67	5.56	1.21	985.69	1014.35	.00	.00
	1000.000	1099.34	1104.86	1000.00	8.91	.25	28.57	5.53	1.23	985.74	1014.30	.00	.00
	1200.000	1099.62	1105.12	1000.00	8.97	.25	28.48	5.50	1.25	985.78	1014.26	.00	.00
	1400.000	1099.90	1105.38	1000.00	9.02	.26	28.42	5.48	1.26	985.81	1014.23	.00	.00
	1600.000	1100.18	1105.64	1000.00	9.05	.27	28.38	5.47	1.27	985.83	1014.21	.00	.00

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
	1800.000	1100.46	1105.92	1000.00	9.07	.27	28.35	5.46	1.28	985.85	1014.19	.00	.00
	2000.000	1100.74	1106.19	1000.00	9.09	.27	28.33	5.46	1.28	985.86	1014.19	.00	.00
	2103.900	1100.88	1106.33	1000.00	9.09	.14	28.32	5.45	1.28	985.86	1014.18	.00	.00
*	2135.000	1101.46	1106.30	1000.00	10.72	-.03	26.51	4.85	1.78	986.77	1013.27	.00	.00
	2153.200	1101.79	1106.86	909.10	9.19	.55	27.13	5.06	1.31	986.45	1013.58	.00	.00
	2171.400	1102.13	1107.09	818.20	8.49	.24	26.84	4.96	1.12	986.60	1013.44	.00	.00
	2189.500	1102.47	1107.32	727.30	7.77	.22	26.54	4.85	.94	986.75	1013.29	.00	.00
	2207.700	1102.80	1107.51	636.40	7.10	.19	26.08	4.70	.78	986.98	1013.06	.00	.00
	2225.900	1103.14	1107.69	545.50	6.36	.19	25.63	4.55	.63	987.20	1012.83	.00	.00
	2244.100	1103.48	1107.87	454.50	5.57	.18	25.15	4.39	.48	987.44	1012.59	.00	.00
	2262.300	1103.81	1108.03	363.60	4.71	.16	24.62	4.22	.34	987.71	1012.33	.00	.00
	2280.500	1104.15	1108.17	272.70	3.76	.14	24.04	4.02	.22	987.99	1012.04	.00	.00
	298.600	1104.49	1108.29	181.80	2.70	.12	23.40	3.81	.11	988.32	1011.71	.00	.00
	2320.000	1104.88	1108.38	90.90	1.51	.09	22.48	3.50	.04	988.77	1011.25	.00	.00
*	2349.500	1107.83	1108.42	1.00	.13	.04	13.77	.59	.00	993.12	1006.89	.00	.00

COLLECTOR CHANNEL

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	-35.000	.00	.00	.00	1095.50	1000.00	1099.50	.00	1099.52	1.34	1.13	882.35	864.54
*	7.150	42.15	.00	.00	1095.50	1000.00	1099.60	1099.60	1100.92	133.74	9.23	108.35	86.47
*	50.000	42.85	.00	.00	1095.86	1000.00	1100.71	1100.71	1102.49	137.01	10.72	93.28	85.43
	100.000	50.00	.00	.00	1096.28	1000.00	1101.85	.00	1103.06	80.47	8.83	113.19	111.47
	150.000	50.00	.00	.00	1096.69	1000.00	1102.25	.00	1103.47	80.59	8.84	113.13	111.39
	200.000	50.00	.00	.00	1097.11	1000.00	1102.65	.00	1103.87	81.42	8.87	112.70	110.82
	250.000	50.00	.00	.00	1097.52	1000.00	1103.05	.00	1104.29	82.21	8.90	112.31	110.29
	300.000	50.00	.00	.00	1097.94	1000.00	1103.46	.00	1104.70	82.67	8.92	112.08	109.98
	360.800	60.80	.00	.00	1098.44	1000.00	1103.96	.00	1105.20	82.91	8.93	111.96	109.82
	400.000	39.20	.00	.00	1098.50	1000.00	1104.16	.00	1105.31	12.05	8.62	115.96	288.09
	500.000	100.00	.00	.00	1098.64	1000.00	1104.26	.00	1105.44	12.40	8.71	114.76	284.00
	600.000	100.00	.00	.00	1098.78	1000.00	1104.38	.00	1105.57	12.51	8.74	114.37	282.69
	800.000	200.00	.00	.00	1099.06	1000.00	1104.62	.00	1105.83	12.86	8.83	113.24	278.87
	1000.000	200.00	.00	.00	1099.34	1000.00	1104.86	.00	1106.09	13.16	8.91	112.29	275.67
	1200.000	200.00	.00	.00	1099.62	1000.00	1105.12	.00	1106.37	13.42	8.97	111.50	273.00
	1400.000	200.00	.00	.00	1099.90	1000.00	1105.38	.00	1106.64	13.62	9.02	110.90	271.00
	1600.000	200.00	.00	.00	1100.18	1000.00	1105.64	.00	1106.92	13.76	9.05	110.48	269.60
	1800.000	200.00	.00	.00	1100.46	1000.00	1105.92	.00	1107.19	13.85	9.07	110.21	268.70
	2000.000	200.00	.00	.00	1100.74	1000.00	1106.19	.00	1107.47	13.91	9.09	110.05	268.13
	2103.900	103.87	.00	.00	1100.88	1000.00	1106.33	.00	1107.62	13.93	9.09	109.98	267.91
*	2135.000	31.10	.00	.00	1101.46	1000.00	1106.30	1106.30	1108.09	21.89	10.72	93.32	213.73
	2153.200	18.20	.00	.00	1101.79	909.10	1106.86	.00	1108.17	15.41	9.19	98.91	231.56
	171.400	18.20	.00	.00	1102.13	818.20	1107.09	.00	1108.21	13.42	8.49	96.34	223.31
	2189.500	18.20	.00	.00	1102.47	727.30	1107.32	.00	1108.25	11.47	7.77	93.65	214.78

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	2207.700	18.20	.00	.00	1102.80	636.40	1107.51	.00	1108.29	9.91	7.10	89.63	202.13
	2225.900	18.20	.00	.00	1103.14	545.50	1107.69	.00	1108.32	8.24	6.36	85.72	190.03
	2244.100	18.20	.00	.00	1103.48	454.50	1107.87	.00	1108.35	6.56	5.57	81.59	177.47
	2262.300	18.20	.00	.00	1103.81	363.60	1108.03	.00	1108.37	4.89	4.71	77.21	164.39
	2280.500	18.20	.00	.00	1104.15	272.70	1108.17	.00	1108.39	3.28	3.76	72.51	150.64
	2298.600	18.20	.00	.00	1104.49	181.80	1108.29	.00	1108.41	1.79	2.70	67.41	136.07
	2320.000	21.40	.00	.00	1104.88	90.90	1108.38	.00	1108.42	.61	1.51	60.35	116.52
*	2349.500	29.50	.00	.00	1107.83	1.00	1108.42	.00	1108.42	.03	.13	7.61	5.35

COLLECTOR CHANNEL

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	-35.000	1000.00	1099.50	.00	.00	.00	251.18	.00
*	7.150	1000.00	1099.60	.00	.10	.00	40.91	42.15
*	50.000	1000.00	1100.71	.00	1.11	.00	26.50	42.85
	100.000	1000.00	1101.85	.00	1.15	.00	28.66	50.00
	150.000	1000.00	1102.25	.00	.40	.00	28.65	50.00
	200.000	1000.00	1102.65	.00	.40	.00	28.61	50.00
	250.000	1000.00	1103.05	.00	.40	.00	28.57	50.00
	300.000	1000.00	1103.46	.00	.41	.00	28.54	50.00
	360.800	1000.00	1103.96	.00	.50	.00	28.53	60.80
	400.000	1000.00	1104.16	.00	.19	.00	28.95	39.20
	500.000	1000.00	1104.26	.00	.11	.00	28.82	100.00
	600.000	1000.00	1104.38	.00	.12	.00	28.78	100.00
	800.000	1000.00	1104.62	.00	.24	.00	28.67	200.00
	1000.000	1000.00	1104.86	.00	.25	.00	28.57	200.00
	1200.000	1000.00	1105.12	.00	.25	.00	28.48	200.00
	1400.000	1000.00	1105.38	.00	.26	.00	28.42	200.00
	1600.000	1000.00	1105.64	.00	.27	.00	28.38	200.00
	1800.000	1000.00	1105.92	.00	.27	.00	28.35	200.00
	2000.000	1000.00	1106.19	.00	.27	.00	28.33	200.00
	2103.900	1000.00	1106.33	.00	.14	.00	28.32	103.87
*	2135.000	1000.00	1106.30	.00	-.03	.00	26.51	31.10
	2153.200	909.10	1106.86	.00	.55	.00	27.13	18.20
	2171.400	818.20	1107.09	.00	.24	.00	26.84	18.20
	2189.500	727.30	1107.32	.00	.22	.00	26.54	18.20

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	2207.700	636.40	1107.51	.00	.19	.00	26.08	18.20
	2225.900	545.50	1107.69	.00	.19	.00	25.63	18.20
	2244.100	454.50	1107.87	.00	.18	.00	25.15	18.20
	2262.300	363.60	1108.03	.00	.16	.00	24.62	18.20
	2280.500	272.70	1108.17	.00	.14	.00	24.04	18.20
	2298.600	181.80	1108.29	.00	.12	.00	23.40	18.20
	2320.000	90.90	1108.38	.00	.09	.00	22.48	21.40
*	2349.500	1.00	1108.42	.00	.04	.00	13.77	29.50

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      7.150  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      7.150  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      7.150  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=     50.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     50.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     50.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=    400.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   2135.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2135.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2135.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   2349.500  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

Outchan.out

```
*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
*  Version   4.6.2;  May 1991             *
                                          *
*  RUN DATE    22NOV95    TIME   15:47:06 *
*******************************************
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```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*         (916) 756-1104            *
*************************************
```

```
X     X  XXXXXXX   XXXXX            XXXXX
X     X  X        X     X          X     X
X     X  X        X                      X
XXXXXXX  XXXX     X         XXXXX   XXXXX
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX           XXXXXXX
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THIS RUN EXECUTED 22NOV95 15:47:06

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T1    FCD 93-01
T2    DYSART DRAIN IMPROVEMENT PROJECT (Revised to reflect culv.change to 2#6x6)
T3    DETENTION BASIN OUTLET CHANNEL
T4    100 YEAR FLOWS
T4    FILENAME=OUTCHAN.DAT

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0       0.0        0      0.0     446.0   1092.99

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH     FN      ALLDC    IBW      CHNIM    ITRACE

    -1        0       -1       0.0      0.0      0.0      0.0     -6.0      0.0


    'ARIABLE CODES FOR SUMMARY PRINTOUT

    38       42        1       43       26       51        4        8       10       53
    54       13       15                150

J5  LPRNT    NUMSEC                 ********REQUESTED SECTION NUMBERS********

    -10       2    3067.7    3226.9

NC    0.035     0.035     0.014      0.3       0.5
  UPSTREAM FACE OF BOX CULVERT
       UPSTREAM FACE OF BOX CULVERT
X1   1879.7        7      92.0     108.0       0.0       0.0       0.0       1.0       0.0
GR   1099.2     52.0    1090.2      92.0   1088.12      94.0   1088.12     100.0   1088.12     106.0
GR   1090.2    108.0    1099.2     148.0

NC      0.0       0.0       0.0       0.1       0.3
X1   2079.7        7      92.0     108.0     200.0     200.0     200.0       1.0       0.0
GR   1099.4     52.0  1090.474      92.0  1088.394      94.0  1088.394     100.0  1088.394     106.0
GR   1090.4    108.0  1099.474     148.0

X1   2279.7        7      92.0     108.0     200.0     200.0     200.0       1.0       0.0
GR   1099.7     52.0  1090.748      92.0  1088.668      94.0  1088.668     100.0  1088.668     106.0
GR   1090.7    108.0  1099.748     148.0
```

```
X1   2479.7        7      92.0     108.0     200.0     200.0     200.0       1.0       0.0
GR   1100.0     52.0  1091.022      92.0  1088.942      94.0  1088.942     100.0  1088.942     106.0
GR   1091.0    108.0  1100.022     148.0

X1   2679.7        7      92.0     108.0     200.0     200.0     200.0       1.0       0.0
GR   1100.2     52.0  1091.296      92.0  1089.216      94.0  1089.216     100.0  1089.216     106.0
GR   1091.2    108.0  1100.296     148.0

X1   2879.7        7      92.0     108.0     200.0     200.0     200.0       1.0       0.0
GR   1100.5     52.0   1091.57      92.0   1089.49      94.0   1089.49     100.0   1089.49     106.0
GR   1091.5    108.0   1100.57     148.0

X1   3046.1        7      92.0     108.0     166.4     166.4     166.4       1.0       0.0
GR   1100.7     52.0   1091.79      92.0   1089.71      94.0   1089.71     100.0   1089.71     106.0
GR   1091.7    108.0   1100.79     148.0
  DOWNSTREAM FACE OF double 6'X6' BOX

        DOWNSTREAM FACE OF 6' X 6' DOUBLE BOX CULVERT
X1   3067.7        7      94.0     106.0      21.6      21.6      21.6       1.0       0.0
X3       10      0.0       0.0       0.0       0.0       0.0       0.0    1096.4    1096.4
  1096.7    93.9 1089.74    94.0 1089.74   100.0 1089.74   106.0  1096.7   106.1
GR   1100.7     52.0   1091.79      92.0   1089.71      94.0   1089.71     100.0   1089.71     106.0
GR   1091.7    108.0   1100.79     148.0

     2.014       0.3       2.6      25.0       6.0       6.0       159       8.1   1089.85    1089.74
   STREAM FACE OF 6' X 6' BOX
        UPSTREAM FACE OF 6' X 6' DOUBLE BOX CULVERT
X1   3226.9        7      94.0     106.0       159       159       159       1.0       0.0
X2      0.0      0.0         2       0.0    1099.2       0.0         0       0.0       0.0
X3       10      0.0       0.0       0.0       0.0       0.0       0.0    1097.0    1097.0
  1096.8    93.9 1089.84    94.0 1089.84   100.0 1089.84   106.0  1096.8   106.1
GR   1100.7     52.0   1091.79      92.0   1089.71      94.0   1089.71     100.0   1089.71     106.0
GR   1091.7    108.0   1100.79     148.0

NC    0.025    0.025     0.025       0.1       0.3
  DETENTION BASIN
        DETENTION BASIN
X1   3266.9       10       0.0     316.0      40.0      40.0      40.0       1.0       0.0
GR   1101.3      0.0    1092.2      55.0    1090.2      57.0    1090.2      67.0    1092.2      69.0
GR   1092.0    247.0    1090.0     249.0    1090.0     259.0    1092.0     261.0    1101.2     316.0
```

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

*SECNO 3067.700

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1096.40 ELREA= 1096.40

DOWNSTREAM FACE OF 6' X 6' DOUBLE BOX CULVERT

3067.700	3.49	1093.20	1093.20	.00	1094.96	1.76	.03	.28	1089.71
446.0	.0	446.0	.0	.0	41.9	.0	2.4	1.0	1089.71
.05	.00	10.65	.00	.000	.014	.000	.000	1089.71	94.00
.001904	22.	22.	22.	20	11	0	.00	12.00	106.00

*SECNO 3226.900

'AL CULVERT OUTLET CONTROL
= 1095.493 EGOC = 1095.792 PCWSE= 1093.198 ELTRD= 1099.200

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.03

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
1095.49	1095.79	.83	0.	446.	6.976	72.0	1099.20	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 1097.00 ELREA= 1097.00

UPSTREAM FACE OF 6' X 6' DOUBLE BOX CULVERT

3226.900	5.33	1095.04	.00	.00	1095.79	.76	.83	.00	1089.71
446.0	.0	446.0	.0	.0	63.9	.0	2.6	1.0	1089.71
.06	.00	6.98	.00	.000	.014	.000	.000	1089.71	94.00
.000464	159.	159.	159.	3	0	0	.00	12.00	106.00

THIS RUN EXECUTED 22NOV95 15:47:06

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

TENTION BASIN OUTLET CHA

SUMMARY PRINTOUT

	SECNO	ELMIN	CWSEL	Q	VCH	DIFWSX	TOPWID	DEPTH	HV	SSTA	ENDST	QLOB	QROB
*	3067.700	1089.71	1093.20	446.00	10.65	-.34	12.00	3.49	1.76	94.00	106.00	.00	.00
*	3226.900	1089.71	1095.04	446.00	6.98	1.84	12.00	5.33	.76	94.00	106.00	.00	.00

JN BASIN OUTLET CHA

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	3067.700	21.60	.00	.00	1089.71	446.00	1093.20	1093.20	1094.96	19.04	10.65	41.86	102.20
*	3226.900	159.00	1099.20	.00	1089.71	446.00	1095.04	.00	1095.79	4.64	6.98	63.93	207.01

JN BASIN OUTLET CHA

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	3067.700	446.00	1093.20	.00	-.34	.00	12.00	21.60
*	3226.900	446.00	1095.04	.00	1.84	.00	12.00	159.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=   3067.700  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   3067.700  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   3067.700  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   3226.900  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   3266.900  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
```

FEMA FORMS

FLOODING SOURCE: **Reems Road**

MT-2 Form 1: **Revision Requestor & Community Official Form**

MT-2 Form 2: **Certification By Registered Professional Engineer And/Or Land Surveyor Form**

MT-2 Form 3: **Hydrologic Analysis Form**

MT-2 Form 4: **Riverine Hydraulic Analysis Form**

MT-2 Form 5: **Riverine and Coastal Mapping Form**

FEDERAL EMERGENCY MANAGEMENT AGENCY **REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	***FEMA USE ONLY***

PUBLIC BURDEN DISCLOSURE NOTICE

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.

1. OVERVIEW

1. The basis for this revision request is (are): *(check all that apply)*
   - ☒ Physical change
     - ☐ Existing
     - ☒ Proposed
   - ☐ Improved methodology
   - ☐ Improved data
   - ☐ Floodway revision
   - ☐ Other _____

   Explain Reems Road drainage improved with Swale/Channel System

2. Flooding Source: Reems Road

3. Project Name/Identifier: White Tanks/Agua Fria ADMS - Dysart Drain Improvements

4. FEMA zone designations affected: A
   (example: A, AH, AO, A1-A30, A99, AE, V, V1-30, VE, B, C, D, X)

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

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
EX: 480301	Katy,City	Harris, Fort Bend	TX	480301	0005D	02/08/83
480287	Harris County	Harris	TX	48201C	0220G	09/28/90
(See attached sheet)						

6. The area of revision encompasses the following types of flooding, structures, and associated disciplines: *(check all that apply)*

Types of Flooding	Structures	Disciplines*
☒ Riverine	☒ Channelization	☒ Water Resources
☐ Coastal	☐ Levee/Floodwall	☒ Hydrology
☐ Alluvial Fan	☐ Bridge/Culvert	☒ Hydraulics
☐ Shallow Flooding *(e.g. Zones AO and AH)*	☐ Dam	☐ Sediment Transport
☐ Lakes	☐ Coastal	☐ Interior Drainage
	☐ Fill	☐ Structural
Affected by wind/wave action	☐ Pump Station	☐ Geotechnical
☐ Yes	☐ None	☐ Land Surveying
☒ No	☐ Channel Relocation	☐ Other *(describe)*
	☐ Excavation	
	☐ Other *(describe)*	

☐ Other(describe) _____ _____ _____

*** Attach completed "Certification by Registered Professional Engineer and/or Land Surveyor" Form for each discipline checked. (Form 2)**

2. FLOODWAY INFORMATION Not Applicable

7. Does the affected flooding source have a floodway designated on the effective FIRM or FBFM? ☐ Yes ☐ No
8. Does the revised floodway delineation differ from that shown on the effective FIRM or FBFM ☐ Yes ☐ No
   If yes, give reason: _____

MT-2 Form 1, Item 5

Flooding Source: ***Reems Road***

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
040037	Maricopa Co. Unincorp. Area	Maricopa	AZ	04013C	1585F	9/30/95
040045	Glendale, City	Maricopa	AZ	04013C	1585F	9/30/95
040053	Surprise, Town	Maricopa	AZ	04013C	1585F	9/30/95
040037	Maricopa Co. Unincorp. Area	Maricopa	AZ	04013C	1595F	9/30/95
040025	Glendale, City	Maricopa	AZ	04013C	1595F	9/30/95

Attach copy of either a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions. Not Applicable

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

es, 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.

3. PROPOSED ENCROACHMENTS

10. With floodways: N/A

1A. Does the revision request involve fill, new construction, substantial improvement, or other development in the floodway? ☐ Yes ☐ No

1B. If yes, does the development cause the 100-year water surface elevation to increase at any location by more than 0.000 feet? ☐ Yes ☐ No

11. Without floodways:

2A. Does the revision request involve fill, new construction, substantial improvement, or other development in the 100-year floodplain? ☒ Yes ☐ No

2B. If yes, does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the 100-year water surface elevation to increase at any location by more than one foot (*or other surcharge limit if community or state has adopted more stringent criteria*)? ☐ Yes ☒ No

If the answer to either Items 1B or 2B is yes, please provide 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.

4. REVISION REQUESTOR ACKNOWLEDGMENT

12. Having read NFIP Regulations, 44 CFR Ch. I, parts 59, 60, 61, and 72, I believe that the proposed revision ☒ is ☐ is not in compliance with the requirements of the aforementioned NFIP Regulations.

5. COMMUNITY OFFICIAL ACKNOWLEDGMENT

13. Was this revision request reviewed by the community for compliance with the community's adopted floodplain management ordinances? ☒ Yes ☐ No

14. Does this revision request have the endorsement of the community? ☒ Yes ☐ No

If no to either of the above questions, please explain: _____

Please note that community acknowledgment and /or notification is required for all requests as outlined in Section 65.4 (b) of the NFIP Regulations.

6. OPERATION AND MAINTENANCE

15. Does the physical change involve a flood control structure (e.g., levees, floodwalls, channelization, basins, dams)? ☒ Yes ☐ No

If yes, please provide the following information for each of the new flood control structures:

A. Inspection of the flood control project will be conducted periodically by U.S.A.F. at Luke AFB (entity) with a maximum interval of 6 months between inspections.

B. Based on the results of scheduled periodic inspections, appropriate maintenance of the flood control facilities will be conducted by U.S.A.F. at Luke AFB (entity) to ensure the integrity and degree of flood protection of the structure.

C. A formal plan of operation, including documentation of the flood warning system, specific actions and assignments of responsibility by individual name or title, and provisions for testing the plan at intervals not less than one year, ☒ has ☐ has not been prepared for the flood control structure.

D. The community is willing to assume responsibility for ☐ performing ☒ overseeing compliance with the maintenance and operation plans of the Dysart Drain Improvements/Reems Road Channel (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.

Attach operation and maintenance plans

7. REQUESTED RESPONSE FROM FEMA

16. After examining the pertinent NFIP regulations and reviewing the document entitled "Appeals, Revisions, and Amendments to Flood Insurance Maps: A guide for Community Officials," dated January 1990, this request is for a:

X a.	CLOMR	A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision *(LOMR or PMR)*, or proposed hydrology changes *(see 44 CFR Ch. I, Parts 60, 65, and 72)*.
___ b.	LOMR	A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. LOMRs typically depict decreased flood hazards. *(See 44 CFR Ch. I Parts 60 and 65.)*
___ c.	PMR	A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects increased flood hazards or large-scope changes. *(See 44 CFR Ch. I, Parts 60 and 65.)*
___ d.	Other:	Describe_____

8. FORMS INCLUDED

17. Form 2 entitled, "Certification By Registered Professional Engineer and/or Land Surveyor" must be submitted.

The following forms should be included with this request if (check the included forms):

• Hydrologic analysis for flooding source differs from that used to develop FIRM	☒ Hydrologic Analysis Form (Form 3)
• Hydraulic analysis for riverine flooding differs from that used to develop FIRM	☒ Riverine Hydraulic Analysis Form (Form 4)
• The request is based on updated topographic information or a revised floodplain or floodway delineation is requested	☒ Riverine /Coastal Mapping Form (Form 5)
• The request involves any type of channel modification	☒ Channelization Form (Form 6)
• The request involves new bridge or culvert or revised analysis of an existing bridge or culvert	☐ Bridge/Culvert Form (Form 7)
• The request involves a new revised levee/floodwall system	☐ Levee/Floodwall System Analysis Form (Form 8)
• The request involves analysis of coastal flooding	☐ Coastal Analysis Form (Form 9)
• The request involves coastal structures credited as providing protection from the 100-year flood	☐ Coastal Structures (Form 10)
• The request involves an existing, proposed, or modified dam	☐ Dam Form (Form 11)
• The request involves structures credited as providing protection from the 100-year flood on an alluvial fan	☐ Alluvial Fan Flooding Form (Form 12)

9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. ☐ Yes ☒ No

Initial fee amount: $ _____

Check or money order only. Make check or money order payable to : **National Flood Insurance Program.** If paying by Visa or Mastercard please refer to the credit card information form which follows this form.

or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. ☒ Yes ☐ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazard, or solely to provide more detailed data. ☐ Yes ☐ No

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

Signature of Revision Requester

Stanley L. Smith, Jr., P.E.
Interim Chief Engineer and General Manager
Printed Name and Title of Revision Requester

Flood Control District of Maricopa County
Company Name

(602) 506-1501 — 1/16/96
Telephone No. — Date

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

Grant I. Anderson, P.E.; City Engineer
Printed Name and Title of Community Official

City of Glendale, Arizona
Community Name

(602) 930-3630 — Dec. 4, 1995
Date

Does this request impact any other communities? ☒ Yes ☐ No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

MT-2 Form 1, Signature of Community Official

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

Shirley Berg, Community Development Director
Printed Name and Title of Community Official

City of Surprise, Arizona
Community Name

January 8, 1995
Date

Dysart Drain Improvement Project:
Luke Air Force Base Area FEMA CLOMR
Application and City of Surprise
Community Approval

FEDERAL EMERGENCY MANAGEMENT AGENCY

CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM

O.M.B. Burden No. 3067-0148
Expires July 31, 1997

FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average . 23 hour 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.

1. This certification is in accordance with 44 CFR Ch. I, Section 65.2
2. I am licensed with an expertise in Water Resources
   [example: water resources *(hydrology, hydraulics, sediment transport, interior drainage)** structural, geotechnical, land surveying.]
3. I have 5 years experience in the expertise listed above.
4. I have ☒ prepared ☒ reviewed the attached supporting data and analyses related to my expertise.
5. I ☒ have ☐ have not visited and physically viewed the project.
6. In my opinion, the following analyses and /or designs, is/are being certified:

   Hydrologic and Hydraulic Analyses, Channel Design, Detention Basin Design
7. Base upon the following review, the modifications in place have been constructed in general accordance with plans and specifications. N/A

   Basis for above statement: (check all that apply)

   a. ☐ Viewed all phases of actual construction.

   b. ☐ Compared plans and specifications with as-built survey information.

   c. ☐ Examined plans and specifications and compared with completed projects.

   d. ☐ Other _____
8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Kofi Awumah
(please print or type)

Title: Civil Engineer
(please print or type)

Registration No. 28148 Expiration Date: July 1997

State Arizona

Type of License Professional Engineer (Civil)

Kofi Awumah
Signature

December 28, 1995
Date

Registered Professional Engineer (Civil)
CERTIFICATE NO.
28148
KOFI
AWUMAH
Date Signed
ARIZONA U.S.A.

Seal
(Optional)

*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Reems Road
(One form for each flooding source)

Project Name /Identifier: White Tanks/Agua Fria ADMS

1. HYDROLOGIC ANALYSIS IN FIS

☒ Approximate study stream (Zone A)
☐ Detailed study stream (briefly explain methodology)

2. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis
☐ Improved data *(see data revision on page 3)*
☒ Changed physical conditions of watershed *(explain)* Reems Road Drainage Improved - Collector Channel for Detention Basin
☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*
☒ Evaluation of proposed conditions (CLOMRs only) (explain) Proposed conditions will result in revision of Zone A's on attached FIRM Maps.
☐ Other

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

☒ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Study conducted under direct contact and supervision of Flood Control District of Maricopa County.)
Attach evidence of approval.

☐ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

Stream: _____

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
Cactus Road (1D165)		1441	240
Peoria Ave. (DI179)		3187	1000
Olive Ave. (DI193)		2291	1000

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

N/A

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)* _____

ATTACHMENT A: STATISTICAL ANALYSIS OF GAGE RECORDS

Gaging Station: N/A

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data	_____	_____
Systematic	_____	_____
Historical	_____	_____
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers	_____	_____
Low outliers	_____	_____
Zero events	_____	_____
5. Generalized skew	_____	_____
6. Station skew	_____	_____
7. Adopted skew	_____	_____
8. Probability distribution used (justify if log-Pearson III was not used)	_____	_____

9. Transfer equations to ungaged sites ☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. Expected probability* ☐ Yes ☐ No

11. Comparison of results with other analyses ☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

***FEMA** does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

1. Bibliographical Reference:

_____

_____

_____

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

_____

_____

_____

		FIS:		Revised:	
5.	Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6	Percent of watershed urbanization	_____		_____	
7.	Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
8.	Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

_____

_____

_____

_____

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

		FIS:	Revised
1.	Method or model used:	HEC-1	HEC-1
	Version:	4.0	4.6.2
	Date:	June 1988	May 1991
2.	Source of rainfall depth:	NOAA Atlas II	NOAA Atlas II
3.	Source of rainfall distribution:	SCS Type II	SCS Type II
4.	Rainfall duration:	24 hrs	24 hrs
5.	Areal adjustment to precipitation (%):	NOAA AtlasII-Varies	NOAA Atlas II
6.	Maximum overland flow length	1.36 miles	1.36 miles
7.	Hydrograph development method:	Phoenix Valley S-Graph	Phoenix Valley S-Graph
8.	Loss rate method:	Green-Ampt	Green-Ampt
	Source of soils information:	Maricopa Co. Hydrologic Manual	Maricopa Co. Hydrologic Manual
	Source of land use information	Maricopa Co. Zoning Maps	Maricopa Co. Zoning Maps
9.	Channel routing method:	Normal Depth	Normal Depth
10.	Reservoir routing:	☐ Yes ☒ No	☐ Yes ☒ No
11.	Baseflow considerations:	☐ Yes ☒ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

12. Snowmelt considerations: ☐ Yes ☒ No ☐ Yes ☒ No

13. Model calibration: ☐ Yes ☒ No ☐ Yes ☒ No

If yes, explain how calibration was performed

14. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

ATTACHMENT D: CONFIDENCE LIMITS EVALUATION

Stream: _____

Select one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval: 5% limit _____ cfs

95% limit _____ cfs

50% Confidence Interval: 25% limit _____ cfs

75% limit _____ cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE HYDRAULIC ANALYSIS FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	**FEMA USE ONLY**

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Reems Road
(One form for each flooding source)

Project Name/Identifier: White Tanks/Agua Fria ADMS - Dysart Drain Improvement

1. REACH TO BE REVISED

Downstream limit: Northern Avenue

Upstream limit: Cactus Road

2. EFFECTIVE FIS

☐ Not studied

☒ Studied by approximate methods

Downstream limit of study Northern Avenue

Upstream limit of study Cactus Road

☐ Studied by detailed methods

Downstream limit of study _____

Upstream limit of study _____

☐ Floodway delineated

Downstream limit of Floodway _____

Upstream limit of Floodway _____

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis. Explain: _____

☐ Improved hydraulic analysis. Explain: _____

☒ Flood control structure. Explain: Reems Road Channel Improved. Additional channels and detention basin reduce flooding along Reems Road.

☐ Other. Explain: _____

For areas which have detailed flooding:

Full input and output listings along with files on diskette (if available) for each of the models listed below (items 1, 2, 3, 4, and 5) and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model (e.g. duplicate effective model to corrected effective model) At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required.

For areas which do not have detailed flooding:

Only the 100-year flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted.

If hydraulic models are not developed, hydraulic analyses for existing or pre-project conditions and revised or post-project conditions must be submitted. All calculations must be submitted for these analyses. (See item 6 below)

1. Duplicate Effective Model — Natural ☐ Floodway ☐

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models *(10-, 50-, 100-, and 500-year multi-profile runs and the floodway run)* must be obtained and then reproduced on the requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

2. Corrected Effective Model — Natural ☐ Floodway ☐

The corrected effective model is the model that corrects any errors that occur in the duplicate effective model, adds any additional cross sections to the duplicate effective model, or incorporates more detailed topographic information than that used in the currently effective model. The corrected effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

3. Existing or Pre-Project Conditions Model — Natural ☒ Floodway ☐

The duplicate effective or corrected model is modified to produce the existing or pre-project conditions model to reflect any modifications that have occurred within the floodplain since the date of the effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the corrected effective or duplicate effective model.

4. Revised or Post-Project Conditions Model — Natural ☒ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective or corrected effective model, as appropriate)* is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for proposed project this model should reflect proposed conditions.

5. Other: Please attach a sheet describing all other models submitted. — Natural ☐ Floodway ☐

6. Hydraulic Analyses (Only if Hydraulic Models are not developed)

Please attach all calculations for the existing or pre-project conditions and the revised or post-project conditions. Proceed to Form 5, "Riverine/Coastal Mapping Form".

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

1. Discharges:

	Upstream Limit	Downstream Limit
10-year		
50-year		
100-year	240 cfs	1000 cfs
500-year		

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined 100 year water surface elevation in the detention basin.

3. Give range of friction loss coefficients (*Manning's "N"*) Channel ..... 0.02 - 0.03

Overbanks ..... 0.045 - 0.06

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined *(e.g., field survey, topographic map, taken from previous study)* and list cross sections that were added.

Topographic Mapping of previous study.

5. Were natural channel banks selected as the location of the left and right channel banks in the model?

☒ Yes ☐ No If no, explain why not:

6. Explain how reach lengths for channel and overbanks were determined:

Channel reach lengths were measured along the hydraulic control line for the channelized portions. Reach lengths and overbank lengths were not determined for the remaining reaches.

5. RESULTS *(from model used to revise 100-year water surface elevations)*

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ☐ Yes ☒ No

b. Supercritical depth? ☐ Yes ☒ No

c. Critical depth? ☒ Yes ☐ No

d. Other unique situations ☐ Yes ☐ No
(see attached sheet)

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? 2.16 ft

Specify location 532.1

3. What is the distance between the cross-sections in 2 above? 82.1 ft

4. What is the maximum distance between cross-sections? 200 ft

Specify location 1100

5. Floodway determination Not Applicable

a. What is the maximum surcharge allowed by the community or State? _____ foot

b. What is the maximum surcharge for the revised conditions? _____ foot

Specify location _____

c. What is the maximum velocity? _____ fps

Specify location _____

d. Are there any negeative surcharge values at any cross-section? ☐ Yes ☐ No

If yes, the floodway may need to be widened. If it is not widened, please explain and indicate the maximum negative surcharge.

Explain: _____

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☐ No

If Yes, explain:

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☐ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases. *(For example: State if the increase is due to fill placed within the floodway fringe or placed within the currently adopted floodway limits)*

_____

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

Not Applicable

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section_____ within_____feet *(vertical)* and upstream of the project at cross section_____within_____feet *(vertical)*.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section_____within_____feet *(vertical)* and upstream of the project at cross section_____ within_____feet *(vertical)*.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS:

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE/COASTAL MAPPING FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

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Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Reems Road

Project Name/Identifier: White Tanks/Agua Fria ADMS - Dysart Drain Improvement

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable):*

		Included		
A.	Revised approximate 100-year floodplain boundaries (Zone A)	☒ Yes	☐ No	☐ N/A
B.	Revised detailed 100- and 500-year floodplain boundaries	☐ Yes	☐ No	☒ N/A
C.	Revised 100-year floodway boundaries	☐ Yes	☐ No	☒ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E.	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F.	Current community boundaries	☒ Yes	☐ No	☐ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☒ Yes	☐ No	☐ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
I.	The requestor's property boundaries and community easements	☒ Yes	☐ No	☐ N/A
J.	The signed certification of a registered professional engineer	☒ Yes	☐ No	☐ N/A
K.	Location and description of reference marks	☒ Yes	☐ No	☐ N/A
L.	Vertical datum (example: NGVD, NAVD etc.)	☒ Yes	☐ No	☐ N/A
M.	Coastal zone designations tie into adjacent areas not being revised	☐ Yes	☐ No	☒ N/A
N.	Location and alignment of all coastal transects used to revise the coastal analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain: B. Detailed analysis not performed. C. Floodway delineation not performed. M. & N. Floodplain not a Coastal zone.

2. What is the source and date of the updated topographic information *(example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.)*? FIS Information

3. What is the scale and contour interval of the following workmaps?
   a. Effective FIS 400 scale 2 feet Contour interval
   b. Revision Request 400 scale 2 feet Contour interval

   NOTE: Revised topographic information must be of equal or greater detail.

4. Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

   Attach additional pages if needed.

5. Flood Boundaries and 100-year water surface elevations:

Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's ? ☐ Yes ☒ No

If yes, please give the location of shift or increase and an explanation for the increase.

_____

_____

_____

a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? ..... ☐ Yes ☒ No

If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

b. What is the number of insurable structures that will be impacted by this shift or increase?_____

6. Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM? ..... ☐ Yes ☒ No

If yes, explain:

_____

_____

_____

7. If a V- zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ☐ Yes ☒ No

If no, explain:

_____

_____

_____

8. Manual or digital map submission:

☒ Manual

☐ Digital

Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance of submission as possible.

2. EARTH FILL PLACEMENT N/A

1. The fill is: ☐ Existing ☐ Proposed

2. Has fill been/will be placed in the regulatory floodway? ..... ☐ Yes ☐ No
   If yes, please attach completed Riverine Hydraulic Analysis Form.

3. Has fill been/will be placed in floodway fringe *(area between the floodway and 100-year floodplain boundaries)*? ..... ☐ Yes ☐ No

   If yes, then complete A, B, C, and D below.

   A. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ..... ☐ Yes ☐ No

      If yes, justify steeper slopes_____

      _____

   B. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? *(Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)* ..... ☐ Yes ☐ No

      If no, describe erosion protection provided_____

      _____

   C. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

   D. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

   If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

4. Has fill been/will be placed in a V-zone? ☐ Yes ☐ No

   If yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall? ☐ Yes ☐ No

   If yes, attach the coastal structures form.

FEDERAL EMERGENCY MANAGEMENT AGENCY **CHANNELIZATION FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	FEMA USE ONLY

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.75 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale, Town of Surprise

Flooding Source: Reems Road

Project Name/Identifier: White Tanks/Agua Fria ADMS: Dysard Drain Improvement

1. EXTENT OF CHANNELIZATION

Downstream limit: Northern Avenue

Upstream limit: Farm Road (Distance of 2240 feet from Northern Avenue)

2. CHANNEL DESCRIPTION

1. Describe the inlet to the channel Regrading of Reems Road to provide transition into Channel/swale system.

2. Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)* Side slope of swales vary. Channel is trapezoidal with bottom width from 10ft to 20 ft. side slope 1½H:1V. Channel lining is grouted riprap and swale lining is soil cement

3. Describe the outlet from the channel Grouted Riprap Lined Apron.

4. The channelization includes:

   - ☐ Levees *(Attach Levee Form)*
   - ☐ Drop structures
   - ☐ Superelevated sections
   - ☒ Transitions in cross sectional geometry
   - ☒ ~~Debris basin~~/detention basin
   - ☐ Energy dissipater
   - ☐ Other

5. Attach the following:

   a. Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4

   b. Typical cross sections and profiles of channel banks and invert

3. HYDRAULIC CONSIDERATIONS

1. What is the 100-year discharge? ..... 600 to 1000 cfs
2. Do the cross sections in the hydraulic model match the typical cross sections in the plans? ☒ Yes ☐ No
3. Are the channel banks higher than the 100- year flood elevations everywhere? ..... ☒ Yes ☐ No

   Are the channel banks higher than the 100-year flood energy grade lines everywhere? .. ☒ Yes ☐ No
5. Is the land on both sides of the channel above the adjacent 100-year flood elevation at all points along the channel? ..... ☒ Yes ☐ No
6. What is the range of freeboard? ..... 0 – 1.0 feet
7. What is the range of the 100-year flood velocities? ..... 3.9 – 8.0 ft/sec
8. What is the lining type? (both bottom and sides) Grouted Riprap for channel/Soil Cement for swales

   Explain how the channel lining prevents erosion and maintains channel stability *(attach documentation)*

   Design velocities well below limiting velocities for lining.
9. What is the design elevation in the channel based on?

   ☒ Subcritical flow
   ☐ Critical flow
   ☐ Supercritical flow
   ☐ Energy grade line

   Is 100-year flood profile based on the above type of flow? ..... ☒ Yes ☐ No

   If no, explain: _____

0. Is there the potential for a hydraulic jump at the following locations?

   Inlet to channel ..... ☐ Yes ☒ No
   Outlet of channel ..... ☐ Yes ☒ No
   At Drop Structures ..... ☐ Yes ☒ No
   At Transitions ..... ☐ Yes ☒ No
   Other locations. Explain: _____

   If the answer to any of the above is yes, please explain how the hydraulic jump is controlled and the effects of the hydraulic jump on the stability of the channel.

   Explain: _____

4. SEDIMENT TRANSPORT CONSIDERATIONS

1. A. Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water surface elevations and/or the capacity of the channel? ..... ☐ Yes ☒ No

   B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water surface elevations and /or the capacity of the channel? ..... ☐ Yes ☒ No

2. If the answer to either 1A or 1B is yes:

   A. What is the estimated sediment (bed) load?
   _____cfs (attach gradation curve)

   Explain method used to estimate load_____

   _____

   _____

   _____

   _____

   B. Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet? ☐ Yes ☐ No

   C. Will sediment accumulate anywhere within the channel? ☐ Yes ☐ No

   D. Will deposition or scour occur at or near the inlet? ☐ Yes ☐ No

   E. Will deposition or scour occur at or near the outlet? ☐ Yes ☐ No

Attach documentation showing affects on the Hydrologic and Hydraulic analyses

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT WHITE TANKS / AGUA FRIA ADMS - CLOMR PAGE 1 OF 2

DETAIL DELINEATION ON REEMS ROAD COMPUTED KA DATE 11/8/95

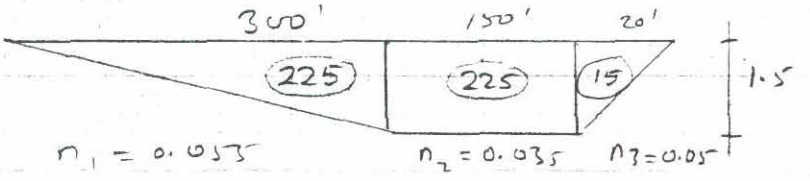
NORTHERN AV. TO PEORIA AV. CHECKED BY _____ DATE _____

FROM DETENTION BASIN TO PEORIA AVENUE

PREVIOUS DISCHARGE = 2291 cfs (3190 OLIVE TO PEORIA)

REVISED DISCHARGE = 1000 cfs

APPROXIMATE FLOODPLAIN BASED ON TOP OF LEFT BANK ELEVATION AND PROJECTED WEST TO SAME ELEVATION



$S_o = 0.004$

$$Q = \frac{1.49}{0.055} \times 225 \times \left(\frac{225}{300}\right)^{2/3} \times (0.004)^{1/2} +$$

$$\frac{1.49}{0.035} \times 225 \times \left(\frac{225}{150}\right)^{2/3} \times (0.004)^{1/2} +$$

$$\frac{1.49}{0.05} \times 15 \times \left(\frac{15}{20}\right)^{2/3} \times (0.004)^{1/2}$$

$Q = 1140$ cfs $\approx$ 1000 cfs ok.

FROM PEORIA AVENUE TO CACTUS

PREVIOUS DISCHARGE = 1441 cfs

REVISED DISCHARGE = 240 cfs.

Slope $S_o = 0.0067$

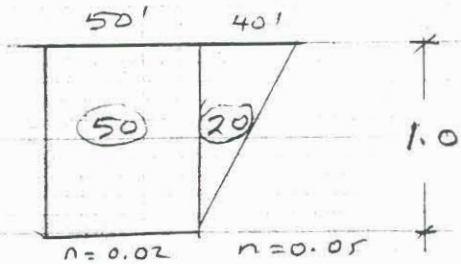
FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

PROJECT WHITE TANKS / AGUA FRIA ADMS-CLOMR PAGE 2 OF 2

DETAIL DELINEATION ON REEMS RD COMPUTED KA DATE 11/8/95

PEORIA AVE TO CACTUS RD. CHECKED BY _____ DATE _____

ASSUME WATER 1'-0 DEEP



$S_o = 0.0067$

$$Q = \frac{1.49}{0.02} \times 50 \times \left(\frac{50}{50}\right)^{2/3} \times (0.0067)^{1/2} + \frac{1.49}{0.05} \times 20 \times \left(\frac{20}{40}\right)^{2/3} \times .0067$$

$= 335$ cfs > 240 cfs ok.

→ FLOW CONFINED TO ROADWAY.

MT-2 FORM 4, ITEM 3

FLOODING SOURCE: **Reems Road**

HEC-2 OUTPUT FILE : **Reemsch.out**

```
*******************************************
*  HEC-2 WATER SURFACE PROFILES           *
*                                         *
   'ersion   4.6.2;  May 1991             *
                                          *
*  RUN DATE    20NOV95    TIME   16:06:11 *
*******************************************
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
****************************************
```

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

THIS RUN EXECUTED 20NOV95 16:06:11

```
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T2      DYSART DRAIN IMPROVEMENT PROJECT
T3      REEMS COLLECTOR CHANNEL @ SW CORNER OF BASIN
T4      THIS MODEL WAS STARTED USING THE PEAK STAGE IN DETENTION BASIN SR193
T4      CROSS SECTIONS ARE STATIONED ACCORDING TO CONSTRUCTION PLAN STATIONING
T4      CHANNEL CENTERLINE STATION = 100
T4      FILENAME = REEMSCH.DAT

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0        0        0       0.0    1000.    1099.5

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     -1        0       -1       0.0      0.0      0.0      0.0     -6.0      0.0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     38       43        1        2        3       51       39       13       14       15

J5  LPRNT    NUMSEC                 ********REQUESTED SECTION NUMBERS********

    -10      -10
  GROUTED RIPRAP LINING; n = 0.030

NC    0.030    0.030    0.030     0.1      0.3
        IN DETENTION BASIN @ REEMS COLLECTOR CHANNEL OUTLET
X1       36        5     81.0    137.0      0.0      0.0      0.0      1.0      0.0        0
GR   1097.9     81.0  1093.37     90.0  1093.37    110.0  1095.37    112.0   1099.0    137.0

X1     70.6        4       81      119     34.6     34.6     34.6      1.0      0.0        0
GR   1099.0       81   1094.5     90.0   1094.5    110.0   1099.0      119

X1      125        0        0        0     54.4     54.4     54.4      1.0   0.3101        0

X1      175        0        0        0     50.0     50.0     50.0      1.0    0.285        0

X1      225        0        0        0     50.0     50.0     50.0      1.0    0.285        0

X1      275        0        0        0     50.0     50.0     50.0      1.0    0.285        0

        325        0        0        0     50.0     50.0     50.0      1.0    0.285        0
```

```
X1      375        0        0        0     50.0     50.0     50.0      1.0    0.285        0

X1      425        0        0        0     50.0     50.0     50.0      1.0    0.285        0

QT        1      600
X1      450        0        0        0     25.0     25.0     25.0      1.0   0.1425        0
  BEGIN SOIL CEMENT LINING; n = 0.020

NC     .020     .020     .020
X1    532.1        4       60    115.4     82.1     82.1     82.1      1.0      0.0        0
GR   1103.4     60.0   1100.8     95.0   1100.8    105.0   1103.4    115.4

X1      550        0        0        0     17.9     17.9     17.9      1.0   0.0711        0

X1      600        0        0        0     50.0     50.0     50.0      1.0   0.1985        0

X1      650        0        0        0     50.0     50.0     50.0      1.0   0.1985        0

X1      700        0        0        0     50.0     50.0     50.0      1.0   0.1985        0

X1      750        0        0        0     50.0     50.0     50.0      1.0   0.1985        0

X1      800        0        0        0     50.0     50.0     50.0      1.0   0.1985        0

        900        0        0        0      100      100      100      1.0    0.397        0

X1     1100        0        0        0      200      200      200      1.0    0.794        0

X1     1300        0        0        0      200      200      200      1.0    0.794        0

X1     1500        0        0        0      200      200      200      1.0    0.794        0

X1     1700        0        0        0      200      200      200      1.0    0.794        0

X1     1900        0        0        0      200      200      200      1.0    0.794        0

X1     2100        0        0        0      200      200      200      1.0    0.794        0

X1     2212        0        0        0      112      112      112      1.0   0.4446        0
```

THIS RUN EXECUTED 20NOV95 16:06:11

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

REEMS COLLECTOR CHANNEL

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	CRIWS	EG	DIFWSX	XLCH	QLOB	QCH	QROB
	36.000	1000.00	1099.50	.00	1099.81	.00	.00	.00	1000.00	.00
*	70.600	1000.00	1099.23	.00	1100.03	-.27	34.60	.00	1000.00	.00
	125.000	1000.00	1099.42	.00	1100.28	.19	54.40	.00	1000.00	.00
	175.000	1000.00	1099.63	.00	1100.52	.21	50.00	.00	1000.00	.00
	225.000	1000.00	1099.85	.00	1100.78	.22	50.00	.00	1000.00	.00
	275.000	1000.00	1100.09	.00	1101.04	.24	50.00	.00	1000.00	.00
	325.000	1000.00	1100.34	.00	1101.31	.25	50.00	.00	1000.00	.00
	375.000	1000.00	1100.61	.00	1101.59	.26	50.00	.00	1000.00	.00
	425.000	1000.00	1100.88	.00	1101.87	.27	50.00	.00	1000.00	.00
	450.000	600.00	1101.77	.00	1102.01	.89	25.00	.00	600.00	.00
*	532.100	600.00	1103.40	1103.40	1104.17	1.63	82.10	.00	600.00	.00
	550.000	600.00	1103.60	.00	1104.27	.20	17.90	.00	600.00	.00
	600.000	600.00	1103.83	.00	1104.46	.23	50.00	.00	600.00	.00
	650.000	600.00	1104.01	.00	1104.65	.19	50.00	.00	600.00	.00
	700.000	600.00	1104.19	.00	1104.85	.18	50.00	.00	600.00	.00
	750.000	600.00	1104.39	.00	1105.05	.19	50.00	.00	600.00	.00
	800.000	600.00	1104.59	.00	1105.25	.20	50.00	.00	600.00	.00

SECNO	Q	CWSEL	CRIWS	EG	DIFWSX	XLCH	QLOB	QCH	QROB
900.000	600.00	1104.99	.00	1105.65	.41	100.00	.00	600.00	.00
1100.000	600.00	1105.79	.00	1106.44	.79	200.00	.00	600.00	.00
1300.000	600.00	1106.57	.00	1107.23	.78	200.00	.00	600.00	.00
1500.000	600.00	1107.37	.00	1108.03	.80	200.00	.00	600.00	.00
1700.000	600.00	1108.17	.00	1108.83	.81	200.00	.00	600.00	.00
1900.000	600.00	1108.96	.00	1109.61	.79	200.00	.00	600.00	.00
2100.000	600.00	1109.74	.00	1110.41	.78	200.00	.00	600.00	.00
2212.000	600.00	1110.20	.00	1110.86	.45	112.00	.00	600.00	.00

SUMMARY OF ERRORS AND SPECIAL NOTES

```
WARNING SECNO=     70.600  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=    532.100  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=    532.100  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=    532.100  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

FEMA FORMS

FLOODING SOURCE: **Bullard Wash**

MT-2 Form 1:	**Revision Requestor & Community Official Form**
MT-2 Form 2:	**Certification By Registered Professional Engineer And/Or Land Surveyor Form**
MT-2 Form 3:	**Hydrologic Analysis Form**
MT-2 Form 4:	**Riverine Hydraulic Analysis Form**
MT-2 Form 5:	**Riverine and Coastal Mapping Form**

FEDERAL EMERGENCY MANAGEMENT AGENCY **REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

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.

1. OVERVIEW

1. The basis for this revision request is (are): *(check all that apply)*
   - ☒ Physical change
     - ☐ Existing
     - ☒ Proposed
   - ☐ Improved methodology
   - ☐ Improved data
   - ☐ Floodway revision
   - ☐ Other _____

   Explain Dysart Drain improved with new detention basin.

2. Flooding Source: Bullard Wash

3. Project Name/Identifier: White Tanks/Agua Fria ADMS - Dysart Drain Improvements

4. FEMA zone designations affected: A
   (example: A, AH, AO, A1-A30, A99, AE, V, V1-30, VE, B, C, D, X)

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

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
EX: 480301	Katy,City	Harris, Fort Bend	TX	480301	0005D	02/08/83
480287	Harris County	Harris	TX	48201C	0220G	09/28/90
(See attached sheet)						

6. The area of revision encompasses the following types of flooding, structures, and associated disciplines: *(check all that apply)*

Types of Flooding	Structures	Disciplines*
☒ Riverine	☐ Channelization	☒ Water Resources
☐ Coastal	☐ Levee/Floodwall	☒ Hydrology
☐ Alluvial Fan	☐ Bridge/Culvert	☒ Hydraulics
☐ Shallow Flooding *(e.g. Zones AO and AH)*	☐ Dam	☐ Sediment Transport
☐ Lakes	☐ Coastal	☐ Interior Drainage
	☐ Fill	☐ Structural
Affected by wind/wave action	☐ Pump Station	☐ Geotechnical
☐ Yes	☐ None	☐ Land Surveying
☒ No	☐ Channel Relocation	☐ Other *(describe)*
	☐ Excavation	
	☐ Other *(describe)*	

☐ Other(describe) _____ _____ _____

*** Attach completed "Certification by Registered Professional Engineer and/or Land Surveyor" Form for each discipline checked. (Form 2)**

2. FLOODWAY INFORMATION Not Applicable

7. Does the affected flooding source have a floodway designated on the effective FIRM or FBFM? ☐ Yes ☐ No
8. Does the revised floodway delineation differ from that shown on the effective FIRM or FBFM ☐ Yes ☐ No
   If yes, give reason: _____

MT-2 Form 1, Item 5

Flooding Source: ***Bullard Wash***

Community No.	Community Name	County	State	Map No.	Panel No.	Effective Date
040037	Maricopa Co. Unincorp. Area	Maricopa	AZ	04013C	1595F	9/30/95
040025	Glendale, City	Maricopa	AZ	04013C	1595F	9/30/95
040037	Maricopa Co. Unincorp. Area	Maricopa	AZ	04013C	1615H	9/30/95
040045	Glendale, City	Maricopa	AZ	04013C	1615H	9/30/95

Attach copy of either a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions. N/A

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

'es, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the ..pproval of the revised floodway by the appropriate State agency.

3. PROPOSED ENCROACHMENTS

10. With floodways: N/A

1A. Does the revision request involve fill, new construction, substantial improvement, or other development in the floodway? ☐ Yes ☐ No

1B. If yes, does the development cause the 100-year water surface elevation to increase at any location by more than 0.000 feet? ☐ Yes ☐ No

11. Without floodways:

2A. Does the revision request involve fill, new construction, substantial improvement, or other development in the 100-year floodplain? ☐ Yes ☒ No

2B. If yes, does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the 100-year water surface elevation to increase at any location by more than one foot (*or other surcharge limit if community or state has adopted more stringent criteria*)? ☐ Yes ☐ No

If the answer to either Items 1B or 2B is yes, please provide 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.

4. REVISION REQUESTOR ACKNOWLEDGMENT

12. Having read NFIP Regulations, 44 CFR Ch. I, parts 59, 60, 61, and 72, I believe that the proposed revision ☒ is ☐ is not in compliance with the requirements of the aforementioned NFIP Regulations.

5. COMMUNITY OFFICIAL ACKNOWLEDGMENT

13. Was this revision request reviewed by the community for compliance with the community's adopted floodplain management ordinances? ☒ Yes ☐ No

14. Does this revision request have the endorsement of the community? ☒ Yes ☐ No

If no to either of the above questions, please explain: _____

Please note that community acknowledgment and /or notification is required for all requests as outlined in Section 65.4 (b) of the NFIP Regulations.

6. OPERATION AND MAINTENANCE

15. Does the physical change involve a flood control structure (e.g., levees, floodwalls, channelization, basins, dams)? ☒ Yes ☐ No

If yes, please provide the following information for each of the new flood control structures:

A. Inspection of the flood control project will be conducted periodically by U.S.A.F. at Luke AFB (entity) with a maximum interval of 6 months between inspections.

B. Based on the results of scheduled periodic inspections, appropriate maintenance of the flood control facilities will be conducted by U.S.A.F. at Luke AFB (entity) to ensure the integrity and degree of flood protection of the structure.

C. A formal plan of operation, including documentation of the flood warning system, specific actions and assignments of responsibility by individual name or title, and provisions for testing the plan at intervals not less than one year, ☒ has ☐ has not been prepared for the flood control structure.

D. The community is willing to assume responsibility for ☐ performing ☒ overseeing compliance with the maintenance and operation plans of the Dyasrt Drain Improvement
(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.

Attach operation and maintenance plans

7. REQUESTED RESPONSE FROM FEMA

16. After examining the pertinent NFIP regulations and reviewing the document entitled "Appeals, Revisions, and Amendments to Flood Insurance Maps: A guide for Community Officials," dated January 1990, this request is for a:

X	a.	CLOMR	A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision *(LOMR or PMR)*, or proposed hydrology changes *(see 44 CFR Ch. I, Parts 60, 65, and 72)*.
	b.	LOMR	A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. LOMRs typically depict decreased flood hazards. *(See 44 CFR Ch. I Parts 60 and 65.)*
	c.	PMR	A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects increased flood hazards or large-scope changes. *(See 44 CFR Ch. I, Parts 60 and 65.)*
	d.	Other:	Describe _____

8. FORMS INCLUDED

17. Form 2 entitled, "Certification By Registered Professional Engineer and/or Land Surveyor" must be submitted.

The following forms should be included with this request if (check the included forms):

• Hydrologic analysis for flooding source differs from that used to develop FIRM	☒ Hydrologic Analysis Form (Form 3)
• Hydraulic analysis for riverine flooding differs from that used to develop FIRM	☒ Riverine Hydraulic Analysis Form (Form 4)
• The request is based on updated topographic information or a revised floodplain or floodway delineation is requested	☒ Riverine /Coastal Mapping Form (Form 5)
• The request involves any type of channel modification	☐ Channelization Form (Form 6)
• The request involves new bridge or culvert or revised analysis of an existing bridge or culvert	☐ Bridge/Culvert Form (Form 7)
• The request involves a new revised levee/floodwall system	☐ Levee/Floodwall System Analysis Form (Form 8)
• The request involves analysis of coastal flooding	☐ Coastal Analysis Form (Form 9)
• The request involves coastal structures credited as providing protection from the 100-year flood	☐ Coastal Structures (Form 10)
• The request involves an existing, proposed, or modified dam	☐ Dam Form (Form 11)
• The request involves structures credited as providing protection from the 100-year flood on an alluvial fan	☐ Alluvial Fan Flooding Form (Form 12)

9. INITIAL REVIEW FEE

18. The minimum initial review fee for the appropriate request category has been included. ☐ Yes ☒ No

Initial fee amount: $ _____

Check or money order only. Make check or money order payable to : **National Flood Insurance Program.** If paying by Visa or Mastercard please refer to the credit card information form which follows this form.

or

19. This request is for a project that is for public benefit and is primarily intended for flood loss reduction to insurable structures in identified flood hazard areas which were in existence prior to the commencement of construction of the flood control project. ☒ Yes ☐ No

or

20. This request is to correct map errors, to include the effects of natural changes within the areas of special flood hazard, or solely to provide more detailed data. ☐ Yes ☐ No

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

Signature of Revision Requester

Stanley L. Smith, Jr., P.E.
Interim Chief Engineer and General Manager
Printed Name and Title of Revision Requester

Flood Control District of Maricopa County
Company Name

(602) 506-1501
Telephone No. Date

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

Grant I. Anderson, P.E.; City Engineer
Printed Name and Title of Community Official

City of Glendale, Arizona
Community Name

(602) 930-3630 Dec. 4, 1995
Date

Does this request impact any other communities? ☒ Yes ☐ No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable.

Note: Although a photograph of physical changes is not required, it may be helpful for FEMA's review.

MT-2 Form 1, Signature of Community Official

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

Shirley Berg

Signature of Community Official

Shirley Berg, Community Development Director

Printed Name and Title of Community Official

City of Surprise, Arizona

Community Name

January 8, 1995

Date

Dysart Drain Improvement Project:
Luke Air Force Base Area FEMA CLOMR
Application and City of Surprise
Community Approval

FEDERAL EMERGENCY MANAGEMENT AGENCY **CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average . 23 hour 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.

1. This certification is in accordance with 44 CFR Ch. I, Section 65.2
2. I am licensed with an expertise in Water Resources
   [example: water resources *(hydrology, hydraulics, sediment transport, interior drainage)** structural, geotechnical, land surveying.]
3. I have 5 years experience in the expertise listed above.
4. I have ☒ prepared ☒ reviewed the attached supporting data and analyses related to my expertise.
5. I ☒ have ☐ have not visited and physically viewed the project.
6. In my opinion, the following analyses and /or designs, is/are being certified:

   Hydrologic and Hydraulic Analyses, Channel Design, Detention Basin Design
7. Base upon the following review, the modifications in place have been constructed in general accordance with plans and specifications. N/A

   Basis for above statement: (check all that apply)

   a. ☐ Viewed all phases of actual construction.

   b. ☐ Compared plans and specifications with as-built survey information.

   c. ☐ Examined plans and specifications and compared with completed projects.

   d. ☐ Other _____
8. All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001.

Name: Kofi Awumah
(please print or type)

Title: Civil Engineer
(please print or type)

Registration No. 28148 Expiration Date: July 1997

State Arizona

Type of License Professional Engineer (Civil)

Kofi Awumah
Signature

December 28, 1995
Date

Registered Professional Engineer (Civil)
CERTIFICATE NO.
28148
KOFI
AWUMAH
Date Signed.....
ARIZONA U.S.A.

Seal
(Optional)

*Specify Subdiscipline

Note: Insert not applicable (N/A) when statement does not apply.

FEDERAL EMERGENCY MANAGEMENT AGENCY **HYDROLOGIC ANALYSIS FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 3.67 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.

Community Name: Maricopa County Unincorporated Area, City of Glendale

Flooding Source: Bullard Wash
(One form for each flooding source)

Project Name /Identifier: White Tanks/Agua Fria ADMS

1. HYDROLOGIC ANALYSIS IN FIS

☐ Approximate study stream (Zone A)
☐ Detailed study stream (briefly explain methodology)

2. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis
☐ Improved data *(see data revision on page 3)*
☒ Changed physical conditions of watershed *(explain)* Detention Basin and Improved Dysart Drain Upstream Affect Subbasin Discharges of BUllard Wash

☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*

☒ Evaluation of proposed conditions (CLOMRs only) (explain) Proposed conditions would result in revision of Zone A's on attach FIRM Maps.

☐ Other

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

3. APPROVAL OF ANALYSIS

☒ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency. (i.e., Study prepared under direct contract with Flood Control District of Maricopa County)
Attach evidence of approval.

☐ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency.

Stream: Bullard Wash

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
CP212	0.54	1350	378
CP221A	0.31	1377	589
CP222	1.10	1380	793
CP223	1.26	2523	1715
CP224	0.80	2453	2138

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

Stream: Bullard Wash

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
CP226	1.18	1483	1573
CP241	1.51	4243	2357

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

Stream: Bullard Wash and Contributing Sub-basins

Comparison of 100-year Discharges

Location:	Drainage area (Sq mi.)	FIS (cfs) :	Revised (cfs) :
DI212 (Diversion South along Westside of LAFB)		1540	0
1D201 (Diversion South onto LAFB)		2050	0
1D226 (Diversion South - just east of Litchfield Rd)		600	0
SR226 (Outflow After Storage at Litchfield Rd)		534	503

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review.

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision. Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured. What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE.

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i.e. no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source: _____

Maximum peak discharge: _____ cfs

Second highest peak discharge: _____ cfs

Source of information: _____

6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed; specify)*

N/A

Gaging Station: _____

Drainage area at gage: _____ mi^2

Number of years of data: _____

7. DATA REVISION N/A

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet.)*

Data Parameter	New	Revised	Data Source
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	
	☐	☐	

- Data source can be from a Federal, State, or local government agency, or from a private source. Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge.
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)*. In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)* _____

ATTACHMENT A: STATISTICAL ANALYSIS OF GAGE RECORDS

Gaging Station: N/A

Gage Location (latitude and longitude): _____

	FIS:	Revised:
1. Number of years of data	_____	_____
Systematic	_____	_____
Historical	_____	_____
2. Homogeneous data	☐ Yes ☐ No	☐ Yes ☐ No
3. Data adjustments	☐ Yes ☐ No	☐ Yes ☐ No
4. Number of high outliers	_____	_____
Low outliers	_____	_____
Zero events	_____	_____
5. Generalized skew	_____	_____
6. Station skew	_____	_____
7. Adopted skew	_____	_____
8. Probability distribution used (justify if log-Pearson III was not used)	_____	_____

9. Transfer equations to ungaged sites ☐ Yes ☐ No

If yes, specify method

_____

_____

_____

10. Expected probability* ☐ Yes ☐ No

11. Comparison of results with other analyses ☐ Yes ☐ No

If yes, describe comparison

_____

_____

_____

***FEMA** does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS.

If any data is not available, indicate by N/A.

Attach analysis including plot of flood frequency curve.

ATTACHMENT B: REGIONAL REGRESSION EQUATIONS N/A

1. Bibliographical Reference:

_____

_____

_____

(Attach a copy of title page, table of contents, and pertinent pages including equations.)

2. Gaged or ungaged stream: _____

3. Hydrologic region(s): _____
   Attach backup map.

4. Provide parameters, values, and source of data used to define parameters.

_____

_____

_____

		FIS:		Revised:	
5.	Urbanized conditions calculations	☐ Yes	☐ No	☐ Yes	☐ No
6	Percent of watershed urbanization	_____		_____	
7.	Is the watershed controlled?	☐ Yes	☐ No	☐ Yes	☐ No
8.	Comparison with other analyses	☐ Yes	☐ No	☐ Yes	☐ No

If the answer to 5, 7, or 8 is yes, explain methodology in Comments.

If data is not available, indicate by N/A.

Comments

_____

_____

_____

_____

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides.

		FIS:	Revised
1.	Method or model used:	HEC-1	HEC-1
	Version:	4.0	4.6.2
	Date:	June 1988	May 1991
2.	Source of rainfall depth:	NOAA Atlas II	NOAA Atlas II
3.	Source of rainfall distribution:	SCS Type II	SCS Type II
4.	Rainfall duration:	24 hrs	24 hrs
5.	Areal adjustment to precipitation (%):	NOAA AtlasII-Varies	NOAA Atlas II
6.	Maximum overland flow length	2.86	2.86
7.	Hydrograph development method:	Phoenix Valley S-Graph	Phoenix Valley S-Graph
8.	Loss rate method:	Green-Ampt	Green-Ampt
	Source of soils information:	Maricopa Co. Hydrologic Manual	Maricopa Co. Hydrologic Manual
	Source of land use information	Maricopa Co. Zoning Maps	Maricopa Co. Zoning Maps
9.	Channel routing method:	Normal Depth	Normal Depth
10.	Reservoir routing:	☒ Yes ☐ No	☒ Yes ☐ No
11.	Baseflow considerations:	☐ Yes ☒ No	☐ Yes ☒ No

If yes, explain how baseflow was determined:

12.	Snowmelt considerations:	☐ Yes ☒ No	☐ Yes ☒ No
13.	Model calibration:	☐ Yes ☒ No	☐ Yes ☒ No

If yes, explain how calibration was performed

14. Future land use condition: ☐ Yes ☒ No

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions.
If data is not available, indicate by N/A.

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides.

ATTACHMENT D: CONFIDENCE LIMITS EVALUATION

N/A

Stream: Bullard Wash

Select one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location:

Exceedance Probability		FIS	Revised
10%	(10-year)	_____ cfs	_____ cfs
2%	(50-year)	_____ cfs	_____ cfs
1%	(100-year)	_____ cfs	_____ cfs
0.2%	(500-year)	_____ cfs	_____ cfs

1% (100-year) Flood Confidence Intervals

90% Confidence Interval: 5% limit _____ cfs

95% limit _____ cfs

50% Confidence Interval: 25% limit _____ cfs

75% limit _____ cfs

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE HYDRAULIC ANALYSIS FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	**FEMA USE ONLY**

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2.25 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale

Flooding Source: Bullard Wash
(One form for each flooding source)

Project Name/Identifier: White Tanks/Agua Fria ADMS - Dysart Drain Improvement

1. REACH TO BE REVISED

Downstream limit: Camelback Road

Upstream limit: Northern Avenue

2. EFFECTIVE FIS

☐ Not studied

☒ Studied by approximate methods

Downstream limit of study Camelback Road

Upstream limit of study Northern Avenue

☐ Studied by detailed methods

Downstream limit of study

Upstream limit of study

☐ Floodway delineated

Downstream limit of Floodway

Upstream limit of Floodway

3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM. *(Check all that apply)*

☐ Not studied in FIS

☐ Improved hydrologic data/analysis. Explain:

☐ Improved hydraulic analysis. Explain:

☒ Flood control structure. Explain: Detention Basin at northeast corner of Northern Avenue and Reems Road, and Dysart Drain Improvement, flows normally crossing Northern Avenue into Bullard Wash are cut off.

☐ Other. Explain:

For areas which have detailed flooding:

Full input and output listings along with files on diskette (if available) for each of the models listed below (items 1, 2, 3, 4, and 5) and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model (e.g. duplicate effective model to corrected effective model) At a minimum, the Duplicate Effective (item 1) and the Revised or Post-Project Conditions (item 4) models must be submitted. See instructions for directions on when other models may be required.

For areas which do not have detailed flooding:

Only the 100-year flood profile is required. A hydraulic model is not required for areas which do not have detailed flooding; however, BFEs may not be added to the revised FIRM. If a hydraulic model is developed for the area, items 3 and 4 described below must be submitted.

If hydraulic models are not developed, hydraulic analyses for existing or pre-project conditions and revised or post-project conditions must be submitted. All calculations must be submitted for these analyses. (See item 6 below)

1. Duplicate Effective Model — Natural ☐ Floodway ☐

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models *(10-, 50-, 100-, and 500-year multi-profile runs and the floodway run)* must be obtained and then reproduced on the requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

2. Corrected Effective Model — Natural ☐ Floodway ☐

The corrected effective model is the model that corrects any errors that occur in the duplicate effective model, adds any additional cross sections to the duplicate effective model, or incorporates more detailed topographic information than that used in the currently effective model. The corrected effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

3. Existing or Pre-Project Conditions Model — Natural ☒ Floodway ☐

The duplicate effective or corrected model is modified to produce the existing or pre-project conditions model to reflect any modifications that have occurred within the floodplain since the date of the effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the corrected effective or duplicate effective model.

4. Revised or Post-Project Conditions Model — Natural ☒ Floodway ☐

The existing or pre-project conditions model *(or duplicate effective or corrected effective model, as appropriate)* is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for proposed project this model should reflect proposed conditions.

5. Other: Please attach a sheet describing all other models submitted. — Natural ☐ Floodway ☐

6. Hydraulic Analyses (Only if Hydraulic Models are not developed)

Please attach all calculations for the existing or pre-project conditions and the revised or post-project conditions. Proceed to Form 5, "Riverine/Coastal Mapping Form".

4. MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

1. Discharges:

	Upstream Limit	Downstream Limit
10-year		
50-year		
100-year	378 cfs	793 cfs
500-year		

Attach diagram showing changes in 100-year discharge

2. Explain how the starting water surface elevations were determined Slope - Area Method further downstream from cross-sections of interest.

3. Give range of friction loss coefficients (*Manning's "N"*) Channel ..... 0.028 - 0 .035

Overbanks ..... 0.035 - 0.070

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

Location	FIS	Revised

Explain:

4. Describe how the cross section geometry data were determined *(e.g., field survey, topographic map, taken from previous study)* and list cross sections that were added.

Cross section data of the previous study for existing FIS not changed.

5. Were natural channel banks selected as the location of the left and right channel banks in the model?

☒ Yes ☐ No If no, explain why not:

7. Explain how reach lengths for channel and overbanks were determined:

No change from existing FIS

5. RESULTS *(from model used to revise 100-year water surface elevations)*

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ..... ☐ Yes ☒ No

b. Supercritical depth? ..... ☐ Yes ☒ No

c. Critical depth? ..... ☒ Yes ☐ No

d. Other unique situations ..... ☐ Yes ☒ No

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps.

2. What is the maximum change in energy gradient between cross-sections? ..... 3.46 ft

Specify location 12.633

3. What is the distance between the cross-sections in 2 above? ..... 520 ft

4. What is the maximum distance between cross-sections? ..... 930 ft

Specify location 13.044

5. Floodway determination (Not Applicable)

a. What is the maximum surcharge allowed by the community or State? ..... _____ foot

b. What is the maximum surcharge for the revised conditions? ..... _____ foot

Specify location ..... _____

c. What is the maximum velocity? ..... _____ fps

Specify location ..... _____

d. Are there any negeative surcharge values at any cross-section? ☐ Yes ☐ No

If yes, the floodway may need to be widened. If it is not widened, please explain and indicate the maximum negative surcharge.

Explain: _____

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ..... ☐ Yes ☐ No

If Yes, explain:

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? ..... ☐ Yes ☐ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases. *(For example: State if the increase is due to fill placed within the floodway fringe or placed within the currently adopted floodway limits)*

_____

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

6. REVISED FIRM/FBFM AND FLOOD PROFILES

(Not Abpplicable)

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section_____ within_____feet *(vertical)* and upstream of the project at cross section_____within_____feet *(vertical)*.

B. The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section_____within_____feet *(vertical)* and upstream of the project at cross section_____ within_____feet *(vertical)*.

C. Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment). Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits. If channel distance has changed, the stationing should be revised for all profile sheets.

D. Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report.

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

WATER SURFACE ELEVATION CHECK

COMMUNITY NAME	FLOODIND SOURCE	PROJECT NAME /IDENTIFIER

	EFFECTIVE			DUPLICATE EFFECTIVE			CORRECTED EFFECTIVE			EXISTING/PRE-PROJECT			REVISED/PROJECT		
SECNO	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]	NCWSEL[1]	FCWSEL[2]	SURC.[3]

COMMENTS:

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

Sheet_____ of _____

FEDERAL EMERGENCY MANAGEMENT AGENCY **RIVERINE/COASTAL MAPPING FORM**	*O.M.B. Burden No. 3067-0148* *Expires July 31, 1997*	*FEMA USE ONLY*

PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1.5 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.

Community Name: Maricopa County Unincorporated Areas, City of Glendale,

Flooding Source: Bullard Wash

Project Name/Identifier: White Tanks/Agua Fria ADMS

1. MAPPING CHANGES

1. A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable)*:

		Included		
A.	Revised approximate 100-year floodplain boundaries (Zone A)	☒ Yes	☐ No	☐ N/A
B.	Revised detailed 100- and 500-year floodplain boundaries	☐ Yes	☐ No	☒ N/A
C.	Revised 100-year floodway boundaries	☐ Yes	☐ No	☒ N/A
D.	Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated	☒ Yes	☐ No	☐ N/A
E.	Stream alignments, road and dam alignments	☒ Yes	☐ No	☐ N/A
F.	Current community boundaries	☒ Yes	☐ No	☐ N/A
G.	Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map	☒ Yes	☐ No	☐ N/A
H.	Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries	☒ Yes	☐ No	☐ N/A
I.	The requestor's property boundaries and community easements	☒ Yes	☐ No	☐ N/A
J.	The signed certification of a registered professional engineer	☒ Yes	☐ No	☐ N/A
K.	Location and description of reference marks	☒ Yes	☐ No	☐ N/A
L.	Vertical datum (example: NGVD, NAVD etc.)	☒ Yes	☐ No	☐ N/A
M.	Coastal zone designations tie into adjacent areas not being revised	☐ Yes	☐ No	☒ N/A
N.	Location and alignment of all coastal transects used to revise the coastal analyses	☐ Yes	☐ No	☒ N/A

If any of the items above are marked no or N/A, please explain: B. Detailed analysis not performed. C. Floodway delineation not performed. M. & N. Floodplain not a Coastal zone.

2. What is the source and date of the updated topographic information *(example: orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc.)*? FIS Information

3. What is the scale and contour interval of the following workmaps?
   a. Effective FIS 400 scale 2 feet Contour interval
   b. Revision Request 400 scale 2 feet Contour interval

   NOTE: Revised topographic information must be of equal or greater detail.

4. Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies.

   Attach additional pages if needed.

5. Flood Boundaries and 100-year water surface elevations:

Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's ? ☐ Yes ☒ No

If yes, please give the location of shift or increase and an explanation for the increase.

a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? ☐ Yes ☐ No

If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

b. What is the number of insurable structures that will be impacted by this shift or increase?_____

6. Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM? ☐ Yes ☒ No

If yes, explain:

7. If a V- zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ☐ Yes ☒ No

If no, explain:

8. Manual or digital map submission:

☒ Manual

☐ Digital

Digital map submissions may be used to update digital FIRMs (DFIRMs). For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance of submission as possible.

2. EARTH FILL PLACEMENT N/A

1. The fill is: ☐ Existing ☐ Proposed

2. Has fill been/will be placed in the regulatory floodway? ..... ☐ Yes ☐ No
   If yes, please attach completed Riverine Hydraulic Analysis Form.

3. Has fill been/will be placed in floodway fringe *(area between the floodway and 100-year floodplain boundaries)*? ..... ☐ Yes ☐ No

   If yes, then complete A, B, C, and D below.

   A. Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? ..... ☐ Yes ☐ No

      If yes, justify steeper slopes_____

      _____

   B. Is adequate erosion protection provided for fill slopes exposed to moving flood waters? *(Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)* ..... ☐ Yes ☐ No

      If no, describe erosion protection provided_____

      _____

   C. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☐ No

   D. Can structures conceivably be constructed on the fill at any time in the future? ☐ Yes ☐ No

   If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

4. Has fill been/will be placed in a V-zone? ☐ Yes ☐ No

   If yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall? ☐ Yes ☐ No

   If yes, attach the coastal structures form.

MT-2 FORM 4, ITEM 3

FLOODING SOURCE: **Bullard Wash**

HEC-2 OUTPUT FILE : **Bullard.out**

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.2;  May 1991               *
*                                           *
*  RUN DATE    20NOV95    TIME   10:38:09   *
*********************************************
```

```
****************************************
*  U.S. ARMY CORPS OF ENGINEERS        *
*  HYDROLOGIC ENGINEERING CENTER       *
*  609 SECOND STREET, SUITE D          *
*  DAVIS, CALIFORNIA 95616-4687        *
*          (916) 756-1104              *
****************************************
```

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

THIS RUN EXECUTED 20NOV95 10:38:09

```
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************


T1      WHITE TANKS/AGUA FRIA AREA DRAINAGE MASTER PLAN-DYSART DRAIN IMPROVEMENT
T2      100 - YEAR STORM EVENT   FLOODPLAIN RUN  FILE: BULLARD.DAT
T3      BULLARD WASH  (WASH 10) - FROM CAMELBACK RD. TO DYSART DRAIN.

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0        2        0        0     .0025       0        0        0      1033       0

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

      1        0       -1        0        0       0        0        0        0        0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38       43        1        2        3       51       39       13       14       15

NC     .07      .07     .035       .1       .3
QT       3     2400     2400     2400
                THIS IS A TRUNCATED MODEL OF THE ORIGINAL WHITE TANKS ADMS
                FROM CAMELBACK RD. UPSTREAM AROUND LUKE AIR FORCE BASE FOR
                REVISED DELINEATION ONLY. ONLY APPROXIMATE DELINEATION
                IS PERFORMED FROM CROSS SECTION 10.197 UPSTREAM
                FLOODPLAIN BELOW CROSS SECTION 10.197 IS NOT CONSIDERED
                IN THIS CLOMR MODEL
X1    8.965      12     9970    10033      615      615      615
GR     1048    8770     1046     9180     1044     9665   1042.9     9935   1043.5     9970
GR   1042.7   10000     1044    10010   1044.7    10033   1044.1    10070   1044.4    10275
GR     1046   10810   1046.3    11050

X1    9.034      12     9970    10038      365      365      365
GR     1050    8700     1048     9175     1046     9535     1044     9865   1043.9     9970
GR   1043.4   10000     1044    10008   1045.7    10038   1045.4    10075     1046    10250
GR     1048   10820   1048.2    10960

NC     .03      .03     .013       .3       .5
QT       3     2357     2357     2357

                CITY OF GOODYEAR CORPORATE LIMITS-SOUTH.
                MARICOPA COUNTY,UNINCORPORATED AREAS-NORTH.

                AT CAMELBACK RD.  4 - 52 INCH  CP
```

Q = Q AT CP241 (= 2357 CFS).

X1	9.095	13	9978	10022	320	320	320			
X3	10							1046.3	1046.3	
GR	1050	8960	1048.4	9210	1048	9480	1046.3	9715	1048	9910
GR	1048.5	9975	1042.3	9978	1042.3	10000	1042.3	10022	1048.5	10025
GR	1049.2	10300	1049.5	10665	1050	11165				
SC	4.013	.5	2.7	0	4.5	0	30	1.1	1042.5	1042.3
X1	9.100	13	9978	10022	30	30	30			
X2			2		1046.3					
X3	10							1046.3	1046.3	
BT	-10	8960	1050		9210	1048.4		9480	1048	
BT		9715	1046.3		9910	1046		9978	1048.5	
BT		10022	1048.5		10300	1049.2		10665	1049.5	
BT		11165	1050							
GR	1050	8960	1048.4	9210	1048	9480	1046.3	9715	1048	9910
GR	1048.5	9975	1042.5	9978	1042.5	10000	1042.5	10022	1048.5	10025
GR	1049.2	10300	1049.5	10665	1050	11165				
NC	.045	.045	.03	.3	.5					
X1	9.189	20	9940	10160	470	460	470			
GR	1054	8770	1052.2	8930	1052.5	9010	1052	9080	1050	9270
GR	1048.6	9445	1048.3	9535	1048.1	9600	1048.6	9645	1048.3	9770
GR	1048.6	9815	1048.8	9940	1048	9990	1047.9	10000	1048	10007
GR	1048.4	10035	1047.9	10105	1048.9	10160	1050	10250	1052.1	10565
NC	.045	.045	.03	.1	.3					
X1	9.292	13	9900	10120	540	530	540			
GR	1056	8880	1054	9090	1052	9325	1051.5	9600	1051.7	9690
GR	1051.1	9750	1051.8	9900	1051.4	10000	1052	10120	1054	10230
GR	1054.5	10270	1054.2	10340	1056	10415				
X1	9.396	20	9880	10070	570	515	550			
GR	1060	8650	1058	8860	1056	9045	1055	9210	1054.1	9410
GR	1054.3	9500	1054	9565	1053.8	9590	1054	9620	1054.4	9720
GR	1054.2	9800	1054.7	9880	1054.2	10000	1054.7	10070	1054.5	10130
GR	1055.5	10290	1055.3	10365	1056	10510	1058	10745	1058.4	10755
X1	9.493	15	9930	10140	490	515	515			
GR	1064	8320	1062	8485	1060	8645	1058	9000	1056.2	9285
GR	1056.5	9425	1056.1	9545	1057	9750	1056.7	9805	1057.1	9930
GR	1056.1	10000	1056.7	10140	1058	10280	1060	10670	1060.3	10690
X1	9.544	16	9920	10065	200	280	270			
GR	1064	8240	1062	8440	1060	8600	1058	9005	1057	9200
GR	1057.5	9325	1057	9420	1058	9685	1058.3	9850	1058	9920
GR	1057.5	10000	1058	10065	1058.2	10115	1057.8	10315	1058	10390
GR	1060	10470								

```
NC     .045      .045      .03       .3        .5

                 Q = Q AT 2I241       (= 2357 CFS).
                 THIS Q  HAS BEEN REDUCED BY THE SAME AMOUNT THAT EXCEEDED THE
                 CAPACITY OF THE CHANNEL AT THE UPSTREAM REACH  X1= 10.269 TO
                 X1= 10.639,     THAT EXCEEDED FLOW WILL RETURN AT X1= 9.544
                 ( no reduction in discharge proposed for this revised model)
X1    9.641       15      9985     10015       180       750       510
GR     1064     8580      1062      8770      1060      8950      1058      9390    1057.5      9420
GR     1058     9610    1058.3      9655    1057.7      9740      1058      9815      1059      9940
GR     1058     9985      1057     10000      1058     10015      1060     10065      1061     10375

X1    9.741       13      9900     10115       480       300       530
GR     1064     9045      1062      9075      1060      9115    1058.3      9345    1058.8      9530
GR   1058.5     9600      1058      9620    1057.5      9900    1057.2     10000      1058     10115
GR     1060    10265      1060     10430    1060.5     10490

NC     .045      .045      .03       .1        .3
X1    9.807       13      9900     10140       335       345       345
GR     1064     8875      1062      9060      1060      9125      1059      9325    1059.6      9500
GR   1059.6     9555    1058.6      9590      1058      9645    1057.6      9900    1057.3     10000
GR     1058    10140      1060     10350    1061.1     10560

NC     .045      .045      .028      .1        .3

                 Q = ROUTED FLOW FROM SUB. 222 TO SUB. 241     (= 1342 CFS).
                 THIS Q  HAS BEEN REDUCED BY THE SAME AMOUNT THAT EXCEEDED THE
                 CAPACITY OF THE CHANNEL AT THE UPSTREAM REACH  X1= 10.269 TO
                 X1= 10.639,     THAT EXCEEDED FLOW WILL RETURN AT X1= 9.544
                 (no reduction in discharge proposed for this revised model)
X1    9.898       11      9960     10055       650       320       480
GR   1060.7     9600      1060      9635    1058.5      9790    1059.8      9960      1058      9975
GR   1057.5    10000      1058     10035    1059.8     10055    1058.5     10145      1060     10325
GR   1061.4    10660

X1    9.994        7      9950     10050       600       490       510
GR   1062.1     9950      1060      9960      1058      9980    1057.7     10000      1058     10025
GR     1060    10035    1062.1     10050

X1   10.108        7      9960     10045       600       600       600
GR   1062.9     9960      1062      9970      1060      9975    1058.1     10000      1060     10025
GR     1062    10035    1062.9     10045


            **  END DETAILED FLOODPLAIN\FLOODWAY ANALYSIS.

X1   10.197        7      9950     10045       470       470       470
GR   1063.6     9950      1062      9960      1060      9975    1058.4     10000      1060     10020
GR     1062    10030    1063.6     10045
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```
QT        3       793       793       793

            ** BEGIN APPROXIMATE FLOODPLAIN DELINEATION, UPSTREAM TO NORTHERN
               AVENUE.

               Q = Q AT CP222       (= 793  CFS).
               THIS Q HAS BEEN REDUCED TO THE CAPACITY OF THE CHANNEL PLUS A
               MAXIMUM OF 1 FOOT OVER THE LIMITING ELEVATION AT THE RIGHT
               OVERBANK (AT X1= 10.493 TO X1= 10.639).
               EXCEEDED FLOW WILL RETURN AT X1= 9.544

X1    10.269       8      9960     10025       410       350       380
GR      1065    9940      1064      9950      1062      9960      1060      9970    1058.6     10000
GR      1060   10020      1062     10025    1064.6     10040

X1    10.328      10      9970     10020       335       290       310
GR    1067.8    9940      1066      9955      1062      9970      1060      9975    1058.8     10000
GR      1060   10015      1062     10020      1066     10025      1068     10030    1068.5     10040

X1    10.419      10      9975     10020       475       485       480
GR    1068.5    9940      1068      9955      1066      9970      1062      9975      1060      9980
GR    1059.1   10000      1060     10015      1062     10020      1066     10025    1067.2     10035

               ANY WSEL EXTENSION AT X1= 10.493 TO X1= 10.639 IS DUE TO THE
               LIMITING ELEVATION AT THE RIGHT OVERBANK.

X1    10.493       8      9895     10030       400       400       400
GR    1063.6    9885      1062      9895      1060      9910    1059.5      9940    1059.3     10000
GR      1060   10020      1062     10030    1063.6     10045

X1    10.587       8      9935     10040       490       490       490
GR    1064.5    9830      1064      9910      1062      9935      1060      9960    1059.6     10000
GR      1060   10025      1062     10040    1064.2     10060

NC      .045    .045       .03        .1        .3
X1    10.639       9      9925     10035       350       260       275
GR      1066    9780      1064      9880      1062      9925      1060      9960    1059.8     10000
GR      1060   10025      1062     10035      1064     10045    1065.4     10080

               Q = Q AT CP222       (= 793  CFS).

X1    10.709       8      9910     10040       420       340       370
GR      1067    9810      1066      9830      1064      9875      1062      9910      1060     10000
GR      1062   10040      1066     10065    1066.5     10090

X1    10.804       9      9900     10040       480       500       500
GR      1069    9790      1068      9815      1066      9860      1064      9900      1062     10000
GR      1064   10040      1066     10055      1068     10075    1068.2     10085
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X1   10.889      10     9900    10040      450      450      450
GR   1070.2    9770     1070     9795     1068     9845     1066     9900   1064.5     9930
GR      1065    9955     1064    10000     1066    10040     1068    10055   1069.5    10075

X1   10.946       9     9930    10080      270      330      300
GR   1071.7    9815     1070     9875     1068     9930     1066     9970   1065.7    10000
GR      1066   10035     1068    10080     1070    10095   1071.3    10130

X1   10.995       9     9895    10045      220      290      260
GR      1073    9830     1072     9860     1070     9895     1068     9960   1067.2    10000
GR      1068   10035     1070    10045     1072    10070     1073    10090

X1   11.067      11     9920    10045      380      380      380
GR   1073.2    9570     1072     9680     1070     9810     1069     9870   1069.5     9920
GR      1068    9970   1067.6    10000     1068    10020     1070    10045     1072    10060
GR   1074.1   10095

X1   11.147      12     9920    10045      420      420      420
GR   1074.5    9235     1074     9265     1072     9430     1070     9855   1069.2     9920
GR      1068    9975   1067.8    10000     1068    10020     1070    10045     1072    10060
GR      1074   10095   1074.4    10100

X1   11.228       8     9920    10050      430      430      430
GR   1075.8    8990     1074     9170     1072     9320     1070     9920   1067.9    10000
        1070   10050     1074    10085   1075.3    10125

X1   11.306       9     9965    10090      400      400      410
GR      1076    9140     1074     9290     1072     9840     1070     9965   1068.8    10000
GR      1070   10090     1072    10155     1074    10175   1075.4    10215

X1   11.416       9     9930    10070      400      680      580
GR      1076    9415     1074     9655     1072     9855     1071     9930   1070.2    10000
GR      1071   10070     1072    10170     1074    10230   1074.7    10240

X1   11.510      14     9900    10100      340      640      500
GR      1076    9420     1074     9490     1072     9715   1071.5     9735     1072     9755
GR   1072.5    9835     1072     9900   1071.5    10000   1071.8    10100     1072    10165
GR      1074   10230   1074.6    10250     1076    10380     1080    10470

X1   11.580       8     9965    10100      315      460      365
GR   1076.2    9885     1076     9950     1074     9965     1072    10000     1074    10100
GR      1076   10165     1078    10170     1079    10230

QT       3      589      589      589

                Q = Q AT CP221A      (= 589  CFS).

X1   11.676       7     9955    10100      480      550      510
GR   1077.8    9835     1076     9930     1074     9955   1072.1    10000     1074    10100
        1076   10105   1080.2    10130
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NC     .045      .07      .03       .1       .3
X1   11.775        8     9955    10075      520      560      520
GR   1077.5     9880     1076     9935     1074     9955   1072.2    10000     1074    10075
GR     1076    10125     1078    10150   1078.9    10185

X1   11.867        8     9960    10055      490      490      490
GR   1077.7     9825     1076     9935     1074     9960   1072.3    10000     1074    10055
GR     1076    10090     1078    10120   1079.4    10190

X1   11.970        9     9930    10060      540      540      540
GR   1078.6     9885     1078     9925     1076     9930     1074     9950   1072.4    10000
GR     1074    10060     1076    10090     1078    10115   1079.9    10180

X1   12.064        9     9935    10070      500      500      500
GR   1077.7     9800     1076     9920     1074     9935   1072.5    10000     1074    10070
GR     1076    10090     1078    10105     1080    10125   1080.8    10165
```

ANY WSEL EXTENSION AT X1= 12.150 TO X1= 12.534 IS DUE TO THE
LIMITING ELEVATION AT THE LEFT OVERBANK.

```
X1   12.150        7     9940    10080      450      450      450
GR   1077.2     9825     1076     9915     1074     9940   1072.5    10000     1074    10080
GR     1080    10120     1081    10170

.    12.244        7     9910    10075      500      500      500
GR   1077.3     9850     1076     9910     1074     9940   1072.6    10000     1074    10075
GR     1080    10135   1080.4    10175

X1   12.345        7     9920    10095      530      530      530
GR   1077.3     9890     1076     9920     1074     9940   1072.6    10000     1074    10095
GR     1078    10145   1079.5    10190

X1   12.439        8     9955    10120      500      500      500
GR   1077.4     9900     1076     9935     1074     9955   1072.7    10000     1074    10120
GR     1076    10150     1078    10185   1079.3    10205

X1   12.534        8     9910    10075      500      500      500
GR   1077.5     9865     1076     9890     1074     9910   1072.7    10000     1074    10075
GR     1076    10125     1078    10150   1079.3    10160

QT       3      378      378      378
NC    .035     .035     .035       .1       .3
```

Q = Q AT CP212 (= 378 CFS).
THIS Q HAS BEEN REDUCED TO THE CAPACITY OF THE CHANNEL PLUS A
MAXIMUM OF 1 FOOT OVER THE LIMITING ELEVATION AT THE LEFT
OVERBANK. EXCEEDED FLOW WILL RETURN AT X1= 12.534

ANY WSEL EXTENSION AT X1= 12.633 TO X1= 13.161 IS DUE TO THE
LIMITING ELEVATION AT THE LEFT OVERBANK.

X1	12.633	6	9900	10100	790	180	520			
GR	1080	9600	1079.6	9900	1079.4	10000	1079.6	10100	1080	10390
GR	1080.5	10490								
NC	.045	.07	.04	.1	.3					
X1	12.700	6	9920	10110	100	600	350			
GR	1080	9920	1078.7	10000	1079.1	10110	1078.9	10680	1080	11010
GR	1082.4	11035								
X1	12.758	6	9955	10070	250	470	310			
GR	1080.3	9940	1080	9955	1078.9	10000	1079.3	10070	1080	10410
GR	1082	10830								

CROSS-SEC. 60 FT.(ALONG FLOW PATH)SOUTH OF GLENDALE AV. EXTENDED

X1	12.867	7	9960	10055	580	580	580			
GR	1080.9	9940	1080	9960	1079.4	10000	1080	10055	1080	10150
GR	1080.8	10390	1082	10640						
X1	13.044	6	9910	10075	950	800	930			
GR	1082.2	9900	1082	9910	1080.7	10000	1080.9	10075	1082	10490
GR	1084	11160								
X1	13.161	5	9960	10085	650	580	620			
GR	1084	9960	1082.3	10000	1082.5	10085	1084	10790	1084.5	11100

Q = (Q AT 11212 + DIVERTED FLOW FROM SUB.193 TO SUB. 212)/2
= (1344 + 1536)/2 = 1440 CFS (ADMS MODEL). REVISED MODEL
HAS ZERO DISCHARGE

END DELINEATION (CROSS SECTIONS ABOVE 13.248 ARE TRUNCATED)

X1	13.248	13	9950	10050	450	450	460			
GR	1086	9900	1085	9935	1085.4	9950	1084.3	9975	1084.3	10000
GR	1084.3	10020	1086	10040	1086.6	10050	1086	10065	1084.6	10095
GR	1084.6	10510	1086	10985	1088	11600				

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

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 8.965

THIS IS A TRUNCATED MODEL OF THE ORIGINAL WHITE TANKS ADMS
FROM CAMELBACK RD. UPSTREAM AROUND LUKE AIR FORCE BASE FOR
REVISED DELINEATION ONLY. ONLY APPROXIMATE DELINEATION
IS PERFORMED FROM CROSS SECTION 10.197 UPSTREAM
FLOODPLAIN BELOW CROSS SECTION 10.197 IS NOT CONSIDERED
IN THIS CLOMR MODEL

8.965	2.86	1045.56	.00	1033.00	1045.61	.05	.00	.00	1043.50
2400.0	1424.7	414.1	561.2	947.3	123.7	536.4	.0	.0	1044.70
.00	1.50	3.35	1.05	.070	.035	.070	.000	1042.70	9286.72
.002533	615.	615.	615.	0	0	4	.00	1376.14	10662.85

*SECNO 9.034

9.034	3.16	1046.56	.00	.00	1046.67	.12	1.04	.02	1043.90
2400.0	1475.4	692.7	231.9	816.1	161.4	231.9	11.8	9.8	1045.70
.04	1.81	4.29	1.00	.070	.035	.070	.000	1043.40	9434.52
.03234	365.	365.	365.	2	0	0	.00	974.58	10409.09

CCHV= .300 CEHV= .500
*SECNO 9.095

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

CITY OF GOODYEAR CORPORATE LIMITS-SOUTH.
MARICOPA COUNTY,UNINCORPORATED AREAS-NORTH.

AT CAMELBACK RD. 4 - 52 INCH CP

Q = Q AT CP241 (= 2357 CFS).

9.095	5.24	1047.54	1047.54	.00	1048.77	1.23	.43	.56	1042.30
2357.0	198.5	2148.7	9.7	200.7	230.5	6.6	17.9	14.8	1042.30
.05	.99	9.32	1.46	.030	.013	.030	.000	1042.30	9543.75
.000731	320.	320.	320.	3	21	0	.00	362.42	10024.54

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	4	.013	.50	2.70	.00	4.50	.00	30.00	1	1	1042.50	1042.30

CHART 1 - CONCRETE PIPE CULVERT; NO BEVELED RING ENTRANCE
SCALE 1 - SQUARE EDGE ENTRANCE WITH HEADWALL

5130, EGIC= 1100.13..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 1082.20 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 9.100

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 1047.95
5150, EG OF 1047.95 LESS THAN XEG OF 1048.77

3265 DIVIDED FLOW

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
1100.13	1082.20	.00	1865.	489.	9.175	63.6	1046.30	476.

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF
3693 PROBABLE MINIMUM SPECIFIC ENERGY

9.100	5.18	1047.68	1047.64	.00	1048.84	1.16	.02	-.02	1042.50
2357.0	257.7	2089.5	9.8	246.1	227.7	6.7	18.2	15.0	1042.50
.05	1.05	9.17	1.46	.030	.013	.030	.000	1042.50	9524.80
.000719	30.	30.	30.	20	6	0	.00	397.20	10024.59

CCHV= .300 CEHV= .500
*SECNO 9.189

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3720 CRITICAL DEPTH ASSUMED

9.189	1.26	1049.16	1049.16	.00	1049.51	.35	.92	.24	1048.80
2357.0	1189.5	1164.4	3.1	363.1	198.9	2.9	23.8	21.5	1048.90
.08	3.28	5.85	1.08	.045	.030	.045	.000	1047.90	9374.44
.015976	470.	470.	460.	20	14	0	.00	807.19	10181.63

CCHV= .100 CEHV= .300
*SECNO 9.292

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.20

9.292	1.72	1052.82	.00	.00	1052.91	.10	3.38	.02	1051.80
2357.0	1536.3	801.7	19.0	729.8	254.9	18.2	33.5	32.3	1052.00
.14	2.11	3.14	1.04	.045	.030	.045	.000	1051.10	9229.43
.003312	540.	540.	530.	5	0	0	.00	935.30	10164.73

*SECNO 9.396

9.396	1.49	1055.29	.00	.00	1055.40	.12	2.48	.01	1054.70
2357.0	1669.2	539.6	148.2	650.0	157.2	89.0	45.8	45.3	1054.70
.20	2.57	3.43	1.67	.045	.030	.045	.000	1053.80	9164.22
.006178	570.	550.	515.	5	0	0	.00	1090.18	10254.39

*SECNO 9.493

9.493	1.47	1057.57	.00	.00	1057.66	.09	2.26	.00	1057.10
2357.0	1576.8	733.2	47.0	813.6	234.0	41.8	57.1	58.2	1056.70
.26	1.94	3.13	1.13	.045	.030	.045	.000	1056.10	9066.37
J03465	490.	515.	515.	3	0	0	.00	1168.49	10234.86

*SECNO 9.544

9.544	1.48	1058.48	.00	.00	1058.55	.08	.89	.00	1058.00
2357.0	1832.3	294.2	230.4	821.9	105.8	163.0	62.6	65.0	1058.00
.29	2.23	2.78	1.41	.045	.030	.045	.000	1057.00	8907.88
.004800	200.	270.	280.	2	0	0	.00	1501.31	10409.18

CCHV= .300 CEHV= .500
*SECNO 9.641

Q = Q AT 2I241 (= 2357 CFS).
THIS Q HAS BEEN REDUCED BY THE SAME AMOUNT THAT EXCEEDED THE
CAPACITY OF THE CHANNEL AT THE UPSTREAM REACH X1= 10.269 TO
X1= 10.639, THAT EXCEEDED FLOW WILL RETURN AT X1= 9.544
(no reduction in discharge proposed for this revised model)

9.641	2.39	1059.39	.00	.00	1059.47	.08	.92	.00	1058.00
2357.0	2091.9	231.4	33.7	1013.3	56.7	24.1	68.9	73.3	1058.00
.32	2.06	4.08	1.40	.045	.030	.045	.000	1057.00	9084.38
.002918	180.	510.	750.	4	0	0	.00	965.34	10049.73

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


*SECNO 9.741

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.46

   9.741      2.73   1059.93       .00       .00   1059.96       .04       .48       .01   1057.50
  2357.0    1210.3    1046.4     100.2    1175.2     527.8     140.9      85.1      84.6   1058.00
     .41      1.03      1.98       .71      .045      .030      .045      .000   1057.20   9123.32
 .000484      480.      530.      300.         3         0         0       .00   1137.06  10260.39


CCHV=     .100 CEHV=     .300
*SECNO 9.807
   9.807      2.79   1060.09       .00       .00   1060.13       .04       .16       .00   1057.60
  2357.0     996.4    1189.8     170.8     997.4     604.7     228.8      99.4      93.9   1058.00
     .48      1.00      1.97       .75      .045      .030      .045      .000   1057.30   9122.20
 .000460      335.      345.      345.         2         0         0       .00   1244.25  10366.45


CCHV=     .100 CEHV=     .300
  NO 9.898

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45


             Q = ROUTED FLOW FROM SUB. 222 TO SUB. 241     (= 1342 CFS).
             THIS Q  HAS BEEN REDUCED BY THE SAME AMOUNT THAT EXCEEDED THE
             CAPACITY OF THE CHANNEL AT THE UPSTREAM REACH  X1= 10.269 TO
             X1= 10.639,     THAT EXCEEDED FLOW WILL RETURN AT X1= 9.544
             (no reduction in discharge proposed for this revised model)
   9.898      2.96   1060.46       .00       .00   1060.61       .15       .45       .03   1059.80
  2357.0     765.2     959.2     632.6     416.8     217.6     362.4     116.7     106.4   1059.80
     .53      1.84      4.41      1.75      .045      .028      .045      .000   1057.50   9611.81
 .002293      650.      480.      320.         2         0         0       .00    824.15  10435.97


*SECNO 9.994

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .57

   9.994      3.96   1061.66       .00       .00   1062.86      1.21      1.93       .32   1062.10
  2357.0        .0    2357.0        .0        .0     267.2        .0     124.4     112.0   1062.10
     .54       .00      8.82       .00      .000      .028      .000      .000   1057.70   9952.12
 006984      600.      510.      490.         3         0         0       .00     94.71  10046.83
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ECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10.108
3280 CROSS SECTION 10.11 EXTENDED 1.57 FEET

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.75

10.108	6.38	1064.48	.00	.00	1065.14	.65	2.21	.06	1062.90
2357.0	.0	2357.0	.0	.0	363.8	.0	128.8	113.2	1062.90
.57	.00	6.48	.00	.000	.028	.000	.000	1058.10	9960.00
.002278	600.	600.	600.	1	0	0	.00	85.00	10045.00

*SECNO 10.197
3280 CROSS SECTION 10.20 EXTENDED 1.90 FEET

** END DETAILED FLOODPLAIN\FLOODWAY ANALYSIS.

10.197	7.11	1065.51	.00	.00	1065.91	.40	.75	.03	1063.60
2357.0	.0	2357.0	.0	.0	463.5	.0	133.2	114.2	1063.60
.60	.00	5.08	.00	.000	.028	.000	.000	1058.40	9950.00
.001179	470.	470.	470.	2	0	0	.00	95.00	10045.00

*SECNO 10.269
3280 CROSS SECTION 10.27 EXTENDED 1.47 FEET

** BEGIN APPROXIMATE FLOODPLAIN DELINEATION, UPSTREAM TO NORTHERN AVENUE.

Q = Q AT CP222 (= 793 CFS).
THIS Q HAS BEEN REDUCED TO THE CAPACITY OF THE CHANNEL PLUS A MAXIMUM OF 1 FOOT OVER THE LIMITING ELEVATION AT THE RIGHT OVERBANK (AT X1= 10.493 TO X1= 10.639).
EXCEEDED FLOW WILL RETURN AT X1= 9.544

10.269	7.47	1066.07	.00	.00	1066.12	.05	.17	.04	1062.00
793.0	27.3	740.9	24.8	46.4	414.5	41.5	137.4	115.1	1062.00
.66	.59	1.79	.60	.045	.028	.045	.000	1058.60	9940.00
.000097	410.	380.	350.	2	0	0	.00	100.00	10040.00

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

*SECNO 10.328

10.328	7.28	1066.08	.00	.00	1066.17	.09	.04	.01	1062.00
793.0	21.9	764.8	6.3	31.2	318.0	10.4	140.5	115.7	1062.00
.69	.70	2.40	.61	.045	.028	.045	.000	1058.80	9954.33
.000178	335.	310.	290.	2	0	0	.00	70.88	10025.20

*SECNO 10.419

10.419	7.06	1066.16	.00	.00	1066.27	.12	.10	.01	1062.00
793.0	7.7	777.5	7.7	10.9	282.6	10.9	144.2	116.4	1062.00
.74	.71	2.75	.71	.045	.028	.045	.000	1059.10	9968.85
.000237	475.	480.	485.	1	0	0	.00	57.42	10026.27

*SECNO 10.493
3280 CROSS SECTION 10.49 EXTENDED 2.69 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.25

ANY WSEL EXTENSION AT X1= 10.493 TO X1= 10.639 IS DUE TO THE
LIMITING ELEVATION AT THE RIGHT OVERBANK.

10.493	6.99	1066.29	.00	.00	1066.31	.01	.02	.01	1062.00
793.0	10.7	765.4	16.9	34.9	875.2	52.4	150.0	117.4	1062.00
.87	.31	.87	.32	.045	.028	.045	.000	1059.30	9885.00
.000023	400.	400.	400.	2	0	0	.00	160.00	10045.00

*SECNO 10.587
3280 CROSS SECTION 10.59 EXTENDED 2.11 FEET

10.587	6.71	1066.31	.00	.00	1066.32	.02	.01	.00	1062.00
793.0	89.1	677.9	26.0	247.1	635.1	64.1	160.7	119.6	1062.00
1.01	.36	1.07	.41	.045	.028	.045	.000	1059.60	9830.00
.000037	490.	490.	490.	2	0	0	.00	230.00	10060.00

CCHV= .100 CEHV= .300
*SECNO 10.639
3280 CROSS SECTION 10.64 EXTENDED .91 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
10.639	6.52	1066.32	.00	.00	1066.33	.01	.01	.00	1062.00
793.0	100.1	662.3	30.6	280.6	656.1	89.6	167.4	121.5	1062.00
1.10	.36	1.01	.34	.045	.030	.045	.000	1059.80	9780.00
.000039	350.	275.	260.	0	0	0	.00	300.00	10080.00

*SECNO 10.709

Q = Q AT CP222 (= 793 CFS).

10.709	6.33	1066.33	.00	.00	1066.35	.01	.02	.00	1062.00
793.0	73.1	697.3	22.5	177.7	693.2	61.1	175.9	123.9	1062.00
1.21	.41	1.01	.37	.045	.030	.045	.000	1060.00	9823.35
.000044	420.	370.	340.	0	0	0	.00	258.27	10081.62

*SECNO 10.804

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .46

10.804	4.36	1066.36	.00	.00	1066.40	.04	.04	.01	1064.00
793.0	31.7	749.5	11.8	55.6	469.5	20.9	184.3	126.6	1064.00
1.30	.57	1.60	.57	.045	.030	.045	.000	1062.00	9852.04
.000207	480.	500.	500.	0	0	0	.00	206.49	10058.54

*SECNO 10.889

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .29

10.889	2.48	1066.48	.00	.00	1066.67	.19	.23	.04	1066.00
793.0	2.0	790.4	.6	3.2	228.5	.9	188.4	128.4	1066.00
1.34	.64	3.46	.64	.045	.030	.045	.000	1064.00	9886.78
.002538	450.	450.	450.	2	0	0	.00	156.83	10043.61

*SECNO 10.946

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .59

10.946	1.86	1067.56	.00	.00	1067.93	.37	1.21	.06	1068.00
793.0	.0	793.0	.0	.0	162.4	.0	189.7	129.4	1068.00
1.36	.00	4.88	.00	.000	.030	.000	.000	1065.70	9938.87
.007311	270.	300.	330.	4	0	0	.00	131.16	10070.02

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

*SECNO 10.995

10.995	2.16	1069.36	.00	.00	1069.71	.36	1.78	.00	1070.00
793.0	.0	793.0	.0	.0	165.8	.0	190.7	130.2	1070.00
1.37	.00	4.78	.00	.000	.030	.000	.000	1067.20	9916.02
.006456	220.	260.	290.	3	0	0	.00	125.75	10041.77

*SECNO 11.067

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.49

11.067	2.86	1070.46	.00	.00	1070.55	.09	.81	.03	1069.50
793.0	136.1	656.6	.3	125.2	255.2	.8	193.1	131.9	1070.00
1.42	1.09	2.57	.40	.045	.030	.045	.000	1067.60	9780.02
.001043	380.	380.	380.	4	0	0	.00	268.44	10048.46

*SECNO 11.147

11.147	3.02	1070.82	.00	.00	1070.89	.07	.34	.00	1069.20
793.0	110.8	681.0	1.2	151.4	299.4	2.5	197.1	135.0	1070.00
1.47	.73	2.27	.47	.045	.030	.045	.000	1067.80	9680.14
.000659	420.	420.	420.	3	0	0	.00	371.03	10051.17

*SECNO 11.228

11.228	3.23	1071.13	.00	.00	1071.20	.07	.31	.00	1070.00
793.0	122.2	667.2	3.5	191.5	283.4	5.6	201.7	139.2	1070.00
1.53	.64	2.35	.64	.045	.030	.045	.000	1067.90	9581.07
.000800	430.	430.	430.	2	0	0	.00	478.81	10059.89

*SECNO 11.306

11.306	2.69	1071.49	.00	.00	1071.59	.10	.38	.01	1070.00
793.0	62.3	698.4	32.4	69.5	261.5	36.2	205.7	142.7	1070.00
1.58	.90	2.67	.90	.045	.030	.045	.000	1068.80	9871.77
.001087	400.	410.	400.	2	0	0	.00	266.71	10138.48

*SECNO 11.416

11.416	2.05	1072.25	.00	.00	1072.35	.10	.76	.00	1071.00
793.0	62.9	647.3	82.8	59.1	230.6	75.6	210.4	146.5	1071.00
1.64	1.06	2.81	1.10	.045	.030	.045	.000	1070.20	9830.30
.001651	400.	580.	680.	2	0	0	.00	347.10	10177.41

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


*SECNO 11.510
   11.510      1.48   1072.98       .00       .00   1073.02       .04       .66       .01   1072.00
    793.0     196.0     503.9      93.1     209.5     256.3      85.9     215.4     151.5   1071.80
     1.73       .94      1.97      1.08      .045      .030      .045      .000   1071.50   9604.59
  .001132      340.      500.      640.         1         0         0       .00    592.31  10196.90


*SECNO 11.580
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
   11.580      2.02   1074.02   1074.02       .00   1074.54       .52       .99       .14   1074.00
    793.0        .0     793.0        .0        .0     137.5        .0     218.3     154.5   1074.00
     1.74       .04      5.77       .04      .000      .030      .045      .000   1072.00   9964.86
  .013237      315.      365.      460.        20        11         0       .00    135.74  10100.60


*SECNO 11.676

    WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.11


              Q = Q AT CP221A      (= 589  CFS).

   11.676      3.22   1075.32       .00       .00   1075.37       .05       .79       .05   1074.00
    589.0       5.6     582.4       1.1      10.8     328.1       2.2     221.1     156.3   1074.00
     1.82       .52      1.77       .49      .045      .030      .045      .000   1072.10   9938.59
  .000432      480.      510.      550.         5         0         0       .00    164.69  10103.28


CCHV=     .100 CEHV=     .300
*SECNO 11.775
   11.775      3.35   1075.55       .00       .00   1075.60       .06       .23       .00   1074.00
    589.0       7.2     570.2      11.6      12.0     294.1      30.0     225.1     158.3   1074.00
     1.90       .60      1.94       .39      .045      .030      .070      .000   1072.20   9939.50
  .000464      520.      520.      560.         3         0         0       .00    174.26  10113.76


*SECNO 11.867
   11.867      3.48   1075.78       .00       .00   1075.86       .08       .25       .01   1074.00
    589.0      14.3     561.8      12.9      19.7     249.4      27.6     228.7     160.1   1074.00
     1.96       .73      2.25       .47      .045      .030      .070      .000   1072.30   9937.81
  .000571      490.      490.      490.         1         0         0       .00    148.27  10086.07
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 11.970

11.970	3.65	1076.05	.00	.00	1076.10	.04	.23	.00	1076.00
589.0	.0	576.1	12.9	.0	335.5	31.7	232.8	162.0	1074.00
2.05	.01	1.72	.41	.000	.030	.070	.000	1072.40	9929.86
.000340	540.	540.	540.	1	0	0	.00	160.87	10090.72

*SECNO 12.064

12.064	3.69	1076.19	.00	.00	1076.23	.03	.13	.00	1074.00
589.0	9.5	571.5	8.1	19.3	397.6	24.0	237.5	164.0	1074.00
2.15	.49	1.44	.33	.045	.030	.070	.000	1072.50	9906.24
.000200	500.	500.	500.	2	0	0	.00	185.22	10091.46

*SECNO 12.150

ANY WSEL EXTENSION AT X1= 12.150 TO X1= 12.534 IS DUE TO THE
LIMITING ELEVATION AT THE LEFT OVERBANK.

2.150	3.78	1076.28	.00	.00	1076.31	.03	.08	.00	1074.00
589.0	16.4	567.5	5.1	35.0	424.4	17.4	242.2	166.0	1074.00
2.25	.47	1.34	.30	.045	.030	.070	.000	1072.50	9893.88
.000166	450.	450.	450.	2	0	0	.00	201.33	10095.21

*SECNO 12.244

12.244	3.77	1076.37	.00	.00	1076.39	.02	.08	.00	1076.00
589.0	.5	579.8	8.7	3.2	456.0	28.2	247.7	168.3	1074.00
2.36	.14	1.27	.31	.045	.030	.070	.000	1072.60	9892.79
.000170	500.	500.	500.	0	0	0	.00	205.94	10098.73

*SECNO 12.345

12.345	3.85	1076.45	.00	.00	1076.47	.02	.07	.00	1076.00
589.0	.3	578.7	10.0	2.4	518.5	37.7	254.1	170.9	1074.00
2.49	.13	1.12	.27	.045	.030	.070	.000	1072.60	9909.46
.000119	530.	530.	530.	0	0	0	.00	216.25	10125.71

*SECNO 12.439

12.439	3.81	1076.51	.00	.00	1076.52	.02	.06	.00	1074.00
589.0	13.7	562.3	13.0	33.6	522.0	47.7	260.8	173.5	1074.00
2.62	.41	1.08	.27	.045	.030	.070	.000	1072.70	9922.16
.000102	500.	500.	500.	1	0	0	.00	236.83	10158.99

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

*SECNO 12.534

12.534	3.86	1076.56	.00	.00	1076.57	.02	.05	.00	1074.00
589.0	13.8	553.5	21.8	33.9	529.9	80.0	267.9	176.3	1074.00
2.76	.41	1.04	.27	.045	.030	.070	.000	1072.70	9880.65
.000094	500.	500.	500.	0	0	0	.00	251.37	10132.02

CCHV= .100 CEHV= .300
*SECNO 12.633
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

Q = Q AT CP212 (= 378 CFS).
THIS Q HAS BEEN REDUCED TO THE CAPACITY OF THE CHANNEL PLUS A
MAXIMUM OF 1 FOOT OVER THE LIMITING ELEVATION AT THE LEFT
OVERBANK. EXCEEDED FLOW WILL RETURN AT X1= 12.534

ANY WSEL EXTENSION AT X1= 12.633 TO X1= 13.161 IS DUE TO THE
LIMITING ELEVATION AT THE LEFT OVERBANK.

12.633	.51	1079.91	1079.91	.00	1080.03	.12	.12	.03	1079.60
378.0	59.9	260.2	57.9	36.1	82.1	34.9	272.4	181.5	1079.60
2.81	1.66	3.17	1.66	.035	.035	.035	.000	1079.40	9667.20
.018279	790.	520.	180.	20	17	0	.00	657.85	10325.04

CCHV= .100 CEHV= .300
*SECNO 12.700
3280 CROSS SECTION 12.70 EXTENDED .26 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 11.37

12.700	1.55	1080.25	.00	.00	1080.25	.00	.21	.01	1080.00
378.0	.0	108.7	269.3	.0	222.0	984.0	280.7	191.1	1079.10
3.18	.00	.49	.27	.000	.040	.070	.000	1078.70	9920.00
.000141	100.	350.	600.	5	0	0	.00	1092.69	11012.69

*SECNO 12.758
3280 CROSS SECTION 12.76 EXTENDED .07 FEET

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .30

12.758	1.47	1080.37	.00	.00	1080.39	.02	.13	.01	1080.00
378.0	1.5	207.9	168.6	3.3	130.1	258.3	288.7	199.3	1079.30
3.27	.47	1.60	.65	.045	.040	.070	.000	1078.90	9940.00
.001572	250.	310.	470.	2	0	0	.00	547.26	10487.26

*SECNO 12.867
3280 CROSS SECTION 12.87 EXTENDED .20 FEET

CROSS-SEC. 60 FT.(ALONG FLOW PATH)SOUTH OF GLENDALE AV. EXTENDED

12.867	1.70	1081.10	.00	.00	1081.12	.02	.73	.00	1080.00
378.0	10.3	199.0	168.7	13.0	133.2	282.8	294.2	206.4	1080.00
3.42	.79	1.49	.60	.045	.040	.070	.000	1079.40	9940.00
.001030	580.	580.	580.	3	0	0	.00	513.00	10453.00

*SECNO 13.044

13.044	1.41	1082.11	.00	.00	1082.12	.02	1.00	.00	1082.00
378.0	.0	221.5	156.4	.3	166.1	274.4	302.6	217.2	1080.90
3.66	.17	1.33	.57	.045	.040	.070	.000	1080.70	9904.67
.001278	950.	930.	800.	3	0	0	.00	621.03	10525.70

*SECNO 13.161

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .54

13.161	1.09	1083.39	.00	.00	1083.44	.05	1.30	.01	1084.00
378.0	.0	224.1	153.9	.0	98.4	187.2	307.6	225.0	1082.50
3.76	.00	2.28	.82	.000	.040	.070	.000	1082.30	9974.30
.004399	650.	620.	580.	3	0	0	.00	530.16	10504.45

*SECNO 13.248

3265 DIVIDED FLOW

```
Q = (Q AT 1I212 + DIVERTED FLOW FROM SUB.193 TO SUB. 212)/2
  = (1344 + 1536)/2 = 1440 CFS (ADMS MODEL). REVISED MODEL
     HAS ZERO DISCHARGE
END DELINEATION ( CROSS SECTIONS ABOVE 13.248 ARE TRUNCATED )
```

13.248	.92	1085.22	.00	.00	1085.24	.02	1.80	.00	1085.40
378.0	.8	100.5	276.7	1.7	55.9	325.5	311.0	231.5	1086.60
3.88	.45	1.80	.85	.045	.040	.070	.000	1084.30	9927.37
.003586	450.	460.	450.	5	0	0	.00	730.46	10719.73

THIS RUN EXECUTED 20NOV95 10:38:10

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

BULLARD WASH (WASH 10)

SUMMARY PRINTOUT

	SECNO	Q	CWSEL	CRIWS	EG	DIFWSX	XLCH	QLOB	QCH	QROB
	8.965	2400.00	1045.56	.00	1045.61	.00	.00	1424.68	414.13	561.19
	9.034	2400.00	1046.56	.00	1046.67	1.00	365.00	1475.40	692.67	231.93
*	9.095	2357.00	1047.54	1047.54	1048.77	.98	320.00	198.55	2148.74	9.71
*	9.100	2357.00	1047.68	1047.64	1048.84	.14	30.00	257.69	2089.50	9.81
*	9.189	2357.00	1049.16	1049.16	1049.51	1.49	470.00	1189.46	1164.45	3.10
*	9.292	2357.00	1052.82	.00	1052.91	3.65	540.00	1536.32	801.70	18.97
	9.396	2357.00	1055.29	.00	1055.40	2.47	550.00	1669.20	539.56	148.24
	9.493	2357.00	1057.57	.00	1057.66	2.29	515.00	1576.82	733.17	47.01
	9.544	2357.00	1058.48	.00	1058.55	.90	270.00	1832.34	294.24	230.42
	9.641	2357.00	1059.39	.00	1059.47	.91	510.00	2091.89	231.39	33.73
*	9.741	2357.00	1059.93	.00	1059.96	.54	530.00	1210.32	1046.44	100.24
	9.807	2357.00	1060.09	.00	1060.13	.16	345.00	996.38	1189.81	170.81
*	9.898	2357.00	1060.46	.00	1060.61	.37	480.00	765.21	959.17	632.62
*	9.994	2357.00	1061.66	.00	1062.86	1.20	510.00	.00	2357.00	.00
*	10.108	2357.00	1064.48	.00	1065.14	2.83	600.00	.00	2357.00	.00
	10.197	2357.00	1065.51	.00	1065.91	1.03	470.00	.00	2357.00	.00
	10.269	793.00	1066.07	.00	1066.12	.56	380.00	27.26	740.91	24.83

	SECNO	Q	CWSEL	CRIWS	EG	DIFWSX	XLCH	QLOB	QCH	QROB
	10.328	793.00	1066.08	.00	1066.17	.01	310.00	21.91	764.75	6.34
	10.419	793.00	1066.16	.00	1066.27	.08	480.00	7.75	777.51	7.75
*	10.493	793.00	1066.29	.00	1066.31	.14	400.00	10.69	765.42	16.89
	10.587	793.00	1066.31	.00	1066.32	.01	490.00	89.12	677.86	26.02
	10.639	793.00	1066.32	.00	1066.33	.01	275.00	100.15	662.29	30.56
	10.709	793.00	1066.33	.00	1066.35	.02	370.00	73.15	697.32	22.53
*	10.804	793.00	1066.36	.00	1066.40	.02	500.00	31.67	749.50	11.83
*	10.889	793.00	1066.48	.00	1066.67	.12	450.00	2.04	790.40	.55
*	10.946	793.00	1067.56	.00	1067.93	1.08	300.00	.00	793.00	.00
	10.995	793.00	1069.36	.00	1069.71	1.80	260.00	.00	793.00	.00
*	11.067	793.00	1070.46	.00	1070.55	1.10	380.00	136.10	656.58	.32
	11.147	793.00	1070.82	.00	1070.89	.36	420.00	110.79	681.03	1.18
	11.228	793.00	1071.13	.00	1071.20	.31	430.00	122.20	667.25	3.55
	11.306	793.00	1071.49	.00	1071.59	.36	410.00	62.27	698.36	32.37
	11.416	793.00	1072.25	.00	1072.35	.76	580.00	62.90	647.28	82.82
	11.510	793.00	1072.98	.00	1073.02	.73	500.00	195.98	503.92	93.10
*	11.580	793.00	1074.02	1074.02	1074.54	1.04	365.00	.00	793.00	.00
*	11.676	589.00	1075.32	.00	1075.37	1.30	510.00	5.58	582.36	1.06
	11.775	589.00	1075.55	.00	1075.60	.23	520.00	7.19	570.22	11.59
	11.867	589.00	1075.78	.00	1075.86	.24	490.00	14.33	561.75	12.91
	11.970	589.00	1076.05	.00	1076.10	.27	540.00	.00	576.13	12.87
	12.064	589.00	1076.19	.00	1076.23	.14	500.00	9.49	571.46	8.05
	12.150	589.00	1076.28	.00	1076.31	.09	450.00	16.40	567.46	5.14
	12.244	589.00	1076.37	.00	1076.39	.09	500.00	.45	579.84	8.70
	12.345	589.00	1076.45	.00	1076.47	.08	530.00	.32	578.66	10.02
	12.439	589.00	1076.51	.00	1076.52	.06	500.00	13.70	562.29	13.01

	SECNO	Q	CWSEL	CRIWS	EG	DIFWSX	XLCH	QLOB	QCH	QROB
	12.534	589.00	1076.56	.00	1076.57	.05	500.00	13.76	553.47	21.77
*	12.633	378.00	1079.91	1079.91	1080.03	3.35	520.00	59.90	260.19	57.90
*	12.700	378.00	1080.25	.00	1080.25	.34	350.00	.00	108.69	269.31
*	12.758	378.00	1080.37	.00	1080.39	.12	310.00	1.54	207.90	168.56
	12.867	378.00	1081.10	.00	1081.12	.73	580.00	10.32	198.97	168.70
	13.044	378.00	1082.11	.00	1082.12	1.00	930.00	.05	221.54	156.41
*	13.161	378.00	1083.39	.00	1083.44	1.28	620.00	.00	224.11	153.89
	13.248	378.00	1085.22	.00	1085.24	1.83	460.00	.78	100.54	276.68

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION SECNO=      9.095  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.095  PROFILE=  1  MINIMUM SPECIFIC ENERGY

CAUTION SECNO=      9.100  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=      9.100  PROFILE=  1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO=      9.100  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=      9.189  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=      9.189  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=      9.292  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.741  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.898  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=      9.994  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.108  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

    NG SECNO=      10.493  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.804  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.889  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     10.946  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     11.067  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     11.580  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     11.580  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     11.580  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     11.676  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=     12.633  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=     12.633  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=     12.633  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=     12.700  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     12.758  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=     13.161  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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FLOOD CONTROL DISTRICT
of
Maricopa County

2801 West Durango Street • Phoenix, Arizona 85009
Telephone (602) 506-1501
Fax (602) 506-4601
TT (602) 506-5859

BOARD OF DIRECTORS
Betsey Bayless
Ed King
Tom Rawles
Don Stapley
Mary Rose Garrido Wilcox

January 10, 1995

Michael K. Buckley, P.E
Chief, Hazard Identification Branch
Mitigation Directorate
Attn: John Magnotti
Federal Emergency Management Agency
Washington, D.C. 20472

RE: CLOMR request for White Tanks /Agua Fria Drainage Area; Luke Air Force Base and vicinity. Flooding sources: Dysart Drain, Bullard Wash and Reems Road.
Communities: Maricopa County Unincorporated Areas
City of Glendale
City of Surprise

Dear Mr Buckley,

Enclosed is a Conditional Letter of Map Revision (CLOMR) request package for the Luke Air Force Base area of the White Tanks/Agua Fria River ADMS. The flooding sources generating this revision are Dysart Drain Wash, Bullard Wash, and Reems Road.

The request is being made due to improvements to Dysart Drain Channel, and the construction of a detention basin to contain the 100 year flood. These structural proposals resulted in the revision of peak discharges at various concentration points in the area.

Also, Luke Air Force Base has been annexed by City of Glendale. A copy of the annexation map is included in this package. The jurisdictional boundaries the FIRM Panels also need to be revised to reflect this change.

The application package is being submitted in two volumes. Volume I contains the FEMA forms, computer model hardcopy output and diskette. Volume II contains the project construction plan drawings and the floodplain revision workmaps.

The contents of Volume I has been arranged according to flooding sources. The FEMA forms included are as follows:

Dysart Drain Flooding Source:

1. MT-2 Form 1., *Revision Requestor and Community Official Form*
2. MT-2 Form 2., *Certification by Registered Professional Engineer and/or Land Surveyor Form.*
3. MT-2 Form 3, *Hydrologic Analysis Form*
4. MT-2 Form 4, *Riverine Hydraulic Analysis Form*
5. MT-2 Form 5, *Riverine and Coastal Mapping Form*
6. MT-2 Form 6, *Channelization Form*
7. MT-2 Form 7, *Bridge/Culvert Form*

Reems Road Flooding Source:

1. MT-2 Form 1., *Revision Requestor and Community Official Form*
2. MT-2 Form 2., *Certification by Registered Professional Engineer and/or Land Surveyor Form.*
3. MT-2 Form 3, *Hydrologic Analysis Form*
4. MT-2 Form 4, *Riverine Hydraulic Analysis Form*
5. MT-2 Form 5, *Riverine and Coastal Mapping Form*

Bullard Wash Flooding Source:

1. MT-2 Form 1., *Revision Requestor and Community Official Form*
2. MT-2 Form 2., *Certification by Registered Professional Engineer and/or Land Surveyor Form.*
3. MT-2 Form 3, *Hydrologic Analysis Form*
4. MT-2 Form 4, *Riverine Hydraulic Analysis Form*
5. MT-2 Form 5, *Riverine and Coastal Mapping Form*

Note that yellow divider sheets separate the Flooding sources. Blue divider sheets separate HEC-2 hardcopy output files of each channel modeled. Supporting documentation has been inserted after the last sheet of the forms in which they were referenced.

Please note that this CLOMR package has been reviewed and approved for submittal to your office by the following communities:

1. City of Glendale
2. City of Surprise

If you have any questions during your review of this application package, please call.

Sincerely,

Kofi Awumah

Kofi Awumah, Ph.D., P.E.
Hydraulics Branch.

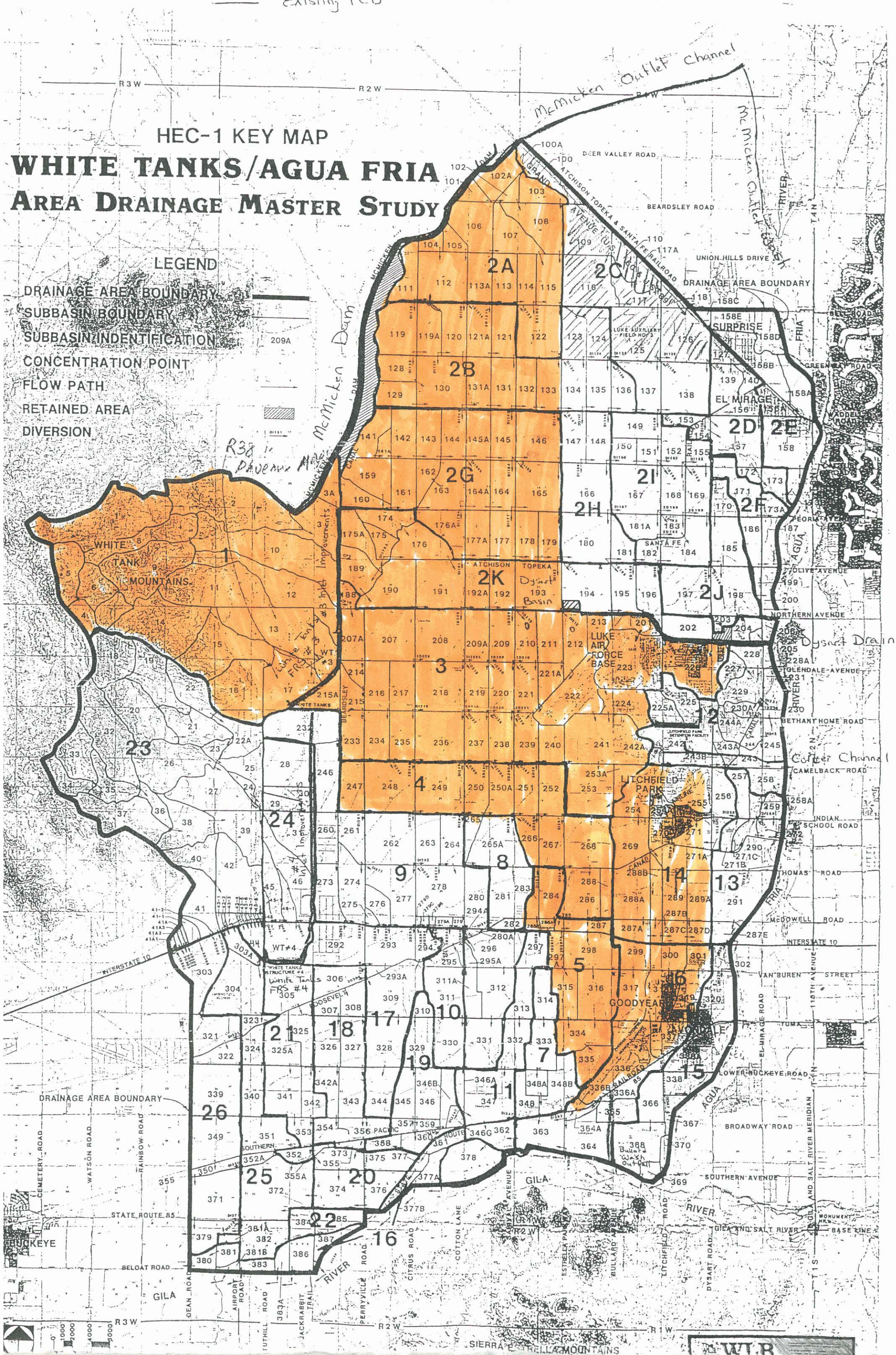
Existing FCD 11.17.95

HEC-1 KEY MAP

WHITE TANKS/AGUA FRIA AREA DRAINAGE MASTER STUDY

LEGEND

- DRAINAGE AREA BOUNDARY
- SUBBASIN BOUNDARY
- SUBBASIN INDENTIFICATION
- CONCENTRATION POINT
- FLOW PATH
- RETAINED AREA
- DIVERSION



WHITE TANKS/AGUA FRIA

AREA DRAINAGE MASTER STUDY

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

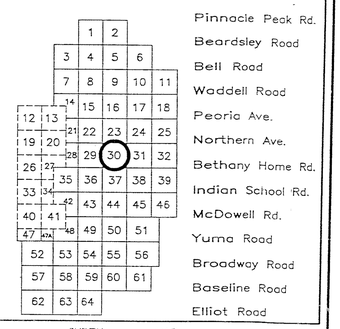
REVISION LEGEND AND NOTES

- Existing Floodplain Boundary to Remain
- Existing Floodplain Boundary to be Deleted
- New Floodplain Boundary to be Added

REFERENCE MARKS (RM'S)

NO.	ELEVATION	DESCRIPTION
107	1125.48	1/2" Iron Pipe in Pothole, Sarival Ave and Northern Ave
109	1103.31	Brass Cap in Hand Hole, Reems Rd. and Northern Ave.
110	1095.12	Brass Cap in Hand Hole, Bullard Ave. and Northern Ave.
121	1101.08	1/2" Iron Pin in Hand Hole, Sarival Ave. and Glendale Ave.
122	1083.96	Bolt on Top of Tee of Discharge Pipes 20'± North of Pump, at the Northeast Corner of Intersection of Reems Rd. and Glendale Ave.
135	1080.11	1/2" Iron Pin in Hand Hole, Sarival Ave. and Bethany Home Rd.

Dean Rd.
Jackrabbit Trail
Citrus Rd.
Sarival Ave.
Bullard Ave.
Dysart Rd.
115th Ave.



INDEX MAP

N

400 200 0 400 800 1200

BASE MAP: WHITE TANKS/AGUA FRIA A.D.M.S. TOPOGRAPHIC MAPS
CONTOUR INTERVAL = 2'

LEGEND

1.452	CROSS SECTION NUMBER
FP=1158.9	FLOODPLAIN WATER SURFACE ELEVATION = 1158.9
FV=1159.8	FLOODWAY WATER SURFACE ELEVATION = 1159.8
Q100=764cfs	100-YEAR PEAK DISCHARGE = 764 CUBIC FEET PER SEC.
1157	BASE FLOOD ELEVATION
	STREAM CENTERLINE
	FLOODWAY BOUNDARY
	FLOODPLAIN BOUNDARY
RM NO. 100	ELEVATION REFERENCE MARK
ZONE AE	FLOOD INSURANCE RATE ZONE

SHEET TITLE: **FLOODPLAIN MAP**

STUDY CONSULTANT: **The WLB Group** INC.

MAPPING COMPANY: Cooper Aerial of Phoenix, Inc.

SHEET 30 OF 64 | DATE FLOWN 12/22/89