FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

GILA BEND AREA DRAINAGE MASTER PLAN

Floodplain Delineation Study

August, 2003

Appendix A-D

Book 2 of 3

Engineering and Environmental Consultants, Inc.

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
PHOENIX, ARIZONA

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GILA BEND AREA DRAINAGE MASTER PLAN
FLOODPLAIN DELINEATION STUDY
FCD 99-18

TECHNICAL DATA NOTEBOOK

Appendices A - D

Book 2 of 3

Prepared by:

REGISTERED PROFESSIONAL ENGINEER (CIVIL)
CERTIFICATE NO.
15594
MARK T.
GAVAN
Date Signed 8/15/03
ARIZONA, U.S.A.

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August 2003

TECHNICAL DATA NOTEBOOK
HYDRAULICS
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Approximate Delineation Maps, 2 Sheets ..... Map Pockets in Book 2
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Appendix A
REFERENCES

Appendix A.1
DATA COLLECTION SUMMARY

APPENDIX A - REFERENCES

A.1. Data Collection Summary

1. Burgess & Niple, Inc., March 1992. Gila Bend Area Floodplain Delineation Study, Book 1 of 1 Hydrology.

2. Burgess & Niple, Inc., March 1992. Gila Bend Area Floodplain Delineation Study, Book 1 & 2 of 2 Hydraulics.

3. Donohue & Associates, Inc., November 1991. Gila Bend Canal Floodplain Delineation Study, Gillespie Dam to Gila Bend.

Appendix A.2
REFERENCED DOCUMENTS

APPENDIX A - REFERENCES

A.2. Referenced Documents

1. Flood Control District of Maricopa County, January 1995. Drainage Design Manual for Maricopa County, Volume I Hydrology.

2. Flood Control District of Maricopa County, January 1996. Drainage Design Manual for Maricopa County, Volume II Hydraulics.

3. U.S. Army Corps of Engineers, September 1998. Hydrologic Engineering Center – River Analysis System, Version 2.2.

4. U.S. Army Corps of Engineers, September 1990. Hydrologic Engineering Center HEC-1, Flood Hydrograph Package.

5. U.S. Department of Transportation, May 1987. HY-8 Culvert Analysis Microcomputer Program & Applications Guide..

6. Federal Emergency Management Agency, 1995. FEMA Document 37 - Flood Insurance Guidelines and Specifications for Study Contractors..

7. Federal Emergency Management Agency, 1990. F.I.A. Document 12 – Appeals, Revisions, and Amendments to Flood Insurance Maps.

8. U.S. Geological Survey, Water Resources Division, April 1991. Manning's Roughness Coefficients for Streams, Channels and Floodplains in Maricopa County, Arizona.

Appendix B

GENERAL DOCUMENTATION & CORRESPONDENCE

Appendix B.1
SPECIAL PROBLEM REPORTS

Appendix B.2

CONTACT/TELEPHONE REPORTS

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MEETING MINUTES OR REPORTS

October 1, 2001

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

Attention: Tim Murphy, FCDMC

From: Lloyd Vick, EEC

Subject: Response to TDN review comments for Gila Bend ADMP (99-18)

Response to Draft Review Comments made by Chris Perry

This memo contains our response to the review comments made by the district reviewer (Chris Perry) as well as additional comments made by Tim Murphy. All of the comments are included for reference.

1. The following is offered in response to the comments regarding the CD to be delivered with the TDN. All digital files necessary to meet the requirements for submittal with the TDN have been collected. The CD will be "burnt" when the floodplain drawings are acceptable for submittal to FEMA. We will include all information on the CD and on the CD label as indicated in the review comment.
2. The following is offered in response to the comments regarding the Plan Set.

Cover Sheet
A cover sheet has been included with all of the information requested in the review comments.

Approximate Delineation of Citrus Valley, Sauceda, Quilotosa and Hacker Washes
These 2 sheets have been amended to include additional reference material (Road Names) and will be plotted in black and white with topographic background instead of Aerial photo background as per the review comments

HEC-1 Schematic Sheets
Have removed Burgess & Niple block and replaced with a note of reference, and edited as per review comments.

Floodplain Delineation Sheets (typical)

- All sheets now include existing floodplain designation where applicable
- The vegetation layer has been turned off on all sheets
- To make it easier to read the maps the area around Hacker Wash at I-10 has been increased in scale to 1"=200'. Additionally callouts have been moved to improve readability.
- To make it easier to read the maps the area around Hacker Wash at I-10 has been increased in scale from 1"=400' to 1"=200'.
- All ERMs located on the drawings have descriptions located in the legend.

- All major roadways have been identified and labeled
- The size of the elevation text has been increased on index contours
- The line weights have been edited so that the legend matches lines in the drawing

Floodplain Delineation Sheets (individual)

Sheet 1
No additional review comments

Sheet 2
The floodways were adjusted as indicated in the review comments

Sheet 3
Edited per review comments, adjusted floodways, and removed a Zone A between Quilotosa and West Quilotosa Washes

Sheet 4
Edited Matchline text per review comments and adjusted floodways.

Sheet 5
Edited typo in FP elevation on Evans Wash and reorganized text.

Sheet 6
Changed the Scale from 400 to 200 to improve readability. Revised BFEs along Evans Wash.

*note due to the rescaling of sheet 6, we have added a new sheet 7 to cover the area, therefore former sheets 7 and 8 are now sheets 8 and 9.

Sheet 7
New sheet, formerly part of sheet 6

Sheet 8
Revised river miles and cross section stations. Included a new floodway between Bender and Sand Tank washes, realigned floodplain and floodway for Sand Tank Wash, edited linetype between Sand Tank from FP to FW.

Sheet 9
Revised river miles and cross section stations. Edited the floodway at former cross section # 3.341 (now 3.409) by adjusting the ineffective flow area so that it does not lie within the floodway. BFE alignment adjusted at RM 0.416. Extended cross section at former section # 2.879 (now 2.924) so that it spans the entire floodplain.

Response to Review Comments made by Tim Murphy

1. per comment #1, the report will be sealed and signed after approval by FCDMC, prior to submittal to FEMA

2. An inside plastic cover is now provided to keep cover page from sticking to binder
3. The report page numbers match the table of contents
4. Edited the title for section 4.1.5 in the TOC to match the report
5. An exhibit is included which clearly defines which wash names are existing and which are proposed.
6. Edited text to "downstream watercourse".
7. Included figures 1-1 and 1-2 in the report.
8. Revised all FEMA forms for FCDMC to sign instead of Gila Bend.
9. The text "figure X" in 1st paragraph of section 4.1 was replaced with "on the two exhibits titled "HEC-1 Schematic" and can be found in the map pockets of Book 3."
10. The entire table 4.5.1 is shown.
11. Full printouts of the HEC-RAS models are provided in Appendix E.5, in Book 3.

Lloyd Vick

From: Chris Perry - FCDX [cap@mail.maricopa.gov]
Sent: Thursday, May 17, 2001 10:03 AM
To: Lloyd Vick (E-mail)
Subject: Additional comments on TDN

Lloyd,

I am forwarding additional comments on the TDN from Tim Murphy. Concerning sections 2.1.3, 2.1.4, and 2.1.5, you can leave the reviewer information blank. FYI, FEMA reviewer is Michael Baker, but it doesn't need to be filled in.

1. *Report needs to be sealed and signed.*
2. Provide an inside cover with blank plastic cover sheet to keep page from sticking.
3. Number the pages in the report to match the TOC.
4. Correct the title for section 4.1.5 in the TOC. "Canal" is left out.
5. Since "Cemetery Wash" already exists in Maricopa County, this name may not be accepted. Be sure that proposed wash names are clearly shown as proposed.
6. Section 1.3, 2nd paragraph, 1st sentence: change "down" to "downstream", change "wash" to "watercourse".
7. Figures 1-1 and 1-2 are blank.
8. Since all floodplains are in Maricopa County, set up forms for Maricopa to sign, not Gila Bend.
9. *Section 4.1, 1st paragraph, last sentence:* What is figure X?
10. Table 4.5.1 - some of the table is cut off.
11. Was a full printout of the HEC-RAS models provided?

Chris Perry, P.E.
Flood Control District of Maricopa County
602-506-4001 Phone
602-506-4601 Fax
http://www.fcd.maricopa.gov/

DRAFT comments on Gila Bend ADMP - 4/01 Floodplain / TDN submittal

TDN

1. The CD enclosed with the TDN should be labeled with the following information:
   a. Full study name and contract number
   b. Consultant name
   c. Date
   d. General descriptions of contents
2. The CD should include the following files:
   a. README text file (ASCII) with all applicable information specified in Chapter 11 of FEMA 37
   b. Scanned images of sealed drawings
   c. Scanned images or digital copies of all final drawings, exhibits, etc.
   d. TDN in electronic format
3. The TDN should contain a printed copy of the README file adjacent to the CD.
4. Change filenames of Unnamed Wash RAS files to match the given wash names on delineation sheets.
5.

Plan Set

Cover Sheet

1. Provide a cover sheet with the following information:
   a. Study Name and Contract Number
   b. Prime consultant's name, address, and telephone number
   c. Vicinity map with city limits, roads, and watercourses
   d. Identification of data sources
   e. General notes as necessary
   f. Events being modeled (100 yr, 24 hr)
   g. Delineation of existing floodplains
   h. Dates and sources of mapping flights and field surveys

Photo Control Points

No comment

Map of Aerial Mapping Limits

No comment

Approximate Delineations of Citrus Valley, Sauceda, Quilotosa, and Hacker Washes

1. Remove photo background and provide topographic background.
2. Provide road names and identifiable reference points.
3. Plot in black and white only.

HEC-1 Schematic Sheets

1. Remove Burgess and Niple title block and instead provide reference to previous study.
2. Fix typo on West Quilotosa Wash.
3. Color plot is OK, but align all text so information is still conveyed on black and white copies.

Delineation Sheets

All Sheets - typical

1. Show existing designated floodplains.
2. Remove vegetation from background.
3. FP/FW callouts on several washes (e.g. Bender Wash North Tributary) are hard to read. Further screen background or move the callouts to make it easier to read the text.
4. In several locations, it is difficult to tell which callout belongs to a section line. Provide leader lines or some other clear indication to indentify the appropriate callout for each section line.
5. Provide descriptions for all ERMs identified on drawing, or remove ERMs for which there is no description available.
6. Identify roadways.

7. Increase size of elevation text on index contours.
8. Line weight of Hydraulic Base Line on drawings does not match legend.

Sheet 1
No additional comments.

Sheet 2
1. Adjust floodways as marked.

Sheet 3
1. Change matchline text at Quilotosa Wash to "See Sheet 4".
2. Adjust floodways as marked.
3. Remove Zone A between Quilotosa Wash and West Quilotosa Wash.

Sheet 4
1. Change matchline text at east end of Gila Bend Canal Wash to "See Sheet 5", and provide reference sheet number for matchline at west end.
2. Move west matchline approximately 800' east.
3. Adjust floodways as marked.

Sheet 5
1. Correct typo in FP elevation at RM 0.508 (Evans Wash).
2. Remove 13 "orphan" callouts along right side of sheet (RM 1.829 to RM 1.210).

Sheet 6
1. BFE at confluence of Evans, Cemetary, and I-8 East shown as 757'. Change to correct elevation (754'?).
2. As shown, BFE fluctuates from 756' to 754' to 755' between sections RM 0.695 and RM 0.198.

Sheet 7
1. Incorporate floodway district between Bender Wash and Sand Tank Wash at I-8. Will encroachment to floodway limit contain previously calculated weir flow from Bender to Sand Tank across Zone A? Encroachment will also increase depth at I-8 culverts, increasing diversion along I-8.
2. Remove north Zone A between Sand Tank Wash and Bender Wash from cross-section RM 6.505 to RM 5.625 (Sand Tank Wash).
3. Change linetype of south Zone A between Sand Tank Wash and Bender Wash to floodway.

Sheet 8
1. Change matchline sheet number (8) on Bender Wash to 7.
2. At cross-section RM 3.341 (Bender), the floodway is located in the ineffective flow area. Can the floodway be moved in further, or should the ineffective flow area boundary be moved out to match the floodway?
3. At cross-section RM 0.416 (Bender North), BFE 792 line intersects with cross-section line with WSEL 792.77. Adjust BFE alignment.
4. At cross-section RM 2.879 (Bender), extend cross-section to span entire floodplain width.

Gila Bend ADMP
FCDMC No. 99-18
EEC No. 99541
Public Meeting at Town of Gila Bend
June 12, 2001

Public Meeting to present Floodplain Delineations and Area Drainage Master Plan

Meeting Minutes
By Lloyd Vick

The Town Manager Shane Dille introduced the team to the Town Council.

We were the first item on the agenda for the public hearing. See the Public Meeting Agenda (Attached) for further information.

Geza Kmetty, from FCDMC, introduced the team and the project to the public and the Town Council.

Mark Gavan, from EEC,

1. presented the floodplain delineations using an exhibit that separated the new approximate and detailed floodplain delineations from the floodplain delineations done in a previous study.
2. Presented the Area drainage Master Plan by
    - Describing the existing drainage problems
    - Describing how the ADMP can be used as a floodplain management tool for future development
    - Describing how the preservation of existing natural washes would benefit the community
    - Discouraging development in high hazard areas such as the Gila River (high water elevation of 670, determined as the spillway elevation plus 9 feet)
    - Describing developer built drainage elements for future conditions
    - Described what publicly funded elements were in the ADMP
    - and, described the Town Core drainage problems and solutions
    - Described possible ways the Town could cost share with the FCD including: Granting R-O-W, Landscaping, funding between 30 and 50 percent of the project.

Several questions were asked by the Town Council including,

1. Vice Mayor Fred Hull asked what the cost of the Phase 2 project, that would remove south Gila Bend from the Floodplain, would be?

    Mark Gavan replied 15-20 Million Dollars

2. Vice Mayor Fred Hull asked what the cost of the local flooding project, in the South Gila Bend area, would be?

Mark Gavan replied approximately 340 thousand dollars for the drainage improvements.

At this point the team adjourned to the museum with any interested public citizens to answer one-on-one questions about locations of various properties in relation to the floodplains.

NOTICE OF A PUBLIC MEETING

GILA BEND TOWN COUNCIL
June 12, 2001; 6:00 p.m.
Council Chambers, 644 West Pima Street
AGENDA

I. CALL TO ORDER
   A. Call to order
   B. Pledge of Allegiance
   C. Invocation

II. ROLL CALL
   A. Mayor Chuck Turner
   B. Vice-Mayor Fred Hull
   C. Council Member Bill Henry
   D. Council Member Steve Holt
   E. Council Member Christopher Riggs
   F. Council Member Richard Stuart
   G. Council Member James "Bud" Turner

III. PUBLIC HEARING - regarding the Floodplain and Floodway Delineation and the Town Master Drainage Study (BLUE)

IV. CONSENT AGENDA (all items subject to approval by a single motion; any Council member may require any of these items to be voted on separately)
   A. Approval of the May 23, 2000, meeting minutes
   B. Approval of Employee Vision Service Plan for Fiscal Year 2001/2002 (PINK)
   C. Award bid for Asphalt Preservation Seal on Town Streets (GREEN)
   D. Approve purchase of 15 passenger van (YELLOW)
   E. Approval to call for Request for Qualifications for Inspection Services for DG0007 Main & Martin Street Improvements (LAVENDER)
   F. Approval of Intergovernmental Agreement with Maricopa County for Municipal Court Services (SALMON)
   G. Approval of Intergovernmental Agreement with Maricopa County for Janitorial services for the Gila Bend Justice Court (BLUE)

V. BUSINESS - Consideration and possible action on the following items:
   A. ORDINANCE 01-03, regarding an amendment to the Town Code relating to the Uniform Building Code, and declaring an emergency (Backup will be distributed prior to the meeting)

VI. PRESENTATION: Ajo Aquatics Center/Pima County will present ideas on aquatics program partnerships (PINK)

VII. ACCOUNTS PAYABLE (Discussion only)

VIII. CALL TO THE PUBLIC (At this point any citizen may speak about any subject not listed on the agenda when recognized and subject to reasonable time, space and manner restrictions; Council members, however, may not discuss these subjects because they are not specifically listed on the agenda).

IX. SUMMARY OF CURRENT EVENTS

A. Mayor

B. Town Manager

1. Funds for Swimming Pool repair (YELLOW)

X. WORK SESSION (the Council cannot take action on any of these subjects because they are on the agenda for discussion only) (the Council cannot take action on this item because it is on the agenda for discussion only)

A. Water Rate Study and Water Analysis Report (Southwest Civic Professionals) (GREEN)

XI. EXECUTIVE SESSION: Consideration and possible action to enter into an executive session pursuant to A.R.S. 38-431.03(A)(3) legal advice regarding the Power Partners Siting Agreement

XII. ADJOURNMENT

Beverly Turner

Beverly Turner, Town Clerk

6/8/2001
Date posted

ACCESSIBILITY FOR ALL PERSONS WITH DISABILITIES WILL BE PROVIDED UPON REQUEST. PLEASE TELEPHONE YOUR ACCOMMODATION REQUEST (683-2255 OR 1-800-367-8939 ADD ARIZONA RELAY SERVICE) 72 HOURS IN ADVANCE IF YOU NEED A SIGN LANGUAGE INTERPRETER OR ALTERNATE MATERIALS FOR A VISUAL OR HEARING IMPAIRMENT.

GILA BEND AREA
PUBLIC NOTICE

Notice is hereby given the Town Council of the Town of Gila Bend will hold a public hearing on June 12, 2001, regarding the Floodplain and Floodway Delineation and the Town Master Drainage Study. The hearing will be held in the Council CHambers located at 644 West Pima Street at 6:00 p.m.

Representatives from the Maricopa COunty Flood Control District and EEC will be present to answer any questions.

Interested persons are invited and encouraged to attend. Written comments will also be accepted anytime prior to the hearing at the Town Office C/O Beverly Turner (Town Clerk) and will be read into the record at the time of the hearing.

ACCESSIBILITY FOR ALL PERSONS WITH DISABILITIES WILL BE PROVIDED UPON REQUEST. PLEASE TELEPHONE YOUR ACCOMMODATION REQUEST (683-2255 OR 1-800-367-8939 TDD ARIZONA RELAY SERVICE) 72 HOURS IN ADVANCE IF YOU NEED A SIGN LANGUAGE INTERPRETER OR ALTERNATE MATERIALS FOR A VISUAL OR HEARING IMPAIRMENT.

Number of publications: 2. Dates of publication: May 31 & June 7, 2001.

AFFIDAVIT OF PUBLICATION

State of Arizona
ss
County of Maricopa

FILE COPY

I, Glen Birchfield, editor of

The Gila Bend Sun,

a newspaper in general circulation, printed and published in the Town of Gila Bend, County of Maricopa, State of Arizona, do solemnly swear that a copy of the above notice is the matter of

Public Notice
for

Town of Gila Bend

as per clipping attached,, was published weekly in the regular and entire edition of the said newspaper, and not in any supplement hereof, for a period of twice consecutive week(s) as follows, to-wit

May 31 & June 7, 2001

Glen Birchfield

Glen Birchfield

Subscribed and sworn to before me,

this.....7.....day of.....June.....2001

Darah B. Mann

Notary Public

My Commission expires
May 29, 2005

DARAH B. MANN
Notary Public - Arizona
MARICOPA COUNTY
My Commission Expires
MAY 29, 2005

cc: Beverly Turner

Gila Bend ADMS/ADMP
FCDMC No. 99-18
EEC No. 99541

To: Geza Kmetty

From: Mark Gavan

Date: 12/14/2000

Subject: Response to review comments (dated 11/9/00) to the Draft Floodplain Delineation (Report date 9/27/00) for Gila Bend Area Drainage Master Plan.

This memo address the review comments made by Chris Perry on November 9, 2000 regarding the Draft Floodplain Delineation and accompanying report. The following review comments are followed by EEC and Premier's responses. All items that require attention will be reevaluated and included in the Technical Data Notebook. In some instances a response may only require a verbal description which will be documented herein.

Bender Wash Main

1) *Re check bank stations to ensure they represent actual conditions. Current locations appear too low in the cross sections along this and other reaches.*

Response: This item was resolved in the November 2nd meeting.

2) *At cross sections RS 3.216, 2.833, large percentage of LOB is marked as ineffective, but is not carried through to RS 2.720, why?*

Response: This item was resolved in the November 2nd meeting.

3) *There is no separate RAS model for "west" tributary, labeled 0.046 through 0.911. Pleas submit or explain the omission.*

Response: The west tributary actually is not a tributary, but a short offshoot of the main channel that splits out upstream of the study area. Therefore the full flow was modeled in the main wash at the upstream-most cross section, and allowed to slowly expand into the "west tributary" using ineffective flow encroachments as the flow continues downstream.

4) *For cross-section RS 3.661 through RS 2.553, the n-values are inconsistent with those determined in the n-value report update (May 5, 2000). For instance, the Bender Wash upstream reaches match the n-values of Reach D in the n-value report, which is actually the North Tributary of the current submittal.*

Response: Reach D in the n-value report actually does correspond to the Bender Wash Main Branch. Bender Wash North Tributary was added to the study *after* the n-value report submittal, so there has been no n value determined for that specific reach. As a temporary solution for the draft floodplain submittal, the same n values were used for the North Tributary reach as for the Main Branch, with the intent of verifying that assumption and possibly revising the North Tributary model.

5) *At RS 3.577 through 3.398, what is the need for the ROB ineffective areas?*

Response: Ineffective flow encroachments were used at these cross sections as a substitute for clipping the cross section off at the top of the right-most ridge line. I like to use this method during preliminary modeling just in case I want to use the blocked-out ground data again. Once the floodplain/floodway delineation is finalized, I will remove those ineffective flow encroachments and clip the cross sections at the top of the ridge line.

Sand Tank Wash

1) *AT RS 5.464, the ROB ineffective flows area should include the channel section from station 10300 to 10700 to be consistent with U/S and D/S sections.*

Response: At RS 5.464, the ROB ineffective flow encroachment station was selected to allow expansion of the floodplain from its relatively narrow width at RS 5.659 to its larger width at RS 5.464 and 5.370. Note that the ROB ineffective flow encroachments starting at RS 5.659 and ending at 5.464 move progressively outward as the right floodplain limit expands outward.

Scott Avenue Wash

1) *At RS 6.700, is the ineffective area in the LOB necessary?*

Response: This ineffective flow area was used for the same reason as explained in the response to comment (5) on Bender Wash main: it's a temporary method of "removing" the unneeded area at the end of the cross section. In the final submittal, I will clip off that area of the cross section altogether.

Unnamed Wash No. 4

1) *Check bank locations at the following cross-sections: RS 0.001, 0.106, 1.429, 1.529. Bank stations can be adjusted and n-values modified as necessary to ensure consistent bank stations between cross-sections.*

Response: Premier will review the bank locations and will revise as necessary.

2) *At RS 1.335, consider coding the LOB as ineffective, due to the shallow depth (less than 0.5 ft.).*

Response: Premier will evaluate.

Gila Bend Canal Wash

1) *Change title to "East of Quilotosa"*

Response: Will revise.

2) *At RS 1.359, the canal is not modeled in the cross-section*

Response: Will revise.

3) *In the HEC-2 analysis, the cross-section stationing doesn't match drawing.*

Response: Will revise.

4) *At RS 2.022 and 1.733, the north bank of canal is higher than the elevation (south bank) used for weir analysis. Why?*

Response: The south bank was used as the basis for overtopping, of the canal, as it is the initial restriction for side weir flow. The canal banks vary but are generally within 0.5 feet of one another. The cross sections in the model represent the flow path but is not a fair representation of what the side weir looks like.

I-8 West

1) *In the HEC-2 model, the WC elevations do not match bank elevations used in HEC-RAS model (about 0.5' difference). Please correct the models so that they are consistent.*

Response: Will evaluate and revise.

Unnamed Wash No. 1

1) *At RS 5.385 and 5.483, should Q input be 3207?*

Response: This item was resolved in the November 2nd meeting.

General

1) *Title records for all HEC-2 and HEC-RAS models should include: study name, contractor, source of hydrology, source of survey, contract number, and datum.*

Response: These items will be included in next submittal.

2) *Round discharge values to the nearest whole number from 10 to 1000 cfs, and to three significant figures above 1,000 cfs. For instance, 24,274 cfs and 1,348 cfs inputs should round to 24,300 cfs and 1,350 cfs.*

Response: Will revise values for reporting final flows, but for intermediate calculations the preferred method is to use unrounded values to avoid roundoff errors.

3) *Round n-values to the nearest 0.005 for values greater than 0.030.*

Response: Will revise.

If you have any additional comments please contact me at (602) 248-7702.

EEC.

Mark Gavan, P.E.
Project Manager

Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009
(602) 506-1501 fax (602) 506-4601

MEMO

To: Geza Kmetty

From: Chris Perry

Date: November 9, 2000

Subject: Gila Bend Area Drainage Master Plan
Draft Floodplain Delineation, Report Date 9/27/00

Regarding the above-referenced project, I have the following comments:

Bender Wash Main

~~1) Re-check bank stations to ensure they represent actual conditions. Current locations appear too low in the cross-sections along this and other reaches.~~

~~2) At cross-sections RS 3.216 - 2.833, large percentage of LOB is marked as ineffective, but is not carried through to RS2.720, why?~~

3) There is no separate RAS for "west" tributary, labeled 0.046 through 0.911. Please submit or explain the omission.
4) For cross-sections RS 3.661 through RS 2.553, the n-values are inconsistent with those determined in the n-value report update. For instance, the Bender Wash upstream reaches match the n-values of Reach D in the n-value report, which is actually the North Tributary of the current submittal.
5) At RS 3.577 through 3.398, what is the need for the ROB ineffective areas?

Sand Tank Wash

1) At RS 5.464, the ROB ineffective flows area should include the channel section from station 10300 to 10700 to be consistent with US and DS sections.

Scott Avenue Wash

1) At RS 6.700, is the ineffective area in the LOB necessary?

Unnamed Wash #4

1) Check bank locations at the following cross-sections: RS 0.001, 0.106, 1.429, 1.529. Bank stations can be adjusted and n-values modified as necessary to ensure consistent bank stations between cross-sections.

2) At RS 1.335, consider coding the should LOB as ineffective, due to the shallow depth (less than 1/2').

Gila Bend Canal

1) Change title to "East of Quilotosa".
2) At RS 1.359, the canal is not modeled in the cross-section.
3) In the HEC-2 analysis, the cross-section stationing doesn't match drawing.
4) At RS 2.022 and 1.733, the north bank of canal is higher than the elevation (south bank) used for weir analysis. Why?

I-8 West

1) In the HEC-2 model, the WC elevations do not match bank elevations used in HEC-RAS model (about 0.5' difference). Please correct the models so that they are consistent.

Unnamed #1

~~1) At RS 5.385 and 5.483, should Q input be 3207?~~

General

1) Title records for all HEC-2 and HEC-RAS models should include: study name, contractor, source of hydrology, source of survey, contract number, and datum.
2) Round discharge values to the nearest whole number from 10 to 1000 cfs, and to three significant figures above 1,000 cfs. For instance, 24,274 cfs and 1,348 cfs inputs should round to 24,300 cfs and 1,350 cfs.
3) Round n-values to the nearest 0.005 for values greater than 0.030.

Strike-through comments were resolved at our November 2 meeting. Additionally, certain cross-sections were marked in green on the plans where bank station locations should be checked.

Please call me at x.64001 if you have any questions concerning these comments.

Gila Bend ADMP/ADMP
FCDMC No. 99-18
EEC No. 99541
Meeting with FEDMC
Location: FCDMC Annex
November 16, 2000
11:00 a.m. to 1:00 p.m.

Meeting Minutes
By Lloyd Vick

Attendees	Lloyd Vick	EEC	602-248-7702
	Tony Regis	Premier	480-829-6000
	Amir Motamedi	FCD/Eng	602-506-4871
	Chris Perry	FCD/Eng	602-506-4001
	Dave Johnson	FCD/Reg	602-506-4705
	Joe Tram	FCD/Eng	602-506-4607
	Geza Kmetty	FCD/PPM	602-919-0208
	Russ Miracle	FCD/Plan	602-506-2961
	Mark Gavan	EEC	602-248-7702

Mark opened the meeting with a review of the changes in hydrology and how that affects the level two alternatives. He explained that the floodplain analysis just completed as part of the ADMP resulted in significant revisions to the diversions used in the hydrologic model. The new/revised diversions result in two major changes. First, much more flow splits out of Sand Tank Wash, upstream of I-8, and flows towards the west. Second, the Gila Bend Canal will be overtopped at every major wash crossing. In the original hydrologic model, the Canal was only assumed to be overtopped at Hacker Wash and at Citrus Valley Wash. He explained that these revisions to the hydrology will effect the recommended flood control alternatives.

The following points were made in regards to the effect on the West Side Alternatives:

- Delineate area between canal and I-8 as zone A to cover potential dam break of the Canal embankment. Maintain floodways and force developer to provide adequate conveyance through the canal before future development can occur between the Canal and I-8.

- Make sure that the ADMP identifies the potential hazards for development downstream of the Canal.

- The Railroad and I-8 tend to collect the uncontrolled flow and direct it downstream.

The following points were made in regards to the effect on the East Side Alternatives:

- Investigate an alternative for relocating people whose homes are within the floodplain along Scott Avenue Wash, as an alternative to structural controls.

- Add the cost of flowage easements to the detention basin alternative to allow the 15,000 cfs to bypass the basin and continue downstream.

- Recognize, with the buy-out alternative, that the problem of uncontrolled flooding and overtopping of the canal and streets would continue.

<u>Agreed upon course of Action</u>

- Add an alternative to buy-out all the homes in the South Gila Bend Floodplain, and homes and commercial sites along Scott Avenue Wash. This alternative is in lieu of the upstream retention basin.

- Add the cost of flowage easements to the detention basin alternative.

- Leave the west side alternative the same (i.e., collection channels downstream of I-8 instead of improving conveyance through the Canal). This alternative will require that the area between the Canal and I-8 remain undeveloped unless the Canal cross conveyance is improved.

Gila Bend ADMP
FCDMC No. 99-18
EEC No. 99541
Meeting with FCDMC
Location: FCDMC
November 2, 2000
2:00 pm to 4:30 pm

Meeting Minutes
By Lloyd Vick and Mark Gavan

Attendees	Chris Perry	FCDMC	602-506-1501
	Lynn Thomas	FCDMC	602-506-1501
	Mark Gavan	EEC	602-248-7702
	Tony Regis	Premier	480-829-6000
	Lloyd Vick	EEC	602-248-7702

Chris started the meeting with some of the technical review comments. Chris was interested in how we selected boundaries for ineffective flow areas on Bender Wash. Tony explained the rationale which Chris accepted asking that we document the methodology in the supporting text. Chris will get us the remainder of his comments the week of November 6.

Lynn Thomas arrived which redirected the discussion toward floodplain management. She asked if there were changes in the existing floodplains downstream of I-8. Mark described the current situation saying that more flow was being diverted to the west behind I-8 thereby reducing the downstream discharges on Sand Tank Wash from approximately 15K, down to 11K cfs. It was general concurrence, however, that the existing downstream floodplain should remain unchanged, even though the flow has decreased. This is a conservative measure that adds a factor of safety that seems prudent, since there's considerable uncertainty in the split flow calculations.

Mark also described the problems associated with defining floodways on a number of the washes in the Gila Bend area. The floodways have to be defined in a manner that will prevent future development from increasing the flood hazard to other properties. In Gila Bend, there are numerous, significant split flows that complicate floodplain management. In addition, the Gila Bend Canal both stores floodwater and diverts floodwater. The following issues were discussed.

- A floodway will allow new development to contain the flow, not allowing the splits to occur, which will increase downstream flows. It was noted that in the case of Sand Tank Wash, a traditional method for calculating the floodway (1' rise in the water surface elevation) would result in directing more flow through the structures at I-8; increasing flows downstream of I-8.
- A floodway will also allow new development to encroach from just one side of the floodplain. If this occurs on the "high side" of the floodplain, the result will be

increased split flows. In the case of Sand Tank Wash, this could result in a significant increase in flow on Scott Avenue Wash.

- It's been our experience that FEMA will only allow a future condition floodway (a floodway with no split flow) if the floodway can fit within the existing condition, downstream floodplain.
- In the case of the Gila Bend Canal, conveyance corridors are needed for maintaining lateral flow. In addition, "compensation for volume displaced" is needed to preserve the attenuation effects of the storage behind the canal. The solution seems to be to use floodways to maintain the conveyance corridors and use zone A's to provide for "compensation of volume displaced".
- Floodways can be drawn coincident with the floodplain, without using the standard 1' increase in WSEL. This would allow definition of floodways along the Gila Bend Canal, I-8, and Sand Tank Wash; without changing the flow characteristics. For example, where storm water is overtopping the canal under existing conditions, a coincident floodway would maintain the existing flow condition, thereby maintaining the split flows.

FLOODWAY DELINEATION

The group went through the floodplains, wash by wash, to discuss the method of delineating a floodway district. The following is a summary of that discussion.

Bender Wash

Floodways will be delineated for Bender Wash and the North tributary to Bender Wash. Zone A designation will be used to describe areas not within the Floodway where braided flow exists between tributary branches. At I-8 there is a diversion of flow along the highway embankment toward Sand Tank Wash. In order to maintain conveyance, a floodway will be delineated, coincident with the floodplain, along the highway, to connect the floodway on Bender Wash with the floodway on Sand Tank Wash.

Sand Tank Wash

A significant amount of floodwater splits out of Sand Tank Wash into Scott Avenue Wash. The overflow area between the two washes is defined as a Zone A floodplain, which is a relatively narrow strip. The split flow is significant enough to have a large impact on Scott Avenue Wash; making the two washes behave almost as one very wide floodplain. It is our intention to include both washes within a single floodway. And, since encroachment could significantly change downstream peak discharges, the floodway will be coincident with the outside floodplain limits; with no encroachment other than in the ineffective flow areas. This will eliminate the concern of future development changing existing flow patterns and increasing the flood risk for other properties. This will also prevent development in the Zone A, split flow areas. At I-8 there is a diversion of flow along the highway embankment toward Scott Avenue Wash. In order to maintain this conveyance corridor, a floodway will be delineated, coincident with the floodplain, along the highway. Again, no encroachment will be allowed because limiting the conveyance capacity of the flow along the Highway will increase downstream peak discharges on Sand Tank Wash.

Scott Avenue Wash

The floodway for the main wash is discussed above in the section on Sand Tank Wash. At I-8, there's a diversion of flow along the highway embankment toward Unnamed Wash No. 4. In order to maintain a conveyance corridor, a floodway will be delineated, along the highway, through the borrow pit, to the junction of Unnamed Washes No. 3 and 4. This floodway will be coincident with the floodplain to avoid increasing the downstream peak discharges on Scott Avenue Wash.

Unnamed Wash No. 4

A normal, equal encroachment, floodway will be delineated for this wash.

Unnamed Wash No. 3

A normal floodway will be delineated for this wash down to the Gila Bend Canal. At the Canal, Unnamed Washes No. 2 and 3 merge together in one ponding area behind the Canal. Culverts, under the canal at two locations convey some of the discharge. The remaining discharge overtops the canal and continues downstream; with some flow overtopping SR85 and flowing westerly along the Canal. The Floodway delineation will continue down to the Gila Bend Canal, and the ponding area behind the canal will be designated as a Zone A. The storage capacity of the pond will be protected with the "compensation for volume displaced" portion of the County's Floodplain Ordinance.

Unnamed Wash No. 2

A normal floodway will be delineated for this wash down to the Gila Bend Canal. The situation at the canal is described in the previous section. Downstream of the canal, a normal floodway will be delineated to I-8. A diversion takes place at I-8 with the diverted flow following the highway embankment to the overpass of the frontage road. At this point the discharge passes through and rejoins Unnamed Wash No. 2. In order to maintain a conveyance corridor, a floodway will be delineated, coincident with the floodplain, along the highway to the overpass. A normal floodway will then be delineated on Unnamed Wash No. 2, downstream of I-8.

Quilotosa Wash

Upstream and downstream of the Gila Bend Canal, a normal floodway will be delineated for this wash. At the canal there will be a floodway entering from the east that conveys the diverted flow from Unnamed Wash No. 2, which takes place at the Gila Bend Canal and SR85, toward Quilotosa Wash. A significant amount of the diverted flow overtops the Canal. The remaining flow is conveyed to Quilotosa Wash. In order to maintain the conveyance corridor, a floodway, coincident with the floodplain, will be delineated behind the canal; connecting up with the floodway on Quilotosa Wash.

Unnamed Wash No. 6

Upstream of the Gila Bend Canal, a normal floodway will be delineated for this wash. This wash does not have an existing structure to pass storm water through the Gila Bend Canal. So runoff ponds against the canal and is diverted to Sauceda Wash. A floodway, coincident with the floodplain, will be delineated along the canal between Unnamed

Wash No. 6 and Sauceda Wash. The remaining, ponding area behind the canal will be placed in a Zone A to provide for "compensation for volume displaced". Downstream of the Gila Bend Canal, a normal floodway will be delineated and then combined with the floodway for Quilotosa Wash; just upstream of the Southern Pacific Railroad.

Sauceda Wash

Upstream of the Gila Bend Canal, a normal floodway will be delineated for this wash. For this wash the Floodway at the Gila Bend Canal is described in the previous section. Storm water also ponds behind the canal in this location. The ponding area behind the canal will be placed in a Zone A to provide for "compensation for volume displaced". The section of canal between Sauceda Wash and Unnamed Wash No. 1 does not necessarily convey runoff but it does pond floodwater. Therefore, this area will also get a Zone A designation. Downstream of the Gila Bend Canal, a normal floodway delineation will be used.

Unnamed Wash No. 1

Upstream of the Gila Bend Canal, a normal floodway will be delineated for this wash. Storm water ponds behind the canal in this location. The ponding area behind the canal will be placed in a Zone A in order to provide "compensation for volume displaced". Downstream of the Gila Bend Canal, a normal floodway delineation will be used. At I-8, the wash crosses the highway in a dip section with the roadway being overtopped. A floodway will be delineated over the top of the highway.

Area between Gila Bend Canal and I-8

The strip of land between the canal and the highway should be considered to be within a hazard zone. This is due to the overtopping issues and potential dam breaks associated with the canal. The overtopping during a 100-year flood could occur anywhere along the entire length of the canal from SR-85 to Unnamed Wash No. 1. This situation suggests that the entire strip of land (excluding that designated as Zone AE) should be delineated as Zone A.

Recommendations

- Delineate floodways where possible using normal, equal encroachment methods.
- Delineate floodways, coincident with the floodplain limits, along I-8 and the Gila Bend Canal where necessary to maintain conveyance and not alter existing split flow conditions..
- Use Zone A with "compensation for volume displaced" in the areas behind the Gila Bend Canal where storage needs to be maintained but conveyance doesn't.
- Use a broad Zone A between the canal and the highway where Canal overtopping could take place and cause a flood hazard. Development requirements for this area will be included in the ADMP.
- Combine Sand Tank Wash and Scott Avenue Wash into a single floodway that is coincident with the outside floodplain limits.

Gila Bend ADMP
FCDMC No. 99-18
EEC No. 99542
Meeting at FCDMC
May 17, 2000
12 (noon) to 4:30 PM

Brainstorming Meeting No. 3
Meeting Minutes
By Lloyd Vick

Attendees	Steve Waters	FCDMC	602-506-4694
	Tom Renckly	FCDMC	602-506-8610
	Joe Tram	FCDMC	602-506-4607
	Carl Stephani	Gila Bend	520-683-2255
	Chris Perry	FCDMC	602-506-4001
	Dennis Holcomb	FCDMC	602-506-4074
	Lloyd Vick	EEC	602-248-7702
	Geza Kmetty	FCDMC	602-506-1501
	Tony Regis	Premier	480-829-6000
	Wayne Killgore	FCDMC	602-506-6770
	Bob Stevens	FCDMC	602-506-4073
	Mark Gavan	EEC	602-248-7702

Geza Kmetty opened the meeting with introductions of the participants in the Brainstorming meeting. He then gave an introduction to the project as well as the proposed agenda for the meeting. At this point he turned the meeting over to Mark Gavan.

Mark opened the presentation portion of the meeting with an overview of the project to date, which included:

- Overall discussion of flooding problems in the planning area
- Presentation of preliminary master plan
- Presentation of names of unnamed washes in the study area (from public meeting No. 2)

Mark then introduced Tony Regis who discussed the elements of the planning area, including:

- I-8 collector channel
- Future constructed channels with 3 alternative for landscape character

Discussion included the setback limits for the natural alternative. Concern was expressed that a minimum setback from the wash bank must be provided to prevent developers from encroaching on the wash.

A suggestion was presented that:

1. Look at the ACOE rules for setting wild life boundaries in the natural wash. They have requirements for a buffer or setback.
2. Use a higher n-value to calculate FP/FW to simulate conditions "non-natural" which would result in a wider FP/FW.
3. Use of "Risk Analysis" on setback limits [higher factor of safety]

Tony then presented the phase 1 & 2 elements for Sand Tank Wash, the following are some of the ideas discussed:

1. Dennis Holcomb expressed pleasure in seeing that the proposed plan was an integrated solution to a flood control project.
2. Need to look at the new ADWR regulations. Lloyd will look into this.
3. Assume that the conveyance culverts through the detention facility will require trash racks
4. Flood Warning elements should include a new gage in the retention basins, an upstream rain and stream gage on Sand Tank Wash.
5. The question was raised on whether the basins should have a drain.
6. Concern was raised about the soil conditions, what is the potential for subsidence. The concern is for differential subsidence and subsidence fissures. EEC had collected data that suggested that the subsurface water level has been slightly increasing over the last 25 years. Future development may include a drawdown in the water table that might result in subsidence. Tony is going to look into the possibility of ADOT having soil borings for the existing borrow pit.
7. The cost of the detention facility should be raised to include the sand filter and the sand drains needed around the culvert crossings.
8. A question was raised on the accuracy of the hydrology. EEC's review of the hydrology "to date" suggests that the hydrology is reasonable. Although new NOAA maps may provide differences in rainfall data.
9. An Idea was suggested to do away with the downstream basins, and raise the detention structure to increase storage and reduce flow to the proposed levels. This idea was later thrown out due to all the issues associated with this kind of facility.
10. A suggestion to check flowage easements from the COE, for the area behind the Painted Rock Dam. Lloyd will look into this.

Discussion over the benefit versus cost of facilities led to the following conclusion:

- That the detention facility should be included in the master plan as an option, and that the recommended plan should include the retention basins, improvement to the Levee, and floodplain management.

Gila Bend ADMS/ADMP
FCDMC No. 99-18
EEC No. 99541
Meeting with Section 35 Developers
Location: EEC Office
February 14, 2000
09:00 a.m. to 10:30 a.m.

Meeting Minutes
By Lloyd Vick

Attendees	Mark Gavan	EEC	602-248-7702
	Lloyd Vick	EEC	602-248-7702
	Shane McClara	Hook Eng.	602-956-3200
	Tom Zirbes		480-515-3811
	Rick Napolitano	SASI	602-224-0001
	Carl Stephani	Town of Gila Bend	520-683-2255
	Woody Scoutten	Town of Gila Bend	602-993-5686
	Jack Gilmore	Gilmore	602-266-5622
	Kent Myers	Gila Bend Ranch	480-515-3811
			602-200-9474

Mark Gavan opened the meeting with an introduction to the Gila Bend ADMP. He summarized the Alternatives generated for the West Planning Area and informed the group which alternatives were being carried forward.

The Town of Gila Bend has a tentative agreement with Panda Power and Energy for construction of a new power generating facility. If this project proceeds, then Panda has additionally agreed to construct a golf course for the town. The location of the golf course is still under consideration pending the outcome of the Power Plant, but tentatively it will be in section 35 of Township 5 South, Range 5 West. The future development planed around the golf course includes a RV-park and resort, single family residential homes and some other commercial development.

This development relates to the Gila Bend ADMP in that there is a Paloma Built diversion channel which conveys storm water from Unnamed Wash No. 2, parallel along the highway's (I-8) northern frontage road to the outfall channel for Quilotosa Wash. The channel is overgrown with trees and brush, which has reduced the capacity significantly. In the event of the 100-year storm excess flow will spill out of the diversion channel and follow the existing drainage path to the northwest across section 35.

EEC's concern is that the future developer understands that offsite runoff has to be accounted for and that a drainage path remain clear for the 100-year events.

The designers of the golf course had already considered offsite flow and planned the golf course to follow the low flow path, from the diversion channel to the northwest corner of Section 35.

Paloma asked to retain a 100' easement on the north side of the channel for vehicle access to the wash. The developers of the golf course may want to consider designing the runoff through the golf course for the full 100-year storm since the diversion channel is increasingly loosing capacity due to vegetation. Paloma's easement would allow a second tiered overbank to be constructed to help convey and divert storm water from Unnamed Wash No. 2 to the golf course.

Gila Bend ADMS/ADMP
FCDMC No. 99-18
EEC No. 99541
Brainstorming Meeting
Location: EEC Office
February 7, 2000
09:00 a.m. to 3:00 p.m.

Meeting Minutes
By Lloyd Vick

Attendees	Mark Gavan	EEC	602-248-7702
	Lloyd Vick	EEC	602-248-7702
	Chris Perry	FCDMC	602-506-4001
	Woody Scoutten	Town of Gila Bend	602-993-5686
	Geza Kmetty	FCDMC	602-919-0208
	Tony Regis	Premier	480-829-6000
	Bob Stevens	FCDMC	602-506-4073
	Greg Rodzenko	EEC	602-248-7702
	Carl Stephani	Town of Gila Bend	520-683-2255
	Steve Waters	FCDMC	602-506-4694

Geza Kmetty passed out the meeting agenda (attached as page 5).

Mark Gavan opened the meeting with an introduction to the project by describing the macro and micro flooding problems, areas of future development, and a review of alternative concepts for both the Planning and the Town Core areas.

Geza Kmetty established criteria for the evaluation of concepts.

Narrowing of Alternatives: - Evaluation Matrix

West Planning Area, see the table on page 4.
East Planning Area, see the table on page 5.

Steve Waters gave an introduction to the District's Flood Warning department. He proposed to install a rain/stream gage at Sand Tank Wash and I-8 to monitor stream flow. From that location an estimated travel time of 40 minutes would provide valuable time for the local fire/police department to barricade the unbridged road crossings of Sand Tank Wash. These crossings include: Main Street, Papago Street, Indian Road, and Watermelon Road. The detection and warning system could be paid for out of the Flood Warning departments budget and could be in place as early as this summer.

At this point it was 03:00 p.m. and it was decided that the Town Core area concepts could be reviewed by the City of Gila Bend and the EEC personnel, therefore the general meeting ended with the following people remaining:

Mark Gavan
Lloyd Vick
Geza Kmetty
Woody Scoutten
Carl Stephani

The Town Core is split into four distinct areas.

South Gila Bend

- It was decided, in general, not to use storm drains for this area
- Extend MCDOT's roadside channel as far as possible
- Martin and Main Streets are slated for improvements in near future
- Locate low points along Main Street at each of the following north/south intersections: Capitol Ave, Cleveland Ave., and St. Louis Ave. These low points will concentrate flows and redirect them with either 1-way crowns or valley gutters onto the north/south streets for conveyance to the diversion channel located parallel to the Gila Bend Canal.
- A diversion channel will collect flows from the terminus of these streets to convey the flow to a new detention basin located adjacent to the dike separating the residential area from Sand Tank Wash.
- This detention basin will be sized for the 100-year, 2-hour storm based on a smaller area encompassing the existing development. This assumes that new development, upstream of the existing developed area, will include on-site retention per FCDMC requirements.

Harrington Avenue

After review of the concepts, alternative No. 2 was selected (2-year storm drain & retention basin in DA No. 7). However, a phased approach to development is preferred.

1. Curb, gutter and a 2-year storm drain in Harrington Avenue. Retention Basin in DA No. 7.
2. Repave/grade side streets as necessary.

Scott Avenue Wash

Either concept 1 or 2 is acceptable. Both concepts assume a minimal inflow to Scott Avenue Wash from south of I-8, which was determined to be an acceptable premise. Limited construction should occur along Scott Avenue Wash until upstream improvements are complete. This wash should be considered to be included within the flood warning system.

St. Louis Avenue

After review of the alternatives it was decided to proceed with development of the 2-year storm drain and street improvements. The storm drain will be modified to begin at the low point in Richards Street, west of St. Louis Avenue. A new lateral will be included to collect flow from the low point in Stout Street. And, the outfall on the north side of Indian Road will be a channel.

Gila Bend ADMS/ADMP
FCDMC No. 99-18
EEC No. 99541
Preliminary Brainstorming Meeting
Location: FCDMC Main
February 4, 2000
1:00 p.m. to 3:30 p.m.

Meeting Minutes
By Lloyd Vick

Attendees	Mark Gavan	EEC	602-248-7702
	Greg Rodzenko	EEC	602-248-7702
	Lloyd Vick	EEC	602-248-7702
	Geza Kmetty	FCDMC	602-919-0208
	Steve Waters	FCDMC	602-506-4694
	Joe Tram	FCDMC	602-506-4607
	Russ Miracle	FCDMC	602-506-2961

Geza Kmetty opened the meeting with introductions.

Steve Waters introduced the possibility of a flood warning system for Gila Bend. This included the possibility of local rain gages which would automatically notify locals within Gila Bend if flooding problems exist. Steve also mentioned the possibility of installing a stream gage at I-8 and Sand Tank Wash; which would notify local fire/police departments when the stream was flowing. This notification would allow the barricading of un-bridged street crossings, of Sand Tank Wash, prior to extreme flooding problems that may endanger citizens.

Mark Gavan summarized the alternatives.

Discussion of the alternatives led to the following recommendations.

<u>East Planning Area</u>

- Eliminate the major channelization alternatives
- Keep the Dam alternative
- Keep the Detention Basin alternatives, but relocated/realign fill areas to reduce overburden, excavation along washes
- Look at the possibility of several upstream smaller dams instead of one large dam
- Alternatives need phasing
- Need to look at cost vs. benefit (protection of property)

<u>West Planning Area</u>

Alternative No. 3 is acceptable to FCD

Gila Bend ADMS
FCDMC No. 99-18
EEC No. 99541
Progress/Review Meeting
Location: FCDMC-Main Complex
January 27, 2000
09:00 a.m. to 12:00 p.m.

Meeting Minutes
by Lloyd Vick

Attendees	Mark Gavan	EEC	602-248-7702
	Lloyd Vick	EEC	602-248-7702
	Tony Regis	Premier	480-829-6000
	Geza Kmetty	FCD	602-506-1501
	Amir Motamedi	FCD	602-506-4871
	Chris Perry	FCD	602-506-4001
	Joe Tram	FCD	602-506-4607
	Bob Stevens	FCD	

Geza opened the meeting with a introduction and schedule for the meeting:

- Discuss review comments of Data Collection Report
- Discuss review comments of Level 1 Alternatives Report

Mark asked to add the floodplains as an additional topic of discussion. This was agreed to and became the first item on the agenda.

1. Floodplain

Geza expressed interest in two unnamed washes located just west of BR-8. Mark agreed to look into these two washes.

Discussion of the scope of work and the planned delineation of floodplains versus what is required for a complete study indicated that additional floodplain/floodway needs to be delineated especially along the following areas:

- The Unnamed Wash located just west of Sauceda Wash
- The Unnamed Wash located between Sauceda and Quilotosa Washes
- The Gila Bend Canal floodplain
- The I-8 floodplain west of the TI
- The I-8 floodplain east of the TI

Amir was concerned with how to manage the floodplain so that it doesn't change in the future. A change in splits or diversions in the upstream watersheds could cause significant impact downstream.

Joe Tram suggested that this project should focus on qualifying and quantifying flood hazards based on the best presently available data. If changes occur then the floodplains would have to be updated.

A discussion followed concerning an upstream detention structure to retard flow to levels, which can currently be conveyed, by the structures on Sand Tank Wash. The structure with the smallest conveyance is the control structure, in this case it is the bridge under Pima Road. The u/s detention structure would allow flow to enter each of the existing streambeds and therefore not damage the riparian habitat of the washes.

The proposed concept was for a 30' high structure, further discussion suggested that a lower structure be defined with the same volume retention.

2. Review Comments of Data Collection Report

Bob mentioned that we want to avoid or identify archeology sites for a possible level 2 assessment.

Bob said that the effort put into the Data Collection Report covered the scope of work for environmental assessment.

Geza and Amir agreed that the Data Collection Report was professionally put together.

3. Review Comments of Level 1 Alternatives Report

Amir went through Chris Perry's comments one by one.

The relevant portions included:

- Generating field notes to include in the TDN
- Should we carry the Planning Area flows through Scott Avenue Wash
- Can we put together a Tech Memo/ Interim Report for the Core Area Hydrology

Joe Tram had to leave early so we did not cover his review comments. This is to be scheduled for another time. The second brainstorming meeting was set for Wednesday, the 19th of February.

Gila Bend ADMP
FCDMC No. 99-18
EEC No. 99541

Public Meeting

Gila Bend City Hall
October 19, 1999

Meeting Minutes
by Lloyd Vick

Attendees	Mark Gavan	EEC	(602) 248-7702
	Lloyd Vick	EEC	"
	Geza Kmetty	FCDMC	(602) 506-1501
	Carl Stefani	Gila Bend (Town Manager)	(520) 683-2255
	Mayor and Town Council		
	Citizens of Gila Bend		

The Mayor of Gila Bend (Chuck Turner) opened the meeting. After preliminaries he introduced Geza Kmetty as a representative from FCDMC.

Mr. Kmetty introduced the design team and discussed the following:

- purpose of the project
- schedule for the project
    1. Develop Conceptual Alternatives
    2. Level 1, 2 and 3 Studies
    3. Additional Public Meetings
    4. Deliverables
- Town Participation relating to idea development, cost sharing and long range planning

Mr. Kmetty then introduced Mark Gavan who explained EEC's roll in the project.

Mr. Gavan discussed the project using the following format

Introduction
Project Status
    Photo Control-Photography
    Mapping
    Data Collection
    Environmental Issues
    Alternatives – level 1 report due in Dec-Jan
Description of the overall area
Description of the Planning Area

Detention-Diversion
Up-size culverts to increase capacity
Upstream detention
Description of Core Area
4-major areas
Description of problems
Possible solutions

Mr. Gavan summarized and opened the presentation for questions

Q1. Chuck Turner – Is it possible to reduce the 100-year floodplain boundaries?

R1. Geza Kmetty - Yes, with upstream structural alternatives.

No other formal questions or comments were asked.

Chuck Turner initiated a meeting break and citizens came forward to look at the exhibits brought to the meeting.

Gila Bend ADMS
FCDMC No
EEC No. 99541
Progress/Review Meeting
FCDMC-Annex
October 13, 1999
10:00 a.m. to 2:30 p.m.

Meeting Minutes
By Lloyd Vick

Attendees	Mark Gavan	EEC	(602) 248-7702
	Lloyd Vick	EEC	(602) 248-7702
	Jeff Holtzmeister	Premier	(480) 829-6000
	Tony Regis	Premier	(480) 829-6000
	Geza Kmetty	FCDMC	(602) 506-1501
	Imir Motamedi	FCDMC	(602) 506-1501
	Chris Perry	FCDMC	(602) 506-1501
	Joe Tram	FCDMC	(602) 506-1501
	Kathryn Gross	FCDMC	(602) 506-1501
	Carl Stephani	Gila Bend	

Geza opened the meeting with an introduction and review of where we are to date.

Mark delivered a project status update including:

- the ground control is completed
- the 2' mapping is expected to be completed on Nov. 10th
- the remainder of the mapping is due in mid January
- the data collection report is coming along, but we still need to get information on Paloma and environmental issues.
- the preliminary alternatives report is due in mid December

Carl said that two different power companies were talking with Gila Bend about the construction of Power Generating Stations:

1. the first site may be the northwest corner of Citrus Valley Rd. and Watermelon Rd. (750 MWatts)
2. the second site may be the northeast corner of Stout Road (299th Ave.) and Watermelon Rd. (2000 MWatts)

Mark then reviewed the existing conditions runoff for both the Planning Area and the Town Core Area. He introduced concept ideas of how to improve the drainage:

Planning Area

-west of town (3 basic ideas)

1. improve drainage structures to convey all the runoff
2. detain flows (storage) using online basins to reduce flows to current capacities
3. do nothing

Joe wanted to know what is necessary to alleviate future problems, and if we should bring ADOT in to see if they would be willing to up-size their structure.

This led to asking Tony to contact ADOT and find out if they have a documented history of flooding problems along I-8.

The discussion of up-sizing the ADOT structures led to the conclusion that it would do no good if the railroad didn't also enlarge their crossings. It was noted that the railroad would probably be unwilling, due to associated costs, unless they are experiencing flooding problems.

It was suggested that for the area north of I-8 we provide developers with three alternatives for runoff conveyance and then let them choose one, or option to come up with something better.

-east side (south of town)

1. reduce flows through Bender & Sand Tank Washes to amounts which existing structures can contain.
2. eliminate flow reaching Scott Ave. Wash
3. Contain divert flow using detention basins
4. Store flow using a dam upstream
5. Large diversion channel

Amir suggested using a diversion channel, which begins well upstream and routs through the gunnery range since the associate land costs would be lower.

Large upstream storage was mentioned again, leading to discussion of a series of smaller retention basins which would be used to skim off the peaks of the hydrograph.

Carl said that the town is interested in having a golf course, which could be used as a series of basins to store runoff. Best location ?

Someone said that sand and gravel operations and/or borrow pits could be used to create a series of basins.

It was group consensus that the 8000 cfs reduction could be accomplished in a series of phases involving different projects such as the golf course…

At this time we broke for lunch.

After lunch we briefly discussed the public meeting set for Tuesday the 19th of October.

Topics included what graphics to bring such as the Idea Maps, whether to use comment cards or questionnaires, and what handouts if any to distribute. Ultimately, it was decided to just use a sign-in sheet and pass a handout of the Gila Bend Aerial Photograph Exhibit to the public.

Mark reviewed what had been discussed thus far for the East Side Planning Area and culminated in the seed ideas:

1. Non-structural, do nothing
2. Flow through, where we design to carry all flows through Town all the way to the Gila River
3. Large detention facility, probably further upstream involving a dam or levee
4. A combination or diversion and storage built in phases if possible

Town Core Area

Mark gave an overview of the town core area and described typical solutions, which we are considering for the known problem areas.

Subdivision south of canal

1. Pave and grade with curb and gutter the streets of the subdivision.
2. Route sub-basins 3 & 5 to Unity Park where we would locate a new detention/retention basin.
3. Build a larger basin at the northeast corner of sub-basin 4 and lower the relief pipe through the dike/levee to accommodate a larger storage basin.
4. Collect sub-basins 1&2 at Main Street and divert with channel or storm drain to Sand Tank Wash

Discussion of this area led to noting that work was underway along Main Street by both MCDOT and by the Town of Gila Bend. Lloyd is to get the MCDOT Main Street plans from Kathryn Gross.

Harrington Road

1. Detention/retention basin in sub-basin 7
2. Storm drain in Harrington Road to the logical outfall
3. Downstream of the storm drain outfall, it may be necessary to design an outfall channel to carry discharge to Indian Road.

Scott Avenue Wash

1. Curb and gutter to increase conveyance to the wash

St. Louis Avenue

1. Storm drain to carry discharge to Sand Tank Wash

Joe Tram suggested using the existing evaporation pond as the storm drain outfall, which led to the suggestion that the evaporation pond be additionally used as a soccer field.

Carl told us that the water treatment plant was not operational and would be dismantled within the next three years, and he seemed excited about the idea of using the evaporation pond as a multi-use facility.

End of minutes.

If anyone has any corrections or additions to these minutes, please contact Lloyd Vick at EEC, 248-7702, by Nov. 1, 1999.

C: File
Mark Gavan
Jeff Holtzmeister
Geza Kmetty

Gila Bend ADMP
FCDMC No. 99-18
EEC No. 99541

Site Visit/Kick Off Meeting

Gila Bend City Hall
September 14, 1999

Meeting Minutes
by Lloyd Vick

Attendees	Mark Gavan	EEC	(602) 248-7702
	Lloyd Vick	EEC	"
	Tony Regis	Premier	(480) 829-6000
	Geza Kmetty	FCDMC	(602) 506-1501
	Carl Stefani	Gila Bend (Town Manager)	(520) 683-2255
	Gene Merritt	Gila Bend (Streets)	(520) 683-2255
	Woody Scoutin	G.B. City Engineer	(602) 993-5686

The meeting started with Mr. Stefani and Mr. Merritt listing the known drainage problems within the town core area.

South Gila Bend Area
- Ponding behind the levee in South Gila Bend
- The house, next to the canal, at the end of Cleveland Street is occasionally flooded
- There are several locations with inverted roads which pond runoff

Scott Avenue Wash
- 112 S. Scott Avenue, on the corner of Papago and Scott Ave. has experienced flooding
- The street crossings of Scott Ave. Wash are uncrossable when the wash is flowing

Harrington Avenue
- The intersection at Harrington and Hunt ponds up to 1 foot deep

St. Louis Avenue
- Sediment deposition in the intersection of St. Louis and Indian Road

Additional Concerns:

- The borrow pit south of I-8 adjacent to Martin Ave. ponds water.

- The wastewater treatment plant sits in the Gila River floodplain and flooded in 1993. It was rebuilt an additional 5 ft. higher.

- The 1961 flood of Sand Tank Wash overtopped the Bridge at Pima Street.

Mr. Stefani listed the following as additional resources:

- The old newspaper was the Gila Bend Herald
- The new newspaper is the Gila Bend Sun
- Jason Lipsey (602)381-1627 for the Paloma Irrigation District
- GIS Southwest for digital copies of utility maps, ect…
- Ernestine Marquez for the local Indian community (520) 683-6315

Proposed Development

- MCDOT is planning road improvements to Main Street from Barnes Street to Business Route I-8.
- Paloma Ranch is considering a RV Park in Section 35
- Palo Verde Heights Subdivision by Steve Bernard
- A new well and reservoir is planned to be developed south of town and connected with a new water line

Recreation Facilities
Mr. Stefani provided a map showing the cities local parks and recreation facilities. A new trail system is proposed.

Drainage Features
There are virtually no existing drainage features other than the washes and some storm drains in Pima Street.

Appendix B.4

GENERAL COPPRSPONDENCE

ARIZONA STATE BOARD ON GEOGRAPHIC AND HISTORIC NAMES

State Capitol
1938 Addition, Suite 200
1700 West Washington
Phoenix, Arizona 85007

Chair: Tim J. Norton
Phone: (602) 542-4035
Fax: (602) 542-4972
email: aznames@lib.az.us

December 26, 2001

Engineering and Environmental Consultants (EEC)
Maricopa County Flood Control District
3003 N. Central
Phoenix, Arizona 85012

Attention: Mark T. Gavan, P.E.

RE: Names for Washes Near Gila Bend

Dear Mr. Gavan:

The purpose of this letter is to inform you that the Board, at its July 11, 2001 meeting:

- Accepted the names *Citrus Valley Wash*. The name is official for use in all state documents and maps.
- Rejected the name *Cemetery Wash* because of the duplicate name policy. The Board invites Maricopa County Flood Control District to propose a new name for the wash.
- Rejected the name *Evans Wash* because the proposal does not meet the criteria for commemorative naming – the honoree must be deceased at least five years, and Mr. Evans is still living. The Board invites Maricopa County Flood Control District to propose a new name for the wash.
- Rejected the name *Hacker Wash* because the proposal does not meet the commemorative names policy - the honoree must be deceased at least five years and Mr. Hacker has only been deceased for two years. The Board invites Maricopa County Flood Control District to propose a new name for the wash.

At its October 30, 2001 meeting, the Board:

- Accepted the name *West Quilotosa Wash*. The name is official for use in all state documents and maps.

The proposals for *Citrus Valley Wash* and *West Quilotosa Wash* will be forwarded to the U. S. Board on Geographic Names for their decision at the federal level. If the names are approved, they will be official for use in all federal documents and maps. When the U.S. Board decides on these names, we will inform you. This action can take several months.

We await new name proposals for the three remaining unnamed washes. If you have any questions, please call.

Sincerely,

Tim J. Norton, Chairman

C: Lloyd A. Vick, E.I.T.

RECEIVED DEC 3 1 2001

RECEIVED JUL 1 9 2001

ARIZONA STATE BOARD ON GEOGRAPHIC AND HISTORIC NAMES

State Capitol
1938 Addition, Suite 200
1700 W. Washington
Phoenix, Arizona 85007

Chair: Tim J. Norton
Phone: (602) 542-4035
Fax: (602) 542-4972
email: aznames@dlapr.lib.az.us

July 17, 2001

Mr. Lloyd Vick, E.I.T.
Engineering and Environmental Consultants, Inc
3003 North Central
Phoenix, Arizona 85012

Dear Mr. Vick:

The purpose of this letter is to advise you of the status of the five (5) names for washes in the Gila River watershed area.

- *Cemetery Wash* - Rejected. The Board was concerned about a similar name in the Wickenburg area. During periods of heavy rainfall or runoff, the names and locations could be confusing for administration and rescue/safety operations. Both names would be in Maricopa County.

- *Citrus Valley Wash* - Approved.

- *Evans Wash* - Rejected. The Board policy on commemorative names states that the person must be deceased at least five (5) years before a commemorative proposal will be considered. In addition, the person being honored by the naming should have had either some direct and long-term association with the feature or have made a significant contribution to the area in which it is located.

- *Hacker Wash* - Rejected. Please refer to the policy enumerated for *Evans Wash*.

- *West Quilotosa Wash* - Deferred. The Board deferred action on this name pending research as the meaning of Quilotosa and a response from the U. S. Air Force. The Board wishes to contact the Native American communities as well as other cultural resources to determine the origin and meaning of the word prior to approving this proposal. We anticipate a decision will be reached at the October 2, 2001 meeting.

I'm sure you can appreciate the fact that the Board is charged with a very important function when it comes to names in this state. We do not want to be in a position of approving a name without conducting thorough research.

I would also like to point out that the Board has officially adopted the U. S. Board on Geographic Names Principles, Policies, and Procedures. These PPP's are the basis for the rejection of the two commemorative names proposals. For your information, I have included copies of the pertinent sections of the PPP's.

If you have any questions regarding the Board's actions, please call me. The next meeting of the Board will be October 2, 2001 in room 200 of the 1938 Capitol Addition.

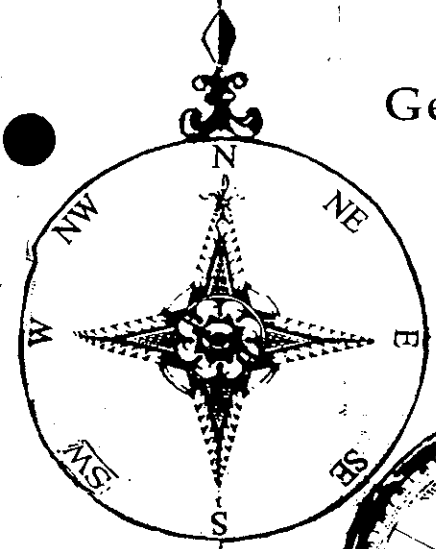
Sincerely,

Tim J. Norton
Chairman

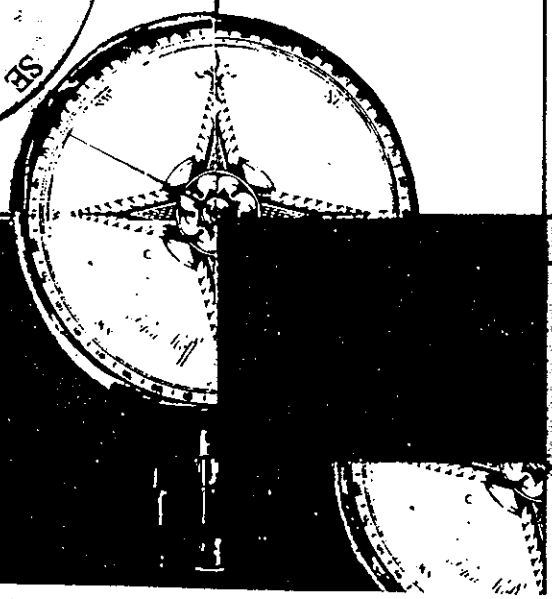
PRINCIPLES, POLICIES, AND PROCEDURES: Domestic Geographic Names

Followed by the

Arizona State Board on Geographic and Historic Names



U.S. Board on Geographic Names



1997

Chapter 3

DOMESTIC GEOGRAPHIC NAMES POLICIES

The U.S. Board on Geographic Names has formulated policies and procedures that deal with particular naming problems or issues. These policies have been developed over the past 100 years to encourage and permit uniformity and objectivity in the decision-making process and to assist in national standardization. While most proposed geographic name situations and conditions will be addressed by these policies, there may be certain instances in which other factors must be considered to arrive at a suitable decision.

POLICY I:

NAMES BEING CONSIDERED BY CONGRESS

Geographic names and their applications specifically established by an act of Congress are official by law, and therefore, take precedence over decisions of the Board. Occasionally, a name or name-change proposal submitted to the Board becomes at the same time a matter of proposed legislation before Congress. To prevent confusion by possible conflicting action by the bodies, the Board adheres to the following policy:

Policy

The U.S. Board on Geographic Names will not render a decision on a name or its application if the matter is also being considered by the Congress of the United States. If Congress does not act on the proposed legislation by the end of its second session, the Board will not act on the case for 90 days after the beginning of the next session of Congress. If Congress formally declines to act on proposed naming legislation, the Board will wait 90 days before deciding on the case, unless new legislation is introduced during that period.

Approved by:	Approved by:
Board on Geographic Names	Secretary of the Interior
March 12, 1981	April 20, 1981

POLICY II:

NAME CHANGES

Geographic names, as do other categories of proper names, perform an important reference or label function in language. Each name identifies a particular geographic feature, place, or area. This function requires a high degree of stability in the spoken and written forms of names and their applications. Consequently, changes in existing names should not be made without good reason. The U.S. Board on Geographic Names will consider every proposal involving a name change on an individual basis, and the merits of each case will be carefully evaluated.

Definition

"Name change" means formally changing the proper name of a place, feature, or area in the United States or its territories and

outlying areas presently recognized by the U.S. Board on Geographic Names as official for use on Federal maps and in other Federal publications. The Board recognizes three classes of name changes:

a. Those made to bring Federal official usage into agreement with well-established local usage.

b. Those made to eliminate particular name problems as in cases involving derogatory names, name duplication, and names originally authorized on the basis of incorrect information.

c. Those made at the request of persons or organizations, public or private, for commemorative or other reasons important to the proposer.

Policy sec. 1

General: The U.S. Board on Geographic Names does not encourage changes in official geographic names. It will not initiate changes in domestic geographic names except in rare cases such as those involving certain derogatory names and name duplications. All name change proposals are evaluated in cooperation with State geographic names authorities, Federal, State, and tribal agencies, local governments, other authoritative bodies, and the public.

sec. 2

Conforming to Local Usage: It is the policy of the Board to follow present-day local usage whenever possible. However, the Board will consider proposals to change official names that do not agree with well-established local usage or its applications. Considerations other than local usage may be overriding in certain individual cases. Factors such as Board policies, document usage, population density, and State, tribal and local governmental needs are always considered in Board decisions.

sec. 3

Derogatory Names: The Board has a firm policy prohibiting the inclusion of a word in an official geographic name considered by the Board to be derogatory to any racial, ethnic, gender, or religious group (see Policy V: Derogatory Names).

sec. 4

Duplicate Names: Common names are often applied over and over again in the naming process. Where duplication leads to confusion, the Board encourages requests to change names in order to eliminate duplication (see Policy VII: Name Duplication).

Approved by:	Approved by:
Board on Geographic Names	Secretary of the Interior
March 12, 1981	April 20, 1981

Policy sec. 1

Within wilderness areas, the U.S. Board on Geographic Names will not approve proposed names for unnamed features, names in local use but not published on a base series map, or unpublished administrative names used by administering agencies, unless an overriding need exists, such as for purposes of safety, education, or area administration.

sec. 2

Name proposals commemorating persons are discouraged and will not be considered unless the criteria in Section 1 and the Commemorative Names Policy are met (see Policy III).

sec. 3

All new name proposals involving wilderness areas must meet the same basic criteria required of any other name proposal. These criteria also apply to names in areas being considered for possible designation by Congress as wilderness areas.

Guidelines

The administering Federal agency will review new name proposals and advise the U.S. Board on Geographic Names of its findings relative to overriding need. Final approval or disapproval will be made by the Board.

Persons wishing to name an unnamed feature in a wilderness area should coordinate their proposal with the Federal agency responsible for the administration of the area.

Approved by:	Approved by:
Board on Geographic Names	Secretary of the Interior
April 16, 1985	June 21, 1985

POLICY V:

DEROGATORY NAMES

The guiding principle of the U.S. Board on Geographic Names for the names of places, features, and areas in the United States and its territories is to adopt for official Federal use the names found in present-day local usage. An exception to this principle occurs when a name is shown to be highly offensive or derogatory to a particular racial or ethnic group, gender, or religious group. In such instances, the Board does not approve use of the names for Federal maps, charts, and other publications.

The Board, however, is conservative in this matter and prefers to interfere as little as possible within the use of names in everyday language because attitudes and perceptions of words considered to be pejorative vary between individuals and can change connotation from one generation to another. Geographic names are part of the historical record of the United States, and that record may be either distorted or disrupted by the elimination of names associated with particular groups of Americans. Such unwarranted action by the Board could, in time, be a disservice to the people the process is meant to protect.

Policy

In the case of domestic geographic names, the U.S. Board on Geographic Names will not adopt a name for Federal usage that is determined by the Board to be derogatory to a particular racial or ethnic group, gender, or religious group.

Guidelines

Any individual or agency may request the Board to change a currently used name on grounds the name is derogatory or patently offensive.

Requests for name changes should be in the form of an application to the Board including reasons why the present name should not be used. The requester must offer an alternative name as part of the application following Board guidelines for submittal of name proposals.

Upon receipt of a request to change a derogatory name, the Board will investigate the background for the current name and will solicit from the appropriate State names authority that organization's views on the proposed change, including any alternatives.

In considering a change proposal, the Board will give careful consideration to all relevant factors, including the extent and distribution of usage, historical context, user perceptions and intent, and lexical meanings.

The Board will not adopt a name proposal that includes the word "Jap" or the word "Nigger" whether or not it is in current local usage and regardless of by whom proposed.

In the event of a name change, the prior form will appear in the permanent record as a variant.

Approved by:	Approved by:
Board on Geographic Names	Secretary of the Interior
June 23, 1983	July 28, 1983

POLICY VI:

USE OF DIACRITICAL MARKS

The U.S. Board on Geographic Names has not customarily recognized accent or other diacritical marks as part of the spelling of geographic names in the United States (see Principle I). Such marks are almost never used in English, but they constitute part of the spelling in many other languages, including Spanish and French from which numerous placenames in the United States are derived. Most geographic names adopted from non-English languages have

listing of such variant names in a tabular or dictionary format in order to convey special information such as pronunciation, name origin, or word meaning. A statement explaining the purpose of the table or dictionary and why the names listed vary from official names should be included.

An example of the use of variant names in this manner developed after a national system of scenic, historic, and recreation trails was authorized by Public Law 90-543 on October 2, 1968 (amended November 10, 1978). These national trails may coincide in part with trails having well-established names that differ from the official names fixed by legislation. When this occurs, and there is a need to retain the older established name for reference or identification, it is recommended that the older name be shown in parentheses after the official name. Example: "Pacific Crest National Scenic Trail (John Muir Trail)."

Possible reasons for use of variant names include:

a. To show an alternative name in current or recent local use.

b. To show a former name that has been changed.

c. To show a foreign name for a feature crossing an international boundary.

d. To show a local name that applies only to part of a feature.

Approved by: Board on Geographic Names February 9, 1984	Approved by: Secretary of the Interior March 23, 1984

POLICY IX:

LONG NAMES

Almost since its inception, the U.S. Board on Geographic Names has expressed a preference against long and clumsily constructed domestic geographic names. Although the Board does not specifically define what constitutes an unacceptably long name, if the length of a name is such that it is difficult or cumbersome to use in written or spoken form, then such a name generally will not be approved by the Board.

This statement deals with three specific categories of long names, as follows:

a. Legislated names for reservoirs, dams, and other features, assigned to commemorate some individual and typically using his/her full name. These are termed "legislated feature names." Examples include Richard B. Russell Dam and Lake (Georgia) and Bob Marshall Wilderness Area (Montana). If such names are assigned by an act of Congress, they are not subject to modification by the Board on Geographic Names.

b. Names adopted to commemorate an individual, using more than the surname so as to make the referent person unmistakable. These names are distinguishable from category "a" because their motive is to avoid

ambiguity. They are termed "full commemorative names." Examples include Walter E. Long Lake (Texas), Claude Birdseye Point (Arizona), and George R. Stewart Peak (California).

c. Names of stream forks or branches that might be regarded as incomplete without including the names of their main streams. These are termed "long stream names." Examples include East Fork North Fork North Fork American River and North Fork of Middle Fork American River.

Policy sec. 1

For names of domestic geographic features established by a legislative body other than Congress, the Board on Geographic Names will follow its general policy relative to the use of personal names. Under that policy, the full name of a person as the specific part of a geographic name normally is not approved.

sec. 2

This policy also applies to proposals to use an individual's full name to emphasize the commemorative intent of the name. Exceptions are occasionally made by the Board when a person's full name, or parts of a full name, are short and euphonious or where the surname used alone would be ambiguous.

sec. 3

Names of tributaries will be approved by the Board as official names without reference to their parent stream, provided they are unambiguous and meet the Board's other guidelines for approving a name. If a tributary name is deemed to be ambiguous without the name of its parent stream, the Board will consider (1) extending the name of the parent stream to the tributary or (2) requesting an alternative proposal. If neither of these alternatives is possible, the Board will consider including the name of the parent stream in the approved name of the tributary.

Guidelines

In reviewing legislated geographic feature names, the Board will consider adopting the full legislated name with selective underscoring to specify the surname portion (for example, John H. McClintick Dam).

Proposals for adoption of full commemorative names are considered individually as part of the overall review of the appropriateness of the names. If the full name is approved to avoid ambiguity, selective underscoring will not be adopted to permit use of the surname portion of the name alone.

If a stream name is approved that includes the name of the parent stream, only the full approved name may be used, not a shortened form that omits the parent stream name.

Approved by: Board on Geographic Names April 22, 1986	Approved by: Secretary of the Interior May 27, 1986

Chapter 4

PROCEDURES AND GUIDELINES

SUBMITTING NAME CORRECTIONS AND CHANGES

The National Geographic Names Database within the Geographic Names Information System (GNIS) contains the geographic names approved for use on Federal maps and charts and other publications. A correction or change to an official geographic name record in the database can be initiated by submitting the appropriate information to the Executive Secretary for Domestic Geographic Names, U.S. Board on Geographic Names. Such corrections or changes are generally based on discovered typographical errors or evidence that local or predominant published/legal usage is in conflict with the official record. Proposed changes must be submitted to the Board for review and approval before they can be used in Federal publications (see page 5).

The Board's procedure for reviewing name conflicts includes submitting the cases to local, Federal, and State agencies, and where the conflict relates to a major geographic feature, it also includes publicizing it in the news media. This procedure alerts the agencies and the general public to the problem and solicits their comments and recommendations. Where a name conflict is associated with a feature on an international boundary with Canada or Mexico, the review procedure includes contact with appropriate Canadian or Mexican names authorities for their comments.

In approving names for publication or official recognition, the key factor is to submit the requested correction or change to the Board well in advance of the publication date in order to allow adequate time for the correction or approval process. This leadtime can vary between 1 to 6 or more months depending on the nature of the submittal. Typographical corrections, for example, can be made by the Board's support staff in a few days while some controversial changes may take several months.

Upon request, in emergency cases, the Board and its staff will attempt to expedite the review and approval process. If, however, approval is not received before a publication deadline, the name or names involved should be used as indicated in the database or left off maps and charts.

SUBMITTING NONRECORDED NAMES

A nonrecorded name is one that is not currently in the Geographic Names Information System (GNIS). It is a name recently collected and represented as being in local usage or in established publication or legal use.

All such names are to be submitted to the Board on Geographic Names for review and approval before they may be used in Federal publications. These names generally will not be docketed and will be processed, approved, or rejected, in less than 30 calendar days. The person or agency submitting the names will be notified immediately of the actions taken.

PROCEDURE FOR SUBMITTING CORRECTIONS, CHANGES, AND NON-RECORDED NAMES

Proposals to change an official name, its spelling, or application can be made by submitting appropriate information to the Executive Secretary for Domestic Geographic Names, U.S. Board on Geographic Names. This can be done by letter, by using the standard Domestic Geographic Name Report (see Appendix C), or by established telecommunication or other procedures. All proposals should clearly identify the feature and include required evidence supporting the proposal. If the communication is by letter or report form, feature identification can be done by map annotation. Other procedures require identification by means of accurate geographical coordinates. The Board's decision may differ in name, choice, form, spelling, or application from that recommended by the proposing agency or individual. However, all Federal agencies are required to accept the Board's decision and to correct their maps and reports accordingly before publication, or, if already published, at the time the map or maps are next printed.

Nonrecorded names and obvious typographical errors may be submitted by telecommunication methods or by annotated map or maps. Here again, clear identification of the feature is important. The information submitted or annotated on a map should indicate the source of the name (e.g. "local usage--8 people"; "county highway map, 1994")or the nature of the typographical error. (See also page 6).

PROPOSING NAMES FOR UNNAMED DOMESTIC FEATURES

Although the principal guide for determining domestic standard names is present-day spoken and written local usage, the Board realizes that there are occasional needs for reference or commemorative purposes to name features that are presently unnamed. The U.S. Board on Geographic Names does not initiate naming of unnamed domestic features, but is authorized to consider proposals for new names for use with Federal maps and publications, and for other uses. Any person or organization, public or private, may submit a name proposal to the Board for consideration.

A new name will affect many people for a long time; thus it must be acceptable to local citizens, involved local, State, and Federal agencies, and other users. The Board's responsibility is to evaluate each name proposal as to appropriateness, acceptability, and need (relative to the feature, its location, and the user community) before it is adopted. This is done in cooperation with State geographic names authorities, Federal, State, and tribal agencies, local

to names considered obscene or blasphemous in a present-day cultural context.

Procedures for Proposing a Name for an Unnamed Feature

A proposed name for an unnamed feature must be approved by the U.S. Board on Geographic Names before it can be used on Federal maps or in other Federal publications. In each case a proposal (see Appendix C) must be submitted to the Board in writing along with the following information:

a. Full form of the geographic name being proposed.

b. Location and clear identification of the feature to be named.

c. Reason for naming the feature.

d. Origin or meaning of the proposed name.

e. Basis of knowledge that the feature is unnamed.

If the proposed name commemorates a person (persons), additional information is needed:

a. Full name of each person.

b. Birth and death dates of each person if known.

c. A short biography of the person to be honored indicating his or her association with the feature or area.

A map marked to show the exact delineation of the feature to be named is helpful. Preferably this should be a Federal, State, or county topographic map with appropriate grids and scales for measuring distances and determining precise locations.

Board review of a proposal will be expedited if the proposer furnishes some evidence of local support for a proposed name. Such evidence may be in the form of:

a. Letters from appropriate Federal, State, tribal, or local administrative authorities and State or tribal geographic names authorities.

b. Petitions for the name signed by local residents.

c. Newspaper clippings of articles and letters to the editor showing public awareness and endorsement of the proposed name.

Without such evidence of support, final action on a proposal may take 3 to 6 (or more) months because the Board works closely with State geographic names authorities or committees and with

interested Federal and State agencies and local citizens before deciding on a name. A name proposal for a feature on an international boundary may require additional time for processing because the Board will forward the proposal to the appropriate foreign names authority for its endorsement before taking any action.

Proposals or inquiries may be directed to:

Executive Secretary
Domestic Geographic Names Committee
U.S. Board on Geographic Names
c/o U.S. Geological Survey
523 National Center
Reston, VA 20192-0523
Tel: (703) 648-4544
Fax: (703) 648-4165

Approved by:
Board on Geographic Names
September 8, 1977

Approved by:
Secretary of the Interior
January 21, 1980

Proposals to make a name official for all Arizona state maps, records, documents and other publications, or inquiries, may be directed to:

Tim Norton, Chair
Arizona State Board on Geographic and Historic Names
1700 W. Washington, Suite 200
Phoenix, Arizona 85007
Tel: (602) 542-4035
Fax: (602) 542-4972
Email: aznames@dlapr.lib.az.us

Once a name is official in Arizona, the proposal will be forwarded to the Domestic Geographic Names Committee, U.S. Board on Geographic Names, for its consideration to make the name official for all federal maps, records, documents, and other publications.

The U.S. Board will not consider a name for federal use until the name has been considered by the Arizona Board for state use.

February 22, 2001

To: Arizona State Board on Geographic and Historic Names
State Capitol
1938 Addition, Suite 200
1700 West Washington
Phoenix, AZ 85007
Attn: Tim Norton

Greetings Tim,

My name is Lloyd Vick, I am currently involved in a floodplain delineation study contracted by the Flood Control District of Maricopa County. This packet contains the required forms and maps necessary for the consideration of naming previously unnamed washes in the area around the town of Gila Bend.

If you have any questions, once you have reviewed the packet, you can reach myself or Mark Gavan at (602) 248-7702. I would also appreciate if you would keep me informed as to the progress of this request.

Sincerely,

Lloyd A Vick

Lloyd Vick, E.I.T.
Engineering and Environmental Consultants, Inc.

. D[illegible]tment of the Interior
. Geological Survey

Domestic Geographic Name Report

Use this form to recommend a feature ne or to suggest a name change.

For features on Federal lands, coordinate uests with the agency (U.S. Forest rvice, National Park Service, Bureau of nd Management, etc.) for the adminis- tive area in which the feature is located.

3. On the reverse side of this form give information on the local usage and authority for recommended name.

4. For more information about the Geographic Names Information System or the National Gazetteer program, contact the U.S. Board on Geographic Names at 703-648-4544.

5. Return this form to:

Arizona State Board on Geographic and Historic Names
c/o Department of Library, Archives and Public Records
1700 West Washington, Room 200
Phoenix, Arizona 85007

ction requested:

- Proposed new name
- Application change
- Name change
- Other

Recommended name: I-8 Wash West

State: Arizona

County or equivalent: Maricopa

Administrative area:

fic area covered:

atit[illegible] 32 ° 56 ' 15 " (N)S Longitude: 112 ° 45 ' 47 " (W)E ☒ Mouth End Center

atitude: 32 ° 56 ' 06 " (N)S Longitude: 112 ° 46 ' 22 " (W)E ☒ Heading End

ection(s) _____ Township(s) _____ Range(s) _____ Meridian _____ Elevation _____ ft./m.

ype of feature (stream, mountain, populated place, etc.): Dry Wash

s the feature identified (including other names), in the Geographic Names Information System (GNIS)?
☐ yes ☒ no ☐ unknown If yes, please indicate how it is listed: _____

Description of feature (physical shape, length, width, direction of flow, etc.):

Length is approximately 0.7 miles. Flow is from west to east. Diverted flow from Sauceda Wash to West Quilotosa Wash along I-8.

Maps and other sources using recommended name (include scale and date)	Other name (variants)	Maps and other sources using other name or application (include scale and date)

Na[illegible] information such as origin, meaning of the recommended name, historical significance, biographical data (if commemorative), nature of usage or application, or any other pertinent information:

S. D[illegible]rtment of the Interior
.S. Geological Survey

Domestic Geographic Name Report

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3. On the reverse side of this form give information on the local usage and authority for recommended name.

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5. Return this form to:

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c/o Department of Library, Archives and Public Records
1700 West Washington, Room 200
Phoenix, Arizona 85007

Action requested:

- [x] Proposed new name
- [ ] Application change
- [ ] Name change
- [ ] Other

Recommended name: Citrus Valley Wash

State: Arizona

County or equivalent: Maricopa

Administrative area:

Specific area covered:

Latitude: 32 ° 59 ' 13 " N S Longitude: 112 ° 47 ' 25 " W E [x] Mouth End Center

Latitude: 32 ° 49 ' 40 " N S Longitude: 112 ° 45 ' 38 " W E [x] Heading End

Section(s) _____ Township(s) _____ Range(s) _____ Meridian _____ Elevation _____ ft./m.

Type of feature (stream, mountain, populated place, etc.): Dry Wash

Is the feature identified (including other names), in the Geographic Names Information System (GNIS)?
[ ] yes [x] no [ ] unknown If yes, please indicate how it is listed: _____

Description of feature (physical shape, length, width, direction of flow, etc.):

Tributary to the Gila River. Flows from south to north. Length is approximately 11 miles long.

Maps and other sources using recommended name (include scale and date)	Other name (variants)	Maps and other sources using other name or application (include scale and date)

N[illegible] information such as origin, meaning of the recommended name, historical significance, biographical data (if commemorative), nature of usage or application, or any other pertinent information:

S. Department of the Interior
S. Geological Survey

Domestic Geographic Name Report

Use this form to recommend a feature name or to suggest a name change.

For features on Federal lands, coordinate requests with the agency (U.S. Forest Service, National Park Service, Bureau of Land Management, etc.) for the administrative area in which the feature is located.

3. On the reverse side of this form give information on the local usage and authority for recommended name.

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c/o Department of Library, Archives and Public Records
1700 West Washington, Room 200
Phoenix, Arizona 85007

Action requested:

- Proposed new name
- Application change
- Name change
- Other

Recommended name: West Quilotosa Wash

State: Arizona

County or equivalent: Maricopa

Administrative area:

Specific area covered:

Latitude: 32 ° 56 ' 32 " (N) S Longitude: 112 ° 45 ' 29 " (W) E ☒ (Mouth) End Center

Latitude: 32 ° 48 ' 00 " (N) S Longitude: 112 ° 42 ' 09 " (W) E ☒ (Heading) End

Section(s) _____ Township(s) _____ Range(s) _____ Meridian _____ Elevation _____ ft./m.

Type of feature (stream, mountain, populated place, etc.): Dry Wash

Is the feature identified (including other names), in the Geographic Names Information System (GNIS)?
☐ yes ☒ no ☐ unknown If yes, please indicate how it is listed: _____

Description of feature (physical shape, length, width, direction of flow, etc.):

Flows south to north, located parallel and between Sauceda Wash on the west side and Quilotosa Wash on the east side. Rejoins Quilotosa Wash just north of I-8 highway. Approximately 10.5 miles long.

Maps and other sources using recommended name (include scale and date)	Other name (variants)	Maps and other sources using other name or application (include scale and date)

Name information such as origin, meaning of the recommended name, historical significance, biographical data (if commemorative), nature of usage or application, or any other pertinent information:

. De[illegible]ment of the Interior
. Geological Survey

Domestic Geographic Name Report

Use this form to recommend a feature ne or to suggest a name change.

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c/o Department of Library, Archives and Public Records
1700 West Washington, Room 200
Phoenix, Arizona 85007

:tion requested:

- Proposed new name
- Application change
- Name change
- Other

Recommended name: Cemetery Wash

State: Arizona

County or equivalent: Maricopa

Administrative area:

!lc area covered:

atitu[illegible] 32 ° 55 ' 53 " (N) S Longitude: 112 43 ' 38 " (W) E [X] Mouth End Center

atitude: 32 ° 51 ' 01 " (N) S Longitude: 112 ° 41 ' 42 " (W) E [X] Heading End

ection(s) _____ Township(s) _____ Range(s) _____ Meridian _____ Elevation _____ ft./m.

ype of feature (stream, mountain, populated place, etc.): Dry Wash

; the feature identified (including other names), in the Geographic Names Information System (GNIS)?
] yes [X] no [ ] unknown If yes, please indicate how it is listed: _____

)escription of feature (physical shape, length, width, direction of flow, etc.):

Flows from south to north. Length is approximately 6 miles long.

Maps and other sources using recommended name (include scale and date)	Other name (variants)	Maps and other sources using other name or application (include scale and date)

Na[illegible] information such as origin, meaning of the recommended name, historical significance, biographical data (if commemorative), nature of usage or application, or any other pertinent information:

. De ment of the Interior
. Geological Survey

Domestic Geographic Name Report

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For features on Federal lands, coordinate uests with the agency (U.S. Forest vice, National Park Service, Bureau of d Management, etc.) for the adminis- ive area in which the feature is located.

3. On the reverse side of this form give information on the local usage and authority for recommended name.

4. For more information about the Geographic Names Information System or the National Gazetteer program, contact the U.S. Board on Geographic Names at 703-648-4544.

5. Return this form to:

Arizona State Board on Geographic and Historic Names
c/o Department of Library, Archives and Public Records
1700 West Washington, Room 200
Phoenix, Arizona 85007

tion requested:

Proposed new name

Application change

Name change

Other

Recommended name: Evans Wash

State: Arizona

County or equivalent: Maricopa

Administrative area:

fic area covered:

atitu 32 ° 56 ' 36 " (N) S Longitude: 112 ° 44 ' 09 " (W) E ☒ (Mouth) End Center

atitude: 32 ° 49 ' 02 " (N) S Longitude: 112 ° 41 ' 10 " (W) E ☑ (Heading) End

ection(s) _____ Township(s) _____ Range(s) _____ Meridian _____ Elevation _____ ft./m.

ype of feature (stream, mountain, populated place, etc.): Dry Wash

; the feature identified (including other names), in the Geographic Names Information System (GNIS)?
☐ yes ☒ no ☐ unknown If yes, please indicate how it is listed: _____

escription of feature (physical shape, length, width, direction of flow, etc.):

Length is approximately 9 miles. Flows from south to north.

Maps and other sources using recommended name (include scale and date)	Other name (variants)	Maps and other sources using other name or application (include scale and date)

Na information such as origin, meaning of the recommended name, historical significance, biographical data (if commemorative), nature of usage or application, or any other pertinent information:

i. D ment of the Interior
i. Geological Survey

Domestic Geographic Name Report

Use this form to recommend a feature me or to suggest a name change.

For features on Federal lands, coordinate uests with the agency (U.S. Forest rvice, National Park Service, Bureau of nd Management, etc.) for the adminis- tive area in which the feature is located.

3. On the reverse side of this form give information on the local usage and authority for recommended name.

4. For more information about the Geographic Names Information System or the National Gazetteer program, contact the U.S. Board on Geographic Names at 703-648-4544.

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Arizona State Board on Geographic and Historic Names
c/o Department of Library, Archives and Public Records
1700 West Washington, Room 200
Phoenix, Arizona 85007

ction requested:

- Proposed new name
- Application change
- Name change
- Other

Recommended name: Hacker Wash

State: Arizona

County or equivalent: Maricopa

Administrative area:

fic area covered:

atitu 32 ° 56 ' 32 " (N) S Longitude: 112 ° 45 ' 23 " (W) E ☒ (Mouth) End Center

atitude: 32 ° 53 ' 33 " (N) S Longitude: 112 ° 43 ' 44 " (W) E ☒ (Heading) End

ection(s) _____ Township(s) _____ Range(s) _____ Meridian _____ Elevation _____ ft./m.

ype of feature (stream, mountain, populated place, etc.): Dry Wash

s the feature identified (including other names), in the Geographic Names Information System (GNIS)?
☐ yes ☒ no ☐ unknown If yes, please indicate how it is listed: _____

Description of feature (physical shape, length, width, direction of flow, etc.):

Flows from south to north, Length is approximately 5 miles long. Wash passes through a borrow pit just south of Gila Bend Canal where it joins with flow from Evans Wash.

Maps and other sources using recommended name (include scale and date)	Other name (variants)	Maps and other sources using other name or application (include scale and date)

Na information such as origin, meaning of the recommended name, historical significance, biographical data (if commemorative), nature of usage or application, or any other pertinent information:

S. Department of the Interior
S. Geological Survey

Domestic Geographic Name Report

Use this form to recommend a feature name or to suggest a name change.

For features on Federal lands, coordinate requests with the agency (U.S. Forest Service, National Park Service, Bureau of Land Management, etc.) for the administrative area in which the feature is located.

3. On the reverse side of this form give information on the local usage and authority for recommended name.

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5. Return this form to:

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c/o Department of Library, Archives and Public Records
1700 West Washington, Room 200
Phoenix, Arizona 85007

Action requested:

- Proposed new name
- Application change
- Name change
- Other

Recommended name: I-8 Wash' East

State: Arizona

County or equivalent: Maricopa

Administrative area:

Specific area covered:

Latitude: 32 ° 55 ' 53 " (N) S Longitude: 112 ° 43 ' 38 " (W) E ☒ (Mouth) End Center

Latitude: 32 ° 56 ' 07 " (N) S Longitude: 112 ° 42 ' 39 " (W) E ☒ (Heading) End

Section(s) _____ Township(s) _____ Range(s) _____ Meridian _____ Elevation _____ ft./m.

Type of feature (stream, mountain, populated place, etc.): Dry Wash

Is the feature identified (including other names), in the Geographic Names Information System (GNIS)?
☐ yes ☒ no ☐ unknown If yes, please indicate how it is listed: _____

Description of feature (physical shape, length, width, direction of flow, etc.):

Diversion from Scott Avenue Wash at I-8 is routed through borrow pit to confluence with cemetery and Evans washes. Flow is east to west. Length is 0.8 miles (approx)

Maps and other sources using recommended name (include scale and date)	Other name (variants)	Maps and other sources using other name or application (include scale and date)

Note information such as origin, meaning of the recommended name, historical significance, biographical data (if commemorative), nature of usage or application, or any other pertinent information:

. De ment of the Interior
. Geological Survey

Domestic Geographic Name Report

Use this form to recommend a feature me or to suggest a name change.

For features on Federal lands, coordinate uests with the agency (U.S. Forest rvice, National Park Service, Bureau of nd Management, etc.) for the adminis- tive area in which the feature is located.

3. On the reverse side of this form give information on the local usage and authority for recommended name.

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c/o Department of Library, Archives and Public Records
1700 West Washington, Room 200
Phoenix, Arizona 85007

ction requested:

- Proposed new name
- Application change
- Name change
- Other

Recommended name: Hacker Wash Diversion

State: Arizona

County or equivalent: Maricopa

Administrative area:

fic area covered:

atit 32 ° 56 ' 35 " (N) S Longitude: 112 ° 44 ' 25 " (W) E ☒ (Mouth) End Center

atitude: 32 ° 56 ' 24 " (N) S Longitude: 112 ° 44 ' 02 " (W) E ☒ (Heading) End

ection(s) _____ Township(s) _____ Range(s) _____ Meridian _____ Elevation _____ ft./m.

ype of feature (stream, mountain, populated place, etc.): Dry Wash

s the feature identified (including other names), in the Geographic Names Information System (GNIS)?
☐ yes ☒ no ☐ unknown If yes, please indicate how it is listed: _____

Description of feature (physical shape, length, width, direction of flow, etc.):

Diversion from Hacker Wash at I-8 follows this diversion wash until it reaches the traffic interchange where it passes under and rejoins Hacker Wash. Flow is from east to west. Length is approximately 0.5 miles.

Maps and other sources using recommended name (include scale and date)	Other name (variants)	Maps and other sources using other name or application (include scale and date)

Na information such as origin, meaning of the recommended name, historical significance, biographical data (if commemorative), nature of usage or application, or any other pertinent information:

.. Department of the Interior
.. Geological Survey

Domestic Geographic Name Report

Use this form to recommend a feature name or to suggest a name change.

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5. Return this form to:

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c/o Department of Library, Archives and Public Records
1700 West Washington, Room 200
Phoenix, Arizona 85007

Action requested:

- Proposed new name
- Application change
- Name change
- Other

Recommended name: Gila Bend Canal Wash

State: Arizona

County or equivalent: Maricopa

Administrative area:

Specific area covered:

Latitude: 32° 55' 59" (N) S Longitude: 112° 44' 00" (W) E ☒ (Mouth) End Center

Latitude: 32° 56' 24" (N) S Longitude: 112° 45' 05" (W) E ☒ (Heading) End

Section(s) _____ Township(s) _____ Range(s) _____ Meridian _____ Elevation _____ ft./m.

Type of feature (stream, mountain, populated place, etc.): Dry Wash

Is the feature identified (including other names), in the Geographic Names Information System (GNIS)?
☐ yes ☒ no ☐ unknown If yes, please indicate how it is listed: _____

Description of feature (physical shape, length, width, direction of flow, etc.):

Length is approximately 1.1 miles. Flow is from east to west. This is diverted flow from Hacker Wash at the Gila Bend Canal to the west to Quilotosa Wash.

Maps and other sources using recommended name (include scale and date)	Other name (variants)	Maps and other sources using other name or application (include scale and date)

Name information such as origin, meaning of the recommended name, historical significance, biographical data (if commemorative), nature of usage or application, or any other pertinent information:

Gila Bend ADMS/ADMP
FCDMC No. 99-18
EEC No. 99541

To: Geza Kmetty

From: Mark Gavan

Date: 12/14/2000

Subject: Response to review comments (dated 11/9/00) to the Draft Floodplain Delineation (Report date 9/27/00) for Gila Bend Area Drainage Master Plan.

This memo address the review comments made by Chris Perry on November 9, 2000 regarding the Draft Floodplain Delineation and accompanying report. The following review comments are followed by EEC and Premier's responses. All items that require attention will be reevaluated and included in the Technical Data Notebook. In some instances a response may only require a verbal description which will be documented herein.

Bender Wash Main

1) *Re check bank stations to ensure they represent actual conditions. Current locations appear too low in the cross sections along this and other reaches.*

Response: This item was resolved in the November 2nd meeting.

2) *At cross sections RS 3.216, 2.833, large percentage of LOB is marked as ineffective, but is not carried through to RS 2.720, why?*

Response: This item was resolved in the November 2nd meeting.

3) *There is no separate RAS model for "west" tributary, labeled 0.046 through 0.911. Pleas submit or explain the omission.*

Response: The west tributary actually is not a tributary, but a short offshoot of the main channel that splits out upstream of the study area. Therefore the full flow was modeled in the main wash at the upstream-most cross section, and allowed to slowly expand into the "west tributary" using ineffective flow encroachments as the flow continues downstream.

4) *For cross-section RS 3.661 through RS 2.553, the n-values are inconsistent with those determined in the n-value report update (May 5, 2000). For instance, the Bender Wash upstream reaches match the n-values of Reach D in the n-value report, which is actually the North Tributary of the current submittal.*

Response: Reach D in the n-value report actually does correspond to the Bender Wash Main Branch. Bender Wash North Tributary was added to the study *after* the n-value report submittal, so there has been no n value determined for that specific reach. As a temporary solution for the draft floodplain submittal, the same n values were used for the North Tributary reach as for the Main Branch, with the intent of verifying that assumption and possibly revising the North Tributary model.

5) *At RS 3.577 through 3.398, what is the need for the ROB ineffective areas?*

Response: Ineffective flow encroachments were used at these cross sections as a substitute for clipping the cross section off at the top of the right-most ridge line. I like to use this method during preliminary modeling just in case I want to use the blocked-out ground data again. Once the floodplain/floodway delineation is finalized, I will remove those ineffective flow encroachments and clip the cross sections at the top of the ridge line.

Sand Tank Wash

1) *AT RS 5.464, the ROB ineffective flows area should include the channel section from station 10300 to 10700 to be consistent with U/S and D/S sections.*

Response: At RS 5.464, the ROB ineffective flow encroachment station was selected to allow expansion of the floodplain from its relatively narrow width at RS 5.659 to its larger width at RS 5.464 and 5.370. Note that the ROB ineffective flow encroachments starting at RS 5.659 and ending at 5.464 move progressively outward as the right floodplain limit expands outward.

Scott Avenue Wash

1) *At RS 6.700, is the ineffective area in the LOB necessary?*

Response: This ineffective flow area was used for the same reason as explained in the response to comment (5) on Bender Wash main: it's a temporary method of "removing" the unneeded area at the end of the cross section. In the final submittal, I will clip off that area of the cross section altogether.

Unnamed Wash No. 4

1) *Check bank locations at the following cross-sections: RS 0.001, 0.106, 1.429, 1.529. Bank stations can be adjusted and n-values modified as necessary to ensure consistent bank stations between cross-sections.*

Response: Premier will review the bank locations and will revise as necessary.

2) *At RS 1.335, consider coding the LOB as ineffective, due to the shallow depth (less than 0.5 ft.).*

Response: Premier will evaluate.

Gila Bend Canal Wash

1) *Change title to "East of Quilotosa"*

Response: Will revise.

2) *At RS 1.359, the canal is not modeled in the cross-section*

Response: Will revise.

3) *In the HEC-2 analysis, the cross-section stationing doesn't match drawing.*

Response: Will revise.

4) *At RS 2.022 and 1.733, the north bank of canal is higher than the elevation (south bank) used for weir analysis. Why?*

Response: The south bank was used as the basis for overtopping, of the canal, as it is the initial restriction for side weir flow. The canal banks vary but are generally within 0.5 feet of one another. The cross sections in the model represent the flow path but is not a fair representation of what the side weir looks like.

I-8 West

1) *In the HEC-2 model, the WC elevations do not match bank elevations used in HEC-RAS model (about 0.5' difference). Please correct the models so that they are consistent.*

Response: Will evaluate and revise.

Unnamed Wash No. 1

1) *At RS 5.385 and 5.483, should Q input be 3207?*

Response: This item was resolved in the November 2nd meeting.

General

1) *Title records for all HEC-2 and HEC-RAS models should include: study name, contractor, source of hydrology, source of survey, contract number, and datum.*

Response: These items will be included in next submittal.

2) *Round discharge values to the nearest whole number from 10 to 1000 cfs, and to three significant figures above 1,000 cfs. For instance, 24,274 cfs and 1,348 cfs inputs should round to 24,300 cfs and 1,350 cfs.*

Response: Will revise values for reporting final flows, but for intermediate calculations the preferred method is to use unrounded values to avoid roundoff errors.

3) *Round n-values to the nearest 0.005 for values greater than 0.030.*

Response: Will revise.

If you have any additional comments please contact me at (602) 248-7702.

EEC.

Mark Gavan, P.E.
Project Manager

Job file

eec

civil engineering

transportation

ronmental services

water resources

land surveying

velopment

hydrology

dscape architecture

October 16, 2000

Mr. Shane D. Dille, Town Manager
Town of Gila Bend
644 W. Pima Street
Gila Bend, Arizona 85337

Re: Gila Bend Area Drainage Master Plan
FCD No. 99-18
EEC No. 99541

Dear Mr. Dille:

This letter is to inform you that many of the 100-year, flood flows that were identified with the previous hydrologic analysis will most likely change due flow diversions on Bender Wash and Sand Tank Wash; upstream of I-8. In addition, the Gila Bend Canal embankment was determined to be overtopped in more places than previously thought. These changes in the hydrologic condition were discovered with our detailed floodplain mapping and hydraulic modeling of the washes upstream of the freeway. The Flood Control District is currently reviewing the floodplain calculations and the revised peak flows, and therefore, the analysis is not final and should be considered as preliminary. However, we thought we would inform you so that you can advise the developer of Section 35. It's our understanding that they are in the process of developing plans for their development. This information will be important to them.

The results of our preliminary analysis indicate that the 100-year peak discharge on the wash that impacts Section 35 (crosses Pima Street just west of Gila Boulevard) has increased from 2,700 cfs to 8,700 cfs. This is a significant change that will affect the design of the development in Section 35.

Please feel free to call me if you have any questions. I will keep you informed of the District's review and final determination on the existing condition flood flows.

Sincerely,
EEC

Mark T Gavan, P.E.

c: Geza E. Kmetty, FCDMC

Engineering and Environmental Consultants, Inc.
3501 N. 16th Street • Phoenix, Arizona 85016
Phone: 602-248-7702 Fax: 602-248-7851

eec

civil engineering

transportation

ronmental services

water resources

land surveying

velopment

hydrology

dscape architecture

October 6, 2000

Mr. Geza Kmetty, P.E.
Project Manager
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399

Re: Gila Bend ADMP, Change Order No. 2
FCD No. 99-18
EEC Job No. 99541

Dear Geza:

In order to have enough time to incorporate flooding problems identified with the new detailed floodplain delineation work into the ADMP, we are requesting an increase in the contract time (please refer to attached justification). The original schedule for this project had the ADMP and floodplain delineation work on a parallel track. The detailed floodplain delineations, however, have identified additional flooding problems that need to be incorporated into the ADMP. This request is only for additional time. No increase in the contract amount is necessary.

PROPOSED TIME EXTENSION

We propose a time extension of 120 days in order to have adequate time to incorporate flooding problems identified with the floodplain delineation work. This time extension will move the completion date from December 6, 2000 to April 6, 2001. Please call me if you have any questions.

Sincerely,
EEC

Mark T. Gavan, P.E.
Project Manager

Engineering and Environmental Consultants, Inc.
3501 N. 16th Street • Phoenix, Arizona 85016
Phone: 602-248-7702 Fax: 602-248-7851

Gila Bend ADMP

Justification for Change Order No. 2 (request to revise the completion date from December 6, 2000 to April 6, 2001)

It's been discovered with our floodplain delineation work that there are a number of significant changes to the hydrology for the Gila Bend area. These changes have 1) increased the time required to analyze the floodplains and 2) caused significant impact to the drainage master plan. Consequently, we believe additional time is required to obtain concurrence on the revised hydrology and to incorporate the new hydrology into the recommended plan.

Our scope of work and schedule was based on the assumption that the hydrology is a given. We were tasked with reviewing the hydrology, which we did, but the necessary modifications could only be determined with the detailed hydraulic modeling. The 1992 hydrologic model had to be modified in order to 1) account for numerous additional split flows identified with the HEC-RAS floodplain modeling, and 2) account for changes in the storage routing behind the Gila Bend Canal identified with the new detailed mapping. The analysis of many of the detailed study reaches required an integrated, iterative approach of hydrologic and hydraulic modeling to determine the final peak discharges and corresponding floodplain boundaries.

These hydrologic modeling changes have considerable impact on the drainage master plan, most notably a major shift of flow into Quilotosa Wash from both Sand Tank Wash and Sauceda Wash. The peak discharge on Quilotosa Wash increased from 5500 cfs to 22,300 cfs; and there is a corresponding decrease in peak discharge on Sand Tank Wash from 18,100 cfs down to 12,400 cfs and on Sauceda Wash from 12,400 cfs down to 4700 cfs.

In order to have enough time to incorporate the new hydrology and associated flooding problems into the ADMP, we are requesting an increase in the contract time. The original schedule for this project had the ADMP and floodplain delineation work on a parallel track. Now that we know the hydrology is dependent on the floodplain mapping task, that schedule is no longer valid.

United States Department of the Interior
U.S. Fish and Wildlife Service
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021-4951
(602)640-2720 FAX (602)640-2730

In Reply Refer To:
AESO/SE
2-21-99-I-254

June 30, 1999

RECEIVED JUL - 1 1999

Mr. Michael Collins
Vice President, Environmental Services
EEC Civil Engineering & Environmental Services
3501 North 16th Street
Phoenix, Arizona 85016-6419

RE: Area Drainage Master Plan for Gila Bend

Dear Mr. Collins:

This letter responds to your June 17, 1999, request for an inventory of threatened or endangered species, or those that are proposed to be listed as such under the Endangered Species Act of 1973, as amended (Act), which may potentially occur in your project area (Maricopa County). The enclosed list may include candidate species as well. We hope the enclosed county list of species will be helpful. In future communications regarding this project, please refer to consultation number 2-21-99-I-254.

The enclosed list of the endangered, threatened, proposed, and candidate species includes all those potentially occurring anywhere in the county, or counties, where your project occurs. Please note that your project area may not necessarily include all or any of these species. The information provided includes general descriptions, habitat requirements, and other information for each species on the list. Also on the enclosed list is the Code of Federal Regulations (CFR) citation for each listed or proposed species. Additional information can be found in the CFR and is available at most public libraries. This information should assist you in determining which species may or may not occur within your project area. Site-specific surveys could also be helpful and may be needed to verify the presence or absence of a species or its habitat as required for the evaluation of proposed project-related impacts.

Endangered and threatened species are protected by Federal law and must be considered prior to project development. If the action agency determines that listed species or critical habitat may be adversely affected by a federally funded, permitted, or authorized activity, the action agency must request formal consultation with the Service. If the action agency determines that the planned action may jeopardize a proposed species or destroy or adversely modify proposed critical habitat, the action agency must enter into a section 7 conference with the Service. Candidate species are those which are being considered for addition to the list of threatened or endangered species. Candidate species are those for which there is sufficient information to

support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event that they become listed or proposed for listing prior to project completion.

If any proposed action occurs in or near areas with trees and shrubs growing along watercourses, known as riparian habitat, the Service recommends the protection of these areas. Riparian areas are critical to biological community diversity and provide linear corridors important to migratory species. In addition, if the project will result in the deposition of dredged or fill materials into waterways or excavation in waterways, we recommend you contact the Army Corps of Engineers which regulates these activities under Section 404 of the Clean Water Act.

The State of Arizona protects some plant and animal species not protected by Federal law. We recommend you contact the Arizona Game and Fish Department and the Arizona Department of Agriculture for State-listed or sensitive species in your project area.

The Service appreciates your efforts to identify and avoid impacts to listed and sensitive species in your project area. If we may be of further assistance, please feel free to contact Tom Gatz (x240).

Sincerely,

Jacqueline Hanson

for David L. Harlow
Field Supervisor

Enclosure

1) LISTED

TOTAL= 14

NAME: ARIZONA AGAVE *AGAVE ARIZONICA*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: No CFR: 49 FR 21055, 05-18-1984

DESCRIPTION: HAS ATTRACTIVE ROSETTES OF BRIGHT GREEN LEAVES WITH DARK MAHOGANY MARGINS. FLOWER: BORNE ON SUB-UMBELLATE INFLORESCENCES.

ELEVATION RANGE: 3000-6000 FT.

COUNTIES: GILA, YAVAPAI, MARICOPA

HABITAT: TRANSITION ZONE BETWEEN OAK-JUNIPER WOODLAND & MOUNTAIN MAHOGANY-OAK SCRUB

SCATTERED CLONES IN NEW RIVER MOUNTAINS AND SIERRA ANCHA. USUALLY FOUND ON STEEP, ROCKY SLOPES. POSSIBLY MAZATAL MOUNTAINS. SHOULD BE LOOKED FOR WHEREVER THE RANGES OF Agave toumeyana var. bella AND Agave chrystantha OVERLAP.

NAME: ARIZONA CLIFFROSE *PURSHIA SUBINTEGRA*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 49 FR 22326 5-29-84

DESCRIPTION: EVERGREEN SHRUB OF THE ROSE FAMILY (ROSEACEAE). BARK PALE SHREDDY. YOUNG TWIGS WITH DENSE HAIRS. LEAVES 1-5 LOBES AND EDGES CURL DOWNWARD (REVOLUTE). FLOWERS: 5 WHITE OR YELLOW PETALS <0.5 INCH LONG.

ELEVATION RANGE: <4000 FT.

COUNTIES: GRAHAM YAVAPAI MARICOPA MOHAVE

HABITAT: CHARACTERISTIC WHITE SOILS OF TERTIARY LIMESTONE LAKEBED DEPOSITS.

WHITE SOILS OF TERITIARY LIMESTONE LAKEBED DEPOSITS CAN BE SEEN FROM A DISTANCE.

NAME: ARIZONA HEDGEHOG CACTUS *ECHINOCEREUS TRIGLOCHIDIATUS ARIZONICUS*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: No CFR: 44 FR 61556,10-15-1979

DESCRIPTION: DARK GREEN CYLINDROID 2.5-12 INCHES TALL, 2-10 INCHES IN DIAMETER, SINGLE OR IN CLUSTERS. 1-3 GRAY OR PINKISH CENTRAL SPINES LARGEST DEFLEXED AND 5-11 SHORTER RADIAL SPINES. FLOWER: BRILLIANT RED, SIDE OF STEM IN APRIL- MAY

ELEVATION RANGE: 3700-5200 FT.

COUNTIES: MARICOPA, GILA, PINAL

HABITAT: ECOTONE BETWEEN INTERIOR CHAPPARAL AND MADREAN EVERGREEN WOODLAND

OPEN SLOPES, IN NARROW CRACKS BETWEEN BOULDERS, AND IN UNDERSTORY OF SHRUBS. THIS VARIETY IS BELIEVED TO INTERGRADE AT THE EDGES OF ITS DISTRIBUTION WITH VARIETIES MELANCANTHUS AND NEOMEXICANUS CAUSING SOME CONFUSION IN IDENTIFICATION.

NAME: **GILA TOPMINNOW** *POECILIOPSIS OCCIDENTALIS OCCIDENTALIS*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-1967

DESCRIPTION: SMALL (2 INCHES), GUPPY-LIKE, LIVE BEARING, LACKS DARK SPOTS ON ITS FINS. BREEDING MALES ARE JET BLACK WITH YELLOW FINS.

ELEVATION RANGE: <4500 FT.

COUNTIES: GILA, PINAL, GRAHAM, YAVAPAI, SANTA CRUZ, PIMA, MARICOPA, LA PAZ

HABITAT: SMALL STREAMS, SPRINGS, AND CIENEGAS VEGETATED SHALLOWS

SPECIES HISTORICALLY OCCURRED IN BACKWATERS OF LARGE RIVERS BUT IS CURRENTLY ISOLATED TO SMALL STREAMS AND SPRINGS

NAME: **RAZORBACK SUCKER** *XYRAUCHEN TEXANUS*

STATUS: ENDANGERED CRITICAL HAB Yes RECOVERY PLAN: Yes CFR: 55 FR 21154, 05-22-1990; 59 FR 13374, 03-21-1994

DESCRIPTION: LARGE (UP TO 3 FEET AND UP TO 16 POUNDS) LONG, HIGH SHARP-EDGED KEEL-LIKE HUMP BEHIND THE HEAD. HEAD FLATTENED ON TOP. OLIVE-BROWN ABOVE TO YELLOWISH BELOW.

ELEVATION RANGE: <6000 FT.

COUNTIES: GREENLEE, MOHAVE, PINAL, YAVAPAI, YUMA, LA PAZ, MARICOPA (REFUGIA), GILA, COCONINO, GRAHAM

HABITAT: RIVERINE & LACUSTRINE AREAS, GENERALLY NOT IN FAST MOVING WATER AND MAY USE BACKWATERS

SPECIES IS ALSO FOUND IN HORSESHOE RESERVOIR (MARICOPA COUNTY).CRITICAL HABITAT INCLUDES THE 100-YEAR FLOODPLAIN OF THE RIVER THROUGH GRAND CANYON FROM CONFLUENCE WITH PARIA RIVER TO HOOVER DAM; HOOVER DAM TO DAVIS DAM; PARKER DAM TO IMPERIAL DAM. ALSO GILA RIVER FROM AZ/NM BORDER TO COOLIDGE DAM; AND SALT RIVER FROM HWY 60/SR 77 BRIDGE TO ROOSEVELT DAM; VERDE RIVER FROM FS BOUNDARY TO HORSESHOE LAKE.

NAME: **AMERICAN PEREGRINE FALCON** *FALCO PEREGRINUS ANATUM*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 35 FR 16047, 10-13-70; 35 FR 8495, 06-02-70

DESCRIPTION: A RECLUSIVE, CROW-SIZED FALCON SLATY BLUE ABOVE WHITISH BELOW WITH FINE DARK BARRING. THE HEAD IS BLACK AND APPEARS TO BE MASKED OR HELMETED. WINGS LONG AND POINTED. LOUD WAILING CALLS ARE GIVEN DURING BREEDING PERIOD.

ELEVATION RANGE: 3500-9000 FT.

COUNTIES: MOHAVE COCONINO NAVAJO APACHE SANTA CRUZ MARICOPA COCHISE YAVAPAI GILA PINAL PIMA GREENLEE GRAHAM YUMA

HABITAT: CLIFFS AND STEEP TERRAIN USUALLY NEAR WATER OR WOODLANDS WITH ABUNDANT PREY

THIS IS A WIDE-RANGING MIGRATORY BIRD THAT USES A VARIETY OF HABITATS. BREEDING BIRDS ARE YEAR-ROUND RESIDENTS. OTHER BIRDS WINTER AND MIGRATE THROUGH ARIZONA. SPECIES IS ENDANGERED FROM REPRODUCTIVE FAILURE FROM PESTICIDES. SPECIES HAS BEEN PROPOSED FOR DELISTING (63 FR 45446) BUT STILL RECEIVES FULL PROTECTION UNDER ESA

LISTED, PROPOSED, AND CANDIDATE SPECIES FOR THE FOLLOWING COUNTY: MARICOPA

03/25/1999

NAME: **SOUTHWESTERN WILLOW FLYCATCHER** *EMPIDONAX TRAILLII EXTIMUS*

STATUS: ENDANGERED CRITICAL HAB Yes RECOVERY PLAN: No CFR: 60 FR 10694, 02-27-95

DESCRIPTION: SMALL PASSERINE (ABOUT 6") GRAYISH-GREEN BACK AND WINGS, WHITISH THROAT, LIGHT OLIVE-GRAY BREAST AND PALE YELLOWISH BELLY. TWO WINGBARS VISIBLE. EYE-RING FAINT OR ABSENT.

ELEVATION RANGE: <8500 FT.

COUNTIES: YAVAPAI, GILA, MARICOPA, MOHAVE, COCONINO, NAVAJO, APACHE, PINAL, LA PAZ, GREENLEE, GRAHAM, YUMA, PIMA, COCHISE, SANTA CRUZ

HABITAT: COTTONWOOD/WILLOW & TAMARISK VEGETATION COMMUNITIES ALONG RIVERS & STREAMS

MIGRATORY RIPARIAN OBLIGATE SPECIES THAT OCCUPIES BREEDING HABITAT FROM LATE APRIL TO SEPTEMBER. DISTRIBUTION WITHIN ITS RANGE IS RESTRICTED TO RIPARIAN CORRIDORS. DIFFICULT TO DISTINGUISH FROM OTHER MEMBERS OF THE EMPIDONAX COMPLEX BY SIGHT ALONE. TRAINING SEMINAR REQUIRED FOR THOSE CONDUCTING FLYCATCHER SURVEYS. CRITICAL HABITAT ON PORTIONS OF THE 100-YEAR FLOODPLAIN ON SAN PEDRO AND VERDE RIVERS; WET BEAVER AND WEST CLEAR CREEKS, INCLUDING TAVASCI MARSH AND ISTER FLAT; THE COLORADO RIVER, THE LITTLE COLORADO RIVER, AND THE WEST, EAST, AND SOUTH FORKS OF THE LITTLE COLORADO RIVER, REFERENCE 60 CFR:62 FR 39129, 7/22/97.

NAME: **YUMA CLAPPER RAIL** *RALLUS LONGIROSTRIS YUMANENSIS*

STATUS: ENDANGERED CRITICAL HAB No RECOVERY PLAN: Yes CFR: 32 FR 4001, 03-11-67; 48 FR 34182, 07-27-83

DESCRIPTION: WATER BIRD WITH LONG LEGS AND SHORT TAIL. LONG SLENDER DECURVED BILL. MOTTLED BROWN ON GRAY ON ITS RUMP. FLANKS AND UNDERSIDES ARE DARK GRAY WITH NARROW VERTICAL STRIPES PRODUCING A BARRING EFFECT.

ELEVATION RANGE: <4500 FT.

COUNTIES: YUMA, LA PAZ, MARICOPA, PINAL, MOHAVE

HABITAT: FRESH WATER AND BRACKISH MARSHES

SPECIES IS ASSOCIATED WITH DENSE EMERGENT RIPARIAN VEGETATION. REQUIRES WET SUBSTRATE (MUDFLAT, SANDBAR) WITH DENSE HERBACEOUS OR WOODY VEGETATION FOR NESTING AND FORAGING. CHANNELIZATION AND MARSH DEVELOPMENT ARE PRIMARY SOURCES OF HABITAT LOSS.

THE STATE OF ARIZONA

GAME & FISH DEPARTMENT

2221 West Greenway Road, Phoenix, Arizona 85023-4399 (602) 942-3000
www.gf.state.az.us

Governor
Jane Dee Hull

Commissioners:
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Dennis D. Manning, Alpine
Michael M. Golightly, Flagstaff
Joe Carter, Safford

Director
Duane L. Shroufe

Deputy Director
Steve K. Ferrell

Job file

June 29, 1999

Mr. Michael Collins
EEC
3501 North 16th Street
Phoenix, Arizona 85016-6419

RECEIVED JUL - 6 1999

Dear Mr. Collins:

Re: Special Status Species; Within Twenty Miles of Gila Bend, Arizona

Dear Mr. Collins:

The Arizona Game and Fish Department (Department) has reviewed your letter, dated June 17, 1999, regarding special status species in the above-referenced area, and the following information is provided.

The Department's Heritage Data Management System has been accessed and current records show that the special status species listed below have been documented as occurring within twenty miles of Gila Bend, Arizona.

COMMON NAME	SCIENTIFIC NAME	STATUS
California snakewood	*Colubrina californica*	S
Harris' hawk	*Parabuteo unicinctus*	S
Sonoran desert tortoise	*Gopherus agassizii*	WC,S
Western snowy plover	*Charadrius alexandrinus nivosus*	WC,S
Yuma clapper rail	*Rallus longirostris yumanensis*	LE,WC,S

STATUS DEFINITIONS

LE - **Listed Endangered.** Species identified by the U.S. Fish and Wildlife Service under the Endangered Species Act as being in imminent jeopardy of extinction.

WC - **Wildlife of Special Concern in Arizona.** Species whose occurrence in Arizona is or may be in jeopardy, or with known or perceived threats or population declines, as described by the Department's listing of **Wildlife of Special Concern in Arizona** (WSCA, in prep.). Species included in WSCA are currently the same as those in **Threatened Native Wildlife in Arizona** (1988).

S - **Sensitive.** Species classified as "**sensitive**" by the Regional Forester when occurring on lands managed by the U.S.D.A. Forest Service.

At this time, the Department's comments are limited to the special status species information provided above. This correspondence does not represent the Department's evaluation of impacts to wildlife or wildlife habitat associated with activities occurring in the subject area. If you have any questions regarding this letter, please contact me at (602) 789-3606.

Sincerely,

Nancy Olson

Nancy Olson
Project Evaluation Specialist
Habitat Branch

NLO:no

cc: Russ Engel, Habitat Program Manager, Region IV, Yuma

AGFD# 6-21-99(08)

FLOOD CONTROL DISTRICT
of
Maricopa County

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

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

March 9, 2000

RECEIVED MAR 9 2000

Mark Gavin, P.E.
EEC
3501 North 16th Street
Phoenix, AZ 85016

SUBJECT: Review comments on draft Manning's n-value report and proposed cross-sections for Gila Bend Area Drainage Master Plan

Dear Mr. Gavin:

Enclosed are my comments on the draft Manning's n-value report for the Gila Bend Area Drainage Master Plan, as well as comments by Russ Cruff and red-line comments on the proposed cross-sections.

Please call me at (602) 506-4001 if you have any questions regarding these comments.

Sincerely,

Chris Perry

Chris Perry, P.E.
Civil Engineer

General observations

Overall, the n-values presented seem low, tending to follow the minimum values for the range in each category. The overbanks, especially, need closer inspection since the lower depths of flow in these areas generally feel the effects of obstructions, vegetation, etc to a greater degree than in the main channel.

Unnamed Wash #1

1) Left and right overbanks (LOB and ROB) show grass / weed vegetation and a corresponding n3 of 0 -0.002 for category "small", which seems low. The main channel has less vegetation, but a higher n3 (0.004). What is the assumed depth of flow over the LOB and ROB? Does the depth of flow justify the use of category "small"?
2) On the rough sketch of each typical cross section, show the locations of LOB and ROB. Likewise, show bank locations on photographs. The location of bank stations may have significant impact on the proposed n-values. Reference the enclosed draft FCDMC report "Channel Subdivision and Bank Selection" by R. Cruff, 1999.

Sauceda Wash

3) Similar to Unnamed Wash #1, application of vegetation category "small" is inconsistent with visual evidence. For instance, reaches A and B use the same photograph for the main channel, but have n3 values of 0.008 and 0.005, respectively. Include different photographs as necessary and adjust or justify the n3 values. The LOB and ROB also have very similar vegetation between reaches, but different n3 values.

4) Consider adjusting the Degree of Irregularity factor within the main channel due to erosion of side slopes shown in the photographs (Reach C).

Quilotosa Wash

5) Inspection of vegetation factors for this wash show inconsistencies within the report. For similar channels, n3 ranges from 0 to 0.007. Vegetation factors should be checked and verified throughout the report.
6) Include a photograph of main channel.

Unnamed Wash #2

7) Verify the use of category "smooth" for Degree of Irregularity. From the photographs, the main channel appears to fall in the "minor" or "moderate" categories for Reach A.
8) Vegetation and Effects of Obstructions factors are low for Reach B, especially along LOB and ROB.

Unnamed Wash #3

9) Similarly, vegetation and Degree of Irregularity factors seem low.

Scott Ave Wash

10) Again, vegetation factor, n3, for Reach A is inconsistent with similar washes throughout the report.
11) Effects of Obstructions factor is low, based on visual evidence for Reaches B and C.

Sand Tank Wash

12) Vegetation factors for Reaches C and D seem high compared to rest of the report.

Gila Bend Area Drainage Master Plan
n-value estimation

Review by R.W. Cruff, P.E.
March 8, 2000

I believe that the form that they use in determining n-values's is misleading in the section for Channel Bed Material. It uses the same "Channel Material" descriptions as Table 1, of the report by Thomsen and Hjalmarson, which would be fine if they didn't mix the two sources cited in Table 1. If they want to use this table as a work document they either need to show the source of the values or only use the Benson – Dalrymple values. By using the Fine Gravel and Course Gravel numbers of Chow, they are showing ranges that are covered in the Benson – Dalrymple values for Gravel, but are lower.

If I were to make a table like theirs, I would leave out the Fine Gravel and Course Gravel lines with Chow's values, these are covered in the Gravel. I might add a line for Fine Sand with n = 0.023 – 0.026 from the bottom of Table 2, on page 8 of the Thomsen and Hjalmarson report.

I find it difficult to review "n" values without seeing plots of the cross sections showing the bank station locations. If the bank stations are located improperly, then the "n" values for the main channel may be in considerable error.

In general, I think that the n-values are low. They use minimum or near minimum bed values in most cases and very seldom use anything for irregularity, and the overbank vegetation values may be low. Need to remember that the overbank flow normally less depth, thus a greater affect from the vegetation, irregularities, and obstructions

The difference could be explained in the difference in water surface depth estimated when interpreting the photo's. If their values are used for the 100-year flow's, anyone using this model for lower flow conditions should be very cautious and maybe the model should contain a statement to that effect.

ENGINEERING AND ENVIRONMENTAL CONSULTANTS, INC.
3501 North 16th Street, Phoenix, Arizona 85016-6419
Telephone: (602) 248-7702 Facsimile: (602)248-7851

LETTER OF TRANSMITTAL

	Date:2/29/00 Job No.99541
To: Flood Control District of Maricopa County	Attention: Mr.Geza Kmetty
2801 West Durango	Re: **Gila Bend ADMP**
Phoenix, AZ 85009	Change Order Request
	N-Value Report
	Proposed HECRAS Cross Sections Locations

WE ARE SENDING YOU X ATTACHED ___ VIA_____

Original:	Copies	Date	Description
3		2/29/00	N-Value Report
1		2/29/00	Change Order Request for Additional Floodplains
1			Proposed HECRAS Cross Section Locations (2 maps)

REMARKS:

COPY TO File

SIGNED Mark Gavan

civil engineering

transportation

environmental services

water resources

land surveying

development

hydrology

landscape architecture

February 28, 2000

Mr. Geza Kmetty, P.E.
Project Manager
Flood Control District of Maricopa County
2801 West Durango Street
Phoenix, Arizona 85009-6399

Re: Gila Bend ADMP, Change Order No. 1
FCD No. 99-18
EEC Job No. 99541

Dear Geza:

With this letter we are requesting an increase in the fee for floodplain delineation work along with an increase in the contract time in order to allow enough time to complete the additional work. The additional work is for floodplain delineations that were not anticipated in the original scope of work.

SCOPE OF WORK for ADDITIONAL FLOODPLAINS

The existing scope of work includes approximately 18 stream miles of detailed floodplain delineations on 8 different washes. The eight washes include Sauceda Wash, Quilotosa Wash, Scott Avenue Wash, Sand Tank Wash, and Unnamed Washes #1, #2., #3 and #4. This request is to add floodplain/floodway delineations for the flow along I-8 and the Gila Bend Canal. It also includes two additional washes on the west side of the planning area. Refer to the proposed cross section map submitted with this change order request for the wash locations and proposed cross sections. The additional delineations include:

- **I-8**, Unnamed Wash #4 to Bender Wash (approx. 1.9 miles)
- **I-8**, Quilotosa Wash to Citrus Valley Wash (approx. 2.0 miles)
- **Gila Bend Canal**, Sauceda Wash to Citrus Valley Wash (approx. 1.9 miles)
- **Gila Bend Canal**, Sauceda Wash to SR85 (approx. 2.3 miles)
- **Unnamed Wash #5**, Gila Bend Canal to BMG Gunnery Range (approx. 1.2 miles)
- **Unnamed Wash #6**, Gila Bend Canal to BMG Gunnery Range (approx. 1.2 miles)

Total Stream Miles = 10.5

Engineering and Environmental Consultants, Inc.
3501 N. 16th Street • Phoenix, Arizona 85016
Phone: 602-248-7702 Fax: 602-248-7851

The methods used to conduct the floodplain delineation work will be in accordance with our contract and will follow the procedures set forth in the Consultant Guideline, Incorporated by Reference for Consultant Services, Flood Control District of Maricopa County, dated October 1, 1998.

PROPOSED FEE

Our proposed fee for this additional work is $47,416 (please refer to the attached project estimating sheet.

PROPOSED TIME EXTENSION

We propose a time extension of 70 days in order to have adequate time to complete the additional floodplain delineation work. This time extension will move the completion date from September 27, 2000 to December 6, 2000.

Please call me if you have any questions.

Sincerely,
EEC

Mark T. Gavan, P.E.
Project Manager

PROJECT ESTIMATING SHEET

Change Order No. 1

Type of Work and Task	Project Manager		Engineer Hydrologist		CADD Technician		Word Processor		Total Direct Labor Fees		Total Amount
	Hrs	96.86	Hrs	69.08	Hrs	56.13	Hrs	43.18	Hrs	Dollars	
1. Field Recon	8	774.88	48	3,315.84	0	-	0	-	56	4,090.72	4,090.72
2. N-Value/Recon Report	12	1,162.32	40	2,763.20	0	-	32	1,381.76	84	5,307.28	5,307.28
3. Floodplain Delineation	24	2,324.64	132	9,118.56	40	2,245.20	0	-	196	13,688.40	13,688.40
4. Floodway Delineation	20	1,937.20	120	8,289.60	0	-	0	-	140	10,226.80	10,226.80
5. Technical Data Notebook	24	2,324.64	48	3,315.84	120	6,735.60	40	1,727.20	232	14,103.28	14,103.28
Totals	**88**	**8,523.68**	**388**	**26,803.04**	**160**	**8,980.80**	**72**	**3,108.96**	**708**	**47,416.48**	**47,416.48**

eec

Jot you

civil engineering

transportation

nvironmental services

water resources

land surveying

development

hydrology

landscape architecture

January 25, 2000

Ms. Ernestine Marquez
San Lucy Village
Tohono O'odham Nation
P.O. Box GG
Gila Bend, Az. 85337

Re: Gila Bend Area Drainage Master Plan
FCD No. 99-18
EEC No. 99541

Dear Ms. Marquez:

Our firm is preparing the **Gila Bend Area Drainage Master Plan** for the Flood Control District of Maricopa County. The purpose of the project is to 1) identify existing drainage problems, 2) develop corrective measures to the problems, and 3) prepare an overall drainage plan for the area that will provide a planning tool to make sure that future growth won't adversely impact the existing drainage conditions. Attached to this letter is a map that shows the boundaries of the study area. You will notice that the San Lucy Village, as well as the sewage disposal ponds, is located within the study area.

Currently, we are identifying existing problems such as flooding along Scott Avenue Wash as it passes through Town. Some of this data comes from engineering analysis, but we also want to include flood problems identified by local residents. To this end, we would like to ask for your input on flooding problems, drainage concerns, and ideas concerning drainage issues. Specifically, we would like to know the following.

1. Does your community have any drainage problems that you would like us to address in the study?
2. Does your community have any plans for new development?
3. Do you have any drainage studies of your community that may be helpful to this study?

Engineering and Environmental Consultants, Inc.
3501 N. 16th Street • Phoenix, Arizona 85016
Phone: 602-248-7702 Fax: 602-248-7851

I can be reached at (602) 248-7702. Any help you could give us would be most appreciated.

Sincerely,
EEC

Mark T. Gavan, P.E.
Project Manager

c: Mr. Geza Kmetty
Flood Control District of Maricopa County

Job file

civil engineering

transportation

nvironmental services

water resources

land surveying

development

hydrology

landscape architecture

October 26, 1999

Mr. Frank R. Taylor
Cooper Aerial Surveys Co.
11402 North Cave Creek Road
Phoenix, Arizona 85020

Re: Gila Bend Area Drainage Master Plan
FCD No. 99-18
EEC No. 99541

Dear Frank:

Enclosed is a final list of our ground control points for the Gila Bend ADMP.

With our survey effort, we discovered that our horizontal datum is slightly different than the horizontal datum of the District's existing mapping. We compared our coordinates with the District's on two NGS points (point GIANT and point COY). Based on these two points, we have to add 2.17 feet to the Northing and add 1.30 feet to the Easting to convert the District's mapping to our coordinates. The main reason for the difference is that the District had used US Feet instead of International Feet to calculate English unit coordinates. It is supposed to be done using International Feet.

If you have any questions, please give me a call.

Sincerely,
EEC

Mark

Mark T. Gavan, P.E.
Project Manager

Engineering and Environmental Consultants, Inc.
3501 N. 16th Street • Phoenix, Arizona 85016
Phone: 602-248-7702 Fax: 602-248-7851

Project: Gila Bend Photo Control (994014)
Coordinate System: Arizona State Plane, Central Zone
Datum: NAD83 (Horizontal) NAVD88 (Vertical)
Coordinate Units: International Feet
Elevation Units: US Survey Feet

Printed: 7 Oct 99

Point	North	East	1988 Elev	1929 Elev	Diff.	Desc
1	707228.3270	444657.2770	724.6210	722.7380	1.8830	BASE
110	NA	NA	789.8000	787.8700	1.9300	R-1 GRID
111	NA	NA	735.9800	733.9600	2.0200	X-13 GRID
112	NA	NA	735.8300	733.8100	2.0200	B-361 GRID
201	704753.1730	434111.6540	737.2400	735.3900	1.8500	CEDA GRID
202	706739.3140	443994.6720	729.5900	727.7200	1.8700	TOSA GRID
203	705896.5120	452582.6800	753.7600	751.9100	1.8500	COY GRID
204	701406.9390	466416.7420	821.2000	819.2400	1.9600	GIANT GRID
901	704753.2050	434111.7100	737.2610	735.3680	1.8930	CEDA MEA
902	706739.3070	443994.6510	729.5740	727.6910	1.8830	TOSA MEA
903	705896.4770	452582.5770	753.6580	751.7520	1.9060	COY MEA
904	701406.9490	466416.8100	821.2100	819.2410	1.9690	GIANT MEA
910	696676.4710	448547.9180	789.8640	787.9380	1.9260	BM R-1 MEA
911	720775.6500	465317.3860	735.9820	733.9940	1.9880	BM X-13 MEA
912	725247.1220	468030.5890	735.8610	733.8470	2.0140	BM B-361 MEA & EEC ERM 4
951	704753.1980	434111.7090	737.2080		737.2080	901 CK 9/27
1001	707470.0450	427636.0520	716.5240	714.6380	1.8860	PP 1
1002	701996.1890	427441.2030	742.3990	740.5030	1.8960	PP 2
1003	696726.1690	427159.0950	758.4000	756.4970	1.9030	PP 3
1004	702072.1240	430812.4240	732.9940	731.0980	1.8960	PP 4

Point	North	East	1988 Elev	1929 Elev	Diff.	Desc
1005	707433.4020	434365.0450	732.4590	730.5730	1.8860	PP 5
1006	696836.5190	434356.7340	768.0550	766.1420	1.9130	PP 6
1007	707453.3240	437995.5210	716.6640	714.7810	1.8830	PP 7
1008	702087.3650	438079.9140	745.1870	743.2870	1.9000	PP 8
1009	696866.3520	437981.5370	772.7370	770.8210	1.9160	PP 9
1010	708353.2430	441506.7310	709.5450	707.6650	1.8800	PP 10
1011	696819.2900	441573.7280	776.3250	774.4060	1.9190	PP 11
1012	702009.5350	445191.3730	754.9750	753.0720	1.9030	PP 12
1013	725337.5560	446927.1400	634.7520	632.8030	1.9490	PP 13
1014	723206.3300	447102.0880	644.9550	643.0160	1.9390	PP 14
1015	717937.8800	447115.1370	660.9400	659.0240	1.9160	PP 15
1016	715525.0340	448092.1800	699.9550	698.0490	1.9060	PP 16
1017	712668.3230	447196.4140	702.5960	700.7060	1.8900	PP 17
1018	710988.8440	447812.3500	710.5360	708.6530	1.8830	PP 18
1019	709505.6840	447266.7410	720.3860	718.5030	1.8830	PP 19
1020	705063.8520	446782.3450	738.4700	736.5740	1.8960	PP 20
1021	702079.9140	446782.7570	755.1690	753.2630	1.9060	PP 21
1022	723366.6160	450261.9540	652.2520	650.3030	1.9490	PP 22
1023	718019.7870	449129.8410	666.8150	664.8960	1.9190	PP 23
1024	712702.5450	448964.4900	700.8900	698.9940	1.8960	PP 24
1025	709501.8670	449034.0020	717.4290	715.5430	1.8860	PP 25
1026	708447.8800	448539.1060	725.9780	724.0880	1.8900	PP 26
1027	701998.2660	449083.6340	759.0610	757.1520	1.9090	PP 27
1028	696744.1860	448521.5220	788.6840	786.7580	1.9260	PP 28
1029	712591.2800	451638.5430	717.8390	715.9360	1.9030	PP 29
1030	705597.0620	450914.5240	751.9310	750.0280	1.9030	PP 30
1031	730153.9200	453470.7940	651.6430	649.6520	1.9910	PP 31
1032	717836.5820	453080.4140	686.8420	684.9130	1.9290	PP 32
1033	708772.8600	452916.8000	739.2600	737.3600	1.9000	PP 33
1034	705709.6110	453073.2670	755.1590	753.2530	1.9060	PP 34
1035	702001.0760	452788.1780	763.7290	761.8100	1.9190	PP 35
1036	709029.1400	455164.2120	739.3400	737.4370	1.9030	PP 36
1037	702002.5160	454908.3050	774.3800	772.4570	1.9230	PP 37 SEC S1 NL IN PIPE
1038	696798.8540	454850.0700	797.3980	795.4620	1.9360	PP 38
1039	729486.6030	456836.3020	647.1780	645.1830	1.9950	PP 39
1040	723711.2170	457192.6150	662.4030	660.4340	1.9690	PP 40

Point	North	East	1988 Elev	1929 Elev	Diff.	Desc
1041	717928.7150	455890.8260	689.7210	687.7820	1.9390	PP 41
1042	712661.5000	457132.6320	723.4630	721.5470	1.9160	PP 42
1043	705426.6210	457107.4010	759.7050	757.7890	1.9160	PP 43
1044	723154.8560	459671.8850	677.0360	675.0610	1.9750	PP 44
1045	717963.9300	459733.5900	708.9550	707.0060	1.9490	PP 45
1046	712665.2850	459535.4470	733.7250	731.8020	1.9230	PP 46
1047	709623.3770	459134.7870	740.0120	738.0990	1.9130	PP 47
1048	705324.1530	459350.9030	762.9250	761.0020	1.9230	PP 48
1049	702020.8410	459367.5590	779.6110	777.6820	1.9290	PP 49
1050	720123.0470	461889.9330	709.9760	708.0070	1.9690	PP 50
1051	714952.8110	462392.3560	737.7100	735.7580	1.9520	PP 51
1052	709497.7400	461120.6000	756.4410	754.5180	1.9230	PP 52
1053	705345.1310	461464.5200	773.2550	771.3190	1.9360	PP 53
1054	729497.2740	463843.2330	674.7600	672.7460	2.0140	PP 54
1055	712847.0840	463291.3150	755.2540	753.3050	1.9490	PP 55
1056	701967.7280	463115.9040	796.5360	794.5840	1.9520	PP 56
1057	717724.1900	464744.5460	751.8560	749.8810	1.9750	PP 57
1058	712875.1110	464848.9010	765.1190	763.1600	1.9590	PP 58
1059	709709.4050	464851.3750	779.1420	777.1900	1.9520	PP 59
1060	705500.2990	464586.6060	793.4150	791.4600	1.9550	PP 60
1061	702065.7030	464757.4520	804.9310	802.9720	1.9590	PP 61
1062	729486.2550	466876.5300	705.9520	703.9310	2.0210	PP 62
1063	723398.0680	466985.9060	734.0510	732.0460	2.0050	PP 63
1064	717895.0510	467146.7320	752.0750	750.0870	1.9880	PP 64
1101	710657.8710	463572.1270	766.1240	764.1820	1.9420	EEC ERM 1
1106	710126.9640	460675.9520	782.6670	780.7480	1.9190	EEC ERM 6
1108	708144.5760	462331.4150	770.0380	768.1020	1.9360	EEC ERM 8

FAX MESSAGE

TOTALLY DIGITAL
COOPER AERIAL
MAPPING TECHNOLOGY
SINCE 1966

☐ 11402 N. Cave Creek Road
Phoenix, Arizona 85020
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1-800-229-2279

☐ 1692 W. Grant Road
Tucson, Arizona 85745
Phone: (520) 884-7580
Fax: (520) 623-7952
1-888-884-7580

Date: Feb. 11, 2000

From: Hans Channavej

To: EEC, Inc Attention: Mark Gavan

Fax Number: 602-248-7851

Total pages, including cover sheet: 2

PLEASE NOTIFY US AT ONCE IF ALL PAGES ARE NOT RECEIVED

Items discussed / comments or action required:

The enclosed cover letter is being sent to FCD-GIS as approved by you

-Hans

Signed:

If there is any discrepancy between the above statement and the conversant's interpretation of the conversation, please notify Cooper Aerial Surveys Co. immediately.

Cooper Aerial Surveys Co.

To,
Mark Brewer,
Database Administrator,
Flood Control District of Maricopa County,
2801 W Durango Street
Phoenix, AZ 85009

February 11th, 2000

Mr. Brewer,

Re: Gila Bend Flood Insurance Study GIS Submittal (FCD99_18) --Full submittal

Please find enclosed along with this submittal the aforementioned data.

You should receive one CD-ROM containing Arc Info GIS topo and survey coverages and info tables. Dtm data is also being delivered.

We have been given to understand by Mr. Mark Gavan with EEC that no CORNERS data was collected and consequently that you may not receive such information from this project. Furthermore, we are given to understand that FPCTLFCD data shall be delivered directly to the FCD on a later date by EEC and that Cooper Aerial Surveys Company shall not process this survey data into Arc Info GIS deliverables. It is further noted that some of the points in the 200 scale mapping were also used in the 400 scale mapping; hence in such cases the dataquality id has been assigned to first use of the corresponding mapping scale.

Please direct any questions you may have to our attention.

Thank you for your time and consideration.

Sincerely Yours,

Hans Channaraj

cc:
Geza Kmetty, Flood Control District
Mark Gavan, EEC, Inc

1402 N. Cave Creek Road Phoenix, AZ 85020
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Appendix B.5
CONTRACT DOCUMENTS

Job File 99541

FAX MESSAGE

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Date: Feb. 11, 2000

From: Hans Channavej

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Total pages, including cover sheet: 2

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Cooper Aerial Surveys Co.

To,
Mark Brewer,
Database Administrator,
Flood Control District of Maricopa County,
2801 W Durango Street
Phoenix, AZ 85009

February 11th, 2000

Mr. Brewer,

Re: Gila Bend Flood Insurance Study GIS Submittal (FCD99 18) --Full submittal

Please find enclosed along with this submittal the aforementioned data.

You should receive one CD-ROM containing Arc Info GIS topo and survey coverages and info tables. Dtm data is also being delivered.

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Sincerely Yours,

Hans Channaraj

cc:
Geza Kmetty, Flood Control District
Mark Gavan, EEC, Inc

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FAX MESSAGE

TOTALLY DIGITAL
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Date: 6. April. 2000

From: Hans Channaraj

To: E E C, Inc Attention: Mark Gavan

Fax Number: 248-7851

Total pages, including cover sheet: 2+1

PLEASE NOTIFY US AT ONCE IF ALL PAGES ARE NOT RECEIVED

Items discussed / comments or action required: GILA BEND ADMP

The media will be sent to the FCD later today

Signed: Hans

If there is any discrepancy between the above statement and the conversant's interpretation of the conversation, please notify Cooper Aerial Surveys Co. immediately.

99541

comments on Cooper GIS submittal

Gila Bend Area Drainage Master Plan FCD 99-18

2-29-2000

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

HIS, Revision 3.1, database review of the Gila Bend Area Drainage Master Plan FCD 99-18 Mapping GIS/HIS Arc/Info deliverables.
Reviewed by: Eric Feldman, GIS Programmer Analyst.

This memo is for the review of the GIS coverages supplied to the Flood Control District of Maricopa County. The PRJ_RID for this project is 1078.

The following coverages were reviewed as follows. Comments denoted as [ ] need to be addressed. Comments denoted as [x] passed the review. Comments denoted as [f] were corrected by FCD in order to be accepted. Please enclose a letter upon the next submittal stating what actions were taken for each comment, number by number, so that we know that the comment has been looked at and addressed. DO NOT resubmit approved coverages with the next submittal.

Some of the check items may fail due to any of the following errors:
1. The table is missing,
2. The item name and/or definition is incorrect or
3. No records in table.

So if a check item has an error and it appears to be fine, then look for any of the previous errors causing the problem. To avoid this situation, it is recommended that the District's automated review program be run before making a submittal. The program will point out these situations. The program is provided free of charge.

BRIDGE
1.[X] Coverage tentatively accepted pending hard copy maps & written report delivery.

CARTO
24.[ ] Some pseudo nodes can be removed. There will most likely be additional data entered into the CARTO coverage in the second part of this project so it may be wise to postpone delivery of the CARTO coverage until the true final delivery which will include hydrology.

?

CNL
1.[ ] No CNL coverage was delivered. This coverage needs to be delivered if there are canals in the project area.

?

CORNERS
1.[ ] No CORNERS coverage was delivered. This coverage needs to be delivered if there are section corners in the project area. This coverage may not be required.

No Corners

CTRL
1.[X] Coverage tentatively accepted pending hard copy maps & written report delivery.

EMF

CULVERT
1.[X] Coverage tentatively accepted pending hard copy maps & written report delivery.

DTM Data
1.[X] Data accepted.

ELV
1.[X] Coverage tentatively accepted pending hard copy maps & written report delivery.

LAKE
10 LAKES
1.[ ] No LAKE coverage was delivered. This coverage needs to be delivered if there are lakes in the project area. This coverage may not be required.

NDXPRJ
?
1.[ ] No NDXPRJ coverage was delivered. This coverage needs to be delivered.

PRJ
?
1.[ ] No PRJ coverage was delivered. This coverage needs to be delivered.

RIVER
11.[ ] Coverage has dangle errors that can be eliminated.

RR
16.[ ] Please verify and/or correct the following error(s) for item RR_NM:
Record(s) have no values/blank. Written verification is needed on true blank values.
Record(s) appear to be coded with wrong values.
18.[ ] When doing an unsplit rra//rr_nm versus unsplit none, there is a different amount of arcs left. Please verify and/or correct.
18.[ ] Some pseudo nodes can be removed.

STRCT
1.[X] Coverage tentatively accepted pending hard copy maps & written report delivery.

STRTDTL
17.[ ] Some pseudo nodes can be removed.

UTLTY
NOT REQUIRED
1.[ ] No UTLTY coverage was delivered. This coverage needs to be delivered if there are utilities in the project area. This coverage may not be required.

DQ.TBL
1.[X] Table tentatively accepted pending hard copy maps & written report delivery.

EMF

PRJDAT.TBL

1. **[X]** Table tentatively accepted pending hard copy maps & written report delivery.

These coverages and tables were delivered as a partial delivery of the mapping phase of this contract (section 5.3.1.1). There is a Hydrology and Hydraulics GIS/HIS portion of this contract that still pending in addition to the requirements established for the mapping component (section 5.3.1.2).

GEK
\\fcdedis\gis_usr\eric\gila_bend_fis_02_15_00
h:\hd\documents\Gila Bend ADMP #1

FAX MESSAGE

TOTALLY DIGITAL
COOPER AERIAL
MAPPING TECHNOLOGY
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Tucson, Arizona 85745
Phone: (520) 884-7580
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Date: 24. Apr. 2000

From: Hans Chunnaraj

To: EEC, Phx Attention: Mark Gavan

Fax Number: 248-7851

Total pages, including cover sheet: 2+1

PLEASE NOTIFY US AT ONCE IF ALL PAGES ARE NOT RECEIVED

Items discussed / comments or action required:

Gila Bend corrections as discussed by email on Friday

Signed: Hans

If there is any discrepancy between the above statement and the conversant's interpretation of the conversation, please notify Cooper Aerial Surveys Co. immediately.

7541

Cooper Aerial Surveys Co.

To,
Marta Dent,
GIS Supervisor,
Flood Control District of Maricopa County,
2801 W Durango Street
Phoenix, AZ 85009

April 6th, 2000

Dear Miss Dent,

Re: Gila Bend ADMP GIS Submittal (FCD99 18) --corrections

Please find enclosed along with this submittal the aforementioned data.

You should receive one CD-ROM containing Arc/Info GIS topo and survey coverages and info tables containing corrections from your first set of comments. Dtm data has already been accepted.

The following notes are in order:

General
We observe that in several of the comments generated by the diagnostics program supplied by the District, an error is flagged for failing to perform and unqualified "UNSPLIT" command on the arc feature type. However, we would like to indicate that an unqualified "UNSPLIT" may not be appropriate due to the fact that more than one mapping scale is involved in this particular project. An unqualified "UNSPLIT" would essentially arbitrarily assign data to fall into one or the other mapping scale region.

CARTO
We have addressed the issue raised on this coverage.

CNL
The canal data has been put into this coverage.

CORNERS
There are no corners related data for this project. You may wish to confer with Mr. Gavan regarding this issue.

LAKE
It is our understanding that there is no lake oriented data for this project.

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NDXPRJ
The data for this coverage shall be submitted by Mr. Gavan in the CADD format at a later date.

RIVER
We have attempted to correct the issues raised regarding this coverage; we believe that the dangles have been eleminated if not reduced very significantly.

RR
16. Cooper Aerial Surveys does not normally gather data for the fields relating to the names of the various railroads. Furthermore, no data was given to us to populate the names of the railroads.
17. We would like to say that an unqualified "unsplit" would not be representative of the conditions of the different scales used within the project.

STRTDTL
We have tried to address this issue as best as we can.

UTLTY
We have no utilities oriented data that would fit the "utilities" definition for this project

Hydraulics and Hydrology
Mr. Mark Gavan of EEC, Inc shall be providing all of the hydraulics and hydrology in the District's CADD format at a later time.

Please direct any questions you may have to our attention

Thank you for your time and consideration

Sincerely Yours,

Hans Channaraj

cc:
Geza Kmetty, Flood Control District
Mark Gavan, EEC, Inc

Job File 99541

Cooper Aerial Surveys Co.

To,
Marta Dent,
GIS Supervisor,
Flood Control District of Maricopa County,
2801 W Durango Street
Phoenix, AZ 85009

April 21st, 2000

Dear Miss Dent,

Re: Gila Bend ADMP GIS Submittal (FCD99 18) –FCD comments dated April 17, 2000

You should receive one Arc Info export format coverage "prj.e00" appended to this email communication. This pertains to the PRJ coverage corrections.

The following notes are in order:

General Comment
We observe that in several of the comments generated by the diagnostics program supplied by the District, an error is flagged for failing to perform and unqualified "UNSPLIT" command on the arc feature type. However, we would like to indicate that an unqualified "UNSPLIT" may not be appropriate due to the fact that more than one mapping scale is involved in this particular project. An unqualified "UNSPLIT" would essentially arbitrarily assign data to fall into one or the other mapping scale region.

CARTO
24. We are unable to find extraneous pseudo nodes that can be removed; "UNSPLIT <relate built using CARTO.AXP on CARTO_AID>//LAYER" on the CARTO coverage actually returned a zero value. Please see our "General Comment" section noted at the beginning of this communication.

RIVER
16. Cooper Aerial Surveys does not normally gather data for the fields relating to the names of the various rivers. Furthermore, no data was given to us to populate the names of the rivers.

18. From 16 above, there are no available river names. Please read our "General Comment" section noted at the beginning of this communication. The pseudo nodes present in this coverage are essential to maintain topology and/or to identify the mapping scales involved.

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1-888-884-7580

PRJ
We have made the necessary corrections and are supplying the corrected file as an exported format arc info file. This file is appended along with this email.

Hydraulics and Hydrology
Mr. Mark Gavan of EEC, Inc shall be providing all of the hydraulics and hydrology in the District's CADD format at a later time.

Please direct any questions you may have regarding the above to our attention.

Thank you for your time and consideration.

Sincerely Yours,

Hans Channaraj

cc:
Geza Kmetty, Flood Control District
Mark Gavan, EEC, Inc

EXHIBIT A

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

SCOPE OF WORK

Gila Bend Area Drainage Master Plan
FCD # 99-18

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1.0 GENERAL DESCRIPTION

1.1 PROJECT DESCRIPTION

1.1.1 This scope of work is to contract for professional engineering services necessary for developing an area drainage master plan (ADMP) to identify drainage problems and develop cost effective solutions for a storm water collection and disposal system. The scope of work will include public coordination, survey and mapping, hydraulics, identification of drainage problems, development of alternative solutions, and preparation of preliminary design plans based on a preferred alternative.

1.2 PURPOSE

1.2.1 The purpose of the Gila Bend ADMP is to quantify the extent of existing and future potential flooding problems in the Town of Gila Bend – Core Area and develop alternative solutions to reduce flooding. This effort is limited to the area bounded by Indian Road on the North, Stout Road on the East, ½ Mile South of South Main Street on the South and Gila Boulevard on the West. The ADMP will evaluate several sub-areas within the described area and develop a preferred solution. The ADMP effort will further identify flood damage reduction opportunities within the broader (approximately 60 Sq. Mi. area) planning perimeter of the Town area. Out fall alternatives will be identified where natural out falls do not exist. The plan will develop preliminary costs, alignments, right-of-way requirements and utility conflicts for the preferred alternatives. A master plan report, including proposed project list, with an implementation and funding plan and drainage plans review procedure guidelines will be prepared.

1.3 LOCATION

1.3.1 The total study area encompasses approximately 60 square miles bounded by the Gila River on the North, the Gila Bend Municipal Airport on the East, the Barry Goldwater Gunnery Range on the South, and Citrus Valley Road on the West.

1.3.1.1 The Gila Bend Core Study Area is the area bounded by Indian Road on the North, Stout Road on the East, ½ Mi. South of South Main Street on the South, and Gila Blvd. on the West. This area of approximately 3.5 square miles in the Town of Gila Bend is urbanized. The objective within the Town Core Area is to evaluate opportunities for structural or non-structural solutions, which can mitigate the impacts of local flooding.

1.3.1.2 The [illegible]ng Area Study is between the Barry Goldwater Gunnery range and the Gila River. This area of approximately 60 square miles is predominately within the Town of Gila Bend Annexation area and is characterized as an area with potential for future development. The major floodplains in this area have been delineated previously. The objective in this area is to extend the existing floodplain delineation to the south to the Gunnery Range Boundary, and evaluate alternative structural and/or non-structural solutions and to provide regional drainage plan and flood damage reduction within the area.

1.4 AGENCIES

1.4.1 The CONSULTANT shall coordinate with the Town of Gila Bend, the adjacent Indian Community, Paloma Ranches and all local utilities and irrigation companies.

1.5 CONTRACT TIME

1.5.1 The CONSULTANT shall complete the ADMP within the contract period of 400 (excluding FEMA approval) calendar days.

1.6 PROJECT REFERENCES

1.6.1 The DISTRICT will make available to the CONSULTANT the following project related references and information:
Gila Bend Area Contour Maps, Aerial Photos, Gila Bend Canal Floodplain Delineation Study, FIS Soil Maps and Sub-basin Maps.
Proposed Flood Control Project Maps for Sand Tank, Scott Avenue and Bender Washes FDS,
Gila Bend Area Floodplain Delineation Study (FDS)-Technical Data Notebooks, Gila Bend Canal FDS-Reports and Technical Documentation Notebooks.
Six (6) HEC-1 models for the Gila Bend FDS including the three main watersheds in the area: the Sand Tank/Bender Watershed, the Sauceda/Quilitosa Watershed, and the Unnamed Washes Watershed. For each of these watersheds there is a 100-year 24-hour and 6-hour HEC-1 model.
Eight (8) HEC-1 models for the Gila Bend Canal FDS: the Rainbow Wash, Paloma Wash, Getzweiler Wash and Butterfield Wash, with 100-year 24-hour and 6-hour HEC-1 models.

2.0 SPECIFIC TASKS

2.1 DATA COLLECTION & EXISTING CONDITIONS ANALYSIS

2.1.1 The CONSULTANT shall collect and review pertinent data from the DISTRICT and other outside sources. Data to be collected will include materials relevant to the project such as; existing topographic mapping; hydrologic and hydraulic models; as-built plans for existing structures; FEMA Flood Hazard Boundary Maps and any Letters of Map Amendment and/or Revisions, drainage reports, site plans and future drainage improvement plans and other pertinent information. Interviews should be arranged with appropriate agencies for information on drainage problems in the area. The CONSULTANT shall prepare a list summarizing the collected data.

2.1.2 The CONSULTANT shall develop a comprehensive list of known flooding problems and potential flooding areas. Development of this list will require coordination with the officials from each of the agencies, including the adjacent Indian Community, Irrigation Districts, Private Property Owners and other sources. This list will be used in identifying drainage alternatives.

2.1.3 The CONSULTANT shall prepare an inventory of drainage facilities that are being planned by other public jurisdictions, irrigation Districts or private development. These will be illustrated on the Existing Facilities Exhibit. If feasible these facilities may be incorporated into the stormwater management plan alternatives.

2.1.4 The CONSULTANT shall develop a comprehensive list of proposed developments planned within the study area.

2.1.5 The CONSULTANT shall prepare an Existing Facilities Exhibit illustrating the location of man-made drainage facilities in the watershed. The condition, capacity and ownership of man-made facilities will be noted. These facilities will become part of the base map for alternatives. The CONSULTANT shall make maximum use of these facilities, where feasible, as part of the stormwater management plan alternatives. The base map for the exhibit will be developed from contour mapping and digital aerial photography provided by the DISTRICT, with a newly developed color ortho-photo overlay. Base mapping will include land ownership, land use types, and soil types. The land ownership maps will indicate whether property is publicly or privately held and the owning agency. The CONSULTANT will use digital information provided by the DISTRICT to prepare base maps for reports.

2.1.6 The CONSULTANT shall collect and evaluate flooding damage information.

2.1.7 The CONSULTANT shall research, become familiar and give consideration to existing hydrologic studies and models, and assumptions made and will assess the reasonableness of the input data and results. The CONSULTANT shall bring any concerns or discrepancies concerning modeling to the attention of the DISTRICT.

2.1.8 The CONSULTANT shall develop sub-area hydrologic models for the **Town Core Area**, (Starting at the I-8 Interstate Highway structures) using 2, 5, 10 and 25-year frequency storms with existing and future conditions. The models are to be used for establishing base line conditions and to help verifying existing and to identify future flooding areas.

2.1.9 The CONSULTANT shall review and modify if necessary the existing hydrologic models for floodplain delineations of the larger **Planning Area** washes.

2.1.10 The CONSULTANT shall become familiar with existing and planned, local and regional recreational facilities and any local landscaping concepts as provided by involved jurisdictions.

2.2 LEVEL I ANALYSIS – ALTERNATIVES FORMATION/PRELIMINARY ANALYSIS

2.2.1 The CONSULTANT shall prepare two separate **"existing problems and constraints"** map of the Core Area and the Planning Area, for presentation to the Review Committee. The Review Committee shall be comprised of members of the DISTRICT, the Town of Gila Bend, and effected jurisdictions. The presentation shall identify existing flooding problem areas and the results from the hydrologic modeling of the areas. The CONSULTANT will provide several seed ideas for potential solutions for consideration by the Review Committee. A **brainstorming session** will be scheduled to provide input to both the problem and potential solutions. The Review Committee shall include **landscaping and recreation opportunities** into development of alternatives. The CONSULTANT shall assess all alternatives with soft engineering as the first choice and rigid structures as last resort. In addition, all alternatives should mimic the natural drainage corridors and minimize being located along section line roads and at right angles. Alternatives should have a 20% buffer allocated for landscaping and recreational use. Basins will be sized and designed to incorporate recreational amenities. Basins should be located off line to allow the passage of sediment and to minimize maintenance.

2.2.2 Based on the brainstorming session results, the CONSULTANT shall identify a minimum of three (3) possible project alternatives for the **outfall** of storm water from the study area either individually for each sub-area or for the entire **Town Core Area**, and three (3) possible flood reduction alternative for the **Planning Area**. The CONSULTANT shall conduct initial studies (Using existing mapping and the new hydrologic model for the Core Area, and the existing hydrologic model for the Planning Area) in order to obtain an optimum combination of **feasible** flood reduction facilities.

2.2.3 The CONSULTANT shall participate in a **Value Engineering (VE) Workshop**, for the purpose of evaluating the proposed alternatives and to **select the combination of alternatives to be studied further**. Those alternatives which can be initially eliminated with no or minimal analysis shall be identified and eliminated from further consideration. The DISTRICT, with recommendations from the VE workshop, and the Town of Gila Bend, will make the final selection of alternatives.

2.2.4 The CONSULTANT shall submit schematic drawings, narrative descriptions, and cost estimates of the potential alternatives for both the **Town Core** and the **Planning Area** for review (**Potential Alternatives Submittal**). The purpose is to review and approve the alternatives prior to proceeding with the analysis. The drawings shall be sufficient to describe and compare the project requirements and alignment of the alternatives. The narrative shall describe the alternatives and identify the advantages and disadvantages. The cost estimates shall be done to a conceptual level of effort for purposes of cost comparisons. The alternatives shall be based upon the available existing topographic mapping, and new supplemental field surveys and the new sub-area hydrology.

2.3 LEVEL II ANALYSIS - ALTERNATIVE ANALYSIS

2.3.1 The CONSULTANT shall evaluate the approved alternatives to determine the **engineering feasibility** and **approximate costs**. Conceptual design of the project features shall be limited to typical sizes and dimensions and shall be sufficient to determine the costs of major project components. Conceptual design for the **Town Core Area** flood reduction will be based on the **2, 5, 10 or 25-year,**

future conditions runoff. The **Planning Area** alternatives will be based on the revised existing Hydrologic models. The cost estimates shall include major construction items, rights-of-way, utility relocations, contingencies, and recreation and landscaping costs.

2.3.2 The CONSULTANT shall delineate the **Existing Flood Plains** for the major washes south of I-8, in the Planning Area, for the **100-year** present conditions, with new 1"=400". 4'C.I. mapping. The 100-year flood plain delineation shall include flood routing of the 100-year storm through the previously delineated areas north of I-8, and the Town Core Area, with the proposed flood reduction alternatives incorporated into the model.

2.3.3 The CONSULTANT shall participate with the Review Committee in an **Alternative Evaluation Workshop** that will develop weighted evaluation criteria elements for selection of the Preferred alternative. The alternatives will be evaluated by comparing each against the weighted evaluation criteria elements in an evaluation matrix. The highest numeric score will be selected as the preferred alternative. The Review Committee will have the responsibility to approve the final "preferred" alternative.

2.3.4 The CONSULTANT shall prepare an **Alternatives Analysis Report** presenting the alternatives and details of the evaluation process used to select the preferred alternative.

2.4 LEVEL III ANALYSIS - PREFERRED ALTERNATIVE ANALYSIS

2.4.1 The CONSULTANT shall **refine** the design and cost estimate for the **preferred alternatives** for the Core Area, the Planning Area and the preferred alternative for the out fall identified in the **Alternatives Analysis Report.**

2.4.2 The CONSULTANT shall prepare **Preliminary Design Plans** which will identify the approximate sizes, slopes, profiles, alignments, and plan and profile of proposed channels and pipes using the 1" = 400' scale, 2 or 4 foot contour mapping and the color ortho-photo, for channels, pipes, trunk mains, culverts, detention/retention basins, hydraulic grade lines, and typical cross sections. Preliminary landscaping, recreation and aesthetic features shall be included in the project drawings and cost estimates.

2.4.3 The CONSULTANT shall present the **Recommended Plan**, and the **implementation and funding** plan to the Review Committee. The Review Committee shall prioritize the features of the preferred alternative based on input from the project participants and the CONSULTANT.

2.5 MAINTENANCE PLAN

2.5.1 The CONSULTANT shall **estimate maintenance requirements and costs** for the preferred alternative on an annual basis. The life cycle to be used in calculations shall be 50 years. The DISTRICT will provide maintenance and cost data to the CONSULTANT.

2.6 IMPLEMENTATION PLAN

2.6.1 The CONSULTANT shall prepare an **implementation and funding plan** for the preferred alternative that shall document the available tools, procedures and potential funding sources for implementing the results of the Project. The CONSULTANT shall identify tools, such as existing ordinances and regulations, for each jurisdiction within the study area that may be modified or created to encourage development standards that are compatible with the Project.

2.7 CLOMR (OPTIONAL)

2.7.1 The CONSULTANT shall prepare a **Conditional Letter of Map Revision** (CLOMR) submittal in accordance with 44 CRF §65.8 Review of Proposed Projects and 44 CFR §65.6 Revision of Base Flood Elevation Determinations.

2.7.2 The CONSULTANT shall **delineate the revised flood plain** boundaries.

2.7.3 The CONSULTANT shall compile the submittal package and **complete the required FEMA forms** and the ADWR Technical Data Notebook (TDN) documentation. The Maintenance Plan prepared under Task 2.5 shall be included in the submittal package.

3.0 GENERAL TASKS

3.1 FIELD SURVEY AND MAPPING

3.1.1 The CONSULTANT shall Fly 1: 7200 black and white stereo photography of approximately 5 square miles for 1"=200' scale mapping with a 2' contour interval. Plus supply one complete set of contact prints in binder for your use. The area will be mapped as a DTM (Digital Terrain Model). The mapping will be delivered on CD-ROM in AutoCad 14 format. Fly two 1:20000 color center shots to produce 1"=200' scale color digital orthophotography of this area. These images will be scanned at 28 microns (approximately 900 dpi) and ortho-rectified to the DEM (Digital Elevation Model). Provide color glossy plots of these digital orthophotos. The CONSULTANT shall also Fly 1:12000 black and white stereo photography of approximately 17 square miles for 1'=400' scale mapping with a 4' contour interval. Plus supply one set of contact prints in binder for your use. This area will be mapped as a DTM. The mapping will delivered on CD-ROM in AutoCad 14 format. This item is broken down into two areas. The north area consisting of approximately 8 square miles and the southwest area consisting of approximately 9 square miles. Both the 1"=200' scale and the 1"=400' scale mapping data will be translated into Maricopa County Flood Control District's GIS Standards. The CONSULTANT shall create a DTM from existing mapping data and translate this into the Flood Control District's GIS standards. This data will be used to match to the new mapping as well as in the creation of the color digital orthophotography.

3.1.2 The CONSULTANT shall provide survey control for the aerial mapping in conformance with FEMA standards.

3.1.1 The CONSULTANT shall provide Elevation Reference Marks for the new areas to be mapped in accordance with FEMA standards.

3.1.2 The CONSULTANT shall field survey the top of canal banks, railroads and roadways in order to supplement the area to be mapped with 4' contour intervals (approx. 12 miles). The CONSULTANT shall also provide check profiles in accordance with FEMA standards.

3.1.3 (Allowance item) The CONSULTANT shall field survey structures, roadways, ditches, culverts, etc. where existing mapping or as-built plans do not provide adequate detail.

3.2 HYDRAULIC ANALYSIS

3.2.1 The CONSULTANT shall prepare **preliminary hydraulic calculations** for the alternative design structures to substantiate size and shapes of the facilities. The hydraulic analysis shall be completed in sufficient detail to document the hydraulic adequacy of the project and the anticipated sizes of project elements. The CONSULTANT shall complete hydraulic computations with plots of the hydraulic gradient consistent with the procedures as provided in the Drainage Design Manual for Maricopa County, Volume II Hydraulics, and the supplement to this scope of work.

3.2.2 The CONSULTANT shall prepare hydraulic calculations for the Floodplain Delineation of the Planning Area washes, in full compliance with FEMA , ADWR and FCDMC standards and procedures. Detailed floodplain and floodway delineations shall be done for approximately 18 stream miles south of I-8 and approximate floodplain delineations shall be done for approximately 15 stream miles north of I-8 (west of the Town Core).

3.3 HYDROLOGIC ANALYSIS

3.3.1 The Gila Bend Area FDS and Gila Bend Canal FDS HEC-1 models will be used to model the 100-year, 24-hour existing condition flows for the **Planning Area Study.** The HEC-1 models will be reviewed and updated as necessary to account for changes and to add concentration points as necessary.

3.3.2 The CONSULTANT shall develop new hydrology using the rational method to evaluate alternatives **for the Town Core Area Study** north of the Interstate 8 Freeway. This hydrology will be used to evaluate alternatives sized to convey the 2, 5, 10, or 25-year, 24-hour and 6-hour storms, for future conditions.

3.3.3 The CONSULTANT **will use and update** the hydrologic model following selection of the recommended alternative and test the effectiveness of the potential alternatives. The CONSULTANT will re-run the existing condition hydrology with the selected improvements. This condition will be analyzed for the 100-year, 24-hour event and the recommended design event. The recommended design event will be analyzed for the selected improvement, for a 24-hour existing condition event. The design event will be modeled using the 100-year model with the rainfall input date revised.

3.4 LAND OWNERSHIP, RIGHT-OF-WAY AND EASEMENTS

3.4.1 The CONSULTANT shall **review** parcel ownership maps and **identify** which properties will be affected by the preferred alternatives. The DISTRICT will provide digital copies of the land ownership information.

3.4.2 The CONSULTANT shall **identify** permanent and temporary **right-of-way and easement** requirements necessary for the preferred alternatives.

3.4.3 The CONSULTANT will **identify** any necessary **rights-of-entry** within the study area. The DISTRICT will obtain any necessary Rights of Entry for the study area and furnish the CONSULTANT with Right of Entry letters.

3.5 ENVIRONMENTAL PERMITS AND APPROVALS

3.5.1 The CONSULTANT shall be responsible for providing information to assist the DISTRICT in obtaining the required permits.

3.5.1.1 The District will be responsible for coordination with the US Army Corps of Engineers (ACOE) for processing documentation to obtain a permit application as required by Section 404 of the Clean Water Act (CWA) and with the Arizona Department of Environmental Quality (ADEQ) for water quality certification in accordance to Section 401 of the CWA. This is inclusive of pre-application meeting with the ACOE to determine the jurisdictional limits of "waters of the US" within the project area and reviewing design plans. The CONSULTANT will attend the pre-application meeting with the ACOE to identify ACOE preferred protocol for deliniating jurisdictional limits.

3.5.1.2 The District will provide aerial photographs with a minimum scale of 1 inch equals 100 feet to a maximum scale of 1 inch equals 400 feet, defining the ACOE's jurisdictional limits within the project boundary. The Consultant shall provide digitized drawings (i.e., AutoCAD, Arcview), using photo-identified references for horizontal control, and superimpose the limits on aerial photographs for submittal with the 404 application.

3.5.1.3 The Consultant shall provide the total surface area, in acres, of impact within the jurisdictional boundaries and shall provide an estimate of the volume of material to be excavated or filled within the ACOE's jurisdictional limits of the project area. The Consultant will provide an alternative analysis report, watershed studies and scour analysis (if available) focusing on practicable solutions and engineering design drawings including typical cross-sections and plan

views (8.5" x 11") to the District for submittal with 404 application package to the ACOE and other reviewing agencies (ADEQ). Where possible the Consultant shall modify designs to minimize the impact area within the jurisdictional limits, in order to qualify for a nationwide permit.

3.5.1.4 The Consultant shall provide additional analysis and cost estimates to assist the District in identifying modifications to the project which may reduce the impact to the jurisdictional limits, provide environmental enhancements, and serve to mitigate adverse project impacts.

3.5.1.5 The District will be responsible for compiling and submitting all Section 401 and 404 permit application documentation inclusive of agency concurrence letters (i.e., SHPO, Arizona Game and Fish) design drawings, alternative analysis, jurisdictional delineation, standard 404 and 401 application forms, aerial photographs and maps, and mailing lists for adjacent property owners.

3.6 CULTURAL RESOURCES ASSESSMENT

3.6.1 The CONSULTANT shall conduct an Archeological Assessment to identify previously documented surveys and historic properties for the area that will be impacted by the each of the proposed alternatives. The purpose of the assessment is to avoid impacting significant cultural resources. If avoidance is not practicable, the costs of additional archeological investigation and mitigation must be included in each of the project's alternatives cost estimate. This assessment includes but is not limited to literature research, an Arizona State Museum (ASM) site file check and State Historic Preservation Office (SHPO) records review to evaluate documentary records dealing with historic properties in the project area and region. The literature search shall obtain published information pertaining to the local environment and historic properties, conducted at other archives, government offices and repositories as appropriate.

3.6.2 The CONSULTANT shall prepare a report, documenting the results of the archival and literature search. The report shall describe the significance of any known-recorded sites and the potential impact of the preliminary project design and alternatives on the cultural sites. The report shall include recommendations for further study and associated costs, including intensive surveys, if required. The report will also include a composite study area map with the locations of any listed (or proposed for listing) cultural or historic properties in the project area. This map will be prepared electronically and a copy of the final map delivered to the District in conformance with approved GIS/HIS Standards in Section 5.3 of this document.

3.7 ENVIRONMENTAL REGULATORY RECORDS REVIEW

3.7.1 The CONSULTANT shall conduct a search of the federal and state environmental lists and databases located in the project area and their respective search radius (ASTM 1527 - 97) for each proposed alternative.

3.7.2 The CONSULTANT shall document the locations of the regulatory sites on the area map. Each type of regulatory site shall be depicted with different symbols to distinguish the types of sites. The CONSULTANT shall include a brief description of the regulatory sites which should include, if available, the boundaries and descriptive location of the site, the type of regulated substance or waste at the site, the extent of the contamination, the status of the site (i.e. closed or open status), remediation plans of the site, and the named potentially responsible party(s).

3.7.3 The CONSULTANT shall recommend alternatives locations and/or solutions to avoid costly remediation if any of the proposed alternatives appears to require land that is listed as a regulatory site or may be affected by a regulatory site.

3.8 ECOLOGICAL ASSESSMENT

3.8.1 The CONSULTANT shall identify any ecologically significant areas (i.e., areas with native or natural vegetation) within the study area. The consultant will further deliniate those areas that would be impacted as a result of each of the project's alternatives. The CONSULTANT shall document these areas in a report which must include a general description of the habitat type within the study area, the size and mapped location of the impacted areas, and a list of the significant flora and fauna in the area.

3.8.2 The CONSULTANT shall qualitatively estimate the mitigation expense for the impacted areas. These must be used in the alternative analysis.

3.8.3 The CONSULTANT shall contact the US Fish and Wildlife Service (USFWS) and the Arizona Game and Fish Department (AGFD) to obtain information regarding the presence of listed Threatened and Endangered Species in the project area. If Threatened or Endangered Species do exist in the project area, the CONSULTANT shall determine if the project and its' proposed alternatives may potentially impact these species or their habitat. This information must be used in evaluating the project's alternatives.

3.9 UTILITIES

3.9.1 The CONSULTANT shall identify major existing utilities for the alternatives. Utilities shall be identified within the project construction limits that may impact the project. The alignment of the utilities shall be shown on the project layout. Estimates of the cost to relocate or realign the utilities shall be included in the project cost estimates as a separate line item. The CONSULTANT shall contact each utility company that has facilities, known or suspected, within the project area, to request the alignment and size of the utility facilities. Record drawings shall be obtained to ascertain all underground utility locations. The vertical location of sanitary and storm sewers will be determined from field surveys as appropriate.

3.9.2 The CONSULTANT shall include existing utility locations on the alternative sketches and in profile on the Preliminary plan submittal.

3.10 SITE VISITS

3.10.1 The CONSULTANT shall make site visits as necessary to become familiar with existing conditions.

3.10.2 The CONSULTANT will make at least three site visits as follows:

3.10.2.1 The purpose of the first site visit is to orient the CONSULTANT and the DISTRICT with the project area, and to determine any initial conflicts or opportunities.

3.10.2.2 The second site visit will occur near the end of the Alternative Analysis.

3.10.2.3 The third site visit will occur during the Preferred Alternative Analysis and will serve to verify that the conditions have not significantly changed during the final stages of the project.

3.11 MEETINGS

3.11.1 The CONSULTANT shall meet with the jurisdictions, other affected agencies and utilities as required and shall generally be held at their offices. The DISTRICT shall be kept informed of all such meetings, and shall attend the meetings whenever possible as required. The DISTRICT shall be copied on all meeting minutes.

3.11.2 The CONSULTANT is responsible for the minutes of any meetings and shall include copies of minutes of meetings, telephone conversations, and correspondence to the DISTRICT in the Project Administrative Report..

3.11.3 The CONSULTANT shall participate in the following project meetings generally held at the CONSULTANT's office:

3.11.3.1 Kick Off Meeting - The CONSULTANT shall meet with the DISTRICT to submit the project schedule that shall include dates of all proposed submittals and review meetings, and to discuss the schedule and the tasks necessary to accomplish it. The CONSULTANT shall bring the key project team members, including the project checkers, to the meeting to introduce them to the DISTRICT staff who will be working on the project. The DISTRICT will give the aerial topographic mapping to the CONSULTANT at this time.

3.11.3.2 Data Collection Report Review Meeting - The CONSULTANT shall meet with the DISTRICT Project Manager to review the overall project status and to discuss the Data Collection Report review comments which will be provided to the CONSULTANT at the meeting. The CONSULTANT should be prepared to explain all information and any assumptions made up to this point. Any problems will be identified and discussed. The first Performance Evaluation shall be completed at this time.

3.11.3.3 Review Committee Meeting No. 1 – A brainstorming session with the Review Committee members to discuss existing flooding problems, existing studies and to identify potential solutions.

3.11.3.4 Review Committee Meeting No. 2 – A meeting with Review Committee members to evaluate the alternatives.

3.11.3.5 Landscaping and Aesthetics Committee Meeting No. 1 – A meeting with the DISTRICTS's Landscaping and Aesthetics Committee to review landscaping issues.

3.11.3.6 Alternatives Analysis Report Review Meeting - The CONSULTANT shall meet with the DISTRICT Project Manager to review the overall project status and to discuss the Alternatives Analysis Report review comments which will be provided to the CONSULTANT at the meeting. The CONSULTANT should be prepared to discuss alternative flood mitigation solutions and the preliminary cost estimates.

3.11.3.7 Review Committee Meeting No. 3 – A meeting with the Review Committee members to discuss implementation of the Recommended Plan and develop project priorities and phasing.

3.11.3.8 Landscaping and Aesthetics Committee Meeting No. 2 – A meeting with the DISTRICTS's Landscaping and Aesthetics Committee to review landscaping issues.

3.11.3.9 Recommended Design Report and Preliminary Plans Submittal Meeting - The CONSULTANT shall meet with the DISTRICT Project Manager to review the overall project status and to discuss the Recommended Design Report review comments and the Preliminary plans review comments which will be provided to the CONSULTANT at the meeting. The CONSULTANT will be prepared to explain all assumptions and calculations completed up to this point. Any problems will be identified and corrective actions agreed upon at this meeting. The CONSULTANT will make any necessary corrections and provide written responses to all comment and will resubmit the Recommended Design Report Preferred Alternative and Preliminary plans as required to the satisfaction of the DISTRICT.

3.11.3.10 Final (100%) Submittal Meeting - The CONSULTANT shall meet with the DISTRICT Project Manager to make the final submittal of the hydrology and hydraulic analyses, the alternative flood mitigation solutions, the cost estimates, and the final recommended solution as revised per the Recommended Design Report review comments. The CONSULTANT shall supply the hydraulic data and plans on 3.5" or CD diskettes. The plans should be in AutoCAD version 12 format. A Final Performance Evaluation will be completed at this time.

3.12 PUBLIC INVOLVEMENT

3.12.1 The CONSULTANT will plan and conduct three open houses in conjunction with this study.

3.12.1.1 The first meeting will be to inform the public of the purpose and scope of the study and to receive comments and concerns. The second meeting will be to present project alternatives to be studied and receive public comments. The purpose of the meeting shall be to request public input regarding the alternatives, their preferences, and any recommendations they may have for other alternatives that need to be evaluated. The third meeting will be to inform the public and obtain public comment on the study results. The purpose of the meeting is to present the results of the alternative analysis and the recommended alternative.

3.12.1.2 The CONSULTANT shall be responsible for the preparation of handouts and display boards. Typical handouts are a fact sheet explaining the purpose of the study, how it is conducted, a description of the study area, and a study map.

3.12.1.3 The CONSULTANT shall chair the meetings. The CONSULTANT shall participate in the presentation, and respond to questions as required by making formal presentations or by written document addressing the issue.

3.12.1.4 The CONSULTANT shall provide required refreshments.

3.12.1.5 The CONSULTANT shall be responsible for preparation of minutes of the public meetings, including concerns raised by the public.

3.12.1.6 The CONSULTANT will be responsible for the preparation of all the graphic displays for public meetings and public agency board meetings. The CONSULTANT will provide, in digital and printed format, an exhibit (8 1/2 inch X 11 inch) showing the general project features or project impact area suitable for reproduction or publication.

3.12.2 The CONSULTANT shall participate with the DISTRICT in Town Council Workshop meetings with the Town of Gila Bend during the data collection effort in presenting the study effort purpose and scope. A second series of Council meetings will follow the Alternative Analysis effort

3.12.3 The CONSULTANT shall participate in two information presentations with the Gila River Indian Community.

3.12.4 The DISTRICT will provide notification and placement of the legal advertising, notifying the public of the study. The advertisement will be run in a widely circulated newspaper twice, with approximately one week between runs. The advertisement must also run twice in a local newspaper that serves the area being studied.

3.12.4.1 The DISTRICT will prepare the news release announcing the public meeting for distribution to local media which explains the study and its purpose and informs them of the meeting date, time, and location, along with a phone number to call for additional information.

3.12.4.2 The DISTRICT will select and make arrangements for the location of the meetings.

3.13 LANDSCAPE GUIDELINES

The CONSULTANT shall conduct a landscape character analysis and provide landscape guidelines to aid the Town with planning, design, and implementation of landscaping and aesthetic treatments within Flood Control boundaries.

3.13.1 The CONSULTANT shall be responsible for RESEARCH AND DATA COLLECTION of material and information related to defining the landscape character and establishing landscape

guidelines. This information may include but is not limited to:

Geographic location
Climatic conditions
Land use
General local soil properties
Water sources and water condition
Vegetative communities and patterns
Topography
Fabric of architectural styles
Safety and vandalism concerns
Maintenance jurisdiction and expected level of maintenance
History, customs, and attitudes that contribute to the towns image
Town perceptions, needs and desires

3.13.2 The CONSULTANT shall be responsible for conducting a CHARACTER ANALYSIS using the objective information gathered from the research and data collection. The character analysis shall be used to develop a landscape theme. There may be a single theme or multiple themes depending on the analysis of the research information.

3.13.3 The CONSULTANT shall be responsible for providing LANDSCAPE GUIDELINES as an inclusive part of this ADMP, and as a separate document that can be developed by the Town into handout pamphlet. The character analysis and theme shall be used in the development of the landscape guidelines. The guidelines shall be submitted to the District for review in draft form. Upon receipt of review comments, the CONSULTANT shall incorporate the revisions and complete the guidelines. The landscape guidelines shall include but not limited to:

Plant pallets
Irrigation alternatives
Inert ground coverings
Grading for aesthetics
Aesthetic treatments of flood control structures
ADA considerations
Graphic illustration and general guidance for landscape implementation

4.0 PROJECT ADMINISTRATION

4.1 SCHEDULE

4.1.1 The CONSULTANT shall submit within 14 days of Notice To Proceed (NTP) a project schedule to the DISTRICT showing coordination meetings, dates of all proposed submittals for each of the tasks in the scope and significant project milestones. The CONSULTANT will update this project schedule when appropriate. The project schedule outline will be consistent with the numbering and tasks defined in this scope of work and the fee proposal.

4.1.2 The CONSULTANT shall develop the project schedule in a computerized format that contains the anticipated beginning and end dates for the tasks identified, the time duration of each task, a bar chart (Gantt Chart) showing the tasks and the overall duration of the project. The schedule will be submitted in MS Project 4.0 format and in both printed and digital format, and updated as required to reflect significant changes in schedule. The CONSULTANT shall schedule the project for completion of the work within the contract time unless the DISTRICT accepts an extension. The schedule shall include a minimum of the major project milestones, project meetings, and submittal of deliverables. The CONSULTANT shall allow for a 3-week review period (unless otherwise indicated by the DISTRICT) for review and comment by the DISTRICT and other involved parties, for each report and data submittal in the schedule.

4.2 INVOICES

4.2.1 The CONSULTANT will submit a monthly estimation of the projected billing within 14 days of Notice to Proceed. Thereafter, this estimation will be updated and submitted to the DISTRICT at least 10 days prior to the end of each quarter. The projected billing will be consistent with the tasking of the scope of work, the project schedule and the fee proposal.

4.2.2 The CONSULTANT will submit monthly invoices which reflects work accomplished during the invoice period. The DISTRICT will provide a general format for invoices. The invoices will be consistent with the tasking of the scope of work, project schedule, fee proposal and projected billing. The CONSULTANT shall submit invoices to Accounts Payable, Flood Control DISTRICT of Maricopa County, 2801 West Durango, Phoenix, Arizona, 85009. A copy of the invoice will be forwarded to the DISTRICT's project manager.

4.3 PROJECT MANAGEMENT

4.3.1 The CONSULTANT shall appoint a Project Manager who shall be knowledgeable of the progress of each phase of the project. The Project Manager shall be the same person listed in the CONSULTANT's Technical Proposal unless otherwise approved by the DISTRICT. The Project Manager shall be the point of contact for the DISTRICT. The CONSULTANT's Project Manager shall attend all meetings as required by the DISTRICT. The CONSULTANT's Project Manager shall keep the DISTRICT informed of all coordination with outside agencies and other affected parties. The DISTRICT may terminate this agreement if the Project Manager is not available or if the CONSULTANT is unable to provide a replacement Project Manager acceptable to the DISTRICT. The DISTRICT may request replacement of the Project Manager if the DISTRICT determines that this would be in the best interest of the project.

4.3.2 The CONSULTANT's Project Manager shall submit to the DISTRICT a Project Status Update on the first of each month activities for the same time period as included in the monthly invoices. The report shall be brief and should be no longer than two typed pages. The update shall provide at a minimum the following:

4.3.2.1 The status of the project to date.

4.3.2.2 Project accomplishments with a description of the work accomplished by task during the reporting month, percent (%) completed for the month and percent (%) cumulative completed for each task. The tasks shall be the same as the tasks contained in the project cost proposal.

4.3.2.3 Problems and resolutions identified since the last report.

4.3.2.4 Tasks to be accomplished before the next report.

4.3.2.5 A description of any outstanding issues requiring resolution.

4.3.3 The CONSULTANT will develop and implement a Quality Control/Quality Assurance (QA/QC) program in accordance with its project management procedures. .

4.4 SUBCONTACTOR MANAGEMENT

4.4.1 The CONSULTANT shall review the work of any sub-CONSULTANT utilized by the prime CONSULTANT for this contract (i.e., civil design, structural design) shall be reviewed by the prime CONSULTANT for compliance with this scope of work and these specifications prior to submittal for review by the DISTRICT. In particular, all calculation sheets shall be initialed and dated by both a designer and a checker.

4.5 REPORTS

4.5.1 All reports shall be submitted to the DISTRICT for review in draft form. Upon receipt of review comments, the CONSULTANT shall incorporate appropriate revisions and complete the report.

4.5.2 Data Collection Report - The Data Collection Report will contain a description of information collected for this project. This information should include at a minimum the information identified under Section 2.1. Other data collected pertinent to the project should also be contained in the Data Collection Report. Existing major natural washes and existing and planned man-made drainage facilities in the watershed should be shown on the Existing Facilities Exhibit to be submitted with the Data Collection Report. The Existing Facilities Exhibit will be prepared in AutoCAD format.

4.5.2.1 The Data Collection Report should include the following:

- Executive Summary
- Project Description
- Scope of Project
- Data Collection Results
  - Current Conditions
  - Areas of Flooding
  - Existing and Future Development Plans
  - Areas and locations of Potential Flooding
  - Existing and Future Drainage Facilities
- Environmental Concerns
  - Environmental Permits and Approvals
  - Biological Survey Analysis
  - Cultural Resources
  - Environmental Regulatory Records Review
- Land
  - Parcel ownership
  - Rights-of-Entry Requirements
- Hydrology/Hydraulics Models
  - Summary of Models/Conditions
  - Concerns
- Major Utilities
- Existing Facilities Exhibit
- References/Figures

4.5.3 Alternative Analysis Report - The Alternative Analysis Report shall be prepared containing narrative descriptions of the alternatives considered and discarded, the alternatives selected for analysis, the results of the analysis of alternatives, and comparative cost estimates conducted by the Review Committee. The advantages and disadvantages and general impacts of each alternative shall be identified.. The recommended alternative shall be identified in the report.

4.5.3.1 The Alternatives Analysis Report Format should include the following;

- Summary
- Description of Study Area
- Scope of Project
- Alternatives Descriptions/ Sketches
  - Outfall Alternatives
- Alternatives Eliminated
- Cost Estimates
- Evaluation Criteria/Matrix
- Evaluation of Alternatives
- References/Figures

4.5.4 Recommended Design Report - The CONSULTANT shall prepare Recommended Design Report which will include engineering design guidelines to maintain 100-year conveyance, landscaping and recreation considerations, cost estimates and Preliminary Design plans

4.5.4.1 The Recommended Design Report should include the following:

Summary
Description of Study Area
Scope of Project
Evaluation Criteria
Selection of Preferred Alternative including Outfall
Costs
Priority of Features
Maintenance Plan
Implementation Plan
Funding
References/Figures
Disk Copies of applicable hydrologic, hydraulic models

4.5.4.2 Preliminary Design Plans

Indicate existing topography.
Color ortho photo of Town Core Area
Indicates cultural, biological, environmental impact areas
Indicates conveyance criteria: approximate size and configuration, invert, typical cross-section
Indicate conflicting utilities

4.5.5 Project Final Submittal - Upon approval of the Recommended Design Report, the CONSULTANT shall incorporate review comments and make any required corrections, and changes, the hydrology, and/or hydraulic models

4.5.5.1 The CONSULTANT shall submit a Final Design Submittal with final versions of all reports applicable to the Project including:

Data Collection Report
Alternatives Analysis Report
Recommended Design Report.
Project Survey Report Annex
Technical Report Annex
Administrative Report Annex

4.5.5.2 The CONSULTANT shall prepare a separate, reproducible Executive Summary of the Final Design Submittal.

4.5.6 Project Survey Report Annex - Survey data will be documented in a Project Survey Report. Copies of all survey note books or printout of digital files developed with data collectors will be provided. The horizontal and vertical benchmarks used for the survey shall be documented along with documentation of the datum upon which the benchmark was originally established. Conversion to other datums as required herein shall be documented in the report. A summary table of the ERM's and bench marks shall be included.

4.5.7 Project Technical Report Annex - The CONSULTANT shall maintain a technical report throughout the project, which contains documentation of the designs, analysis, and calculations. The report shall be organized to include, but not limited to, the following sections as appropriate to the project:

Lateral design, configuration, alignment, and feature locations
Right-of-way and easement information
Special project features, including unusual construction techniques, special materials, and/or conditions.
Maps, sketches, calculations, and other supporting documentation as required.
Two (2) separate Hydrology, and Hydraulics Report for the Core Area and the Planning Areas
Cost estimates
Conflicting utilities that are to be relocated and/or protected.
Preliminary hydrology and hydraulics analysis and calculations
Environmental and Permit requirements

4.5.8 Project Administration Report - The Project Administration Report shall include copies of all correspondence, minutes of meetings and conversations with the DISTRICT, affected agencies and others as appropriate.

4.6 DELIVERABLES

4.6.1 The CONSULTANT shall submit all items 'sealed' by a registered civil engineer. Upon receipt of the final submittal, the DISTRICT shall review the report and preliminary plans for the accurate incorporation of all final comments. If incomplete and/or incorrect incorporation of those comments is found, the original documents shall be returned to the CONSULTANT for correction and resubmittal.

4.6.2 The CONSULTANT shall submit computer files of the information to the DISTRICT delivered on 3.5" or CD diskettes. Reports should be in Word 6.0 or a DISTRICT acceptable software. Plans should be in AutoCAD version 12 format.

4.6.3 The CONSULTANT shall submit three (3) copies for each DRAFT report, estimates, schedules or drawings to the DISTRICT and one (1) copy for each DRAFT report, estimates, schedules or drawings to each participating agency.

4.6.4 The CONSULTANT shall submit five (5) copies for each FINAL report, estimates, schedules or drawings to the DISTRICT and two (2) copies for each FINAL report, estimates, schedules or drawings to each participating agency.

4.6.5 The CONSULTANT shall provide drawings in full size sets, and floppy disks containing .DGN or .DWG files.

5.0 REFENCES AND STANDARDS

This section provides general requirements, methodologies, and procedures to be followed in completing work for the DISTRICT. If the Scope of Work requires work tasks described herein, the work is to be completed consistent with this section. Specific variations from this section of the Scope of Work shall not be undertaken without the specific written concurrence from the DISTRICT.

5.1 STANDARD DETAILS AND SPECIFICATIONS

5.1.1 "Uniform Standard Details for Public Works Construction", Maricopa Association of Governments (MAG), 1979;

5.1.2 "Uniform Standard Specifications for Public Works Construction", MAG, 1979;

5.1.3 City of Phoenix (COP) "Supplement to the MAG Uniform Standards Details and Specifications, together with current revisions shall be utilized as part of the design criteria.

5.1.4 Use standard MAG details on plans unless otherwise requested by FCDMC. ADOT standard details may be used, as approved and when appropriate, then modified to be referenced to MAG specifications.

5.1.5 "Policy for the Aesthetic Treatment and Landscaping of Flood Control Projects", latest revision.

5.2 DESIGN MANUALS, POLICIES AND PROCEDURES

5.2.1 "Drainage Design Manual for Maricopa County, Arizona, Volume I Hydrology", latest edition.

5.2.2 "Drainage Design Manual for Maricopa County Arizona,VolumeII Hydraulics", latest edition.

5.2.3 "Drainage Design Manual for Maricopa County, Arizona, Volume III Erosion Control", latest edition.

5.2.4 "Urban Highways, Channel Lining Design Guidelines", February 1989, ADOT.

5.2.5 Structural design shall be in accordance with current AASHTO Specifications. Street and maintenance road crossings shall be designed to accommodate HS20-44 loading. Calculations shall be based on service loads and the working stress method.

5.2.6 "Policy on Geometric Design of Highways and Streets", AASHTO, 1990, commonly referred to as the "Green Book", and "Maricopa County Department of Transportation Roadway Design Manual" latest edition and revisions shall be used, unless otherwise requested by FCDMC.

5.2.7 "Roadside Design Guide", 1989, AASHTO, to be used to establish clear distances and other related safety issues.

5.2.8 "Landscaping and Irrigation Design Manual for the Flood Control DISTRICT of Maricopa County", latest edition.

5.2.9 "Channel Design Criteria for Major Watercourses", MCFCD, latest edition.

5.2.10 "A Levee Policy for the National Flood Insurance Program", National Research Council, 1982.

5.3 STANDARDS

5.3.1 GIS/HIS

5.3.1.1 Mapping:
The CONSULTANT shall prepare digital data in conformance with the DISTRICT's Hydrologic Information Systems (HIS) FCDMC, Revision 3.1, June 1, 1998, for the following themes:

LP-40	FCD Project map index
LP-60	Project boundaries
LP-110	Cartographic features
LP-210	Corners
LP-215	Miscellaneous control survey points
LP-360	Structures
LP-410	Data quality
LP-430	Project Identification
LP-608	Bridge
LP-610	Canals

LP-612	Culverts
LP-620	FCD Project facility
LP-650	Railroads
LP-660	Street Detail
LP-670	Utilities
LP-710	Elevation contours/Spot elevation
LP-950	Lakes
LP-960	River

5.3.1.2 Hydrology and Hydraulics:
Digital data will be prepared in conformance with the district's HIS data delivery specs (Rev. 3.1 June 1, 1998) Chapter 3 – Appendix C, CADD delivery specs for the following themes:

CP-40	FCD Project map index
CP-60	Project boundaries
CP-410	Data quality
CP-430	Project Identification
CP-520	Floodplain baseline route system
CP-523	FCD Reference marks
CP-535	FCD Water surface elevation
CP-540	Floodplain x-sections
CP-550	Floodplain FCD zone
CP-599	HEC-RAS Output
CP-608	Bridge
CP-920	Drainage basins
CP-930	Drainage path

The format of the files shall be ASCII dxf as stated on the HIS data delivery specs book.

5.3.2 HYDROLOGY

5.3.2.1 The CONSULTANT shall use the 1991 U.S. Army Corps of Engineers computer program HEC-1, 4.01 Version, to develop hydrologic models for the area. The methods and procedures in the Drainage Design Manual for Maricopa County, Arizona: Volume I - Hydrology will also be used.

5.3.2.2 The CONSULTANT will develop the hydrologic base maps for the Town Core area using the topographic mapping supplied by the DISTRICT. For those areas not covered by the supplied mapping, U.S. Geological Survey (USGS) topographical quadrangle maps will be used.

5.3.2.3 An overall watershed drainage basin map with sheet index will be prepared at a scale of 1 inch = 2000 feet, or as appropriate.

5.3.2.4 Using appropriate hydrologic judgement, sub-basins are to be identified that provide reasonable depiction of the watershed condition. Sub-basin break down will be done in sufficient detail to provide peak discharges at critical concentration points and at other intermediate points as necessary for the modeling process.

5.3.2.5 The specific hydrologic techniques to be used are:

5.3.2.5.1 Rainfall Depth: Point precipitation values will be determined using the information and procedures described in the Drainage Design Manual for Maricopa County, Arizona: Volume I, Hydrology.

5.3.2.5.2 Rainfall Distribution: Peak discharges and peak volumes for the 100-year, 6-hour storm will be estimated using the DISTRICT's Distribution(s). Peak discharges and peak volumes for the 100-year 24-hour storm will be estimated using the SCS Type II rainfall distribution.

5.3.2.5.3 Areal Reduction: The point precipitation values will be areally reduced for critical concentration points. Areal reduction for the 6 hour rainfall duration will be applied using the curves in the Drainage Design Manual for Maricopa County, Arizona: Volume I, Hydrology, or MCUHP1.

5.3.2.5.4 NOAA HYDRO-40 will be used with the 24 hour rainfall reduction. Copies can be obtained from the DISTRICT.

5.3.2.5.5 Rainfall Excess: The Green and Ampt methodology will be utilized for estimation of rainfall losses. The soil data maps will be provided to the CONSULTANT by the DISTRICT in the form of GIS files. These files will be used for soil calculations.

5.3.2.6 Unit Hydrograph: The Clark method should be used following the procedures outlined in the Drainage Design Manual for Maricopa County, Arizona: Volume I, Hydrology, and as implemented in MCUHP1.

5.3.2.7 Time of Concentration: The Papadakis and Kazan method should be used with the Clark unit hydrograph, along with the MCUHP1 computer program, to determine the time of concentration. If this method results in unsuitable times of concentration, other method(s) must be used and compared for the most realistic result.

5.3.2.8 Channel Routing: Channel routing will be accomplished using either the Muskingum-Cunge or the Normal-Depth or the Kinematic Wave option of HEC-1. The choice of methodology will be at the discretion of the CONSULTANT, with consent from the DISTRICT. Average cross sections will be developed utilizing available mapping and field reconnaissance data. The resulting velocities and depths, for all reaches, must be assessed for realistic values.

5.3.2.9 Reservoir Routing: Detailed analysis of structures and ponding areas will be accomplished using the Modified Puls reservoir routing option of HEC-1. Stage versus discharge tables for hydraulic structures will be estimated using appropriate hydraulic methodology.

5.3.2.10 The CONSULTANT shall obtain approval from the DISTRICT at each of the following steps:

Watershed boundary maps
HEC-1 parameter estimation
Flow diagram and input parameters
HEC-1 results

5.3.2.11 The DISTRICT will provide appropriate references to facilitate parameter estimation.

5.3.2.12 The CONSULTANT shall review the hydrologic models' results for accuracy and reasonableness. Adjustments to input for obtaining the most realistic results are normal to the scope.

5.3.2.13 Every attempt must be made to recover historic stream gage data and to use it to compare with the results obtained by the hydrologic models. Major differences between the models' results and historic data must be discussed with the DISTRICT prior to the finalization of the analysis.

5.3.2.14 For the Planning Area the existing Hydrologic Models shall be reviewed and modified as necessary, to accommodate the Recommended Alternatives for the Core Area.

5.3.2.15 For the Town Core area the hydrologic analysis will be carried out using the rational method as outlined in the Drainage Design Manual for Maricopa County, Arizona: Volume I, Hydrology.

5.3.3 HYDRAULICS

5.3.3.1 The CONSULTANT shall follow the procedures outlined in the "Drainage Design Manual for Maricopa County, Volume II Hydraulics" for all hydraulics calculations.

5.3.3.2 The CONSULTANT shall provide HEC-II Cross Section Files data files of the DTM data which will allow extrapolation of HEC-II cross-sections.

5.3.3.3 The final submittal of all maps, computer files, and other data shall be prepared and submitted in the manner defined for input by the guidelines in "Data Delivery Specifications: The Hydrologic Information System (HIS)" which is available from the DISTRICT.

5.3.4 SURVEY AND MAPPING

5.3.4.1 Accuracy and Procedural Standards. All topographic mapping and survey work shall meet or exceed Federal Emergency Management Agency (FEMA) minimum criteria as defined in FEMA Document 37, Flood Insurance Study Guidelines and Specifications for Study Contractors, January 1995. This would include, but is not limited to: the establishment of "permanent" elevation reference marks (ERMs); field control; and verification of profiles by the ground survey profile procedure.

5.3.4.2 Horizontal Control Datum. All surveys shall be completed with horizontal controls necessary to tie all field data to NAD83. Coordinate points and their coordinates shall be listed in the text regarding the control and survey information provided to the DISTRICT and shall also be noted along the margins of the appropriate plan sheets.

5.3.4.3 Vertical Control Datum. Surveys will be based on National Geodetic Vertical Datum (NGVD) 1929, per FEMA guidelines. A conversion factor, including documentation of how it was derived, will be provided by the CONSULTANT to allow comparison of NGVD 29 elevations to NAVD 88 elevations and will be included in the Technical Data Notebook. The conversion processes outlined in FEMA 37 shall be used.

5.3.4.4 Elevation Datum. Mapping and concept plans shall be based on NAD83 and NGVD 1929 datum, with conversions to NAVD88 vertical datum. Elevation Reference Marks (ERMS) shall be labeled on the plans and described in a manner, which allows them to be relocated in the field.

5.3.4.5 Structure Surveys. Field surveys of bridges, culverts, and hydraulic structures are to be obtained by the CONSULTANT when as-built plans are not available or when changes significant to the HEC-2 or HEC-RAS modeling, such as sedimentation, have occurred since the date of as-built. This information should be reduced and compiled into an 11"x 17" (maximum size) drawing for inclusion in the DSR. The information presented in the drawing should be in a format appropriate for use in the HEC-2 model. Field surveys of bridges, culverts, hydraulic structures, and routing reaches must also be obtained where necessary for proper hydrologic modeling. It may be necessary to field survey some structures since the as-built plans may not be on 1929 NGVD.

5.3.4.6 Documentation of Survey Data. Benchmarks and control points shall be shown on maps and plan sheets. Survey data will be documented in a project survey report. The project survey report shall be initially submitted during the Preliminary Design Phase, and the final report shall be submitted during the Final Design Phase. The report shall include the following:

5.3.4.7 Copies of all survey note books and office calculations or printout of digital files developed with data collectors.

5.3.4.8 A summary table which lists horizontal and vertical benchmarks and includes the horizontal coordinates and elevations of each point, the datum upon which the benchmarks were originally established, and a description of the locations of the points which will allow them to be readily located in the field.

5.3.4.9 A drawing with a base map of suitable scale to show the location of the benchmarks, and aerial control points.

5.3.4.10 Conversion to other datum's as required herein.

5.3.4.11 Data Format. All field collected survey data obtained using conventional survey methods shall be noted in standard 5" x 7" hardbound survey books. All survey data collected electronically shall be submitted in an ASCII text file on 3.5" or 5.25" diskettes.

5.3.4.12 All topographic features including existing drainage swales, bridges, storm drainage outfalls, gravel mining operations, fences, buildings, roads, etc.

5.3.4.13 Aerial Photography. The CONSULTANT shall use the correct scale stereo aerial coverage to maximize the efficiency of the project layout and still meet the accuracy requirements. If aerial photography is used, the CONSULTANT shall complete a ground survey check to verify the accuracy.

5.3.4.14 Digital Topographic Mapping. The CONSULTANT shall use digital terrain modeling (DTM) and contour generating software to create data files.

5.3.4.15 Documentation of Survey Data. Survey data will be documented in a Project Survey Report. Copies of all survey note books or printout of digital files developed with data collectors will be provided. The horizontal and vertical benchmarks used for the survey shall be documented along with documentation of the datum upon which the benchmark was originally established. Conversion to other datums as required herein shall be documented in the report. A summary table of the ERM's and bench marks shall be included.

5.3.4.16 The final submittal shall include a permanent, reproducible set of the survey and mapping information on 3 mil mylar sheets and shall be sealed by a registered land surveyor.

5.3.4.17 The Engineer's Estimate shall be prepared based on the most up-to-date cost data available. This includes recent bid tabulations from the DISTRICT, ADOT, MCDOT, Town of Gila Bend, and any other resource available to the CONSULTANT.

5.3.5 DRAFTING

5.3.5.1 Design plans and construction documents will include, but not limited to:

Flood Control DISTRICT standard cover sheet
Plan and profile sheets, and cross sections
Utility relocations

5.3.5.2 FCDMC sample plans may be provided with the intention that they shall be used as a guide, and are not a substitute for design criteria, technical assistance, or sound engineering judgement. The CONSULTANT shall use plan symbols shown in the MAG Standard Details and COP Supplement to the MAG Standard Details, unless otherwise requested. FCDMC makes extensive use of reduced plan sets. The CONSULTANT shall submit sample plans for approval prior to commencing work. Plans not capable of producing high quality prints by FCDMC in reduced form shall be considered unacceptable and shall be redrawn by the CONSULTANT at no additional cost to FCDMC.

5.3.5.3 The DISTRICT uses a "Xerox" process for final reproduction of drawings. The CONSULTANT shall not draw on the back side of drawings, or use any form of shading techniques that will not reproduce clearly using this form of reproduction.

5.3.5.4 Unless otherwise approved in writing by the DISTRICT, the CONSULTANT shall use the following scales.

Town Core Areas 1" = 200' Horizontally , 1" = 10' or 20' Vertically
Planning Area 1"=400' Horizontally, .1" = 10' or 20' Vertically

5.3.5.5 The CONSULTANT shall use a larger scale if necessary to obtain good clarity in the plans and reduced prints. The CONSULTANT shall be responsible for using a scale that results in good plan clarity.

5.3.5.6 Drawings shall be prepared using MicroStation PC, Version 4 or AutoCad, Release 12 per DISTRICT standards.

5.3.5.7 All lettering on drawings shall be vertical, plain, and legible. 'Architectural' style lettering shall not be accepted. The following lettering sizes apply:

1/8"	Lettering and Notes
5/32"	Subtitles
7/32"	Main Titles

5.3.5.8 The final (100%) submittal shall be plotted at a minimum of 400 dots per square inch on 4 mil mylar. The final plot shall be plotted or photo reproduced on 4 mil mylar without sticky backs. If plans have been hand drafted, the final (100%) submittal shall be rapidograph-inked drawings on 4 mil mylar. If sticky backs have been used, 4 mil photo reproducible mylars shall be submitted, with original seal and signature on the photo mylars. All seals and signatures shall be in smudge-proof ink.

5.3.5.9 The DISTRICT shall provide the CONSULTANT with a diskette containing .DWG or .DGN files for the standard cover sheet and working drawing sheets.

5.3.6 CALCULATION

5.3.6.1 The CONSULTANT shall independently check all design drawings and calculations. Each drawing shall be initialed and dated by both the designer and checker for each and every submittal of design drawings and calculations. The CONSULTANT shall verify the completeness of the check before submitting drawings or calculations to the DISTRICT.

5.3.6.2 All design calculations submitted to the DISTRICT shall be complete in detail and shall be checked. All engineering assumptions made during the design other than standard engineering judgements shall be documented with appropriate references on the calculation sheets.

5.3.6.3 The person checking the calculations shall not be the originator, and shall be of equal or better qualifications than the originator.

5.3.6.4 Calculations can be either hand calculations or computer generated calculations. Computer generated calculations can be used for either the design or the check, but cannot be used for both the design and the check. All hand calculations and computer generated calculations shall be sealed prior to submittal to the DISTRICT. HEC-1 and HEC-2 modeling are excepted from the hand calculation requirement.

5.3.6.5 All design calculations and drawings shall be complete in detail, independently checked in the CONSULTANT's office, and shall be initialed and dated by both the designer and checker for each submittal. The CONSULTANT shall verify the completeness of the check before submitting drawings or calculations to the DISTRICT. The person checking the calculations shall not be the originator, and shall be of equal or better qualifications than the originator.

5.3.6.6 The CONSULTANT shall use methods and procedures which are normal and customary standards of the industry. All calculations, sketches, computer printouts, or other written or printed data used in the final design shall be included in the design data report.

6.0 APPENDICES

6.1 APPENDIX 1. TASK LISTING SUMMARY/MANHOUR ESTIMATE

6.2 APPENDIX 2. PROJECT TIMELINE

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Appendix C
SURVEY FIELD NOTES

Appendix C.1

FIELD SURVEY NOTES FOR AERIAL MAPPING CONTROL

APPENDIX C-1

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6. Map of Photo Control Points

7. Survey control Points (NGS Data Sheets)

8. Vertical Datum Conversion Calculations (NAVD 1988 to NGVD 1929)

Survey Control Points:
The following National Geodetic Survey (NGS) points were used for survey control Refer to attached NGS data sheets. The horizontal datum is NAD 1983 (adjusted 1992) and the vertical datum is NAVD 1988 (adjusted 1991).

Point Designation	PID	Horiz./Vert.
R1	DA0499	Vert. Only
X13	DA0695	Vert. Only
B361	DA0694	Vert. Only
CEDA	DA0709	Horiz./Vert.
TOSA	DA0685	Horiz./Vert.
COY	DA0680	Horiz./Vert.
GIANT	DA0672	Horiz.Only

Professional Responsibility for Survey and Mapping:

Mark T. Gavan, P.E., R.L.S.
Engineering and Environmental Consultants, Inc.
3003 North Central Avenue, Suite 600
Phoenix, Arizona 85012-2905
Project No. 99541

Professional Responsibility for Field Survey work:

Matthew A. Graham, R.L.S.
SurvNet, Inc.
150 North Stapley, Suite 105
Mesa, Arizona 85203
Project No. 994014

Company Responsible for Aerial Mapping:

Cooper Aerial Surveys Co.
11402 North Cave Creek Road
Phoenix, Arizona 85020
Project No. 6067-080799

2. SCOPE OF WORK

The following excerpt is from the Scope of Work for the Gila Bend Area Drainage Master Plan. It describes the Scope of Work for the field survey and aerial mapping.

Quote:

3.1 FIELD SURVEY AND MAPPING

3.1.1 The CONSULTANT shall Fly 1:7200 black and white stereo photography of approximately 5 square miles for 1"=200' scale with a 2' contour interval. Plus supply one complete set of contact prints in binder for your use. The area will be mapped as a DTM (Digital Terrain Model). The mapping will be delivered on CD-ROM in AutoCad 14 format. Fly two 1:20000 color center shots to produce 1"=200' scale color digital orthophotography of this area. These images will be scanned at 28 microns (approximately 900 dpi) and ortho-rectified to the DEM (Digital Elevation Model). Provide color glossy plots of these digital orthophotos. The CONSULTANT shall also Fly 1:12000 black and white stereo photography of approximately 17 square miles for 1'=400' scale mapping with a 4' contour interval. Plus supply one set of contact prints in binder for your use. This area will be mapped as a DTM. The mapping will be delivered on CD-ROM in AutoCad 14 format. This item is broken down into two areas. The north area consisting of approximately 8 square miles and the southwest area consisting of approximately 9 miles. Both the 1"=200' scale and the 1"=400' scale mapping data will be translated into Flood Control District of Maricopa County's GIS Standards. The CONSULTANT shall create a DTM from existing mapping data and translate this into the Flood Control District's GIS Standards. This data will be used to match to the new mapping as well as in the creation of the color digital orthophotography.

3.1.2 The CONSULTANT shall provide survey control for the aerial mapping in conformance with FEMA Standards.

3.1.3 The CONSULTANT shall provide Elevation Reference Marks for the new areas to be mapped in accordance with FEMA Standards.

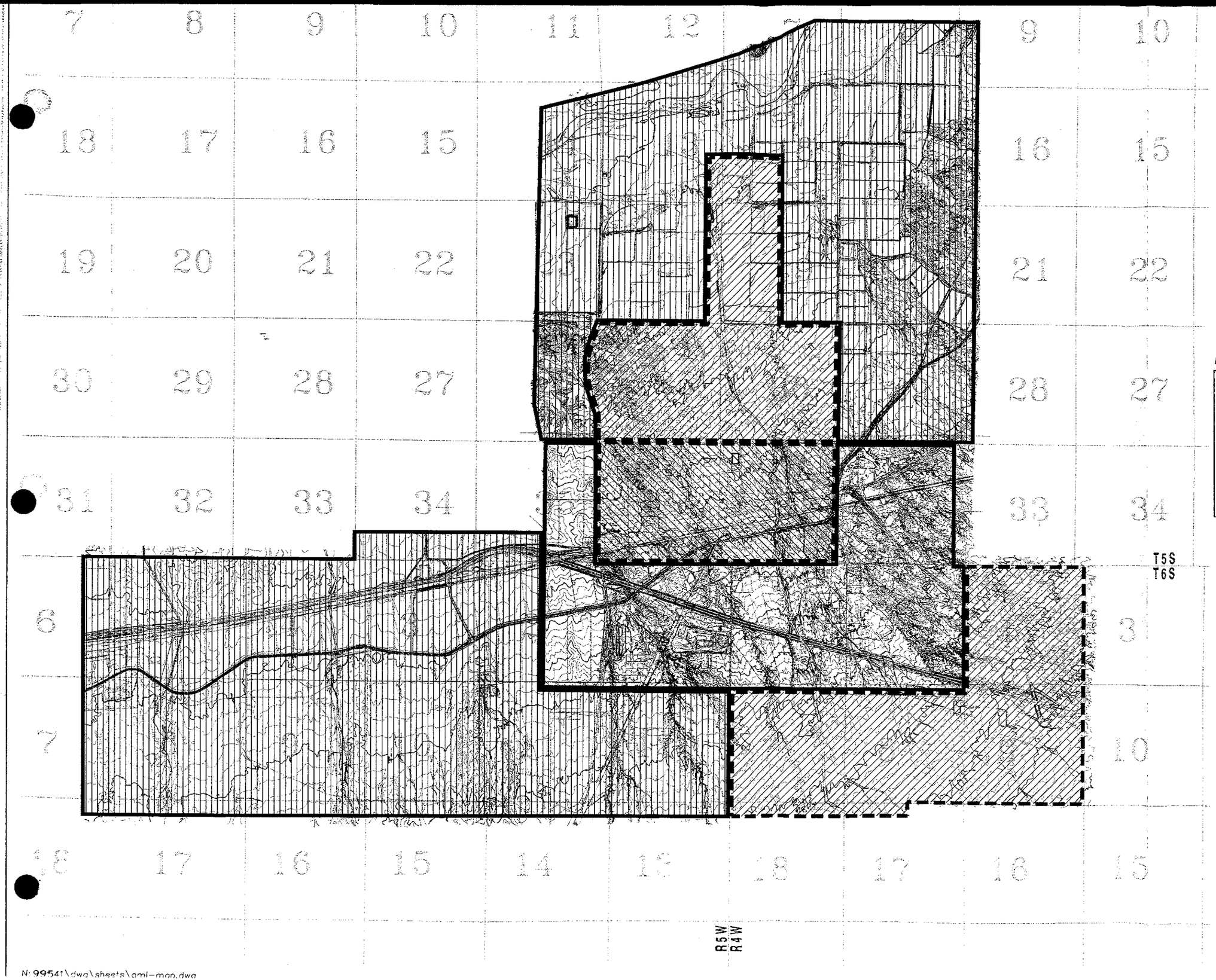
3.1.4 The CONSULTANT shall field survey the top of canal banks, railroads and roadways in order to supplement the area to be mapped with 4' contour intervals (approx. 12 miles). The CONSULTANT shall also provide check profiles in accordance with FEMA Standards.

3.1.5 (Allowance Item) The CONSULTANT shall field survey structures, roadways, ditches, culverts, etc. where existing mapping or as-built plans do not provide adequate detail.

Un-quote.

3. MAP OF AERIAL MAPPING LIMITS

The following map shows the limits of existing mapping as well as the limits of new mapping developed with this study.



FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

GILA BEND
Area Drainage Master Plan

MAP OF AERIAL MAPPING LIMITS

LEGEND

- EXIST. 1"=400', 4' CONTOUR MAPPING
- NEW 1"=400', 4' CONTOUR MAPPING
- EXIST. 1"=200', 2' CONTOUR MAPPING
- NEW 1"=200', 2' CONTOUR MAPPING

N

0 1000 2000 4000 8000

eec
Engineering and Environmental Consultants,
3003 N. Central Avenue, Suite 600
Phoenix, Arizona 85012-2905
TEL: (602)248-7702 FAX: (602)248-7851

N:99541\dwg\sheets\ami-map.dwg

4. PHOTO CONTROL POINTS AND ELEVATIONS (NAVD 1988)

The following is a list of the Photo Control Points as surveyed by SurvNet, Inc. The survey was carried out in September and October of 1999. The list includes the NGS survey control points used.

99541

Project: Gila Bend Photo Control (994014)
Coordinate System: Arizona State Plane, Central Zone
Datum: NAD83 (Horizontal) NAVD88 (Vertical)
Coordinate Units: International Feet
Elevation Units: US Survey Feet
Printed: 7 Oct 99

Point	North	East	Elev	Desc
1,	707228.3270,	444657.2770,	724.6210,	BASE
110,	NA ,	NA ,	789.8000,	R-1 GRID
111,	NA ,	NA ,	735.9800,	X-13 GRID
112,	NA ,	NA ,	735.8300,	B-361 GRID
201,	704753.1730,	434111.6540,	737.2400,	CEDA GRID
202,	706739.3140,	443994.6720,	729.5900,	TOSA GRID
203,	705896.5120,	452582.6800,	753.7600,	COY GRID
204,	701406.9390,	466416.7420,	821.2000,	GIANT GRID
901,	704753.2050,	434111.7100,	737.2610,	CEDA MEA
902,	706739.3070,	443994.6510,	729.5740,	TOSA MEA
903,	705896.4770,	452582.5770,	753.6580,	COY MEA
904,	701406.9490,	466416.8100,	821.2100,	GIANT MEA
910,	696676.4710,	448547.9180,	789.8640,	BM R-1 MEA
911,	720775.6500,	465317.3860,	735.9820,	BM X-13 MEA
912,	725247.1220,	468030.5890,	735.8610,	BM B-361 MEA & EEC ERM 4
951,	704753.1980,	434111.7090,	737.2080,	901 CK 9/27
1001,	707470.0450,	427636.0520,	716.5240,	PP 1
1002,	701996.1890,	427441.2030,	742.3990,	PP 2
1003,	696726.1690,	427159.0950,	758.4000,	PP 3
1004,	702072.1240,	430812.4240,	732.9940,	PP 4
1005,	707433.4020,	434365.0450,	732.4590,	PP 5
1006,	696836.5190,	434356.7340,	768.0550,	PP 6
1007,	707453.3240,	437995.5210,	716.6640,	PP 7
1008,	702087.3650,	438079.9140,	745.1870,	PP 8
1009,	696866.3520,	437981.5370,	772.7370,	PP 9
1010,	708353.2430,	441506.7310,	709.5450,	PP 10
1011,	696819.2900,	441573.7280,	776.3250,	PP 11
1012,	702009.5350,	445191.3730,	754.9750,	PP 12
1013,	725337.5560,	446927.1400,	634.7520,	PP 13
1014,	723206.3300,	447102.0880,	644.9550,	PP 14
1015,	717937.8800,	447115.1370,	660.9400,	PP 15
1016,	715525.0340,	448092.1800,	699.9550,	PP 16
1017,	712668.3230,	447196.4140,	702.5960,	PP 17
1018,	710988.8440,	447812.3500,	710.5360,	PP 18
1019,	709505.6840,	447266.7410,	720.3860,	PP 19
1020,	705063.8520,	446782.3450,	738.4700,	PP 20
1021,	702079.9140,	446782.7570,	755.1690,	PP 21
1022,	723366.6160,	450261.9540,	652.2520,	PP 22
1023,	718019.7870,	449129.8410,	666.8150,	PP 23
1024,	712702.5450,	448964.4900,	700.8900,	PP 24
1025,	709501.8670,	449034.0020,	717.4290,	PP 25
1026,	708447.8800,	448539.1060,	725.9780,	PP 26
1027,	701998.2660,	449083.6340,	759.0610,	PP 27
1028,	696744.1860,	448521.5220,	788.6840,	PP 28

12/15/99

Registered Land Surveyor
CERTIFICATE NO.
28724
MATTHEW A
GRAHAM
Date Signed
ARIZONA, U.S.A.

1/c

Point	North	East	Elev	Desc
1029,	712591.2800,	451638.5430,	717.8390,	PP 29
1030,	705597.0620,	450914.5240,	751.9310,	PP 30
1031,	730153.9200,	453470.7940,	651.6430,	PP 31
1032,	717836.5820,	453080.4140,	686.8420,	PP 32
1033,	708772.8600,	452916.8000,	739.2600,	PP 33
1034,	705709.6110,	453073.2670,	755.1590,	PP 34
1035,	702001.0760,	452788.1780,	763.7290,	PP 35
1036,	709029.1400,	455164.2120,	739.3400,	PP 36
1037,	702002.5160,	454908.3050,	774.3800,	PP 37 SEC S1 NL IN PIPE
1038,	696798.8540,	454850.0700,	797.3980,	PP 38
1039,	729486.6030,	456836.3020,	647.1780,	PP 39
1040,	723711.2170,	457192.6150,	662.4030,	PP 40
1041,	717928.7150,	455890.8260,	689.7210,	PP 41
1042,	712661.5000,	457132.6320,	723.4630,	PP 42
1043,	705426.6210,	457107.4010,	759.7050,	PP 43
1044,	723154.8560,	459671.8850,	677.0360,	PP 44
1045,	717963.9300,	459733.5900,	708.9550,	PP 45
1046,	712665.2850,	459535.4470,	733.7250,	PP 46
1047,	709623.3770,	459134.7870,	740.0120,	PP 47
1048,	705324.1530,	459350.9030,	762.9250,	PP 48
1049,	702020.8410,	459367.5590,	779.6110,	PP 49
1050,	720123.0470,	461889.9330,	709.9760,	PP 50
1051,	714952.8110,	462392.3560,	737.7100,	PP 51
1052,	709497.7400,	461120.6000,	756.4410,	PP 52
1053,	705345.1310,	461464.5200,	773.2550,	PP 53
1054,	729497.2740,	463843.2330,	674.7600,	PP 54
1055,	712847.0840,	463291.3150,	755.2540,	PP 55
1056,	701967.7280,	463115.9040,	796.5360,	PP 56
1057,	717724.1900,	464744.5460,	751.8560,	PP 57
1058,	712875.1110,	464848.9010,	765.1190,	PP 58
1059,	709709.4050,	464851.3750,	779.1420,	PP 59
1060,	705500.2990,	464586.6060,	793.4150,	PP 60
1061,	702065.7030,	464757.4520,	804.9310,	PP 61
1062,	729486.2550,	466876.5300,	705.9520,	PP 62
1063,	723398.0680,	466985.9060,	734.0510,	PP 63
1064,	717895.0510,	467146.7320,	752.0750,	PP 64
1101,	710657.8710,	463572.1270,	766.1240,	EEC ERM 1
1106,	710126.9640,	460675.9520,	782.6670,	EEC ERM 6
1108,	708144.5760,	462331.4150,	770.0380,	EEC ERM 8

10/15/22

Registered Land Surveyor
CERTIFICATE NO.
28724
MATTHEW A.
GRAHAM
Date Signed
ARIZONA, U.S.A.

5. PHOTO CONTROL POINTS, COORDINATES AND ELEVATIONS (NGVD 1929)

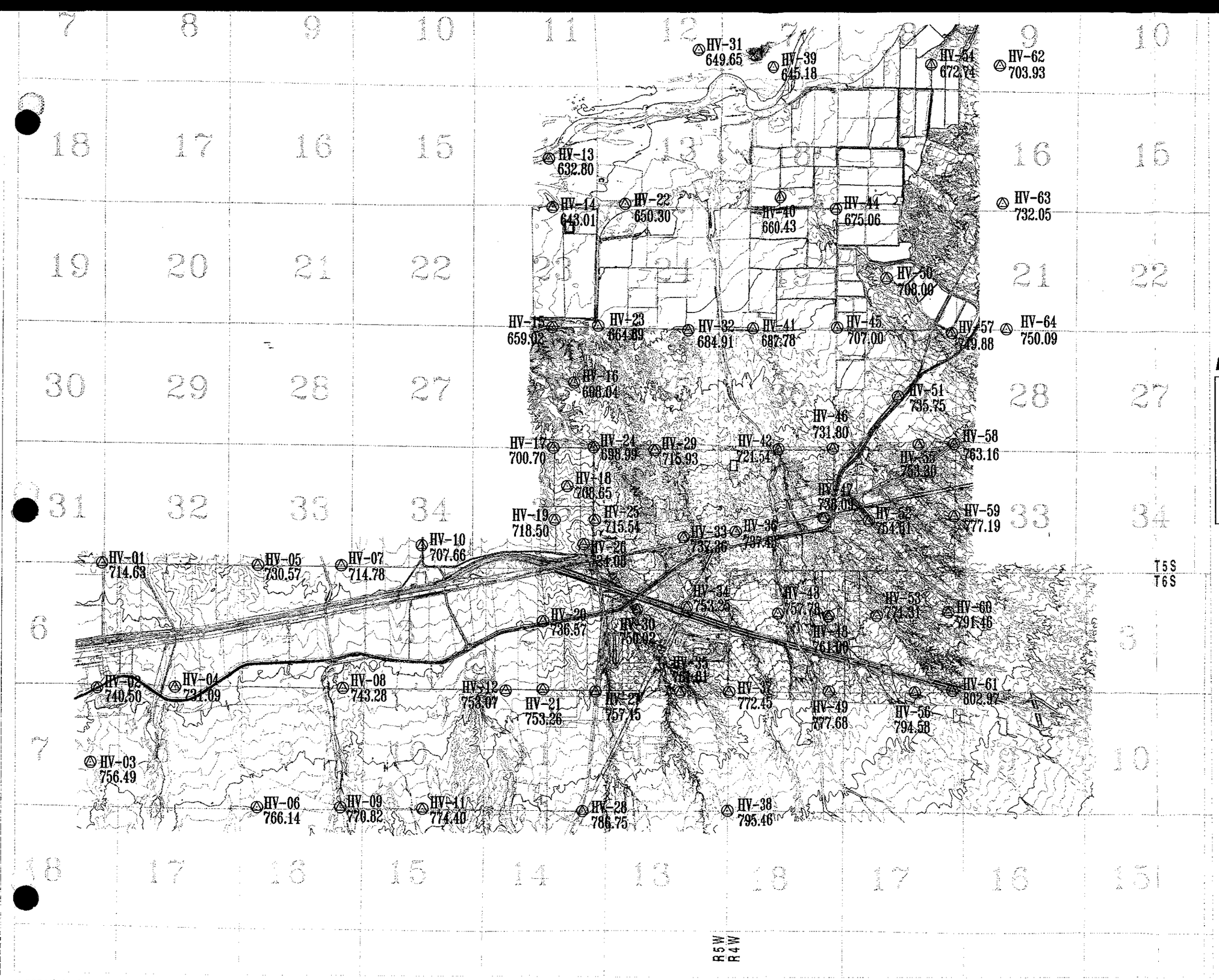
The following list of Photo Control Points includes the NGVD 1929 Elevations used for each point. Refer to attached conversion calculations from NAVD 1988 to NGVD 1929.

Gila Bend ADMP - Photo Control Points
26-Oct-99

Point	North	East	1988 Elev	1929 Elev	Diff.	Desc
1	707228.3270	444657.2770	724.6210	722.7380	1.8830	BASE
110	NA	NA	789.8000	787.8700	1.9300	R-1 GRID
111	NA	NA	735.9800	733.9600	2.0200	X-13 GRID
112	NA	NA	735.8300	733.8100	2.0200	B-361 GRID
201	704753.1730	434111.6540	737.2400	735.3900	1.8500	CEDA GRID
202	706739.3140	443994.6720	729.5900	727.7200	1.8700	TOSA GRID
203	705896.5120	452582.6800	753.7600	751.9100	1.8500	COY GRID
204	701406.9390	466416.7420	821.2000	819.2400	1.9600	GIANT GRID
901	704753.2050	434111.7100	737.2610	735.3680	1.8930	CEDA MEA
902	706739.3070	443994.6510	729.5740	727.6910	1.8830	TOSA MEA
903	705896.4770	452582.5770	753.6580	751.7520	1.9060	COY MEA
904	701406.9490	466416.8100	821.2100	819.2410	1.9690	GIANT MEA
910	696676.4710	448547.9180	789.8640	787.9380	1.9260	BM R-1 MEA
911	720775.6500	465317.3860	735.9820	733.9940	1.9880	BM X-13 MEA
912	725247.1220	468030.5890	735.8610	733.8470	2.0140	BM B-361 MEA & EEC ERM 4
951	704753.1980	434111.7090	737.2080		737.2080	901 CK 9/27
1001	707470.0450	427636.0520	716.5240	714.6380	1.8860	PP 1
1002	701996.1890	427441.2030	742.3990	740.5030	1.8960	PP 2
1003	696726.1690	427159.0950	758.4000	756.4970	1.9030	PP 3
1004	702072.1240	430812.4240	732.9940	731.0980	1.8960	PP 4
1005	707433.4020	434365.0450	732.4590	730.5730	1.8860	PP 5
1006	696836.5190	434356.7340	768.0550	766.1420	1.9130	PP 6
1007	707453.3240	437995.5210	716.6640	714.7810	1.8830	PP 7
1008	702087.3650	438079.9140	745.1870	743.2870	1.9000	PP 8
1009	696866.3520	437981.5370	772.7370	770.8210	1.9160	PP 9

Point	North	East	1988 Elev	1929 Elev	Diff.	Desc
1010	708353.2430	441506.7310	709.5450	707.6650	1.8800	PP 10
1011	696819.2900	441573.7280	776.3250	774.4060	1.9190	PP 11
1012	702009.5350	445191.3730	754.9750	753.0720	1.9030	PP 12
1013	725337.5560	446927.1400	634.7520	632.8030	1.9490	PP 13
1014	723206.3300	447102.0880	644.9550	643.0160	1.9390	PP 14
1015	717937.8800	447115.1370	660.9400	659.0240	1.9160	PP 15
1016	715525.0340	448092.1800	699.9550	698.0490	1.9060	PP 16
1017	712668.3230	447196.4140	702.5960	700.7060	1.8900	PP 17
1018	710988.8440	447812.3500	710.5360	708.6530	1.8830	PP 18
1019	709505.6840	447266.7410	720.3860	718.5030	1.8830	PP 19
1020	705063.8520	446782.3450	738.4700	736.5740	1.8960	PP 20
1021	702079.9140	446782.7570	755.1690	753.2630	1.9060	PP 21
1022	723366.6160	450261.9540	652.2520	650.3030	1.9490	PP 22
1023	718019.7870	449129.8410	666.8150	664.8960	1.9190	PP 23
1024	712702.5450	448964.4900	700.8900	698.9940	1.8960	PP 24
1025	709501.8670	449034.0020	717.4290	715.5430	1.8860	PP 25
1026	708447.8800	448539.1060	725.9780	724.0880	1.8900	PP 26
1027	701998.2660	449083.6340	759.0610	757.1520	1.9090	PP 27
1028	696744.1860	448521.5220	788.6840	786.7580	1.9260	PP 28
1029	712591.2800	451638.5430	717.8390	715.9360	1.9030	PP 29
1030	705597.0620	450914.5240	751.9310	750.0280	1.9030	PP 30
1031	730153.9200	453470.7940	651.6430	649.6520	1.9910	PP 31
1032	717836.5820	453080.4140	686.8420	684.9130	1.9290	PP 32
1033	708772.8600	452916.8000	739.2600	737.3600	1.9000	PP 33
1034	705709.6110	453073.2670	755.1590	753.2530	1.9060	PP 34
1035	702001.0760	452788.1780	763.7290	761.8100	1.9190	PP 35
1036	709029.1400	455164.2120	739.3400	737.4370	1.9030	PP 36
1037	702002.5160	454908.3050	774.3800	772.4570	1.9230	PP 37 SEC S1 NL IN PIPE
1038	696798.8540	454850.0700	797.3980	795.4620	1.9360	PP 38
1039	729486.6030	456836.3020	647.1780	645.1830	1.9950	PP 39
1040	723711.2170	457192.6150	662.4030	660.4340	1.9690	PP 40
1041	717928.7150	455890.8260	689.7210	687.7820	1.9390	PP 41
1042	712661.5000	457132.6320	723.4630	721.5470	1.9160	PP 42
1043	705426.6210	457107.4010	759.7050	757.7890	1.9160	PP 43
1044	723154.8560	459671.8850	677.0360	675.0610	1.9750	PP 44
1045	717963.9300	459733.5900	708.9550	707.0060	1.9490	PP 45

Point	North	East	1988 Elev	1929 Elev	Diff.	Desc
1046	712665.2850	459535.4470	733.7250	731.8020	1.9230	PP 46
1047	709623.3770	459134.7870	740.0120	738.0990	1.9130	PP 47
1048	705324.1530	459350.9030	762.9250	761.0020	1.9230	PP 48
1049	702020.8410	459367.5590	779.6110	777.6820	1.9290	PP 49
1050	720123.0470	461889.9330	709.9760	708.0070	1.9690	PP 50
1051	714952.8110	462392.3560	737.7100	735.7580	1.9520	PP 51
1052	709497.7400	461120.6000	756.4410	754.5180	1.9230	PP 52
1053	705345.1310	461464.5200	773.2550	771.3190	1.9360	PP 53
1054	729497.2740	463843.2330	674.7600	672.7460	2.0140	PP 54
1055	712847.0840	463291.3150	755.2540	753.3050	1.9490	PP 55
1056	701967.7280	463115.9040	796.5360	794.5840	1.9520	PP 56
1057	717724.1900	464744.5460	751.8560	749.8810	1.9750	PP 57
1058	712875.1110	464848.9010	765.1190	763.1600	1.9590	PP 58
1059	709709.4050	464851.3750	779.1420	777.1900	1.9520	PP 59
1060	705500.2990	464586.6060	793.4150	791.4600	1.9550	PP 60
1061	702065.7030	464757.4520	804.9310	802.9720	1.9590	PP 61
1062	729486.2550	466876.5300	705.9520	703.9310	2.0210	PP 62
1063	723398.0680	466985.9060	734.0510	732.0460	2.0050	PP 63
1064	717895.0510	467146.7320	752.0750	750.0870	1.9880	PP 64
1101	710657.8710	463572.1270	766.1240	764.1820	1.9420	EEC ERM 1
1106	710126.9640	460675.9520	782.6670	780.7480	1.9190	EEC ERM 6
1108	708144.5760	462331.4150	770.0380	768.1020	1.9360	EEC ERM 8



GILA BEND
Area Drainage Master Plan

PHOTO CONTROL POINTS

LEGEND

HV-60 791.46 — PHOTO CONTROL POINTS

Engineering and Environmental Consultants, I
3003 N. Central Avenue, Suite 600
Phoenix, Arizona 85012-2905
TEL: (602)248-7702 FAX: (602)248-7851

N:99541\dwg\SHEETS\PCP-MAP.dwg

7. SURVEY CONTROL POINTS (NGS DATA SHEETS)

The following are the National Geodetic Survey (NGS) data sheets for the 7 NGS points used to control the survey.

The NGS Data Sheet

```
DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 5.91
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER  7, 1999
 DA0499 ***********************************************************************
 DA0499  DESIGNATION -  R 1
 DA0499  PID         -  DA0499
 DA0499  STATE/COUNTY-  AZ/MARICOPA
 DA0499  USGS QUAD   -  GILA BEND (1976)
 DA0499
 DA0499                         *CURRENT SURVEY CONTROL
 DA0499
 DA0499* NAD 83(1986)-  32 54 45.     (N)    112 44 09.     (W)     SCALED
 DA0499* NAVD 88     -       240.732  (meters)     789.80   (feet)  ADJUSTED
 DA0499
 DA0499  GEOID HEIGHT-         -31.27  (meters)                     GEOID96
 DA0499  DYNAMIC HT  -         240.449 (meters)     788.87   (feet)  COMP
 DA0499  MODELED GRAV-     979,456.9   (mgal)                       NAVD 88
 DA0499
 DA0499  VERT ORDER  -  FIRST     CLASS II
 DA0499
 DA0499.The horizontal coordinates were scaled from a topographic map and have
 DA0499.an estimated accuracy of +/- 6 seconds.
 DA0499
 DA0499.The orthometric height was determined by differential leveling
 DA0499.and adjusted by the National Geodetic Survey in June 1991.
 DA0499
 DA0499.The geoid height was determined by GEOID96.
 DA0499
 DA0499.The dynamic height is computed by dividing the NAVD 88
 DA0499.geopotential number by the normal gravity value computed on the
 DA0499.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 DA0499.degrees latitude (G = 980.6199 gals.).
 DA0499
 DA0499.The modeled gravity was interpolated from observed gravity values.
 DA0499
 DA0499;                    North         East    Units  Estimated Accuracy
 DA0499;SPC AZ C     -   212,350.      136,740.      MT  (+/- 180 meters Scaled)
 DA0499
 DA0499                          SUPERSEDED SURVEY CONTROL
 DA0499
 DA0499  NGVD 29     -       240.144  (m)          787.87   (f) ADJ UNCH    1 2
 DA0499
 DA0499.Superseded values are not recommended for survey control.
 DA0499.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 DA0499.See file dsdata.txt to determine how the superseded data were derived.
 DA0499
 DA0499_MARKER: DD = SURVEY DISK
 DA0499_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 DA0499_STAMPING: R 1 1930
 DA0499_PROJECTION: PROJECTING 10 CENTIMETERS
 DA0499_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 DA0499+STABILITY: SURFACE MOTION
 DA0499
 DA0499  HISTORY     - Date     Condition        Recov. By
 DA0499  HISTORY     - 1930     MONUMENTED       USGS
 DA0499  HISTORY     - 1953     GOOD             NGS
 DA0499  HISTORY     - 1980     GOOD             NGS
 DA0499  HISTORY     - 1980     GOOD             NGS
 DA0499  HISTORY     - 1980     GOOD             NGS
```

```
DA0499
DA0499                          STATION DESCRIPTION
DA0499
DA0499'DESCRIBED BY NATIONAL GEODETIC SURVEY 1953
DA0499'2.7 MI S FROM GILA BEND.
DA0499'2.7 MILES SOUTH ALONG STATE HIGHWAY 85 FROM THE SOUTHERN PACIFIC
DA0499'COMPANY RAILROAD STATION AT GILA BEND, 0.1 MILE NORTH OF THE T
DA0499'JUNCTION OF A GRAVELED ROAD LEADING WEST TO A CEMETERY, 5 FEET EAST OF
DA0499'MILEPOLE 3 OF THE TUCSON, CORNELIA AND GILA BEND RAILROAD, 90 FEET
DA0499'WEST OF THE WEST RAIL, 83 FEET SOUTHWEST OF A 1 MILE TO STATION SIGN,
DA0499'49 FEET EAST OF THE CENTER LINE OF THE HIGHWAY, 1.2 FEET SOUTH OF A
DA0499'WITNESS POST, ABOUT LEVEL WITH THE HIGHWAY, AND SET IN THE TOP OF A
DA0499'CONCRETE POST PROJECTING 0.3 FOOT ABOVE THE GROUND.
DA0499
DA0499                          STATION RECOVERY (1980)
DA0499
DA0499'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0499'RECOVERED IN GOOD CONDITION.
DA0499
DA0499                          STATION RECOVERY (1980)
DA0499
DA0499'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0499'RECOVERED IN GOOD CONDITION.
DA0499
DA0499                          STATION RECOVERY (1980)
DA0499
DA0499'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0499'4.1 KM (2.55 MI) SOUTHWEST ALONG THE TUCSON, CORNELIA AND GILA BEND
DA0499'RAILWAY FROM THE MARTIN AVENUE CROSSING IN GILA BEND, AT RAILWAY
DA0499'MILEPOLE 3, 27.4 METERS (90.0 FT) NORTHWEST OF THE NORTHWEST RAIL OF
DA0499'THE TRACKS, 25.3 METERS (83.0 FT) WEST-SOUTHWEST OF A 1 MILE STATION
DA0499'RAILWAY SIGN, 20.1 METERS (66.0 FT) SOUTHEAST OF THE CENTERLINE OF
DA0499'STATE HIGHWAY 85, 1.8 METERS (6.0 FT) SOUTHEAST OF THE SOUTHEAST
DA0499'RIGHT-OF-WAY FENCE, 1.5 METERS (5.0 FT) SOUTHEAST OF THE MILEPOST.
DA0499'THE MARK IS 0.3 METERS  SW FROM A WITNESS POST.
DA0499'THE MARK IS 0.6 M BELOW THE TRACKS.

*** retrieval complete.
Elapsed Time = 00:00:02
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The NGS Data Sheet

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 5.91
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER  7, 1999
 DA0695 ***********************************************************************
 DA0695  DESIGNATION -  X 13
 DA0695  PID         -  DA0695
 DA0695  STATE/COUNTY-  AZ/MARICOPA
 DA0695  USGS QUAD   -  GILA BEND (1976)
 DA0695
 DA0695                         *CURRENT SURVEY CONTROL
 DA0695
 DA0695* NAD 83(1986)-  32 58 44.     (N)    112 40 54.     (W)     SCALED
 DA0695* NAVD 88     -       224.328  (meters)     735.98   (feet)  ADJUSTED
 DA0695
 DA0695  GEOID HEIGHT-         -31.25  (meters)                     GEOID96
 DA0695  DYNAMIC HT  -         224.063 (meters)     735.11   (feet)  COMP
 DA0695  MODELED GRAV-     979,451.5   (mgal)                       NAVD 88
 DA0695
 DA0695  VERT ORDER  -  FIRST     CLASS II
 DA0695
 DA0695.The horizontal coordinates were scaled from a topographic map and have
 DA0695.an estimated accuracy of +/- 6 seconds.
 DA0695
 DA0695.The orthometric height was determined by differential leveling
 DA0695.and adjusted by the National Geodetic Survey in June 1991.
 DA0695
 DA0695.The geoid height was determined by GEOID96.
 DA0695
 DA0695.The dynamic height is computed by dividing the NAVD 88
 DA0695.geopotential number by the normal gravity value computed on the
 DA0695.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 DA0695.degrees latitude (G = 980.6199 gals.).
 DA0695
 DA0695.The modeled gravity was interpolated from observed gravity values.
 DA0695
 DA0695;                    North         East    Units  Estimated Accuracy
 DA0695;SPC AZ C     -   219,670.      141,860.      MT  (+/- 180 meters Scaled)
 DA0695
 DA0695                          SUPERSEDED SURVEY CONTROL
 DA0695
 DA0695  NGVD 29     -       223.712  (m)          733.96   (f) ADJ UNCH    1 2
 DA0695
 DA0695.Superseded values are not recommended for survey control.
 DA0695.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 DA0695.See file dsdata.txt to determine how the superseded data were derived.
 DA0695
 DA0695_MARKER: DB = BENCH MARK DISK
 DA0695_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 DA0695_STAMPING: X 13 1927 734.100
 DA0695_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 DA0695+STABILITY: SURFACE MOTION
 DA0695
 DA0695  HISTORY     - Date     Condition        Recov. By
 DA0695  HISTORY     - 1927     MONUMENTED       CGS
 DA0695  HISTORY     - 1967     GOOD             NGS
 DA0695  HISTORY     - 1981     GOOD             NGS
 DA0695  HISTORY     - 19941202 GOOD             USPSQD
 DA0695
 DA0695                          STATION DESCRIPTION
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DA0695
DA0695'DESCRIBED BY NATIONAL GEODETIC SURVEY 1967
DA0695'3.1 MI NE FROM GILA BEND.
DA0695'0.85 MILE EAST ALONG THE SOUTHERN PACIFIC RAILROAD FROM THE STATION AT
DA0695'GILA BEND, THENCE 2.25 MILES NORTH ALONG THE ARLINGTON-HASSAYAMPA
DA0695'ROAD, OLD U. S. HIGHWAY 80, IN SECTION 21, T 5 S, R 4 W, 0.2 MILE
DA0695'SOUTH OF A CURVE IN THE ROAD, 64 FEET WEST OF THE CENTER LINE OF THE
DA0695'HIGHWAY, 47 FEET SOUTH OF THE CENTER LINE OF A PRIVATE ROAD, 137 FEET
DA0695'NORTHWEST AND ACROSS THE HIGHWAY FROM POWER POLE NUMBER 12-12, 14 1/2
DA0695'FEET WEST OF A FENCE, ABOUT 2 FEET ABOVE THE LEVEL OF THE HIGHWAY, AND
DA0695'SET IN THE TOP OF A CONCRETE POST PROJECTING 10 INCHES.
DA0695
DA0695                          STATION RECOVERY (1981)
DA0695
DA0695'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
DA0695'RECOVERED IN GOOD CONDITION.
DA0695
DA0695                          STATION RECOVERY (1994)
DA0695
DA0695'RECOVERY NOTE BY US POWER SQUADRON 1994
DA0695'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:02
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The NGS Data Sheet

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 5.91
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER  7, 1999
 DA0694 ***********************************************************************
 DA0694  DESIGNATION -  B 361
 DA0694  PID         -  DA0694
 DA0694  STATE/COUNTY-  AZ/MARICOPA
 DA0694  USGS QUAD   -  GILA BEND (1976)
 DA0694
 DA0694                         *CURRENT SURVEY CONTROL
 DA0694
 DA0694* NAD 83(1986)-  32 59 29.     (N)    112 40 23.     (W)     SCALED
 DA0694* NAVD 88     -       224.281  (meters)     735.83  (feet)  ADJUSTED
 DA0694
 DA0694  GEOID HEIGHT-         -31.23  (meters)                     GEOID96
 DA0694  DYNAMIC HT  -         224.017 (meters)     734.96  (feet)  COMP
 DA0694  MODELED GRAV-     979,453.9   (mgal)                      NAVD 88
 DA0694
 DA0694  VERT ORDER  -  FIRST     CLASS II
 DA0694
 DA0694.The horizontal coordinates were scaled from a topographic map and have
 DA0694.an estimated accuracy of +/- 6 seconds.
 DA0694
 DA0694.The orthometric height was determined by differential leveling
 DA0694.and adjusted by the National Geodetic Survey in June 1991.
 DA0694
 DA0694.The geoid height was determined by GEOID96.
 DA0694
 DA0694.The dynamic height is computed by dividing the NAVD 88
 DA0694.geopotential number by the normal gravity value computed on the
 DA0694.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 DA0694.degrees latitude (G = 980.6199 gals.).
 DA0694
 DA0694.The modeled gravity was interpolated from observed gravity values.
 DA0694
 DA0694;                    North         East    Units  Estimated Accuracy
 DA0694;SPC AZ C     -   221,050.      142,670.      MT  (+/- 180 meters Scaled)
 DA0694
 DA0694                         SUPERSEDED SURVEY CONTROL
 DA0694
 DA0694  NGVD 29     -       223.665  (m)          733.81   (f) ADJ UNCH    1 2
 DA0694
 DA0694.Superseded values are not recommended for survey control.
 DA0694.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 DA0694.See file dsdata.txt to determine how the superseded data were derived.
 DA0694
 DA0694_MARKER: DB = BENCH MARK DISK
 DA0694_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 DA0694_STAMPING: B 361 1967
 DA0694_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 DA0694+STABILITY: SURFACE MOTION
 DA0694
 DA0694  HISTORY     - Date     Condition        Recov. By
 DA0694  HISTORY     - 1967     MONUMENTED       CGS
 DA0694  HISTORY     - 1981     GOOD             NGS
 DA0694  HISTORY     - 19941202 GOOD             USPSQD
 DA0694
 DA0694                         STATION DESCRIPTION
 DA0694
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DA0694'DESCRIBED BY COAST AND GEODETIC SURVEY 1967
DA0694'4.1 MI N FROM GILA BEND.
DA0694'0.85 MILE EAST ALONG THE SOUTHERN PACIFIC RAILROAD FROM THE STATION AT
DA0694'GILA BEND, THENCE 3.25 MILES NORTH ALONG THE ARLINGTON-HASSAYAMPA
DA0694'ROAD, OLD U. S. HIGHWAY 80, IN SECTION 16, T 5 S, R 4 W, 49 1/2 FEET
DA0694'NORTHWEST OF THE CENTER LINE OF THE HIGHWAY, 35 1/2 FEET SOUTHWEST OF
DA0694'THE CENTER LINE OF A GRAVELED ROAD LEADING NORTHWEST, 189 FEET
DA0694'SOUTHWEST OF THE SOUTHWEST END OF THE NORTHWEST CONCRETE HEAD WALL OF
DA0694'A CULVERT UNDER THE HIGHWAY, 1 FOOT EAST OF A FENCE, 1.7 FEET WEST OF
DA0694'A METAL WITNESS POST, ABOUT LEVEL WITH THE HIGHWAY, AND SET IN THE TOP
DA0694'OF A CONCRETE POST PROJECTING 6 INCHES.
DA0694
DA0694                          STATION RECOVERY (1981)
DA0694
DA0694'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981
DA0694'RECOVERED IN GOOD CONDITION.
DA0694
DA0694                          STATION RECOVERY (1994)
DA0694
DA0694'RECOVERY NOTE BY US POWER SQUADRON 1994
DA0694'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:02
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The NGS Data Sheet

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 5.91
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER  7, 1999
 DA0709 ***********************************************************************
 DA0709  DESIGNATION -  CEDA
 DA0709  PID         -  DA0709
 DA0709  STATE/COUNTY-  AZ/MARICOPA
 DA0709  USGS QUAD   -  SMURR (1977)
 DA0709
 DA0709                          *CURRENT SURVEY CONTROL
 DA0709  ___________________________________________________________________
 DA0709* NAD 83(1992)-  32 56 03.79292(N)    112 46 59.88137(W)     ADJUSTED
 DA0709* NAVD 88     -       224.712  (meters)     737.24   (feet)  ADJUSTED
 DA0709  ___________________________________________________________________
 DA0709  LAPLACE CORR-           0.81  (seconds)                    DEFLEC96
 DA0709  GEOID HEIGHT-         -31.31  (meters)                     GEOID96
 DA0709  DYNAMIC HT  -         224.449 (meters)     736.38   (feet) COMP
 DA0709  MODELED GRAV-     979,465.6   (mgal)                       NAVD 88
 DA0709
 DA0709  HORZ ORDER  -  SECOND
 DA0709  VERT ORDER  -  FIRST     CLASS II
 DA0709
 DA0709.The horizontal coordinates were established by classical geodetic methods
 DA0709.and adjusted by the National Geodetic Survey in August 1993.
 DA0709
 DA0709.The orthometric height was determined by differential leveling
 DA0709.and adjusted by the National Geodetic Survey in June 1991.
 DA0709
 DA0709.The Laplace correction was computed from DEFLEC96 derived deflections.
 DA0709
 DA0709.The geoid height was determined by GEOID96.
 DA0709
 DA0709.The dynamic height is computed by dividing the NAVD 88
 DA0709.geopotential number by the normal gravity value computed on the
 DA0709.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 DA0709.degrees latitude (G = 980.6199 gals.).
 DA0709
 DA0709.The modeled gravity was interpolated from observed gravity values.
 DA0709                  704,753.173  434,111.654 (ENGLISH-SPC)
 DA0709;                     North          East     Units   Scale       Converg.
 DA0709;SPC AZ C     -   214,808.767   132,317.232   MT  0.99998096 -0 28 16.3
 DA0709;UTM  12      - 3,645,424.003   333,277.222   MT  0.99994274 -0 58 11.2
 DA0709
 DA0709:                 Primary Azimuth Mark                      Grid Az
 DA0709:SPC AZ C     -   I8 STA 4896+00 728.58                     067 49 54.2
 DA0709:UTM  12      -   I8 STA 4896+00 728.58                     068 19 49.1
 DA0709
 DA0709|-----------------------------------------------------------------------|
 DA0709| PID    Reference Object                     Distance       Geod. Az   |
 DA0709|                                                            dddmmss.s  |
 DA0709| DA1550 RNG GILA BENC GBN                  APPROX. 6.5 KM 0664046.8  |
 DA0709|        I8 STA 4896+00 728.58                             0672137.9  |
 DA0709| DA0710 CEDA RM 1                          13.350 METERS 08203       |
 DA0709|        CEDA AZ MK                                        2623344.5  |
 DA0709| DA0708 CEDA RM 2                          15.610 METERS 34916       |
 DA0709|-----------------------------------------------------------------------|
 DA0709
 DA0709                          SUPERSEDED SURVEY CONTROL
 DA0709
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DA0709  NAD 83(1986)-  32 56 03.78584(N)    112 46 59.88598(W) AD(       ) 2
DA0709  NAD 27      -  32 56 03.61750(N)    112 46 57.27970(W) AD(       ) 2
DA0709  NGVD 29     -       224.148  (m)          735.39   (f) ADJ UNCH    1 2
DA0709
DA0709.Superseded values are not recommended for survey control.
DA0709.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0709.See file dsdata.txt to determine how the superseded data were derived.
DA0709
DA0709_MARKER: DS = TRIANGULATION STATION DISK
DA0709_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0709_STAMPING: CEDA 1960
DA0709_PROJECTION: PROJECTING 3 CENTIMETERS
DA0709_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0709+STABILITY: SURFACE MOTION
DA0709
DA0709  HISTORY     - Date     Condition        Recov. By
DA0709  HISTORY     - 1960     MONUMENTED       CGS
DA0709  HISTORY     - 1960     GOOD             CGS
DA0709  HISTORY     - 1974     GOOD             NGS
DA0709  HISTORY     - 1980     GOOD             NGS
DA0709  HISTORY     - 1980     GOOD             NGS
DA0709  HISTORY     - 1980     GOOD             NGS
DA0709
DA0709                          STATION DESCRIPTION
DA0709
DA0709'DESCRIBED BY COAST AND GEODETIC SURVEY 1960 (WWH)
DA0709'THE STATION IS 4.0 MILES WEST OF GILA BEND FROM THE JUNCTION OF
DA0709'U.S. HIGHWAY 80 AND STATE HIGHWAY 85, ON THE SUMMIT OF A
DA0709'SLIGHT RISE BETWEEN ABANDONED HIGHWAY 80 AND THE RAILROAD,
DA0709'6-1/2 POLES WEST OF RAILROAD MILE POST 852, 102 FEET SOUTH OF THE
DA0709'CENTERLINE OF THE ABANDONED HIGHWAY, 78 FEET EAST OF TELEPHONE
DA0709'POLE NO. E 48, 46 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD
DA0709'AND 4 FEET NORTHWEST OF A METAL WITNESS POST WITH SIGN.
DA0709'
DA0709'TO REACH FROM THE JUNCTION OF U.S. HIGHWAY 80 AND STATE HIGHWAY
DA0709'85 AT GILA BEND GO WEST ON U.S. HIGHWAY 80 FOR 4.0 MILES TO
DA0709'THE STATION ON THE RIGHT.
DA0709'
DA0709'THE STATION, WITH UNDERGROUND MARK, STAMPED CEDA 1960, IS A
DA0709'STANDARD DISK SET IN A SQUARE CONCRETE POST PROJECTING 2 INCHES.
DA0709'
DA0709'REFERENCE MARK NO. 1, STAMPED CEDA NO 1 1960, IS A STANDARD
DA0709'DISK SET IN A SQUARE CONCRETE POST PROJECTING 5 INCHES, 43-1/2
DA0709'FEET NORTH OF THE NORTH RAIL OF THE RAILROAD, 36 FEET WEST OF
DA0709'TELEPHONE POLE F AND ABOUT 1 FOOT HIGHER THAN THE STATION.
DA0709'
DA0709'REFERENCE MARK NO. 2, STAMPED CEDA NO 2 1960, IS A STANDARD
DA0709'DISK SET IN A SQUARE CONCRETE POST PROJECTING 4 INCHES, 51
DA0709'FEET SOUTH OF THE CENTERLINE OF THE ABANDONED HIGHWAY AND
DA0709'ABOUT THE SAME ELEVATION AS THE STATION.
DA0709'
DA0709'THE AZIMUTH MARK, STAMPED CEDA 1960, IS A STANDARD DISK
DA0709'CEMENTED IN A DRILL HOLE IN THE CONCRETE FLOOR OF A INTERCHANGE,
DA0709'17 FEET SOUTH OF THE CENTERLINE OF THE EAST BOUND TRAFFIC
DA0709'LANE, 4.8 FEET WEST OF THE EAST EDGE OF THE CONCRETE FLOOR,
DA0709'2.4 FEET NORTH OF THE SOUTH CURB AND FLUSH WITH THE ROADWAY.
DA0709'TO REACH FROM THE STATION GO WEST ON U.S. HIGHWAY 80 (INTERSTATE
DA0709'8) FOR 1.2 MILES TO A INTERCHANGE AND THE MARK.
DA0709
DA0709                          STATION RECOVERY (1960)
DA0709
DA0709'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1960
DA0709'4.0 MI W FROM GILA BEND.
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DA0709'4.0 MILES WEST ON U.S. HIGHWAY 80 FROM THE JUNCTION OF STATE HIGHWAY
DA0709'85 AT GILA BEND, 6 1/2 POLES WEST OF MILE POST 852, 102 FEET SOUTH OF
DA0709'THE CENTERLINE OF THE ABANDONED HIGHWAY, 78 FEET EAST OF TELEPHONE
DA0709'POLE E 48, 51.21 FEET SOUTH OF R.M. 2, 46 FEET NORTH OF THE NORTH
DA0709'RAIL, 43.80 FEET WEST OF R.M. 1, 4 FEET NORTHWEST OF A METAL WITNESS
DA0709'POST WITH SIGN, SET IN A SQUARE CONCRETE POST PROJECTING 2 INCHES.
DA0709
DA0709                          STATION RECOVERY (1974)
DA0709
DA0709'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1974 (CN)
DA0709'THE STATION MARK AND REFERENCE MARKS 1 AND 2 WERE RECOVERED
DA0709'AS DESCRIBED.  THE AZIMUTH MARK IS BURIED UNDER THE HIGHWAY
DA0709'SURFACE AND A NEW AZIMUTH MARK WAS ESTABLISHED AT THIS TIME.
DA0709'
DA0709'THE AZIMUTH MARK IS AN ARIZONA HIGHWAY DEPARTMENT DISK STAMPED,
DA0709'728-58 STA 4896+00.  THE MARK IS SET IN TOP OF THE CONCRETE
DA0709'HEADWALL ALONG THE SOUTH SIDE OF THE EAST BOUND LANE OF
DA0709'INTERSTATE HIGHWAY 8.
DA0709'
DA0709'TO REACH THE STATION FROM THE INTERSECTION OF CAPITAL AVENUE
DA0709'AND U.S. 80 IN GILA BEND, GO WEST ALONG U.S. 80 FOR 2.2 MILES
DA0709'TO INTERSECTION WITH AN I-8 OFF RAMP AND THE SOUTH FRONTAGE
DA0709'ROAD.  BEAR LEFT ALONG THE FRONTAGE ROAD FOR 1.8 MILES TO THE
DA0709'STATION ON THE LEFT ON TOP OF A LOW RISE.
DA0709'
DA0709'HEIGHT OF LIGHT ABOVE STATION MARK 5 FEET.
DA0709'
DA0709'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--4 MILES WEST
DA0709'OF GILA BEND
DA0709
DA0709                          STATION RECOVERY (1980)
DA0709
DA0709'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0709'6.4 KM (4.0 MI) SOUTHWEST ALONG THE SOUTHERN PACIFIC RAILROAD FROM THE
DA0709'MARTIN AVENUE CROSSING IN GILA BEND, 0.3 KM (0.2 MI) SOUTHWEST OF
DA0709'RAILROAD MILEPOLE 852, 14.1 METERS (46.0 FT) NORTHWEST OF THE
DA0709'NORTHWEST RAIL, 30.8 METERS (101 FT) SOUTHEAST OF THE CENTERLINE OF
DA0709'THE FRONTAGE ROAD (OLD U.S. HIGHWAY 80).
DA0709'THE MARK IS 1.0 METERS  W FROM A WITNESS POST.
DA0709'THE MARK IS 1.5 M ABOVE THE TRACKS.
DA0709
DA0709                          STATION RECOVERY (1980)
DA0709
DA0709'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0709'6.4 KM (4.0 MI) SOUTHWEST ALONG THE SOUTHERN PACIFIC RAILROAD FROM THE
DA0709'MARTIN AVENUE CROSSING IN GILA BEND, 0.3 KM (0.2 MI) SOUTHWEST OF
DA0709'RAILROAD MILEPOLE 852, 14.1 METERS (46.0 FT) NORTHWEST OF THE
DA0709'NORTHWEST RAIL, 30.8 METERS (101 FT) SOUTHEAST OF THE CENTERLINE OF
DA0709'THE FRONTAGE ROAD (OLD U.S. HIGHWAY 80).
DA0709'THE MARK IS 1.0 METERS  W FROM A WITNESS POST.
DA0709'THE MARK IS 1.5 M ABOVE THE TRACKS.
DA0709
DA0709                          STATION RECOVERY (1980)
DA0709
DA0709'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0709'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:02
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The NGS Data Sheet

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 5.91
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER  7, 1999
 DA0685 ***********************************************************************
 DA0685  DESIGNATION -  TOSA
 DA0685  PID         -  DA0685
 DA0685  STATE/COUNTY-  AZ/MARICOPA
 DA0685  USGS QUAD   -  SMURR (1977)
 DA0685
 DA0685                          *CURRENT SURVEY CONTROL
 DA0685  ___________________________________________________________________
 DA0685* NAD 83(1992)-  32 56 24.23295(N)    112 45 04.11137(W)     ADJUSTED
 DA0685* NAVD 88     -       222.378  (meters)     729.59   (feet)  ADJUSTED
 DA0685  ___________________________________________________________________
 DA0685  LAPLACE CORR-           0.67  (seconds)                    DEFLEC96
 DA0685  GEOID HEIGHT-         -31.30  (meters)                     GEOID96
 DA0685  DYNAMIC HT  -         222.118 (meters)     728.73   (feet) COMP
 DA0685  MODELED GRAV-     979,461.7   (mgal)                       NAVD 88
 DA0685
 DA0685  HORZ ORDER  -  SECOND
 DA0685  VERT ORDER  -  FIRST     CLASS II
 DA0685
 DA0685.The horizontal coordinates were established by classical geodetic methods
 DA0685.and adjusted by the National Geodetic Survey in August 1993.
 DA0685
 DA0685.The orthometric height was determined by differential leveling
 DA0685.and adjusted by the National Geodetic Survey in June 1991.
 DA0685
 DA0685.The Laplace correction was computed from DEFLEC96 derived deflections.
 DA0685
 DA0685.The geoid height was determined by GEOID96.
 DA0685
 DA0685.The dynamic height is computed by dividing the NAVD 88
 DA0685.geopotential number by the normal gravity value computed on the
 DA0685.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 DA0685.degrees latitude (G = 980.6199 gals.).
 DA0685
 DA0685.The modeled gravity was interpolated from observed gravity values.
 DA0685                  706,739.314  443,994.672 (ENGLISH-SPC)
 DA0685;                    North         East     Units   Scale       Converg.
 DA0685;SPC AZ C     -   215,414.143   135,329.576   MT  0.99997505 -0 27 13.6
 DA0685;UTM  12      - 3,646,003.118   336,294.595   MT  0.99993045 -0 57 08.7
 DA0685
 DA0685:                 Primary Azimuth Mark                      Grid Az
 DA0685:SPC AZ C     -  U 319                                      257 00 59.9
 DA0685:UTM  12      -  U 319                                      257 30 55.0
 DA0685
 DA0685|-----------------------------------------------------------------------|
 DA0685| PID    Reference Object                     Distance       Geod. Az  |
 DA0685|                                                            dddmmss.s |
 DA0685| DA1165 TOSA RM 3                            15.043 METERS  00526     |
 DA0685| DA1550 RNG GILA BENC GBN                   APPROX. 3.5 KM  0564301.7 |
 DA0685| DA0684 TOSA RM 1                            18.237 METERS  08941     |
 DA0685| DA0600 U 319                                               2563346.3 |
 DA0685| DA0686 TOSA RM 2                            18.072 METERS  28627     |
 DA0685|-----------------------------------------------------------------------|
 DA0685
 DA0685                          SUPERSEDED SURVEY CONTROL
 DA0685
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DA0685  NAD 83(1986)-  32 56 24.22571(N)    112 45 04.11588(W) AD(       ) 2
DA0685  NAD 27      -  32 56 24.05980(N)    112 45 01.51390(W) AD(       ) 2
DA0685  NGVD 29     -       221.809  (m)          727.72   (f) ADJ UNCH    1 2
DA0685
DA0685.Superseded values are not recommended for survey control.
DA0685.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0685.See file dsdata.txt to determine how the superseded data were derived.
DA0685
DA0685_MARKER: DS = TRIANGULATION STATION DISK
DA0685_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0685_STAMPING: TOSA 1960
DA0685_PROJECTION: PROJECTING 10 CENTIMETERS
DA0685_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0685+STABILITY: SURFACE MOTION
DA0685
DA0685  HISTORY     - Date     Condition        Recov. By
DA0685  HISTORY     - 1960     MONUMENTED       CGS
DA0685  HISTORY     - 1960     GOOD             CGS
DA0685  HISTORY     - 1974     GOOD             NGS
DA0685  HISTORY     - 1980     GOOD             NGS
DA0685  HISTORY     - 1980     GOOD             NGS
DA0685  HISTORY     - 1980     GOOD             NGS
DA0685
DA0685                          STATION DESCRIPTION
DA0685
DA0685'DESCRIBED BY COAST AND GEODETIC SURVEY 1960 (WWH)
DA0685'THE STATION IS 2.1 MILES WEST ALONG U.S. HIGHWAY 80 FROM THE
DA0685'JUNCTION OF U.S. HIGHWAY 80 AND STATE HIGHWAY 85 AT GILA BEND,
DA0685'0.7 MILE WEST OF HIGHWAY MILE POLE 118, 143 FEET SOUTH OF
DA0685'THE CENTERLINE OF THE HIGHWAY, 50 FEET NORTH OF THE NORTH
DA0685'RAIL OF THE RAILROAD, 34-1/2 FEET NORTHWEST OF A TELEPHONE
DA0685'POLE AND 5.2 FEET SOUTH OF A METAL WITNESS POST WITH SIGN.
DA0685'
DA0685'THE STATION, WITH UNDERGROUND MARK, STAMPED TOSA 1960, IS A
DA0685'STANDARD DISK SET IN A CYLINDRICAL CONCRETE POST PROJECTING
DA0685'5 INCHES.
DA0685'
DA0685'REFERENCE MARK NO. 1, STAMPED TOSA NO 1 1960, IS A STANDARD
DA0685'DISK SET IN A CYLINDRICAL CONCRETE POST PROJECTING 4 INCHES,
DA0685'38 FEET NORTH OF THE NORTH RAIL OF THE RAILROAD AND 26 FEET
DA0685'EAST OF A TELEPHONE POLE.
DA0685'
DA0685'REFERENCE MARK NO. 2, STAMPED TOSA NO 2 1960, IS A STANDARD
DA0685'DISK SET IN A CYLINDRICAL CONCRETE POST PROJECTING 8 INCHES,
DA0685'115 FEET SOUTH OF THE CENTERLINE OF THE HIGHWAY, 78 FEET NORTH OF
DA0685'THE NORTH RAIL OF THE RAILROAD AND 47-1/2 FEET SOUTHEAST OF
DA0685'A POWER POLE.
DA0685'
DA0685'THE BENCH MARK (AZIMUTH MARK), STAMPED U 319 1952, IS A
DA0685'STANDARD DISK CEMENTED IN A DRILL HOLE IN THE TOP OF THE
DA0685'NORTHWEST CONCRETE ABUTMENT OF A RAILROAD BRIDGE, 11-1/2
DA0685'POLES EAST OF MILE POLE 853 AND 6 FEET NORTH OF THE NORTH RAIL
DA0685'OF THE RAILROAD.  TO REACH FROM THE STATION GO WEST ON U.S.
DA0685'HIGHWAY 80 FOR 0.3 MILE TO THE MARK ON THE LEFT.
DA0685
DA0685                          STATION RECOVERY (1960)
DA0685
DA0685'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1960
DA0685'2.1 MI W FROM GILA BEND.
DA0685'2.1 MILES WEST ON U.S. HIGHWAY 80 FROM THE JUNCTION OF STATE HIGHWAY
DA0685'85 AT GILA BEND, 0.7 MILE WEST OF HIGHWAY MILE POST 118, 143 FEET
DA0685'SOUTH OF THE CENTERLINE OF THE HIGHWAY, 59.83 FEET WEST OF R.M. 1,
DA0685'59.29 FEET EAST OF R.M. 2, 50 FEET NORTH OF THE NORTH RAIL OF THE
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DA0685'RAILROAD, 34 1/2 FEET NORTHWEST OF A TELEPHONE POLE, 5.2 FEET SOUTH OF
DA0685'A METAL WITNESS POST WITH SIGN, SET IN A CYLINDRICAL CONCRETE POST
DA0685'PROJECTING 5 INCHES.
DA0685
DA0685                          STATION RECOVERY (1974)
DA0685
DA0685'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1974 (CN)
DA0685'THE STATION MARK, REFERENCE MARK 2 AND THE AZIMUTH MARK WERE
DA0685'RECOVERED AS DESCRIBED AND FOUND IN GOOD CONDITION.  REFERENCE
DA0685'MARK 1 WAS FOUND GRADED OUT.  THE MARK WAS RESET AND THE
DA0685'STAMPING CHANGED TO READ, TOSA 1960 NO 3 1974.  THE MARK IS
DA0685'48 FEET WEST OF WITNESS POST AND SIGN, 2 FEET SOUTH OF A
DA0685'RAILROAD TIE SET VERTICALLY IN FENCELINE.  THE MARK PROJECTS
DA0685'6 INCHES.
DA0685'
DA0685'HEIGHT OF LIGHT ABOVE STATION MARK 5 FEET.
DA0685'
DA0685'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--2 MILES
DA0685'WEST OF GILA BEND
DA0685
DA0685                          STATION RECOVERY (1980)
DA0685
DA0685'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0685'3.4 KM (2.1 MI) SOUTHWEST ALONG THE SOUTHERN PACIFIC RAILROAD FROM THE
DA0685'MARTIN AVENUE CROSSING IN GILA BEND, 1.0 KM (0.6 MI) SOUTHWEST OF
DA0685'THE INTERSTATE HIGHWAY 8 OVERPASS, 15.3 METERS (50.0 FT) NORTHWEST OF
DA0685'THE NORTHWEST RAIL, 29.4 METERS (96.5 FT) SOUTHEAST OF THE EXTENDED
DA0685'CENTERLINE OF THE FRONTAGE ROAD (OLD U.S. HIGHWAY 80), 15.0 METERS
DA0685'(49.0 FT) SOUTHEAST OF THE SOUTHEAST RIGHT-OF-WAY FENCE.
DA0685'THE MARK IS 1.8 METERS  SE FROM A WITNESS POST.
DA0685'THE MARK IS ABOVE LEVEL WITH THE TRACKS.
DA0685
DA0685                          STATION RECOVERY (1980)
DA0685
DA0685'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0685'3.4 KM (2.1 MI) SOUTHWEST ALONG THE SOUTHERN PACIFIC RAILROAD FROM THE
DA0685'MARTIN AVENUE CROSSING IN GILA BEND, 1.0 KM (0.6 MI) SOUTHWEST OF
DA0685'THE INTERSTATE HIGHWAY 8 OVERPASS, 15.3 METERS (50.0 FT) NORTHWEST OF
DA0685'THE NORTHWEST RAIL, 29.4 METERS (96.5 FT) SOUTHEAST OF THE EXTENDED
DA0685'CENTERLINE OF THE FRONTAGE ROAD (OLD U.S. HIGHWAY 80), 15.0 METERS
DA0685'(49.0 FT) SOUTHEAST OF THE SOUTHEAST RIGHT-OF-WAY FENCE.
DA0685'THE MARK IS 1.8 METERS  SE FROM A WITNESS POST.
DA0685'THE MARK IS ABOVE LEVEL WITH THE TRACKS.
DA0685
DA0685                          STATION RECOVERY (1980)
DA0685
DA0685'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0685'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:03
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The NGS Data Sheet

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 5.91
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER  7, 1999
 DA0680 ***********************************************************************
 DA0680  DESIGNATION -  COY
 DA0680  PID         -  DA0680
 DA0680  STATE/COUNTY-  AZ/MARICOPA
 DA0680  USGS QUAD   -  GILA BEND (1976)
 DA0680
 DA0680                          *CURRENT SURVEY CONTROL
 DA0680  ___________________________________________________________________
 DA0680* NAD 83(1992)-  32 56 16.55592(N)    112 43 23.26795(W)     ADJUSTED
 DA0680* NAVD 88     -      229.748  (meters)     753.76   (feet)  ADJUSTED
 DA0680  ___________________________________________________________________
 DA0680  LAPLACE CORR-           0.59  (seconds)                   DEFLEC96
 DA0680  GEOID HEIGHT-         -31.28  (meters)                    GEOID96
 DA0680  DYNAMIC HT  -         229.478 (meters)     752.88   (feet) COMP
 DA0680  MODELED GRAV-     979,456.4   (mgal)                      NAVD 88
 DA0680
 DA0680  HORZ ORDER  -  SECOND
 DA0680  VERT ORDER  -  FIRST     CLASS II
 DA0680
 DA0680.The horizontal coordinates were established by classical geodetic methods
 DA0680.and adjusted by the National Geodetic Survey in August 1993.
 DA0680
 DA0680.The orthometric height was determined by differential leveling
 DA0680.and adjusted by the National Geodetic Survey in June 1991.
 DA0680
 DA0680.The Laplace correction was computed from DEFLEC96 derived deflections.
 DA0680
 DA0680.The geoid height was determined by GEOID96.
 DA0680
 DA0680.The dynamic height is computed by dividing the NAVD 88
 DA0680.geopotential number by the normal gravity value computed on the
 DA0680.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 DA0680.degrees latitude (G = 980.6199 gals.).
 DA0680
 DA0680.The modeled gravity was interpolated from observed gravity values.
 DA0680                  705,896.513  452,582.680 (ENGLISH-SPC)
 DA0680;                     North         East     Units   Scale      Converg.
 DA0680;SPC AZ C     -   215,157.257   137,947.201   MT  0.99997010 -0 26 18.7
 DA0680;UTM  12      - 3,645,723.475   338,909.761   MT  0.99991997 -0 56 13.6
 DA0680
 DA0680:                 Primary Azimuth Mark                     Grid Az
 DA0680:SPC AZ C     -  M 298                                     140 57 52.2
 DA0680:UTM  12      -  M 298                                     141 27 47.1
 DA0680
 DA0680|-----------------------------------------------------------------------|
 DA0680| PID    Reference Object                    Distance      Geod. Az     |
 DA0680|                                                          dddmmss.s    |
 DA0680| DA1550 RNG GILA BENC GBN                 APPROX. 2.2 KM 0084134.7     |
 DA0680| DA0682 COY RM 1                           16.900 METERS 13930         |
 DA0680| DA0646 M 298                                            1403133.5    |
 DA0680| DA0681 COY RM 2                           17.308 METERS 23835         |
 DA0680|-----------------------------------------------------------------------|
 DA0680
 DA0680                          SUPERSEDED SURVEY CONTROL
 DA0680
 DA0680  NAD 83(1986)-  32 56 16.54853(N)    112 43 23.27245(W) AD(       ) 2
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DA0680  NAD 27      -  32 56 16.38390(N)    112 43 20.67360(W) AD(       ) 2
DA0680  NGVD 29     -       229.184  (m)          751.91   (f) ADJ UNCH    1 2
DA0680
DA0680.Superseded values are not recommended for survey control.
DA0680.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
DA0680.See file dsdata.txt to determine how the superseded data were derived.
DA0680
DA0680_MARKER: DS = TRIANGULATION STATION DISK
DA0680_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0680_STAMPING: COY 1960
DA0680_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0680+STABILITY: SURFACE MOTION
DA0680
DA0680  HISTORY     - Date     Condition        Recov. By
DA0680  HISTORY     - 1960     MONUMENTED       CGS
DA0680  HISTORY     - 1960     GOOD             CGS
DA0680  HISTORY     - 1980     GOOD             NGS
DA0680  HISTORY     - 1980     GOOD             NGS
DA0680  HISTORY     - 1980     GOOD             NGS
DA0680  HISTORY     - 1981     GOOD             NGS
DA0680  HISTORY     - 19941202 MARK NOT FOUND   USPSQD
DA0680
DA0680                          STATION DESCRIPTION
DA0680
DA0680'DESCRIBED BY COAST AND GEODETIC SURVEY 1960 (WWH)
DA0680'THE STATION IS 0.6 MILE SOUTH OF THE CENTER OF GILA BEND AT
DA0680'THE PROPOSED SITE OF AN INTERCHANGE FOR THE INTERSTATE ROUTE
DA0680'85.
DA0680'
DA0680'TO REACH THE STATION FROM THE POST OFFICE IN GILA BEND,
DA0680'PROCEED SOUTH ALONG STATE ROUTE 85 FOR 1 MILE TO THE STATION
DA0680'ON THE RIGHT AT ABOUT THE CENTER OF A CURVE TO THE SOUTH,
DA0680'ABOUT 150 FEET WEST OF THE HIGHWAY AND 4 FEET NORTH OF A METAL
DA0680'WITNESS POST WITH SIGN ATTACHED.
DA0680'
DA0680'THE STATION, WITH UNDERGROUND MARK, STAMPED COY 1960 IS A
DA0680'STANDARD DISK SET IN A CYLINDRICAL CONCRETE POST PROJECTING
DA0680'4 INCHES.
DA0680'
DA0680'REFERENCE MARK 1, STAMPED COY NO 1 1960, IS A STANDARD DISK
DA0680'SET IN A CYLINDRICAL CONCRETE POST PROJECTING 6 INCHES.
DA0680'
DA0680'REFERENCE MARK 2, STAMPED COY NO 2 1960, IS A STANDARD DISK
DA0680'SET IN A CYLINDRICAL CONCRETE POST PROJECTING 6 INCHES.
DA0680'
DA0680'THE AZIMUTH MARK, STAMPED M 298 1951, IS A STANDARD BENCH
DA0680'MARK DISK SET IN A CYLINDRICAL CONCRETE POST PROJECTING 8
DA0680'INCHES.  IT IS 60 FEET WEST FROM THE CENTER LINE OF A GRAVELED
DA0680'ROAD AND 2-1/2 FEET NORTH OF A WOODEN WITNESS POST.
DA0680'
DA0680'TO REACH THE AZIMUTH MARK FROM THE STATION, GO EAST ALONG
DA0680'STATE ROUTE 85 FOR 0.4 MILE TO A CURVE TO THE NORTH, TURN
DA0680'RIGHT, SOUTH, ONTO A GRAVELED ROAD AND FOLLOW IT FOR 0.7 MILE
DA0680'TO THE MARK ON THE RIGHT, WEST, SIDE OF THE ROAD.
DA0680
DA0680                          STATION RECOVERY (1960)
DA0680
DA0680'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1960
DA0680'1.0 MI S FROM GILA BEND.
DA0680'1.0 MILE SOUTH ON STATE HIGHWAY 85 FROM THE JUNCTION OF U.S. HIGHWAY
DA0680'80 AT GILA BEND, 150 FEET WEST OF THE CENTERLINE OF THE HIGHWAY, 56.78
DA0680'FEET NORTHEAST OF R.M. 2, 55.45 FEET NORTHWEST OF R.M. 1, 4 FEET NORTH
DA0680'OF A METAL WITNESS POST WITH SIGN, SET IN A CYLINDRICAL CONCRETE POST
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DA0680'PROJECTING 4 INCHES.
DA0680
DA0680                          STATION RECOVERY (1980)
DA0680
DA0680'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0680'RECOVERED IN GOOD CONDITION.
DA0680
DA0680                          STATION RECOVERY (1980)
DA0680
DA0680'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0680'RECOVERED IN GOOD CONDITION.
DA0680
DA0680                          STATION RECOVERY (1980)
DA0680
DA0680'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980
DA0680'RECOVERED IN GOOD CONDITION.
DA0680
DA0680                          STATION RECOVERY (1981)
DA0680
DA0680'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1981 (BWM)
DA0680'THE STATION, RM 1 AND RM 2 WERE RECOVERED AS DESCRIBED.
DA0680
DA0680                          STATION RECOVERY (1994)
DA0680
DA0680'RECOVERY NOTE BY US POWER SQUADRON 1994
DA0680'MARK NOT FOUND.

*** retrieval complete.
Elapsed Time = 00:00:02
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The NGS Data Sheet

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DATABASE = Sybase ,PROGRAM = datasheet, VERSION = 5.91
Starting Datasheet Retrieval...
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER  7, 1999
 DA0672 ***********************************************************************
 DA0672  DESIGNATION -  GIANT
 DA0672  PID         -  DA0672
 DA0672  STATE/COUNTY-  AZ/MARICOPA
 DA0672  USGS QUAD   -  GILA BEND (1976)
 DA0672
 DA0672                          *CURRENT SURVEY CONTROL
 DA0672  ___________________________________________________________________
 DA0672* NAD 83(1992)-  32 55 33.15376(N)    112 40 40.56720(W)     ADJUSTED
 DA0672* NAVD 88     -       250.31   (+/-2cm)     821.2    (feet)  VERTCON
 DA0672  ___________________________________________________________________
 DA0672  LAPLACE CORR-           1.61  (seconds)                   DEFLEC96
 DA0672  GEOID HEIGHT-         -31.25  (meters)                    GEOID96
 DA0672
 DA0672  HORZ ORDER  -  FIRST
 DA0672  VERT ORDER  -  SECOND    CLASS 0 (See Below)
 DA0672
 DA0672.The horizontal coordinates were established by classical geodetic methods
 DA0672.and adjusted by the National Geodetic Survey in August 1993.
 DA0672
 DA0672.The NAVD 88 height was computed by applying the VERTCON shift value to
 DA0672.the NGVD 29 height (displayed under SUPERSEDED SURVEY CONTROL.)
 DA0672.The vertical order pertains to the superseded datum.
 DA0672
 DA0672.The Laplace correction was computed from DEFLEC96 derived deflections.
 DA0672
 DA0672.The geoid height was determined by GEOID96.
 DA0672                 701,406.939  466,416.742 (ENGLISH-SPC)
 DA0672;                   North         East     Units   Scale      Converg.
 DA0672;SPC AZ C     -   213,788.835   142,163.823   MT  0.99996248 -0 24 49.7
 DA0672;UTM  12      - 3,644,318.495   343,114.089   MT  0.99990349 -0 54 44.0
 DA0672
 DA0672:                 Primary Azimuth Mark                     Grid Az
 DA0672:SPC AZ C     -   M 354 RESET                              289 20 44.1
 DA0672:UTM  12      -   M 354 RESET                              289 50 38.4
 DA0672
 DA0672|-----------------------------------------------------------------------|
 DA0672| PID    Reference Object                     Distance       Geod. Az  |
 DA0672|                                                            dddmmss.s |
 DA0672| DA0670 GIANT RM 1                           16.109 METERS  05633     |
 DA0672| DA0671 GIANT RM 2                           21.392 METERS  17443     |
 DA0672| DA0674 M 354 RESET                                         2885554.4 |
 DA0672| DA0673 M 354                                               2900944.4 |
 DA0672|-----------------------------------------------------------------------|
 DA0672
 DA0672                          SUPERSEDED SURVEY CONTROL
 DA0672
 DA0672  NAD 83(1986)-  32 55 33.14601(N)    112 40 40.57142(W) AD(       ) 1
 DA0672  NAD 27      -  32 55 32.98480(N)    112 40 37.97500(W) AD(       ) 1
 DA0672  NGVD 29     -       249.706  (m)          819.24   (f) ADJ UNCH    2 0
 DA0672
 DA0672.Superseded values are not recommended for survey control.
 DA0672.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 DA0672.See file dsdata.txt to determine how the superseded data were derived.
 DA0672
 DA0672_MARKER: DS = TRIANGULATION STATION DISK
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DA0672_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
DA0672_STAMPING: GIANT 1960
DA0672_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
DA0672+STABILITY: SURFACE MOTION
DA0672
DA0672  HISTORY     - Date     Condition        Recov. By
DA0672  HISTORY     - 1960     MONUMENTED       CGS
DA0672  HISTORY     - 1971     SEE DESCRIPTION  NGS
DA0672  HISTORY     - 1971     GOOD             NGS
DA0672
DA0672                          STATION DESCRIPTION
DA0672
DA0672'DESCRIBED BY COAST AND GEODETIC SURVEY 1960 (WWH)
DA0672'THE STATION IS 2 MILES SOUTHEAST OF GILA BEND ON THE OPEN
DA0672'DESERT ABOUT 300 FEET SOUTH OF THE CENTER OF THE INTERSTATE
DA0672'ROUTE ON A SLIGHT RISE.
DA0672'
DA0672'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAY 80 AND
DA0672'STATE ROUTE 84, 1 MILE EAST OF THE CENTER OF GILA BEND PROCEED
DA0672'SOUTHEAST ALONG STATE ROUTE 84 FOR 2.5 MILES TO A STEEL GATE
DA0672'IN THE RIGHT OF WAY FENCE LINE ON THE RIGHT (KEY NEEDED), TURN
DA0672'RIGHT, SOUTHERLY, FOR 0.2 MILE TO THE PROPOSED INTERSTATE
DA0672'ROUTE, TURN RIGHT, WEST, FOR 0.5 MILE TO THE STATION ON THE
DA0672'SOUTH SIDE OF THE HIGHWAY 4 FEET SOUTH OF A METAL WITNESS POST
DA0672'WITH SIGN.
DA0672'
DA0672'THE STATION, WITH UNDERGROUND MARK, STAMPED GIANT 1960 IS A
DA0672'STANDARD DISK SET IN A SQUARE CONCRETE POST PROJECTING 4 INCHES.
DA0672'
DA0672'REFERENCE MARK 1, STAMPED GIANT NO 1 1960, IS A STANDARD DISK
DA0672'SET IN A CYLINDRICAL CONCRETE POST PROJECTING 8 INCHES.
DA0672'
DA0672'REFERENCE MARK 2, STAMPED GIANT NO 2 1960, IS A STANDARD
DA0672'DISK SET IN A CYLINDRICAL CONCRETE POST PROJECTING 8 INCHES.
DA0672'
DA0672'THE AZIMUTH MARK, STAMPED M 354 1960, IS A STANDARD BENCH
DA0672'MARK DISK SET IN A CYLINDRICAL CONCRETE POST PROJECTING 8 INCHES
DA0672'AND IS 0.9 MILE WEST OF THE STATION ALONG THE INTERSTATE ROUTE
DA0672'FROM THE STATION AND ABOUT 300 FEET NORTH OF THE CENTER LINE
DA0672'OF THE HIGHWAY.
DA0672'
DA0672'A 2-WHEEL DRIVE STATION.
DA0672
DA0672                          STATION RECOVERY (1971)
DA0672
DA0672'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1971 (WMJ)
DA0672'THE STATION MARK, REFERENCE MARK 1 AND REFERENCE MARK 2 WERE
DA0672'RECOVERED IN GOOD CONDITION.  BENCH MARK M 354 WAS DESTROYED
DA0672'AND RESET IN 1969.  DISTANCES AND DIRECTIONS TO THE REFERENCE
DA0672'MARKS COMPARED WITH 1960 OBSERVATIONS.  A COMPLETE NEW DESCRIPTION
DA0672'FOLLOWS.
DA0672'
DA0672'THE STATION IS ABOUT 2 MILES SOUTHEAST OF GILA BEND, 0.5 MILE
DA0672'WEST OF THE PROPOSED EAST GILA BEND EXIT OF INTERSTATE HIGHWAY
DA0672'8, AND 156 FEET SOUTH OF THE SOUTH RIGHT-OF-WAY FENCE OF THE
DA0672'INTERSTATE HIGHWAY.
DA0672'
DA0672'TO REACH THE STATION FROM ONE BLOCK SOUTH OF THE POST OFFICE
DA0672'IN GILA BEND, GO EAST ON U.S. HIGHWAY 80 FOR 1.15 MILES TO
DA0672'THE JUNCTION OF STATE HIGHWAY 84.  TAKE STATE HIGHWAY 84
DA0672'SOUTHERLY FOR 2.45 MILES TO A WIRE GATE ON THE RIGHT.  PASS
DA0672'THROUGH THE GATE AND GO SOUTHWEST FOR ABOUT 100 YARDS TO THE
DA0672'NEARLY CONSTRUCTED EAST BOUND LANE OF INTERSTATE HIGHWAY 8.
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DA0672'TURN RIGHT AND GO WEST ON THE EAST BOUND LANE FOR 0.5 MILE
DA0672'TO THE STATION ON THE LEFT.  (WHEN THE INTERSTATE HIGHWAY IS
DA0672'COMPLETED, THE STATION WILL HAVE TO BE REACHED FROM THE WEST
DA0672'GILA BEND EXIT.)
DA0672'
DA0672'THE STATION MARK IS A STANDARD DISK STAMPED GIANT 1960, SET
DA0672'IN THE TOP OF A 12-INCH CYLINDRICAL CONCRETE POST PROJECTING
DA0672'4 INCHES ABOVE THE GROUND.  IT IS 156 FEET SOUTH OF THE SOUTH
DA0672'RIGHT-OF-WAY FENCE AND 3.9 FEET SOUTH OF A METAL WITNESS POST
DA0672'WITH SIGN ATTACHED.
DA0672'
DA0672'REFERENCE MARK 1 IS A STANDARD DISK STAMPED GIANT NO 1 1960,
DA0672'SET IN THE TOP OF A 12-INCH CYLINDRICAL CONCRETE POST PROJECTING
DA0672'6 INCHES ABOVE THE GROUND.  IT IS 118 FEET SOUTH OF THE
DA0672'RIGHT-OF-WAY FENCE AND 51.5 FEET NORTHEAST OF THE METAL WITNESS
DA0672'POST.
DA0672'
DA0672'REFERENCE MARK 2 IS A STANDARD DISK STAMPED GIANT NO 2 1960,
DA0672'SET IN THE TOP OF A 12-INCH CYLINDRICAL CONCRETE POST PROJECTING
DA0672'6 INCHES ABOVE THE GROUND.  IT IS 222 FEET SOUTH OF THE
DA0672'RIGHT-OF-WAY FENCE AND 74 FEET SOUTH OF THE METAL WITNESS
DA0672'POST.
DA0672'
DA0672'BENCH MARK M 354 RESET 1969 WAS USED AS THE AZIMUTH MARK.
DA0672'IT IS A STANDARD BENCH MARK DISK STAMPED M 354 RESET 1969,
DA0672'CEMENTED IN A DRILL HOLE IN THE WEST END OF THE NORTH ABUTMENT
DA0672'OF A BRIDGE.  IT IS 35.6 FEET NORTH OF THE CENTER OF THE WEST
DA0672'BOUND LANE OF INTERSTATE HIGHWAY 8, 36.6 FEET WEST OF THE
DA0672'EAST END AND 1.6 FEET EAST OF THE WEST END OF THE ABUTMENT.
DA0672'
DA0672'TO REACH THE AZIMUTH MARK FROM THE STATION, GO WEST ON THE
DA0672'WEST BOUND LANE OF THE INTERSTATE HIGHWAY FOR 0.9 MILE TO THE
DA0672'MARK ON THE RIGHT.
DA0672'
DA0672'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--2 MILES
DA0672'SOUTHEAST OF GILA BEND
DA0672
DA0672                          STATION RECOVERY (1971)
DA0672
DA0672'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1971
DA0672'2 MI SE FROM GILA BEND.
DA0672'1.15 MILES EAST ON U.S. HIGHWAY 80 FROM 1 BLOCK SOUTH OF THE POST
DA0672'OFFICE IN GILA BEND TO JUNCTION OF STATE HIGHWAY 84, THENCE SOUTHERLY
DA0672'ON STATE HIGHWAY 84 FOR 2.45 MILES TO A WIRE GATE ON THE RIGHT, PASS
DA0672'THROUGH GATE AND GO SOUTHWEST FOR ABOUT 100 YARDS TO THE NEARLY
DA0672'CONSTRUCTED EAST BOUND LANE OF INTERSTATE HIGHWAY 8, THENCE WEST ON
DA0672'THE EAST BOUND LANE FOR 0.5 MILE TO MARK ON THE LEFT, 156 FEET SOUTH
DA0672'OF THE SOUTH RIGHT-OF-WAY FENCE, 70.19 FEET NORTH OF R.M. 2, 52.85
DA0672'FEET SOUTHWEST OF R.M. 1, 3.9 FEET SOUTH OF A METAL WITNESS POST WITH
DA0672'SIGN ATTACHED, SET IN TOP OF A 12-INCH CYLINDRICAL CONCRETE POST
DA0672'PROJECTING 4 INCHES.

*** retrieval complete.
Elapsed Time = 00:00:02
```

8. VERTICAL DATUM CONVERSION CALCULATIONS (NAVD 1988 TO NGVD 1929)

The field survey for the mapping control was conducted in NAVD 1988. The following calculations were done to convert the NAVD 1988 elevations to NGVD 1929 Elevations.

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 10:52:21

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	Ceda Mea	Ceda Mea
Northing: (Feet)	704753.205	
Easting: (Feet)	434111.710	
Latitude: (Degrees)		32 56 3.79324 N
Longitude: (Degrees)		112 46 59.88070 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 16.43493"	- - - - -
Scale Factor:	0.999980946842	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

N. The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 3.79324

Longitude: 112 46 59.88070

MSL Height: 737.261 ft

Datum shift(NAVD 88 - NGVD 29): 1.893 feet

Converted to NGVD 29 height: 735.368 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 10:46:16

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	Base	Base
Northing: (Feet)	707228.327	
Easting: (Feet)	444657.277	
Latitude: (Degrees)		32 56 29.12306 N
Longitude: (Degrees)		112 44 56.38204 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 9.58443"	- - - - -
Scale Factor:	0.999974653014	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

1. The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 29.12306

Longitude: 112 44 56.38204

MSL Height: 724.621 ft

Datum shift(NAVD 88 - NGVD 29): 1.883 feet

Converted to NGVD 29 height: 722.738 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 10:53:29

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	Tosa Mea	Tosa Mea
Northing: (Feet)	706739.307	
Easting: (Feet)	443994.651	
Latitude: (Degrees)		32 56 24.23286 N
Longitude: (Degrees)		112 45 4.11162 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 13.72882"	- - - - -
Scale Factor:	0.999975041000	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 24.23286

Longitude: 112 45 4.11162

MSL Height: 729.574 ft

Datum shift(NAVD 88 - NGVD 29): 1.883 feet

Converted to NGVD 29 height: 727.691 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 10:59:30

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	Coy Mea	Coy Mea
Northing: (Feet)	705896.477	
Easting: (Feet)	452582.577	
Latitude: (Degrees)		32 56 16.55556 N
Longitude: (Degrees)		112 43 23.26914 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 18.79159"	- - - - -
Scale Factor:	0.999970090789	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

1. The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 16.55556

Longitude: 112 43 23.26914

MSL Height: 753.658 ft

Datum shift(NAVD 88 - NGVD 29): 1.906 feet

Converted to NGVD 29 height: 751.752 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:00:45

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	Giant Mea	Giant Mea
Northing: (Feet)	701406.949	
Easting: (Feet)	466416.810	
Latitude: (Degrees)		32 55 33.15387 N
Longitude: (Degrees)		112 40 40.56642 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 49.82252"	- - - - -
Scale Factor:	0.999962471822	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 33.15387

Longitude: 112 40 40.56642

MSL Height: 821.21 ft

Datum shift(NAVD 88 - NGVD 29): 1.969 feet

Converted to NGVD 29 height: 819.241 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:01:57

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	BM R-1 Mea	BM R-1 Mea
Northing: (Feet)	696676.471	
Easting: (Feet)	448547.918	
Latitude: (Degrees)		32 54 45.02467 N
Longitude: (Degrees)		112 44 9.76790 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 42.98127"	- - - - -
Scale Factor:	0.999972395811	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 45.02467

Longitude: 112 44 9.76790

MSL Height: 789.864 ft

Datum shift(NAVD 88 - NGVD 29): 1.926 feet

Converted to NGVD 29 height: 787.938 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:35:31

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	BM X-13 MEA	BM X-13 MEA
Northing: (Feet)	720775.650	
Easting: (Feet)	465317.386	
Latitude: (Degrees)		32 58 44.71101 N
Longitude: (Degrees)		112 40 55.11571 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 59.87943"	- - - - -
Scale Factor:	0.999963060560	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 44.71101

Longitude: 112 40 55.11571

MSL Height: 735.982 ft

Datum shift(NAVD 88 - NGVD 29): 1.988 feet

Converted to NGVD 29 height: 733.994 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:38:28

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	BM B-361 MEA	BM B-361 MEA
Northing: (Feet)	725247.122	
Easting: (Feet)	468030.589	
Latitude: (Degrees)		32 59 29.14612 N
Longitude: (Degrees)		112 40 23.64317 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 43.23656"	- - - - -
Scale Factor:	0.999961610701	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 59 29.14612

Longitude: 112 40 23.64317

MSL Height: 735.861 ft

Datum shift(NAVD 88 - NGVD 29): 2.014 feet

Converted to NGVD 29 height: 733.847 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 13:52:29

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 1	PP 1
Northing: (Feet)	707470.045	
Easting: (Feet)	427636.052	
Latitude: (Degrees)		32 56 30.13983 N
Longitude: (Degrees)		112 48 16.12557 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 58.24040"	- - - - -
Scale Factor:	0.999984937664	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 30.13983 n

Longitude: 112 48 16.12557

MSL Height: 716.524 ft

Datum shift(NAVD 88 - NGVD 29): 1.886 feet

Converted to NGVD 29 height: 714.638 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 13:55:04

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 2	PP 2
Northing: (Feet)	701996.189	
Easting: (Feet)	427441.203	
Latitude: (Degrees)		32 55 35.96622 N
Longitude: (Degrees)		112 48 17.87042 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 58.48456"	- - - - -
Scale Factor:	0.999985059518	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

No The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 55 35.96622

Longitude: 112 48 17.87042

MSL Height: 742.399 ft

Datum shift(NAVD 88 - NGVD 29): 1.896 feet

Converted to NGVD 29 height: 740.503 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 13:55:59

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 3	PP 3
Northing: (Feet)	696726.169	
Easting: (Feet)	427159.095	
Latitude: (Degrees)		32 54 43.80193 N
Longitude: (Degrees)		112 48 20.65857 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 59.32102"	- - - - -
Scale Factor:	0.999985235961	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

N The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 54 43.80193

Longitude: 112 48 20.65857

MSL Height: 758.400 ft

Datum shift(NAVD 88 - NGVD 29): 1.903 feet

Converted to NGVD 29 height: 756.497 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 13:56:35

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 4	PP 4
Northing: (Feet)	702072.124	
Easting: (Feet)	430812.424	
Latitude: (Degrees)		32 55 36.99688 N
Longitude: (Degrees)		112 47 38.32811 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 36.99866"	- - - - -
Scale Factor:	0.999982968332	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

N The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 36.99688

Longitude: 112 47 38.32811

MSL Height: 732.994 ft

Datum shift(NAVD 88 - NGVD 29): 1.896 feet

Converted to NGVD 29 height: 731.098 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 13:57:13

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 5	PP 5
Northing: (Feet)	707433.402	
Easting: (Feet)	434365.045	
Latitude: (Degrees)		32 56 30.33138 N
Longitude: (Degrees)		112 46 57.16683 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 15.29568"	- - - - -
Scale Factor:	0.999980792533	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 30.33138

Longitude: 112 46 57.16683

MSL Height: 732.459 ft

Datum shift(NAVD 88 - NGVD 29): 1.886 feet

Converted to NGVD 29 height: 730.573 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 13:58:04

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 6	PP 6
Northing: (Feet)	696836.519	
Easting: (Feet)	434356.734	
Latitude: (Degrees)		32 54 45.48627 N
Longitude: (Degrees)		112 46 56.24315 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 13.46377"	- - - - -
Scale Factor:	0.999980798103	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

No The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 45.48627

Longitude: 112 46 56.24315

MSL Height: 768.055 ft

Datum shift(NAVD 88 - NGVD 29): 1.913 feet

Converted to NGVD 29 height: 766.142 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 13:58:33

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 7	PP 7
Northing: (Feet)	707453.324	
Easting: (Feet)	437995.521	
Latitude: (Degrees)		32 56 30.82167 N
Longitude: (Degrees)		112 46 14.57003 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 52.13273"	- - - - -
Scale Factor:	0.999978599185	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 30.82167

Longitude: 112 46 14.57003

MSL Height: 716.664 ft

Datum shift(NAVD 88 - NGVD 29): 1.883 feet

Converted to NGVD 29 height: 714.781 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 13:59:26

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 8	PP 8
Northing: (Feet)	702087.365	
Easting: (Feet)	438079.914	
Latitude: (Degrees)		32 55 37.73811 N
Longitude: (Degrees)		112 46 13.06975 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 50.65294"	- - - - -
Scale Factor:	0.999978548811	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

No The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 37.73811

Longitude: 112 46 13.06975

MSL Height: 745.187 ft

Datum shift(NAVD 88 - NGVD 29): 1.900 feet

Converted to NGVD 29 height: 743.287 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 13:59:59

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 9	PP 9
Northing: (Feet)	696866.352	
Easting: (Feet)	437981.537	
Latitude: (Degrees)		32 54 46.07386 N
Longitude: (Degrees)		112 46 13.72779 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 50.36446"	- - - - -
Scale Factor:	0.999978608075	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

No The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 46.07386

Longitude: 112 46 13.72779

MSL Height: 772.737 ft

Datum shift(NAVD 88 - NGVD 29): 1.916 feet

Converted to NGVD 29 height: 770.821 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:00:32

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 10	PP 10
Northing: (Feet)	708353.243	
Easting: (Feet)	441506.731	
Latitude: (Degrees)		32 56 40.00513 N
Longitude: (Degrees)		112 45 33.45502 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 29.88297"	- - - - -
Scale Factor:	0.999976506564	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 40.00513

Longitude: 112 45 33.45502

MSL Height: 709.545 ft

Datum shift(NAVD 88 - NGVD 29): 1.880 feet

Converted to NGVD 29 height: 707.665 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:01:05

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 11	PP 11
Northing: (Feet)	696819.290	
Easting: (Feet)	441573.728	
Latitude: (Degrees)		32 54 45.89406 N
Longitude: (Degrees)		112 45 31.58750 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 27.45945"	- - - - -
Scale Factor:	0.999976467440	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 54 45.89406

Longitude: 112 45 31.58750

MSL Height: 776.325 ft

Datum shift(NAVD 88 - NGVD 29): 1.919 feet

Converted to NGVD 29 height: 774.406 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:22:01

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 12	PP 12
Northing: (Feet)	702009.535	
Easting: (Feet)	445191.373	
Latitude: (Degrees)		32 55 37.53018 N
Longitude: (Degrees)		112 44 49.63255 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 5.28574"	- - - - -
Scale Factor:	0.999974341269	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 37.53018

Longitude: 112 44 49.63255

MSL Height: 754.975 ft

Datum shift(NAVD 88 - NGVD 29): 1.903 feet

Converted to NGVD 29 height: 753.072 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:02:22

Blue Marble Geographics
16 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 13	PP 13
Northing: (Feet)	725337.556	
Easting: (Feet)	446927.140	
Latitude: (Degrees)		32 59 28.47123 N
Longitude: (Degrees)		112 44 31.41396 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 58.17178"	- - - - -
Scale Factor:	0.999973330846	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 59 28.47123

Longitude: 112 44 31.41396

MSL Height: 634.752 ft

Datum shift(NAVD 88 - NGVD 29): 1.949 feet

Converted to NGVD 29 height: 632.803 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:02:54

Blue Marble Geographics
16 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 14	PP 14
Northing: (Feet)	723206.330	
Easting: (Feet)	447102.088	
Latitude: (Degrees)		32 59 7.39866 N
Longitude: (Degrees)		112 44 29.16390 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 56.69189"	- - - - -
Scale Factor:	0.999973229588	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 59 7.39866

Longitude: 112 44 29.16390

MSL Height: 644.955 ft

Datum shift(NAVD 88 - NGVD 29): 1.939 feet

Converted to NGVD 29 height: 643.016 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:03:40

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 15	PP 15
Northing: (Feet)	717937.880	
Easting: (Feet)	447115.137	
Latitude: (Degrees)		32 58 15.27406 N
Longitude: (Degrees)		112 44 28.52617 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 55.71533"	- - - - -
Scale Factor:	0.999973222263	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 15.27406

Longitude: 112 44 28.52617

MSL Height: 660.940 ft

Datum shift(NAVD 88 - NGVD 29): 1.916 feet

Converted to NGVD 29 height: 659.024 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:04:15

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 16	PP 16
Northing: (Feet)	715525.034	
Easting: (Feet)	448092.180	
Latitude: (Degrees)		32 57 51.47708 N
Longitude: (Degrees)		112 44 16.83709 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 49.06636"	- - - - -
Scale Factor:	0.999972657653	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 57 51.47708

Longitude: 112 44 16.83709

MSL Height: 699.955 ft

Datum shift(NAVD 88 - NGVD 29): 1.906 feet

Converted to NGVD 29 height: 698.049 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:05:01

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 17	PP 17
Northing: (Feet)	712668.323	
Easting: (Feet)	447196.414	
Latitude: (Degrees)		32 57 23.14367 N
Longitude: (Degrees)		112 44 27.08803 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 54.30335"	- - - - -
Scale Factor:	0.999973175434	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 23.14367

Longitude: 112 44 27.08803

MSL Height: 702.596 ft

Datum shift(NAVD 88 - NGVD 29): 1.890 feet

Converted to NGVD 29 height: 700.706 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:10:08

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 18	PP 18
Northing: (Feet)	710988.844	
Easting: (Feet)	447812.350	
Latitude: (Degrees)		32 57 6.57461 N
Longitude: (Degrees)		112 44 19.70574 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 50.08698"	- - - - -
Scale Factor:	0.999972819365	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 6.57461

Longitude: 112 44 19.70574

MSL Height: 710.536 ft

Datum shift(NAVD 88 - NGVD 29): 1.883 feet

Converted to NGVD 29 height: 708.653 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:06:48

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 19	PP 19
Northing: (Feet)	709505.684	
Easting: (Feet)	447266.741	
Latitude: (Degrees)		32 56 51.85809 N
Longitude: (Degrees)		112 44 25.97237 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 53.31881"	- - - - -
Scale Factor:	0.999973134865	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 56 51.85809

Longitude: 112 44 25.97237

MSL Height: 720.386 ft

Datum shift(NAVD 88 - NGVD 29): 1.883 feet

Converted to NGVD 29 height: 718.503 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 12:35:28

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 20	PP 20
Northing: (Feet)	705063.852	
Easting: (Feet)	446782.345	
Latitude: (Degrees)		32 56 7.87320 N
Longitude: (Degrees)		112 44 31.24821 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 55.65713"	- - - - -
Scale Factor:	0.999973415678	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 7.87320

Longitude: 112 44 31.24821

MSL Height: 738.47 ft

Datum shift(NAVD 88 - NGVD 29): 1.896 feet

Converted to NGVD 29 height: 736.574 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:11:49

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 21	PP 21
Northing: (Feet)	702079.914	
Easting: (Feet)	446782.757	
Latitude: (Degrees)		32 55 38.35018 N
Longitude: (Degrees)		112 44 30.96922 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 55.14850"	- - - - -
Scale Factor:	0.999973415571	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 38.35018

Longitude: 112 44 30.96922

MSL Height: 755.169 ft

Datum shift(NAVD 88 - NGVD 29): 1.906 feet

Converted to NGVD 29 height: 753.263 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:04:56

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 22	PP 22
Northing: (Feet)	723366.616	
Easting: (Feet)	450261.954	
Latitude: (Degrees)		32 59 9.22802 N
Longitude: (Degrees)		112 43 52.08312 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 36.52148"	- - - - -
Scale Factor:	0.999971411038	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 59 9.22802

Longitude: 112 43 52.08312

MSL Height: 652.252 ft

Datum shift(NAVD 88 - NGVD 29): 1.949 feet

Converted to NGVD 29 height: 650.303 feet

Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:05:37

Blue Marble Geographics
16 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 23	PP 23
Northing: (Feet)	718019.787	
Easting: (Feet)	449129.841	
Latitude: (Degrees)		32 58 16.23996 N
Longitude: (Degrees)		112 44 4.88583 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 42.85864"	- - - - -
Scale Factor:	0.999972060186	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 16.23996

Longitude: 112 44 4.88583

MSL Height: 666.815 ft

Datum shift(NAVD 88 - NGVD 29): 1.919 feet

Converted to NGVD 29 height: 664.896 feet

Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:12:33

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 24	PP 24
Northing: (Feet)	712702.545	
Easting: (Feet)	448964.490	
Latitude: (Degrees)		32 57 23.61869 N
Longitude: (Degrees)		112 44 6.34155 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 43.02041"	- - - - -
Scale Factor:	0.999972155440	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 23.61869

Longitude: 112 44 6.34155

MSL Height: 700.89 ft

Datum shift(NAVD 88 - NGVD 29): 1.896 feet

Converted to NGVD 29 height: 698.994 feet

T Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:13:23

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 25	PP 25
Northing: (Feet)	709501.867	
Easting: (Feet)	449034.002	
Latitude: (Degrees)		32 56 51.95660 N
Longitude: (Degrees)		112 44 5.23402 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 42.03841"	- - - - -
Scale Factor:	0.999972115624	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 51.95660

Longitude: 112 44 5.23402

MSL Height: 717.429 ft

Datum shift(NAVD 88 - NGVD 29): 1.886 feet

Converted to NGVD 29 height: 715.543 feet

T Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:14:02

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 26	PP 26
Northing: (Feet)	708447.880	
Easting: (Feet)	448539.106	
Latitude: (Degrees)		32 56 41.49041 N
Longitude: (Degrees)		112 44 10.94516 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 45.01960"	- - - - -
Scale Factor:	0.999972400373	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 41.49041

Longitude: 112 44 10.94516

MSL Height: 725.978 ft

Datum shift(NAVD 88 - NGVD 29): 1.890 feet

Converted to NGVD 29 height: 724.088 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:14:38

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 27	PP 27
Northing: (Feet)	701998.266	
Easting: (Feet)	449083.634	
Latitude: (Degrees)		32 55 37.71980 N
Longitude: (Degrees)		112 44 3.96825 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 40.46061"	- - - - -
Scale Factor:	0.999972087428	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 37.71980

Longitude: 112 44 3.96825

MSL Height: 759.061 ft

Datum shift(NAVD 88 - NGVD 29): 1.909 feet

Converted to NGVD 29 height: 757.152 feet

Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:06:12

Blue Marble Geographics
16 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 28	PP 28
Northing: (Feet)	696744.186	
Easting: (Feet)	448521.522	
Latitude: (Degrees)		32 54 45.69261 N
Longitude: (Degrees)		112 44 10.08370 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 43.16092"	- - - - -
Scale Factor:	0.999972411008	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 45.69261

Longitude: 112 44 10.08370

MSL Height: 788.684 ft

Datum shift(NAVD 88 - NGVD 29): 1.926 feet

Converted to NGVD 29 height: 786.758 feet

Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:15:19

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 29	PP 29
Northing: (Feet)	712591.280	
Easting: (Feet)	451638.543	
Latitude: (Degrees)		32 57 22.72234 N
Longitude: (Degrees)		112 43 34.94955 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 25.92864"	- - - - -
Scale Factor:	0.999970626401	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 22.72234

Longitude: 112 43 34.94955

MSL Height: 717.839 ft

Datum shift(NAVD 88 - NGVD 29): 1.903 feet

Converted to NGVD 29 height: 715.936 feet

Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:16:01

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 30	PP 30
Northing: (Feet)	705597.062	
Easting: (Feet)	450914.524	
Latitude: (Degrees)		32 56 13.46640 N
Longitude: (Degrees)		112 43 42.81380 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 29.38422"	- - - - -
Scale Factor:	0.999971039083	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 13.46640

Longitude: 112 43 42.81380

MSL Height: 751.931 ft

Datum shift(NAVD 88 - NGVD 29): 1.903 feet

Converted to NGVD 29 height: 750.028 feet

Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:06:56

Blue Marble Geographics
16 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 31	PP 31
Northing: (Feet)	730153.920	
Easting: (Feet)	453470.794	
Latitude: (Degrees)		33 0 16.62534 N
Longitude: (Degrees)		112 43 15.02160 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 17.13291"	- - - - -
Scale Factor:	0.999969587426	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 33 0 16.62534

Longitude: 112 43 15.02160

MSL Height: 651.643 ft

Datum shift(NAVD 88 - NGVD 29): 1.991 feet

Converted to NGVD 29 height: 649.652 feet

Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:07:33

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 32	PP 32
Northing: (Feet)	717836.582	
Easting: (Feet)	453080.414	
Latitude: (Degrees)		32 58 14.72866 N
Longitude: (Degrees)		112 43 18.49885 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 17.59066"	- - - - -
Scale Factor:	0.999969808504	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 58 14.72866

Longitude: 112 43 18.49885

MSL Height: 686.842 ft

Datum shift(NAVD 88 - NGVD 29): 1.929 feet

Converted to NGVD 29 height: 684.913 feet

Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:16:40

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 33	PP 33
Northing: (Feet)	708722.860	
Easting: (Feet)	452916.800	
Latitude: (Degrees)		32 56 44.54515 N
Longitude: (Degrees)		112 43 19.60113 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 17.12695"	- - - - -
Scale Factor:	0.999969901432	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 44.54515

Longitude: 112 43 19.60113

MSL Height: 739.26 ft

Datum shift(NAVD 88 - NGVD 29): 1.900 feet

Converted to NGVD 29 height: 737.360 feet

Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:41:33

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 34	PP 34
Northing: (Feet)	705709.611	
Easting: (Feet)	453073.267	
Latitude: (Degrees)		32 56 14.74382 N
Longitude: (Degrees)		112 43 17.49499 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 15.62996"	- - - - -
Scale Factor:	0.999969813054	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
e:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 56 14.74382

Longitude: 112 43 17.49499

MSL Height: 755.159 ft

Datum shift(NAVD 88 - NGVD 29): 1.906 feet

Converted to NGVD 29 height: 753.253 feet

Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:17:45

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 35	PP 35
Northing: (Feet)	702001.076	
Easting: (Feet)	452788.178	
Latitude: (Degrees)		32 55 38.02988 N
Longitude: (Degrees)		112 43 20.50733 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 16.83489"	- - - - -
Scale Factor:	0.999969974510	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
e:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 38.02988

Longitude: 112 43 20.50733

MSL Height: 763.729 ft

Datum shift(NAVD 88 - NGVD 29): 1.919 feet

Converted to NGVD 29 height: 761.810 feet

Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:18:35

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 36	PP 36
Northing: (Feet)	709029.140	
Easting: (Feet)	455164.212	
Latitude: (Degrees)		32 56 47.74473 N
Longitude: (Degrees)		112 42 53.25648 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 2.83385"	- - - - -
Scale Factor:	0.999968635573	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 47.74473

Longitude: 112 42 53.25648

MSL Height: 739.34 ft

Datum shift(NAVD 88 - NGVD 29): 1.903 feet

Converted to NGVD 29 height: 737.437 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:20:13

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 37	PP 37
Northing: (Feet)	702002.516	
Easting: (Feet)	454908.305	
Latitude: (Degrees)		32 55 38.20379 N
Longitude: (Degrees)		112 42 55.63436 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 3.31370"	- - - - -
Scale Factor:	0.999968779418	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 38.20379

Longitude: 112 42 55.63436

MSL Height: 774.38 ft

Datum shift(NAVD 88 - NGVD 29): 1.923 feet

Converted to NGVD 29 height: 772.457 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:08:10

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 38	PP 38
Northing: (Feet)	696798.854	
Easting: (Feet)	454850.070	
Latitude: (Degrees)		32 54 46.71402 N
Longitude: (Degrees)		112 42 55.85495 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 2.83102"	- - - - -
Scale Factor:	0.999968812323	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 46.71402

Longitude: 112 42 55.85495

MSL Height: 797.398 ft

Datum shift(NAVD 88 - NGVD 29): 1.936 feet

Converted to NGVD 29 height: 795.462 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:08:44

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 39	PP 39
Northing: (Feet)	729486.603	
Easting: (Feet)	456836.302	
Latitude: (Degrees)		33 0 10.27579 N
Longitude: (Degrees)		112 42 35.44426 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 55.49650"	- - - - -
Scale Factor:	0.999967700446	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 33 0 10.27579

Longitude: 112 42 35.44426

MSL Height: 647.178 ft

Datum shift(NAVD 88 - NGVD 29): 1.995 feet

Converted to NGVD 29 height: 645.183 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:09:19

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 40	PP 40
Northing: (Feet)	723711.217	
Easting: (Feet)	457192.615	
Latitude: (Degrees)		32 59 13.16085 N
Longitude: (Degrees)		112 42 30.75004 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 52.27705"	- - - - -
Scale Factor:	0.999967502418	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 59 13.16085

Longitude: 112 42 30.75004

MSL Height: 662.403 ft

Datum shift(NAVD 88 - NGVD 29): 1.969 feet

Converted to NGVD 29 height: 660.434 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:09:49

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 41	PP 41
Northing: (Feet)	717928.715	
Easting: (Feet)	455890.826	
Latitude: (Degrees)		32 58 15.85168 N
Longitude: (Degrees)		112 42 45.51940 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 59.65208"	- - - - -
Scale Factor:	0.999968228420	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Z :	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 58 15.85168

Longitude: 112 42 45.51940

MSL Height: 689.721 ft

Datum shift(NAVD 88 - NGVD 29): 1.939 feet

Converted to NGVD 29 height: 687.782 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 12:36:11

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 42	PP 42
Northing: (Feet)	712661.500	
Easting: (Feet)	457132.632	
Latitude: (Degrees)		32 57 23.83041 N
Longitude: (Degrees)		112 42 30.47854 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 50.86169"	- - - - -
Scale Factor:	0.999967536223	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 23.83041

Longitude: 112 42 30.47854

MSL Height: 723.463 ft

Datum shift(NAVD 88 - NGVD 29): 1.916 feet

Converted to NGVD 29 height: 721.547 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:21:29

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 43	PP 43
Northing: (Feet)	705426.621	
Easting: (Feet)	457107.401	
Latitude: (Degrees)		32 56 12.24629 N
Longitude: (Degrees)		112 42 30.13653 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 49.84555"	- - - - -
Scale Factor:	0.999967550550	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 12.24629

Longitude: 112 42 30.13653

MSL Height: 759.705 ft

Datum shift(NAVD 88 - NGVD 29): 1.916 feet

Converted to NGVD 29 height: 757.789 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:10:21

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 44	PP 44
Northing: (Feet)	723154.856	
Easting: (Feet)	459671.885	
Latitude: (Degrees)		32 59 7.83987 N
Longitude: (Degrees)		112 42 1.59518 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 36.33931"	- - - - -
Scale Factor:	0.999966130948	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 59 7.83987

Longitude: 112 42 1.59518

MSL Height: 677.036 ft

Datum shift(NAVD 88 - NGVD 29): 1.975 feet

Converted to NGVD 29 height: 675.061 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:10:54

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 45	PP 45
Northing: (Feet)	717963.930	
Easting: (Feet)	459733.590	
Latitude: (Degrees)		32 58 16.48530 N
Longitude: (Degrees)		112 42 0.41719 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 35.10879"	- - - - -
Scale Factor:	0.999966097200	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 16.48530

Longitude: 112 42 0.41719

MSL Height: 708.955 ft

Datum shift(NAVD 88 - NGVD 29): 1.949 feet

Converted to NGVD 29 height: 707.006 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:22:03

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 46	PP 46
Northing: (Feet)	712665.285	
Easting: (Feet)	459535.447	
Latitude: (Degrees)		32 57 24.04571 N
Longitude: (Degrees)		112 42 2.27988 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 35.52072"	- - - - -
Scale Factor:	0.999966206475	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NO The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 24.04571

Longitude: 112 42 2.27988

MSL Height: 733.725 ft

Datum shift(NAVD 88 - NGVD 29): 1.923 feet

Converted to NGVD 29 height: 731.802 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:22:41

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 47	PP 47
Northing: (Feet)	709623.377	
Easting: (Feet)	459134.787	
Latitude: (Degrees)		32 56 53.91937 N
Longitude: (Degrees)		112 42 6.71582 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 37.58797"	- - - - -
Scale Factor:	0.999966427408	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 53.91937

Longitude: 112 42 6.71582

MSL Height: 740.012 ft

Datum shift(NAVD 88 - NGVD 29): 1.913 feet

Converted to NGVD 29 height: 738.099 feet

Tne Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:23:19

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 48	PP 48
Northing: (Feet)	705324.153	
Easting: (Feet)	459350.903	
Latitude: (Degrees)		32 56 11.39847 N
Longitude: (Degrees)		112 42 3.80415 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 35.51552"	- - - - -
Scale Factor:	0.999966308428	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 11.39847

Longitude: 112 42 3.80415

MSL Height: 762.925 ft

Datum shift(NAVD 88 - NGVD 29): 1.923 feet

Converted to NGVD 29 height: 761.002 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:23:59

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 49	PP 49
Northing: (Feet)	702020.841	
Easting: (Feet)	459367.559	
Latitude: (Degrees)		32 55 38.71644 N
Longitude: (Degrees)		112 42 3.32029 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 34.87693"	- - - - -
Scale Factor:	0.999966299381	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 38.71644

Longitude: 112 42 3.32029

MSL Height: 779.611 ft

Datum shift(NAVD 88 - NGVD 29): 1.929 feet

Converted to NGVD 29 height: 777.682 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:11:30

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 50	PP 50
Northing: (Feet)	720123.047	
Easting: (Feet)	461889.933	
Latitude: (Degrees)		32 58 38.00576 N
Longitude: (Degrees)		112 41 35.29347 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 21.67780"	- - - - -
Scale Factor:	0.999964916008	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 38.00576

Longitude: 112 41 35.29347

MSL Height: 709.976 ft

Datum shift(NAVD 88 - NGVD 29): 1.969 feet

Converted to NGVD 29 height: 708.007 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:12:04

Blue Marble Geographics
16 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 51	PP 51
Northing: (Feet)	714952.811	
Easting: (Feet)	462392.356	
Latitude: (Degrees)		32 57 46.88781 N
Longitude: (Degrees)		112 41 28.94913 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 17.64397"	- - - - -
Scale Factor:	0.999964642544	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 46.88781

Longitude: 112 41 28.94913

MSL Height: 737.710 ft

Datum shift(NAVD 88 - NGVD 29): 1.952 feet

Converted to NGVD 29 height: 735.758 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:24:58

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 52	PP 52
Northing: (Feet)	709497.740	
Easting: (Feet)	461120.600	
Latitude: (Degrees)		32 56 52.82216 N
Longitude: (Degrees)		112 41 43.40194 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 24.89278"	- - - - -
Scale Factor:	0.999965336595	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 52.82216

Longitude: 112 41 43.40194

MSL Height: 756.441 ft

Datum shift(NAVD 88 - NGVD 29): 1.923 feet

Converted to NGVD 29 height: 754.518 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:25:42

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 53	PP 53
Northing: (Feet)	705345.131	
Easting: (Feet)	461464.520	
Latitude: (Degrees)		32 56 11.76102 N
Longitude: (Degrees)		112 41 39.00653 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 22.03412"	- - - - -
Scale Factor:	0.999965148758	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 11.76102

Longitude: 112 41 39.00653

MSL Height: 773.255 ft

Datum shift(NAVD 88 - NGVD 29): 1.936 feet

Converted to NGVD 29 height: 771.319 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:14:18

Blue Marble Geographics
16 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 54	PP 54
Northing: (Feet)	729497.274	
Easting: (Feet)	463843.233	
Latitude: (Degrees)		33 0 10.89662 N
Longitude: (Degrees)		112 41 13.17011 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 10.68093"	- - - - -
Scale Factor:	0.999963854948	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 33 0 10.89662

Longitude: 112 41 13.17011

MSL Height: 674.760 ft

Datum shift(NAVD 88 - NGVD 29): 2.014 feet

Converted to NGVD 29 height: 672.746 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:26:17

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 55	PP 55
Northing: (Feet)	712847.084	
Easting: (Feet)	463291.315	
Latitude: (Degrees)		32 57 26.11891 N
Longitude: (Degrees)		112 41 18.21720 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 11.56883"	- - - - -
Scale Factor:	0.999964154411	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 26.11891

Longitude: 112 41 18.21720

MSL Height: 755.254 ft

Datum shift(NAVD 88 - NGVD 29): 1.949 feet

Converted to NGVD 29 height: 753.305 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:26:49

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 56	PP 56
Northing: (Feet)	701967.728	
Easting: (Feet)	463115.904	
Latitude: (Degrees)		32 55 38.46474 N
Longitude: (Degrees)		112 41 19.34020 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 10.96254"	- - - - -
Scale Factor:	0.999964249950	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 38.46474

Longitude: 112 41 19.34020

MSL Height: 796.536 ft

Datum shift(NAVD 88 - NGVD 29): 1.952 feet

Converted to NGVD 29 height: 794.584 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:15:05

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 57	PP 57
Northing: (Feet)	717724.190	
Easting: (Feet)	464744.546	
Latitude: (Degrees)		32 58 14.47842 N
Longitude: (Degrees)		112 41 1.57915 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 3.05886"	- - - - -
Scale Factor:	0.999963368906	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 14.47842

Longitude: 112 41 1.57915

MSL Height: 751.856 ft

Datum shift(NAVD 88 - NGVD 29): 1.975 feet

Converted to NGVD 29 height: 749.881 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:27:30

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 58	PP 58
Northing: (Feet)	712875.111	
Easting: (Feet)	464848.901	
Latitude: (Degrees)		32 57 26.50876 N
Longitude: (Degrees)		112 40 59.93985 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 1.62803"	- - - - -
Scale Factor:	0.999963312884	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 57 26.50876

Longitude: 112 40 59.93985

MSL Height: 765.119 ft

Datum shift(NAVD 88 - NGVD 29): 1.959 feet

Converted to NGVD 29 height: 763.160 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:28:08

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 59	PP 59
Northing: (Feet)	709709.405	
Easting: (Feet)	464851.375	
Latitude: (Degrees)		32 56 55.18714 N
Longitude: (Degrees)		112 40 59.64041 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 1.11348"	- - - - -
Scale Factor:	0.999963311672	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 55.18714

Longitude: 112 40 59.64041

MSL Height: 779.142 ft

Datum shift(NAVD 88 - NGVD 29): 1.952 feet

Converted to NGVD 29 height: 777.190 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:28:40

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 60	PP 60
Northing: (Feet)	705500.299	
Easting: (Feet)	464586.606	
Latitude: (Degrees)		32 56 13.52270 N
Longitude: (Degrees)		112 41 2.38769 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 2.13973"	- - - - -
Scale Factor:	0.999963454488	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 13.52270

Longitude: 112 41 2.38769

MSL Height: 793.415 ft

Datum shift(NAVD 88 - NGVD 29): 1.955 feet

Converted to NGVD 29 height: 791.460 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:29:17

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 61	PP 61
Northing: (Feet)	702065.703	
Easting: (Feet)	464757.452	
Latitude: (Degrees)		32 55 39.55267 N
Longitude: (Degrees)		112 41 0.08992 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 0.50863"	- - - - -
Scale Factor:	0.999963362549	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 39.55267

Longitude: 112 41 0.08992

MSL Height: 804.931 ft

Datum shift(NAVD 88 - NGVD 29): 1.959 feet

Converted to NGVD 29 height: 802.972 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:15:37

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 62	PP 62
Northing: (Feet)	729486.255	
Easting: (Feet)	466876.530	
Latitude: (Degrees)		33 0 11.00597 N
Longitude: (Degrees)		112 40 37.55214 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 51.27766"	- - - - -
Scale Factor:	0.999962225106	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 33 0 11.00597

Longitude: 112 40 37.55214

MSL Height: 705.952 ft

Datum shift(NAVD 88 - NGVD 29): 2.021 feet

Converted to NGVD 29 height: 703.931 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:16:19

Blue Marble Geographics
16 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 63	PP 63
Northing: (Feet)	723398.068	
Easting: (Feet)	466985.906	
Latitude: (Degrees)		32 59 10.77699 N
Longitude: (Degrees)		112 40 35.75148 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 49.62669"	- - - - -
Scale Factor:	0.999962166958	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

N. The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 59 10.77699

Longitude: 112 40 35.75148

MSL Height: 734.051 ft

Datum shift(NAVD 88 - NGVD 29): 2.005 feet

Converted to NGVD 29 height: 732.046 feet

The Geographic Calculator - Version 3.09

Date: 10/25/99 Time: 14:16:53

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	PP 64	PP 64
Northing: (Feet)	717895.051	
Easting: (Feet)	467146.732	
Latitude: (Degrees)		32 58 16.34123 N
Longitude: (Degrees)		112 40 33.39737 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 47.73963"	- - - - -
Scale Factor:	0.999962081377	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

N. The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 58 16.34123

Longitude: 112 40 33.39737

MSL Height: 752.075 ft

Datum shift(NAVD 88 - NGVD 29): 1.988 feet

Converted to NGVD 29 height: 750.087 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:30:08

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	ERM 1	ERM 1
Northing: (Feet)	710657.871	
Easting: (Feet)	463572.127	
Latitude: (Degrees)		32 57 4.47899 N
Longitude: (Degrees)		112 41 14.73359 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 9.42904"	- - - - -
Scale Factor:	0.999964002369	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 4.47899

Longitude: 112 41 14.73359

MSL Height: 766.124 ft

Datum shift(NAVD 88 - NGVD 29): 1.942 feet

Converted to NGVD 29 height: 764.182 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:30:44

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	ERM 6	ERM 6
Northing: (Feet)	710126.964	
Easting: (Feet)	460675.952	
Latitude: (Degrees)		32 56 59.01520 N
Longitude: (Degrees)		112 41 48.67444 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 27.83174"	- - - - -
Scale Factor:	0.999965580033	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 59.01520

Longitude: 112 41 48.67444

MSL Height: 782.667 ft

Datum shift(NAVD 88 - NGVD 29): 1.919 feet

Converted to NGVD 29 height: 780.748 feet

The Geographic Calculator - Version 3.09

Date: 09/13/99 Time: 11:31:17

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	ERM 8	ERM 8
Northing: (Feet)	708144.576	
Easting: (Feet)	462331.415	
Latitude: (Degrees)		32 56 39.52217 N
Longitude: (Degrees)		112 41 29.07660 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 16.94901"	- - - - -
Scale Factor:	0.999964675972	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 39.52217

Longitude: 112 41 29.07660

MSL Height: 770.038 ft

Datum shift(NAVD 88 - NGVD 29): 1.936 feet

Converted to NGVD 29 height: 768.102 feet

Appendix C.2

FIELD SURVEY NOTES FOR HYDROLOGIC MODELING

No data for Appendix C.2.

There were no field notes done for hydrologic modeling with this study. The hydrology for this study was taken from the "Gila Bend Area Floodplain Delineation Study" by Burgess and Niple, Inc., dated March 1992.

Appendix C.3

FIELD SURVEY NOTES FOR HYDRAULIC MODELING

APPENDIX C-3

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7. Survey Data for Mapping Check Profiles

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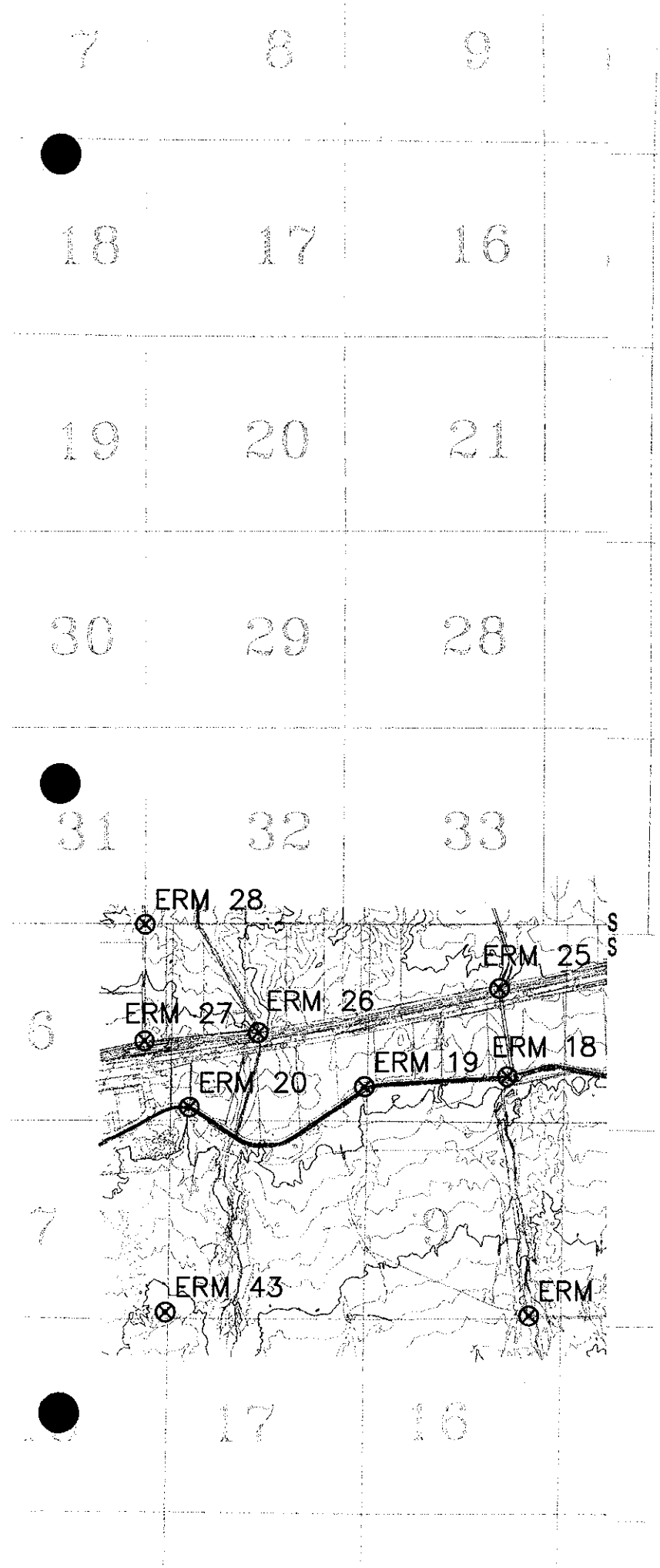
1. MAP of ELEVATION REFERENCE MARKS

The following map shows the locations of the ERM's established with this flood study.

ERM No. 1-6, 10, 12-14, and 16 were established with the previous 1992, Gila Bend Area Floodplain Delineation Study. The elevations were checked with this study.



GILA BEND
Area Drainage Master Plan

ELEVATION REFERENCE MARKS

LEGEND

⊗ ERM 31	ELEVATION REFERENCE MARKS

N

0 1000 2000 4000 8000

eec

Engineering and Environmental Consultants, Inc.
3003 N. Central Avenue, Suite 600
Phoenix, Arizona 85012-2905
TEL: (602)248-7702 FAX: (602)248-7851

2. ELEVATION REFERENCE MARKS COORDINATES / ELEVATIONS (NAVD 1988)

The following is a list of the ERM's surveyed by SurvNet, Inc. The ERM's were surveyed in January, 2000.

Project name: Gila Bend
Description: ERM Coordinates
Coordinate System: US State Plane 1983
Zone: Arizona Central 0202
Datum: NAD 1983 (Horizontal) NAVD'88 (Vertical)
Date printed: 1/14/00
Coordinate units: International feet
Elevation units: US survey feet

Point listing

Name	Northing	Easting	Elevation	Feature code
1101	723145.526	454433.982	661.234	CK ERM 1
1102	717915.545	454367.031	686.912	CK ERM 2
1103	712573.712	454254.207	719.655	CK ERM 3
1104	707669.749	448766.209	729.571	CK ERM 4
1105	710203.416	459355.929	743.617	CK ERM 5
1106	710656.324	463571.188	765.982	CK ERM 6
1110	704828.752	466812.401	808.403	CK ERM 10
1112	701406.949	466416.810	821.210	REC ERM 12
1113	703166.117	454796.377	768.734	CK ERM 13
1114	696805.024	454834.312	797.537	CK ERM 14
1116	696739.746	458733.206	806.224	CK ERM 16
1117	703927.898	443480.135	744.354	ERM 17
1118	703320.740	437476.630	744.738	ERM 18
1119	703051.561	433636.327	739.909	ERM 19
1120	702504.444	428932.786	741.982	ERM 20
1121	696676.471	448547.918	789.864	ERM 21
1122	702090.292	446081.016	756.367	ERM 22
1123	701091.409	450665.965	767.332	ERM 23
1124	706739.307	443994.651	729.574	ERM 24
1125	705682.199	437261.390	727.447	ERM 25
1126	704501.917	430780.918	723.093	ERM 26
1127	704287.990	427716.593	732.770	ERM 27
1128	707419.731	427722.313	714.323	ERM 28
1129	717983.406	447313.983	660.904	ERM 29
1130	722015.868	449010.637	655.830	ERM 30
1131	712690.566	449012.495	699.957	ERM 31
1132	707337.590	454899.511	746.656	ERM 32
1133	712599.954	459603.171	734.219	ERM 33
1134	717951.980	459622.531	709.248	ERM 34
1135	717282.957	463742.438	735.643	ERM 35
1136	712783.010	464695.252	767.421	ERM 36
1137	700044.713	470771.708	857.316	ERM 37
1138	702977.493	462096.091	787.973	ERM 38
1139	703882.703	458656.929	775.557	ERM 39
1140	720775.650	465317.386	735.982	ERM 40
1141	725247.122	468030.589	735.861	ERM 41
1142	723170.289	459712.099	677.130	ERM 42
1143,	696950.164,	428307.573,	764.480,	ERM 43
1144,	696827.540,	438075.598,	768.439,	ERM 44
1145,	696805.934,	441546.395,	776.534,	ERM 45

3. ELEVATION REFERENCE MARKS COORDINATES / ELEVATIONS (NGVD 1929)

The following list of ERM's includes the NGVD 1929 elevations. Refer to attached conversion calculations from NAVD 1988 to NGVD 1929.

Gila Bend ADMP
Elevation Reference Marks

Point	North	East	Elev 1929	Descriptions
1101	723145.526	454433.982	659.275	CK ERM 1
1102	717915.545	454367.031	684.976	CK ERM 2
1103	712573.712	454254.207	717.746	CK ERM 3
1104	707669.749	448766.209	727.678	CK ERM 4
1105	710203.416	459355.929	741.708	CK ERM 5
1106	710656.324	463571.188	764.04	CK ERM 6
1110	704828.752	466812.401	806.434	CK ERM 10
1112	701406.949	466416.81	819.241	REC ERM 12
1113	703166.117	454796.377	766.815	CK ERM 13
1114	696805.024	454834.312	795.601	CK ERM 14
1116	696739.746	458733.206	804.282	CK ERM 16
1117	703927.898	443480.135	742.461	ERM 17
1118	703320.74	437476.63	742.842	ERM 18
1119	703051.561	433636.327	738.013	ERM 19
1120	702504.444	428932.786	740.086	ERM 20
1121	696676.471	448547.918	787.938	ERM 21
1122	702090.292	446081.016	754.461	ERM 22
1123	701091.409	450665.965	765.416	ERM 23
1124	706739.307	443994.651	727.691	ERM 24
1125	705682.199	437261.39	725.557	ERM 25
1126	704501.917	430780.918	721.2	ERM 26
1127	704287.99	427716.593	730.877	ERM 27
1128	707419.731	427722.313	712.437	ERM 28
1129	717983.406	447313.983	658.988	ERM 29
1130	722015.868	449010.637	653.891	ERM 30
1131	712690.566	449012.495	698.061	ERM 31
1132	707337.59	454899.511	744.75	ERM 32
1133	712599.954	459603.171	732.287	ERM 33
1134	717951.98	459622.531	707.299	ERM 34
1135	717282.957	463742.438	733.674	ERM 35
1136	712783.01	464695.252	765.462	ERM 36
1137	700044.713	470771.708	855.325	ERM 37
1138	702977.493	462096.091	786.031	ERM 38
1139	703882.703	458656.929	773.631	ERM 39
1140	720775.65	465317.386	733.994	ERM 40
1141	725247.122	468030.589	733.847	ERM 41
1142	723170.289	459712.099	675.155	ERM 42
1143	696950.164	428307.573	762.574	ERM 43
1144	696827.54	438075.598	766.523	ERM 44
1145	696805.934	441546.395	774.615	ERM 45

4. ELEVATION REFERENCE MARK DESCRIPTIONS

The following is a description of the new Elevation Reference Marks established with this flood study.

ERM Descriptions:

No:	Description
1	See 1992 Gila Bend Floodplain Delineation Study
2	See 1992 Gila Bend Floodplain Delineation Study
3	See 1992 Gila Bend Floodplain Delineation Study
4	See 1992 Gila Bend Floodplain Delineation Study
5	See 1992 Gila Bend Floodplain Delineation Study
6	See 1992 Gila Bend Floodplain Delineation Study
10	See 1992 Gila Bend Floodplain Delineation Study
12	See 1992 Gila Bend Floodplain Delineation Study
13	See 1992 Gila Bend Floodplain Delineation Study
14	See 1992 Gila Bend Floodplain Delineation Study
16	See 1992 Gila Bend Floodplain Delineation Study

17 Chiseled square in north end of headwall, on the west side of canal siphon, 1.15 miles west of Highway 85 along the Gila Bend Canal, on the south side of north canal road. Section 3, T 6 S, R 5 W.

18 Chiseled square at centerline of headwall at gate valve, north side of canal, +/- 95 feet west of west side of siphon, 2.3 miles west of Highway 85 along Gila Bend Canal, on the south side of north canal road. Section 4, T 6 S, R 5 W.

19 Chiseled square at the northeast corner of 9.5' x 9.5' masonry foundation at well site, 3.0 miles west of Highway 85 along the Gila Bend Canal, on the north side of north canal road. Section 5, T 6 S, R 5 W.

20 Chiseled square at the northwest corner of bridge over canal at base of 4" x 4" metal gatepost, 4.0 miles west of Highway 85 along the Gila Bend Canal, on the south side of north canal road. Section 5, T 6 S, R 5 W.

21 NGS Point "R-1", (PID DA0499) Located SW of Gila Bend along the E side of SR 85, 1.9 miles S of I-18. Point lies between SR 85 and the Railroad tracks, 66 feet SE of the SR 85 centerline, 90 feet NW rail of the tracks, and 5 feet SE of Railway milepost 3. Section 14, T 6 S, R 5 W.

22 Chiseled square on the southwest corner of an electrical equipment pad at pump, 25 feet north of a utility pole, 0.55 miles west of Highway 85 from the intersection of Highway 85 and Thayer Road. Section 2, T 6 S, R 5 W.

23 NGS Point "J-331", (PID DA0498) Located 1.65 mi. SW along the Tucson, Cornelia and Gila Bend Railway from the Martin Avenue crossing in Gila Bend, at the second telegraph pole SW of railway milepole 2, at a dip in the old highway 8, 195,5 feet North of the NW corner of a wooden railway bridge number 21, 95.4 feet NW of the NW rail of the tracks, 46.0 feet SE of the centerline of the old highway, 5.0 feet NE oth the telegraph pole, 2 ft. SW from a witness post, and 1 ft. below the tracks.
Section 12 T 6 S, R 5 W.

24 NGS Point "TOSA", (PID DA0685) Located West of Gila Bend along the Union Pacific Railroad, 2.1 miles west of Martin Avenue. Point lies 1.6 miles west of the I-8 overpass, 50 feet north of the north rail, and 96.5 feet south of the extended centerline of the I-8 frontage road Section 3, T 6 S, R 5 W.

25 Chiseled square on top of headwall at northwest corner of bridge on west bound Interstate 8, 0.25 miles east of milepost 113. Section 4, T 6 S, R 5 W.

26 ADOT Brass Cap marked "4855.71" at centerline of headwall on north side of west bound Interstate 8, +/- 120 feet east of milepost 112. Section 5, T 6 S, R 5 W.

27 Brass cap in centerline of headwall on the west end of a cattle guard, on the west side of Citrus Valley Road, 55 feet north of the west bound Interstate 8 off ramp. Section 6, T 6 S, R 5 W.

28 Top of 1/4" iron bar in handhole at the center of Citrus Valley Road, 0.6 miles north of Interstate 8, Section 6, T 6 S, R 5 W.

29 Chiseled square at centerline of headwall, on the north side of Watermelon Road, 0.3 miles west of 315th Ave. Section 23, T 5 S, R 5 W.

30 Chiseled square at end of ditch at gate valve, south side of a ditch crossing. From the intersection of Watermelon Road and 315th Ave., north 0.65 miles then left on a farm road to a T then right +/- 200 feet. Mark on left. Section 23, T 5 S, R 5 W.

31 Stone in handhole at the intersection of Indian Road and Gila Blvd. Section 24, T 5 S, R 5 W.

32 1" iron pipe, 2.8 feet east and 1.0 foot north of a utility pole and 2.6 feet north of a #4 rebar with cap stamped "LS 9087", +/- 30 feet south of a building corner and +/- 150 feet west of the intersection of Main St. and Martin Ave. Section 31, T 5 S, R 5 W.

33 #5 rebar in handhole at the intersection of Stout Road and Indian Road. Section 29, T 5 S, R 4 W.

34 Chiseled square in top of ditch at angle point, +/- 70 feet north and +/- 43 feet west of the intersection of Stout Road and Watermelon Road, +/- 18 feet northwest of the end of a culvert, 3 feet east of a gate valve, 8 feet south of a second gate valve and 15 feet north of a pump outlet pipe. Section 19, T 5 S, R 4 W.

35 Chiseled square at north end of headwall on the east side of old Highway 80, 0.1 miles south of Watermelon Road. Section 29, T 5 S, R 4 W.

36 ADOT Brass Cap in headwall on the east side of Highway 85, 0.3 miles northeast of milepost 121 and 0.9 miles northeast of the overpass. Section 32, T 5 S, R 4 W.

37 ADOT Brass Cap marked "157X8848", south side of Interstate 8, 2.9 feet east of ROW marker marked "POT 157+88.48 EB", 40 feet east of a cattle guard. From Exit 119 on Interstate 8, southeast on frontage road 0.45 miles from eastbound offramp to a cattle guard. Mark on right. Section 10, T 6 S, R 4 W.

38 ADOT Brass Cap marked "786.19" on headwall on the north side of west bound Interstate 8, 0.8 miles west of milepost 119. Section 5, T 6 S, R 4 W.

39 ADOT Brass Cap marked "Elev 773.79 MED. STA. 5145+22.66", on headwall on north side of west bound Interstate 8, 0.5 miles west of milepost 118 and 0.1 miles west of bridge over Sand Tank Wash. Section 6, T 6 S, R 4 W.

40 NGS Point "X-13", (PID DA0695)Located NE of Gila Bend along the w\W side of Old us 80, 2.3 miles NE of BR-8. Point lies 66 feet w of the Old 80 Centerline, 137 feet NW across Old 80 from power pole no. 12-12. Section 21, T 5 S, R 4 W.

41 NGS Point "B-361", (PID DA0694) Located NE of Gila Bend along the West side of old US 80, 3.3 miles NE of BR-8. Point lies 49.5 feet W of the Old 80 Centerline, 189 feet SW of the SW end of a culvert headwall. Section 16, T 5 S, R 4 W.

42 21/2" iron pipe filled with concrete in the centerline of Stout Road, 1.0 miles north of Watermelon Road, 0.3' below surface. Section 17, T 5 S, R 4 W.

43 Brass cap in concrete. 4.0 miles west of Highway 85 on the north side of the Gila Bend Canal to a bridge, then southerly across bridge 0.05 miles to a Y, right at Y then southerly along dirt track 0.95 miles then left 150 feet to the point. Brass cap lies +/-15 feet west of a mesquite tree and +/-145 feet north of 8' high metal post. Section 8, T 6 S, R 5 W.

44 Brass cap in concrete. 4.0 miles west of Highway 85 on the north side of the Gila Bend Canal to a bridge, then southerly across bridge 0.05 miles to a Y, left at Y and south easterly and easterly 1.45 miles to a Y, right at Y then southeasterly 0.95 miles to a gate in fence. Station at north end of gate, 2 feet north and 2 feet west of a 6"x8" post. Section 9, T 6 S, R 5 W.

45 Brass cap in concrete. 4.0 miles west of Highway 85 on the north side of the Gila Bend Canal to a bridge, then southerly across bridge 0.05 miles to a Y, left at Y and south easterly and easterly 1.45 miles to a Y, left at Y and continue easterly 0.85 miles to a line of utility poles running north and south, south along utility line 0.95 miles to a gate in a fence. Station at west end of gate, 2.5' north and 1.5' west of a 6"x8" post. Section 10, T 6 S, R 5 W.

5. ERM CONVERSION CALCULATIONS (NAVD 1988 TO NGVD 1929)

The field survey to establish the ERM's was done in NAVD 1988. The following calculations were done to convert the NAVD 1988 elevations to NGVD 1929 elevations.

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:33:45

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1101	1101
Northing: (Feet)	723145.526	
Easting: (Feet)	454433.982	
Latitude: (Degrees)		32 59 7.36 N
Longitude: (Degrees)		112 43 3.09 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 9.81769"	- - - - -
Scale Factor:	0.999969045018	- - - - -

System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 59 7.36

Longitude: 112 43 3.09

MSL Height: 661.234 ft

Datum shift(NAVD 88 - NGVD 29): 1.959 feet

Converted to NGVD 29 height: 659.275 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:39:45

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1102	1102
Northing: (Feet)	717915.545	
Easting: (Feet)	454367.031	
Latitude: (Degrees)		32 58 15.61 N
Longitude: (Degrees)		112 43 3.40 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 9.38442"	- - - - -
Scale Factor:	0.999969082889	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 15.61

Longitude: 112 43 3.40

MSL Height: 686.912 ft

Datum shift(NAVD 88 - NGVD 29): 1.936 feet

Converted to NGVD 29 height: 684.976 feet

The Geographic Calculator - Version 3.09

te: 02/16/00 Time: 08:41:29

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1103	1103
Northing: (Feet)	712573.712	
Easting: (Feet)	454254.207	
Latitude: (Degrees)		32 57 22.75 N
Longitude: (Degrees)		112 43 4.25 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 9.22543"	- - - - -
Scale Factor:	0.999969146589	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 22.75

Longitude: 112 43 4.25

MSL Height: 719.655 ft

Datum shift(NAVD 88 - NGVD 29): 1.909 feet

Converted to NGVD 29 height: 717.746 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:43:06

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1104	1104
Northing: (Feet)	707669.749	
Easting: (Feet)	448766.209	
Latitude: (Degrees)		32 56 33.81 N
Longitude: (Degrees)		112 44 8.21 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 43.43929"	- - - - -
Scale Factor:	0.999972269690	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 33.81

Longitude: 112 44 8.21

MSL Height: 729.571 ft

Datum shift(NAVD 88 - NGVD 29): 1.893 feet

Converted to NGVD 29 height: 727.678 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:44:57

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1105	1105
Northing: (Feet)	710203.416	
Easting: (Feet)	459355.929	
Latitude: (Degrees)		32 56 59.67 N
Longitude: (Degrees)		112 42 4.17 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 36.26998"	- - - - -
Scale Factor:	0.999966305464	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 59.67

Longitude: 112 42 4.17

MSL Height: 743.617 ft

Datum shift(NAVD 88 - NGVD 29): 1.909 feet

Converted to NGVD 29 height: 741.708 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:46:41

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1106	1106
Northing: (Feet)	710656.324	
Easting: (Feet)	463571.188	
Latitude: (Degrees)		32 57 4.46 N
Longitude: (Degrees)		112 41 14.74 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 9.43479"	- - - - -
Scale Factor:	0.999964002877	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 4.46

Longitude: 112 41 14.74

MSL Height: 765.982 ft

Datum shift(NAVD 88 - NGVD 29): 1.942 feet

Converted to NGVD 29 height: 764.040 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:48:19

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1110	1110
Northing: (Feet)	704828.752	
Easting: (Feet)	466812.401	
Latitude: (Degrees)		32 56 7.04 N
Longitude: (Degrees)		112 40 36.21 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 47.83403"	- - - - -
Scale Factor:	0.999962260269	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 7.04

Longitude: 112 40 36.21

MSL Height: 808.403 ft

Datum shift(NAVD 88 - NGVD 29): 1.969 feet

Converted to NGVD 29 height: 806.434 feet

The Geographic Calculator - Version 3.09

te: 02/16/00 Time: 08:51:21

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1112	1112
Northing: (Feet)	701406.949	
Easting: (Feet)	466416.810	
Latitude: (Degrees)		32 55 33.15 N
Longitude: (Degrees)		112 40 40.57 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 49.82252"	- - - - -
Scale Factor:	0.999962471822	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 33.15

Longitude: 112 40 40.57

MSL Height: 821.210 ft

Datum shift(NAVD 88 - NGVD 29): 1.969 feet

Converted to NGVD 29 height: 819.241 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:52:41

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1113	1113
Northing: (Feet)	703166.117	
Easting: (Feet)	454796.377	
Latitude: (Degrees)		32 55 49.71 N
Longitude: (Degrees)		112 42 57.05 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 4.21860"	- - - - -
Scale Factor:	0.999968842205	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 49.71

Longitude: 112 42 57.05

MSL Height: 768.734 ft

Datum shift(NAVD 88 - NGVD 29): 1.919 feet

Converted to NGVD 29 height: 766.815 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:54:02

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1114	1114
Northing: (Feet)	696805.024	
Easting: (Feet)	454834.312	
Latitude: (Degrees)		32 54 46.77 N
Longitude: (Degrees)		112 42 56.04 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 2.93248"	- - - - -
Scale Factor:	0.999968821169	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 46.77

Longitude: 112 42 56.04

MSL Height: 797.537 ft

Datum shift(NAVD 88 - NGVD 29): 1.936 feet

Converted to NGVD 29 height: 795.601 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:55:02

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1116	1116
Northing: (Feet)	696739.746	
Easting: (Feet)	458733.206	
Latitude: (Degrees)		32 54 46.42 N
Longitude: (Degrees)		112 42 10.30 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 38.06959"	- - - - -
Scale Factor:	0.999966649613	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 46.42

Longitude: 112 42 10.30

MSL Height: 806.224 ft

Datum shift(NAVD 88 - NGVD 29): 1.942 feet

Converted to NGVD 29 height: 804.282 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:56:04

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1117	1117
Northing: (Feet)	703927.898	
Easting: (Feet)	443480.135	
Latitude: (Degrees)		32 55 56.38 N
Longitude: (Degrees)		112 45 9.89 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 16.52880"	- - - - -
Scale Factor:	0.999975343067	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 56.38

Longitude: 112 45 9.89

MSL Height: 744.354 ft

Datum shift(NAVD 88 - NGVD 29): 1.893 feet

Converted to NGVD 29 height: 742.461 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:57:15

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1118	1118
Northing: (Feet)	703320.740	
Easting: (Feet)	437476.630	
Latitude: (Degrees)		32 55 49.89 N
Longitude: (Degrees)		112 46 20.26 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 54.71723"	- - - - -
Scale Factor:	0.999978911019	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 49.89

Longitude: 112 46 20.26

MSL Height: 744.738 ft

Datum shift(NAVD 88 - NGVD 29): 1.896 feet

Converted to NGVD 29 height: 742.842 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:58:21

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1119	1119
Northing: (Feet)	703051.561	
Easting: (Feet)	433636.327	
Latitude: (Degrees)		32 55 46.92 N
Longitude: (Degrees)		112 47 5.29 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 19.16400"	- - - - -
Scale Factor:	0.999981236638	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 46.92

Longitude: 112 47 5.29

MSL Height: 739.909 ft

Datum shift(NAVD 88 - NGVD 29): 1.896 feet

Converted to NGVD 29 height: 738.013 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 08:59:57

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1120	1120
Northing: (Feet)	702504.444	
Easting: (Feet)	428932.786	
Latitude: (Degrees)		32 55 41.12 N
Longitude: (Degrees)		112 48 0.42 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 49.06442"	- - - - -
Scale Factor:	0.999984131047	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 41.12

Longitude: 112 48 0.42

MSL Height: 741.982 ft

Datum shift(NAVD 88 - NGVD 29): 1.896 feet

Converted to NGVD 29 height: 740.086 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:01:05

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1121	1121
Northing: (Feet)	696676.471	
Easting: (Feet)	448547.918	
Latitude: (Degrees)		32 54 45.02 N
Longitude: (Degrees)		112 44 9.77 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 42.98127"	- - - - -
Scale Factor:	0.999972395811	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 45.02

Longitude: 112 44 9.77

MSL Height: 789.864 ft

Datum shift(NAVD 88 - NGVD 29): 1.926 feet

Converted to NGVD 29 height: 787.938 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:02:09

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1122	1122
Northing: (Feet)	702090.292	
Easting: (Feet)	446081.016	
Latitude: (Degrees)		32 55 38.40 N
Longitude: (Degrees)		112 44 39.20 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 59.62571"	- - - - -
Scale Factor:	0.999973823053	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 38.40

Longitude: 112 44 39.20

MSL Height: 756.367 ft

Datum shift(NAVD 88 - NGVD 29): 1.906 feet

Converted to NGVD 29 height: 754.461 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:04:11

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1124	1124
Northing: (Feet)	706739.307	
Easting: (Feet)	443994.651	
Latitude: (Degrees)		32 56 24.23 N
Longitude: (Degrees)		112 45 4.11 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 13.72882"	- - - - -
Scale Factor:	0.999975041000	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:03:07

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1123	1123
Northing: (Feet)	701091.409	
Easting: (Feet)	450665.965	
Latitude: (Degrees)		32 55 28.87 N
Longitude: (Degrees)		112 43 45.32 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 30.21771"	- - - - -
Scale Factor:	0.999971181126	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 24.23

Longitude: 112 45 4.11

MSL Height: 729.574 FT

Datum shift(NAVD 88 - NGVD 29): 1.883 feet

Converted to NGVD 29 height: 727.691 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:05:53

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1125	1125
Northing: (Feet)	705682.199	
Easting: (Feet)	437261.390	
Latitude: (Degrees)		32 56 13.24 N
Longitude: (Degrees)		112 46 23.02 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 56.50563"	- - - - -
Scale Factor:	0.999979040358	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 13.24

Longitude: 112 46 23.02

MSL Height: 727.447 FT

Datum shift(NAVD 88 - NGVD 29): 1.890 feet

Converted to NGVD 29 height: 725.557 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:07:59

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1126	1126
Northing: (Feet)	704501.917	
Easting: (Feet)	430780.918	
Latitude: (Degrees)		32 56 1.03 N
Longitude: (Degrees)		112 47 38.94 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 37.63764"	- - - - -
Scale Factor:	0.999982987634	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 56 1.03

Longitude: 112 47 38.94

MSL Height: 723.093 FT

Datum shift(NAVD 88 - NGVD 29): 1.893 feet

Converted to NGVD 29 height: 721.200 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:09:03

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1127	1127
Northing: (Feet)	704287.990	
Easting: (Feet)	427716.593	
Latitude: (Degrees)		32 55 58.66 N
Longitude: (Degrees)		112 48 14.87 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 57.14617"	- - - - -
Scale Factor:	0.999984887599	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 58.66

Longitude: 112 48 14.87

MSL Height: 732.770 FT

Datum shift(NAVD 88 - NGVD 29): 1.893 feet

Converted to NGVD 29 height: 730.877 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:10:07

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1128	1128
Northing: (Feet)	707419.731	
Easting: (Feet)	427722.313	
Latitude: (Degrees)		32 56 29.65 N
Longitude: (Degrees)		112 48 15.11 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 57.68079"	- - - - -
Scale Factor:	0.999984883873	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 29.65

Longitude: 112 48 15.11

MSL Height: 714.323 FT

Datum shift(NAVD 88 - NGVD 29): 1.886 feet

Converted to NGVD 29 height: 712.437 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:11:13

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1129	1129
Northing: (Feet)	717983.406	
Easting: (Feet)	447313.983	
Latitude: (Degrees)		32 58 15.74 N
Longitude: (Degrees)		112 44 26.20 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 54.45276"	- - - - -
Scale Factor:	0.999973107154	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 15.74

Longitude: 112 44 26.20

MSL Height: 660.904 FT

Datum shift(NAVD 88 - NGVD 29): 1.916 feet

Converted to NGVD 29 height: 658.988 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:12:11

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1130	1130
Northing: (Feet)	722015.868	
Easting: (Feet)	449010.637	
Latitude: (Degrees)		32 58 55.77 N
Longitude: (Degrees)		112 44 6.65 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 44.29250"	- - - - -
Scale Factor:	0.999972128510	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 55.77

Longitude: 112 44 6.65

MSL Height: 655.830 FT

Datum shift(NAVD 88 - NGVD 29): 1.939 feet

Converted to NGVD 29 height: 653.891 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:14:20

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1131	1131
Northing: (Feet)	712690.566	
Easting: (Feet)	449012.495	
Latitude: (Degrees)		32 57 23.50 N
Longitude: (Degrees)		112 44 5.78 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 42.71189"	- - - - -
Scale Factor:	0.999972127847	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 23.50

Longitude: 112 44 5.78

MSL Height: 699.957 FT

Datum shift(NAVD 88 - NGVD 29): 1.896 feet

Converted to NGVD 29 height: 698.061 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:15:19

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1132	1132
Northing: (Feet)	707337.590	
Easting: (Feet)	454899.511	
Latitude: (Degrees)		32 56 30.99 N
Longitude: (Degrees)		112 42 56.21 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 26' 4.24554"	- - - - -
Scale Factor:	0.999968784134	- - - - -

System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 56 30.99

Longitude: 112 42 56.21

MSL Height: 746.656 FT

Datum shift(NAVD 88 - NGVD 29): 1.906 feet

Converted to NGVD 29 height: 744.750 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:16:52

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1133	1133
Northing: (Feet)	712599.954	
Easting: (Feet)	459603.171	
Latitude: (Degrees)		32 57 23.40 N
Longitude: (Degrees)		112 42 1.48 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 35.07779"	- - - - -
Scale Factor:	0.999966169190	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 57 23.40

Longitude: 112 42 1.48

MSL Height: 734.219 FT

Datum shift(NAVD 88 - NGVD 29): 1.923 feet

Converted to NGVD 29 height: 732.296 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:18:05

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1134	1134
Northing: (Feet)	717951.980	
Easting: (Feet)	459622.531	
Latitude: (Degrees)		32 58 16.36 N
Longitude: (Degrees)		112 42 1.72 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 35.81635"	- - - - -
Scale Factor:	0.999966158320	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 58 16.36

Longitude: 112 42 1.72

MSL Height: 709.248 FT

Datum shift(NAVD 88 - NGVD 29): 1.949 feet

Converted to NGVD 29 height: 707.299 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:19:15

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1135	1135
Northing: (Feet)	717282.957	
Easting: (Feet)	463742.438	
Latitude: (Degrees)		32 58 10.04 N
Longitude: (Degrees)		112 41 13.30 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 9.39074"	- - - - -
Scale Factor:	0.999963909938	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 58 10.04

Longitude: 112 41 13.30

MSL Height: 735.643 FT

Datum shift(NAVD 88 - NGVD 29): 1.969 feet

Converted to NGVD 29 height: 733.674 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:20:17

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1136	1136
Northing: (Feet)	712783.010	
Easting: (Feet)	464695.252	
Latitude: (Degrees)		32 57 25.59 N
Longitude: (Degrees)		112 41 1.74 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 2.59457"	- - - - -
Scale Factor:	0.999963395653	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 57 25.59

Longitude: 112 41 1.74

MSL Height: 767.421 FT

Datum shift(NAVD 88 - NGVD 29): 1.959 feet

Converted to NGVD 29 height: 765.462 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:21:17

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1137	1137
Northing: (Feet)	700044.713	
Easting: (Feet)	470771.708	
Latitude: (Degrees)		32 55 19.98 N
Longitude: (Degrees)		112 39 49.36 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 21.84052"	- - - - -
Scale Factor:	0.999960164127	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 19.98

Longitude: 112 39 49.36

MSL Height: 857.316 FT

Datum shift(NAVD 88 - NGVD 29): 1.991 feet

Converted to NGVD 29 height: 855.325 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:22:18

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1138	1138
Northing: (Feet)	702977.493	
Easting: (Feet)	462096.091	
Latitude: (Degrees)		32 55 48.38 N
Longitude: (Degrees)		112 41 31.39 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 17.62749"	- - - - -
Scale Factor:	0.999964804314	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 55 48.38

Longitude: 112 41 31.39

MSL Height: 787.973 FT

Datum shift(NAVD 88 - NGVD 29): 1.942 feet

Converted to NGVD 29 height: 786.031 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:23:19

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1139	1139
Northing: (Feet)	703882.703	
Easting: (Feet)	458656.929	
Latitude: (Degrees)		32 55 57.09 N
Longitude: (Degrees)		112 42 11.82 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 39.71004"	- - - - -
Scale Factor:	0.999966691477	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 55 57.09

Longitude: 112 42 11.82

MSL Height: 775.557 FT

Datum shift(NAVD 88 - NGVD 29): 1.926 feet

Converted to NGVD 29 height: 773.631 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:24:12

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1140	1140
Northing: (Feet)	720775.650	
Easting: (Feet)	465317.386	
Latitude: (Degrees)		32 58 44.71 N
Longitude: (Degrees)		112 40 55.12 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 59.87943"	- - - - -
Scale Factor:	0.999963060560	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 58 44.71

Longitude: 112 40 55.12

MSL Height: 735.982 FT

Datum shift(NAVD 88 - NGVD 29): 1.988 feet

Converted to NGVD 29 height: 733.994 feet

The Geographic Calculator - Version 3.09

te: 02/16/00 Time: 09:25:08

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1141	1141
Northing: (Feet)	725247.122	
Easting: (Feet)	468030.589	
Latitude: (Degrees)		32 59 29.15 N
Longitude: (Degrees)		112 40 23.64 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 24' 43.23656"	- - - - -
Scale Factor:	0.999961610701	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 59 29.15

Longitude: 112 40 23.64

MSL Height: 735.861 FT

Datum shift(NAVD 88 - NGVD 29): 2.014 feet

Converted to NGVD 29 height: 733.847 feet

The Geographic Calculator - Version 3.09

te: 02/16/00 Time: 09:26:21

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1142	1142
Northing: (Feet)	723170.289	
Easting: (Feet)	459712.099	
Latitude: (Degrees)		32 59 8.00 N
Longitude: (Degrees)		112 42 1.12 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 25' 36.08475"	- - - - -
Scale Factor:	0.999966108818	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 59 8.00

Longitude: 112 42 1.12

MSL Height: 677.130 FT

Datum shift(NAVD 88 - NGVD 29): 1.975 feet

Converted to NGVD 29 height: 675.155 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:29:29

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1143	1143
Northing: (Feet)	696950.164	
Easting: (Feet)	428307.573	
Latitude: (Degrees)		32 54 46.11 N
Longitude: (Degrees)		112 48 7.21 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 28' 52.04153"	- - - - -
Scale Factor:	0.999984519876	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 46.11

Longitude: 112 48 7.21

MSL Height: 764.480 FT

Datum shift(NAVD 88 - NGVD 29): 1.906 feet

Converted to NGVD 29 height: 762.574 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:30:34

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1144	1144
Northing: (Feet)	696827.540	
Easting: (Feet)	438075.598	
Latitude: (Degrees)		32 54 45.70 N
Longitude: (Degrees)		112 46 12.62 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 49.75811"	- - - - -
Scale Factor:	0.999978551648	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to _NGS

Latitude: 32 54 45.70

Longitude: 112 46 12.62

MSL Height: 768.439 FT

Datum shift(NAVD 88 - NGVD 29): 1.916 feet

Converted to NGVD 29 height: 766.523 feet

The Geographic Calculator - Version 3.09

Date: 02/16/00 Time: 09:31:57

Blue Marble Geographics
46 Water Street, Gardiner, Maine 04345 USA
(207) 582-6747 FAX (207) 582-7001

	1145	1145
Northing: (Feet)	696805.934	
Easting: (Feet)	441546.395	
Latitude: (Degrees)		32 54 45.76 N
Longitude: (Degrees)		112 45 31.91 W
Ellip. Ht.: (Meters)		0.00
Convergence: (Degrees)	-0° 27' 27.63136"	- - - - -
Scale Factor:	0.999976483617	- - - - -
System:	United States State Plane 1983	Geodetic
Datum Transf.:	North American Datum 1983	North American Datum 1983
Ellipsoid:	GRS 1980	GRS 1980
Zone:	202 - Arizona Central	- - - - -

NOTE: The input and output geodetic datum transformations are equivalent.
No geodetic datum shift has been computed or applied.
Geodetic datum information is for reference purposes only.

Questions concerning the VERTCON process may be mailed to NGS

Latitude: 32 54 45.76

Longitude: 112 45 31.91

MSL Height: 776.534 FT

Datum shift(NAVD 88 - NGVD 29): 1.919 feet

Converted to NGVD 29 height: 774.615 feet

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http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con2.pl 2/18/00

6. MAPPING CHECK PROFILES

March 24, 2000

Mr. Geza Kmetty, P.E.
Flood Control District of Maricopa County
2801 W. Durango Street
Phoenix, Arizona 85009

Re: Gila Bend Area Drainage Master Plan and FDS
Mapping Verification Package
FCD No. 99-18
EEC Job No. 99541

Dear Geza:

Preparation of floodplain delineation maps for this project includes verification of the accuracy of mapping. The maps produced for this project are at a scale of 1" = 400' with a contour interval of 4 feet.

The method of verification was to plot cross sections from field survey and photogrammetric readings. Five check cross sections within the planning area were used. The results were visually compared on the cross section plots, which are enclosed with this letter.

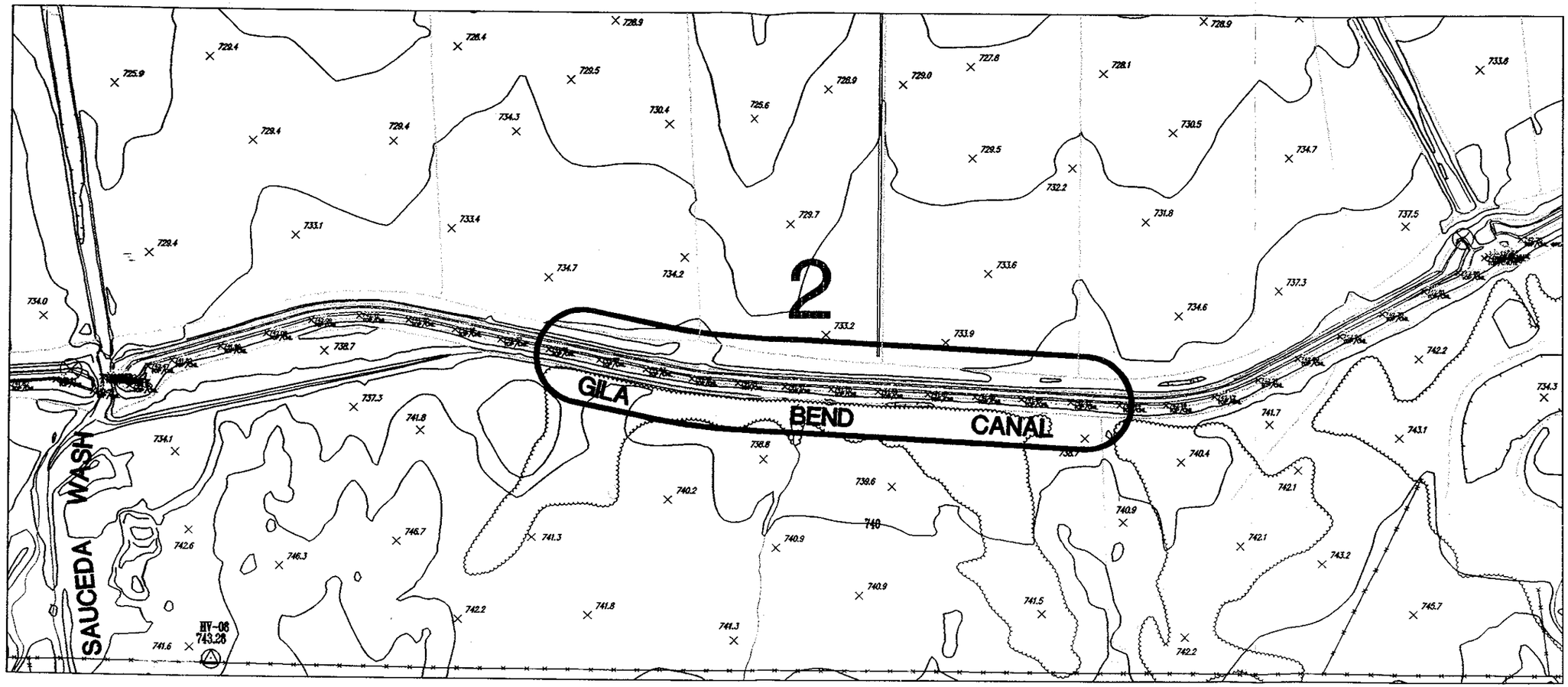
The mapping verification method indicates that the mapping meets the Class 1 mapping standards as set forth in the January 1995 FEMA 37 publication for FIRM maps and workmaps. It is our recommendation that the mapping be accepted for this project.

Sincerely,

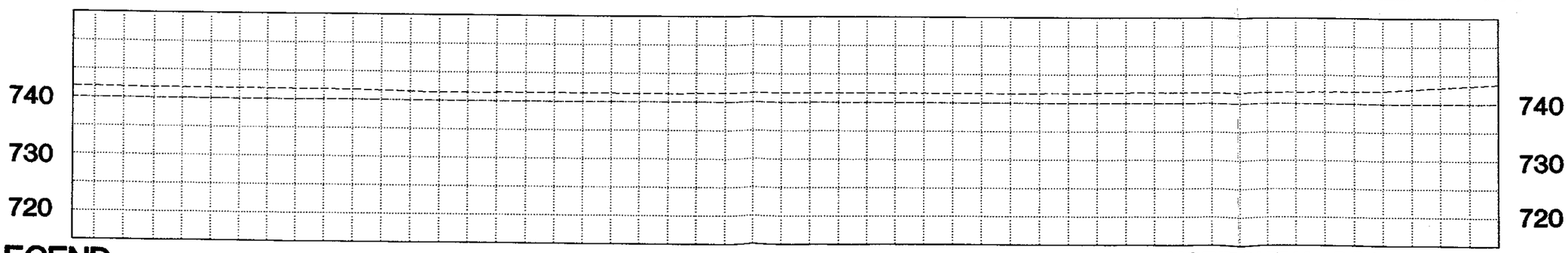
Mark T. Gavan, P.E.
Engineering and Environmental Consultants, Inc.

Enclosures: 5 Cross Section Plots

GILA BEND
CHECK SECTION 2



SCALE = 1"=500'



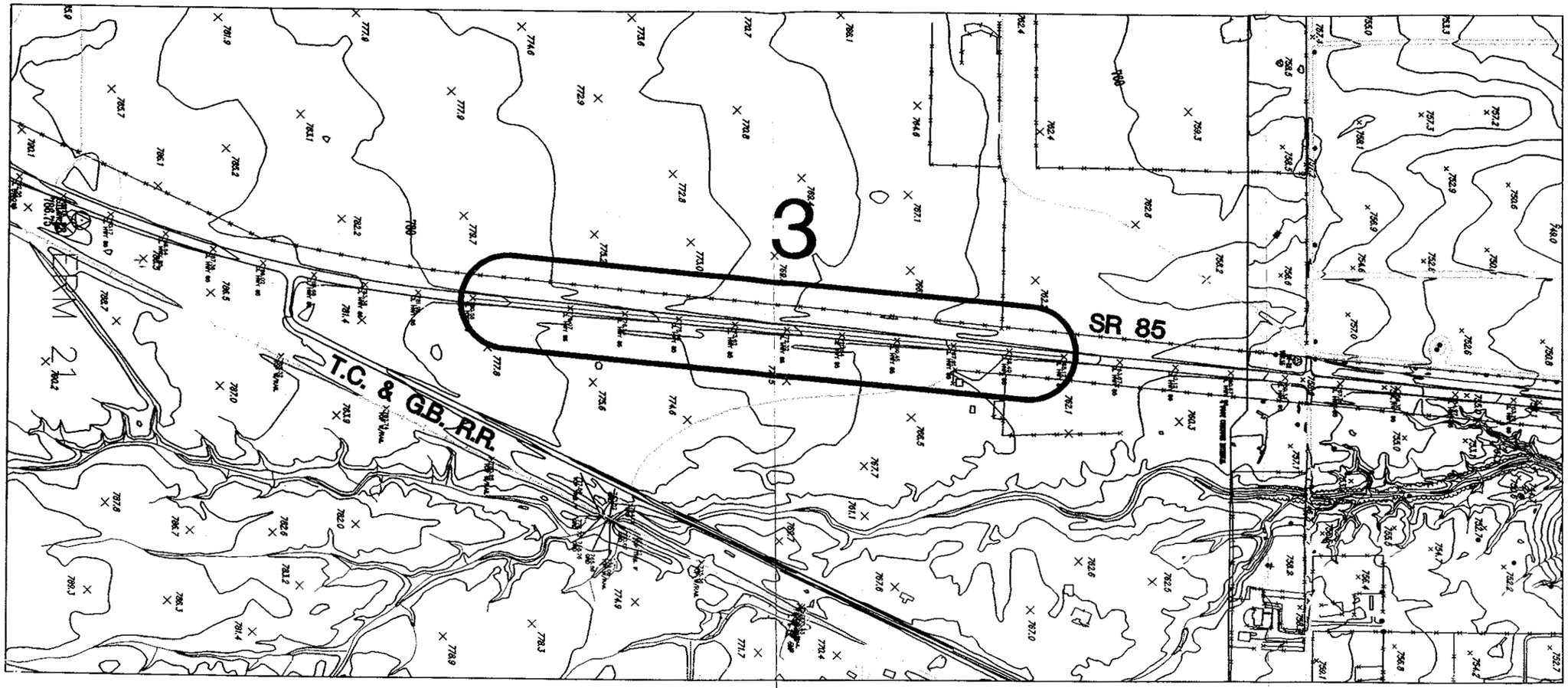
HORIZONTAL SCALE = 1"=200'
VERTICAL SCALE = 1"=20'

LEGEND

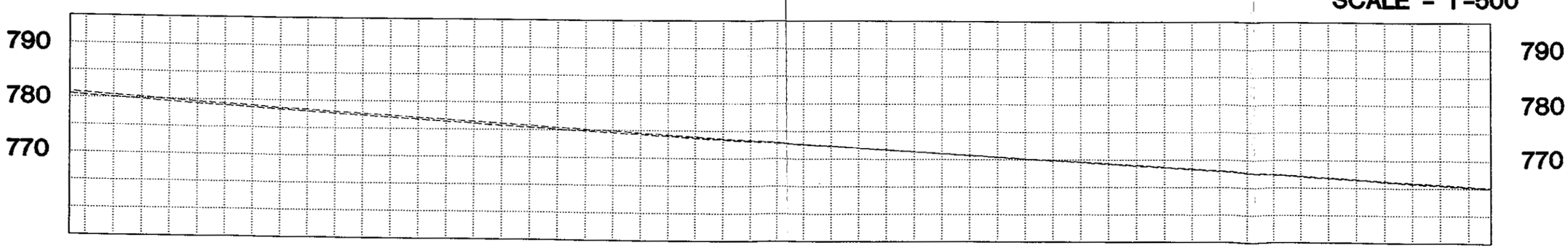
COOPER AERIAL ----------
SURVNET ----------

N:\99541\dwg\9541-sec.dwg

GILA BEND
CHECK SECTION 3



SCALE = 1"=500'



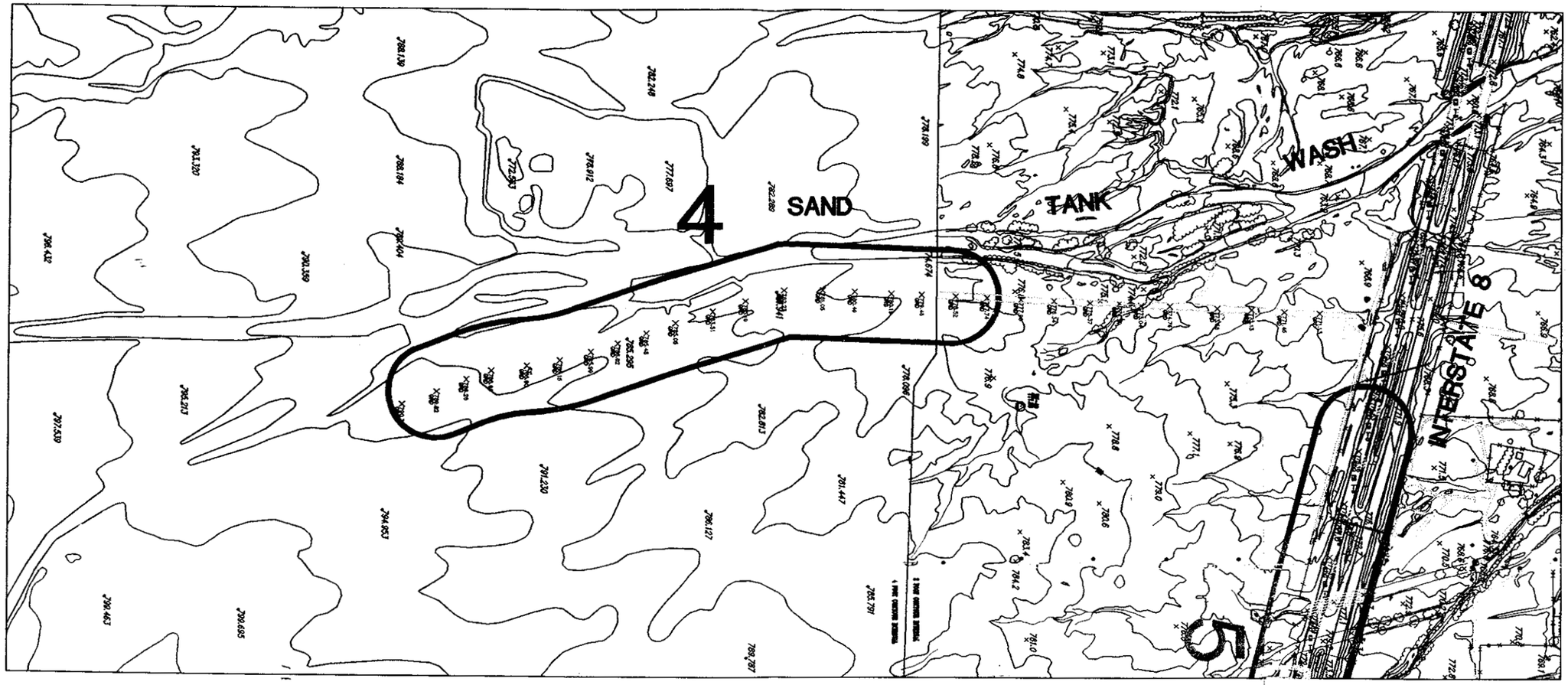
LEGEND

COOPER AERIAL ----------
SURVNET ----------

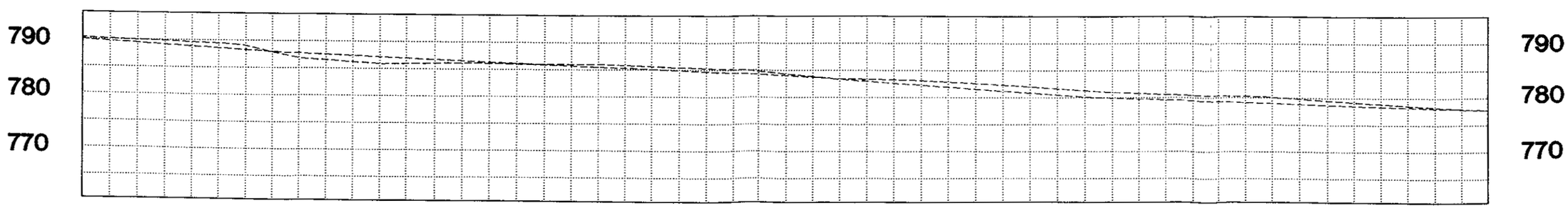
HORIZONTAL SCALE = 1"=200'
VERTICAL SCALE = 1"=20'

N:\99541\dwg\9541-sec.dwg

GILA BEND
CHECK SECTION 4



SCALE = 1"=500'



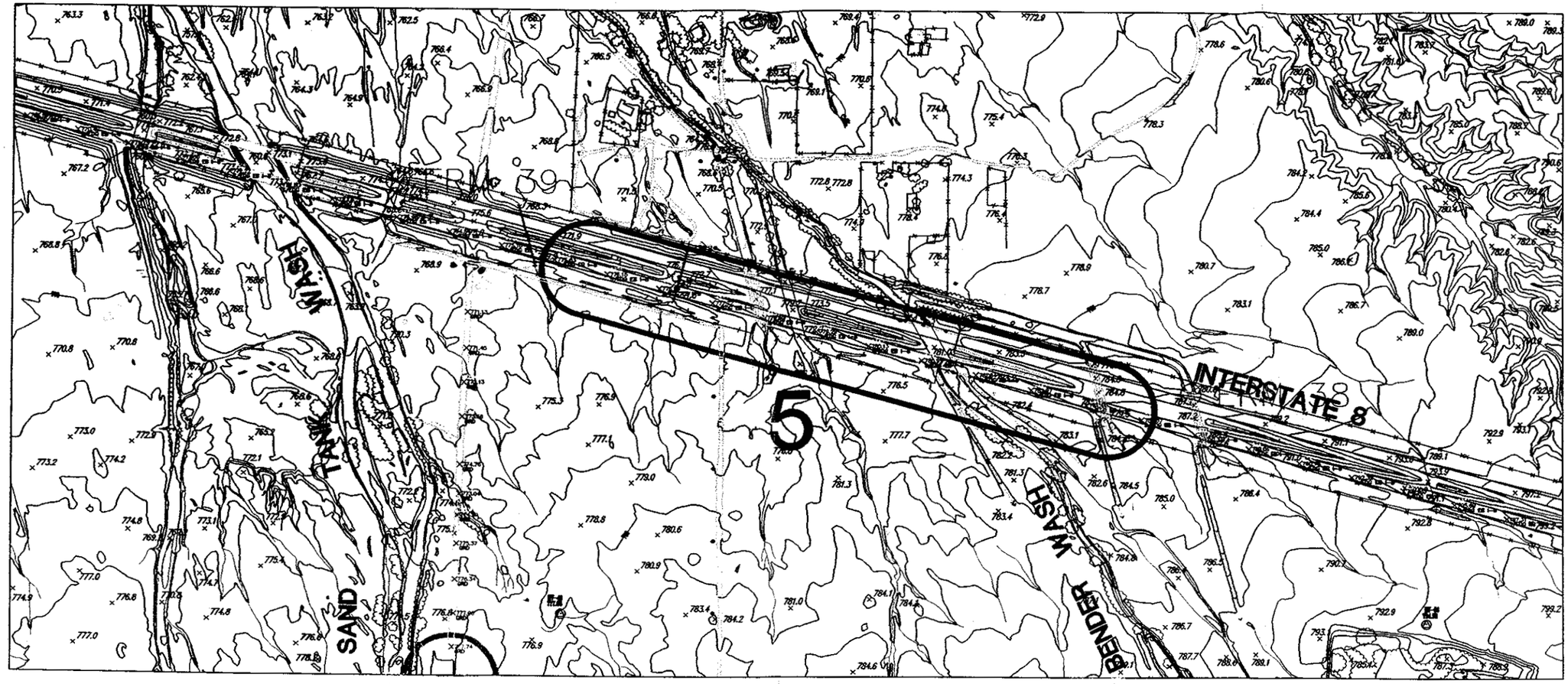
LEGEND

COOPER AERIAL ----------
SURVNET ----------

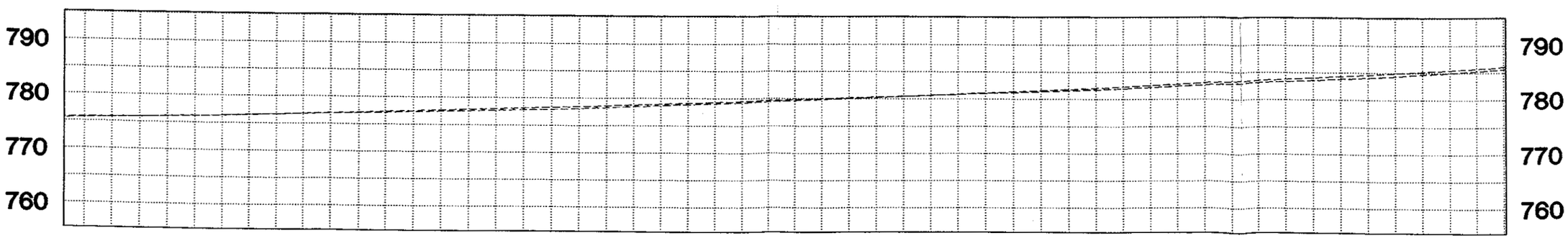
HORIZONTAL SCALE = 1"=200'
VERTICAL SCALE = 1"=20'

N:\99541\dwg\9541-sec.dwg

GILA BEND
CHECK SECTION 5



SCALE = 1"=500'



LEGEND

COOPER AERIAL ----------

SURVNET ----------

HORIZONTAL SCALE = 1"=200'
VERTICAL SCALE = 1"=20'

N:\99541\dwg\9541-sec.dwg

7. FIELD SURVEY FOR MAP CHECK PROFILES AND STRUCTURE SURVEYS

The following field survey was done by SurvNet, Inc. to 1) prepare map check profiels, 2) accurately determine the top of the Gila Bend Canal embankment, and 3) accurately determine the top of the railroad.

Gila Bend ADMP
Survey

Point	North	East	1988 Elev	1929 Elev	Differrence	Description
2001	705692.647	450399.941	733.46	731.53	1.93	FL 48"CMP
2002	705475.525	449854.396	732.95	731.02	1.93	FL 48"CMP
2003	705474.565	449849.691	732.88	730.95	1.93	FL 48"CMP
2004	705590.88	449832.825	729.412	727.482	1.93	FL 4'HX6'W BOX
2005	705590.067	449826.111	729.436	727.506	1.93	FL 4'HX6'W BOX
2006	705608.691	450194.327	745.957	744.027	1.93	TOP/CNL STH
2007	705708.495	450364.876	745.708	743.778	1.93	TOP/CNL STH
2008	705827.717	450526.443	746.3	744.37	1.93	TOP/CNL STH
2009	705949.343	450687.454	746.563	744.633	1.93	TOP/CNL STH
2010	706077.55	450853.686	747.135	745.205	1.93	TOP/CNL STH
2011	706078.245	450861.322	746.826	744.896	1.93	TOP/CNL STH @HDWL
2012	705544.676	450006.319	745.601	743.671	1.93	TOP/CNL STH
2013	705499.833	449811.182	745.976	744.046	1.93	TOP/CNL STH
2014	705465.78	449611.179	746.254	744.324	1.93	TOP/CNL STH
2015	705437.697	449454.188	746.789	744.859	1.93	TOP/CNL STH
2016	705436.905	449442.468	746.358	744.428	1.93	TOP/CNL STH @BRDG
2017	705428.912	449398.453	744.675	742.745	1.93	TOP/CNL STH @BRDG
2018	705431.992	449419.805	745.21	743.28	1.93	CL PVT HWY 85
2019	703925.709	443729.633	744.663	742.733	1.93	TOP/CNL @RD
2020	703871.696	443624.349	744.166	742.236	1.93	TOP/CHUTE
2021	703862.39	443606.377	735.012	733.082	1.93	TOE/CHUTE
2022	703853.737	443588.693	734.392	732.462	1.93	TOE/CHUTE
2023	703843.542	443571.965	743.282	741.352	1.93	TOP/CHUTE
2024	703780.159	443461.308	744.789	742.859	1.93	TOP/CNL
2025	703340.627	437798.958	744.398	742.468	1.93	TOP/CNL
2026	703255.611	437726.509	746.525	744.595	1.93	TOP/CNL
2027	703293.679	437664.012	745.955	744.025	1.93	TOP/CHUTE
2028	703297.19	437643.302	729.783	727.853	1.93	TOE/CHUTE
2029	703291.974	437623.026	729.854	727.924	1.93	TOE/CHUTE
2030	703291.654	437608.759	743.776	741.846	1.93	TOP/CHUTE
2031	703229.66	437569.514	745.258	743.328	1.93	TOP/CNL
2032	703275.386	437412.358	744.845	742.915	1.93	TOP/CNL
2033	701628.162	430140.736	728.871	726.941	1.93	FL 48"CMP
2034	701630.298	430136.867	729.05	727.12	1.93	FL 48"CMP
2035	701724.637	430199.83	725.06	723.13	1.93	FL 6'HX8'W BOX
2036	702450.434	428941.643	742.191	740.261	1.93	TOP/CNL @BRDG
2037	702456.066	428919.111	742.328	740.398	1.93	TOP/CNL @BRDG
2038	701911.809	427387.264	742.249	740.319	1.93	CK SHOT
2039	701951.448	427453.449	742.36	740.43	1.93	TOP/CNL
2040	702048.036	427633.191	742.337	740.407	1.93	TOP/CNL
2041	702143.718	427815.97	742.248	740.318	1.93	TOP/CNL
2042	702241.611	428001.679	742.416	740.486	1.93	TOP/CNL
2043	702336.534	428182.026	742.293	740.363	1.93	TOP/CNL
2044	702425.675	428376.504	742.102	740.172	1.93	TOP/CNL
2045	702472.701	428599.908	742.55	740.62	1.93	TOP/CNL
2046	702467.997	428803.242	742.488	740.558	1.93	TOP/CNL
2047	702435.657	428982.418	742.804	740.874	1.93	TOP/CNL
2048	702398.146	429076.346	742.756	740.826	1.93	TOP/CNL
2049	702322.17	429189.795	742.845	740.915	1.93	TOP/CNL
2050	702200.734	429364.208	743.081	741.151	1.93	TOP/CNL
2051	702079.238	429539.567	742.886	740.956	1.93	TOP/CNL
2052	701962.626	429707.441	742.775	740.845	1.93	TOP/CNL
2053	701838.486	429890.299	742.826	740.896	1.93	TOP/CNL
2054	701715.091	430070.391	742.768	740.838	1.93	TOP/CNL
2055	701569.489	430296.765	742.712	740.782	1.93	TOP/CNL
2056	701492.864	430482.314	743.176	741.246	1.93	TOP/CNL

Gila Bend ADMP
Survey

Point	North	East	1988 Elev	1929 Elev	Differrence	Description
2057	701457.356	430681.483	743.073	741.143	1.93	TOP/CNL
2058	701451.1	430890.975	742.972	741.042	1.93	TOP/CNL
2059	701453.229	431094.409	743.11	741.18	1.93	TOP/CNL
2060	701466.598	431305.42	742.968	741.038	1.93	TOP/CNL
2061	701522.194	431504.165	742.796	740.866	1.93	TOP/CNL
2062	701619.3	431691.917	743.323	741.393	1.93	TOP/CNL
2063	701730.752	431860.571	743.608	741.678	1.93	TOP/CNL
2064	701846.084	432029.134	743.529	741.599	1.93	TOP/CNL
2065	701963.737	432201.731	743.475	741.545	1.93	TOP/CNL
2066	702081.067	432374.085	743.379	741.449	1.93	TOP/CNL
2067	702196.547	432544.732	743.534	741.604	1.93	TOP/CNL
2068	702311.923	432714.455	743.42	741.49	1.93	TOP/CNL
2069	702430.471	432889.342	743.535	741.605	1.93	TOP/CNL
2070	702548.281	433063.545	743.755	741.825	1.93	TOP/CNL
2071	702688.776	433268.767	743.908	741.978	1.93	TOP/CNL
2072	702802.53	433437.113	743.798	741.868	1.93	TOP/CNL
2073	702919.182	433609.588	743.679	741.749	1.93	TOP/CNL
2074	703012.008	433799.09	743.828	741.898	1.93	TOP/CNL
2075	703064.229	433994.284	743.747	741.817	1.93	TOP/CNL
2076	703082.034	434198.621	743.681	741.751	1.93	TOP/CNL
2077	703094.566	434412.845	743.865	741.935	1.93	TOP/CNL
2078	703105.575	434621.857	743.865	741.935	1.93	TOP/CNL
2079	703117.496	434828.99	743.914	741.984	1.93	TOP/CNL
2080	703130.008	435037.49	743.808	741.878	1.93	TOP/CNL
2081	703141.442	435250.667	744.023	742.093	1.93	TOP/CNL
2082	703146.075	435344.346	745.588	743.658	1.93	TOP/CNL
2083	703159.09	435554.372	743.551	741.621	1.93	TOP/CNL
2084	703169.715	435761.113	743.696	741.766	1.93	TOP/CNL
2085	703181.705	435965.145	743.345	741.415	1.93	TOP/CNL
2086	703193.835	436176.277	743.098	741.168	1.93	TOP/CNL
2087	703204.467	436376.039	742.869	740.939	1.93	TOP/CNL
2088	703215.411	436577.094	743.132	741.202	1.93	TOP/CNL
2089	703227.544	436803.548	743.589	741.659	1.93	TOP/CNL
2090	703240.46	437006.536	743.838	741.908	1.93	TOP/CNL
2091	703255.382	437207.396	743.745	741.815	1.93	TOP/CNL
2092	703366.867	437901.7	743.746	741.816	1.93	TOP/CNL
2093	703430.351	438111.789	743.92	741.99	1.93	TOP/CNL
2094	703490.858	438312.315	743.981	742.051	1.93	TOP/CNL
2095	703547.588	438507.716	744.02	742.09	1.93	TOP/CNL
2096	703569.827	438713.682	744.047	742.117	1.93	TOP/CNL
2097	703553.832	438924.287	743.712	741.782	1.93	TOP/CNL
2098	703513.22	439123.414	744.077	742.147	1.93	TOP/CNL
2099	703472.676	439320.225	744.302	742.372	1.93	TOP/CNL
2100	703433.148	439524.229	743.84	741.91	1.93	TOP/CNL
2101	703389.355	439744.133	743.801	741.871	1.93	TOP/CNL
2102	703348.707	439947.649	743.758	741.828	1.93	TOP/CNL
2103	703311.128	440144.729	743.392	741.462	1.93	TOP/CNL
2104	703292.797	440346.563	743.467	741.537	1.93	TOP/CNL
2105	703277.508	440554.774	743.403	741.473	1.93	TOP/CNL
2106	703265.669	440755.826	743.629	741.699	1.93	TOP/CNL
2107	703256.441	440959.573	743.619	741.689	1.93	TOP/CNL
2108	703245.415	441176.458	743.605	741.675	1.93	TOP/CNL
2109	703235.732	441378.56	743.788	741.858	1.93	TOP/CNL
2110	703226.763	441579.41	743.832	741.902	1.93	TOP/CNL
2111	703216.412	441790.257	744.148	742.218	1.93	TOP/CNL
2112	703203.806	441998.939	745.371	743.441	1.93	TOP/CNL

Gila Bend ADMP
Survey

Point	North	East	1988 Elev	1929 Elev	Differrence	Description
2113	703204.625	442200.079	744.123	742.193	1.93	TOP/CNL
2114	703241.316	442407.596	744.052	742.122	1.93	TOP/CNL
2115	703313.509	442595.948	744.2	742.27	1.93	TOP/CNL
2116	703408.793	442775.832	744.519	742.589	1.93	TOP/CNL
2117	703505.646	442956.16	744.829	742.899	1.93	TOP/CNL
2118	703600.993	443133.347	744.631	742.701	1.93	TOP/CNL
2119	703698.944	443312.704	744.737	742.807	1.93	TOP/CNL
2120	704001.759	443876.554	744.823	742.893	1.93	TOP/CNL
2121	704098.768	444054.785	745.016	743.086	1.93	TOP/CNL
2122	704200.093	444239.48	744.548	742.618	1.93	TOP/CNL
2123	704298.304	444421.274	744.221	742.291	1.93	TOP/CNL
2124	704398.195	444607.044	744.535	742.605	1.93	TOP/CNL
2125	704490.611	444793.446	744.717	742.787	1.93	TOP/CNL
2126	704560.552	444985.169	744.639	742.709	1.93	TOP/CNL
2127	704605.234	445183.801	744.949	743.019	1.93	TOP/CNL
2128	704643.976	445380.299	744.523	742.593	1.93	TOP/CNL
2129	704682.329	445578.517	744.575	742.645	1.93	TOP/CNL
2130	704721.909	445785.022	744.741	742.811	1.93	TOP/CNL
2131	704762.612	445994.246	744.467	742.537	1.93	TOP/CNL
2132	704802.797	446202.51	744.522	742.592	1.93	TOP/CNL
2133	704842.894	446409.481	744.52	742.59	1.93	TOP/CNL
2134	704882.063	446609.466	744.351	742.421	1.93	TOP/CNL
2135	704919.739	446806.77	744.345	742.415	1.93	TOP/CNL
2136	704958.779	447004.352	744.48	742.55	1.93	TOP/CNL
2137	704998.406	447209.743	744.457	742.527	1.93	TOP/CNL
2138	705038.826	447414.007	744.699	742.769	1.93	TOP/CNL
2139	705075.745	447611.563	744.674	742.744	1.93	TOP/CNL
2140	705112.991	447809.073	744.775	742.845	1.93	TOP/CNL
2141	705152.25	448005.733	744.64	742.71	1.93	TOP/CNL
2142	705192.727	448216.443	744.684	742.754	1.93	TOP/CNL
2143	705232.417	448422.132	744.755	742.825	1.93	TOP/CNL
2144	705272.224	448631.998	745.262	743.332	1.93	TOP/CNL
2145	705312.891	448839.146	744.977	743.047	1.93	TOP/CNL
2146	705355.485	449057.819	744.645	742.715	1.93	TOP/CNL
2147	705395.077	449263.127	745.052	743.122	1.93	TOP/CNL
2148	696477.555	448333.698	794.514	792.584	1.93	CL HWY 85
2149	696665.614	448416.351	793.351	791.421	1.93	CL HWY 85
2150	696868.669	448495.461	792.097	790.167	1.93	CL HWY 85
2151	697105.475	448576.685	790.574	788.644	1.93	CL HWY 85
2152	697310.02	448638.347	789.292	787.362	1.93	CL HWY 85
2153	697525.117	448694.261	787.949	786.019	1.93	CL HWY 85
2154	697744.999	448742.942	786.608	784.678	1.93	CL HWY 85
2155	697967.654	448783.471	785.306	783.376	1.93	CL HWY 85
2156	698193.367	448814.424	783.921	781.991	1.93	CL HWY 85
2157	698424.723	448837.011	782.514	780.584	1.93	CL HWY 85
2158	698841.265	448875.754	780	778.07	1.93	CL HWY 85
2159	699076.869	448897.616	778.471	776.541	1.93	CL HWY 85
2160	699314.836	448919.344	776.977	775.047	1.93	CL HWY 85
2161	699555.721	448941.139	775.553	773.623	1.93	CL HWY 85
2162	699794.307	448963.487	774.253	772.323	1.93	CL HWY 85
2163	700031.589	448985.508	772.766	770.836	1.93	CL HWY 85
2164	700271.427	449007.124	771.38	769.45	1.93	CL HWY 85
2165	700513.248	449029.66	769.837	767.907	1.93	CL HWY 85
2166	700751.956	449051.41	768.42	766.49	1.93	CL HWY 85
2167	700988.649	449072.55	767.047	765.117	1.93	CL HWY 85
2168	701227.148	449094.715	765.602	763.672	1.93	CL HWY 85

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2169	701465.249	449116.7	764.053	762.123	1.93	CL HWY 85
2170	701703.385	449138.64	762.603	760.673	1.93	CL HWY 85
2171	701941.934	449160.231	761.258	759.328	1.93	CL HWY 85
2172	702183.779	449182.531	759.822	757.892	1.93	CL HWY 85
2173	702428.535	449205.255	758.278	756.348	1.93	CL HWY 85
2174	702675.936	449227.715	756.899	754.969	1.93	CL HWY 85
2175	702925.603	449250.804	755.221	753.291	1.93	CL HWY 85
2176	703177.761	449274.097	753.692	751.762	1.93	CL HWY 85
2177	703431.936	449297.489	752.213	750.283	1.93	CL HWY 85
2178	703686.132	449321.079	750.768	748.838	1.93	CL HWY 85
2179	703940.146	449344.415	749.168	747.238	1.93	CL HWY 85
2180	704259.048	449374.374	747.475	745.545	1.93	CL HWY 85
2181	704516.711	449397.692	746.562	744.632	1.93	CL HWY 85
2182	704771.691	449417.986	746.056	744.126	1.93	CL HWY 85
2183	705023.206	449429.086	745.616	743.686	1.93	CL HWY 85
2184	705273.336	449428.611	745.417	743.487	1.93	CL HWY 85
2185	705524.303	449416.145	745.157	743.227	1.93	CL HWY 85
2186	705772.138	449394.202	744.083	742.153	1.93	CL HWY 85
2187	706015.811	449361.328	742.64	740.71	1.93	CL HWY 85
2188	706253.447	449320.443	740.744	738.814	1.93	CL HWY 85
2189	706468.127	449279.995	738.086	736.156	1.93	CL HWY 85
2190	703572.83	424595.085	729.291	727.361	1.93	CK SHOT
2191	703982.23	427787.719	748.049	746.119	1.93	S/EDG EB I-8
2192	704014.088	427988.784	747.41	745.48	1.93	S/EDG EB I-8
2193	704044.121	428192.462	745.18	743.25	1.93	S/EDG EB I-8
2194	704075.327	428404.479	742.071	740.141	1.93	S/EDG EB I-8
2195	704108.929	428628.123	737.538	735.608	1.93	S/EDG EB I-8
2196	704144.449	428871.975	732.224	730.294	1.93	S/EDG EB I-8
2197	704169.527	429073.755	729.397	727.467	1.93	S/EDG EB I-8
2198	704191.459	429279.458	728.377	726.447	1.93	S/EDG EB I-8
2199	704211.767	429494.409	727.792	725.862	1.93	S/EDG EB I-8
2200	704234.434	429720.361	727.185	725.255	1.93	S/EDG EB I-8
2201	704262.472	430017.273	726.43	724.5	1.93	S/EDG EB I-8
2202	704285.351	430249.565	725.853	723.923	1.93	S/EDG EB I-8
2203	704362.298	431009.792	726.425	724.495	1.93	S/EDG EB I-8
2204	704305.558	430483.172	725.492	723.562	1.93	S/EDG EB I-8
2205	704334.498	430761.02	725.723	723.793	1.93	S/EDG EB I-8
2206	704357.672	430996.977	726.401	724.471	1.93	S/EDG EB I-8
2207	704386.23	431232.5	727.771	725.841	1.93	S/EDG EB I-8
2208	704418.194	431447.648	729.129	727.199	1.93	S/EDG EB I-8
2209	704448.179	431654.886	730.306	728.376	1.93	S/EDG EB I-8
2210	704480.946	431867.331	731.404	729.474	1.93	S/EDG EB I-8
2211	704512.685	432066.08	732.563	730.633	1.93	S/EDG EB I-8
2212	704547.587	432275.23	733.54	731.61	1.93	S/EDG EB I-8
2213	704584.131	432485.772	733.907	731.977	1.93	S/EDG EB I-8
2214	704622.561	432703.879	734.196	732.266	1.93	S/EDG EB I-8
2215	704663.551	432920.134	734.053	732.123	1.93	S/EDG EB I-8
2216	704707.359	433144.934	733.725	731.795	1.93	S/EDG EB I-8
2217	704750.426	433360.076	733.176	731.246	1.93	S/EDG EB I-8
2218	704795.598	433583.76	732.87	730.94	1.93	S/EDG EB I-8
2219	704842.037	433814.906	732.589	730.659	1.93	S/EDG EB I-8
2220	704888.858	434049.301	732.125	730.195	1.93	S/EDG EB I-8
2221	704935.654	434281.78	731.79	729.86	1.93	S/EDG EB I-8
2222	704983.255	434516.845	731.318	729.388	1.93	S/EDG EB I-8
2223	705022.258	434713.896	730.852	728.922	1.93	S/EDG EB I-8
2224	705062.358	434912.166	730.619	728.689	1.93	S/EDG EB I-8

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2225	705102.496	435113.228	730.293	728.363	1.93	S/EDG EB I-8
2226	705143.177	435315.19	730.214	728.284	1.93	S/EDG EB I-8
2227	705192.205	435559.263	729.953	728.023	1.93	S/EDG EB I-8
2228	705233.342	435764.7	729.733	727.803	1.93	S/EDG EB I-8
2229	705275.417	435972.863	729.748	727.818	1.93	S/EDG EB I-8
2230	705317.857	436185.803	729.475	727.545	1.93	S/EDG EB I-8
2231	705361.089	436400.165	729.252	727.322	1.93	S/EDG EB I-8
2232	705403.51	436614.841	728.916	726.986	1.93	S/EDG EB I-8
2233	705446.77	436827.397	728.802	726.872	1.93	S/EDG EB I-8
2234	705489.299	437039.039	728.447	726.517	1.93	S/EDG EB I-8
2235	705531.413	437250.594	727.875	725.945	1.93	S/EDG EB I-8
2236	705573.005	437457.669	728.013	726.083	1.93	S/EDG EB I-8
2237	705613.613	437663.025	728.152	726.222	1.93	S/EDG EB I-8
2238	705655.445	437870.112	728.04	726.11	1.93	S/EDG EB I-8
2239	705696.636	438075.175	727.905	725.975	1.93	S/EDG EB I-8
2240	705738.191	438283.655	727.519	725.589	1.93	S/EDG EB I-8
2241	705781.567	438499.198	727.232	725.302	1.93	S/EDG EB I-8
2242	705825.331	438717.628	726.85	724.92	1.93	S/EDG EB I-8
2243	705869.745	438937.597	726.439	724.509	1.93	S/EDG EB I-8
2244	705913.87	439158.655	726.179	724.249	1.93	S/EDG EB I-8
2245	705957.285	439374.265	725.879	723.949	1.93	S/EDG EB I-8
2246	705999.402	439585.028	725.61	723.68	1.93	S/EDG EB I-8
2247	706040.954	439794.118	725.199	723.269	1.93	S/EDG EB I-8
2248	706081.807	440000.045	724.879	722.949	1.93	S/EDG EB I-8
2249	706124.702	440212.32	724.428	722.498	1.93	S/EDG EB I-8
2250	706168.142	440428.505	724.082	722.152	1.93	S/EDG EB I-8
2251	706210.978	440642.397	723.819	721.889	1.93	S/EDG EB I-8
2252	706254.896	440865.068	723.565	721.635	1.93	S/EDG EB I-8
2253	706300.839	441090.702	723.307	721.377	1.93	S/EDG EB I-8
2254	706346.896	441322.188	723.302	721.372	1.93	S/EDG EB I-8
2255	706394.133	441559.458	723.091	721.161	1.93	S/EDG EB I-8
2256	706435.735	441763.631	722.937	721.007	1.93	S/EDG EB I-8
2257	706488.312	441982.573	722.788	720.858	1.93	S/EDG EB I-8
2258	706555.918	442205.209	722.917	720.987	1.93	S/EDG EB I-8
2259	706636.513	442426.586	723.332	721.402	1.93	S/EDG EB I-8
2260	706780.695	442745.493	723.587	721.657	1.93	S/EDG EB I-8
2261	706882.93	442931.659	723.859	721.929	1.93	S/EDG EB I-8
2262	707012.797	443144.175	723.939	722.009	1.93	S/EDG EB I-8
2263	707145.353	443355.798	723.209	721.279	1.93	S/EDG EB I-8
2264	707271.141	443568.591	722.532	720.602	1.93	S/EDG EB I-8
2265	707365.342	443748.516	722.73	720.8	1.93	S/EDG EB I-8
2266	707453.232	443942.95	723.148	721.218	1.93	S/EDG EB I-8
2267	707530.648	444144.452	724.088	722.158	1.93	S/EDG EB I-8
2268	707597.361	444352.276	724.61	722.68	1.93	S/EDG EB I-8
2269	707653.24	444571.802	724.123	722.193	1.93	S/EDG EB I-8
2270	707696.417	444797.259	724.004	722.074	1.93	S/EDG EB I-8
2271	707725.695	445024.795	724.262	722.332	1.93	S/EDG EB I-8
2272	707740.871	445254.759	725.773	723.843	1.93	S/EDG EB I-8
2273	707742.739	445484.026	728.682	726.752	1.93	S/EDG EB I-8
2274	707730.752	445714.065	733.218	731.288	1.93	S/EDG EB I-8
2275	707703.836	445940.937	738.73	736.8	1.93	S/EDG EB I-8
2276	707662.349	446170.602	744.201	742.271	1.93	S/EDG EB I-8
2277	707589.409	446459.325	750.088	748.158	1.93	S/EDG EB I-8
2278	707516.931	446686.868	754.204	752.274	1.93	S/EDG EB I-8
2279	707329.469	447242.634	756.682	754.752	1.93	S/EDG EB I-8
2280	707251.669	447470.432	756.367	754.437	1.93	S/EDG EB I-8

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2281	707176.444	447693.795	756.253	754.323	1.93	S/EDG EB I-8
2282	707098.725	447925.09	755.958	754.028	1.93	S/EDG EB I-8
2283	707033.992	448116.473	755.777	753.847	1.93	S/EDG EB I-8
2284	706968.38	448309.936	755.69	753.76	1.93	S/EDG EB I-8
2285	706902.061	448507.104	755.332	753.402	1.93	S/EDG EB I-8
2286	706835	448704.478	755.185	753.255	1.93	S/EDG EB I-8
2287	706755.74	448939.327	754.834	752.904	1.93	S/EDG EB I-8
2288	706677.641	449172.732	754.76	752.83	1.93	S/EDG EB I-8
2289	706598.626	449405.741	754.55	752.62	1.93	S/EDG EB I-8
2290	706532.24	449601.697	754.125	752.195	1.93	S/EDG EB I-8
2291	706464.712	449802.234	753.896	751.966	1.93	S/EDG EB I-8
2292	706396.818	450003.104	753.421	751.491	1.93	S/EDG EB I-8
2293	706328.443	450204.924	753.248	751.318	1.93	S/EDG EB I-8
2294	706259.217	450408.533	752.811	750.881	1.93	S/EDG EB I-8
2295	706170.204	450672.006	752.202	750.272	1.93	S/EDG EB I-8
2296	706095.244	450893.659	752.069	750.139	1.93	S/EDG EB I-8
2297	706019.733	451119.065	754.287	752.357	1.93	S/EDG EB I-8
2298	705943.365	451348.424	758.777	756.847	1.93	S/EDG EB I-8
2299	705865.62	451577.418	765.372	763.442	1.93	S/EDG EB I-8
2300	705788.996	451803.931	771.785	769.855	1.93	S/EDG EB I-8
2301	705712.489	452030.809	776.645	774.715	1.93	S/EDG EB I-8
2302	705635.775	452257.123	780.089	778.159	1.93	S/EDG EB I-8
2303	705559.772	452483.818	782.232	780.302	1.93	S/EDG EB I-8
2304	705482.655	452711.911	782.959	781.029	1.93	S/EDG EB I-8
2305	705408.076	452933.481	782.475	780.545	1.93	S/EDG EB I-8
2306	705334.03	453153.032	781.642	779.712	1.93	S/EDG EB I-8
2307	705260.794	453369.577	780.868	778.938	1.93	S/EDG EB I-8
2308	705189.444	453581.778	780.147	778.217	1.93	S/EDG EB I-8
2309	705118.794	453790.026	779.45	777.52	1.93	S/EDG EB I-8
2310	705048.534	453997.482	778.755	776.825	1.93	S/EDG EB I-8
2311	704959.919	454261.741	778.086	776.156	1.93	S/EDG EB I-8
2312	704888.094	454476.179	777.503	775.573	1.93	S/EDG EB I-8
2313	704817.129	454689.6	776.753	774.823	1.93	S/EDG EB I-8
2314	704748.146	454906.453	775.946	774.016	1.93	S/EDG EB I-8
2315	704682.139	455121.468	775.189	773.259	1.93	S/EDG EB I-8
2316	704619.494	455333.879	774.239	772.309	1.93	S/EDG EB I-8
2317	704558.714	455546.444	772.964	771.034	1.93	S/EDG EB I-8
2318	704500.03	455762.204	771.514	769.584	1.93	S/EDG EB I-8
2319	704441.255	455978.362	769.741	767.811	1.93	S/EDG EB I-8
2320	704382.541	456196.072	768.478	766.548	1.93	S/EDG EB I-8
2321	704324.174	456415.588	768.368	766.438	1.93	S/EDG EB I-8
2322	704265.987	456634.209	769.047	767.117	1.93	S/EDG EB I-8
2323	704207.611	456850.382	770.26	768.33	1.93	S/EDG EB I-8
2324	704150.023	457066.952	771.518	769.588	1.93	S/EDG EB I-8
2325	704092.105	457283.884	772.419	770.489	1.93	S/EDG EB I-8
2326	704034.816	457498.614	773.163	771.233	1.93	S/EDG EB I-8
2327	703976.171	457718.395	773.734	771.804	1.93	S/EDG EB I-8
2328	703917.793	457938.423	774.151	772.221	1.93	S/EDG EB I-8
2329	703859.114	458156.783	774.731	772.801	1.93	S/EDG EB I-8
2330	703799.822	458377.871	775.199	773.269	1.93	S/EDG EB I-8
2331	703724.994	458658.503	775.908	773.978	1.93	S/EDG EB I-8
2332	703664.69	458883.764	776.467	774.537	1.93	S/EDG EB I-8
2333	703605.235	459107.375	777.034	775.104	1.93	S/EDG EB I-8
2334	703544.902	459331.566	777.558	775.628	1.93	S/EDG EB I-8
2335	703484.444	459557.594	778.08	776.15	1.93	S/EDG EB I-8
2336	703423.906	459785.195	778.817	776.887	1.93	S/EDG EB I-8

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2337	703362.129	460016.92	779.654	777.724	1.93	S/EDG EB I-8
2338	703300.2	460249.903	780.424	778.494	1.93	S/EDG EB I-8
2339	703239.219	460478.633	781.217	779.287	1.93	S/EDG EB I-8
2340	703177.67	460707.333	782.065	780.135	1.93	S/EDG EB I-8
2341	703115.907	460938.716	782.901	780.971	1.93	S/EDG EB I-8
2342	703053.724	461172.52	783.767	781.837	1.93	S/EDG EB I-8
2343	702991.028	461408.258	784.9	782.97	1.93	S/EDG EB I-8
2344	702927.855	461645.483	786.068	784.138	1.93	S/EDG EB I-8
2345	702864.676	461882.447	787.6	785.67	1.93	S/EDG EB I-8
2346	702801.931	462115.548	789.281	787.351	1.93	S/EDG EB I-8
2347	702740.299	462345.643	790.994	789.064	1.93	S/EDG EB I-8
2348	702680.047	462571.836	792.677	790.747	1.93	S/EDG EB I-8
2349	702620.245	462795.071	794.254	792.324	1.93	S/EDG EB I-8
2350	702560.615	463017.067	795.937	794.007	1.93	S/EDG EB I-8
2351	702501.681	463238.979	797.617	795.687	1.93	S/EDG EB I-8
2352	702441.76	463464.804	799.237	797.307	1.93	S/EDG EB I-8
2353	702379.481	463697.193	800.971	799.041	1.93	S/EDG EB I-8
2354	702317.302	463929.092	802.623	800.693	1.93	S/EDG EB I-8
2355	702255.394	464161.445	804.158	802.228	1.93	S/EDG EB I-8
2356	702193.293	464394.409	805.758	803.828	1.93	S/EDG EB I-8
2357	702130.404	464629.34	807.24	805.31	1.93	S/EDG EB I-8
2358	702052.044	464923.579	809.149	807.219	1.93	S/EDG EB I-8
2359	701989.612	465159.075	810.635	808.705	1.93	S/EDG EB I-8
2360	701927.018	465391.73	812.164	810.234	1.93	S/EDG EB I-8
2361	701864.425	465624.593	814.142	812.212	1.93	S/EDG EB I-8
2362	701802.202	465857.154	816.059	814.129	1.93	S/EDG EB I-8
2363	701739.338	466091.659	818.167	816.237	1.93	S/EDG EB I-8
2364	701675.615	466330.888	820.162	818.232	1.93	S/EDG EB I-8
2365	701611.952	466569.593	822.228	820.298	1.93	S/EDG EB I-8
2366	701549.377	466802.236	824.175	822.245	1.93	S/EDG EB I-8
2367	701489.337	467030.908	826.129	824.199	1.93	S/EDG EB I-8
2368	701429.429	467255.649	828.043	826.113	1.93	S/EDG EB I-8
2369	701368.91	467481.167	829.903	827.973	1.93	S/EDG EB I-8
2370	701307.805	467708.239	831.719	829.789	1.93	S/EDG EB I-8
2371	701247.877	467932.927	833.425	831.495	1.93	S/EDG EB I-8
2372	701187.737	468157.694	834.872	832.942	1.93	S/EDG EB I-8
2373	697606.141	449095.104	787.254	785.324	1.93	TOP W/RAIL
2374	698062.299	449314.493	784.671	782.741	1.93	TOP W/RAIL
2375	698511.29	449530.53	782.182	780.252	1.93	TOP W/RAIL
2376	699021.376	449775.814	780.008	778.078	1.93	TOP W/RAIL
2377	698982.572	449767.065	779.487	777.557	1.93	TOP TRSL IF
2378	699044.918	449797.065	779.153	777.223	1.93	TOP TRSL IF
2379	699042.125	449798.265	772.602	770.672	1.93	GRD
2380	699025.348	449789.491	765.994	764.064	1.93	GRD
2381	699016.401	449786.406	765.451	763.521	1.93	GRD
2382	699009.867	449782.063	767.79	765.86	1.93	GRD
2383	698986.764	449770.625	770.193	768.263	1.93	GRD
2384	698982.019	449768.511	772.645	770.715	1.93	GRD
2385	699416.356	449965.884	777.293	775.363	1.93	TOP W/RAIL
2386	699856.373	450152.505	765.753	763.823	1.93	FL 70" CMP
2387	699864.939	450156.531	765.743	763.813	1.93	FL 72" CMP
2388	699844.009	450202.582	766.436	764.506	1.93	FL 72" CMP
2389	699836.074	450198.603	766.56	764.63	1.93	FL 72" CMP
2390	699867.876	450182.976	775.356	773.426	1.93	TOP W/RAIL
2391	700316.557	450398.745	772.717	770.787	1.93	TOP W/RAIL
2392	700768.837	450616.397	771.079	769.149	1.93	TOP W/RAIL

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Point	North	East	1988 Elev	1929 Elev	Differrence	Description
2393	701219.298	450832.979	768.212	766.282	1.93	TOP W/RAIL
2394	701671.138	451050.213	765.66	763.73	1.93	TOP W/RAIL
2395	702121.996	451267.236	763.106	761.176	1.93	TOP W/RAIL
2396	702572.412	451483.847	760.551	758.621	1.93	TOP W/RAIL
2397	703023.48	451700.706	758.154	756.224	1.93	TOP W/RAIL
2398	703498.728	451929.256	756.46	754.53	1.93	TOP W/RAIL
2399	703462.391	451921.855	756.029	754.099	1.93	TOP TRSL IF -5.0' TO GRD
2400	703525.536	451952.193	755.83	753.9	1.93	TOP TRSL IF -10.0' TO GRD
2401	703493.428	451936.801	755.817	753.887	1.93	EDG BRDG -10.9' TO GRD
2402	703949.923	452146.463	755.485	753.555	1.93	TOP W/RAIL
2403	704401.994	452363.872	755.331	753.401	1.93	TOP W/RAIL
2404	704853.141	452580.753	755.335	753.405	1.93	TOP W/RAIL
2405	705402.112	452844.697	755.465	753.535	1.93	TOP W/RAIL
2406	703678.67	427804.843	734.603	732.673	1.93	TOP S/RAIL
2407	703744.956	428250.528	733.777	731.847	1.93	TOP S/RAIL
2408	703737.544	428240.166	732.54	730.61	1.93	TP/DCK @IF TRSL
2409	703739.83	428258.232	732.426	730.496	1.93	TP/DCK @IF TRSL
2410	703738.169	428258.053	728.532	726.602	1.93	GRD
2411	703736.405	428252.136	727.43	725.5	1.93	GRD
2412	703734.797	428244.237	727.512	725.582	1.93	GRD
2413	703734.856	428240.916	728.505	726.575	1.93	GRD
2414	703818.711	428746.409	732.901	730.971	1.93	TOP S/RAIL
2415	703891.924	429239.773	731.975	730.045	1.93	TOP S/RAIL
2416	703965.592	429735.008	730.703	728.773	1.93	TOP S/RAIL
2417	704038.999	430228.913	729.317	727.387	1.93	TOP S/RAIL
2418	704128.992	430834.864	729.017	727.087	1.93	TOP S/RAIL
2419	704126.448	430858.553	727.211	725.281	1.93	TP/ABTMT -8.0' TO GRD
2420	704119.958	430816.131	727.177	725.247	1.93	TP/ABTMT -8.9' TO GRD
2421	704114.822	430831.671	716.287	714.357	1.93	GRD
2422	704202.664	431329.887	731.165	729.235	1.93	TOP S/RAIL
2423	704276.015	431824.74	734.471	732.541	1.93	TOP S/RAIL
2424	704352.304	432319.915	737.702	735.772	1.93	TOP S/RAIL
2425	704441.397	432813.123	737.527	735.597	1.93	TOP S/RAIL
2426	704539.421	433303.354	735.323	733.393	1.93	TOP S/RAIL
2427	704637.714	433794.028	734.815	732.885	1.93	TOP S/RAIL
2428	704257.371	430823.109	715.98	714.05	1.93	FL
2429	704255.635	430812.471	716.006	714.076	1.93	FL
2430	704261.171	430812.225	724.786	722.856	1.93	TOP 10'W BX -2.0' TO TOP
2431	704262.627	430822.137	724.817	722.887	1.93	TOP 10'W BX -2.0' TO TOP
2432	704262.266	430817.164	724.826	722.896	1.93	ADTBC 4856+322.5 EL723.27
2433	705013.401	434772.958	730.333	728.403	1.93	ADTBC 4896.00 EL728.54
2434	705012.683	434773.079	725.896	723.966	1.93	FL 4'WX3'H BX
2435	705536.124	437333.762	727.213	725.283	1.93	TOP/WALL -9.8' TO GRD
2436	705535.971	437329.663	728.202	726.272	1.93	TOP/CNC -2.0' TO SFT
2437	705530.326	437301.243	728.35	726.42	1.93	TOP/CNC -2.0'/SFT -10.0/GRD
2438	705524.475	437272.873	728.388	726.458	1.93	TOP/CNC -2.0' TO SFT
2439	705520.328	437252.372	728.364	726.434	1.93	TOP/CNC -2.0' TO SFT
2440	705518.96	437249.218	727.418	725.488	1.93	TOP/WALL -8.1' TO GRD
2441	705523.546	437270.188	727.269	725.339	1.93	TOP/WALL -8.0' TO GRD
2442	705788.429	438592.666	726.575	724.645	1.93	ADTBC 4985+00 EL 724.77
2443	705786.75	438587.471	721.79	719.86	1.93	FL 9'WX3'H BX
2444	705788.433	438596.73	721.81	719.88	1.93	FL 9'WX3'H BX
2445	706526.299	442525.685	722.268	720.338	1.93	ADTBC EL 720.33
2446	706515.717	442507.222	713.151	711.221	1.93	GRD
2447	706516.937	442524.604	712.503	710.573	1.93	GRD
2448	706516.792	442539.932	712.834	710.904	1.93	GRD

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Point	North	East	1988 Elev	1929 Elev	Differrence	Description
2449	706529.543	442543.899	722.241	720.311	1.93	TOP/WALL -2.0' TO SFT
2450	706522.356	442507.271	722.301	720.371	1.93	TOP/WALL -2.0' TO SFT
2451	706109.494	440466.127	722.009	720.079	1.93	ADTBC EL 720.22 -10.0'/GRD
2452	706113.673	440488.127	721.974	720.044	1.93	TOP/WALL -2.1' TO SFT
2453	706105.488	440447.943	722.027	720.097	1.93	TOP/WALL -2.1' TO SFT
2454	706104.734	440445.918	721.054	719.124	1.93	TOP/WALL -8.0' TO GRD
2455	706113.706	440489.612	720.963	719.033	1.93	TOP/WALL -8.7' TO GRD
2456	706106.103	440450.995	721.995	720.065	1.93	TOP/WALL -9.9' TO GRD
2457	704735.699	434283.651	734.382	732.452	1.93	TOP S/RAIL
2458	704834.258	434775.218	732.791	730.861	1.93	TOP S/RAIL
2459	704932.47	435265.326	731.59	729.66	1.93	TOP S/RAIL
2460	705030.753	435755.064	731.394	729.464	1.93	TOP S/RAIL
2461	705129.137	436245.701	731.544	729.614	1.93	TOP S/RAIL
2462	705227.241	436735.629	731.582	729.652	1.93	TOP S/RAIL
2463	705324.082	437266.644	721.948	720.018	1.93	GRD
2464	705324.744	437279.445	718.768	716.838	1.93	GRD
2465	705330.161	437308.998	719.093	717.163	1.93	GRD
2466	705334.824	437339.972	719.658	717.728	1.93	GRD
2467	705341.734	437337.149	728.763	726.833	1.93	TOP ABMT IF
2468	705327.481	437265.023	728.743	726.813	1.93	TOP ABMT IF
2469	705333.666	437293.678	726.993	725.063	1.93	SFT
2470	705339.621	437295.684	731.131	729.201	1.93	TOP S/RAIL
2471	705437.997	437786.531	730.488	728.558	1.93	TOP S/RAIL
2472	705536.751	438278.511	729.614	727.684	1.93	TOP S/RAIL
2473	705585.3	438552.791	721.844	719.914	1.93	FL 9'WX4'H BX
2474	705591.656	438552.299	729.134	727.204	1.93	TOP S/RAIL
2475	705634.793	438767.567	728.885	726.955	1.93	TOP S/RAIL
2476	705733.049	439257.7	728.317	726.387	1.93	TOP S/RAIL
2477	705831.504	439748.043	727.854	725.924	1.93	TOP S/RAIL
2478	705929.729	440237.605	727.422	725.492	1.93	TOP S/RAIL
2479	705954.548	440464.955	715.095	713.165	1.93	GRD
2480	705958.037	440485.304	714.956	713.026	1.93	GRD
2481	705961.007	440498.629	714.844	712.914	1.93	GRD
2482	705967.769	440505.3	717.412	715.482	1.93	GRD
2483	705972.567	440482.294	722.954	721.024	1.93	SFT
2486	705978.65	440481.43	727.121	725.191	1.93	TOP S/RAIL
2484	705977.164	440503.972	725.893	723.963	1.93	TOP ABMT IF
2485	705968.797	440461.755	725.895	723.965	1.93	TOP ABMT IF
2487	706077.078	440972.027	727.061	725.131	1.93	TOP S/RAIL
2488	706175.499	441462.266	727.219	725.289	1.93	TOP S/RAIL
2489	706273.922	441952.599	727.315	725.385	1.93	TOP S/RAIL
2490	706371.924	442504.101	716.647	714.717	1.93	GRD
2491	706374.929	442516.348	715.817	713.887	1.93	GRD
2492	706377.74	442530.726	715.742	713.812	1.93	GRD
2493	706379.606	442539.945	715.877	713.947	1.93	GRD
2494	706386.142	442544.116	724.689	722.759	1.93	TOP ABMT IF
2495	706377.732	442501.241	724.714	722.784	1.93	TOP ABMT IF
2496	706381.861	442522.294	722.893	720.963	1.93	SFT
2497	706387.792	442520.191	727.225	725.295	1.93	TOP S/RAIL
2498	706486.173	443010.656	727.417	725.487	1.93	TOP S/RAIL
2499	706584.606	443501.421	727.872	725.942	1.93	TOP S/RAIL
2500	706682.991	443991.703	728.589	726.659	1.93	TOP S/RAIL
2501	706781.081	444481.342	729.195	727.265	1.93	TOP S/RAIL
2502	706879.47	444971.892	729.752	727.822	1.93	TOP S/RAIL
2503	706977.886	445461.95	730.362	728.432	1.93	TOP S/RAIL
2504	707076.179	445951.589	730.152	728.222	1.93	TOP S/RAIL

Gila Bend ADMP
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Point	North	East	1988 Elev	1929 Elev	Differrence	Description
2505	707174.468	446442.557	728.991	727.061	1.93	TOP S/RAIL
2506	707272.878	446932.622	728.136	726.206	1.93	TOP S/RAIL
2507	707406.528	447598.176	727.779	725.849	1.93	TOP S/RAIL
2508	707505.031	448088.798	728.282	726.352	1.93	TOP S/RAIL
2509	707645.855	448791.033	730.815	728.885	1.93	TOP S/RAIL
2510	707642.921	448808.94	729.543	727.613	1.93	TOP ABMT IF
2511	707628.718	448810.903	719.12	717.19	1.93	GRD
2512	707624.336	448795.244	717.698	715.768	1.93	GRD
2513	707620.723	448781.736	717.508	715.578	1.93	GRD
2514	707636.155	448773.884	728.226	726.296	1.93	TOP ABMT IF
2515	699355.565	459368.575	792.234	790.304	1.93	GRD
2516	699497.393	459312.986	791.748	789.818	1.93	GRD
2517	699623.194	459260.211	791.178	789.248	1.93	GRD
2518	699728.552	459222.454	788.808	786.878	1.93	GRD
2519	699879.795	459201.083	787.834	785.904	1.93	GRD
2520	700019.689	459175.948	788.085	786.155	1.93	GRD
2521	700154.809	459138.556	787.918	785.988	1.93	GRD
2522	700271.28	459102.157	787.946	786.016	1.93	GRD
2523	700397.086	459057.537	787.384	785.454	1.93	GRD
2524	700523.235	459014.087	786.984	785.054	1.93	GRD
2525	700679.918	458963.185	785.435	783.505	1.93	GRD
2526	700821.294	458919.638	785.118	783.188	1.93	GRD
2527	700997.241	458871.053	784.156	782.226	1.93	GRD
2528	701163.784	458871.733	782.976	781.046	1.93	GRD
2529	701305.224	458877.152	782.421	780.491	1.93	GRD
2530	701462.114	458885.351	782.123	780.193	1.93	GRD
2531	701594.384	458890.653	781.376	779.446	1.93	GRD
2532	701740.116	458897.256	780.448	778.518	1.93	GRD
2533	701874.907	458904.253	779.667	777.737	1.93	GRD
2534	702018.518	458910.571	778.926	776.996	1.93	GRD
2535	702165.213	458915.992	778.271	776.341	1.93	GRD
2536	702319.859	458922.728	777.298	775.368	1.93	GRD
2537	702443.253	458924.291	776.129	774.199	1.93	GRD
2538	702533.823	458933.349	774.973	773.043	1.93	GRD
2539	702660.956	458935.605	776.693	774.763	1.93	GRD
2540	702867.006	458944.125	775.513	773.583	1.93	GRD
2541	703015.745	458950.691	774.059	772.129	1.93	GRD
2542	703162.199	458959.543	773.384	771.454	1.93	GRD
2543	703317.947	458964.181	773.056	771.126	1.93	GRD

8. FIELD SURVEYED CROSS SECTIONS FOR APPROXIMATE FLOOPLAIN DELINEATIONS

The following field surveyed cross sections were done to help delineate approximate floodplain boundaries for Citrus Valley Wash, Sauceda Wash, and Quilotosa Wash. The survey was based on an assumed vertical datum, since water surface elevations will not be determined.

eec

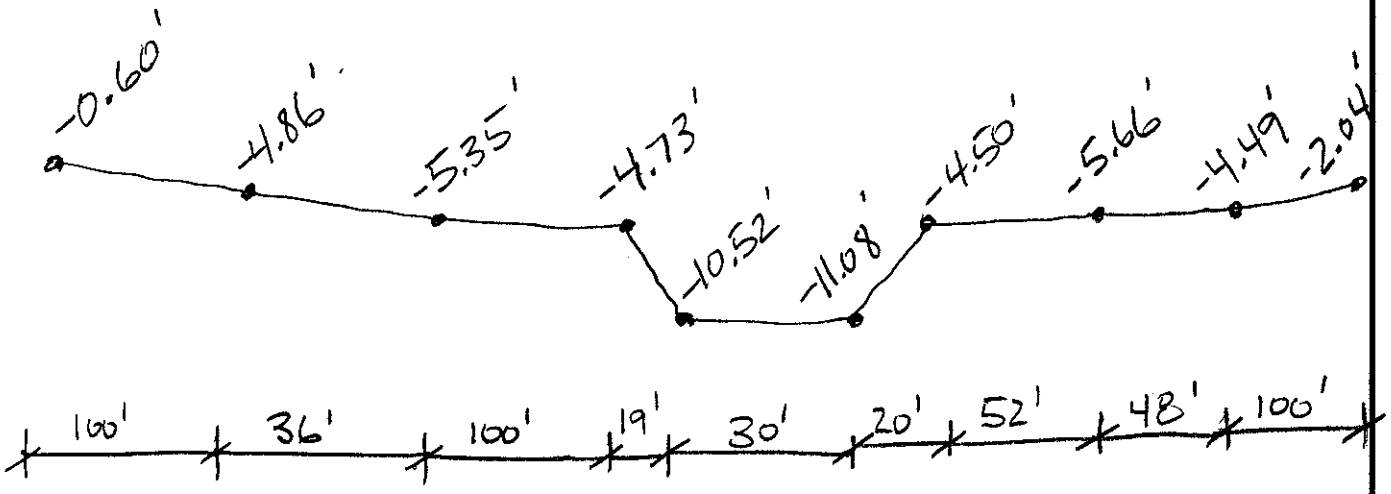
Project Title Gila Bend ADMP Project No. 99541 Date 2/20/01

Subject Approx. FP Delineations Prepared By _____ Checked By _____ Page 1 of 4

Survey Crew: Lloyd Vick & Mark Gavan

Location: Citrus Valley Wash, 300' N. of Indian Road

Height of Instrument = 100.00 (Assumed)



Looking Downstream

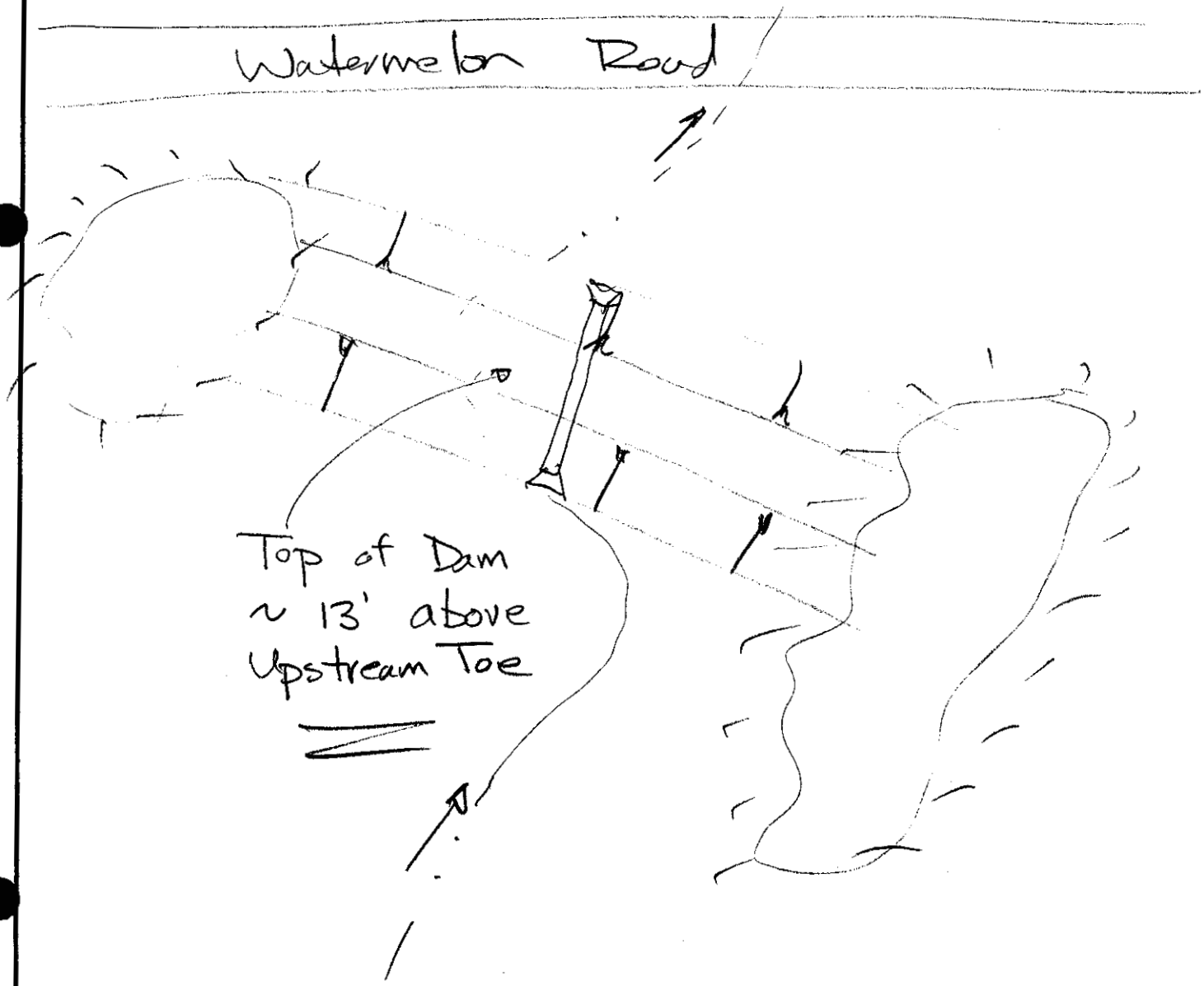
eec

Project Title Gila Bend ADMP Project No. 99541 Date 2/20/01

Subject Approx. FP Delineations Prepared By _____ Checked By _____ Page 2 of 4

Survey Crew: Lloyd Vick & Mark Gavan

Location: Citrus Valley Wash Dam, just upstream of Watermelon Road



eec

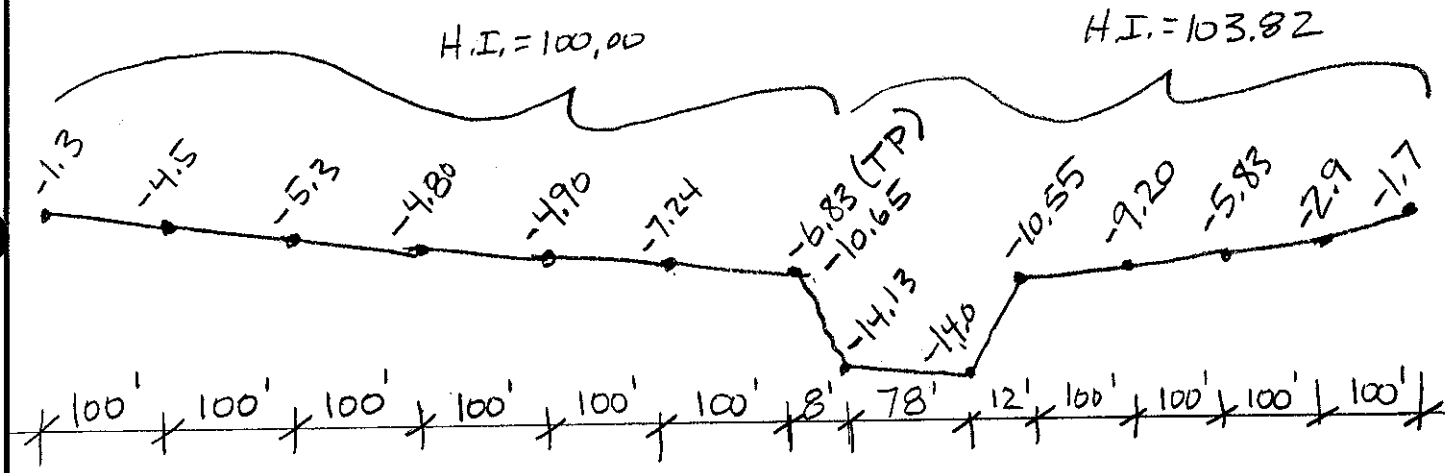
Project Title Gila Bend ADMP Project No. 99541 Date 2/20/01

Subject Approx. FP Delineations Prepared By _____ Checked By _____ Page 3 of 4

Survey Crew: Lloyd Vick & Mark Gavan

Location: Sauceda Wash, 150' S. of Indian Road

Height of Instrument = 100.00 (assumed)



Looking Downstream

eec

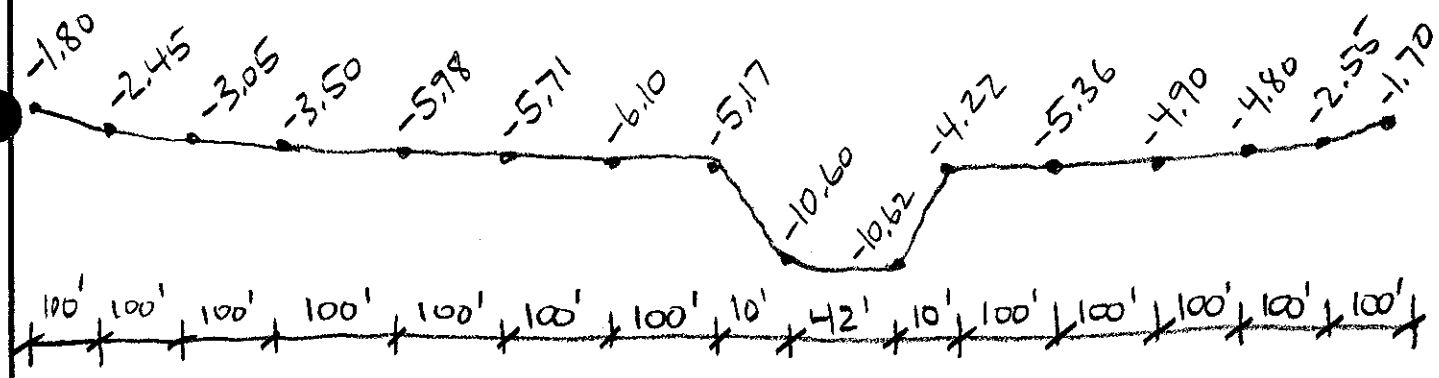
Project Title Gila Bend ADMP Project No. 99541 Date 2/20/01

Subject Approx. FP Delineations Prepared By _____ Checked By _____ Page 4 of 4

Survey Crew: Lloyd Vick & Mark Gavan

Location: Quilotosa Wash, approx. 1000' upstream of Indian Road

Height of Instrument = 100.00 (assumed)



Looking Downstream

Appendix D

HYDROLOGIC ANALYSIS SUPPORTING DOCUMENTATION

Appendix D.1
PRECIPITATION DATA

Appendix D.1. *Precipitation Data*

This information can be found in the 1992 study preformed by Burgess & Niple.

Appendix D.2

PHYSICAL PARAMETER CALCULATIONS

Appendix D.2. Physical Parameter Calculations

This information can be found in the 1992 study preformed by Burgess & Niple.

Several revisions were made to the existing model in regards to drainage basin boundaries. The following is an itemization of the revisions made to the 1992 HEC-1 model.

Summary of Revisions to 1992 HEC-1 Model

Subbasin Revisions

Operation #	
1	Subdivided subbasin 7A into 7AA, 7AB, and 7AC. This was done to calculate peak discharges for the study reach on Scott Avenue Wash.
2	Subdivided subbasin 3K into 3KA, 3KB, 3KC, and 3KD. This was done to calculate peak discharges for the study reaches on Unnamed Wash No.'s 2, 3, and 4.
3	Modified subbasin 3L to include 3KA. Subbasin 3KA was incorporated into 3L because it drains to the concentration point for subbasin 3L (C11 on Quilotosa Wash)

Summary of MCUHP2 Lag Time Calculation Parameters

SUBBASIN	S-Graph Type	Kn	L miles	Lca miles	Slope ft/mile	Lag mins
3KA	Valley	0.0500	1.80	0.76	33.30	41.7
3KB	Valley	0.0500	3.94	1.89	34.30	78.9
3KC	Valley	0.0500	8.51	4.17	36.90	140.0
3KD	Valley	0.0500	6.54	2.42	36.10	104.0
7AA	Valley	0.0500	0.98	0.51	5.10	40.6
7AB	Valley	0.0500	2.36	0.76	27.10	48.0
7AC	Valley	0.0500	4.23	1.93	37.80	80.2

Summary of MCUHP2 Subbasin Input Parameters

SUBBASIN	AREA sq.miles	IA ins.	DTHETA	PSIF	XKSAT adj.	RTIMP %	LAG mins.
3KA	0.850	0.350	0.350	2.93	0.940	0	41.7
3KB	2.333	0.350	0.350	4.30	0.400	0	78.9
3KC	3.450	0.350	0.350	3.63	0.570	0	140.0
3KD	2.260	0.350	0.350	3.21	0.780	0	104.0
7AA	0.640	0.350	0.350	2.79	1.060	0	40.6
7AB	0.570	0.350	0.350	3.03	0.890	0	48.0
7AC	1.200	0.350	0.350	2.89	0.980	0	80.2

Operation No. 1

Subdivide Subbasin 7A

LOSS PARAMETERS FOR SUBBASIN: 7AA

Soil Survey Used Other

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
269	0.210	32.8	0.84	0
324	0.290	45.3	0.84	0
316	0.140	21.9	1.20	0

TOTAL = 0.640 Sq.Miles XKSAT = 0.91 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 2.79
Normal = 0.29
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.640	Desert	100.	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	60	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		NORMAL	85	0	0.50	0.10	Hi	
0.640 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 1.06

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	Area sq. mi.	Length mi.	Lca	Kn	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %	Lag min.
7AA	0.640	0.98	0.51	0.05	5.1	0.35	0.35	2.79	1.06	0	41

PREMIER
ENGINEERING CORPORATION

SHEET NO 1 OF 1
JOB NUMBER 9930

TITLE GILA BEND ADMP
SUBJECT BASIN 7A MODIFIED HEC-1 DATA (SCOTT AVE WASH)
MADE BY AJR DATE 6/13/00 CHECKED BY _____ DATE _____

7AA:

Area = 4.495 in^2 = 0.64 mi^2

Soils:

269 .574 + .775 + .078 = 1.427 in^2 = 0.20 mi^2
⋮
324 1.333 + .636 = 1.969 in^2 = 0.28 mi^2
316 .884 in^2 = 0.13 mi^2

total = 0.61 mi^2

adjust for total area

269	0.21	total = 0.64
324	0.29	
316	0.14	

L = 5166 ft. = 0.98 mi
L_{ca} = 2682 ft = 0.51 mi
S = (745 − 740) / 2682 = 9.8 ft/mi.

```
.  IN 7AA
M  E FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
M  L=      1.0  Lca=       .5   S=    5.1  Kn= .050  LAG=  40.6
M  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
A   .64
G   .35     .35    2.79    1.06     .00
I   53.     53.     53.    161.    207.    251.    283.    311.    346.    391.
I  441.    559.    668.    633.    536.    472.    427.    381.    336.    299.
I  264.    228.    174.    123.     94.     89.     87.     58.     53.     53.
I   26.     16.     16.     16.     16.     16.     16.     16.     16.     16.
I    0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
I    0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

LOSS PARAMETERS FOR SUBBASIN: 7AC

Soil Survey Used Other

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
324	1.000	83.3	0.84	0
269	0.200	16.7	0.84	0

TOTAL = 1.200 Sq.Miles XKSAT = 0.84 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 2.89
Normal = 0.28
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
1.200	Desert	100.	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	60	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		NORMAL	85	0	0.50	0.10	Hi	
1.200 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.98

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	Area sq. mi.	Length mi.	Lca	Kn	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %	Lag min.
7AC	1.200	4.23	1.93	0.05	37.8	0.35	0.35	2.89	0.98	0	80

PREMIER
ENGINEERING CORPORATION

SHEET NO 1 OF 2
JOB NUMBER 9930

TITLE GILA BOND ADMP
SUBJECT SCOTT AVE WASH HEC-1 DATA
MADE BY AJR DATE 6/13/00 CHECKED BY _____ DATE _____

TAC

Area 8.339 in^2 = 1.20 mi^2

Soils

824	6.913 in^2 = 0.99 mi^2	→	1.0 mi^2	total = 1.20
269	0.20 mi^2			

L = 22354 ft = 4.23 mi
Lca = 10184 ft = 1.93 mi
S = (960 − 800) / 4.23 = 37.8 ft/mi

```
.  N 7AC
M  E FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
M  L=      4.2  Lca=      1.9   S=   37.8  Kn= .050  LAG=  80.2
M  PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
A  1.20
G   .35     .35    2.89     .98     .00
I   50.     50.     50.     50.     50.     50.    148.    166.    193.    208.
I  232.    247.    264.    278.    290.    305.    322.    342.    367.    385.
I  408.    448.    506.    588.    617.    672.    609.    555.    513.    477.
I  452.    426.    407.    390.    363.    338.    319.    302.    287.    263.
I  248.    237.    219.    193.    158.    145.    112.     89.     89.     88.
I   83.     83.     83.     71.     50.     50.     50.     50.     50.     43.
I   15.     15.     15.     15.     15.     15.     15.     15.     15.     15.
I   15.     15.     15.     15.     15.     15.     15.     15.     15.      0.
I    0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
I    0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
Z
```

Calculation of Channel Infiltration Loss
Scott Avenue Wash (Operation R7AC)

Average Channel Width	20 ft
Lngth of Routing Reach	8644 ft
Infiltration Area	172880 ft^2 3.9687787 ac
Channel Loss Rate	10 in/hr 10 cfs/ac
Loss for Routing Reach	40 cfs

Calculation of Channel Infiltration Loss
Unnamed Wash # 2 (Operation R3K)

Average Channel Width	15 ft
Lngth of Routing Reach	2500 ft
Infiltration Area	37500 ft^2 0.8608815 ac
Channel Loss Rate	10 in/hr 10 cfs/ac
Loss for Routing Reach	9 cfs

PREMIER
ENGINEERING CORPORATION

Irregular Channel Normal Depth Analysis

By: ajr
Date: June-00

Project: Gila Bend ADMP

Subject: Routing Reach R3K

Project No.: 9930

	Station	Elevation	N Value
1	0	100	0.044
2	1	99	0.044
3	201	99	0.059
4	222	92	0.059
5	237	92	0.059
6	258	99	0.039
7	458	99	0.039
8	459	100	

Input:

Q =	1590	cfs
Slope =	0.00680	'/ft

Output:

Normal depth =	7.14	ft
Wsel =	99.14	
Max. Velocity=	7.70	fps
Average Velocity =	5.07	fps
Flow Area =	313.84	ft^2
Wetted Perimeter =	459.65	ft
Hydraulic Radius R =	0.68	ft
Top Width =	457.27	ft
Hydraulic Depth =	0.69	ft
Froude Number =	1.08	
(Q-Qcalced)/Q*100 =	5.12665E-04	%
Qcalced =	1,589.9918	cfs

CALCULATION OF NSTPS:

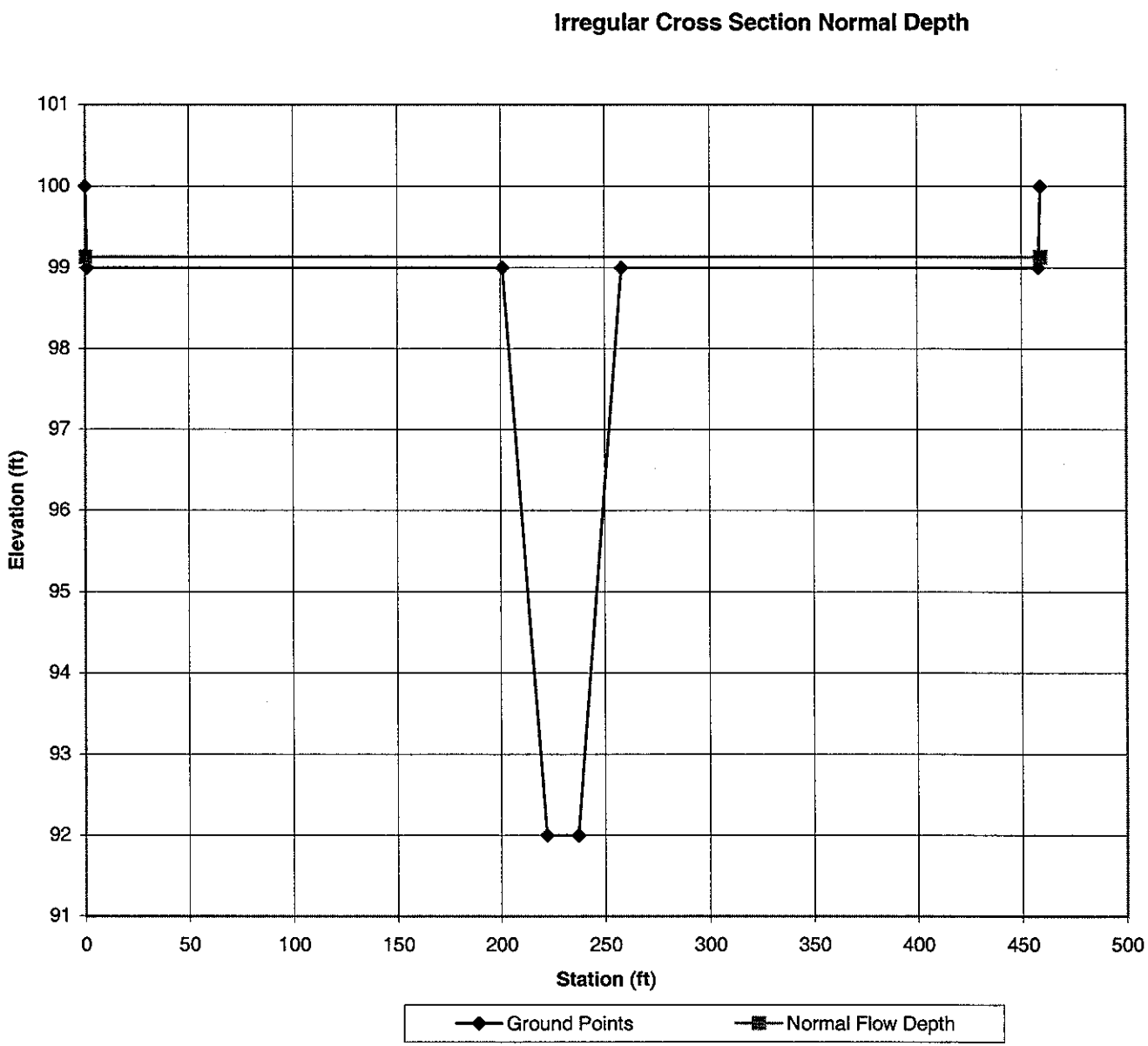
V = 5.1 fps

Length of routing reach = 2500 ft.

2500/5.1/60 = 8.2 min

$\frac{8.2}{3} = 2.7$, say $\underline{\underline{3}}$

↑ NMIN


Irregular Cross Section Normal Depth
Elevation (ft)
101
100
99
98
97
96
95
94
93
92
91
0
50
100
150
200
250
300
350
400
450
500
Station (ft)
Ground Points
Normal Flow Depth

PREMIER
ENGINEERING CORPORATION

Irregular Channel Normal Depth Analysis

By: ajr
Date: June-00

Project: Gila Bend ADMP

Subject: Routing Reach R7AC

Project No.: 9930

	Station	Elevation	N Value
1	0	100	0.049
2	1	99	0.049
3	201	99	0.05
4	207	96	0.05
5	227	96	0.05
6	233	99	0.043
7	433	99	0.043
8	434	100	

Input:

Q =	288	cfs
Slope =	0.00510	'/ft

Output:

Normal depth =	2.87	ft
Wsel =	98.87	
Max. Velocity=	4.29	fps
Average Velocity =	3.89	fps
Flow Area =	73.99	ft^2
Wetted Perimeter =	32.85	ft
Hydraulic Radius R =	2.25	ft
Top Width =	31.49	ft
Hydraulic Depth =	2.35	ft
Froude Number =	0.45	
(Q-Qcalced)/Q*100 =	6.28614E-06	%
Qcalced =	288.0000	cfs

CALCULATION OF NSTPS:

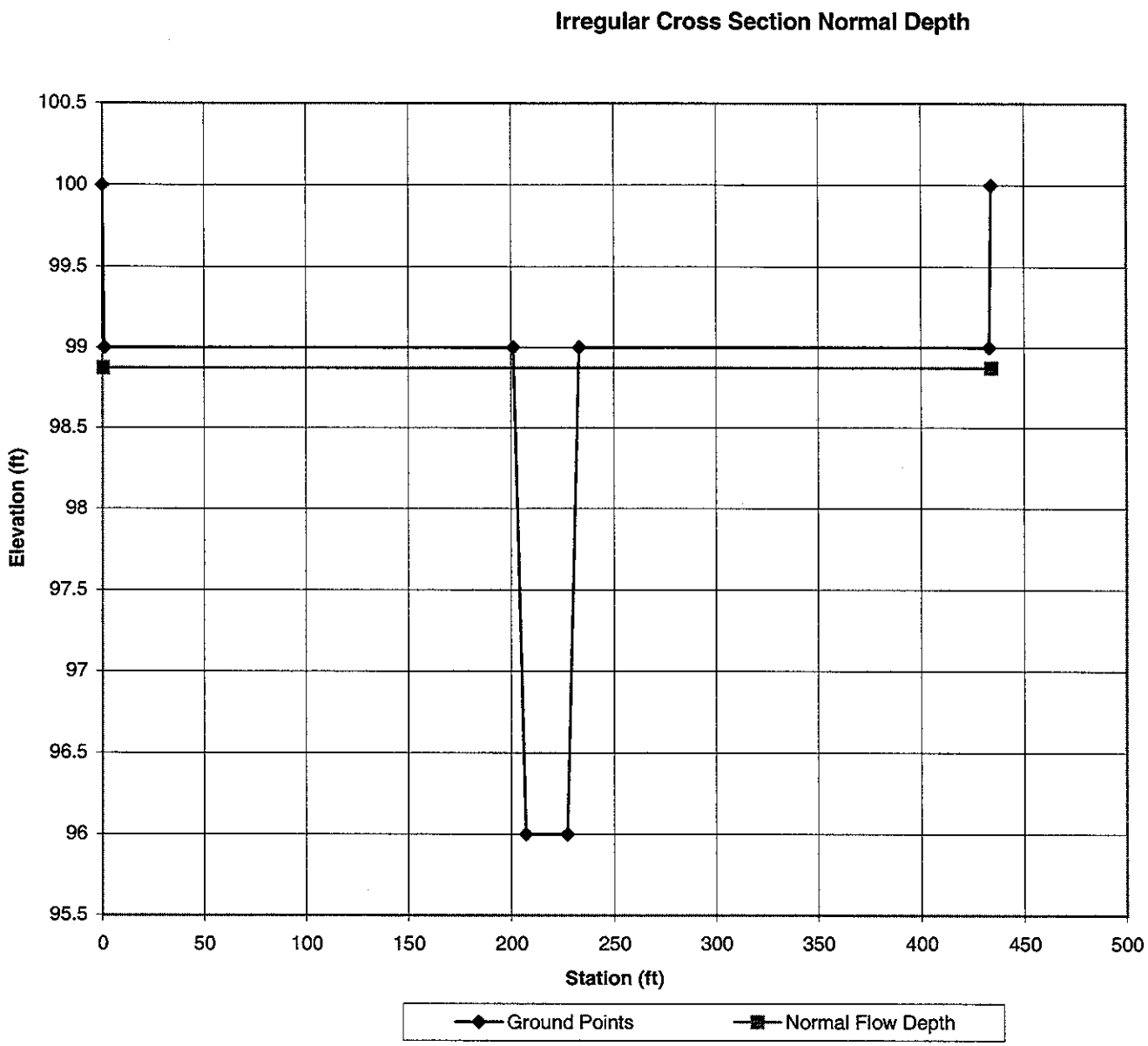
V = 3.9 fps.

Length of routing reach = 8644 ft.

8644/3.9/60 = 36.9 min

$$\frac{36.9}{3} = \underline{\underline{12}}$$

NMIN


Irregular Cross Section Normal Depth
100.5
100
99.5
99
98.5
98
97.5
97
96.5
96
95.5
Elevation (ft)
0
50
100
150
200
250
300
350
400
450
500
Station (ft)
Ground Points
Normal Flow Depth

LOSS PARAMETERS FOR SUBBASIN: 7AB

Soil Survey Used Other

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
234	0.110	19.3	0.49	0
269	0.290	50.9	0.84	0
324	0.170	29.8	0.84	0

TOTAL = 0.570 Sq.Miles XKSAT = 0.76 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.03
Normal = 0.28
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.570	Desert	100.	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	60	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		NORMAL	85	0	0.50	0.10	Hi	
0.570 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.89

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	Area sq. mi.	Length mi.	Lca	Kn	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %	Lag min.
7AB	0.570	2.36	0.76	0.05	27.1	0.35	0.35	3.03	0.89	0	48

PREMIER
ENGINEERING CORPORATION

SHEET NO 2 OF 2
JOB NUMBER 9930

TITLE GILA BEND ADMP
SUBJECT SCOTT AVE WASH MODIFIED HEC-1 DATA
MADE BY AJR DATE 6/13/00 CHECKED BY _____ DATE _____

7AB

Area = 3.999 in^2 = 0.57 mi^2

Soils

234 .744 in^2 = 0.11 mi^2
269 1.581 + .080 + .356 = 2.017 in^2 = 0.29 mi^2
324 .527 + .651 = 1.178 in^2 = 0.17 mi^2
total = 0.57 mi^2

L = 12,469 ft = 2.36 mi.
L_{ca} = 4024 ft = 0.76 mi.
S = (820 − 756)/2.36 = 27.1 ft/mi

Routing reach R7AC
calculation of NSTRS
routed Q = 330 cfs
V = 3.9 fps (see printout)
Length of routing reach = 8644 ft.
8644/3.9/60 = 36.9 36.9/3 = 12
↑ NMIN

geometry of channel + Manning's n values
taken from Manning's n-Value and Field Reconnaissance Report

```
BIN 7AB
THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
L=      2.4  Lca=       .8   S=   27.1  Kn= .050  LAG=  48.0
PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
 .57
 .35     .35    3.03     .89     .00
 40.     40.     40.     69.    136.    161.    189.    208.    228.    247.
273.    303.    336.    404.    490.    515.    438.    386.    350.    322.
294.    262.    238.    215.    193.    170.    134.    105.     71.     70.
 66.     66.     42.     40.     40.     34.     12.     12.     12.     12.
 12.     12.     12.     12.     12.     12.     12.      0.      0.      0.
  0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

Operation No. 2

Subdivide Subbasin 3K

LOSS PARAMETERS FOR SUBBASIN: 3KA

Soil Survey Used Other

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
269	0.200	23.5	0.84	0
324	0.590	69.4	0.84	0
234	0.060	7.1	0.49	0

TOTAL = 0.850 Sq.Miles XKSAT = 0.81 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 2.93
Normal = 0.28
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
0.850	Desert	100.	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	60	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		NORMAL	85	0	0.50	0.10	Hi	
0.850 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.94

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	Area sq. mi.	Length mi.	Lca	Kn	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %	Lag min.
3KA	0.850	1.80	0.76	0.05	33.3	0.35	0.35	2.93	0.94	0	42

PREMIER
ENGINEERING CORPORATION

SHEET NO 1 OF 4
JOB NUMBER 9930

TITLE GILA BEND ADMP
SUBJECT HEC-1 model modifications
MADE BY AJR DATE 6/13/00 CHECKED BY _____ DATE _____

3KA

Area = 5.9365 in^2 = 0.85 mi^2

Soils:

				XKSAT
269	1.35 in^2	= 0.19 mi^2	→ 0.20 mi^2	0.84
324	4.05 in^2	= 0.58 mi^2	→ 0.59 mi^2	0.84
234	.341 in^2	= 0.05 mi^2	→ 0.06 mi^2	0.49
		0.82 mi^2	0.85	

L = 9500 ft = 1.80 mi
L_{ca} = 4000 ft = 0.76 mi
S = 60/9000 = 35.2 ft/mi

N 3KA
FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
L= 1.8 Lca= .8 S= 33.3 Kn= .050 LAG= 41.7
PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN

.85									
.35	.35	2.93	.94	.00					
69.	69.	69.	195.	257.	322.	357.	394.	436.	492.
547.	658.	826.	876.	733.	640.	576.	523.	460.	412.
363.	326.	273.	199.	131.	121.	113.	108.	69.	69.
69.	25.	21.	21.	21.	21.	21.	21.	21.	21.
21.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

LOSS PARAMETERS FOR SUBBASIN: 3KB

Soil Survey Used Other

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
316	0.033	1.4	1.20	0
234	0.350	15.0	0.35	0
324	0.470	20.1	0.84	0
VAL	1.480	63.4	0.25	0

TOTAL = 2.333 Sq.Miles XKSAT = 0.34 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 4.30
Normal = 0.25
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
2.333	Desert	100.	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	60	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		NORMAL	85	0	0.50	0.10	Hi	
2.333 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN
DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.40

IMPERVIOUS AREA:
URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	Area sq. mi.	Length mi.	Lca	Kn	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %	Lag min.
3KB	2.333	3.94	1.89	0.05	34.3	0.35	0.35	4.30	0.40	0	79

PREMIER
ENGINEERING CORPORATION

SHEET NO 2 OF 4
JOB NUMBER 9930

TITLE GILA BEND ADMP
SUBJECT BASIN 3K HEC-1 DATA
MADE BY AJR DATE 6/13/00 CHECKED BY _____ DATE _____

3KB

Area = 16.1820 in^2 = 2.32 mi^2

Soils:

316 .23 in^2 = 0.033 mi^2

234 (2.68 - .23) = 2.45 in^2 = 0.35 mi^2

324 2.62 + 0.65 = 3.27 in^2 = 0.47 mi^2

VALLEY 1.48 mi^2

L = 20,800 ft = 3.94 mi

L_{ca} = 10,000 ft = 1.89 mi

S = 135/20,800 = 34.3 ft/mi

N 3KB
FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
L= 3.9 Lca= 1.9 S= 34.3 Kn= .050 LAG= 78.9
PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2.33

.35	.35	4.30	.40	.00					
100.	100.	100.	100.	100.	100.	316.	333.	382.	422.
464.	487.	532.	555.	581.	611.	646.	688.	742.	773.
826.	930.	1040.	1172.	1315.	1283.	1154.	1058.	977.	918.
866.	825.	783.	741.	689.	646.	610.	579.	534.	501.
477.	456.	382.	339.	286.	248.	176.	176.	176.	165.
164.	164.	148.	100.	100.	100.	100.	100.	86.	31.
31.	31.	31.	31.	31.	31.	31.	31.	31.	31.
31.	31.	31.	31.	31.	31.	31.	31.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

LOSS PARAMETERS FOR SUBBASIN: 3KC

Soil Survey Used Other

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
324	1.660	48.1	0.84	0
301	0.320	9.3	0.50	0
234	0.170	4.9	0.49	0
VAL	1.300	37.7	0.25	0

TOTAL = 3.450 Sq.Miles XKSAT = 0.49 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.63
Normal = 0.26
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
3.450	Desert	100.	DRY	25	0	0.35	0.05	Low	0.03
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	60	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		NORMAL	85	0	0.50	0.10	Hi	
3.450 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.57

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	Area sq. mi.	Length mi.	Lca	Kn	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %	Lag min.
3KC	3.450	8.51	4.17	0.05	36.9	0.35	0.35	3.63	0.57	0	140

PREMIER
ENGINEERING CORPORATION

SHEET NO 3 OF 4
JOB NUMBER 9930

TITLE GILA BEND ADMP
SUBJECT BASIN 3K MODIFIED HEC-1 DATA
MADE BY AJR DATE 6/13/00 CHECKED BY _____ DATE _____

3KC

Area = 22.8315 in^2 + 1.2710 in^2 = 3.46 mi^2

Soils:

324	1.43 + 8.04 + 1.271 = 10.741 in^2 = 1.54 mi^2	
301	2.06 in^2 = 0.30 mi^2	
234	1.09 in^2 = 0.16 mi^2	
VALLEY	8.37 in^2 = 1.20 mi^2	total 3.20 mi^2

$\frac{3.46}{3.20} = 1.08$

adjusted values:

324	1.66 mi^2
301	0.82 mi^2
234	0.17 mi^2
VALLEY	1.30 mi^2

L = 44957 ft = 8.51 mi

L_{ca} = 22,007 ft = 4.17 mi

S = (1062 − 748)/44957 = 0.00698 ft/ft = 36.9 ft/mi

[illegible] 3KC
[illegible] FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
L= 8.5 Lca= 4.2 S= 36.9 Kn= .050 LAG= 140.0
PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
3.45

.35	.35	3.63	.57	.00					
83.	83.	83.	83.	83.	83.	83.	83.	83.	83.
134.	273.	273.	273.	318.	318.	331.	382.	382.	403.
406.	431.	444.	458.	465.	483.	489.	514.	522.	545.
564.	580.	616.	628.	640.	658.	699.	739.	790.	842.
927.	990.	982.	1101.	1119.	1048.	988.	936.	891.	853.
819.	789.	762.	734.	712.	693.	676.	658.	638.	616.
596.	561.	548.	530.	509.	502.	478.	473.	434.	432.
406.	406.	385.	382.	349.	318.	318.	261.	239.	239.
239.	148.	147.	147.	147.	147.	147.	137.	136.	136.
136.	136.	136.	116.	83.	83.	83.	83.	83.	83.
83.	83.	83.	83.	45.	25.	25.	25.	25.	25.
25.	25.	25.	25.	25.	25.	25.	25.	25.	25.
25.	25.	25.	25.	25.	25.	25.	25.	25.	25.
25.	25.	25.	25.	25.	25.	25.	25.	25.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

LOSS PARAMETERS FOR SUBBASIN: 3KD

Soil Survey Used Other

XKSAT

Map Unit	AREA Sq.Miles	% Area	XKSAT	% Rock Outcrop
269	0.280	12.4	0.84	0
329	0.060	2.7	0.25	0
324	1.500	66.4	0.84	0
234	0.100	4.4	0.49	0
VAL	0.320	14.2	0.25	0

TOTAL = 2.260 Sq.Miles XKSAT = 0.67 %Rock = 0

DTHETA

Dry = 0.35 PSIF = 3.21
Normal = 0.27
Wet = 0.00

LAND USE

AREA Sq.Miles	LAND USE Type	% Area	DTHETA condition	%Veg. cover	RTIMP%	IA in.	Kn	Kb Type	Kb
2.260	Desert	100.	DRY	25	0	0.35	0.05	Low	0.04
	OPEN		DRY	10	0	0.10	0.02	Min	
	V.L.D.R		NORMAL	30	5	0.30	0.05	Low	
	L.D.R.		NORMAL	50	15	0.30	0.05	Low	
	M.D.R.		NORMAL	50	30	0.25	0.05	Low	
	M.F.R.		NORMAL	50	45	0.25	0.05	Low	
	Ind		NORMAL	60	55	0.15	0.03	Min	
	Comm		NORMAL	75	80	0.10	0.02	Min	
	Park		NORMAL	90	0	0.20	0.10	Hi	
	RowCrop		NORMAL	85	0	0.50	0.10	Hi	
2.260 = Total Area			Avg. =	25	0%	0.350			

PERCENT OF SUBBASIN DRY = 100. %
NORMAL = 0.0 %
WET = 0.0 %

SUBBASIN DTHETA WEIGHTED BY LAND USE = 0.35

SUBBASIN XKSAT ADJUSTED FOR VEG. = 0.78

IMPERVIOUS AREA: URBAN @ 100 % effective = 0
ROCK OUTCROP @ 100 % effective = 0
% EFFECTIVE IMP. = 0

INPUT VALUES FOR MCUHP2 PROGRAM

SUBBASIN	Area sq. mi.	Length mi.	Lca	Kn	Slope ft/mi	IA in.	DTHETA	PSIF	XKSAT adj.	RTIMP %	Lag min.
3KD	2.260	6.54	2.42	0.05	36.1	0.35	0.35	3.21	0.78	0	104

PREMIER
ENGINEERING CORPORATION

SHEET NO 4 OF 4
JOB NUMBER 9930

TITLE GILA BEND ADMP
SUBJECT BASIN 3K MODIFIED HEC-1 DATA
MADE BY AJR DATE 6/13/00 CHECKED BY _____ DATE _____

3KD

Area = 15.7945 in^2 = 2.27 mi^2

Soils

			adj values
269	1.86 in^2 =	0.27 mi^2	0.28
329	0.45 in^2 =	0.06	0.06
324	2.309 + 7.7965 in^2 =	1.45	1.50
234	.713 in^2 =	0.10	0.10
VALLEY	2.15 in^2 =	0.31	0.32
		2.19	2.27

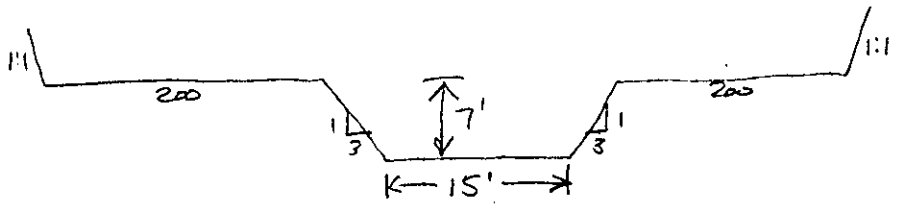
$\frac{2.27}{2.19} = 1.0365$

L = 34525 ft. = 6.54 mi
L_{cu} = 12767 ft = 2.42 mi
S = (984 − 748)/6.54 = 36.1 ft/mi

Routing Operation R3K

n_L = .044
n_c = .059
n_r = .039
L = 2500'
S = .0068'/ft.

V = 5.7 fps (see printout)
NSTPS = 2500/5.7/60/3 = 2.4
say 3



```
IN 3KD
 FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
L=      6.5  Lca=      2.4   S=   36.1  Kn= .050  LAG= 104.0
PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2.26
 .35     .35    3.21     .78     .00
 73.     73.     73.     73.     73.     73.     73.     78.    240.    240.
264.    280.    310.    337.    353.    363.    391.    404.    416.    431.
452.    471.    492.    518.    546.    564.    586.    633.    692.    749.
876.    857.    979.    956.    871.    816.    763.    721.    687.    656.
629.    605.    583.    564.    533.    505.    481.    461.    443.    422.
399.    382.    358.    349.    337.    299.    280.    239.    210.    210.
144.    129.    129.    129.    127.    120.    120.    120.    120.     99.
 73.     73.     73.     73.     73.     73.     73.     49.     22.     22.
 22.     22.     22.     22.     22.     22.     22.     22.     22.     22.
 22.     22.     22.     22.     22.     22.     22.     22.     22.     22.
 22.     22.     22.      0.      0.      0.      0.      0.      0.      0.
  0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```

Operation No. 3

Modify Subbasin 3L to include 3KA

DM MCUHP2 Gila Bend ADMP

[redacted]8 300

3

BASIN 3L

THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN

L= 4.3 Lca= 2.1 S= 31.0 Kn= .050 LAG= 86.3

PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN

3.34

15

RAINFALL DEPTH OF 4.53 WAS SPACIALLY REDUCED AS SHOWN BY THE PB RECORD

AN AREAL REDUCTION COEFFICIENT OF .976 WAS USED

4.421

THE FOLLOWING PC RECORD USED A 24-HOUR SCS TYPE II RAINFALL

.000	.002	.005	.008	.011	.014	.017	.020	.023	.026
.029	.032	.035	.038	.041	.044	.048	.052	.056	.060
.064	.068	.072	.076	.080	.085	.090	.095	.100	.105
.110	.115	.120	.126	.133	.140	.147	.155	.163	.172
.181	.191	.203	.218	.236	.257	.283	.387	.663	.707
.735	.758	.776	.791	.804	.815	.825	.834	.842	.849
.856	.863	.869	.875	.881	.887	.893	.898	.903	.908
.913	.918	.922	.926	.930	.934	.938	.942	.946	.950
.953	.956	.959	.962	.965	.968	.971	.974	.977	.980
.983	.986	.989	.992	.995	.998	1.000			
.36	.31	3.82	.33	3.00					
130.	130.	130.	130.	130.	130.	245.	428.	455.	500.
564.	607.	638.	688.	718.	747.	782.	822.	869.	925.
980.	1018.	1088.	1214.	1336.	1545.	1643.	1734.	1578.	1448.
337.	1258.	1183.	1127.	1077.	1027.	979.	914.	861.	816.
[redacted]7.	739.	681.	643.	618.	591.	500.	454.	375.	366.
[redacted].	231.	231.	225.	214.	214.	214.	189.	130.	130.
130.	130.	130.	130.	69.	40.	40.	40.	40.	40.
40.	40.	40.	40.	40.	40.	40.	40.	40.	40.
40.	40.	40.	40.	40.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

ADDED 3KA TO 3L

$2.48\ mi^2 + 0.86\ mi^2 = 3.34\ mi^2$

L, Lca & Slope do not change

Appendix D.3
HYDROGRAPH ROUTING DATA

Appendix D.3. Hydrologic Routing Data

This information can be found in the 1992 study preformed by Burgess & Niple.

However, there were several additions due to the revision made to the original model. The following is an itemization of the revisions made to the 1992 HEC-1 model.

Summary of Revisions to 1992 HEC-1 Model

Channel Routes

Operation #	
17	Added 7AC-150
18	Added R151-12
19	Divided R12-14 into R12-14A and R14A-14
20	Added R12-11A
21	Added R11A-11B
22	Added R14A-11B
23	Added R11B-14
24	Added R11A-11
25	Added R37A-17
26	Added R34-17
27	Added R37A-13A
28	Divided R13-16 into R13-13A and R13A-16

Operation No. 17

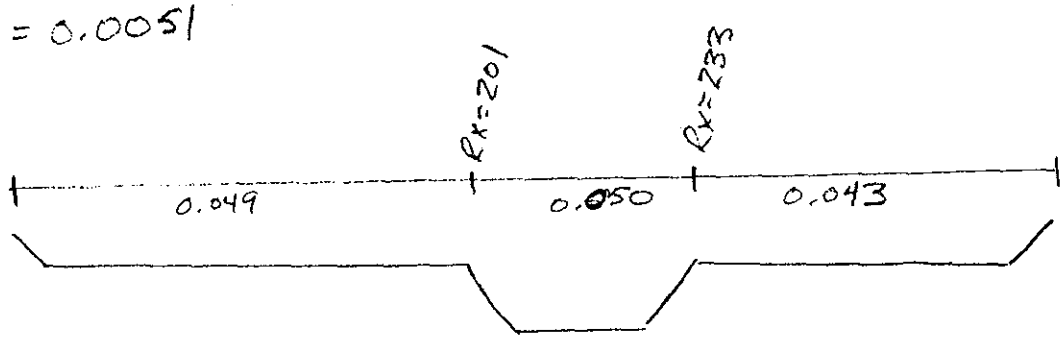
Added Channel Route 7AC-150

eec

Project Title Gila Bend ADMP Project No. 99541 Date

Subject Revised Hydrology Prepared By LAV Checked By Page

Channel Route 7AC-150
Scott Ave to Unnamed Wash No 3
S = 0.0051



Rx	Ry
0	100
1	99
201	99
207	96
227	96
233	99
433	99
434	100

Operation No. 18

Added Channel Route 151-12

eec

Title Gila Bend ADMP Project No. 99541 Date

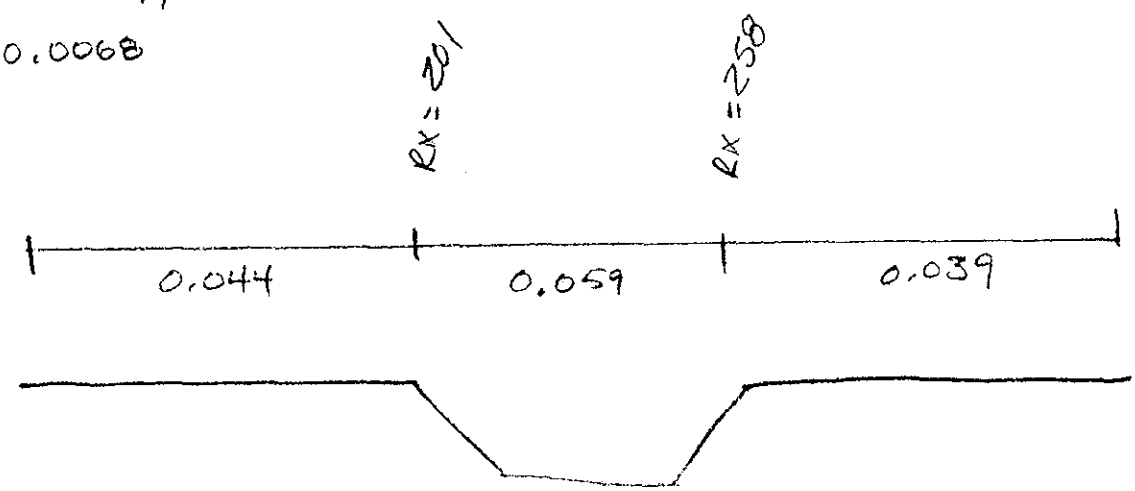
Subject Revised Hydrology Prepared By LAV Checked By Page

Channel Route 151-12

Unnamed Wash #3

between R/R

S= 0.0068



ΔX	ΔY
0	99
80	99
201	99
222	92
237	92
258	99
360	99
459	99

Operation No. 19

Divided Channel Route R12-14 into 12-14A and 14A-14

eec

Project Title Gila Bend ADMP Project No. 99541 Date

Subject Revised Hydrology Prepared By LAV Checked By Page

Channel Route R12-14

- Divide into 12-14A & 14A-14

1. Use ORIGINAL CHANNEL Routing X-SECTION for both Routes
2. MODIFY Length of Route TO ADJUST for DIVISION of R12-14

Length R12-14 = 3200 ft

New 12-14A → L = 2000 ft

New 14A-14 → L = 1200 ft

Operation No. 20

Added Channel Route 12-11A

eec

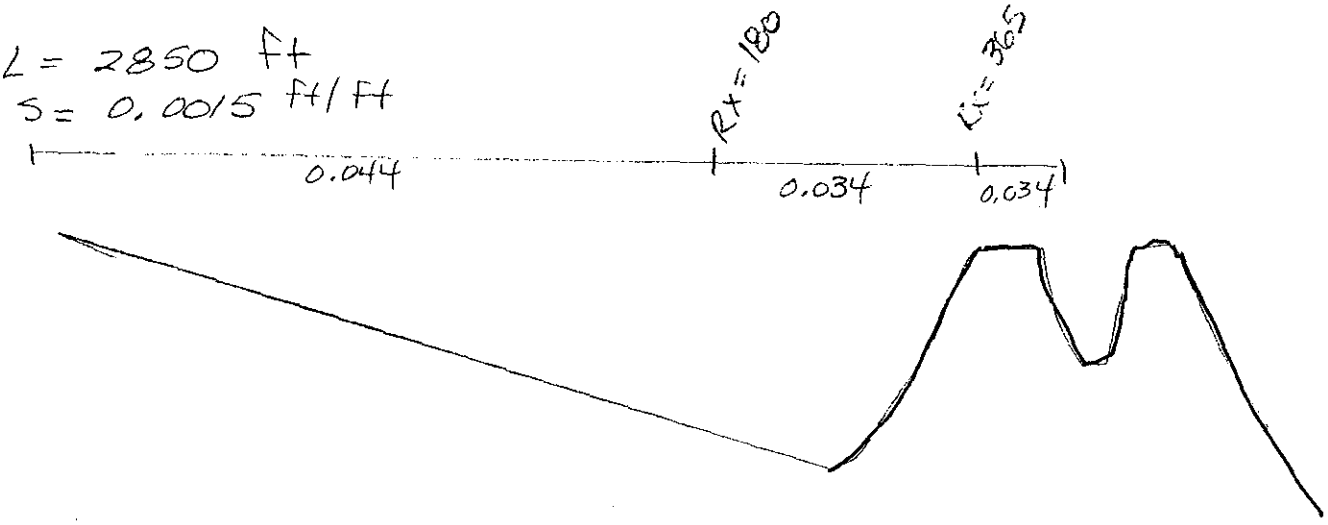
Project Title Gila Bend ADMP Project No. 99541 Date

Subject Revised Hydrology Prepared By LAV Checked By Page

New Channel Route 12-11A

This Route is behind the GBC between SR-85 and Quilotosa Wash.

L = 2850 ft
S = 0.0015 ft/ft



Rx	Ry
0	744
60	743
180	742
260	741
350	740
365	739.5
400	742
420	743

Operation No. 21

Added Channel Route 11A-11B

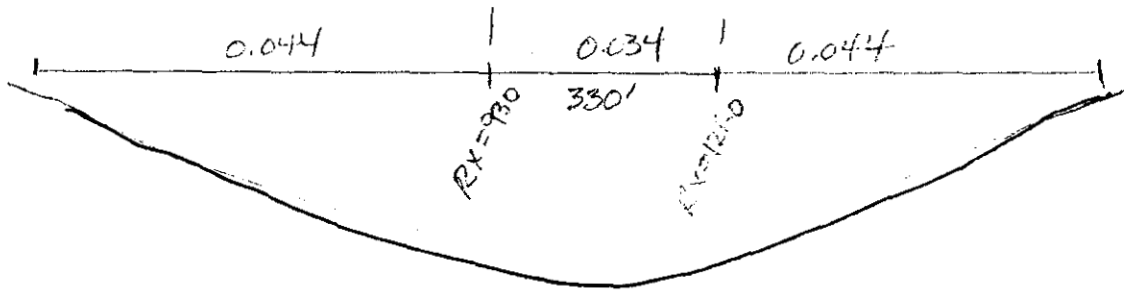
Project Title Gila Bend ADMP Project No. 99541 Date

Subject Revised Hydrology Prepared By LAV Checked By Page

Channel Route 11A-11B

This Route is from Diversion @ the GBC DC11AR (overtopping the canal) To CP 11B, at SPRR RAIL Road.

L = 2250 ft
S = 0.007 ft/ft



RX	RY
0	733
650	732
930	730
1080	729
1110	729
1260	730
1600	732
1800	733

Operation No. 22

Added Channel Route 14A-11B

eec

Project Title Gila Bend ADMP Project No. 99541 Date

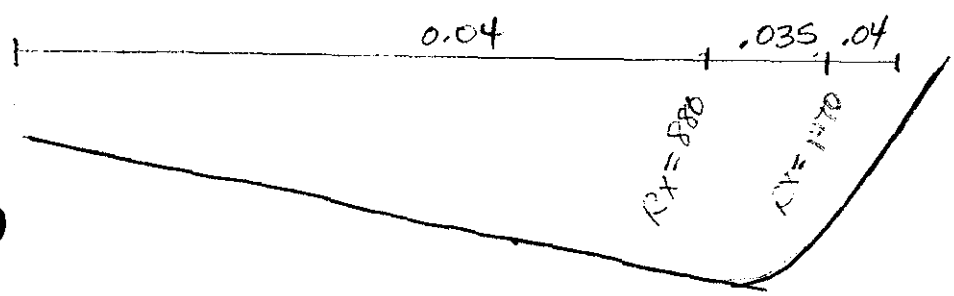
Subject Revised Hydrology Prepared By LAV Checked By Page

New Channel Route 14A-11B

The culverts at 14A cannot convey the discharge causing the Diversion DC14AR

Excess Runoff follows the I-8 Berm to a new Concentration Point CP 11B.

L = 2000 ft
S = 0.0035 ft/ft

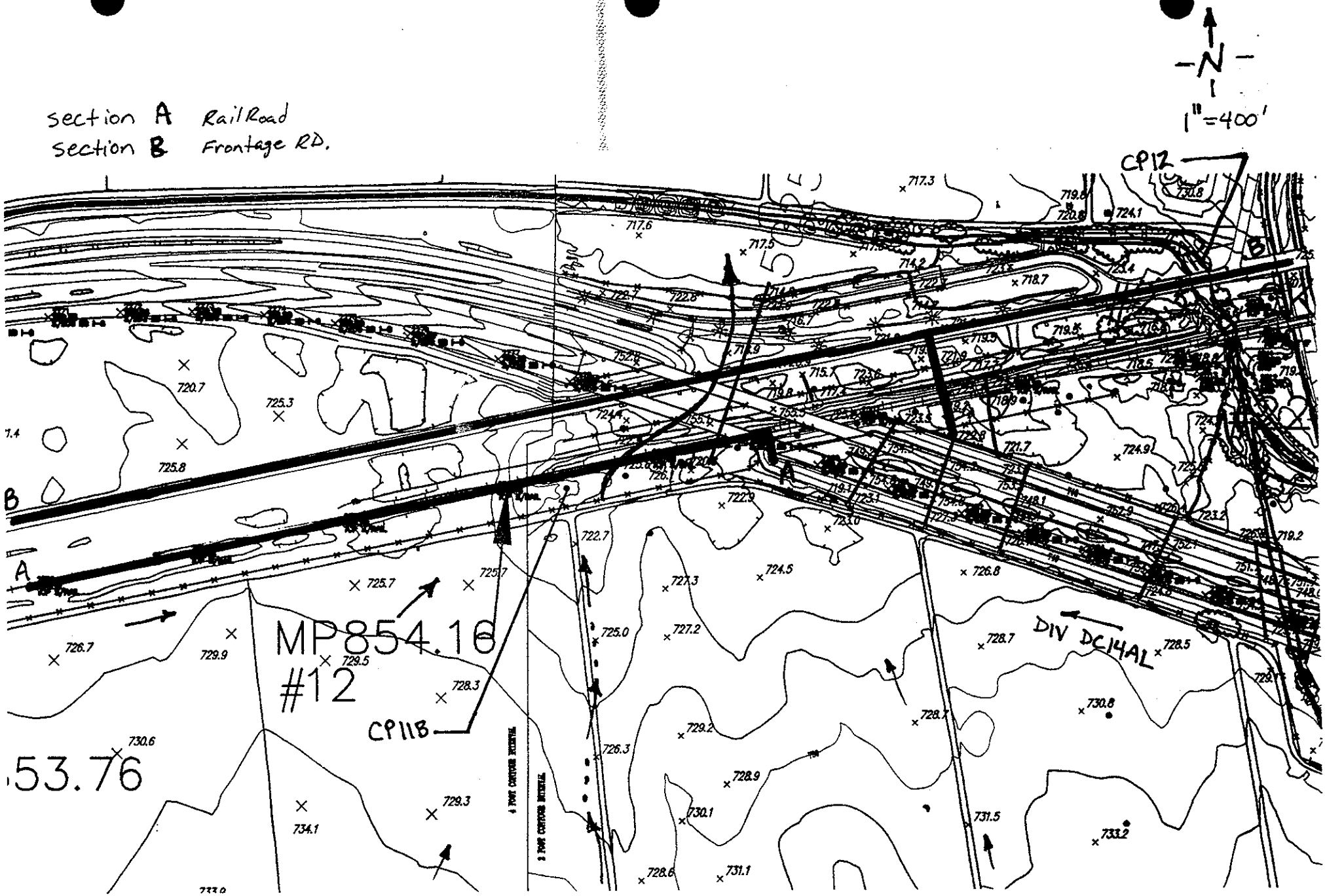


RX	RY
0	736
300	734
880	732
1280	730
1450	728
1470	730
1490	732
1510	740

Operation No. 23

Added Channel Route 11B-14

section A RailRoad
section B Frontage RD.



eec

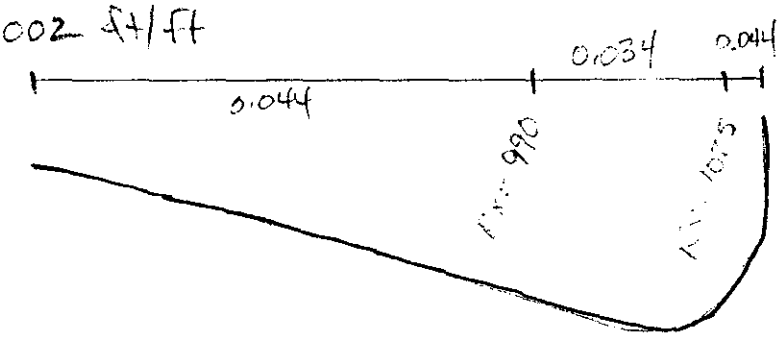
Project Title Gila Bend ADMP Project No. 99541 Date

Subject Revised Hydrology Prepared By LAV Checked By Page

New CHANNEL ROUTE 11B-14.

This Route overtops RR & I-8 frontage Road and passes Through overpass on its WAY TO C14.
Included in these calcs ARE overtopping info for R/R & frontage road showing that excess runoff Tends To migrate Through the overpass.

L= 2400 ft
S=0.002 ft/ft



RX	RY
600	750
750	743
990	741
1000	729
1010	729
1025	741
1039	743
1040	750

Gila Bend ADMP - CP11B (railroad)
Worksheet for Irregular Channel

Flow Over Railroad

Project Description	
Worksheet	Irregular Channel - CF
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	005000	ft/ft
Discharg	100.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.040	
Water Surface Elev	726.33	ft
Elevation Range	1.50 to 730.00	
Flow Area	103.5	ft²
Wetted Perimeter	463.56	ft
Top Width	463.21	ft
Actual Depth	1.83	ft
Critical Elevation	726.20	ft
Critical Slope	0.046106	ft/ft
Velocity	0.97	ft/s
Velocity Head	0.01	ft
Specific Energy	726.35	ft
Froude Number	0.36	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	18+92	0.040

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	728.43
4+95	728.22
9+95	727.06
14+93	726.21
18+68	726.02
18+77	724.50
18+85	726.00
18+92	730.00

Notes: rating curve

Q	Elev
00	726.21
50	726.51
500	726.70
2000	727.33

Gila Bend ADMP - CP11B (railroad)
Worksheet for Irregular Channel

000	727.59
00	727.81
000	728.01

Gila Bend ADMP - CP11Bb
Worksheet for Irregular Channel

Flow Over frontage Rd.

Project Description	
Worksheet	Irregular Channel - CF
Flow Element	Irregular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Slope	005000	ft/ft
Discharg	,500.00	cfs

Options	
Current Roughness Meth	ved Lotter's Method
Open Channel Weighting	ved Lotter's Method
Closed Channel Weightin	Horton's Method

Results		
Mannings Coefficie	0.022	
Water Surface Elev	722.70	ft
Elevation Range	).00 to 728.00	
Flow Area	699.0	ft²
Wetted Perimeter	651.04	ft
Top Width	650.85	ft
Actual Depth	2.70	ft
Critical Elevation	722.57	ft
Critical Slope	0.007056	ft/ft
Velocity	5.01	ft/s
Velocity Head	0.39	ft
Specific Energy	723.09	ft
Froude Number	0.85	
Flow Type	Subcritical	

Roughness Segments

Start Station	End Station	Mannings Coefficient
0+00	18+41	0.018
18+41	19+55	0.040

Natural Channel Points

Station (ft)	Elevation (ft)
0+00	728.00
9+48	724.00
14+71	722.00
18+41	721.00
18+69	720.00
19+00	720.00
19+15	721.50
19+25	722.00
19+37	722.00
19+45	724.00
19+55	726.02

Gila Bend ADMP - CP11Bb
Worksheet for Irregular Channel

Notes: rating curve

	Elev	Q	Elev
100	720.97	3500	722.59
500	721.64	4000	722.80
1000	721.95	4500	722.89
1500	722.17	5000	722.98
2000	722.32		
2500	722.46		
3000	722.59		

Operation No. 24

Added Channel Route 11A-11

eec

Project Title Gila Bend ADMP Project No. 99541 Date

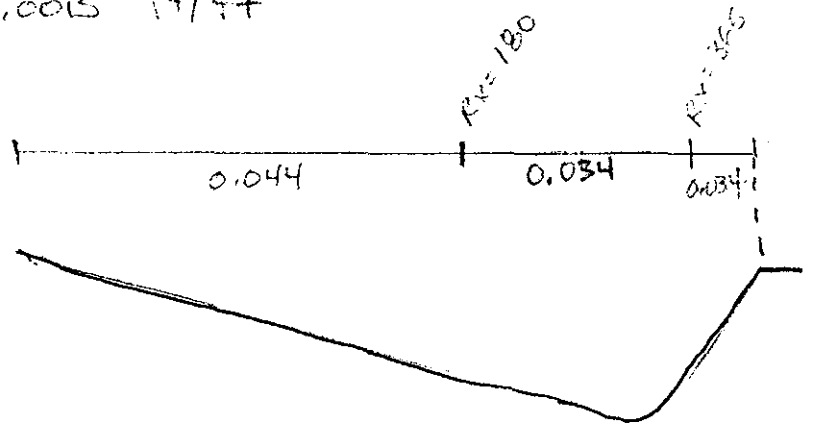
Subject Revised Hydrology Prepared By LAV Checked By Page

New Channel Route 11A-11

FROM Diversion @ DC 11AL TO Quilotosa Wash

L = 2850 ft

S = 0.0015 ft/ft



RX	RY
0	746
60	744
180	742
260	741
350	740
365	739.5
419	742.5
420	746

Operation No. 25

Added Channel Route 37A-17

Title Gila Bend ADMP Project No. 99541 Date

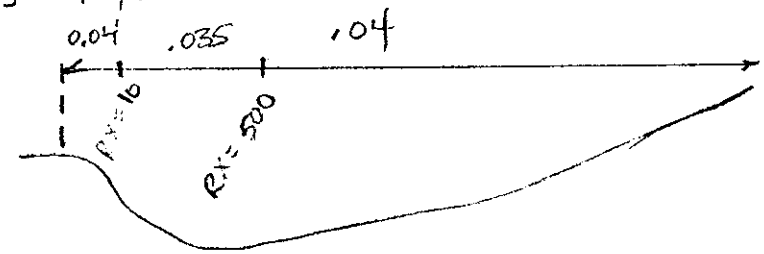
Subject Revised Hydrology Prepared By LAV Checked By Page

New Channel Route 37A-17

Route @ DIV DC 37AR from Sauceda to CP17

L = 3150 ft

S = 0.0013 ft/ft



0	726.39
5	726
10	725.5
47	724
125	724
500	726
750	728
1150	732

Operation No. 26

Added Channel Route 34-17

eec

Title Gila Bend ADMP Project No. 99541 Date

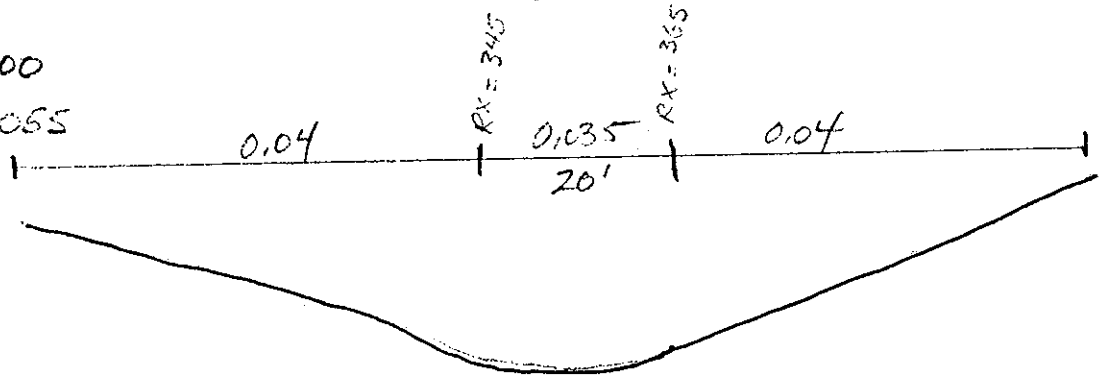
Subject Revised Hydrology Prepared By LAV Checked By Page

New Channel Route R34-17

From DIV DC 34R (overtopping at GBC) To CP 17

L = 3100

S = 0.0055



RX	RY
0	732
240	728
345	726.5
350	725.6
360	725.6
365	726.5
650	728
920	732

Operation No. 27

Added Channel Route 37A-13A

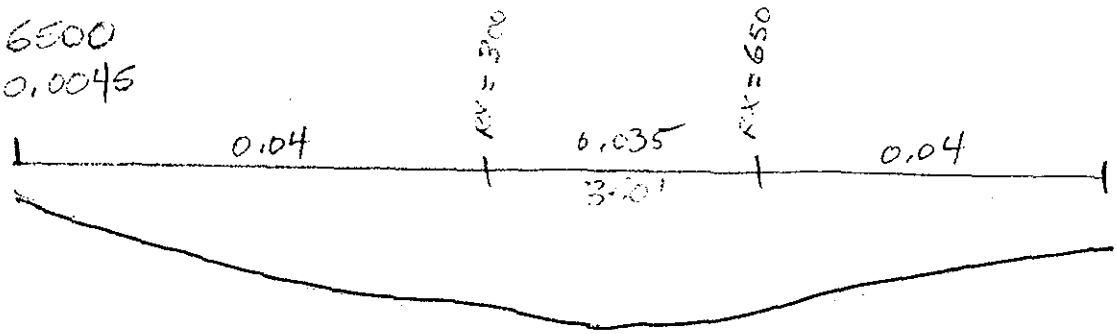
Project Title Gila Bend ADMP Project No. 99541 Date

Subject Revised Hydrology Prepared By LAV Checked By Page

New Channel Route 37A-13A

Overland flow from DIV DC37AL To CP13A

L = 6500
S = 0.0045



RX	RY
0	712
200	710
300	709
400	708
500	708
650	709
800	710
1000	712

Operation No. 28

Divided Channel Route R13-16 into 13-13A and 13A-16

eec

Project Title Gila Bend ADMP Project No. 99541 Date

Subject Revised Hydrology Prepared By LAV Checked By Page

Divided Channel Route R13-16 into 13-13A & 13A-16

use original x-section

L_{TOTAL} = 11800 ft

Length 13-13A = 4300 ft

Length 13A-16 = 7500 ft

Appendix D.4
RESERVOIR ROUTING DATA

Appendix D.4. Reservoir Routing Data

This information can be found in the 1992 study preformed by Burgess & Niple.

Some of the Reservoir/Storage Routes in the 1992 model were modified to more accurately represent conditions found in the field. The following is a list of revisions to the hydrology model.

Summary of Revisions to 1992 HEC-1 Model

Storage Routes

Operation #	
11	Renamed storage route C151 to SR151. C151 is used to combine hydrographs from 3KC, 3KD, and the diverted flow from C150. The storage route (an old borrow pit) only affects the diversion from C150. Therefore, the diversion hydrograph (DC150L) was routed through the borrow pit and the outflow was added to the other hydrographs at C151.
12	Deleted PND2. This was the storage routing routine for the single reservoir behind the Gila Bend Canal between Citrus Valley Road and SR85. It was determined with the detailed contour mapping, and hydraulic calculations, that there isn't sufficient lateral conveyance along the Canal embankment for it to behave as one single reservoir. Therefore, this one large storage route was eliminated and replaced with smaller storage routes at each major wash crossing of the Canal; as described below.
13	Added storage route at C11. This storage route was added to account for the storage behind the Gila Bend Canal at Quilotosa Wash.
14	Added storage route at C34. This storage route was added to account for the storage behind the Gila Bend Canal at Unnamed Wash No. 6.
15	Added storage route at C36. This storage route was added to account for the storage behind the Gila Bend Canal at Sauceda Wash.
16	Added storage route at C53. This storage route was added to account for the storage behind the Gila Bend Canal at Unnamed Wash No. 1.

Revisions to modified HEC-1 Model (conditions without the Gila Bend Canal)

Storage Route Revisions

1. Removed storage route at C12. This storage would not exist without the Canal Embankment.
2. Revised storage route at C11. The storage volume provided by the upstream borrow pit remains in the storage route. The storage created by impoundment behind the canal embankment, however, was removed.
3. Removed storage route at C34. This storage would not exist without the Canal Embankment.
4. Removed storage route at C36. This storage would not exist without the Canal Embankment.

Operation No. 11

~~Revised~~ Storage Route C151 to SR151

Renamed

eec

Project Title [illegible] Project No. [illegible] Date

Subject [illegible] Prepared By LAY Checked By Page

Renamed storage route C151 to SR151 and routed diverted flow (from C150) through it prior to combining hydrographs at C151.

Operation No. 12

Deleted PND2

Gila Bend ADMP
No. 99541

calculated by LAV, 07/12/2000

Pond Behind GBC, west of SR-85
Storage Volume Calculations

Stage	Area Basin 1 [ac]	*Volume [ac-ft]*	Area Basin 2 [ac]	*Volume [ac-ft]*	Area Basin 3 [ac]	*Volume [ac-ft]*	Area Basin 4 [ac]	*Volume [ac-ft]*	*Total Volume* [ac-ft]	**Total Cumulative Volume [ac-ft]**
728	0.042	0.0							0.0	0.0
730	0.285	0.3							0.3	0.3
732	3.018	2.8	1.423	0.0					2.8	3.1
734	8.544	11.1	3.985	5.2	1.025	0.0			16.3	19.4
736	34.102	39.8	11.195	14.6	7.914	7.9	0.057	0.0	62.2	81.6
738	71.622	103.4	29.529	39.3	10.248	18.1	3.473	2.6	163.5	245.1
740	120.350	189.9	95.819	119.0	26.302	35.3	19.813	21.1	365.3	610.4
741	141.950	**131.0**	121.302	108.3	45.227	35.3	34.786	27.0	301.6	***912.0***
742	174.154	157.8	159.526	**140.0**	73.614	58.8	48.279	41.3	398.0	1309.9
742.5					78.761	**38.1**			38.1	1348.0
743			189.359	174.2	86.481	41.3	64.050	56.0	271.5	1619.5
744			234.109	211.3	105.782	96.0	78.112	71.0	378.3	1997.8

Notes:
The bold values in the Volume column shows that volume just before overtopping occurs within that subbasin.
The ponding area behind the *Gila Bend Canal* was *broken down into four regions* based upon the top of canal elevations. The single pond idea in the Burgess & Niple Study reported PND2 as 1210 Ac-ft at a spill elevation of 740.
New survey shows the top of the canal elevation as ranging from 741 at the west end of the project, near Unnamed Wash No. 1 to 743 at SR-85. The corresponding storage *volume at the surveyed spill elevation* of 741 is 912.0 Ac-ft.
If requirements for a foot of freeboard are used than the storage volume at an elevation of 740 is 610.4 Ac-ft.

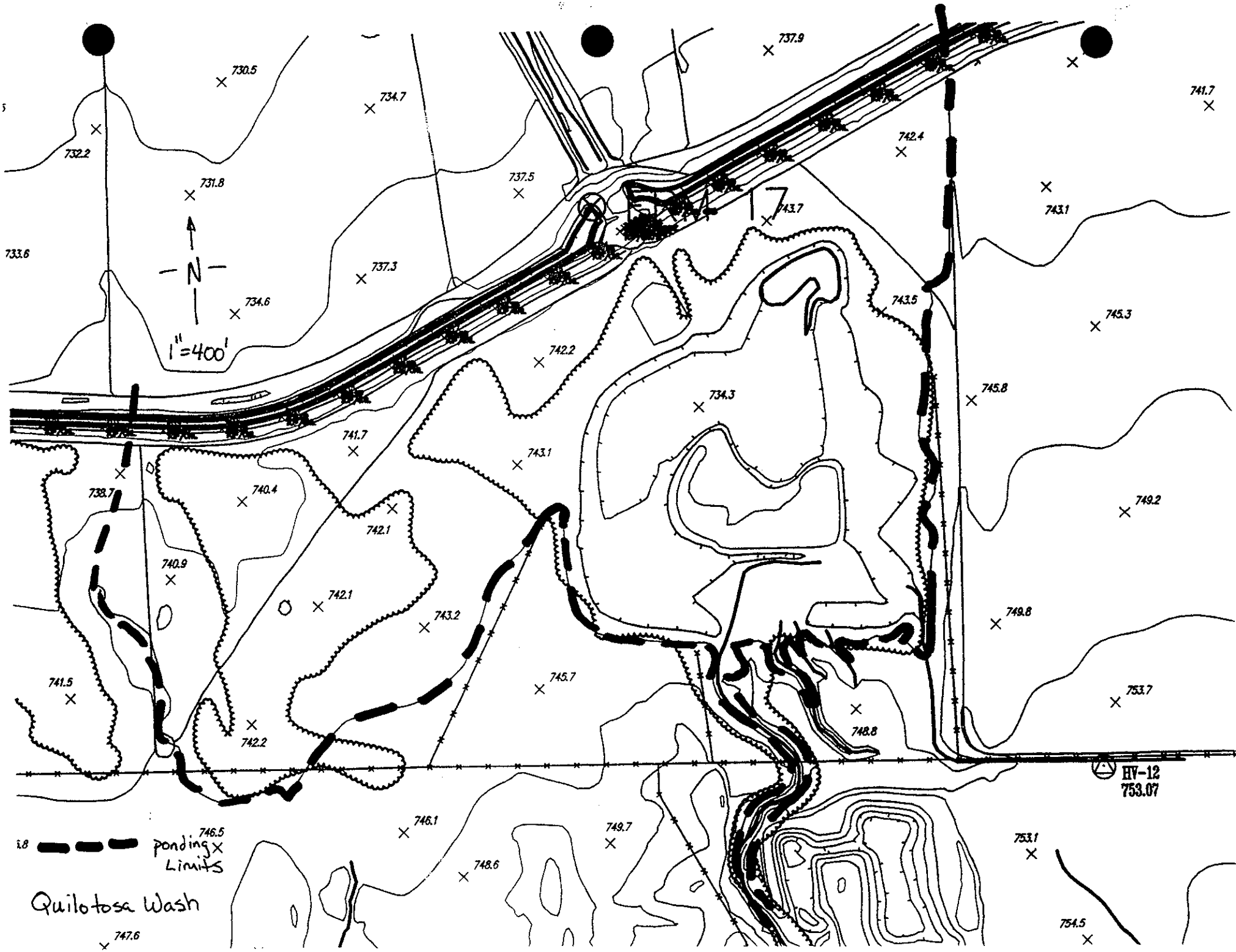
Volume Equation:

$$Volume = depth/3*(A_{top} + A_{bottom} + SQRT(A_{top} * A_{bottom}))$$

The results show that there is an approximate 25 percent reduction in the storage volume compared to that of the Burgess & Niple report

Operation No. 13

Added Storage Route C11


730.5
734.7
737.9
741.7
732.2
742.4
731.8
737.5
743.7
743.1
733.6
737.3
N
734.6
743.5
745.3
1"=400'
742.2
745.8
734.3
741.7
743.1
738.7
740.4
749.2
742.1
740.9
742.1
743.2
749.8
741.5
745.7
753.7
748.8
742.2
HV-12
753.07
746.5
746.1
749.7
753.1
ponding Limits
748.6
Quilotosa Wash
754.5
747.6

Quilotosa Wash - Ponding Area (C11)

Calculated by LAV, 07/14/2000

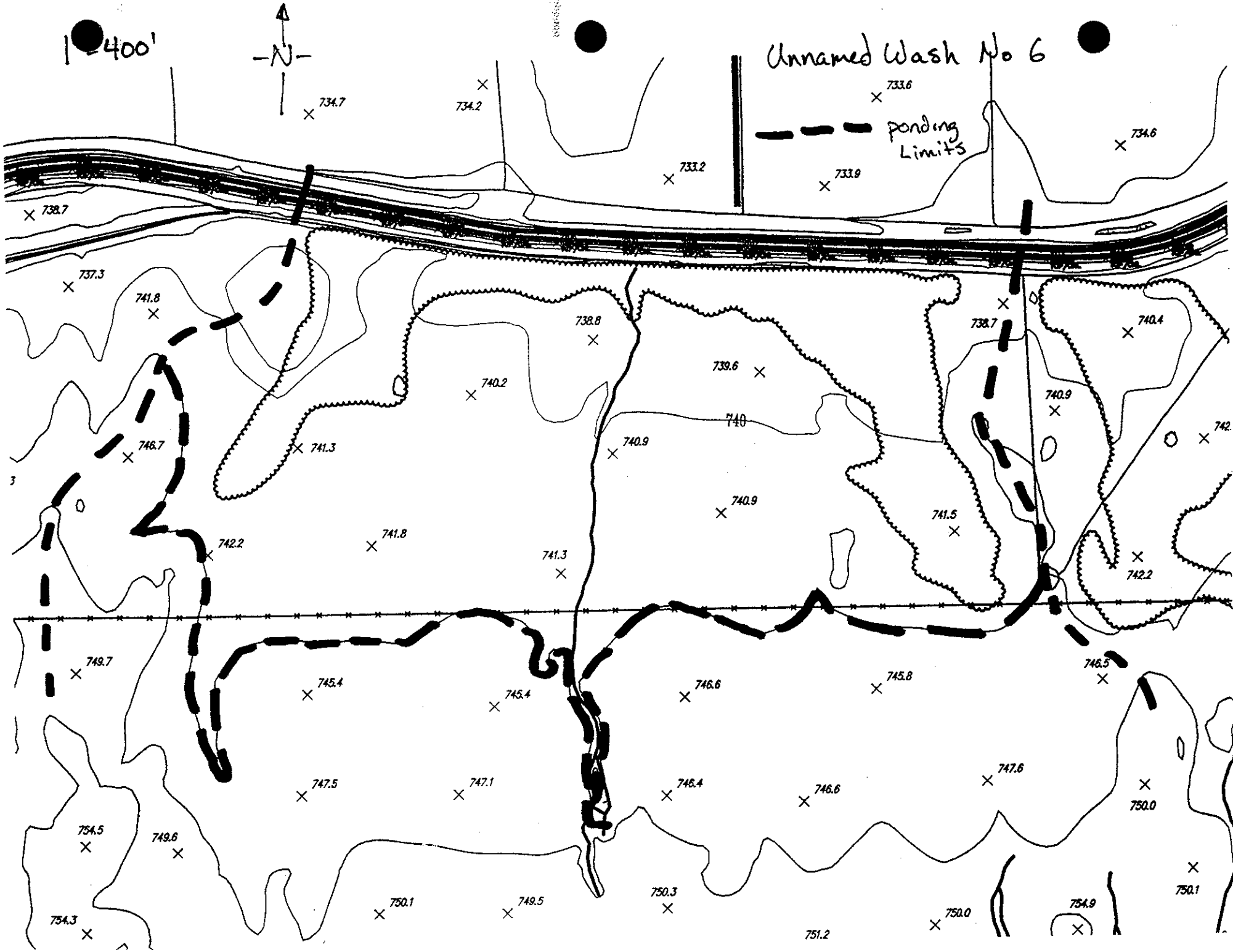
Area measured using a planimeter

$$\text{Volume} = \frac{\text{depth} * [\text{area}_{top} + \text{area}_{bottom} + \text{sqrt}(\text{area}_{top} * \text{area}_{bottom})]}{3}$$

Stage	Area Basin 1 [ac]	*Volume [ac-ft]*	**Total Incremental Volume [ac-ft]**
733	0	0	0
735	0.91	0	0
736	7.91	3.8	3.8
738	10.3	18.2	22.0
740	20.03	29.8	51.8
742	47.1	65.2	117.0
742.2			127.2
742.4			137.4
742.6			147.6
742.8			157.8
743			167.9
743.2			178.1
743.4			188.3
743.6			198.5
743.8			208.7
744	54.83	101.8	218.8

Operation No. 14

Added Storage Route C34



N:\99541\dwg\080799-a11.dwg Tue Sep 19 17:20:56 2000

Unnamed No 6 - Ponding Area (C34)

Calculated by LAV, 07/14/2000

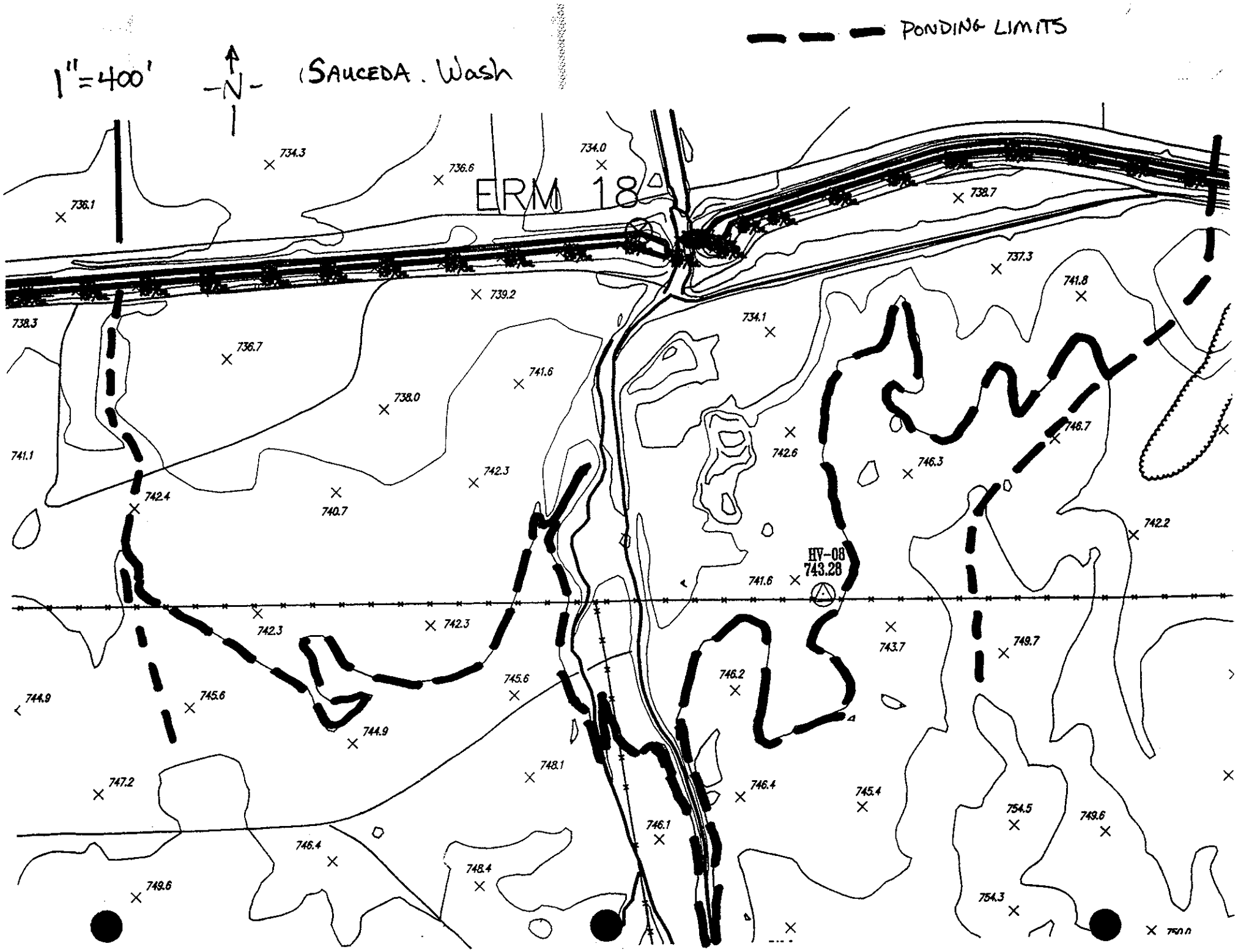
Area measured using a planimeter

$$\text{Volume} = \frac{\text{depth} * [\ \text{area}_{top} + \text{area}_{bottom} + \text{sqrt}(\text{area}_{top} * \text{area}_{bottom})]}{3}$$

Stage	Area Basin 1 [ac]	*Volume [ac-ft]*	**Total Incremental Volume [ac-ft]**
736	0.65	0	0
738	7.17	6.7	6.7
740	34.33	38.1	44.8
742	71.11	103.2	148.0
742.2			166.6
742.4			185.2
742.6			203.8
742.8			222.4
743			241.0
743.2			259.6
743.4			278.2
743.6			296.8
743.8			315.4
744	116.71	185.9	334.0

Operation No. 15

Added Storage Route C36


PONDING LIMITS
1"=400'
N
SAUCEDA. Wash
ERM 18
HV-08
743.28
734.3
736.6
734.0
736.1
738.7
737.3
741.8
739.2
738.3
734.1
736.7
741.6
738.0
742.6
746.7
741.1
746.3
742.3
742.4
740.7
742.2
741.6
742.3
742.3
743.7
749.7
745.6
746.2
744.9
745.6
744.9
748.1
747.2
746.4
745.4
754.5
749.6
746.1
746.4
748.4
749.6
754.3

Sauceda Wash - Ponding Area (C36)

Calculated by LAV, 07/14/2000

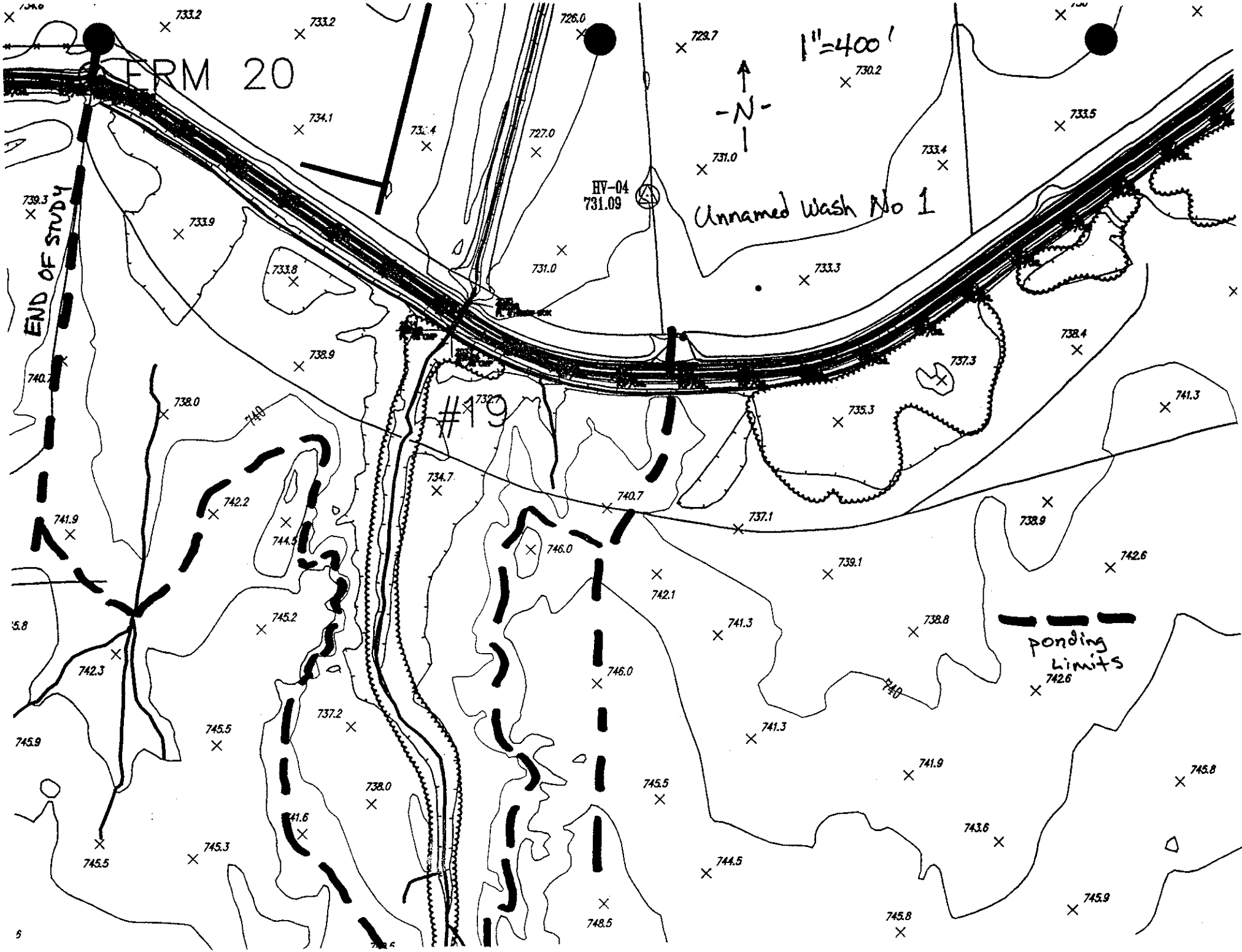
Area measured using a planimeter

$$\text{Volume} = \frac{\text{depth} * [\text{area}_{top} + \text{area}_{bottom} + \text{sqrt}(\text{area}_{top} * \text{area}_{bottom})]}{3}$$

Stage	Area Basin 1 [ac]	*Volume [ac-ft]*	**Total Incremental Volume [ac-ft]**
728	0	0.0	0.0
730	0	0.0	0.0
732	1.25	0.0	0.0
734	3.7	4.7	4.7
736	10.07	13.2	18.0
738	21.4	30.8	48.7
740	46.51	66.3	115.1
742	66.89	112.8	227.8
742.2			243.7
742.4			259.6
742.6			275.5
742.8			291.4
743			307.3
743.2			323.2
743.4			339.1
743.6			355.0
743.8			370.9
744	92.8	159.0	386.8

Operation No. 16

Added Storage Route C53


FRM 20
1"=400'
-N-
HV-04
731.09
Unnamed Wash No 1
END OF STUDY
#19
ponding limits
733.2
733.2
726.0
729.7
730.2
733.5
734.1
727.0
731.0
733.4
739.3
733.9
731.0
733.3
733.8
738.4
738.9
737.3
740.7
738.0
735.3
741.3
740
734.7
740.7
742.2
741.9
744.5
737.1
738.9
746.0
739.1
742.6
742.1
741.3
745.2
738.8
742.3
746.0
742.6
740
737.2
741.3
745.9
745.5
741.9
745.8
738.0
745.5
743.6
745.5
745.3
744.5
745.9
745.8
748.5

Unnamed No 1 - Ponding Area (C53)

Calculated by LAV, 07/14/2000

Area measured using a planimeter

$$\text{Volume} = \frac{\text{depth} * [\ \text{area}_{top} + \text{area}_{bottom} + \text{sqrt}(\text{area}_{top} * \text{area}_{bottom})]}{3}$$

Stage	Area Basin 1 [ac]	*Volume [ac-ft]*	**Total Incremental Volume [ac-ft]**
728	0.23	0.0	0.0
730	0.63	0.8	0.8
732	2.84	3.2	4.0
734	7.63	10.1	14.1
736	17.7	24.6	38.7
738	32.11	49.1	87.8
740	51.24	82.6	170.5
741	60.86	56.0	226.4
741.1			232.7
741.2			239.0
741.3			245.3
741.4			251.6
741.5			257.9
741.6			264.1
741.7			270.4
741.8			276.7
741.9			283.0
742	64.85	62.8	289.3

Appendix D.5

FLOW SPLITS AND DIVERSION DATA

Appendix D.5. Flow Split and Diversion Data

This information can be found in the 1992 study preformed by Burgess & Niple.

Some of the flow splits and diversions in the 1992 model were modified to more accurately represent conditions found in the field. The following is a list of revisions to the 1992 HEC-1 hydrology model.

Summary of Revisions to 1992 HEC-1 Model

Diversion Revisions

Operation #	
4	Revised diversion at C82 (operation DC82R and DC82L) on Bender Wash. This diversion was revised to divert more flow westerly toward Sand Tank Wash. The HEC-RAS model on Bender Wash identified split flows upstream of I-8 that weren't accounted for in the original model. They were added to the diversion at I-8 to quantify the total flow diverted westerly.
5	Revised diversion at C132 (operation DC132R and DC132L) on Sand Tank Wash. This diversion was revised to divert more flow westerly toward Scott Avenue Wash. The HEC-RAS model on Sand Tank Wash identified substantial split flows upstream of I-8 that weren't accounted for in the original model. They were added to the diversion at I-8 to quantify the total flow diverted westerly.
6	Added diversion at C14A (operation DC14AR and DC14AL) on Unnamed Wash No. 2. This diversion was added to model the split flow on Unnamed Wash No. 2 at the intersection of I-8 and SR85 that was identified with the HEC-RAS floodplain delineation model.
7	Added diversion at C11A (operation DC11AR and DC11AL) on Gila Bend Canal. This diversion was added to model the flow that overtops the Gila Bend Canal, west of SR85. The overtopping problem was identified with the HEC-RAS floodplain delineation model for the lateral flow along the Gila Bend Canal.
8	Added diversion at C34 (operation DC34R and DC34L) on Unnamed Wash No. 6 at the Gila Bend Canal. At this point of concentration there isn't any structure over or under the Canal. Some of the floodwater travels to the Sauceda Wash overchute and the remainder spills over the Canal. This diversion was added to model the flow that overtops the Canal. The overtopping problem was identified with the HEC-RAS floodplain delineation model for Unnamed Wash No. 6. It was determined with the detailed hydraulic analysis that approximately 4300 cfs can flow to the Sauceda overchute; the remainder will spill over the top of the Canal embankment.
9	Added diversion at C37 (operation DC37R and DC37L) on Sauceda Wash at Interstate 8. At this point of concentration, some of the floodwater travels through culverts under the RR and I-8 and the remainder flows

Operation No. 4

Revised Diversion at C82

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BENDER WASH
Split Flow Summary

Xsection ID	Flow to Sand Tank cfs	Culvert Discharge cfs	Total Flow cfs
1.904		714	3612
	4		
1.93		500	4116
	0		
2.01			4116
	0		
2.066		985	5101
	0		
2.131			5101
	81		
2.226			5182
	169		
2.316			5350
	180		
2.371			5530

Total Weir Flow to Sand Tank Wash	**433**
Flow to Sand Tank Wash @ I-8	**2898**
Total Diversion to Sand Tank Wash	**3331**

PREMIER
ENGINEERING CORPORATION

BENDER WASH
Split Flow Computation Worksheet **2/27/01 12:56**

Xsection ID	Weir Elev.	Culvert Invert Elevation	CWSE	Weir Depth ft	Weir Avg Depth ft	Depth at Culvert ft		Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Culvert Discharge cfs	Total Flow cfs
1.904	776.9	772	777	0.1		5					714	3612
					0.05		0.2631579	135	35.52631579	4		
1.93	777.6	772.5	777.32	-0.28		4.82					500	4116
					0		1	80	80	0		
2.01	778.5	N/A	778.32	-0.18		N/A						4116
					0		1	85	85	0		
2.066	779.4	775.4	778.62	-0.78		3.22					985	5101
					0		1	180	180	0		
2.131	780.5	N/A	780.06	-0.44		N/A						5101
					0.11		0.3333333	840	280	81		
2.226	784.5	N/A	784.72	0.22		N/A						5182
					0.315		1	360	360	169		
2.316	786.91	N/A	787.32	0.41		N/A						5350
					0.205		0.2369942	730	173.0057803	180		
2.371	791.2	N/A	789.88	-1.32		N/A						5530
3.341	824.32	N/A	821.14	-3.18		N/A						3969
					0.005		0.0031348	450	1.410658307	0		
3.452	825.82	N/A	825.83	0.01		N/A						3970
					0.005		0.037037	480	17.77777778	0		
3.537	830.1	N/A	829.84	-0.26		N/A						3970
					0		1	420	420	0		
3.63	833.32	N/A	833.15	-0.17		N/A						3970
					0		1	780	780	0		
3.713	839.2	N/A	836.6	-2.6		N/A						3970

Total Weir Flow to Sand Tank Wash	**433**
Flow to Sand Tank Wash @ I-8	**2898**
Total Diversion to Sand Tank Wash	**3331**

Bender Wash Flow Split Rating Curve

Inflow, cfs	Diversion to Sand Tank Wash, cfs
0	0
2100	887
3000	1536
4000	2380
5000	3278
5530	3331
6000	4171

PREMIER
ENGINEERING CORPORATION

BENDER WASH
Side Weir Split Flow Computation Worksheet **2/27/01 12:56**

Xsection ID	Weir Elev.	Culvert Invert Elevation	CWSE	Weir Depth ft	Weir Avg Depth ft	Depth at Culvert ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Culvert Discharge cfs	Total Flow cfs
1.904	776.9	772	774.57	-2.33		2.57				183.57143	1070
					0		135	135	0		
1.93	777.6	772.5	776.02	-1.58		3.52				233.42175	1304
					0		80	80	0		
2.01	778.5	N/A	777.08	-1.42		N/A					1304
					0		85	85	0		
2.066	779.4	775.4	777.64	-1.76		2.24				796.15385	2100
					0		180	180	0		
2.131	780.5	N/A	779.78	-0.72		N/A					2100
					0		840	840	0		
2.226	784.5	N/A	784	-0.5		N/A					2100
					0		360	360	0		
2.316	786.91	N/A	786.85	-0.06		N/A					2100
					0		730	730	0		
2.371	791.2	N/A	788.82	-2.38		N/A					2100

Total Weir Flow to Sand Tank Wash	**0**
Flow to Sand Tank Wash @ I-8	**887**
Total Diversion to Sand Tank Wash	**887**

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ENGINEERING CORPORATION

BENDER WASH
Side Weir Split Flow Computation Worksheet **2/27/01 12:56**

Xsection ID	Weir Elev.	Culvert Invert Elevation	CWSE	Weir Depth ft	Weir Avg Depth ft	Depth at Culvert ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Culvert Discharge cfs	Total Flow cfs
1.904	776.9	772	775.03	-1.87		3.03				216.42857	1725
					0		135	135	0		
1.93	777.6	772.5	776.77	-0.83		4.27				369.04762	2094
					0		80	80	0		
2.01	778.5	N/A	777.7	-0.8		N/A					2094
					0		85	85	0		
2.066	779.4	775.4	778.07	-1.33		2.67				878.84615	2972
					0		180	180	0		
2.131	780.5	N/A	779.86	-0.64		N/A					2972
					0		840	840	0		
2.226	784.5	N/A	784.33	-0.17		N/A					2972
					0.045		360	124.6153846	9		
2.316	786.91	N/A	787	0.09		N/A					2982
					0.045		730	31.58653846	18		
2.371	791.2	N/A	789.21	-1.99		N/A					3000

Total Weir Flow to Sand Tank Wash	**28**
Flow to Sand Tank Wash @ I-8	**1508**
Total Diversion to Sand Tank Wash	**1536**

PREMIER
ENGINEERING CORPORATION

BENDER WASH
Side Weir Split Flow Computation Worksheet **2/27/01 12:56**

Xsection ID	Weir Elev.	Culvert Invert Elevation	CWSE	Weir Depth ft	Weir Avg Depth ft	Depth at Culvert ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Culvert Discharge cfs	Total Flow cfs
1.904	776.9	772	775.25	-1.65		3.25				232.14286	2490
					0		135	135	0		
1.93	777.6	772.5	777.1	-0.5		4.6				447.61905	2938
					0		80	80	0		
2.01	778.5	N/A	778.05	-0.45		N/A					2938
					0		85	85	0		
2.066	779.4	775.4	778.39	-1.01		2.99				940.38462	3878
					0		180	180	0		
2.131	780.5	N/A	779.93	-0.57		N/A					3878
					0.02		840	55.08196721	6		
2.226	784.5	N/A	784.54	0.04		N/A					3885
					0.13		360	360	45		
2.316	786.91	N/A	787.13	0.22		N/A					3929
					0.11		730	85.42553191	71		
2.371	791.2	N/A	789.54	-1.66		N/A					4000

Total Weir Flow to Sand Tank Wash	**122**
Flow to Sand Tank Wash @ I-8	**2258**
Total Diversion to Sand Tank Wash	**2380**

PREMIER
ENGINEERING CORPORATION

BENDER WASH
Side Weir Split Flow Computation Worksheet **2/27/01 12:56**

Xsection ID	Weir Elev.	Culvert Invert Elevation	CWSE	Weir Depth ft	Weir Avg Depth ft	Depth at Culvert ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Culvert Discharge cfs	Total Flow cfs
1.904	776.9	772	775.43	-1.47		3.43				245	3202
					0		135	135	0		
1.93	777.6	772.5	777.28	-0.32		4.78				490.47619	3692
					0		80	80	0		
2.01	778.5	N/A	778.3	-0.2		N/A					3692
					0		85	85	0		
2.066	779.4	775.4	778.63	-0.77		3.23				986.53846	4679
					0		180	180	0		
2.131	780.5	N/A	780	-0.5		N/A					4679
					0.095		840	231.3043478	65		
2.226	784.5	N/A	784.69	0.19		N/A					4744
					0.26		360	360	126		
2.316	786.91	N/A	787.24	0.33		N/A					4870
					0.165		730	137.6571429	130		
2.371	791.2	N/A	789.78	-1.42		N/A					5000

Total Weir Flow to Sand Tank Wash	**321**
Flow to Sand Tank Wash @ I-8	**2957**
Total Diversion to Sand Tank Wash	**3278**

PREMIER
ENGINEERING CORPORATION

BENDER WASH
Side Weir Split Flow Computation Worksheet **2/27/01 12:56**

Xsection ID	Weir Elev.	Culvert Invert Elevation	CWSE	Weir Depth ft	Weir Avg Depth ft	Depth at Culvert ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Culvert Discharge cfs	Total Flow cfs
1.904	776.9	772	775.57	-1.33		3.57				269.44444	3852
					0		135	135	0		
1.93	777.6	772.5	777.44	-0.16		4.94				537.03704	4389
					0.005		80	4.705882353	0		
2.01	778.5	N/A	778.51	0.01		N/A					4389
					0.005		85	1.465517241	0		
2.066	779.4	775.4	778.83	-0.57		3.43				1022.0339	5411
					0		180	180	0		
2.131	780.5	N/A	780.11	-0.39		N/A					5411
					0.155		840	372	136		
2.226	784.5	N/A	784.81	0.31		N/A					5547
					0.39		360	360	232		
2.316	786.91	N/A	787.38	0.47		N/A					5780
					0.235		730	201.8235294	220		
2.371	791.2	N/A	789.97	-1.23		N/A					6000

Total Weir Flow to Sand Tank Wash	**589**
Flow to Sand Tank Wash @ I-8	**3583**
Total Diversion to Sand Tank Wash	**4171**

```
KK DC82R
KM       Main flow at CP82 is in the right channel (C82R) and passes under I-
8.
KM       Diverted flow (DQ record) goes into the left channel (C82L) and runs
KM       west along the south side of I-8 to C132 at Sand Tank Wash.
DT DC82L
* DI   0.0    4465    5508    6900
* DQ   0.0     0.0     500    1350
DI     0    2100    3000    4000    5000    5530    6000
DQ     0     887    1536    2380    3278    ~~3298~~    4171
                                            3331
```

C82 Summary Data

Flow	Bender Wash (C82 at I-8) Flow Depth (feet)					
	A	B	C	D	E	Weir
0.00	0.00	0.00	0.00	~~0.00~~	~~0.00~~	~~5.70~~
250.00	3.50	3.77	0.26	~~2.39~~	~~1.91~~	~~6.25~~
500.00	4.40	4.82	0.95	~~3.63~~	~~3.81~~	~~6.50~~
750.00	5.10	5.63	2.00	~~4.67~~	~~4.85~~	~~6.69~~
1000.00	5.80	6.44	3.30	~~5.71~~	~~6.40~~	~~6.83~~
1500.00	7.30	8.06	6.25			~~7.09~~
2000.00			9.00			~~7.33~~

not used - see text

Plan: Bend M FW1 River: Bender Wash Reach:Main Channel Riv Sta: 2.186 Profile: PF 1

Left Sta (ft)	Right Sta (ft)	Flow (cfs)	Area (sq ft)	W.P. (ft)	% Conv.	Hydr D. (ft)	Velocity (ft/s)
8275.93	9911.93	4190.29	1528.20	1593.80	80.86	0.96	2.74
LB 9911.93	RB 9950.37	521.17	132.45	39.83	10.06	3.45	3.93
9950.37	10006.12	154.71	60.78	55.76	2.99	1.09	2.55
10006.12	10061.87	154.94	60.83	55.76	2.99	1.09	2.55
10061.87	10117.62	132.23	54.94	54.82	2.55	1.01	2.41
10117.62	10173.37	16.12	14.49	45.96	0.31	0.32	1.11
10173.37	10229.12	6.65	9.20	55.75	0.13	0.16	0.72
10229.12	10284.87	0.73	2.29	47.30	0.01	0.05	0.32
10284.87	10340.62						
10340.62	10396.37	4.86	4.95	18.90	0.09	0.26	0.98
10396.37	10452.12	0.29	0.66	8.54	0.01	0.08	0.43

Flow distribution printout to estimate flow arriving at Bender Wash culvert D (next-to-easternmost culvert) under I-8

Flow to the right of station 10200 = 9.4 cfs

Operation No. 5

Revised Diversion at C132

PREMIER
ENGINEERING CORPORATION

SAND TANK WASH
Split Flow Summary

Xsection ID	Weir Discharge cfs	Weir Q to West @ I-8 cfs	Inflow from Bender, cfs	Total Flow cfs
4.917		3921		15573
	130			
5.013				15703
	0			
5.112			4	15703
	0			
5.207				15699
	441			
5.299			81	16139
	477			
5.387				16536
	229			
5.482			169	16765
	263			
5.58			180	16859
	0			
5.676				16679
	0			
5.77				16679
	578			
5.862				17257
	920			
5.959				18177
	1636			
6.062				19813
	1208			
6.151				21020
	3245			
6.257				24265

Total Weir Flow to Scott Avenue Wash	**9126**
Flow to Scott Avenue Wash @ I-8	**3921**
Total Diversion to Scott Avenue Wash	**13047**

PREMIER
ENGINEERING CORPORATION

SAND TANK WASH **769.49**
Split Flow Computation Worksheet **2/27/01 12:57**

Xsection ID	Weir Elev.	CWSE	Depth ft	Avg Depth ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Weir Q to West @ I-8 cfs	Inflow from Bender, cfs	Total Flow cfs
4.917	769.05	769.49	0.44					3921		15573
				0.22	475	159.542	130			
5.013	771.15	770.28	-0.87							15703
				0	400	400	0			
5.112	773.54	771.65	-1.89						4	15703
				0	375	375	0			
5.207	775.25	774.66	-0.59							15699
				0.425	600	354.1667	441			
5.299	777.7	778.55	0.85						81	16139
				0.425	650	511.5741	477			
5.387	780.97	780.74	-0.23							16536
				0.36	400	303.1579	229			
5.482	782.4	783.12	0.72						169	16765
				0.36	460	368	263			
5.58	784.8	784.62	-0.18						180	16859
				0	600	600	0			
5.676	788	785.09	-2.91							16679
				0	495	495	0			
5.77	790.1	788.96	-1.14							16679
				0.575	500	251.0917	578			
5.862	792	793.15	1.15							17257
				0.91	400	400	920			
5.959	794.58	795.25	0.67							18177
				1.08	550	550	1636			
6.062	796.9	798.39	1.49							19813
				0.94	500	500	1208			
6.151	800.4	800.79	0.39							21020
				1.705	550	550	3245			
6.257	801.23	804.25	3.02							24265

Total Weir Flow to Scott Avenue Wash	**9126**
Flow to Scott Avenue Wash @ I-8	**3921**
Total Diversion to Scott Avenue Wash	**13047**

Sand Tank Wash Flow Split Rating Curve

Inflow, cfs	Outflow to Scott Ave. Wash, cfs
0	0
1100	0
3550	89
8750	1988
18450	8362
24274	13156
25400	14118

PREMIER
ENGINEERING CORPORATION

SAND TANK WASH #N/A
Split Flow Computation Worksheet 2/27/01 12:57

Xsection ID	Weir Elev.	CWSE	Depth ft	Avg Depth ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Weir Q to West @ I-8 cfs	Inflow from Bender, cfs	Total Flow cfs
4.917	769.05	764.49	-4.56					0		1585
				0	475	475	0			
5.013	771.15	766.91	-4.24							1585
				0	400	400	0			
5.112	773.54	767.96	-5.58						16	1585
				0	375	375	0			
5.207	775.25	772.2	-3.05							1570
				0	600	600	0			
5.299	777.7	775.64	-2.06						98	1570
				0	650	650	0			
5.387	780.97	777.74	-3.23							1471
				0	400	400	0			
5.482	782.4	780.57	-1.83						185	1471
				0	460	460	0			
5.58	784.8	781.35	-3.45						186	1286
				0	600	600	0			
5.676	788	781.4	-6.6							1100
				0	495	495	0			
5.77	790.1	785.07	-5.03							1100
				0	500	500	0			
5.862	792	789.62	-2.38							1100
				0	400	400	0			
5.959	794.58	792.46	-2.12							1100
				0	550	550	0			
6.062	796.9	795.42	-1.48							1100
				0	500	500	0			
6.151	800.4	797.2	-3.2							1100
				0	550	550	0			
6.257	801.23	800.2	-1.03							1100

Total Weir Flow to Scott Avenue Wash	**0**
Flow to Scott Avenue Wash @ I-8	**0**
Total Diversion to Scott Avenue Wash	**0**
Total Diversion to Scott Avenue Wash	**0**

PREMIER
ENGINEERING CORPORATION

SAND TANK WASH **#N/A**
Split Flow Computation Worksheet **2/27/01 12:57**

Xsection ID	Weir Elev.	CWSE	Depth ft	Avg Depth ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Weir Q to West @ I-8 cfs	Inflow from Bender, cfs	Total Flow cfs
4.917	769.05	766.17	-2.88					51		3946
				0	475	475	0			
5.013	771.15	768.27	-2.88							3946
				0	400	400	0			
5.112	773.54	769.27	-4.27						16	3946
				0	375	375	0			
5.207	775.25	772.96	-2.29							3931
				0	600	600	0			
5.299	777.7	776.8	-0.9						98	3931
				0	650	650	0			
5.387	780.97	778.81	-2.16							3832
				0	400	400	0			
5.482	782.4	781.39	-1.01						185	3832
				0	460	460	0			
5.58	784.8	782.32	-2.48						186	3647
				0	600	600	0			
5.676	788	782.45	-5.55							3461
				0	495	495	0			
5.77	790.1	786.15	-3.95							3461
				0	500	500	0			
5.862	792	790.54	-1.46							3461
				0	400	400	0			
5.959	794.58	793.22	-1.36							3461
				0	550	550	0			
6.062	796.9	796.56	-0.34							3461
				0	500	500	0			
6.151	800.4	798.51	-1.89							3461
				0.155	550	77.5	89			
6.257	801.23	801.54	0.31							3550

Total Weir Flow to Scott Avenue Wash	**89**
Flow to Scott Avenue Wash @ I-8	**51**
Total Diversion to Scott Avenue Wash	**140**
Total Diversion to Scott Avenue Wash	**89**

PREMIER
ENGINEERING CORPORATION

SAND TANK WASH #N/A
Split Flow Computation Worksheet 2/27/01 12:57

Xsection ID	Weir Elev.	CWSE	Depth ft	Avg Depth ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Weir Q to West @ I-8 cfs	Inflow from Bender, cfs	Total Flow cfs
4.917	769.05	767.77	-1.28					839		8086
				0	475	475	0			
5.013	771.15	769.27	-1.88							8086
				0	400	400	0			
5.112	773.54	770.45	-3.09						16	8086
				0	375	375	0			
5.207	775.25	773.76	-1.49							8071
				0	600	600	0			
5.299	777.7	777.68	-0.02						98	8071
				0	650	650	0			
5.387	780.97	779.74	-1.23							7972
				0	400	400	0			
5.482	782.4	782.21	-0.19						185	7972
				0	460	460	0			
5.58	784.8	783.35	-1.45						186	7787
				0	600	600	0			
5.676	788	783.6	-4.4							7601
				0	495	495	0			
5.77	790.1	787.3	-2.8							7601
				0	500	500	0			
5.862	792	791.66	-0.34							7601
				0	400	400	0			
5.959	794.58	794.04	-0.54							7601
				0.21	550	240.625	140			
6.062	796.9	797.32	0.42							7741
				0.21	500	154.4118	128			
6.151	800.4	799.46	-0.94							7869
				0.715	550	331.8565	881			
6.257	801.23	802.66	1.43							8750

Total Weir Flow to Scott Avenue Wash	**1149**
Flow to Scott Avenue Wash @ I-8	**839**
Total Diversion to Scott Avenue Wash	**1988**

PREMIER
ENGINEERING CORPORATION

SAND TANK WASH #N/A
Split Flow Computation Worksheet 2/27/01 12:57

Xsection ID	Weir Elev.	CWSE	Depth ft	Avg Depth ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Weir Q to West @ I-8 cfs	Inflow from Bender, cfs	Total Flow cfs
4.917	769.05	769.09	0.04					2761		13334
				0.02	475	16.37931	4			
5.013	771.15	770.03	-1.12							13338
				0	400	400	0			
5.112	773.54	771.4	-2.14						16	13338
				0	375	375	0			
5.207	775.25	774.41	-0.84							13322
				0.34	600	268.4211	315			
5.299	777.7	778.38	0.68						98	13637
				0.34	650	394.6429	341			
5.387	780.97	780.53	-0.44							13880
				0.24	400	208.6957	125			
5.482	782.4	782.88	0.48						185	14005
				0.24	460	225.3061	143			
5.58	784.8	784.3	-0.5						186	13963
				0	600	600	0			
5.676	788	784.72	-3.28							13777
				0	495	495	0			
5.77	790.1	788.53	-1.57							13777
				0.38	500	163.0901	310			
5.862	792	792.76	0.76							14087
				0.55	400	400	432			
5.959	794.58	794.92	0.34							14520
				0.76	550	550	966			
6.062	796.9	798.08	1.18							15485
				0.64	500	500	678			
6.151	800.4	800.5	0.1							16164
				1.35	550	550	2286			
6.257	801.23	803.83	2.6							18450

Total Weir Flow to Scott Avenue Wash	**5601**
Flow to Scott Avenue Wash @ I-8	**2761**
Total Diversion to Scott Avenue Wash	**8362**

PREMIER
ENGINEERING CORPORATION

SAND TANK WASH
Split Flow Computation Worksheet **2/27/01 12:57**

Xsection ID	Weir Elev.	CWSE	Depth ft	Avg Depth ft	Weir Length ft	Eff. Weir Length ft	Weir Discharge cfs	Weir Q to West @ I-8 cfs	Inflow from Bender, cfs	Total Flow cfs
4.917	769.05	769.53	0.48					4037		15804
				0.24	475	176.7442	148			
5.013	771.15	770.34	-0.81							15952
				0	400	400	0			
5.112	773.54	771.76	-1.78						16	15952
				0	375	375	0			
5.207	775.25	774.71	-0.54							15936
				0.46	600	378.0822	496			
5.299	777.7	778.62	0.92						98	16432
				0.46	650	538.7387	537			
5.387	780.97	780.78	-0.19							16871
				0.37	400	318.2796	239			
5.482	782.4	783.14	0.74						185	17110
				0.37	460	382.4719	274			
5.58	784.8	784.65	-0.15						186	17199
				0	600	600	0			
5.676	788	785.13	-2.87							17013
				0	495	495	0			
5.77	790.1	789.01	-1.09							17013
				0.605	500	263.0435	624			
5.862	792	793.21	1.21							17637
				0.98	400	400	1028			
5.959	794.58	795.33	0.75							18665
				1.16	550	550	1821			
6.062	796.9	798.47	1.57							20486
				1.02	500	500	1365			
6.151	800.4	800.87	0.47							21851
				1.81	550	550	3549			
6.257	801.23	804.38	3.15							25400

Total Weir Flow to Scott Avenue Wash	**10081**
Flow to Scott Avenue Wash @ I-8	**4037**
Total Diversion to Scott Avenue Wash	**14118**

```
KKDC132R
KM       Main flow at C132 is in the right channel (C132R) and passes
KM       under I-8.  Diverted flow (DQ record) goes into the left channel
KM       (C132L) west along the south side of I-8.
DTDC132L
* DI   0.0  3550.0  5850.0  8750.0 12850.0  18450.  24000.  25400.  33600.
* DQ   0.0     0.0   300.0  1000.0  2500.0  5400.0  8700.0  9600.0 15000.0
DI     0    1100    3550    8750   18450   24274   25400
DQ     0       0      89    1988    8362   13156   14118
```

C132 Flow Split

Stage	Discharge (cfs)					
	Weir	Sand Tank Wash (C132 at I-8)				Total
	West	West (A)	Middle (B)	East (C)	Total	Flow
760.4	0	0	0	0	0	0
761	0	50	0	0	50	50
762	0	100	0	0	100	100
763	0	400	25	0	425	425
764	0	800	300	0	1100	1100
765	0	1250	850	0	2100	2100
766	0	1700	1700	150	3550	3550
767	300	2250	2900	400	5550	5850
768	1000	2800	4250	700	7750	8750
769	2500	3400	5900	1050	10350	12850
770	5400	3850	7800	1400	13050	18450
770.8	8700	4200	9470	1630	15300	24000
771	9600	4300	9800	1700	15800	25400
772	15000	4700	11800	2100	18600	33600

Operation No. 6

Added Diversion at C14A

Diversion at C14A

Multiple iterations of HEC-RAS models Unnamed Wash No. 2 and Unnamed Wash No. 2 West led to the following diversion rating curve.

No. 2		**No. 2 West**				DC14AL
					Total Q	Q
Q	Elev.	Q	Elev.	Elev.	***DI***	***DQ***
[cfs]		[cfs]			[cfs]	[cfs]
0	0	0	0		**0**	**0**
1000	725.69	100	729.86	725.69	**1000**	**0**
2000	728.8	500	731.03	728.8	**2000**	**0**
2500	730.55	1000	731.7	729.86	**2400**	**100**
2750	731.96	2000	732.53	731.03	**3085**	**500**
3000	733.41	3000	733.17	731.7	**3700**	**1000**
3250	733.92	4000	733.55	732.53	**4890**	**2000**
3500	734.99	5000	733.86	733.17	**5940**	**3000**
		6000	734.14	733.55	**7070**	**4000**
		7000	734.39	733.86	**8220**	**5000**
		8000	734.62	734.14	**9300**	**6000**
				734.39	**10360**	**7000**
				734.62	**11410**	**8000**

Operation No. 7

Added Diversion at C11A

eec

Project Title Gila Bend ADMP Project No. 99511 Date

Subject Revised Hydrology Prepared By CAV Checked By Page

Rating Curve

Gila Bend Canal Wash

Diversion DC11AR Determined from iterations OF HEC-2 (side weir) model.

TOTAL Q	Remaining Flow	Diverted Flow
500	0	500
1000	35	965
1500	340	1160
2000	734	1266
3000	1599	1401
4000	2506	1494

RATING Curve for Diversion

DI	DQ
0	0
500	500
1000	965
1500	1160
2000	1266
3000	1401
4000	1494

Diverted Flow DC11AL To Quilotosa

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*****************************************
*********************************
WATER SURFACE PROFILES              *                                    * U.S. ARMY CORPS OF
INEERS        *
                                    *                                    * HYDROLOGIC ENGINEERING
TER       *
 Version   4.6.2;  May 1991         *                                    * 609 SECOND STREET,
TE D          *
                                    *                                    * DAVIS, CALIFORNIA
516-4687        *
 RUN DATE    20SEP00    TIME   17:10:15  *                              *          (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 20SEP00

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:10:15
************************************
HEC-2 WATER SURFACE PROFILES

Version   4.6.2;  May 1991
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PLIT FLOW BEING PERFORMED

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F      Split Flow

W      Weir flow over canal between RM 2.241 and 2.333
S     2   2.241   2.333      -1     2.7
C     0  744.10     480  744.28

W      Weir flow over canal between RM 2.164 and 2.241
S     2   2.164   2.241      -1     2.7
C     0  744.53     410  744.10

W      Weir flow over canal between RM 2.091 and 2.164
S     2   2.091   2.164      -1     2.7
C     0  744.09     385  744.53

       Weir flow over canal between RM 2.025 and 2.091
      2   2.025   2.091      -1     2.7
      0   744.0     350  744.09
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W      Weir flow over canal between RM 1.954 and 2.025
S      1.954   2.025      -1     2.7
C    0  743.7     370   744.0

W      Weir flow over canal between RM 1.876 and 1.954
S    2  1.876   1.954      -1     2.7
C    0  743.65    410   743.7

W      Weir flow over canal between RM 1.807 and 1.876
S    2  1.807   1.876      -1     2.7
C    0  743.4     370  743.65
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W      Weir flow over canal between RM 1.733 and 1.807
S    2  1.733   1.807      -1     2.7
C    0  743.40    390  743.40

W      Weir flow over canal between RM 1.665 and 1.733
S    2  1.665   1.733      -1     2.7
C    0  744.84    360  743.40

W      Weir flow over canal between RM 1.562 and 1.665
S    2  1.562   1.665      -1     2.7
C    0  743.49    540  744.84

W      Weir flow over canal between RM 1.457 and 1.567
S    2  1.457   1.562      -1     2.7
C    0  743.57    550  743.49

W      Weir flow over canal between RM 1.358 and 1.457
S    2  1.358   1.457      -1     2.7
C    0  743.13    520  743.57

W      Weir flow over canal between RM 1.256 and 1.358
S    2  1.256   1.358      -1     2.7
C    0  743.61    540  743.13
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1      GILA BEND ADMP
2      Gila Bend Canal - Weir flow over canal between SR-85 and Quilotosa Wash
3
4      Approximately 170 cfs breaks out between          File:Q&SR85-7.IH2
5      SR-85 and section 1.665.  revisions to the        Date: 9/20/00
6      hydrology will reduce the Q to account for attenuation due to routing
7      prior to calculating the weir flow overtopping the canal
8      Therefore the original 3393 cfs is reduced to 3350 cfs
9      before applying this routine to determine split flow (weir).
9

ECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
         2                          -1                                  744
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	F	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE

3 VARIABLE CODES FOR SUMMARY PRINTOUT

150

P	1	500								
2	.044	.034	.034							
1	1.256	32	1098.04	1171.55	380	380	380.10			
3						1188.59				
R	746.0	0.00	745.78	15.96	742.32	141.40	740.04	205.44	739.63	307.34
R	737.2	403.60	735.60	571.09	735.63	572.69	735.21	584.98	735.21	686.80
R	735.0	695.80	735.21	706.11	735.21	807.58	741.62	850.60	742.59	856.71
R	742.6	860.84	743.11	958.05	742.40	1052.39	741.86	1087.09	742.20	1098.04
R	739.4	1128.25	738.60	1136.59	743.61	1171.55	743.31	1185.21	743.31	1188.59
R	741.3	1192.05	738.30	1198.40	738.30	1215.67	741.93	1219.99	744.54	1224.01
R	744.0	1228.44	743.09	1232.77						
1	1.358	25	765.00	835.64	540	540	541.29			
3						851.73				
R	745.2	0.00	744.86	51.91	744.36	98.34	745.11	152.45	745.33	172.53
R	744.8	187.52	743.54	221.88	743.34	299.69	743.29	326.81	743.36	344.15
R	743.0	409.67	742.53	488.37	742.53	524.76	742.57	611.28	742.25	656.83
R	741.9	698.94	741.56	755.56	741.95	765.00	738.98	790.24	738.29	797.12
R	739.0	802.44	742.95	835.64	743.13	851.73	740.45	857.55	738.30	861.57

1	1.457	18	603.86	825.59	520	520	519.26			
3						841.70				
R	744.3	0.00	743.76	85.05	743.19	252.17	742.85	292.31	742.41	372.58
R	742.0	472.42	741.80	499.57	741.05	603.86	740.58	729.68	740.20	756.97
R	739.9	785.39	739.80	794.43	743.57	825.59	743.18	841.70	738.30	850.85
R	738.3	868.69	743.26	876.64	743.42	886.77				
1	1.562	22	542.62	843.75	550	550	553.49			
3						872.20				
R	744.7	0.00	744.64	3.21	743.05	144.88	742.84	205.92	742.52	318.88
R	741.9	408.62	741.92	425.18	741.08	542.62	740.82	611.33	740.49	734.71
R	740.5	791.65	739.38	817.50	742.24	843.75	743.49	854.60	743.03	864.83
R	743.0	872.20	740.32	876.64	738.30	879.47	738.30	898.08	743.23	906.09
R	742.9	916.98	741.50	940.69						
1	1.665	33	710.25	837.47	540	540	544.74			
3						870.81				
R	744.5	0.00	744.52	15.28	743.78	101.37	743.52	140.15	743.08	168.09
R	743.0	190.60	743.01	229.76	742.91	270.41	742.79	282.99	742.75	302.78
R	742.7	322.09	742.67	334.85	742.49	506.01	742.39	529.16	741.14	710.25
R	740.9	726.49	740.64	740.85	739.51	802.12	739.32	807.74	739.17	819.13
R	741.4	837.47	743.84	856.41	744.39	862.74	744.43	870.81	741.67	875.31
R	740.8	877.24	738.30	880.89	738.30	900.08	739.64	902.08	743.99	907.57
R	744.8	920.36	743.58	943.98	741.83	976.19				
-	1.733	21	736.00	936.66	360	360	362.09			
						967.23				
.	3.9	0.00	743.75	110.06	743.66	123.14	743.78	144.59	742.59	301.88
R	742.3	337.22	741.76	534.30	741.58	569.17	740.83	736.00	739.79	826.6

	738.6	899.23	739.10	913.09	741.54	936.66	743.19	951.95	743.22	964.25
	[illegible]3.4	967.23	738.30	975.66	738.31	994.08	743.94	1002.49	743.13	1016.88
R	[illegible]0.0	1061.38								
L	1.807	52	1136.03	1243.88	390	390	387.51			
3						1276.39				
R	744.0	0.00	743.68	90.78	743.54	112.99	743.41	166.27	743.21	198.24
R	743.0	241.76	742.51	272.39	742.32	307.53	742.56	317.25	742.27	324.12
R	742.1	344.35	742.12	371.09	742.34	392.74	741.85	417.27	741.61	437.35
R	741.9	468.23	741.42	489.34	741.19	516.45	741.29	536.53	741.18	549.10
R	741.0	554.51	741.08	577.25	740.75	622.82	740.47	654.83	740.35	682.51
R	740.3	717.71	740.00	727.19	740.10	746.51	739.95	770.19	739.85	818.20
R	739.8	880.27	739.48	965.53	739.38	996.66	738.91	1050.78	738.77	1072.15
R	738.8	1136.03	738.74	1147.64	738.29	1162.74	736.83	1197.48	737.15	1210.74
R	737.7	1221.82	738.06	1223.11	739.43	1230.69	742.14	1243.88	743.02	1272.54
R	743.4	1276.39	738.72	1283.73	738.72	1306.06	743.47	1316.22	742.80	1326.20
R	742.4	1331.31	740.95	1335.08						

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1	1.876	34	646.95	883.18	370	370	367.62			
3						921.05				
R	744.0	0.00	743.62	45.29	743.53	49.38	743.54	115.17	743.56	119.70
R	743.4	139.61	743.20	195.02	742.91	222.62	742.35	270.34	742.01	305.63
R	741.6	345.66	741.18	420.98	740.98	471.65	740.92	496.31	740.71	504.99
R	740.6	525.94	740.48	571.63	740.37	637.67	740.33	646.95	739.66	723.59
R	739.1	801.40	738.99	836.90	737.66	841.60	737.93	854.49	737.52	870.96
R	740.3	883.18	742.31	891.35	743.25	915.43	743.65	921.05	738.72	929.37
[illegible]	738.7	951.07	743.75	960.00	742.84	974.76	738.74	984.59		
1	[illegible].954	42	788.73	1038.47	410	410	412.30			
3						1066.89				
R	744.0	0.00	743.95	8.77	743.79	34.45	743.51	66.27	743.25	109.88
R	743.1	150.74	742.85	185.30	742.49	235.20	742.37	260.73	742.36	319.67
R	742.2	349.47	741.78	411.59	741.08	488.60	740.53	562.44	740.48	573.06
R	740.2	637.87	740.11	657.53	739.66	713.30	739.37	741.99	739.02	788.73
R	738.8	826.43	738.72	864.16	738.40	910.92	738.17	939.58	738.78	980.72
R	737.1	983.32	738.63	995.69	737.49	1016.20	742.87	1038.47	743.52	1063.01
R	743.7	1066.89	738.72	1074.03	738.72	1095.93	743.68	1107.03	743.43	1114.07
R	743.7	1120.14	737.71	1134.06	736.61	1184.54	736.77	1204.00	736.14	1233.61
R	736.5	1237.94	736.42	1256.59						
1	2.025	43	779.36	855.58	370	370	369.78			
3						896.66				
R	744.0	0.00	743.52	22.06	742.67	97.86	742.64	110.29	742.75	172.69
R	743.5	245.33	742.98	268.10	742.80	313.36	742.62	348.84	742.49	358.84
R	742.3	388.87	742.19	413.05	742.06	438.95	742.00	475.69	741.93	494.87
R	741.5	550.07	741.33	563.53	741.01	608.04	740.79	622.29	740.55	686.79
R	740.5	705.66	739.86	765.72	739.68	779.36	738.20	814.61	737.85	819.25
R	737.6	828.67	737.44	846.32	737.50	847.23	739.24	855.58	743.23	866.62
R	744.0	896.66	738.72	905.71	738.72	927.35	741.25	931.11	744.24	936.85
R	744.4	937.91	743.51	951.94	737.73	965.20	736.64	1004.44	736.03	1017.33
R	736.7	1034.97	736.74	1076.57	736.68	1089.27				
1	2.091	46	1170.66	1468.71	350	350	351.91			
3						1508.08				
R	746.0	0.00	745.69	40.56	745.03	122.38	745.05	146.69	744.50	191.03
R	744.1	273.20	743.10	416.74	742.91	470.62	742.62	516.99	742.28	567.21
R	742.3	578.41	742.16	616.97	741.64	680.41	741.24	749.47	741.13	792.91
	741.0	843.82	740.95	868.15	740.34	943.38	740.23	952.40	740.17	1016.61
	[illegible]40.1	1024.13	739.53	1093.29	739.25	1170.66	738.70	1244.32	738.60	1252.36
R	[illegible]38.1	1319.56	738.03	1376.88	738.07	1394.79	737.09	1426.21	737.45	1434.65
R	736.5	1448.05	736.56	1458.44	736.87	1460.19	739.37	1468.71	742.44	1479.71

	742.8	1502.23	744.09	1508.08	738.72	1516.51	738.72	1538.71	743.59	1548.36
	[illegible]3.1	1562.59	737.14	1575.75	736.14	1600.72	736.95	1645.83	736.09	1695.69
	[illegible]5.1	1697.22								

[illegible]	2.164	55	1141.31	1246.12	385	385	384.00			
3						1267.20				
R	746.0	0.00	746.01	16.44	745.90	31.37	745.87	45.45	745.40	92.82
R	745.3	111.85	745.16	172.10	745.11	180.73	744.87	254.94	744.78	328.25
R	744.7	338.76	744.19	403.63	744.28	456.63	744.19	479.01	744.18	506.41
R	743.9	554.39	743.62	590.23	743.26	629.77	743.02	643.56	742.77	663.77
R	742.6	695.18	742.09	763.34	741.90	783.28	741.58	859.14	741.60	883.98
R	741.7	897.15	741.31	923.46	741.15	982.69	741.10	1010.18	740.78	1070.13
R	740.7	1080.98	740.39	1093.52	739.69	1136.69	739.71	1141.31	737.24	1184.28
R	736.9	1189.21	737.56	1197.55	736.68	1207.38	736.93	1220.01	738.73	1227.77
R	743.1	1246.12	743.45	1262.20	744.53	1267.20	741.63	1272.02	738.72	1276.50
R	738.7	1297.08	744.28	1308.61	744.06	1318.18	744.05	1326.17	742.47	1344.93
R	739.8	1378.42	739.63	1403.18	738.89	1407.57	737.60	1421.54	736.99	1441.20
1	2.241	43	857.62	1006.93	410	410	408.00			
3						1031.82				
R	744.0	0.00	743.88	14.75	743.53	90.12	742.98	165.49	742.97	171.30
R	742.5	241.22	742.01	316.22	741.72	377.68	741.63	391.59	741.58	433.52
R	741.4	458.85	741.11	466.96	741.20	478.42	741.01	503.47	740.71	564.31
R	740.3	617.70	740.01	659.59	739.87	693.06	739.81	720.49	739.62	768.43
R	739.5	789.06	739.18	843.80	739.07	857.62	738.45	919.17	736.99	953.01
R	737.3	961.07	736.98	973.60	736.93	987.15	742.01	1006.93	743.28	1027.43
[illegible]	744.1	1031.82	739.39	1040.45	739.39	1062.38	743.18	1069.63	743.94	1072.03
	743.1	1088.18	737.84	1102.15	737.64	1119.03	737.27	1146.65	737.29	1152.17
	[illegible]8.0	1170.06	736.37	1220.74	736.37	1221.98				
1	2.333	44	776.28	1376.56	480	480	482.56			
R	747.0	0.00	746.56	50.57	746.32	91.17	746.10	134.94	745.92	165.48
R	745.7	206.54	745.61	243.96	745.41	282.60	745.27	321.83	745.43	364.85
R	745.0	392.44	744.94	436.03	744.91	507.24	744.90	549.29	744.76	611.93
R	744.7	656.11	744.46	709.77	744.26	776.28	744.07	809.33	744.02	835.72
R	744.0	873.88	743.99	899.74	744.12	913.30	744.16	926.51	744.02	991.87
R	744.0	1024.60	743.97	1087.75	743.75	1124.47	743.65	1153.28	743.70	1192.62
R	743.7	1218.43	743.83	1228.64	743.72	1273.17	743.73	1294.77	743.85	1329.98
R	743.9	1349.26	744.00	1375.48	744.28	1376.56	744.14	1404.02	743.89	1435.66
R	743.8	1456.64	743.65	1479.98	743.55	1482.76	743.60	1505.80		

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

PROF 1

SECNO 1.256
720 CRITICAL DEPTH ASSUMED

470 ENCROACHMENT STATIONS= .0 1188.6 TYPE= 1 TARGET= 1188.589

1.256	.74	735.74	735.74	744.00	735.98	.25	.00	.00	742.20
[illegible]0.0	500.0	.0	.0	124.9	.0	.0	.0	.0	743.61
[illegible].00	4.00	.00	.00	.044	.000	.000	.000	735.00	556.92
.033529	380.	380.	380.	0	22	0	.00	254.19	811.11

.358

265 DIVIDED FLOW

280 CROSS SECTION 1.36 EXTENDED 3.48 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.43

470 ENCROACHMENT STATIONS= .0 851.7 TYPE= 1 TARGET= 851.729

1.358	3.49	741.78	741.19	.00	742.13	.35	6.15	.00	741.95
500.0	2.8	497.2	.0	4.8	104.4	.0	1.5	2.2	742.95
.03	.59	4.76	.00	.044	.034	.000	.000	738.29	718.24
.005661	540.	541.	540.	16	26	0	.00	102.18	825.84

SECNO 1.457

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.58

470 ENCROACHMENT STATIONS= .0 841.7 TYPE= 1 TARGET= 841.699

1.457	4.20	742.50	.00	.00	742.51	.02	.38	.00	741.05
500.0	77.8	422.2	.0	156.8	391.7	.0	5.4	5.6	743.57
.18	.50	1.08	.00	.044	.034	.000	.000	738.30	357.51
.000270	520.	519.	520.	3	0	0	.00	459.17	816.68

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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 1.562
280 CROSS SECTION 1.56 EXTENDED 1.10 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.50

470 ENCROACHMENT STATIONS= .0 872.2 TYPE= 1 TARGET= 872.199

1.562	4.30	742.60	.00	.00	742.61	.01	.10	.00	741.08
500.0	60.9	439.0	.1	176.5	588.6	.6	13.7	12.0	742.24
.40	.34	.75	.15	.044	.034	.034	.000	738.30	291.02
.000119	550.	553.	550.	2	0	0	.00	555.84	846.87

SECNO 1.665
280 CROSS SECTION 1.66 EXTENDED .85 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .67

470 ENCROACHMENT STATIONS= .0 870.8 TYPE= 1 TARGET= 870.809

1.665	4.38	742.68	.00	.00	742.70	.02	.09	.00	741.14
500.0	88.3	408.4	3.3	187.5	315.1	6.3	21.7	18.7	741.40
.53	.47	1.30	.52	.044	.034	.034	.000	738.30	331.56
.000263	540.	545.	540.	2	0	0	.00	515.83	847.39

SECNO 1.733

) CROSS SECTION 1.73 EXTENDED 2.73 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.24

470 ENCROACHMENT STATIONS= .0 967.2 TYPE= 1 TARGET= 967.229

1.733	4.43	742.73	.00	.00	742.74	.01	.04	.00	740.83
500.0	119.5	379.0	1.5	441.0	586.6	6.6	28.1	23.5	741.54
.71	.27	.65	.22	.044	.034	.034	.000	738.30	283.29
.000052	360.	362.	360.	2	0	0	.00	664.40	947.69

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 1.807
280 CROSS SECTION 1.81 EXTENDED 1.79 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.70

470 ENCROACHMENT STATIONS= .0 1276.4 TYPE= 1 TARGET= 1276.389

1.807	5.91	742.74	.00	.00	742.74	.00	.01	.00	738.80
500.0	344.2	155.5	.3	1937.6	487.1	5.8	43.5	31.0	742.14
1.20	.18	.32	.05	.044	.034	.034	.000	736.83	258.11
[illegible]07	390.	388.	390.	2	0	0	.00	1005.26	1263.37

SECNO 1.876
280 CROSS SECTION 1.88 EXTENDED 4.00 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

470 ENCROACHMENT STATIONS= .0 921.0 TYPE= 1 TARGET= 921.049

1.876	5.22	742.74	.00	.00	742.75	.00	.00	.00	740.33
500.0	138.7	358.3	3.0	631.1	817.8	14.2	60.0	38.1	740.30
1.47	.22	.44	.21	.044	.034	.034	.000	737.52	236.79
.000019	370.	368.	370.	2	0	0	.00	665.67	902.46

SECNO 1.954
280 CROSS SECTION 1.95 EXTENDED 6.33 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.52

470 ENCROACHMENT STATIONS= .0 1066.9 TYPE= 1 TARGET= 1066.889

1.954	6.61	742.75	.00	.00	742.75	.00	.01	.00	739.02
500.0	170.2	329.8	.0	991.6	1021.3	.0	76.4	45.2	742.87
1.89	.17	.32	.00	.044	.034	.000	.000	736.14	199.23
.000008	410.	412.	410.	2	0	0	.00	838.75	1037.97

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

SECNO 2.025

265 DIVIDED FLOW

280 CROSS SECTION 2.03 EXTENDED 6.07 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .42

470 ENCROACHMENT STATIONS= .0 896.7 TYPE= 1 TARGET= 896.659

2.025	6.72	742.75	.00	.00	742.76	.01	.01	.00	739.68
500.0	219.2	273.6	7.2	632.3	337.3	17.0	89.2	51.4	739.24
2.06	.35	.81	.42	.044	.034	.034	.000	736.03	90.68
.000048	370.	370.	370.	2	0	0	.00	624.26	865.29

SECNO 2.091
280 CROSS SECTION 2.09 EXTENDED 6.66 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.27

470 ENCROACHMENT STATIONS= .0 1508.1 TYPE= 1 TARGET= 1508.079

2.091	6.67	742.76	.00	.00	742.76	.00	.00	.00	739.25
500.0	150.8	346.3	2.9	1216.6	1363.1	23.7	103.6	57.9	739.37
2.52	.12	.25	.12	.044	.034	.034	.000	736.09	494.61
.000004	350.	352.	350.	2	0	0	.00	1005.12	1499.73

SECNO 2.164
280 CROSS SECTION 2.16 EXTENDED 5.77 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .35

470 ENCROACHMENT STATIONS= .0 1267.2 TYPE= 1 TARGET= 1267.199

2.164	6.08	742.76	.00	.00	742.76	.01	.00	.00	739.71
500.0	176.7	323.3	.0	625.7	461.3	.0	119.9	64.9	743.10
2.71	.28	.70	.00	.044	.034	.000	.000	736.68	665.70
.000035	385.	384.	385.	2	0	0	.00	578.99	1244.69

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 2.241
280 CROSS SECTION 2.24 EXTENDED 6.40 FEET

302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.86

470 ENCROACHMENT STATIONS= .0 1031.8 TYPE= 1 TARGET= 1031.819

2.241	6.40	742.77	.00	.00	742.77	.00	.01	.00	739.07

500.0	241.1	258.5	.3	1241.2	677.6	4.7	134.1	71.5	742.01
[illegible]0	.19	.38	.07	.044	.034	.034	.000	736.37	201.06
[illegible]0	410.	408.	410.	2	0	0	.00	818.14	1019.20

ECNO 2.333

65 DIVIDED FLOW

80 CROSS SECTION 2.33 EXTENDED .56 FEET

85 20 TRIALS ATTEMPTED WSEL,CWSEL
93 PROBABLE MINIMUM SPECIFIC ENERGY
720 CRITICAL DEPTH ASSUMED

2.333	.61	744.16	744.16	.00	744.29	.13	.02	.00	744.26
500.0	.0	369.1	130.9	.0	144.9	36.3	145.7	79.8	744.28
3.15	.00	2.55	3.61	.000	.034	.034	.000	743.55	793.95
.021628	480.	483.	480.	20	28	0	.00	686.32	1505.80

TW Weir flow over canal between RM 2.241 and 2.333

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	742.770	744.158	2.241	2.333

TW Weir flow over canal between RM 2.164 and 2.241

[illegible]	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
[illegible]00	.00	.00	.00	.00	.00	2	742.759	742.770	2.164	2.241

TW Weir flow over canal between RM 2.091 and 2.164

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	742.760	742.759	2.091	2.164

TW Weir flow over canal between RM 2.025 and 2.091

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	742.751	742.760	2.025	2.091

TW Weir flow over canal between RM 1.954 and 2.025

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	742.750	742.751	1.954	2.025

TW Weir flow over canal between RM 1.876 and 1.954

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	742.744	742.750	1.876	1.954

TW Weir flow over canal between RM 1.807 and 1.876

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	742.741	742.744	1.807	1.876

[illegible] Weir flow over canal between RM 1.733 and 1.807

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO

.00	.00	.00	.00	.00	.00	2	742.731	742.741	1.733	1.807

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W Weir flow over canal between RM 1.665 and 1.733

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	742.678	742.731	1.665	1.733

W Weir flow over canal between RM 1.562 and 1.665

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	742.599	742.678	1.562	1.665

W Weir flow over canal between RM 1.457 and 1.567

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	742.496	742.599	1.457	1.562

W Weir flow over canal between RM 1.358 and 1.457

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	741.784	742.496	1.358	1.457

W Weir flow over canal between RM 1.256 and 1.358

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
.00	.00	.00	.00	.00	.00	2	735.735	741.784	1.256	1.358

ROFILE FOR STREAM

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

```
LEVATION   735.     736.     737.     738.     739.     740.     741.     742.     743.     744.
  SECNO    CUMDIS

  1.26      0.  I      W  E        .        .        .        .        .        . L      .M    R   .        .
           50.  .  I      . CW E   .        .        .        .        .        . L   M  .    R   .        .
          100.  .     I   .      C W.E      .        .        .        .        . L      .    R   .        .
          150.  .        I.        .  CW  E .        .        .        .      M .L       .   R    .        .
          200.  .         . I      .      C W  E     .        .        .  M     .L       .   R    .        .
          250.  .         .    I   .        .  C W  E .        .       M.        .L       .  R     .        .
          300.  .         .      I .        .      C .W  E     .   M    .        .L       . R      .        .
          350.  .         .        .I       .        .  C  W   E        .        L        . R      .        .
          400.  .         .   I    .        .        .    M C . W  E   .        L        .R       .        .
          450.  .         .      I  .        .M       .  C    W .E       L        .R       .        .
          500.  .         .        .      I     M  .        .      C .  W   E  L        R        .        .
  1.36    550.  .         .        .      .  I     .        .        . C     W LE       R        .        .
          600.  C         .        .      .  I    M .        .        .       WL. E      R        .        .
          650.  C         .        .      .  I      .  M     .        .       LW. E      .R       .        .
          700.  C         .        .      .  I      .      M .        .      L  W E      .R       .        .
          750.  C         .        .      .  I      .        .  M     .    L   .W E     . R       .        .
          800.  C         .        .      .  I      .        .      M .    L    .W E     . R       .        .
          850.  C         .        .      .  I      .        .        . ML     . WE     .  R      .        .
          900.  C         .        .      .  I      .        .        . L    M . WE     .   R     .        .
          950.  C         .        .      .  I      .        .        . L      . MWE    .   R     .        .
         1000.  C         .        .      .  I      .        .        . L      .   WE M .    R     .        .
         1050.  C         .        .      .  I      .        .        .L       .    E   . M  R     .        .
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1.46 1100. C        .         .         . I       .         .         L         .    E    .   M R  .         .
     1150. C        .         .         . I       .         .         .L        .    E    . M R    .         .
     1200. C        .         .         . I       .         .         .L        .    E    .M R     .         .
     1250. C        .         .         . I       .         .         .L        .    E   M. R      .         .
     1300. C        .         .         . I       .         .         .L        .    E M  .R       .         .
     1350. C        .         .         . I       .         .         .L        .    WE   R        .         .
     1400. C        .         .         . I       .         .         .L        .   MWE R .        .         .
     1450. C        .         .         . I       .         .         .L        . M   ER  .        .         .
     1500. C        .         .         . I       .         .         .L       M     E   .        .         .
     1550. C        .         .         . I       .         .         .L      M.    RE   .        .         .
     1600. C        .         .         . I       .         .         .L     M  .   R E   .        .         .
1.56 1650. C        .         .         . I       .         .         .L   M    . R   E   .        .         .
     1700. C        .         .         . I       .         .         .L   M    . R   E   .        .         .
     1750. C        .         .         . I       .         .         .L    M   .R    E   .        .         .
     1800. C        .         .         . I       .         .         .L    M   R     E   .        .         .
     1850. C        .         .         . I       .         .         .L    M  R.     E   .        .         .
     1900. C        .         .         . I       .         .         .L     M R.     WE  .        .         .
     1950. C        .         .         . I       .         .         .L     MR .     WE  .        .         .
     2000. C        .         .         . I       .         .         .L     R  .      E  .        .         .
     2050. C        .         .         . I       .         .         .L    RM  .      E  .        .         .
     2100. C        .         .         . I       .         .         .L   R  M .      E  .        .         .
     2150. C        .         .         . I       .         .         .L   R  M .      E  .        .         .
1.66 2200. C        .         .         . I       .         .         .L  R   M .      E  .        .         .
     2250. C        .         .         . I       .         .         .L  R M   .      E  .        .         .
     2300. C        .         .         . I       .         .         .L MR     .      E  .        .         .
     2350. C        .         .         . I       .         .         LM   R    .      E  .        .         .
     2400. C        .         .         . I       .         .       M L    R    .      E  .        .         .
     2450. C        .         .         . I       .         .     M  L.    R    .      E  .        .         .
     2500. C        .         .         . I       .         .  M     L.    R    .      E  .        .         .
1.73 2550. C        .         .         . I       .         M       L .    R    .      E  .        .         .
     2600. C        .         .        .I         .         .M    L   .     R   .      E  .        .         .
     2650. C        .         .      I.           .         . ML      .      R  .      E  .        .         .
     2700. C        .         .    I  .           .         L   M     .       R .      E  .        .         .
     2750. C        .         .   I   .           .       L .    M    .       R .      E  .        .         .
     2800. C        .         .  I    .           .     L    .     M  .        R.      E  .        .         .
     2850. C        .         . I     .           .   L      .      M .         R      E  .        .         .
     2900. C        .        I        .         L         .        M.          .R     E  .        .         .
1.81 2950. C        .      I .        .       L .         .         M          .R     E  .        .         .
     3000. C        .     I.          .         L         .     M   .        R.      E  .        .         .
     3050. C        .      I          .         . L       .  M      .     R   .      E  .        .         .
     3100. C        .      .I         .         .   L     M         .   R     .      E  .        .         .
     3150. C        .      . I        .         .     LM  .         .R        .      E  .        .         .
     3200. C        .      .  I       .         .   M   L .         R.        .      E  .        .         .
     3250. C        .      .   I      .         .M        L     R   .         .      E  .        .         .
1.88 3300. C        .      .    I     .      M  .         . L     .         .      WE .        .         .
     3350. C        .      .   I      .    M    .         . L   R .         .      WE .        .         .
     3400. C        .      . I       . M        .         L       R.        .      WE .        .         .
     3450. C        .      I       M.           .       L.        . R       .      WE .        .         .
     3500. C        .     I.     M   .           .     L  .        .    R   .      WE .        .         .
     3550. C        .   I  .  M      .           .   L    .        .       R.      WE .        .         .
     3600. C        .  I    .M       .           .  L     .        .         . R   WE .        .         .
     3650. C        . I    M .       .           . L      .        .         .    R WE .        .         .
1.95 3700. C        .I  M    .       .         L          .        .         .      ER.        .         .
     3750. C        .I   M   .       .         .L         .        .         .   R  E .        .         .
     3800. C        .I   M   .       .         . L        .        .       R.       E .        .         .
     3850. C        .I   M   .       .         .  L       .        .    R  .       E .        .         .
     3900. C        .I    M  .       .         .   L      .       R.        .       E .        .         .
     3950. C        .I    M  .       .         .    L     .   R   .        .       E .        .         .
     4000. C        .I    M  .       .         .     L  R.        .        .       E .        .         .
     4050. C        I      M .       .         .   R L    .        .        .       E .        .         .
2.03 4100. C        I      M .       .         . R    L   .        .        .       E .        .         .
     4150. C        I     M  .       .         .  R  L    .        .        .       E .        .         .
     4200. C        I    M   .       .         .  R  L    .        .        .       E .        .         .
     4250. C        .I  M    .       .         .  R L     .        .        .       E .        .         .
     4300. C        .I  M    .       .         .  RL      .        .        .       E .        .         .
     4350. C        .I M     .       .         .  RL      .        .        .       E .        .         .
     4400. C        .IM      .       .         .  LR      .        .        .       E .        .         .
2.09 4450. C        .I       .       .         .  LR      .        .        .       E .        .         .
     4500. C        . I      .       .         .  L     R.        .        .       E .        .         .
     4550. C        . IM     .       .         .   L     . R      .        .       E .        .         .
     4600. C        .  IM    .       .         .   L     .      R .        .       E .        .         .
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       4650.  C          .  I M   .         .         .    L    .         .  R      .       E .         .         .
       4700.  C          .   I M  .         .         .    L    .         .       R .       E .         .         .
       4750.  C          .    I M .         .         .     L   .         .         .  R    E .         .         .
  2.16 4800.  C          .     I  M         .         .      L  .         .         .       E .R        .         .
       4850.  C          .    I  M.         .         .     L   .         .         .       E R         .         .
       4900.  C          .    I M .         .         .     L   .         .         .       E .         .         .
       4950.  C          .    I M .         .         .    L    .         .         .      RE .         .         .
       5000.  C          .   I M  .         .         .   L     .         .         .     R E .         .         .
       5050.  C          .   IM   .         .         .  L      .         .         .   R   E .         .         .
       5100.  C          .   I    .         .         . L       .         .         .  R    E .         .         .
       5150.  C          .  IM    .         .         . L       .         .         . R     E .         .         .
       5200.  C          .  I     .         .         .L        .         .         R       E .         .         .
  2.24 5250.  C          .  I     .         .         .L        .         .         R       E .         .         .
       5300.  C          .        .I        .         .     L   .         .         . R      E.         .         .
       5350.  C          .        .       I.         .         .L        .         .    R    .E         .         .
       5400.  C          .        .        .    I    .         .      L  .         .      R  . E        .         .
       5450.  C          .        .        .         .  IM     .         . L       .         R  WE       .         .
       5500.  C          .        .        .         .         .I        .       L .         . R  WE     .         .
       5550.  C          .        .        .         .         .      IM.         . L       .   R WE    .         .
       5600.  C          .        .        .         .         .         .    I  .       L .      RWE.         .
       5650.  C          .        .        .         .         .         .         . IM      .   L    WE         .
  2.33 5700.  .          .        .        .         .         .         .         .         .    IM   . WE      .
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THIS RUN EXECUTED 20SEP00

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****
HEC-2 WATER SURFACE PROFILES

sion 4.6.2; May 1991
****

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

UMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	EA	.01K
1.256	.00	.00	.00	735.00	500.00	735.74	735.74	735.98	335.29	.00	4.92	27.31
1.358	541.29	.00	.00	738.29	500.00	741.78	741.19	742.13	56.61	4.76	9.14	66.45
1.457	519.26	.00	.00	738.30	500.00	742.50	.00	742.51	2.70	1.08	8.47	304.35
1.562	553.49	.00	.00	738.30	500.00	742.60	.00	742.61	1.19	.75	5.66	457.87
1.665	544.74	.00	.00	738.30	500.00	742.68	.00	742.70	2.63	1.30	8.97	308.39
1.733	362.09	.00	.00	738.30	500.00	742.73	.00	742.74	.52	.65	34.18	691.23
1.807	387.51	.00	.00	736.83	500.00	742.74	.00	742.74	.07	.32	[illegible]	1865.48
1.876	367.62	.00	.00	737.52	500.00	742.74	.00	742.75	.19	.4[illegible]		

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.03  1139.75
     .954    412.30      .00       .00    736.14    500.00    742.75      .00    742.75      .08      .32
2.90  1727.18

    2.025    369.78      .00       .00    736.03    500.00    742.75      .00    742.76      .48      .81
.66   724.61

    2.091    351.91      .00       .00    736.09    500.00    742.76      .00    742.76      .04      .25
3.46  2367.79

    2.164    384.00      .00       .00    736.68    500.00    742.76      .00    742.76      .35      .70
6.97   840.52

    2.241    408.00      .00       .00    736.37    500.00    742.77      .00    742.77      .10      .38
3.53  1565.41

    2.333    482.56      .00       .00    743.55    500.00    744.16    744.16    744.29   216.28     2.55
.18    34.00

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JMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.256	500.00	735.74	.00	.00	-8.26	254.19	.00
1.358	500.00	741.78	.00	6.05	.00	102.18	541.29
1.457	500.00	742.50	.00	.71	.00	459.17	519.26
1.562	500.00	742.60	.00	.10	.00	555.84	553.49
1.665	500.00	742.68	.00	.08	.00	515.83	544.74
1.733	500.00	742.73	.00	.05	.00	664.40	362.09
1.807	500.00	742.74	.00	.01	.00	1005.26	387.51
1.876	500.00	742.74	.00	.00	.00	665.67	367.62
1.954	500.00	742.75	.00	.01	.00	838.75	412.30
2.025	500.00	742.75	.00	.00	.00	624.26	369.78
2.091	500.00	742.76	.00	.01	.00	1005.12	351.91
2.164	500.00	742.76	.00	.00	.00	578.99	384.00
2.241	500.00	742.77	.00	.01	.00	818.14	408.00
2.333	500.00	744.16	.00	1.39	.00	686.32	482.56

MMARY OF ERRORS AND SPECIAL NOTES

AUTION SECNO= 1.256 PROFILE= 1 CRITICAL DEPTH ASSUMEI

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     SECNO=      1.358  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    1.457  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    1.562  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    1.665  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    1.733  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    1.807  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    1.876  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    1.954  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    2.025  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    2.091  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    2.164  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
ARNING SECNO=    2.241  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
AUTION SECNO=    2.333  PROFILE=  1  CRITICAL DEPTH ASSUMED
AUTION SECNO=    2.333  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
AUTION SECNO=    2.333  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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ARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	A	.01K
1.256	.00	.00	.00	735.00	965.48	736.02	736.02	736.38	286.64	.00	.06	57.03
1.358	541.29	.00	.00	738.29	965.48	742.40	742.24	742.89	66.02	5.93	.79	118.82
1.457	519.26	.00	.00	738.30	965.48	743.24	.00	743.26	2.54	1.29	.08	605.74
1.562	553.49	.00	.00	738.30	965.48	743.35	.00	743.36	1.22	.94	57.90	873.25
1.665	544.74	.00	.00	738.30	965.48	743.42	.00	743.45	2.50	1.51	.51	611.20
1.733	362.09	.00	.00	738.30	966.00	743.48	.00	743.49	.67	.85	77.30	1177.01
1.807	387.51	.00	.00	736.83	994.90	743.50	.00	743.50	.13	.48	34.40	2739.32
1.876	367.62	.00	.00	737.52	999.93	743.50	.00	743.51	.33	.65	09.47	1743.91
1.954	412.30	.00	.00	736.14	999.93	743.51	.00	743.52	.16	.50	11.20	2509.59
2.025	369.78	.00	.00	736.03	999.93	743.52	.00	743.53	.73	1.12	36	1171.36
2.091	351.91	.00	.00	736.09	999.93	743.53	.00	743.53	.09	.40	42.10	3367.74
2.164	384.00	.00	.00	736.68	999.93	743.53	.00	743.54	.60	1.00	63.38	1295.08
2.241	408.00	.00	.00	736.37	999.93	743.55	.00	743.55	.19	.57	13.28	2312.45
2.333	482.56	.00	.00	743.55	1000.00	744.30	744.30	744.50	214.82	3.38	4.19	68.23

UMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.256	965.48	736.02	.00	.00	-7.98	285.61	.00
1.358	965.48	742.40	.00	6.39	.00	196.44	541.29
1.457	965.48	743.24	.00	.84	.00	587.09	519.26
1.562	965.48	743.35	.00	.10	.00	749.13	553.49
1.665	965.48	743.42	.00	.08	.00	706.95	544.74
1.733	966.00	743.48	.00	.06	.00	783.33	362.09

.807	994.90	743.50	.00	.02	.00	1145.64	387.51
1.876	999.93	743.50	.00	.00	.00	792.21	367.62
1.954	999.93	743.51	.00	.01	.00	997.06	412.30
2.025	999.93	743.52	.00	.00	.00	855.55	369.78
2.091	999.93	743.53	.00	.02	.00	1150.95	351.91
2.164	999.93	743.53	.00	.00	.00	662.75	384.00
2.241	999.93	743.55	.00	.02	.00	943.34	408.00
2.333	1000.00	744.30	.00	.75	.00	743.65	482.56

MARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	A	.01K
1.256	.00	.00	.00	735.00	1160.03	736.12	736.12	736.51	275.83	.00	.92	69.85
1.358	541.29	.00	.00	738.29	1160.03	742.59	742.59	743.10	67.26	6.23	.08	141.45
1.457	519.26	.00	.00	738.30	1160.03	743.46	.00	743.48	2.60	1.37	76.72	719.41
1.562	553.49	.00	.00	738.30	1165.08	743.57	.00	743.58	1.28	1.01	36.21	1028.34
1.665	544.74	.00	.00	738.30	1165.82	743.65	.00	743.67	2.52	1.58	45.31	733.91
1.733	362.09	.00	.00	738.30	1179.68	743.71	.00	743.72	.76	.94	59.12	1354.53
1.807	387.51	.00	.00	736.83	1370.04	743.73	.00	743.73	.20	.61	05.79	3046.91
1.876	367.62	.00	.00	737.52	1468.67	743.74	.00	743.74	.56	.88	11.29	1962.29
1.954	412.30	.00	.00	736.14	1489.62	743.76	.00	743.76	.28	.69	55.94	2798.00
2.025	369.78	.00	.00	736.03	1490.60	743.76	.00	743.78	1.21	1.48	95	1354.66
2.091	351.91	.00	.00	736.09	1490.60	743.79	.00	743.79	.16	.55	40.64	3746.29
2.164	384.00	.00	.00	736.68	1490.60	743.79	.00	743.80	1.02	1.36	36.19	1475.97
2.241	408.00	.00	.00	736.37	1490.60	743.82	.00	743.83	.33	.78	74.70	2613.08
2.333	482.56	.00	.00	743.55	1500.00	744.42	744.42	744.68	201.50	3.93	5.96	105.67

UMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.256	1160.03	736.12	.00	.00	-7.88	296.65	.00
1.358	1160.03	742.59	.00	6.47	.00	354.13	541.29
1.457	1160.03	743.46	.00	.87	.00	662.60	519.26
1.562	1165.08	743.57	.00	.11	.00	773.29	553.49
1.665	1165.82	743.65	.00	.08	.00	733.88	544.74
1.733	1179.68	743.71	.00	.06	.00	829.52	362.09

.807	1370.04	743.73	.00	.02	.00	1199.15	387.51
1.876	1468.67	743.74	.00	.01	.00	889.59	367.62
1.954	1489.62	743.76	.00	.02	.00	1028.60	412.30
2.025	1490.60	743.76	.00	.01	.00	876.42	369.78
2.091	1490.60	743.79	.00	.03	.00	1188.74	351.91
2.164	1490.60	743.79	.00	.00	.00	694.94	384.00
2.241	1490.60	743.82	.00	.03	.00	1002.64	408.00
2.333	1500.00	744.42	.00	.60	.00	783.61	482.56

'ARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	:A	.01K
1.256	.00	.00	.00	735.00	1266.94	736.17	736.17	736.58	270.16	.00	5.51	77.08
1.358	541.29	.00	.00	738.29	1266.94	742.69	742.69	743.19	65.29	6.26	4.48	156.79
1.457	519.26	.00	.00	738.30	1266.94	743.55	.00	743.58	2.69	1.43	41.36	772.49
1.562	553.49	.00	.00	738.30	1308.37	743.67	.00	743.68	1.40	1.08	14.97	1104.27
1.665	544.74	.00	.00	738.30	1314.63	743.76	.00	743.79	2.71	1.67	26.19	798.67
1.733	362.09	.00	.00	738.30	1345.14	743.82	.00	743.84	.86	1.02	58.52	1450.39
1.807	387.51	.00	.00	736.83	1649.42	743.85	.00	743.85	.26	.71	49.55	3212.24
1.876	367.62	.00	.00	737.52	1839.92	743.86	.00	743.87	.78	1.06	18.68	2081.52
1.954	412.30	.00	.00	736.14	1935.53	743.88	.00	743.89	.43	.86	89.11	2959.40
2.025	369.78	.00	.00	736.03	1955.67	743.89	.00	743.92	1.79	1.83	[illegible]	1460.77
2.091	351.91	.00	.00	736.09	1955.67	743.93	.00	743.94	.24	.69	14.21	3971.59
2.164	384.00	.00	.00	736.68	1955.67	743.93	.00	743.96	1.52	1.69	37.82	1585.11
2.241	408.00	.00	.00	736.37	1955.67	743.98	.00	743.99	.49	.98	38.28	2804.30
2.333	482.56	.00	.00	743.55	2000.00	744.53	744.53	744.83	188.59	4.33	2.48	145.64

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UMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.256	1266.94	736.17	.00	.00	-7.83	302.45	.00
1.358	1266.94	742.69	.00	6.52	.00	371.77	541.29
1.457	1266.94	743.55	.00	.86	.00	695.23	519.26
1.562	1308.37	743.67	.00	.11	.00	782.32	553.49
1.665	1314.63	743.76	.00	.09	.00	750.97	544.74
1.733	1345.14	743.82	.00	.07	.00	911.80	362.09

.807	1649.42	743.85	.00	.02	.00	1232.69	387.51
1.876	1839.92	743.86	.00	.01	.00	903.87	367.62
1.954	1935.53	743.88	.00	.03	.00	1047.61	412.30
2.025	1955.67	743.89	.00	.01	.00	887.58	369.78
2.091	1955.67	743.93	.00	.04	.00	1210.17	351.91
2.164	1955.67	743.93	.00	.00	.00	715.44	384.00
2.241	1955.67	743.98	.00	.05	.00	1028.81	408.00
2.333	2000.00	744.53	.00	.55	.00	811.89	482.56

MARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	IA	.01K
1.256	.00	.00	.00	735.00	1401.41	736.23	736.23	736.67	262.68	.00	5.14	86.47
1.358	541.29	.00	.00	738.29	1401.41	742.77	742.77	743.29	68.16	6.49	3.12	169.75
1.457	519.26	.00	.00	738.30	1404.88	743.67	.00	743.69	2.80	1.49	21.15	839.55
1.562	553.49	.00	.00	738.30	1538.73	743.79	.00	743.81	1.65	1.20	10.94	1199.47
1.665	544.74	.00	.00	738.30	1561.74	743.89	.00	743.93	3.11	1.84	30.22	884.99
1.733	362.09	.00	.00	738.30	1625.46	743.97	.00	743.99	1.05	1.16	00.41	1583.29
1.807	387.51	.00	.00	736.83	2100.70	744.00	.00	744.01	.37	.86	44.37	3437.73
1.876	367.62	.00	.00	737.52	2437.73	744.01	.00	744.03	1.18	1.34	62.82	2245.58
1.954	412.30	.00	.00	736.14	2676.19	744.06	.00	744.07	.71	1.13	73.17	3186.67
2.025	369.78	.00	.00	736.03	2780.49	744.07	.00	744.12	2.97	2.41	55	1613.68
2.091	351.91	.00	.00	736.09	2794.55	744.14	.00	744.15	.42	.93	57.81	4294.11
2.164	384.00	.00	.00	736.68	2795.05	744.13	.00	744.18	2.55	2.24	88.56	1749.39
2.241	408.00	.00	.00	736.37	2799.38	744.22	.00	744.24	.81	1.30	85.21	3104.76
2.333	482.56	.00	.00	743.55	3000.00	744.72	744.72	745.10	170.68	4.93	1.26	229.63

UMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.256	1401.41	736.23	.00	.00	-7.77	309.60	.00
1.358	1401.41	742.77	.00	6.53	.00	385.08	541.29
1.457	1404.88	743.67	.00	.90	.00	728.89	519.26
1.562	1538.73	743.79	.00	.12	.00	793.17	553.49
1.665	1561.74	743.89	.00	.10	.00	768.91	544.74
1.733	1625.46	743.97	.00	.08	.00	967.23	362.09

1.807	2100.70	744.00	.00	.03	.00	1276.39	387.51
1.876	2437.73	744.01	.00	.01	.00	921.05	367.62
1.954	2676.19	744.06	.00	.04	.00	1066.89	412.30
2.025	2780.49	744.07	.00	.02	.00	896.66	369.78
2.091	2794.55	744.14	.00	.07	.00	1241.39	351.91
2.164	2795.05	744.13	.00	.00	.00	751.61	384.00
2.241	2799.38	744.22	.00	.09	.00	1031.82	408.00
2.333	3000.00	744.72	.00	.50	.00	865.42	482.56

'IARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	EA	.01K
1.256	.00	.00	.00	735.00	1494.31	736.28	736.28	736.72	256.69	.00	8.99	93.27
1.358	541.29	.00	.00	738.29	1494.31	742.88	742.88	743.35	60.90	6.27	8.37	191.49
1.457	519.26	.00	.00	738.30	1508.14	743.73	.00	743.76	2.94	1.55	68.06	879.33
1.562	553.49	.00	.00	738.30	1717.10	743.86	.00	743.88	1.86	1.30	69.37	1258.82
1.665	544.74	.00	.00	738.30	1757.21	743.98	.00	744.02	3.48	1.98	97.39	942.61
1.733	362.09	.00	.00	738.30	1851.16	744.07	.00	744.09	1.22	1.27	94.34	1674.46
1.807	387.51	.00	.00	736.83	2452.02	744.11	.00	744.11	.47	.97	75.25	3592.21
1.876	367.62	.00	.00	737.52	2901.97	744.12	.00	744.14	1.51	1.54	59.17	2358.70
1.954	412.30	.00	.00	736.14	3257.78	744.17	.00	744.19	.95	1.32	99.17	3347.12
2.025	369.78	.00	.00	736.03	3454.55	744.19	.00	744.26	4.02	2.84	38	1724.00
2.091	351.91	.00	.00	736.09	3535.30	744.29	.00	744.30	.60	1.13	51.41	4555.44
2.164	384.00	.00	.00	736.68	3551.24	744.28	.00	744.35	3.59	2.70	06.22	1873.06
2.241	408.00	.00	.00	736.37	3591.13	744.40	.00	744.42	1.15	1.57	71.31	3342.73
2.333	482.56	.00	.00	743.55	4000.00	744.90	744.90	745.33	153.05	5.33	2.69	323.33

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:UMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.256	1494.31	736.28	.00	.00	-7.72	314.54	.00
1.358	1494.31	742.88	.00	6.60	.00	405.21	541.29
1.457	1508.14	743.73	.00	.85	.00	747.52	519.26
1.562	1717.10	743.86	.00	.13	.00	799.71	553.49
1.665	1757.21	743.98	.00	.12	.00	780.00	544.74
1.733	1851.16	744.07	.00	.09	.00	967.23	362.0

.807	2452.02	744.11	.00	.04	.00	1276.39	387.51
1.876	2901.97	744.12	.00	.01	.00	921.05	367.62
1.954	3257.78	744.17	.00	.06	.00	1066.89	412.30
2.025	3454.55	744.19	.00	.02	.00	896.66	369.78
2.091	3535.30	744.29	.00	.09	.00	1273.02	351.91
2.164	3551.24	744.28	.00	-.01	.00	874.27	384.00
2.241	3591.13	744.40	.00	.12	.00	1031.82	408.00
2.333	4000.00	744.90	.00	.50	.00	955.53	482.56

Operation No. 8

Added Diversion at C34

Diversion at C34

To determine the diversion of flows between Unnamed Wash No 6 and Sauceda Wash the following operation was performed.

HEC-RAS models were run for both washes with a combined discharge rate equaling the total of the two washes. Iterations of the two models were performed to balance the water surface elevation between the two washes upstream of the Gila Bend Canal. The discharge rates for each wash overtopping the canal was determined when the two washes had a combined total runoff equaling the total initial discharge rate and were at a balanced water surface elevation. The difference between the inflow and the runoff overtopping the canal at Unnamed Wash No 6 is the flow which migrates to the Sauceda Wash overchute

This was found to be approximately 4300 cfs.

Operation No. 9

Added Diversion at C37

Diversion at C37

The SPRR structure at Sauceda Wash restricts discharge passing though it. This causes an upstream ponding condition allowing runoff the opportunity to breakout. Once runoff has broken out it is conveyed along the railroad toward the railroad structure at Unnamed Wash No. 6.

To determine the rating curve for the potential breakout multiple iterations of the HEC-RAS models for Sauceda Wash and for I-8 Wash West were run with different discharge rates. These iterations resulted in the following data:

Sauceda Wash		I-8 Wash West		Combined		DC37L	DC37R
Elev	[Q]	Elev	[Q]	Elev	{DI}	{DQ}	
	0		0		0	0	0
725.16	3000			725.16	3000	3000	0
725.6	3500			725.6	3500	3500	0
726.78	4000	726.7	100	726.78	4100	4000	100
727.27	4250	727.24	1500	727.27	5750	4250	1500
727.91	4500	727.89	3000	727.91	7500	4500	3000
728.01	4750	728.04	3500	728.01	8250	4750	3500
728.5	4875	728.32	4500	728.32	9330	4830	4500
729.01	5000	728.67	6000	728.67	10910	4910	6000

Operation No. 10

Added Diversion at C37A

eec

Project Title Gila Bend ADMP Project No. 99541 Date

Subject Revised Hydrology Prepared By LAV Checked By Page

Diversion at DC37A

Diverted flow between C37 and C17 behind the SPRR and Interstate 8 is calculated using a HEC-2 SIDE WEIR MODEL [RREast. 1H2]

A series of flows were Run through the model with the following Results

Total flow	Diverted flow	Remaining flow
0	0	0
500	495	5
1000	990	10
2000	1980	20
3000	2970	30
3245	3213	32
4000	3960	40
5000	4950	50
DI	DQ	

```
*****************************************
*********************************
    WATER SURFACE PROFILES              *                                    *  U.S. ARMY CORPS OF
GINEERS        *
                                        *                                    *  HYDROLOGIC ENGINEERING
NTER       *
  Version   4.6.2;  May 1991            *                                    *  609 SECOND STREET,
ITE D          *
                                        *                                    *  DAVIS, CALIFORNIA
616-4687        *
  RUN DATE    25SEP00    TIME   10:43:30  *                                  *          (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
```

25SEP00 10:43:30 PAGE

THIS RUN EXECUTED 25SEP00

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

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

SPLIT FLOW BEING PERFORMED

SF

```
TW      Weir flow over Railroad between Sections 0.428 and 0.520
NS     2   0.428   0.520      -1     2.7
NC     0  726.75     485  727.80

TW      Weir flow over Railroad between Sections 0.332 and 0.428
NS     2   0.332   0.428      -1     2.7
NC     0  725.80     505  726.75

TW      Weir flow over Railroad between Sections 0.235 and 0.332
NS     2   0.235   0.332      -1     2.7
NC     0  725.25     510  725.80

      Weir flow over Railroad between Sections 0.163 and 0.235
N     2   0.163   0.235      -1     2.7
NC     0  726.40     380  725.25
```

Weir flow over Railroad between Sections 0.078 and 0.163

```
:    2   0.078   0.163      -1     2.7
:    0  725.91     448  726.40
```



```
1      GILA BEND ADMP
2      Southern Pacific Railroad between Sauceda Wash and Unnamed No. 6
3
4      Side weir flow from diverted runoff at Sauceda     File:RReast.IH2
5      Wash which then overtops the R/R on its way to     Date: 8/28/00
6      Unnamed Wash No. 6                               revised: 9/25/00
7
8
9
```

	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
1		2							726.70	
2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE

3 VARIABLE CODES FOR SUMMARY PRINTOUT

150

C	.035	.035	.044							
T	1	3245								
1	0.078	46	208.75	281.56	0.00	0.00	0.00			
3				208.75						
R	720.5	0.00	721.39	13.87	721.66	21.05	720.67	26.80	721.02	43.70
R	721.3	85.88	721.00	128.07	723.21	148.53	724.40	158.39	721.13	179.01
R	719.7	187.06	721.22	192.01	725.91	208.75	722.63	223.71	721.78	226.43
R	720.8	244.89	721.31	251.22	724.64	281.56	723.05	323.19	723.08	341.79
R	723.4	359.62	723.30	444.98	723.49	466.56	723.41	502.22	724.01	603.05
R	724.3	634.61	724.29	647.62	724.39	660.55	724.82	689.92	724.87	710.08
R	725.5	829.00	725.49	848.95	725.65	875.11	726.07	924.42	726.52	1001.82
R	727.1	1031.12	727.21	1062.80	727.71	1103.65	728.13	1154.22	728.27	1165.70
R	728.6	1240.73	728.70	1294.41	728.76	1332.63	728.95	1363.66	729.58	1432.24
R	729.7	1467.94								
1	0.163	30	209.17	261.38	448	448	441.19			
3				209.17						
R	721.5	0.00	722.18	10.68	722.50	20.47	721.01	31.39	720.84	54.87
R	721.0	121.98	720.96	129.46	724.82	158.20	723.68	172.48	720.67	186.09
R	720.3	190.07	726.40	209.17	722.24	234.33	723.96	261.38	725.05	279.64
R	724.7	309.90	723.42	380.88	724.55	517.62	725.07	584.16	725.47	618.54
R	727.0	783.60	727.06	787.45	727.17	807.75	727.61	887.75	728.16	990.40
R	728.7	1113.24	728.78	1151.81	729.46	1193.30	729.93	1256.34	730.14	1392.43


```
:    235      28    179.20    209.23       380       380    382.65
:3                           179.20
```

```
     723.3       0.00     721.18      10.58     722.59      20.18     723.31      42.86     721.67      62.63
     [illegible]2.5     75.36     723.32      95.28     722.67     112.32     722.29     133.70     723.24     153.44
     [illegible]4.2    164.83     725.25     179.20     724.54     193.16     724.08     204.79     725.28     209.23
R    724.3    223.06     724.34     242.44     724.62     306.39     724.66     331.20     725.11     519.71
R    726.0    636.64     726.64     721.29     727.67     867.21     727.91     922.86     729.45    1097.79
R    729.6   1124.44     732.01    1309.67     732.15    1322.27

1    0.332        38     156.50     260.51        510        510     511.91
3                                  156.50
R    721.7       0.00     721.96      18.68     721.42      47.77     720.33     110.36     720.12     124.59
R    725.8     156.50     723.35     169.31     720.50     184.51     721.36     198.36     723.56     260.51
R    723.9     283.27     723.57     391.03     723.60     398.82     725.10     575.15     725.36     606.04
R    725.5     627.28     726.29     758.03     726.64     803.83     726.71     824.71     727.22     847.13
R    727.8     943.27     727.92     966.41     727.91     991.11     727.17    1011.13     728.04    1045.27
R    728.1    1075.27     728.52    1129.74     728.55    1145.91     728.66    1158.99     728.52    1215.90
R    729.7    1259.16     729.93    1299.38     730.11    1318.83     730.31    1352.34     730.27    1376.23
R    731.4    1452.99     731.84    1496.34     732.13    1507.71

1    0.428        26     182.55     228.92        505        505     507.50
3                                  182.55
R    725.8       0.00     722.81      11.29     723.89      22.84     724.65      45.36     723.53      58.17
R    722.1      92.10     720.53     132.27     720.28     134.67     723.66     157.47     726.75     182.55
R    721.2     208.61     722.28     228.92     726.14     307.31     726.03     314.68     726.12     319.90
R    725.5     524.53     725.16     591.05     726.44     728.36     727.81     932.88     729.26    1136.02
R    729.6    1186.59     730.80    1339.85     731.03    1440.31     730.77    1543.67     731.23    1613.07
R    731.9    1684.43

1    0.520        30     153.92     230.08        485        485     483.82
3                                  153.92
R    725.8       0.00     726.08      15.93     724.32      29.38     723.72      96.27     723.55     129.94
     727.8     153.92     727.43     156.69     723.99     184.61     723.82     194.05     724.93     230.08
     726.3     278.01     725.86     285.55     724.65     314.35     724.75     359.27     724.77     384.62
     [illegible]5.5     401.03     725.60     424.89     725.84     460.81     726.38     533.55     726.79     621.23
R    [illegible]27.4     707.71     728.26     760.44     727.88     785.17     727.96     795.25     728.87    1008.77
R    729.2    1061.01     728.78    1212.23     729.09    1403.87     729.19    1415.69     730.27    1567.74

  25SEP00      10:43:30                                                                                          PAGE

   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

SECNO  .078

470 ENCROACHMENT STATIONS=      208.8    1467.9  TYPE=      1  TARGET=     -208.750
    .078      7.00    726.70       .00    726.70    726.70       .00       .00       .00    725.91
    32.5        .0       5.4      27.1        .0     297.2    1571.2        .0        .0    724.64
     .00       .00       .02       .02      .000      .044      .035      .000    719.70    208.75
 .000000        0.        0.        0.         0         0         0       .00    802.16   1010.91

SECNO  .163

[illegible]302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .50

[illegible]70 ENCROACHMENT STATIONS=      209.2    1392.4  TYPE=      1  TARGET=     -209.170
    [illegible]163      6.40    726.70       .00       .00    726.70       .00       .00       .00    726.40
    [illegible]2.5        .0       4.7      27.8        .0     157.3     910.5      15.1       6.9    723.96
    [illegible]4.08       .00       .03       .03      .000      .044      .035      .000    720.30    209.17
```

```
.000000      448.      441.      448.        2        0        0      .00   542.08   751.25

SECNO  .235

302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66

470 ENCROACHMENT STATIONS=      179.2    1322.3  TYPE=      1  TARGET=     -179.200
    .235      5.52    726.70      .00       .00    726.71      .00       .00      .00    725.25
   426.0        .0      27.4    398.6        .0      62.0    774.7      23.4     11.7    725.28
    4.29       .00       .44      .51      .000      .044     .035      .000   721.18    179.20
 .000070      380.      383.      380.        2         0        0       .00   550.77    729.97

SECNO  .332

302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.38

470 ENCROACHMENT STATIONS=      156.5    1507.7  TYPE=      1  TARGET=     -156.500
    .332      6.68    726.80      .00       .00    726.83      .04       .13      .00    725.80
  2298.7        .0     767.7   1531.1        .0     453.3   1069.4      37.2     18.8    723.56
    4.39       .00      1.69     1.43      .000      .044     .035      .000   720.12    156.50
 .000360      510.      512.      510.        3         0        0       .00   672.02    828.52

  25SEP00      10:43:30                                                                          PAGE

   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
   [illegible]E  XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

SECNO  .428

302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .55

470 ENCROACHMENT STATIONS=      182.6    1684.4  TYPE=      1  TARGET=     -182.550
    .428      6.82    727.10      .00       .00    727.25      .15       .41      .00    726.75
  3072.1        .0     750.3   2321.8        .0     190.2    831.3      52.0     26.5    722.28
    4.43       .00      3.94     2.79      .000      .044     .035      .000   720.28    182.55
 .002134      505.      508.      505.        2         0        0       .00   644.12    826.67

SECNO  .520

265 DIVIDED FLOW

470 ENCROACHMENT STATIONS=      153.9    1567.7  TYPE=      1  TARGET=     -153.920
    .520      4.42    727.97      .00       .00    728.08      .12       .83      .00    727.80
  3245.0        .0     619.2   2625.8        .0     231.8    960.2      64.3     33.4    724.93
    4.48       .00      2.67     2.73      .000      .044     .035      .000   723.55    153.92
 .001430      485.      484.      485.        4         0        0       .00   605.93    796.88

  25SEP00      10:43:30                                                                          PAGE

[illegible]  Weir flow over Railroad between Sections 0.428 and 0.520

   ASQ       QCOMP      ERRAC      TASQ       TCQ       TABER      NITER      DSWS       USWS       DSSNO      USSN
```

172.90	172.83	.04	172.90	172.83	.04	8	727.097	727.966	.428	.520

TW Weir flow over Railroad between Sections 0.332 and 0.428

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
773.37	773.33	.01	946.27	946.16	.01	8	726.797	727.097	.332	.428

TW Weir flow over Railroad between Sections 0.235 and 0.332

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
1872.71	1872.78	.00	2818.98	2818.94	.00	8	726.701	726.797	.235	.332

TW Weir flow over Railroad between Sections 0.163 and 0.235

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
886.70	886.72	.00	3705.68	3705.66	.00	8	726.700	726.701	.163	.235

TW Weir flow over Railroad between Sections 0.078 and 0.163

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
496.54	499.12	.52	4202.22	4204.78	.06	8	726.700	726.700	.078	.163

ROFILE FOR STREAM

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

```
     N   720.      722.      724.      726.      728.      730.      732.      734.      736.      738.
     O   CUMDIS
  .08     0.  I         .         .    R    .L   E    .         M         .         .         .         .         .
         50.  I         .         .   R     .L   E    .         M         .         .         .         .         .
        100.  CI        .         .   R     . L  E    .         M         .         .         .         .         .
        150.  CI        .         .   R     . L  E    .         .M        .         .         .         .         .
        200.  CI        .         .  R      . L  E    .         .M        .         .         .         .         .
        250.  C I       .         .  R      . L  E    .         .M        .         .         .         .         .
        300.  C I       .         . R       .  L E    .         .M        .         .         .         .         .
        350.  C I       .         . R       .  L E    .         . M       .         .         .         .         .
        400.  C  I      .         . R       .  L E    .         . M       .         .         .         .         .
  .16   450.  C  I      .         .R        .   LE    .         . M       .         .         .         .         .
        500.  C   I     .         . R       .  L E    .         .   M     .         .         .         .         .
        550.  C   I     .         .  R      . L  E    .         .    M    .         .         .         .         .
        600.  C    I    .         .   R     .L   E    .         .     M   .         .         .         .         .
        650.  C    I    .         .    R    L    E    .         .      M  .         .         .         .         .
        700.  C     I   .         .     R   L    E    .         .        M.         .         .         .         .
        750.  C     I   .         .     R  L.    E    .         .         M         .         .         .         .
        800.  C      I  .         .      RL .    E    .         .         .M        .         .         .         .
  .23   850.  C      I  .         .       L .    E    .         .         . M       .         .         .         .
        900.  C      I  .         .      RL .    E    .         .         . M       .         .         .         .
        950.  C     I   .         .     R L .    E    .         .         . M       .         .         .         .
       1000.  C     I   .         .    R   L.    E    .         .         . M       .         .         .         .
       1050.  C    I    .         .    R   L.    E    .         .         . M       .         .         .         .
       1100.  C    I    .         .   R    L.    E    .         .         . M       .         .         .         .
       1150.  C   I     .         .  R     L.    E    .         .         . M       .         .         .         .
       1200.  C   I     .         . R       L    E    .         .         . M       .         .         .         .
       1250.  C  I      .         .R        L    WE   .         .         . M       .         .         .         .
       1300.  C  I      .         R         L    WE   .         .         . M       .         .         .         .
  .33  1350.  C I       .        R.         L    WE   .         .         . M       .         .         .         .
       1400.  C I       .        R.         .L    E   .         .         . M       .         .         .         .
       1450.  C I       .       R .         .L    E   .         .         . M       .         .         .         .
       1500.  C I       .      R  .         . L   E   .         .         . M       .         .         .         .
       1550.  C I       .      R  .         . L   E   .         .         . M       .         .         .         .
       1600.  C I       .     R   .         .  L  WE  .         .         . M       .         .         .         .
```

```
      1650.  C  I      .     R   .         .  L  WE  .         .         .M        .         .         .         .
      1700.  C  I      .    R    .         .   L  E  .         .         .M        .         .         .         .
      1750.  C  I      .   R     .         .   L  E  .         .         .M        .         .         .         .
      1800.  C  I      .   R     .         .    L WE .         .         .M        .         .         .         .
  .43 1850.  C  I      .  R      .         .    L WE .         .         .M        .         .         .         .
      1900.  C    I    .   R     .         .     LWE .         .         M         .         .         .         .
      1950.  C     I   .     R   .         .     L WE.         .        M.         .         .         .         .
      2000.  C       I .      R  .         .      LWE.         .       M .         .         .         .         .
      2050.  C         I       R .         .      L E.         .       M .         .         .         .         .
      2100.  C         .I        R         .       LWE         .      M  .         .         .         .         .
      2150.  C         .  I      .R        .        LE         .     M   .         .         .         .         .
      2200.  C         .    I    . R       .        LWE        .    M    .         .         .         .         .
      2250.  C         .     I   .   R     .         LE        .   M     .         .         .         .         .
      2300.  C         .       I .    R    .         LWE       .  M      .         .         .         .         .
  .52 2350.  C         .        I.     R   .         LWE       . M       .         .         .         .         .
```


THIS RUN EXECUTED 25SEP00

:43:30
****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

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

O PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	EA	.01K
.078	.00	.00	.00	719.70	32.45	726.70	.00	726.70	.00	.02	68.42	1521.06
.163	441.19	.00	.00	720.30	32.45	726.70	.00	726.70	.00	.03	67.81	765.49
.235	382.65	.00	.00	721.18	426.02	726.70	.00	726.71	.70	.44	6.75	508.77
.332	511.91	.00	.00	720.12	2298.73	726.80	.00	726.83	3.60	1.69	22.72	1211.10
.428	507.50	.00	.00	720.28	3072.10	727.10	.00	727.25	21.34	3.94	21.49	665.04
.520	483.82	.00	.00	723.55	3245.00	727.97	.00	728.08	14.30	2.67	91.96	858.20

MMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCE

.078	32.45	726.70	.00	.00	.00	802.16	.00
.163	32.45	726.70	.00	.00	.00	542.08	441.19
.235	426.02	726.70	.00	.00	.00	550.77	382.65
.332	2298.73	726.80	.00	.10	.00	672.02	511.91
.428	3072.10	727.10	.00	.30	.00	644.12	507.50
.520	3245.00	727.97	.00	.87	.00	605.93	483.82

SUMMARY OF ERRORS AND SPECIAL NOTES

ARNING SECNO= .163 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

ARNING SECNO= .235 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

ARNING SECNO= .332 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

ARNING SECNO= .428 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

IARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	A	.01K
.078	.00	.00	.00	719.70	5.00	726.70	.00	726.70	.00	.00	58.42	1521.06
.163	441.19	.00	.00	720.30	5.00	726.70	.00	726.70	.00	.00	57.75	765.43
.235	382.65	.00	.00	721.18	5.00	726.70	.00	726.70	.00	.01	5.04	508.14
.332	511.91	.00	.00	720.12	59.22	726.70	.00	726.70	.00	.05	57.93	1140.86
.428	507.50	.00	.00	720.28	500.00	726.70	.00	726.71	1.18	.87	5.16	461.04
.520	483.82	.00	.00	723.55	500.00	726.78	.00	726.79	2.81	.94	1.55	298.18

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JMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.078	5.00	726.70	.00	.00	.00	802.16	.00
.163	5.00	726.70	.00	.00	.00	542.07	441.19
.235	5.00	726.70	.00	.00	.00	550.59	382.65
.332	59.22	726.70	.00	.00	.00	665.22	511.91
.428	500.00	726.70	.00	.00	.00	584.27	507.50
.520	500.00	726.78	.00	.08	.00	456.76	483.82

ARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	A	.01K
.078	.00	.00	.00	719.70	10.00	726.70	.00	726.70	.00	.01	58.42	1521.06
.163	441.19	.00	.00	720.30	10.00	726.70	.00	726.70	.00	.01	57.75	765.43
.235	382.65	.00	.00	721.18	10.00	726.70	.00	726.70	.00	.01	5.04	508.14
.332	511.91	.00	.00	720.12	544.49	726.70	.00	726.71	.23	.42	50.00	1143.08
.428	507.50	.00	.00	720.28	1000.00	726.72	.00	726.75	4.48	1.71	1.16	472.61
.520	483.82	.00	.00	723.55	1000.00	726.99	.00	727.02	7.14	1.57	5.89	374.31

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JMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.078	10.00	726.70	.00	.00	.00	802.16	.00
.163	10.00	726.70	.00	.00	.00	542.07	441.19
.235	10.00	726.70	.00	.00	.00	550.59	382.65
.332	544.49	726.70	.00	.00	.00	666.15	511.91
.428	1000.00	726.72	.00	.02	.00	588.21	507.50
.520	1000.00	726.99	.00	.26	.00	489.97	483.82

ARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	A	.01K
.078	.00	.00	.00	719.70	20.00	726.70	.00	726.70	.00	.01	8.42	1521.06
.163	441.19	.00	.00	720.30	20.00	726.70	.00	726.70	.00	.02	7.75	765.43
.235	382.65	.00	.00	721.18	20.00	726.70	.00	726.70	.00	.02	.04	508.14
.332	511.91	.00	.00	720.12	1447.78	726.72	.00	726.74	1.57	1.10	2.68	1156.67
.428	507.50	.00	.00	720.28	1995.09	726.86	.00	726.95	13.78	3.06	.87	537.44
.520	483.82	.00	.00	723.55	2000.00	727.48	.00	727.56	11.55	2.19	.18	588.50

25SEP00 10:38:54 PAGE

JMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.078	20.00	726.70	.00	.00	.00	802.16	.00
.163	20.00	726.70	.00	.00	.00	542.07	441.19
.235	20.00	726.70	.00	.00	.00	550.59	382.65
.332	1447.78	726.72	.00	.02	.00	668.74	511.91
.428	1995.09	726.86	.00	.14	.00	608.46	507.50
.520	2000.00	727.48	.00	.63	.00	556.66	483.82

ARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	A	.01K
.078	.00	.00	.00	719.70	30.00	726.70	.00	726.70	.00	.02	8.42	1521.06
.163	441.19	.00	.00	720.30	30.00	726.70	.00	726.70	.00	.03	7.75	765.43
.235	382.65	.00	.00	721.18	311.21	726.70	.00	726.70	.37	.32	.51	508.56
.332	511.91	.00	.00	720.12	2162.24	726.78	.00	726.81	3.26	1.61	9.81	1196.93
.428	507.50	.00	.00	720.28	2884.18	727.05	.00	727.19	20.38	3.83	.65	638.91
.520	483.82	.00	.00	723.55	3000.00	727.89	.00	727.99	13.75	2.58	4.23	809.08

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JMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.078	30.00	726.70	.00	.00	.00	802.16	.00
.163	30.00	726.70	.00	.00	.00	542.07	441.19
.235	311.21	726.70	.00	.00	.00	550.71	382.65
.332	2162.24	726.78	.00	.08	.00	671.18	511.91
.428	2884.18	727.05	.00	.27	.00	637.17	507.50
.520	3000.00	727.89	.00	.84	.00	584.93	483.82

ARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	A	.01K
.078	.00	.00	.00	719.70	40.00	726.70	.00	726.70	.00	.02	8.42	1521.06
.163	441.19	.00	.00	720.30	40.00	726.70	.00	726.70	.00	.04	7.78	765.46
.235	382.65	.00	.00	721.18	740.44	726.70	.00	726.71	2.11	.77	.89	509.79
.332	511.91	.00	.00	720.12	2684.21	726.86	.00	726.91	4.56	1.92	4.40	1257.36
.428	507.50	.00	.00	720.28	3623.25	727.23	.00	727.41	23.61	4.23	1.43	745.73
.520	483.82	.00	.00	723.55	4000.00	728.19	.00	728.33	15.89	2.95	5.61	1003.45

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JMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.078	40.00	726.70	.00	.00	.00	802.16	.00
.163	40.00	726.70	.00	.00	.00	542.07	441.19
.235	740.44	726.70	.00	.00	.00	551.07	382.65
.332	2684.21	726.86	.00	.16	.00	674.74	511.91
.428	3623.25	727.23	.00	.37	.00	664.64	507.50
.520	4000.00	728.19	.00	.96	.00	686.20	483.82

ARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	EA	.01K
.078	.00	.00	.00	719.70	50.00	726.70	.00	726.70	.00	.03	68.42	1521.06
.163	441.19	.00	.00	720.30	184.97	726.70	.00	726.70	.06	.17	67.75	765.43
.235	382.65	.00	.00	721.18	1084.16	726.71	.00	726.74	4.43	1.12	3.82	515.10
.332	511.91	.00	.00	720.12	3147.70	726.95	.00	727.01	5.64	2.17	24.08	1325.05
.428	507.50	.00	.00	720.28	4321.03	727.40	.00	727.60	25.62	4.52	27.24	853.61
.520	483.82	.00	.00	723.55	5000.00	728.44	.00	728.61	17.68	3.26	19.73	1189.03

25SEP00 10:42:17 PAGE

UMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.078	50.00	726.70	.00	.00	.00	802.16	.00
.163	184.97	726.70	.00	.00	.00	542.07	441.19
.235	1084.16	726.71	.00	.01	.00	552.59	382.65
.332	3147.70	726.95	.00	.24	.00	678.62	511.91
.428	4321.03	727.40	.00	.45	.00	690.17	507.50
.520	5000.00	728.44	.00	1.04	.00	754.83	483.82

Appendix D.6
HYDROLOGIC CALCULATIONS

Appendix D.6. Hydrologic Calculations

Per the discussion, under the special problems section in Appendix B.1., HEC-1 models were run for conditions behind the Gila Bend Canal. These models represent existing conditions with and without the canal in place. Output for these two hydrologic models are included in this appendix.

HEC-1

File : GB083100.OH1

Model with Gila Bend Canal in Place

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****************************************
****************************************
                                       *                                        *
  FLOOD HYDROGRAPH PACKAGE  (HEC-1)    *                                        *   U.S. ARMY CORPS OF
                                       *                                        *   HYDROLOGIC ENGINEERING
            MAY   1991                 *                                        *        609 SECOND
           VERSION 4.0.1E              *                                        *      DAVIS, CALIFORNIA
    Lahey F77L-EM/32 version 5.01      *                                        *         (916) 551-1748
      Dodson & Associates, Inc.        *                                        *

  RUN DATE  03/16/01  TIME  07:03:01   *                                        *

****************************************
****************************************
```

```
X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.

THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77

NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

HEC-1 INPUT PAGE 1

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID   FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
  2           ID   GILA BEND AREA DRAINAGE MASTER PLAN
  3           ID
  4           ID   EAST SIDE
  5           ID   Bender and Sand Tank Washes (Major Basins 1, 2, and 7)
  6           ID   Basin 7A broken down into three subbasins for floodplain delineation work by
  7           ID   EEC and Premier (6/14/00)
  8           ID   Quilotosa and Sauceda Washes (Major Basins 3, 4, 5, and 6)
  9           ID   Basin 3K broken down into three subbasins, 3KB, 3KC, and 3KD for floodplain d
 10           ID   work by EEC and Premier (6/14/00)
 11           ID
 12           ID   WEST SIDE     work by EEC and Premier (Aug/Sept 2000)
 13           ID   New Subbasin 3KA was added to existing Subbasin 3L.
 14           ID   Single common storage pond removed from Burgess-Niple (PND2) and replaced wit
 15           ID     individual storage ponds at the intersections of Unnamed No. 1, Sauceda, Un
 16           ID     No. 6 and Quilotosa Washes with the GBC. (ponds at C53I, C36I, C34I and C11
 17           ID   Existing Diversion at SR-85 and GBC modified by changes in hydrology to the e
 18           ID     which led to increased flow in DC12L.  This caused side weir flow over the
 19           ID     modeled by HEC-2, the new diversion is at CP11A.  The remaining flow contin
 20           ID     to PND2D at Quilotosa wash.  The diverted flow is routed (11A11B) to CP11B.
 21           ID   D/S of CP12 a new concentration point was added at CP14A, a new channel route
 22           ID     added (R12-14A), and a diversion (DC14AL) takes place at Unnamed No. 2 and
 23           ID     to limited conveyance through culverts, flow is diverted to CP11B.  D/S of
 24           ID     modifed channel route (R14A-14) conveys remaining flow in Unnamed No. 2 to
 25           ID   At CP11B routed flows 11A11B and 14B11A is combined together.
 26           ID   Overtopping analysis of the Railroad and I-8 frontage road indicate that the
 27           ID     will flow through the overpass from CP11B back towards CP14.
 28           ID   New Diversion between Unnamed No. 6 and Sauceda Wash based on rating curve de
 29           ID     using HEC-RAS iterations of weir flow over canal and channel conveyance bel
```

```
30          ID     canal.
31          ID   A new diversion at the Railroad and Sauceda diverts flow back toward Unnamed
32          ID     DC37R.  Then HEC-2 side weir is used to identify flow split over the canal.
33          ID     this divert DC37AR reduces flow to CP99, with diverted flow DC37AL overtopp
34          ID     and I-8 highway.  This diverted flow is routed (37L-16) and joins flow in Q
35          ID     Wash at CP16.
36          ID   A new diversion on Hacker Wash just north of Pima Road.  This diverts the maj
37          ID     the flow from Hacker Wash overland where it rejoins Quilotosa Wash at Water
38          ID     Road.  The remaining flow stays in the diversion channel along I-8 and join
39          ID     Quilotosa Wash on the north side of I-8.
40          ID
41          ID   100-Year 24-Hour Duration Storm
42          ID
43          ID   04/06/92    Input Filenames from Burgess & Niple 1992 study:  B&ST24.H1 and S
44          ID   09/18/00    Modified Filename:  GB083100.DAT
45          ID
46          ID        Green & AMPT Loss Rate Method
47          ID        S-Graph Unit Hydrograph
48          ID        Normal Depth Routing
            *
            *DIAGRAM
            *
49          IT       3 13MAR92    1200     600
50          IO       5
51          IN      15
            *
                                        HEC-1 INPUT                                          PAGE  2

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

52          JD    4.53    0.01
53          PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
54          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
55          PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
56          PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.173
57          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.487   0.663   0.707
58          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
59          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
60          PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
61          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
62          PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
63          JD    4.44     5.0
64          JD    4.30    10.0
65          JD    4.00    50.0
66          JD    3.90    80.0
67          JD    3.85   100.0
68          JD    3.71   200.0
69          JD    3.53   500.0
            *
            *    ************************************
            *    *                START               *
            *    * START BENDER WASH (Major Basin 1) *
            *    *                                    *
            *    ************************************
            *

70          KK      1B
71          KM        SUB-BASIN 1B At C61
72          BA    2.10
73          LG    0.33    0.35    4.29    0.47    2.00
74          UI     106     106     106     106     106     314     364     405     482     512
75          UI     555     587     621     664     712     769     819     886    1016    1208
76          UI    1302    1382    1222    1104    1014     944     884     836     783     720
77          UI     665     626     579     533     502     457     403     303     277     187
78          UI     187     182     173     173     160     106     106     106     106     101
79          UI      32      32      32      32      32      32      32      32      32      32
80          UI      32      32      32      32      32      32       0       0       0       0
81          UI       0       0       0       0       0       0       0       0       0       0
            *

82          KK  R61-62
83          KM        Channel Route From C61 To C62
84          KM        Representative Of X-SECT. 1E1
85          RS       5    FLOW      -1
86          RC   0.060   0.046   0.060    3600   0.006
87          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
88          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
89          RL                    1.20    90.0
```

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                *
LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 90             KK      1C
 91             KM        SUB-BASIN 1C
 92             BA    3.83
 93             LG    0.35    0.35    3.66    0.33    0.00
 94             UI     154     154     154     154     154     154     350     504     555     588
 95             UI     697     730     766     821     861     899     943     994    1054    1127
 96             UI    1180    1245    1365    1530    1791    1819    2071    1907    1728    1600
 97             UI    1497    1405    1333    1273    1214    1155    1077    1012     958     912
 98             UI     862     801     751     719     669     588     495     441     375     272
 99             UI     272     272     257     252     252     252     170     154     154     154
100             UI     154     154     112      47      47      47      47      47      47      47
101             UI      47      47      47      47      47      47      47      47      47      47
102             UI      47      47      47       0       0       0       0       0       0       0
103             UI       0       0       0       0       0       0       0       0       0       0
                *

104             KK      1A
105             KM        SUB-BASIN 1A
106             BA    2.10
107             LG    0.21    0.35    4.05    0.51   13.00
108             UI      73      73      73      73      73      73      73     150     210     210
109             UI     278     281     335     371     422     441     463     486     513     534
110             UI     552     571     592     635     701     758     832     933     826     668
111             UI     572     534     503     478     456     439     430     420     407     394
112             UI     381     367     359     349     338     331     310     303     294     285
113             UI     279     260     250     239     227     223     193     193     189     178
114             UI     178     176     168     168     168     152     152     152     138     120
115             UI     120     120     120      95      93      93      93      93      92      80
116             UI      80      80      80      80      80      72      56      56      56      56
117             UI      56      56      56      56      56      43      36      36      36      36
118             UI      36      36      36      36      36      36      36      36      36      36
119             UI      27      14      14      14      14      14      14      14      14      14
120             UI      14      14      14      14      14      14      14      14      14      14
121             UI      14      14      14      14      14      14      14      14      14      14
122             UI      14      14      14      14      14      14      14      14      14       0
123             UI       0       0       0       0       0       0       0       0       0       0
124             UI       0       0       0       0       0       0       0       0       0       0
                *

125             KK     C62
126             KM        Combine R61-62 + 1C + 1A
127             HC       3
                *

128             KK  R62-64
129             KM        Channel Route From C62 To C64
130             KM        X-SECT. 1E1
131             RS       8    FLOW      -1
132             RC   0.060   0.046   0.060    4800   0.006
133             RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
134             RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
135             RL                    1.38    90.0
                *
```



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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

136             KK      1D
137             KM        SUB-BASIN 1D At C63
138             BA    0.34
139             LG    0.25    0.20    9.40    0.02   10.00
140             UI      34      34      59     113     159     206     237     263     314     401
141             UI     295     229     203     188     171     158     142     131     113      98
142             UI      86      81      76      70      56      51      43      41      37      37
143             UI      26      26      26      21      16      16      16      16      14       6
144             UI       6       6       6       6       6       6       6       6       6       6
145             UI       6       6       0       0       0       0       0       0       0       0
146             UI       0       0       0       0       0       0       0       0       0       0
                *

147             KK  R63-64
```

```
148          KM        Channel Route From C63 To C64
149          KM        Representative Of X-SECT. 1L1
150          RS      29    FLOW      -1
151          RC   0.070   0.058   0.070   33400   0.019
152          RX  3914.5  4027.0  4038.0  4057.0  4070.0  4076.0  4103.0  5283.0
153          RY   102.5    97.5    94.6    91.1    91.0    93.3    96.6   102.5
154          RL                    2.93    91.0
             *

155          KK     C64
156          KM        Combine R62-64 + R63-64
157          HC       2
             *

158          KK  R64-65
159          KM        Channel Route From C64 To C65
160          KM        Representative Of X-SECT. 1E1
161          RS       5    FLOW      -1
162          RC   0.060   0.046   0.060    2800   0.006
163          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
164          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
165          RL                    1.61    90.0
             *

166          KK      1E
167          KM        SUB-BASIN 1E
168          BA    3.91
169          LG    0.35    0.35    4.03    0.40    0.00
170          UI     139     139     139     139     139     139     139     366     455     493
171          UI     531     595     638     678     711     747     777     812     845     884
172          UI     930     985    1039    1076    1136    1237    1370    1573    1602    1831
173          UI    1822    1656    1538    1427    1351    1280    1215    1164    1119    1078
174          UI    1021     960     910     867     831     797     730     700     676     637
175          UI     589     531     457     398     394     245     245     245     245     229
176          UI     228     228     228     185     139     139     139     139     139     139
177          UI     120      42      42      42      42      42      42      42      42      42
178          UI      42      42      42      42      42      42      42      42      42      42
179          UI      42      42      42      42       0       0       0       0       0       0
180          UI       0       0       0       0       0       0       0       0       0       0
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

181          KK      1F
182          KM        SUB-BASIN 1F
183          BA    5.55
184          LG    0.26    0.35    3.44    0.80   14.00
185          UI     170     170     170     170     170     170     170     170     350     488
186          UI     488     592     651     708     781     899     984    1028    1070    1112
187          UI    1162    1221    1260    1297    1337    1381    1468    1593    1687    1881
188          UI    2004    2189    1875    1535    1339    1261    1197    1144    1085    1042
189          UI    1018    1002     978     955     930     891     876     849     827     814
190          UI     785     779     724     721     685     685     652     651     599     583
191          UI     566     528     528     480     449     449     435     416     416     416
192          UI     392     391     391     380     355     355     355     335     279     279
193          UI     279     279     271     217     217     217     217     217     217     201
194          UI     186     186     186     186     186     186     186     140     130     130
195          UI     130     130     130     130     130     130     130     130      91      83
196          UI      83      83      83      83      83      83      83      83      83      83
197          UI      83      83      83      83      83      53      33      33      33      33
198          UI      33      33      33      33      33      33      33      33      33      33
199          UI      33      33      33      33      33      33      33      33      33      33
200          UI      33      33      33      33      33      33      33      33      33      33
201          UI      33      33      33      33      33      33      33      33      33       0
202          UI       0       0       0       0       0       0       0       0       0       0
203          UI       0       0       0       0       0       0       0       0       0       0
             *

204          KK     C65
205          KM        Combine R64-65 + 1E + 1F
206          HC       3
             *

207          KK  R65-67
208          KM        Channel Route From C65 To C67
209          KM        X-SECT. 1I1
```

```
210          RS        6    FLOW       -1
211          RC    0.060   0.038   0.060    6600   0.008
212          RX   3800.0  4300.0  4351.0  4375.0  4458.0  4468.0  4618.0  5068.2
213          RY     99.9    94.9    94.6    91.2    90.7    93.5    95.1    99.9
214          RL                    1.80    90.7
             *

215          KK       1J
216          KM         SUB-BASIN 1J At C66
217          BA     0.62
218          LG     0.26    0.20    9.40    0.02    9.00
219          UI       50      50      50     122     174     229     295     328     366     396
220          UI      465     575     528     374     326     297     281     260     243     227
221          UI      207     194     175     157     136     126     120     114     105      97
222          UI       82      75      64      64      56      54      54      40      38      38
223          UI       38      28      24      24      24      24      24      23      10      10
224          UI       10      10      10      10      10      10      10      10      10      10
225          UI       10      10      10      10       0       0       0       0       0       0
226          UI        0       0       0       0       0       0       0       0       0       0
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

227          KK   R66-67
228          KM         Channel Route From C66 To C67
229          KM         X-SECT. 1I1
230          RS       35    FLOW       -1
231          RC    0.060   0.038   0.060   33600   0.016
232          RX   3800.0  4300.0  4351.0  4375.0  4458.0  4468.0  4618.0  5068.2
233          RY     99.9    94.9    94.6    91.2    90.7    93.5    95.1    99.9
234          RL                    8.29    90.7
             *

235          KK       1I
236          KM         SUB-BASIN 1I
237          BA     4.11
238          LG     0.35    0.35    4.14    0.41    0.00
239          UI      146     146     146     146     146     146     146     384     479     518
240          UI      558     625     671     713     748     785     817     854     888     929
241          UI      978    1035    1093    1131    1194    1301    1440    1654    1684    1925
242          UI     1915    1740    1617    1500    1420    1345    1277    1224    1176    1133
243          UI     1073    1009     956     911     873     838     767     736     711     670
244          UI      619     558     480     419     414     258     258     258     258     241
245          UI      239     239     239     195     146     146     146     146     146     146
246          UI      126      45      45      45      45      45      45      45      45      45
247          UI       45      45      45      45      45      45      45      45      45      45
248          UI       45      45      45      45       0       0       0       0       0       0
249          UI        0       0       0       0       0       0       0       0       0       0
             *

250          KK      C67
251          KM         Combine R66-67 + 1I
252          HC        3
             *

253          KK   R67-71
254          KM         Channel Route From C67 To C71
255          KM         Representative Of X-SECT. 1I1
256          RS        2    FLOW       -1
257          RC    0.060   0.038   0.060    2200   0.006
258          RX   3800.0  4300.0  4351.0  4375.0  4458.0  4468.0  4618.0  5068.2
259          RY     99.9    94.9    94.6    91.2    90.7    93.5    95.1    99.9
260          RL                    1.74    90.7
             *

261          KK       1G
262          KM         SUB-BASIN 1G At C70
263          BA     3.78
264          LG     0.27    0.35    2.86    1.02   21.00
265          UI      131     131     131     131     131     131     131     270     377     377
266          UI      500     507     604     667     759     794     834     874     923     961
267          UI      993    1028    1066    1143    1261    1365    1498    1679    1487    1202
268          UI     1030     962     906     860     820     791     774     756     732     710
269          UI      686     661     646     629     609     595     559     546     529     514
270          UI      503     469     450     430     408     402     347     347     340     321
271          UI      321     316     302     302     302     274     274     274     248     21(
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 272          UI     216     216     216     171     168     168     168     168     165     144
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 273          UI     144     144     144     144     144     130     101     101     101     101
 274          UI     101     101     101     101     101      78      64      64      64      64
 275          UI      64      64      64      64      64      64      64      64      64      64
 276          UI      48      25      25      25      25      25      25      25      25      25
 277          UI      25      25      25      25      25      25      25      25      25      25
 278          UI      25      25      25      25      25      25      25      25      25      25
 279          UI      25      25      25      25      25      25      25      25      25       0
 280          UI       0       0       0       0       0       0       0       0       0       0
 281          UI       0       0       0       0       0       0       0       0       0       0
              *

 282          KK  R70-71
 283          KM        Channel Route From C70 To C71
 284          KM        X-SECT. 1H1
 285          RS      20    FLOW      -1
 286          RC   0.060   0.038   0.080   20400   0.013
 287          RX  3919.1  4208.0  4286.0  4291.0  4321.0  4326.0  4336.0  4346.0
 288          RY    96.6    91.6    92.0    90.8    90.6    92.0    95.0    98.0
 289          RL                    1.59    90.6
              *

 290          KK      1H
 291          KM        SUB-BASIN 1H
 292          BA    6.77
 293          LG    0.29    0.35    3.51    0.87   13.00
 294          UI     200     200     200     200     200     200     200     200     297     575
 295          UI     575     617     766     766     911     929    1150    1181    1215    1277
 296          UI    1331    1388    1446    1485    1533    1580    1630    1733    1876    1984
 297          UI    2195    2346    2602    2246    1902    1603    1512    1437    1353    1299
 298          UI    1255    1210    1182    1167    1150    1101    1080    1045    1017    1000
 299          UI     963     956     920     909     852     847     807     807     769     766
 300          UI     714     686     679     621     621     594     529     529     529     490
 301          UI     489     489     477     460     460     460     434     418     418     418
 302          UI     379     328     328     328     328     320     255     255     255     255
 303          UI     255     255     245     219     219     219     219     219     219     219
 304          UI     199     153     153     153     153     153     153     153     153     153
 305          UI     153     153     103      98      98      98      98      98      98      98
 306          UI      98      98      98      98      98      98      98      98      98      95
 307          UI      38      38      38      38      38      38      38      38      38      38
 308          UI      38      38      38      38      38      38      38      38      38      38
 309          UI      38      38      38      38      38      38      38      38      38      38
 310          UI      38      38      38      38      38      38      38      38      38      38
 311          UI      38      38      38      38      38       0       0       0       0       0
 312          UI       0       0       0       0       0       0       0       0       0       0
              *

 313          KK    C71R
 314          KM        Combine R70-71 + 1H
 315          HC       2
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 316          KK      1K
 317          KM        SUB-BASIN 1K At C68
 318          BA    1.08
 319          LG    0.25    0.20    9.40    0.02   10.00
 320          UI      58      58      58      58      76     166     193     231     277     338
 321          UI     360     388     420     441     466     524     595     691     669     479
 322          UI     424     384     358     343     331     313     298     285     273     261
 323          UI     244     233     222     206     194     179     161     153     143     141
 324          UI     134     133     123     121     108      95      95      83      74      74
 325          UI      74      66      63      63      63      57      44      44      44      44
 326          UI      44      43      28      28      28      28      28      28      28      28
 327          UI      28      25      11      11      11      11      11      11      11      11
 328          UI      11      11      11      11      11      11      11      11      11      11
 329          UI      11      11      11      11      11      11      11       0       0       0
 330          UI       0       0       0       0       0       0       0       0       0       0
              *

 331          KK  R68-71
```

```
332          KM        Channel Route From C68 To C71
333          KM        X-SECT. 1L1
334          RS      20    FLOW      -1
335          RC   0.070   0.058   0.070   29400   0.017
336          RX  3914.5  4027.0  4038.0  4057.0  4070.0  4076.0  4103.0  5283.0
337          RY   102.5    97.5    94.6    91.1    91.0    93.3    96.6   102.5
338          RL                    2.19    91.0
             *

339          KK      1L
340          KM        SUB-BASIN 1L
341          BA    4.69
342          LG    0.33    0.39    5.67    0.20    2.00
343          UI     144     144     144     144     144     144     144     144     329     472
344          UI     472     550     550     638     660     701     718     768     793     812
345          UI     847     880     912     949    1001    1058    1092    1125    1188    1281
346          UI    1398    1499    1738    1729    1935    1865    1709    1604    1511    1425
347          UI    1359    1301    1250    1204    1162    1125    1083    1027     971     926
348          UI     893     864     825     777     749     702     689     660     608     550
349          UI     512     413     413     358     254     254     254     254     243     236
350          UI     236     236     236     195     144     144     144     144     144     144
351          UI     144     142      44      44      44      44      44      44      44      44
352          UI      44      44      44      44      44      44      44      44      44      44
353          UI      44      44      44      44      44      44      44      44      44       0
354          UI       0       0       0       0       0       0       0       0       0       0
355          UI       0       0       0       0       0       0       0       0       0       0
             *

356          KK    C71L
357          KM        Combine R68-71 + 1L
358          HC       2
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

359          KK     C71
360          KM        Combine R67-71 + C71R(R70-71 + 1H) + C71L(R68-71 + 1L)
361          HC       3
             *

362          KK  R71-73
363          KM        Channel Route From C71 To C73
364          KM        Representative Of X-SECT. 1P1
365          RS       6    FLOW      -1
366          RC   0.060   0.050   0.060    7000   0.008
367          RX  3668.7  4142.0  4202.0  4208.0  4253.0  4276.0  4405.0  5131.9
368          RY    99.5    94.5    94.0    91.5    91.5    94.3    94.1    99.5
369          RL                    1.10    91.5
             *

370          KK      1M
371          KM        SUB-BASIN 1M At C72
372          BA    2.19
373          LG    0.25    0.20    9.40    0.02   10.00
374          UI     117     117     117     117     154     336     391     469     563     685
375          UI     730     786     852     894     945    1062    1208    1402    1357     971
376          UI     860     779     727     695     672     635     605     578     554     529
377          UI     496     472     451     418     392     364     326     309     290     286
378          UI     271     269     250     245     220     192     192     169     150     150
379          UI     150     133     128     128     128     115      90      90      90      90
380          UI      90      88      57      57      57      57      57      57      57      57
381          UI      57      51      22      22      22      22      22      22      22      22
382          UI      22      22      22      22      22      22      22      22      22      22
383          UI      22      22      22      22      22      22      22       0       0       0
384          UI       0       0       0       0       0       0       0       0       0       0
             *

385          KK  R72-73
386          KM        Channel Route From C72 To C73
387          KM        X-SECT. 1N1
388          RS      32    FLOW      -1
389          RC   0.060   0.048   0.060   28600   0.017
390          RX  3760.9  4093.0  4156.0  4162.0  4207.0  4237.0  4366.0  5786.0
391          RY   101.5    96.5    93.4    91.7    92.3    94.4    94.4   101.5
392          RL                    1.99    91.7
             *
```

```
393          KK      1N
394          KM        SUB-BASIN 1N
395          BA    2.75
396          LG    0.35     0.35     4.18     0.49     0.00
397          UI     114      114      114      114      114      114      321      376      432      463
398          UI     526      557      594      626      654      687      724      769      823      867
399          UI     907     1001     1116     1316     1342     1539     1421     1286     1186     1109
400          UI    1037      987      936      895      845      787      739      699      664      615
401          UI     577      551      526      446      407      329      312      202      202      202
402          UI     193      188      188      188      126      114      114      114      114      114
403          UI      65       35       35       35       35       35       35       35       35       35
404          UI      35       35       35       35       35       35       35       35       35       35
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

405          UI       0        0        0        0        0        0        0        0        0        0
406          UI       0        0        0        0        0        0        0        0        0        0
             *

407          KK     C73
408          KM        Combine R71-73 + RR72-73 + 1N
409          HC       3
             *

410          KK  R73-74
411          KM        Channel Route From C73 To C74
412          KM        X-SECT. 1P1
413          RS      13     FLOW       -1
414          RC   0.060    0.050    0.060    13400    0.007
415          RX  3668.7   4142.0   4202.0   4208.0   4253.0   4276.0   4405.0   5131.9
416          RY    99.5     94.5     94.0     91.5     91.5     94.3     94.1     99.5
417          RL                     1.43     91.5
             *

418          KK      1P
419          KM        SUB-BASIN 1P
420          BA    4.56
421          LG    0.35     0.35     4.07     0.54     0.00
422          UI     140      140      140      140      140      140      140      140      320      459
423          UI     459      535      535      621      642      682      698      747      771      790
424          UI     823      856      886      922      973     1028     1061     1094     1155     1245
425          UI    1360     1457     1690     1681     1882     1813     1661     1559     1470     1385
426          UI    1322     1265     1215     1170     1130     1094     1053      999      944      901
427          UI     868      840      803      755      728      683      670      642      591      535
428          UI     498      401      401      348      247      247      247      247      237      229
429          UI     229      229      229      189      140      140      140      140      140      140
430          UI     140      138       43       43       43       43       43       43       43       43
431          UI      43       43       43       43       43       43       43       43       43       43
432          UI      43       43       43       43       43       43       43       43       43        0
433          UI       0        0        0        0        0        0        0        0        0        0
434          UI       0        0        0        0        0        0        0        0        0        0
             *

435          KK      1O
436          KM        SUB-BASIN 1O
437          BA    5.23
438          LG    0.28     0.35     3.67     0.69    10.00
439          UI     132      132      132      132      132      132      132      132      132      132
440          UI     332      381      381      413      508      508      568      609      667      761
441          UI     786      801      842      862      896      941      964      983     1015     1039
442          UI    1065     1102     1173     1269     1321     1442     1532     1654     1652     1435
443          UI    1189     1057     1010      952      914      888      846      821      801      783
444          UI     778      761      748      725      708      692      675      662      648      634
445          UI     624      609      601      564      564      541      534      527      508      508
446          UI     476      455      455      427      412      412      390      350      350      350
447          UI     337      324      324      324      318      305      305      305      305      280
448          UI     277      277      277      276      218      218      218      218      218      218
449          UI     179      169      169      169      169      169      169      169      149      145
450          UI     145      145      145      145      145      145      145      123      102      102
451          UI     102      102      102      102      102      102      102      102      102      102
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

452          UI      94       65       65       65       65       65       65       65       65       65
453          UI      65       65       65       65       65       65       65       65       65       6!
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454          UI      65      50      25      25      25      25      25      25      25      25
455          UI      25      25      25      25      25      25      25      25      25      25
456          UI      25      25      25      25      25      25      25      25      25      25
457          UI      25      25      25      25      25      25      25      25      25      25
458          UI      25      25      25      25      25      25      25      25      25      25
459          UI      25      25      25      25       0       0       0       0       0       0
460          UI       0       0       0       0       0       0       0       0       0       0
             *

461          KK     C74
462          KM        Combine R73-74 + 1P + 1O
463          HC       3
             *

464          KK  R74-77
465          KM        Channel Route From C74 To C77
466          KM        X-SECT. 1U1
467          RS      25    FLOW      -1
468          RC   0.050   0.039   0.050   29800   0.011
469          RX  3469.0  4354.0  4597.0  4609.0  4776.0  4785.0  4875.0  5931.0
470          RY    98.3    93.3    93.1    90.9    89.3    92.7    92.6    98.3
471          RL                    2.81    89.3
             *

472          KK      1U
473          KM        SUB-BASIN 1U
474          BA    3.19
475          LG    0.35    0.35    3.21    0.93    0.00
476          UI      92      92      92      92      92      92      92      92      98     302
477          UI     302     317     352     352     419     423     449     457     491     503
478          UI     515     539     553     571     601     624     652     683     704     726
479          UI     770     827     899     953    1123    1084    1226    1211    1127    1045
480          UI     987     937     893     855     821     790     763     739     717     692
481          UI     659     621     597     577     556     533     516     480     463     449
482          UI     430     422     369     352     315     264     264     234     162     162
483          UI     162     162     160     151     151     151     151     151     106      92
484          UI      92      92      92      92      92      92      92      41      28      28
485          UI      28      28      28      28      28      28      28      28      28      28
486          UI      28      28      28      28      28      28      28      28      28      28
487          UI      28      28      28      28      28      28       0       0       0       0
488          UI       0       0       0       0       0       0       0       0       0       0
             *

489          KK    C77R
490          KM        Combine R74-77 + 1U
491          HC       2
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

492          KK      1Q
493          KM        SUB-BASIN 1Q At C75
494          BA    5.30
495          LG    0.31    0.38    6.96    0.15    4.00
496          UI     142     142     142     142     142     142     142     142     142     252
497          UI     465     465     496     543     543     638     651     684     693     745
498          UI     758     794     806     835     864     885     931     965    1002    1051
499          UI    1083    1111    1161    1237    1333    1436    1604    1649    1742    1914
500          UI    1857    1734    1616    1532    1458    1393    1337    1286    1242    1202
501          UI    1163    1126    1097    1055    1012     958     922     897     857     833
502          UI     814     748     738     693     690     651     651     546     543     482
503          UI     407     407     393     251     251     251     251     251     239     233
504          UI     233     233     233     233     165     142     142     142     142     142
505          UI     142     142     142     133      43      43      43      43      43      43
506          UI      43      43      43      43      43      43      43      43      43      43
507          UI      43      43      43      43      43      43      43      43      43      43
508          UI      43      43      43      43      43       0       0       0       0       0
509          UI       0       0       0       0       0       0       0       0       0       0
             *

510          KK  R75-76
511          KM        Channel Route From C75 To C76
512          KM        Representative Of X-SECT. 1T1
513          RS       3    FLOW      -1
514          RC   0.060   0.052   0.060    3200   0.013
515          RX  3928.3  4099.0  4162.0  4170.0  4210.0  4234.0  4259.0  4564.4
```

```
516          RY    99.1    94.1    94.2    93.0    92.7    94.6    93.4    99.1
517          RL                    1.51    92.7
             *

518          KK      1R
519          KM        SUB-BASIN 1R
520          BA    2.90
521          LG    0.25    0.35    4.18    0.47   13.00
522          UI     122     122     122     122     122     122     320     351     437     480
523          UI     561     674     729     768     815     870     911     948     989    1083
524          UI    1196    1349    1517    1399    1075     926     860     806     761     730
525          UI     712     690     661     637     610     589     572     553     520     499
526          UI     486     468     436     419     385     379     329     323     309     299
527          UI     297     281     281     271     255     255     230     201     201     201
528          UI     168     156     156     156     156     135     134     134     134     134
529          UI     120      94      94      94      94      94      94      94      82      60
530          UI      60      60      60      60      60      60      60      60      60      60
531          UI      60      31      23      23      23      23      23      23      23      23
532          UI      23      23      23      23      23      23      23      23      23      23
533          UI      23      23      23      23      23      23      23      23      23      23
534          UI      23      23      23       0       0       0       0       0       0       0
535          UI       0       0       0       0       0       0       0       0       0       0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

536          KK     C76
537          KM        Combine R75-76 + 1R
538          HC       2
             *

539          KK  R76-77
540          KM        Channel Route From C76 To C77
541          KM        X-SECT. 1T1
542          RS      34    FLOW      -1
543          RC   0.060   0.052   0.060   34600   0.011
544          RX  3928.3  4099.0  4162.0  4170.0  4210.0  4234.0  4259.0  4564.4
545          RY    99.1    94.1    94.2    93.0    92.7    94.6    93.4    99.1
546          RL                    2.11    92.7
             *

547          KK      1T
548          KM        SUB-BASIN 1T
549          BA    4.67
550          LG    0.32    0.35    3.68    0.69    6.00
551          UI     111     111     111     111     111     111     111     111     111     111
552          UI     139     364     364     364     412     424     424     506     509     529
553          UI     542     560     592     602     621     634     653     672     688     720
554          UI     734     772     800     825     849     869     899     946    1019    1094
555          UI    1146    1344    1238    1393    1498    1463    1373    1296    1230    1173
556          UI    1123    1080    1042    1008     978     943     917     896     876     849
557          UI     814     790     749     727     707     677     669     637     629     579
558          UI     577     542     542     515     509     471     424     424     359     318
559          UI     318     318     217     196     196     196     196     196     186     182
560          UI     182     182     182     182     178     111     111     111     111     111
561          UI     111     111     111     111     111      98      34      34      34      34
562          UI      34      34      34      34      34      34      34      34      34      34
563          UI      34      34      34      34      34      34      34      34      34      34
564          UI      34      34      34      34      34      34      34      34      34      34
565          UI      34       0       0       0       0       0       0       0       0       0
566          UI       0       0       0       0       0       0       0       0       0       0
             *

567          KK    C77L
568          KM        Combine R76-77 + 1T
569          HC       2
             *

570          KK     C77
571          KM        Combine C77R(R74-77 + 1U) + C77L(R76-77 + 1T)
572          HC       2
             *

573          KK  R77-79
574          KM        Channel Route From C77 To C79
575          KM        X-SECT. 1W1
```

```
576          RS       6    FLOW      -1
577          RC   0.050   0.034   0.070    8400   0.008
578          RX  3116.0  4116.0  4199.0  4210.0  4307.0  4318.0  4372.0  4427.0
579          RY    96.6    91.6    91.0    88.9    88.3    91.1    93.9    98.9
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

580          RL                    1.53    88.3
             *

581          KK      1W
582          KM        SUB-BASIN 1W
583          BA    0.53
584          LG    0.29    0.35    3.44    0.81    7.00
585          UI      34      34      34      35     113     128     152     168     187     199
586          UI     216     237     260     286     338     407     454     396     348     315
587          UI     289     269     243     221     203     183     166     149     122      99
588          UI      64      61      58      56      51      34      34      34      29      11
589          UI      11      11      11      11      11      11      11      11      11      11
590          UI      11       0       0       0       0       0       0       0       0       0
591          UI       0       0       0       0       0       0       0       0       0       0
             *

592          KK  C79RUP
593          KM        Combine R77-79 + 1W
594          HC       2
             *

595          KK      1S
596          KM        SUB-BASIN 1S At C78
597          BA    4.77
598          LG    0.25    0.35    3.52    0.78    9.00
599          UI     138     138     138     138     138     138     138     138     166     398
600          UI     398     400     531     531     604     637     758     805     838     873
601          UI     903     939     995    1021    1048    1078    1111    1158    1248    1344
602          UI    1439    1562    1680    1750    1496    1195    1082    1024     976     936
603          UI     885     855     835     817     803     792     758     742     724     699
604          UI     692     663     660     637     627     590     586     559     559     533
605          UI     531     498     475     475     430     430     421     366     366     366
606          UI     345     339     339     336     318     318     318     310     289     289
607          UI     289     288     227     227     227     227     227     196     177     177
608          UI     177     177     177     177     160     152     152     152     152     152
609          UI     152     152     127     106     106     106     106     106     106     106
610          UI     106     106     106     106      70      68      68      68      68      68
611          UI      68      68      68      68      68      68      68      68      68      68
612          UI      68      68      36      27      27      27      27      27      27      27
613          UI      27      27      27      27      27      27      27      27      27      27
614          UI      27      27      27      27      27      27      27      27      27      27
615          UI      27      27      27      27      27      27      27      27      27      27
616          UI      27      27      27      27      27      27      27      27       0       0
617          UI       0       0       0       0       0       0       0       0       0       0
             *

618          KK   DC78R
619          KM         Main flow at C78 is in the right channel (DC78R)
620          KM         Diverted flow (DQ record) goes into the left channel (DC78L)
621          DT   DC78L
622          DI     0.0    25.0   270.0  1115.0  3200.0  7100.0 11900.0 18200.0
623          DQ     0.0     0.0    90.0   390.0  1400.0  3700.0  6900.0 11000.0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

624          KK  78R-79
625          KM        Channel Route From C78 To C79
626          KM        Representative Of X-SECT. 1W1
627          RS      13    FLOW      -1
628          RC   0.050   0.034   0.070   18200   0.009
629          RX  3116.0  4116.0  4199.0  4210.0  4307.0  4318.0  4372.0  4427.0
630          RY    96.6    91.6    91.0    88.9    88.3    91.1    93.9    98.9
631          RL                    8.51    88.3
             *

632          KK      1V
633          KM        SUB-BASIN S1V
```

```
634          BA    2.16
635          LG    0.29     0.35     3.73     0.67     6.00
636          UI      98       98       98       98       98      172      323      355      386      452
637          UI     478      513      543      570      601      638      686      737      769      845
638          UI     953     1131     1177     1311     1183     1069      984      918      858      816
639          UI     772      728      675      630      592      559      513      481      456      404
640          UI     362      283      263      174      174      174      162      161      161      129
641          UI      98       98       98       98       98       41       30       30       30       30
642          UI      30       30       30       30       30       30       30       30       30       30
643          UI      30       30       30        0        0        0        0        0        0        0
644          UI       0        0        0        0        0        0        0        0        0        0
             *

645          KK  C79LUP
646          KM        Combine R78R-79 + 1V
647          HC       2
             *

648          KK     C79
649          KM        Combine C79RUP(R77-79 + 1W) + C79LUP(R78R-79 + 1V)
650          HC       2
             *

651          KK   DC79R
652          KM         Main flow at C79 is in the right channel (DC79R)
653          KM         Diverted flow (DQ record) goes into the left channel (DC79L)
654          DT   DC79L
655          DI     0.0    110.0    400.0    500.0   1700.0   5000.0  10300.0  19700.0
656          DQ     0.0    110.0    400.0    485.0   1300.0   3100.0   5500.0   9400.0
             *

657          KK  79R-81
658          KM        Channel Route From C79R To C81
659          KM        X-SECT. 1X1
660          RS      12     FLOW       -1
661          RC   0.050    0.040    0.060    17000    0.010
662          RX  3762.5   4075.0   4162.0   4172.0   4223.0   4239.0   4260.0   4480.8
663          RY   100.6     95.6     94.8     91.9     92.0     93.9     92.7    100.6
664          RL                     1.76     91.9
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

665          KK  BDC79L
666          KM        Bring Back Flow Split Diverted Hydrograph DC79L
667          DR   DC79L
             *

668          KK  79L-80
669          KM        Channel Route From C79L To C80
670          KM        Representative Of X-SECT. 1x1
671          RS       4     FLOW       -1
672          RC   0.050    0.040    0.060     5200    0.009
673          RX  3762.5   4075.0   4162.0   4172.0   4223.0   4239.0   4260.0   4480.8
674          RY   100.6     95.6     94.8     91.9     92.0     93.9     92.7    100.6
675          RL                     1.93     91.9
             *

676          KK   DC80R
677          KM         Main flow at C80 is in the right channel (C80R)
678          KM         Diverted flow (DQ record) goes into the left channel (C80L)
679          DT   DC80L
680          DI     0.0    170.0   1300.0   2500.0   4950.0   5275.0  11240.0
681          DQ     0.0    170.0   1300.0   2500.0   4900.0   5200.0  10900.0
             *

682          KK  80R-81
683          KM        Channel Route From C80R To C81
684          KM        Representative Of X-SECT. 1X1
685          RS      25     FLOW       -1
686          RC   0.050    0.040    0.060    12600    0.009
687          RX  3762.5   4075.0   4162.0   4172.0   4223.0   4239.0   4260.0   4480.8
688          RY   100.6     95.6     94.8     91.9     92.0     93.9     92.7    100.6
689          RL                     7.87     91.9
             *
```

```
690          KK      1X
691          KM        Basin 1X
692          KM    Lag Used =  66.0 minutes
693          KM    The Phoenix Valley S-Graph was used for this basin.
694          BA    2.62
695          LG    0.35     0.35     3.94     0.58     0.00
696          UI     121      121      121      121      121      232      397      443      485      557
697          UI     591      640      673      707      747      800      860      914      964     1069
698          UI    1214     1407     1543     1573     1402     1276     1180     1096     1036      979
699          UI     936      860      801      752      711      657      611      578      541      463
700          UI     382      347      246      214      214      205      199      199      184      121
701          UI     121      121      121      121       71       37       37       37       37       37
702          UI      37       37       37       37       37       37       37       37       37       37
703          UI      37       37        0        0        0        0        0        0        0        0
704          UI       0        0        0        0        0        0        0        0        0        0
             *
                                          HEC-1 INPUT                                                    PAGE 17

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


705          KK     C81
706          KM        Combine R79R-81 + R80R-81 + 1X
707          KM        Area: 77.13sm, 1X=2.62sm
708          HC       3   79.75
             *

709          KK   DC81R
710          KM         Main flow at C81 is in the right channel (C81R)
711          KM         Diverted flow (DQ record) goes into the left channel (C81L)
712          DT   DC81L
713          DI     0.0     50.0    110.0    655.0   3060.0   9600.0  16600.0
714          DQ     0.0     50.0     95.0    580.0   2600.0   6200.0   9600.0
             *

715          KK  81R-82
716          KM        Channel Route From C81R To C82
717          KM        X-SECT. 1Y2
718          RS      37     FLOW       -1
719          RC   0.050    0.041    0.050    23400    0.008
720          RX  3316.7   4150.0   4322.0   4328.0   4344.0   4349.0   4458.0   5043.8
721          RY    99.8     94.8     94.7     92.2     92.0     93.8     93.0     99.8
722          RL                     0.95     92.0
             *

723          KK  BDC81L
724          KM        Bring Back Flow Split Diverted Hydrograph DC81L
725          DR   DC81L
             *

726          KK  81L-82
727          KM        Channel Route From C81L To C82
728          KM        X-SECT. 1Y1
729          RS      32     FLOW       -1
730          RC   0.050    0.036    0.060    24000    0.008
731          RX  3804.0   4294.0   4315.0   4325.0   4362.0   4370.0   4412.0   5892.0
732          RY   101.2     96.2     96.3     93.6     93.4     95.2     93.8    101.2
733          RL                     1.26     93.4
             *

734          KK      1Y
735          KM        Basin 1Y
736          KM    Lag Used =  91.0 minutes
737          KM    The Phoenix Valley S-Graph was used for this basin.
738          BA    5.32
739          LG    0.35     0.35     3.91     0.60     0.00
740          UI     179      179      179      179      179      179      179      316      589      589
741          UI     687      687      824      841      877      939      974     1005     1055     1094
742          UI    1141     1196     1262     1335     1380     1438     1558     1710     1845     2152
743          UI    2173     2423     2266     2096     1935     1826     1732     1637     1567     1504
744          UI    1448     1397     1330     1255     1192     1138     1084     1039      983      934
745          UI     877      852      824      714      687      549      515      489      317      317
746          UI     317      317      299      294      294      294      279      179      179      179
747          UI     179      179      179      179      121       55       55       55       55       55
748          UI      55       55       55       55       55       55       55       55       55       55
                                          HEC-1 INPUT                                                    PAGE 18

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......1(
```

```
749          UI      55      55      55      55      55      55      55      55      55       0
750          UI       0       0       0       0       0       0       0       0       0       0
751          UI       0       0       0       0       0       0       0       0       0       0
             *

752          KK     C82
753          KM        Combine R81R-82 + R81L-82 + 1Y At Interstate 8
754          KM        Area: 79.75sm, 1Y=5.32sm
755          HC       3   85.07
             *
             * DC82R modified by Premier Engineering Corp. 8/15/00 to reflect results of
             * hydraulic analysis
             *

756          KK   DC82R
757          KM         Main flow at CP82 is in the right channel (C82R) and passes under I-8.
758          KM         Diverted flow (DQ record) goes into the left channel (C82L) and runs
759          KM         west along the south side of I-8 to C132 at Sand Tank Wash.
760          DT   DC82L
             * DI   0.0    4465    5508    6900
             * DQ   0.0     0.0     500    1350
761          DI       0    2100    3000    4000    5000    5530    6000
762          DQ       0     887    1536    2380    3278    3331    4171
             *

763          KK  82-135
764          KM        Channel Route From C82 To C135I
765          KM        Bender Wash HEC-2 Section 1.172
766          RS       6    FLOW      -1
767          RC   0.030   0.035   0.030    7000   0.006
768          RX  9361.4 10095.4 10469.3 10482.5 10645.3 10695.3 10747.9 10999.7
769          RY   757.5   752.5   751.5   748.5   751.1   751.6   752.2   757.5
770          RL                    2.63   748.5
             *

771          KK     2VV
772          KM        SUB-BASIN 2VV
773          BA    3.74
774          LG    0.34    0.34    3.49    0.79    4.00
775          UI     138     138     138     138     138     138     146     455     455     523
776          UI     539     637     659     686     740     770     800     834     874     922
777          UI     978    1036    1074    1137    1242    1388    1622    1608    1853    1767
778          UI    1615    1486    1396    1309    1245    1189    1134    1089    1039     974
779          UI     919     873     834     796     733     699     673     637     574     530
780          UI     429     398     346     245     245     245     238     227     227     227
781          UI     214     138     138     138     138     138     138     122      42      42
782          UI      42      42      42      42      42      42      42      42      42      42
783          UI      42      42      42      42      42      42      42      42      42      42
784          UI       0       0       0       0       0       0       0       0       0       0
785          UI       0       0       0       0       0       0       0       0       0       0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

786          KK   C135I
787          KM        Combine R82-135 + 2VV At The Gila Bend Canal
788          KO                                      21
789          HC       2
             *
             *
             *    ******************************************************
             *    *                          END                       *
             *    * BENDER WASH (Major Basin 1) At The Gila Bend Canal *
             *    *                                                    *
             *    ******************************************************
             *
             *
             *    ***********************************
             *    *              START              *
             *    * SAND TANK WASH (Major Basin 2) *
             *    *                                 *
             *    ***********************************
             *
             *
```

```
790          KK      2D
791          KM        SUB-BASIN 2D At C87
792          BA    1.75
793          LG    0.25     0.20     9.40     0.02    10.00
794          UI      92       92       92       92      108      265      299      360      428      535
795          UI     569      609      661      695      735      805      917     1056     1130      841
796          UI     691      636      585      552      536      512      486      464      444      426
797          UI     399      379      364      348      316      295      281      243      239      225
798          UI     222      212      209      192      192      161      151      151      125      118
799          UI     118      118      102      101      101      101       87       71       71       71
800          UI      71       71       69       45       45       45       45       45       45       45
801          UI      45       45       44       18       18       18       18       18       18       18
802          UI      18       18       18       18       18       18       18       18       18       18
803          UI      18       18       18       18       18       18       18       18        0        0
804          UI       0        0        0        0        0        0        0        0        0        0
             *

805          KK  R87-89
806          KM        Channel Route From C87 To C89
807          KM        Representative Of X-SECT. 2H1
808          RS       8    FLOW      -1
809          RC   0.050    0.047    0.050     7000    0.013
810          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
811          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
812          RL                     0.89     86.0
             *

813          KK      2F
814          KM        SUB-BASIN 2F At C88
815          BA    0.75
816          LG    0.25     0.20     9.40     0.02    10.00
817          UI      51       51       51       66      145      186      226      295      319      353
818          UI     381      409      473      561      605      424      359      324      302      288
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

819          UI     270      255      240      226      210      198      183      167      153      134
820          UI     126      122      116      111      106       91       83       77       65       65
821          UI      61       55       55       55       41       39       39       39       39       27
822          UI      25       25       25       25       25       25       25       10       10       10
823          UI      10       10       10       10       10       10       10       10       10       10
824          UI      10       10       10       10       10       10       10        0        0        0
825          UI       0        0        0        0        0        0        0        0        0        0
             *

826          KK  R88-89
827          KM        Channel Route From C88 To C89
828          KM        Representative Of X-SECT. 2H1
829          RS       4    FLOW      -1
830          RC   0.050    0.047    0.050     3200    0.033
831          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
832          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
833          RL                     1.27     86.0
             *

834          KK     C89
835          KM        Combine R87-89 + R88-89
836          HC       2
             *

837          KK  R89-91
838          KM        Channel Route From C89 To C91
839          KM        X-SECT.
840          RS       6    FLOW      -1
841          RC   0.050    0.047    0.050     6000    0.018
842          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
843          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
844          RL                     0.89     86.0
             *

845          KK      2E
846          KM        SUB-BASIN 2E
847          BA    1.00
848          LG    0.32     0.36     7.32     0.12     3.00
849          UI      91       91      125      314      388      459      515      574      659      747
850          UI     965     1152     1043      881      775      694      604      533      460      398
851          UI     299      202      161      150      134       91       91       64       28       21
```

```
852          UI      28      28      28      28      28      28       0       0       0       0
853          UI       0       0       0       0       0       0       0       0       0       0
             *

854          KK      2G
855          KM        SUB-BASIN 2G
856          BA    1.13
857          LG    0.31    0.33    7.78    0.10    4.00
858          UI      81      81      81     154     279     333     386     431     466     511
859          UI     567     623     710     890    1021     988     846     751     685     632
860          UI     564     506     461     409     378     306     233     161     143     135
861          UI     133     103      81      81      81      27      25      25      25      25
862          UI      25      25      25      25      25      25       0       0       0       0
863          UI       0       0       0       0       0       0       0       0       0       0
             *
                                          HEC-1 INPUT                                          PAGE 21

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

864          KK     C91
865          KM        Combine R89-91 + 2E + 2G
866          HC       3
             *

867          KK  R91-92
868          KM        Channel Route From C91 To C92
869          KM        Representative Of X-SECT. 2H1
870          RS       4    FLOW      -1
871          RC   0.050   0.047   0.050    4400   0.014
872          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
873          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
874          RL                    0.50    86.0
             *

875          KK      2I
876          KM        SUB-BASIN 2I
877          BA    0.87
878          LG    0.25    0.20    9.40    0.02   10.00
879          UI      73      73      73     201     275     371     449     505     558     621
880          UI     764     875     600     500     447     421     389     360     337     306
881          UI     286     256     229     195     182     173     165     153     129     120
882          UI      97      94      87      80      80      64      56      56      56      43
883          UI      36      36      36      36      36      27      14      14      14      14
884          UI      14      14      14      14      14      14      14      14      14      14
885          UI      14       0       0       0       0       0       0       0       0       0
886          UI       0       0       0       0       0       0       0       0       0       0
             *

887          KK      2H
888          KM        SUB-BASIN 2H
889          BA    1.59
890          LG    0.33    0.40    6.60    0.18    2.00
891          UI     114     114     114     217     393     468     543     606     656     718
892          UI     798     877     999    1252    1437    1390    1190    1057     964     889
893          UI     793     712     649     576     531     431     327     226     202     190
894          UI     187     145     114     114     114      37      35      35      35      35
895          UI      35      35      35      35      35      35       0       0       0       0
896          UI       0       0       0       0       0       0       0       0       0       0
             *

897          KK     C92
898          KM        Combine R91-92 + 2I + 2H
899          HC       3
             *

900          KK  R92-95
901          KM        Channel Route From C92 To C95
902          KM        Representative Of X-SECT. 2H1
903          RS       4    FLOW      -1
904          RC   0.050   0.047   0.050    4200   0.011
905          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
906          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
907          RL                    0.45    86.0
             *
                                          HEC-1 INPUT                                          PAGE 22

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......1(
```

```
908          KK      2K
909          KM        SUB-BASIN 2K
910          BA    2.19
911          LG    0.25     0.20     9.40     0.02    10.00
912          UI      81       81       81       81       81       81       85      233      233      279
913          UI     311      359      397      467      490      515      542      575      597      618
914          UI     643      677      743      801      904      991      981      775      641      596
915          UI     560      529      503      486      475      466      444      429      416      405
916          UI     388      380      372      345      338      327      316      311      284      278
917          UI     257      252      231      214      214      200      198      198      186      186
918          UI     186      169      169      169      144      133      133      133      120      104
919          UI     104      104      104      104       89       89       89       89       89       89
920          UI      72       62       62       62       62       62       62       62       62       51
921          UI      40       40       40       40       40       40       40       40       40       40
922          UI      40       40       40       33       16       16       16       16       16       16
923          UI      16       16       16       16       16       16       16       16       16       16
924          UI      16       16       16       16       16       16       16       16       16       16
925          UI      16       16       16       16       16       16       16       16       16       16
926          UI       0        0        0        0        0        0        0        0        0        0
927          UI       0        0        0        0        0        0        0        0        0        0
             *

928          KK  R93-94
929          KM        Channel Route From C93 To C94
930          KM        Representative Of X-SECT. 2H1
931          RS       5    FLOW       -1
932          RC   0.050    0.047    0.050     4800    0.023
933          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
934          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
935          RL                     0.99     86.0
             *

936          KK      2L
937          KM        SUB-BASIN 2L
938          BA    0.94
939          LG    0.28     0.25     8.20     0.04     7.00
940          UI      44       44       44       44       44       84      126      150      173      202
941          UI     249      266      284      304      322      337      354      387      432      495
942          UI     553      458      349      321      294      276      263      256      247      235
943          UI     225      217      209      202      187      180      174      169      153      147
944          UI     137      126      116      113      108      107      101      101       94       92
945          UI      90       72       72       72       60       56       56       56       53       48
946          UI      48       48       48       42       34       34       34       34       34       34
947          UI      31       22       22       22       22       22       22       22       22       22
948          UI      22       22        9        8        8        8        8        8        8        8
949          UI       8        8        8        8        8        8        8        8        8        8
950          UI       8        8        8        8        8        8        8        8        8        8
951          UI       0        0        0        0        0        0        0        0        0        0
952          UI       0        0        0        0        0        0        0        0        0        0
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

953          KK      C94
954          KM        Combine R93-94 + 2L
955          HC        2
             *

956          KK  R94-95
957          KM        Channel Route From C94 To C95
958          KM        X-SECT. 2M1
959          RS       3    FLOW       -1
960          RC   0.060    0.048    0.060     5800    0.020
961          RX  3030.0   4030.0   4067.0   4081.0   4127.0   4163.0   4308.0   5708.0
962          RY   100.7     95.7     93.6     89.6     89.6     92.1     93.7    100.7
963          RL                     2.27     89.6
             *

964          KK      2M
965          KM        SUB-BASIN 2M
966          BA    1.40
967          LG    0.34     0.38     5.05     0.26     1.00
968          UI     139      139      263      501      644      742      832      960     1097     1398
969          UI    1751     1586     1320     1157     1019      878      761      659      510      34!
```

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970          UI     245     230     204     139     139      75      43      43      43      43
971          UI      43      43      43       0       0       0       0       0       0       0
972          UI       0       0       0       0       0       0       0       0       0       0
             *

973          KK      2J
974          KM        SUB-BASIN 2J
975          BA    1.16
976          LG    0.25    0.20    9.40    0.02   10.00
977          UI      57      57      57      57      57     142     165     219     247     296
978          UI     340     361     389     418     436     461     504     568     653     715
979          UI     560     447     405     376     353     340     329     312     298     286
980          UI     275     264     247     236     228     220     197     188     179     157
981          UI     152     142     141     135     132     127     120     120      96      94
982          UI      94      78      73      73      73      66      63      63      63      63
983          UI      45      44      44      44      44      44      42      28      28      28
984          UI      28      28      28      28      28      28      28      20      11      11
985          UI      11      11      11      11      11      11      11      11      11      11
986          UI      11      11      11      11      11      11      11      11      11      11
987          UI      11      11      11      11       0       0       0       0       0       0
988          UI       0       0       0       0       0       0       0       0       0       0
             *

989          KK     C95
990          KM        Combine R92-95 + R94-95 + 2M + 2J
991          HC       4
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

992          KK  R95-96
993          KM        Channel Route From C95 To C96
994          KM        Representative Of X-SECT. 2O1
995          RS      13    FLOW      -1
996          RC   0.070   0.043   0.060   11600   0.012
997          RX  3030.0  4030.0  4372.0  4385.0  4427.0  4437.0  4543.0  4563.0
998          RY    91.9    86.9    89.9    86.7    86.8    88.5    95.0   100.0
999          RL                    0.21    86.7
             *

1000         KK      2A
1001         KM        SUB-BASIN 2A At C83
1002         BA    4.33
1003         LG    0.30    0.30    8.05    0.08    5.00
1004         UI     144     144     144     144     144     144     144     229     474     474
1005         UI     545     553     651     672     706     747     778     810     842     873
1006         UI     909     951    1006    1067    1103    1140    1222    1346    1469    1715
1007         UI    1668    1923    1890    1721    1608    1499    1417    1348    1288    1234
1008         UI    1183    1142    1101    1037     977     930     891     858     829     755
1009         UI     729     706     666     634     553     519     415     415     326     255
1010         UI     255     255     252     237     237     237     237     194     144     144
1011         UI     144     144     144     144     144      72      44      44      44      44
1012         UI      44      44      44      44      44      44      44      44      44      44
1013         UI      44      44      44      44      44      44      44      44      44      44
1014         UI       0       0       0       0       0       0       0       0       0       0
1015         UI       0       0       0       0       0       0       0       0       0       0
             *

1016         KK  R83-84
1017         KM        Channel Route From C83 To C84
1018         KM        Representative Of X-SECT. 2H1
1019         RS       6    FLOW      -1
1020         RC   0.050   0.047   0.050    8200   0.033
1021         RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
1022         RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
1023         RL                    0.86    86.0
             *

1024         KK   DC84L
1025         KM        Main flow at C84 is in the left channel (DC84L)
1026         KM        Diverted flow (DQ record) goes into the right channel (DC84R)
1027         DT   DC84R
1028         DI     0.0   200.0  1000.0  1110.0  3590.0  7400.0 12900.0 18100.0
1029         DQ     0.0     0.0     0.0    10.0   190.0  1000.0  2900.0  4600.0
             *
```

```
1030        KK  84L-85
1031        KM        Channel Route From C84L To C85
1032        KM        X-SECT. 2B1
1033        RS      10    FLOW      -1
1034        RC   0.060   0.039   0.080    8800   0.020
1035        RX  3022.0  4022.0  4622.0  4629.0  4656.0  4661.0  4761.0  4779.0
1036        RY    98.9    93.9    94.4    93.4    93.2    94.1    93.7    99.5
1037        RL                    0.52    93.2
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1038        KK      2B
1039        KM        SUB-BASIN 2B
1040        BA    3.31
1041        LG    0.33    0.40    6.29    0.20    2.00
1042        UI     153     153     153     153     153     293     502     560     613     703
1043        UI     747     808     850     893     943    1011    1087    1154    1217    1351
1044        UI    1534    1777    1949    1987    1771    1612    1490    1384    1309    1236
1045        UI    1182    1086    1012     950     898     830     771     730     683     585
1046        UI     482     439     311     270     270     259     251     251     232     153
1047        UI     153     153     153     153      90      47      47      47      47      47
1048        UI      47      47      47      47      47      47      47      47      47      47
1049        UI      47      47       0       0       0       0       0       0       0       0
1050        UI       0       0       0       0       0       0       0       0       0       0
            *

1051        KK     C85
1052        KM        Combine R84L-85 + 2B
1053        HC       2
            *

1054        KK  R85-96
1055        KM        Channel Route From C85 To C96
1056        KM        Representative Of X-SECT. 2P1
1057        RS      16    FLOW      -1
1058        RC   0.060   0.044   0.070   10800   0.015
1059        RX  3050.0  4050.0  4850.0  4859.0  5014.0  5026.0  5251.0  5271.0
1060        RY    99.2    94.2    94.4    92.8    92.0    94.8    97.0   100.0
1061        RL                    0.71    92.0
            *

1062        KK  BDC84R
1063        KM        Bring Back Diverted Flow DC84R
1064        DR   DC84R
            *

1065        KK  84R-86
1066        KM        Channel Route From C84R To C86
1067        KM        Representative Of X-SECT. 2O1
1068        RS      17    FLOW      -1
1069        RC   0.070   0.043   0.060    7200   0.022
1070        RX  3030.0  4030.0  4372.0  4385.0  4427.0  4437.0  4543.0  4563.0
1071        RY    91.9    86.9    89.9    86.7    86.8    88.5    95.0   100.0
1072        RL                    2.24    86.7
            *

1073        KK      2N
1074        KM        SUB-BASIN 2N
1075        BA    2.20
1076        LG    0.33    0.40    6.29    0.20    2.00
1077        UI     135     135     135     135     376     479     558     639     697     753
1078        UI     810     873     965    1040    1158    1359    1626    1783    1554    1377
1079        UI    1248    1151    1073     990     890     824     752     681     633     543
1080        UI     434     361     238     238     225     221     202     135     135     135
1081        UI     134      41      41      41      41      41      41      41      41      41
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1082        UI      41      41      41      41       0       0       0       0       0       0
1083        UI       0       0       0       0       0       0       0       0       0       0
            *

1084        KK     C86
1085        KM        Combine R84R-86 + 2N
```

```
1086        KM        Area: DC84R=4.33sm, 2N=2.20sm
1087        HC       2     6.53
            *

1088        KK  R86-96
1089        KM        Channel Route From C86 To C96
1090        KM        X-SECT. 201
1091        RS      18     FLOW      -1
1092        RC   0.070    0.043   0.060   12200   0.015
1093        RX  3030.0   4030.0  4372.0  4385.0  4427.0  4437.0  4543.0  4563.0
1094        RY    91.9     86.9    89.9    86.7    86.8    88.5    95.0   100.0
1095        RL                    0.34    86.7
            *

1096        KK      2C
1097        KM        SUB-BASIN 2C
1098        BA    2.32
1099        LG    0.25     0.20    9.40    0.02   10.00
1100        UI     107      107     107     107     107     188     308     354     410     492
1101        UI     588      641     680     732     779     811     853     915    1031    1161
1102        UI    1324     1213     903     798     739     690     648     630     612     583
1103        UI     559      535     515     498     473     451     432     414     395     367
1104        UI     342      333     286     283     266     262     254     246     244     224
1105        UI     224      204     176     176     176     137     137     137     137     124
1106        UI     117      117     117     117      99      82      82      82      82      82
1107        UI      82       76      52      52      52      52      52      52      52      52
1108        UI      52       52      52      28      21      21      21      21      21      21
1109        UI      21       21      21      21      21      21      21      21      21      21
1110        UI      21       21      21      21      21      21      21      21      21      21
1111        UI      21       21       0       0       0       0       0       0       0       0
1112        UI       0        0       0       0       0       0       0       0       0       0
            *

1113        KK      2O
1114        KM        SUB-BASIN 2O
1115        BA    3.37
1116        LG    0.25     0.20    9.40    0.02   10.00
1117        UI     169      169     169     169     169     443     499     649     745     900
1118        UI    1011     1080    1168    1241    1305    1371    1542    1737    1978    2049
1119        UI    1509     1267    1169    1082    1018     989     951     904     863     828
1120        UI     796      759     716     683     653     613     579     526     496     448
1121        UI     433      414     406     390     386     354     354     305     278     278
1122        UI     246      216     216     216     201     185     185     185     185     140
1123        UI     130      130     130     130     130     124      83      83      83      83
1124        UI      83       83      83      83      83      83      52      32      32      32
1125        UI      32       32      32      32      32      32      32      32      32      32
1126        UI      32       32      32      32      32      32      32      32      32      32
1127        UI      32       32      32       0       0       0       0       0       0       0
1128        UI       0        0       0       0       0       0       0       0       0       0
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1129        KK      C96
1130        KM        Combine R95-96 + R85-96 + R86-96 + 2C + 2O
1131        HC       5
            *

1132        KK  R96-97
1133        KM        Channel Route From C96 To C97
1134        KM        X-SECT. 2P1
1135        RS      15     FLOW      -1
1136        RC   0.060    0.044   0.070   16600   0.014
1137        RX  3050.0   4050.0  4850.0  4859.0  5014.0  5026.0  5251.0  5271.0
1138        RY    99.2     94.2    94.4    92.8    92.0    94.8    97.0   100.0
1139        RL                    1.58    92.0
            *

1140        KK      2P
1141        KM        SUB-BASIN 2P
1142        BA    3.51
1143        LG    0.28     0.39    5.98    0.18    9.00
1144        UI     169      169     169     169     169     369     485     609     695     815
1145        UI     984     1043    1113    1195    1264    1320    1408    1579    1781    2036
1146        UI    1979     1465    1261    1166    1085    1018     990     957     911     871
1147        UI     836      806     777     723     693     669     647     583     559     52!
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1148        UI     473     446     425     413     402     388     385     353     353     313
1149        UI     277     277     261     216     216     216     214     185     185     185
1150        UI     185     176     129     129     129     129     129     129     122      83
1151        UI      83      83      83      83      83      83      83      83      83      73
1152        UI      32      32      32      32      32      32      32      32      32      32
1153        UI      32      32      32      32      32      32      32      32      32      32
1154        UI      32      32      32      32      32      32      32       0       0       0
1155        UI       0       0       0       0       0       0       0       0       0       0
            *

1156        KK     C97
1157        KM        Combine R96-97 + 2P
1158        HC       2
            *

1159        KK  97-100
1160        KM        Channel Route From C97 To C100
1161        KM        Interpolated X-SECT. Between 2U1 and 2P1
1162        RS       6    FLOW      -1
1163        RC   0.060   0.046   0.065    6200   0.012
1164        RX  3033.0  4033.0  4458.0  4471.0  4586.0  4610.0  4741.0  6001.0
1165        RY   101.0    96.0    95.4    91.4    90.9    93.7    94.7   101.0
1166        RL                   1.63    90.9
            *

1167        KK      2Q
1168        KM        SUB-BASIN 2Q At C98
1169        BA    2.93
1170        LG    0.22    0.35    3.71    0.30   10.00
1171        UI     117     117     117     117     117     117     241     338     374     450
1172        UI     508     573     680     713     752     799     850     881     916     954
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1173        UI    1046    1150    1287    1429    1406    1091     917     850     792     749
1174        UI     711     693     677     651     626     604     586     563     546     527
1175        UI     500     479     469     450     425     403     378     365     333     310
1176        UI     307     287     287     278     270     270     252     246     246     212
1177        UI     193     193     193     162     150     150     150     150     135     129
1178        UI     129     129     129     129      98      90      90      90      90      90
1179        UI      90      90      77      57      57      57      57      57      57      57
1180        UI      57      57      57      57      57      49      23      23      23      23
1181        UI      23      23      23      23      23      23      23      23      23      23
1182        UI      23      23      23      23      23      23      23      23      23      23
1183        UI      23      23      23      23      23      23      23      23      23       0
1184        UI       0       0       0       0       0       0       0       0       0       0
1185        UI       0       0       0       0       0       0       0       0       0       0
            *

1186        KK  R98-99
1187        KM        Channel Route From C98 To C99
1188        KM        Interpolated X-SECT. Between 2U1 and 2P1
1189        RS       8    FLOW      -1
1190        RC   0.060   0.046   0.065   12400   0.015
1191        RX  3033.0  4033.0  4458.0  4471.0  4586.0  4610.0  4741.0  6001.0
1192        RY   101.0    96.0    95.4    91.4    90.9    93.7    94.7   101.0
1193        RL                   8.16    90.9
            *

1194        KK      2R
1195        KM        SUB-BASIN 2R
1196        BA    2.67
1197        LG    0.30    0.35    3.36    0.83    5.00
1198        UI     134     134     134     134     134     399     463     514     613     650
1199        UI     705     747     790     845     905     978    1041    1127    1292    1536
1200        UI    1655    1757    1554    1404    1289    1200    1124    1063     995     916
1201        UI     846     796     736     678     638     581     512     386     352     237
1202        UI     237     232     220     220     203     134     134     134     134     128
1203        UI      41      41      41      41      41      41      41      41      41      41
1204        UI      41      41      41      41      41      41       0       0       0       0
1205        UI       0       0       0       0       0       0       0       0       0       0
            *

1206        KK     C99
1207        KM        Combine R98-99 + 2R
1208        HC       2
            *
```

```
1209        KK  99-100
1210        KM        Channel Route From C99 To C100
1211        KM        Interpolated X-SECT. Between 2U1 and 2P1
1212        RS       6    FLOW      -1
1213        RC   0.060   0.046   0.065    9800   0.012
1214        RX  3033.0  4033.0  4458.0  4471.0  4586.0  4610.0  4741.0  6001.0
1215        RY   101.0    96.0    95.4    91.4    90.9    93.7    94.7   101.0
1216        RL                   4.99    90.9
            *
                                   HEC-1 INPUT                                          PAGE 29

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1217        KK      2S
1218        KM        SUB-BASIN 2S
1219        BA    1.82
1220        LG    0.32    0.35    3.35    0.85    4.00
1221        UI     128     128     128     221     433     513     604     665     729     788
1222        UI     870     967    1072    1290    1566    1644    1399    1232    1119    1027
1223        UI     937     838     760     685     615     542     428     335     226     224
1224        UI     210     210     136     128     128     108      39      39      39      39
1225        UI      39      39      39      39      39      39      39       0       0       0
1226        UI       0       0       0       0       0       0       0       0       0       0
            *

1227        KK    C100
1228        KM        Combine R97-100 + R99-100 + 2S
1229        HC       3
            *

1230        KK  100101
1231        KM        Channel Route From C100 To C101
1232        KM        Representative Of X-SECT. 2U1
1233        RS       4    FLOW      -1
1234        RC   0.060   0.047   0.060    4600   0.011
1235        RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1236        RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1237        RL                   1.28    89.7
            *

1238        KK      2T
1239        KM        SUB-BASIN 2T
1240        BA    4.90
1241        LG    0.27    0.33    7.78    0.09    9.00
1242        UI     128     128     128     128     128     128     128     128     128     154
1243        UI     368     368     368     450     490     499     588     588     727     744
1244        UI     774     799     819     865     896     925     949     976    1000    1026
1245        UI    1061    1132    1226    1278    1405    1488    1622    1555    1362    1088
1246        UI    1004     957     919     865     839     817     775     767     754     741
1247        UI     735     702     695     669     661     639     632     613     607     588
1248        UI     585     545     545     523     516     508     490     490     454     439
1249        UI     439     404     398     397     359     338     338     338     315     313
1250        UI     313     313     297     294     294     294     279     267     267     267
1251        UI     267     219     210     210     210     210     210     172     163     163
1252        UI     163     163     163     163     162     140     140     140     140     140
1253        UI     140     140     140     138      98      98      98      98      98      98
1254        UI      98      98      98      98      98      98      93      63      63      63
1255        UI      63      63      63      63      63      63      63      63      63      63
1256        UI      63      63      63      63      63      63      63      27      25      25
1257        UI      25      25      25      25      25      25      25      25      25      25
1258        UI      25      25      25      25      25      25      25      25      25      25
1259        UI      25      25      25      25      25      25      25      25      25      25
1260        UI      25      25      25      25      25      25      25      25      25      25
1261        UI      25      25      25      25      25      25      25      25       0       0
1262        UI       0       0       0       0       0       0       0       0       0       0
            *
                                   HEC-1 INPUT                                          PAGE 30

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1263        KK    C101
1264        KM        Combine R100-101 + 2T
1265        HC       2
            *
```

```
1266          KK  101102
1267          KM        X-SECT. 2U1
1268          RS       6    FLOW      -1
1269          RC   0.060   0.047   0.060    7600   0.011
1270          RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1271          RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1272          RL                    2.15    89.7
              *

1273          KK      2U
1274          KM        SUB-BASIN 2U
1275          BA    1.38
1276          LG    0.32    0.35    3.32    0.91    4.00
1277          UI      82      82      82      82     199     281     322     380     411     447
1278          UI     474     514     556     612     656     755     915    1017    1040     901
1279          UI     810     740     685     641     589     535     495     454     412     384
1280          UI     333     271     233     144     144     139     134     134      87      82
1281          UI      82      82      52      25      25      25      25      25      25      25
1282          UI      25      25      25      25      25      25       0       0       0       0
1283          UI       0       0       0       0       0       0       0       0       0       0
              *

1284          KK    C102
1285          KM        Combine R101-102 + 2U
1286          HC       2
              *

1287          KK  102103
1288          KM        Channel Route From C102 To C103
1289          KM        Representative Of X-SECT. 2U1
1290          RS       5    FLOW      -1
1291          RC   0.060   0.047   0.060    5400   0.010
1292          RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1293          RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1294          RL                    1.24    89.7
              *

1295          KK      2V
1296          KM        SUB-BASIN 2V
1297          BA    7.57
1298          LG    0.27    0.39    5.67    0.19    9.00
1299          UI     209     209     209     209     209     209     209     209     209     462
1300          UI     601     601     679     801     801     954     961    1182    1220    1264
1301          UI    1317    1357    1413    1493    1531    1568    1608    1657    1713    1822
1302          UI    1963    2069    2255    2421    2646    2529    2209    1719    1618    1538
1303          UI    1472    1413    1339    1301    1264    1234    1221    1201    1160    1143
1304          UI    1092    1081    1045    1029    1001     985     961     934     890     881
1305          UI     843     843     807     801     766     717     717     670     649     649
1306          UI     583     552     552     546     511     511     511     501     481     481
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1307          UI     481     469     437     437     437     437     363     343     343     343
1308          UI     343     336     267     267     267     267     267     267     267     237
1309          UI     229     229     229     229     229     229     229     213     160     160
1310          UI     160     160     160     160     160     160     160     160     160     158
1311          UI     102     102     102     102     102     102     102     102     102     102
1312          UI     102     102     102     102     102     102     102     102     102      45
1313          UI      40      40      40      40      40      40      40      40      40      40
1314          UI      40      40      40      40      40      40      40      40      40      40
1315          UI      40      40      40      40      40      40      40      40      40      40
1316          UI      40      40      40      40      40      40      40      40      40      40
1317          UI      40      40      40      40      40      40      40       0       0       0
1318          UI       0       0       0       0       0       0       0       0       0       0
              *

1319          KK    C103
1320          KM        Combine R102-103 + 2V
1321          HC       2
              *

1322          KK  103107
1323          KM        Channel Route From C103 To C107
1324          KM        X-SECT. 2Y1
1325          RS      22    FLOW      -1
1326          RC   0.050   0.050   0.050   24200   0.009
1327          RX  3841.4  4219.0  4294.0  4322.0  4337.0  4347.0  4485.0  5305.(
```

```
1328          RY    97.7    92.7    93.7    91.2    91.6    93.6    93.6    97.7
1329          RL                    0.55    91.2
              *

1330          KK      2W
1331          KM        SUB-BASIN 2W At C104
1332          BA    6.29
1333          LG    0.28    0.25    8.40    0.05    7.00
1334          UI     210     210     210     210     210     210     210     311     603     603
1335          UI     716     804     891     965    1172    1238    1286    1341    1418    1496
1336          UI    1546    1595    1649    1709    1832    2015    2171    2373    2641    2483
1337          UI    2021    1674    1566    1478    1404    1340    1271    1246    1225    1204
1338          UI    1148    1116    1089    1048    1022    1005     965     944     893     871
1339          UI     846     823     804     759     720     701     652     652     575     554
1340          UI     554     519     513     513     492     482     482     468     438     438
1341          UI     438     380     344     344     344     344     275     268     268     268
1342          UI     268     268     235     230     230     230     230     230     230     176
1343          UI     161     161     161     161     161     161     161     161     161     121
1344          UI     103     103     103     103     103     103     103     103     103     103
1345          UI     103     103     103     103     103      49      40      40      40      40
1346          UI      40      40      40      40      40      40      40      40      40      40
1347          UI      40      40      40      40      40      40      40      40      40      40
1348          UI      40      40      40      40      40      40      40      40      40      40
1349          UI      40      40      40      40      40       0       0       0       0       0
1350          UI       0       0       0       0       0       0       0       0       0       0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1351          KK  104105
1352          KM        Channel Route From C104 To C105
1353          KM        X-SECT. 2X1
1354          RS      20    FLOW      -1
1355          RC   0.060   0.034   0.060   30400   0.015
1356          RX  3933.3  4100.0  4156.0  4173.0  4331.0  4336.0  4389.0  4579.9
1357          RY    98.0    93.0    93.2    92.3    92.4    93.4    93.8    98.0
1358          RL                    2.38    92.3
              *

1359          KK      2X
1360          KM        SUB-BASIN 2X
1361          BA   10.31
1362          LG    0.29    0.25    8.60    0.06    6.00
1363          UI     235     235     235     235     235     235     235     235     235     235
1364          UI     235     522     674     674     674     833     899     899    1033    1079
1365          UI    1154    1349    1370    1420    1454    1499    1556    1587    1684    1708
1366          UI    1740    1791    1822    1860    1924    2012    2126    2259    2345    2564
1367          UI    2690    2839    3088    2650    2396    1927    1833    1771    1686    1620
1368          UI    1587    1499    1482    1420    1407    1383    1369    1349    1320    1284
1369          UI    1263    1226    1215    1173    1173    1127    1124    1099    1079    1071
1370          UI     999     999     976     946     946     917     899     899     837     805
1371          UI     805     778     729     729     729     652     620     620     620     601
1372          UI     574     574     574     574     547     539     539     539     539     498
1373          UI     490     490     490     490     447     385     385     385     385     385
1374          UI     385     342     300     300     300     300     300     300     300     300
1375          UI     273     257     257     257     257     257     257     257     257     257
1376          UI     236     180     180     180     180     180     180     180     180     180
1377          UI     180     180     180     180     180     149     115     115     115     115
1378          UI     115     115     115     115     115     115     115     115     115     115
1379          UI     115     115     115     115     115     115     115     115      95      45
1380          UI      45      45      45      45      45      45      45      45      45      45
1381          UI      45      45      45      45      45      45      45      45      45      45
1382          UI      45      45      45      45      45      45      45      45      45      45
1383          UI      45      45      45      45      45      45      45      45      45      45
1384          UI      45      45      45      45      45      45      45      45      45      45
1385          UI      45      45      45      45      45      45      45       0       0       0
1386          UI       0       0       0       0       0       0       0       0       0       0
              *

1387          KK    C105
1388          KM        Combine R104-105 + 2X
1389          HC       2
              *

1390          KK  105107
1391          KM        Channel Route From C105 To C107
```

```
1392          KM        X-SECT. 2Y2
1393          RS      44    FLOW      -1
1394          RC   0.050   0.051   0.050   36800   0.009
1395          RX  3063.0  4063.0  4156.0  4162.0  4177.0  4184.0  4229.0  4914.7
1396          RY    99.7    94.7    93.2    90.9    90.5    92.8    94.9    99.7
1397          RL                    0.59    90.5
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1398          KK      2Y
1399          KM        SUB-BASIN 2Y
1400          BA   13.40
1401          LG    0.33    0.35    4.03    0.36    2.00
1402          UI     318     318     318     318     318     318     318     318     318     318
1403          UI     400    1044    1044    1044    1183    1218    1218    1452    1462    1517
1404          UI    1555    1608    1699    1727    1782    1818    1874    1929    1975    2065
1405          UI    2105    2214    2297    2366    2436    2494    2579    2715    2923    3140
1406          UI    3288    3857    3553    3996    4299    4199    3939    3718    3529    3365
1407          UI    3223    3098    2989    2892    2806    2707    2632    2570    2514    2436
1408          UI    2337    2265    2149    2087    2030    1942    1921    1827    1805    1661
1409          UI    1656    1555    1555    1478    1462    1350    1218    1218    1030     913
1410          UI     913     913     622     562     562     562     562     562     535     522
1411          UI     522     522     522     522     512     318     318     318     318     318
1412          UI     318     318     318     318     318     282      97      97      97      97
1413          UI      97      97      97      97      97      97      97      97      97      97
1414          UI      97      97      97      97      97      97      97      97      97      97
1415          UI      97      97      97      97      97      97      97      97      97      97
1416          UI      97       0       0       0       0       0       0       0       0       0
1417          UI       0       0       0       0       0       0       0       0       0       0
              *

1418          KK    C107
1419          KM        Combine R103-107 + R105-107 + 2Y
1420          HC       3
              *
              * No Route Performed From C107 To C113.  Reach length is too short.
              *

1421          KK     2BB
1422          KM        SUB-BASIN 2BB At C108
1423          BA    2.40
1424          LG    0.29    0.25    8.60    0.07    6.00
1425          UI     144     144     144     144     335     444     563     690     848     909
1426          UI    1000    1072    1136    1252    1455    1712    1650    1147    1022     937
1427          UI     866     838     794     746     710     678     637     597     568     532
1428          UI     490     448     400     379     353     346     332     317     302     274
1429          UI     237     237     194     184     184     172     158     158     158     133
1430          UI     111     111     111     111     111      73      71      71      71      71
1431          UI      71      71      71      64      28      28      28      28      28      28
1432          UI      28      28      28      28      28      28      28      28      28      28
1433          UI      28      28      28      28      28      28       0       0       0       0
1434          UI       0       0       0       0       0       0       0       0       0       0
              *

1435          KK  108111
1436          KM        Channel Route From C108 To C111
1437          KM        X-SECT. 2AA1
1438          RS      16    FLOW      -1
1439          RC   0.050   0.065   0.050   12200   0.009
1440          RX  3711.2  4055.0  4145.0  4157.0  4183.0  4234.0  4309.0  4504.7
1441          RY    99.4    94.4    94.2    91.5    91.4    94.4    93.4    99.4
1442          RL                    1.02    91.4
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1443          KK      2Z
1444          KM        SUB-BASIN 2Z At 110
1445          BA    5.10
1446          LG    0.30    0.28    8.28    0.08    5.00
1447          UI     153     153     153     153     153     153     153     153     272     441
1448          UI     441     503     588     610     705     762     882     920     949     983
1449          UI    1037    1089    1123    1154    1189    1226    1278    1382    1490    160
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```
1450        UI    1737    1900    1889    1618    1259    1177    1112    1059    1014     977
1451        UI     928     913     900     882     853     835     801     785     767     742
1452        UI     735     706     700     653     650     619     619     589     588     544
1453        UI     526     516     477     477     444     405     405     399     375     375
1454        UI     375     360     353     353     353     322     321     321     321     262
1455        UI     252     252     252     252     217     196     196     196     196     196
1456        UI     196     171     168     168     168     168     168     168     165     118
1457        UI     118     118     118     118     118     118     118     118     118     118
1458        UI      81      75      75      75      75      75      75      75      75      75
1459        UI      75      75      75      75      75      75      75      60      29      29
1460        UI      29      29      29      29      29      29      29      29      29      29
1461        UI      29      29      29      29      29      29      29      29      29      29
1462        UI      29      29      29      29      29      29      29      29      29      29
1463        UI      29      29      29      29      29      29      29      29      29      29
1464        UI      29      29       0       0       0       0       0       0       0       0
1465        UI       0       0       0       0       0       0       0       0       0       0
            *

1466        KK  110111
1467        KM        Channel Route From C110 To C111
1468        KM        X-SECT. 2AA2
1469        RS      20    FLOW      -1
1470        RC   0.050   0.045   0.050   21000   0.011
1471        RX  3827.9  4081.0  4184.0  4193.0  4236.0  4246.0  4321.0  4648.5
1472        RY   100.0    95.0    94.9    93.9    93.8    94.9    94.1   100.0
1473        RL                   1.67    93.8
            *

1474        KK     2AA
1475        KM        SUB-BASIN 2AA
1476        BA    3.73
1477        LG    0.33    0.39    5.98    0.18    2.00
1478        UI     157     157     157     157     157     157     468     516     602     650
1479        UI     725     768     826     867     907     952    1006    1070    1146    1204
1480        UI    1276    1403    1587    1837    1949    2086    1886    1718    1592    1480
1481        UI    1401    1322    1264    1212    1119    1048     988     937     886     819
1482        UI     768     733     669     602     475     451     329     278     278     273
1483        UI     258     258     258     207     157     157     157     157     157     116
1484        UI      48      48      48      48      48      48      48      48      48      48
1485        UI      48      48      48      48      48      48      48      48      48       0
1486        UI       0       0       0       0       0       0       0       0       0       0
1487        UI       0       0       0       0       0       0       0       0       0       0
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1488        KK    C111
1489        KM        Combine R108-111 + R110-111 + 2AA
1490        HC       3
            *

1491        KK  111113
1492        KM        Channel Route From C111 To C113
1493        KM        Representative Of X-SECT. 2CC2
1494        RS      40    FLOW      -1
1495        RC   0.050   0.046   0.050   33200   0.008
1496        RX  3896.5  4069.0  4210.0  4220.0  4245.0  4250.0  4300.0  4538.5
1497        RY    97.9    92.9    93.4    91.9    91.5    93.3    93.4    97.9
1498        RL                   1.12    91.5
            *

1499        KK     2CC
1500        KM        SUB-BASIN 2CC
1501        BA    4.38
1502        LG    0.35    0.35    4.30    0.45    0.00
1503        UI     117     117     117     117     117     117     117     117     117     208
1504        UI     385     385     410     449     449     528     538     565     573     616
1505        UI     626     657     666     690     714     731     769     798     828     868
1506        UI     895     918     959    1022    1102    1186    1326    1363    1440    1582
1507        UI    1535    1433    1336    1266    1205    1151    1105    1063    1026     993
1508        UI     961     931     906     872     836     792     762     741     708     688
1509        UI     673     619     610     573     570     538     538     452     449     398
1510        UI     336     336     325     207     207     207     207     207     198     192
1511        UI     192     192     192     192     136     117     117     117     117     117
1512        UI     117     117     117     110      36      36      36      36      36      36
1513        UI      36      36      36      36      36      36      36      36      36      3(
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1514          UI      36      36      36      36      36      36      36      36      36      36
1515          UI      36      36      36      36      36       0       0       0       0       0
1516          UI       0       0       0       0       0       0       0       0       0       0
              *

1517          KK    C113
1518          KM        Combine C107 + R111-113 + 2CC
1519          HC       3
              *

1520          KK  113127
1521          KM        Channel Route From C113 To C127
1522          KM        Representative Of X-SECT. 2UU1
1523          RS       6    FLOW      -1
1524          RC   0.050   0.038   0.050    8200   0.006
1525          RX  3516.0  4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1526          RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
1527          RL                    0.80    91.6
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1528          KK     2DD
1529          KM     SUB-BASIN 2DD
1530          BA    0.54
1531          LG    0.35    0.35    4.18    0.50    0.00
1532          UI      34      34      34      34     108     126     148     165     184     197
1533          UI     212     232     256     277     322     388     448     416     362     326
1534          UI     298     277     255     229     211     192     173     161     137     107
1535          UI      86      61      61      56      56      44      34      34      34      22
1536          UI      11      11      11      11      11      11      11      11      11      11
1537          UI      11      11       0       0       0       0       0       0       0       0
1538          UI       0       0       0       0       0       0       0       0       0       0
              *

1539          KK   C127R
1540          KM        Combine R113-127 + 2DD
1541          KO                                  21
1542          HC       2
              *

1543          KK     2GG
1544          KM        SUB-BASIN 2GG At C114
1545          BA    6.69
1546          LG    0.31    0.30    8.05    0.09    4.00
1547          UI     207     207     207     207     207     207     207     207     511     679
1548          UI     690     792     792     938     957    1011    1048    1105    1150    1180
1549          UI    1219    1280    1327    1384    1451    1533    1584    1633    1741    1882
1550          UI    2070    2313    2390    2641    2794    2591    2418    2252    2125    2020
1551          UI    1927    1845    1773    1708    1650    1597    1517    1441    1376    1320
1552          UI    1253    1214    1174    1080    1043    1011     961     949     792     792
1553          UI     627     594     594     383     366     366     366     360     339     339
1554          UI     339     339     324     207     207     207     207     207     207     207
1555          UI     207      98      63      63      63      63      63      63      63      63
1556          UI      63      63      63      63      63      63      63      63      63      63
1557          UI      63      63      63      63      63      63      63      63       0       0
1558          UI       0       0       0       0       0       0       0       0       0       0
              *

1559          KK  114115
1560          KM        Channel Route From C114 To C115
1561          KM        Representative Of X-SECT. 3B1
1562          RS      17    FLOW      -1
1563          RC   0.050   0.049   0.060   14000   0.013
1564          RX  3484.0  4129.0  4153.0  4159.0  4184.0  4193.0  4355.0  6275.0
1565          RY   101.0    96.0    94.7    91.0    90.8    93.8    91.4   101.0
1566          RL                    1.37    90.8
              *

1567          KK     2HH
1568          KM        SUB-BASIN 2HH
1569          BA    6.76
1570          LG    0.32    0.38    5.05    0.22    3.00
1571          UI     268     268     268     268     268     268     564     880     953    1026
1572          UI    1191    1262    1317    1432    1490    1554    1628    1714    1816    1938
1573          UI    2034    2121    2331    2585    2972    3131    3558    3442    3119    286!
```

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1574          UI    2666    2510    2375    2253    2158    2072    1941    1814    1711    1622
1575          UI    1547    1431    1353    1295    1232    1072    1006     770     770     529
1576          UI     474     474     469     440     440     440     412     268     268     268
1577          UI     268     268     268     148      82      82      82      82      82      82
1578          UI      82      82      82      82      82      82      82      82      82      82
1579          UI      82      82      82      82       0       0       0       0       0       0
1580          UI       0       0       0       0       0       0       0       0       0       0
              *

1581          KK    C115
1582          KM        Combine R114-115 + 2HH
1583          HC       2
              *

1584          KK  115116
1585          KM        Channel Route From C115 To C116
1586          KM        Representative Of X-SECT. 3B1
1587          RS      10    FLOW      -1
1588          RC   0.050   0.049   0.060    9600   0.015
1589          RX  3484.0  4129.0  4153.0  4159.0  4184.0  4193.0  4355.0  6275.0
1590          RY   101.0    96.0    94.7    91.0    90.8    93.8    91.4   101.0
1591          RL                    0.79    90.8
              *

1592          KK     2II
1593          KM        SUB-BASIN 2II
1594          BA    2.22
1595          LG    0.28    0.25    8.40    0.05    7.00
1596          UI      83      83      83      83      83      83      99     239     239     294
1597          UI     318     376     420     483     504     531     561     596     618     640
1598          UI     666     706     776     850     941    1061     931     738     643     599
1599          UI     562     531     505     493     483     469     452     434     419     408
1600          UI     398     382     368     354     338     332     318     306     285     276
1601          UI     258     253     220     220     211     203     203     195     191     191
1602          UI     179     174     174     159     136     136     136     130     106     106
1603          UI     106     106     106      94      91      91      91      91      91      77
1604          UI      64      64      64      64      64      64      64      64      52      41
1605          UI      41      41      41      41      41      41      41      41      41      41
1606          UI      41      41      31      16      16      16      16      16      16      16
1607          UI      16      16      16      16      16      16      16      16      16      16
1608          UI      16      16      16      16      16      16      16      16      16      16
1609          UI      16      16      16      16      16      16      16      16       0       0
1610          UI       0       0       0       0       0       0       0       0       0       0
              *

1611          KK    C116
1612          KM        Combine R115-116 + 2II
1613          HC       2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1614          KK  DC116R
1615          KM        Main flow at C116 is in the right channel (DC116R)
1616          KM        Diverted flow (DQ record) goes into the left channel (DC116L)
1617          DT  DC116L
1618          DI     0.0    15.0    75.0   490.0  1450.0  3300.0  5950.0  8900.0 11400.0
1619          DQ     0.0    15.0    35.0   175.0   490.0  1100.0  2050.0  3200.0  4000.0
              *

1620          KK  116119
1621          KM        Channel Route From C116R To C119
1622          KM        Representative Of X-SECT. 2KK1
1623          RS      17    FLOW      -1
1624          RC   0.050   0.055   0.050   14200   0.014
1625          RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1626          RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1627          RL                    0.97    91.0
              *

1628          KK     2EE
1629          KM        SUB-BASIN 2EE At C118
```

```
1630        BA    4.13
1631        LG    0.28     0.25     8.20     0.04     7.00
1632        UI     170      170      170      170      170      170      396      488      573      650
1633        UI     765      881      997     1049     1109     1181     1242     1290     1349     1433
1634        UI    1584     1757     1959     2137     1773     1359     1256     1171     1100     1040
1635        UI    1008      984      949      911      879      848      814      792      765      722
1636        UI     692      676      650      610      582      540      527      469      448      436
1637        UI     415      415      395      390      388      355      355      351      279      279
1638        UI     279      265      217      217      217      217      207      186      186      186
1639        UI     186      186      154      130      130      130      130      130      130      130
1640        UI     113       83       83       83       83       83       83       83       83       83
1641        UI      83       83       83       57       33       33       33       33       33       33
1642        UI      33       33       33       33       33       33       33       33       33       33
1643        UI      33       33       33       33       33       33       33       33       33       33
1644        UI      33       33       33       33       33       33        0        0        0        0
1645        UI       0        0        0        0        0        0        0        0        0        0
            *

1646        KK  118119
1647        KM        Channel Route From C118 To C119
1648        KM        Representative Of X-SECT. 2KK1
1649        RS       6    FLOW      -1
1650        RC   0.050   0.055   0.050    5400   0.013
1651        RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1652        RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1653        RL                    0.97    91.0
            *

1654        KK     2JJ
1655        KM        SUB-BASIN 2JJ
1656        BA    0.89
1657        LG    0.35     0.35     3.50     0.28     0.00
1658        UI      59       59       59       71      193      222      265      294      322      346
1659        UI     376      417      453      509      624      722      754      646      573      521
                                          HEC-1 INPUT                                                    PAGE 39

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1660        UI     481      444      398      364      331      297      275      231      177      137
1661        UI     104      102       97       97       63       59       59       59       19       18
1662        UI      18       18       18       18       18       18       18       18       18       18
1663        UI       0        0        0        0        0        0        0        0        0        0
1664        UI       0        0        0        0        0        0        0        0        0        0
            *

1665        KK    C119
1666        KM        Combine R116R-119 + R118-119 + 2JJ
1667        HC       3
            *

1668        KK  119120
1669        KM        Channel Route From C119 To C120
1670        KM        X-SECT. 2KK1
1671        RS      45    FLOW      -1
1672        RC   0.050   0.055   0.050   43600   0.011
1673        RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1674        RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1675        RL                    0.91    91.0
            *

1676        KK     2KK
1677        KM        SUB-BASIN 2KK
1678        BA    4.19
1679        LG    0.35     0.35     3.55     0.29     0.00
1680        UI     101      101      101      101      101      101      101      101      101      101
1681        UI     162      331      331      331      386      386      402      464      464      489
1682        UI     493      524      539      557      565      587      594      624      634      662
1683        UI     685      704      748      762      778      799      849      898      960     1023
1684        UI    1125     1202     1193     1337     1359     1273     1199     1137     1083     1035
1685        UI     994      958      926      891      864      841      821      799      775      748
1686        UI     724      682      666      644      619      610      580      574      527      525
1687        UI     493      493      468      464      423      386      386      317      290      290
1688        UI     290      180      178      178      178      178      178      167      166      166
1689        UI     166      166      166      140      101      101      101      101      101      101
1690        UI     101      101      101      101       55       31       31       31       31       31
1691        UI      31       31       31       31       31       31       31       31       31       31
1692        UI      31       31       31       31       31       31       31       31       31       31
1693        UI      31       31       31       31       31       31       31       31       31        (
```

```
1694        UI       0       0       0       0       0       0       0       0       0       0
1695        UI       0       0       0       0       0       0       0       0       0       0
            *

1696        KK   C120R
1697        KM        Combine R119-120 + 2KK
1698        KM        Area: 2GG-2II=15.67, 2KK=4.19, 2JJ=0.89, 2EE=4.13
1699        HC       2
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1700        KK     2LL
1701        KM        SUB-BASIN 2LL
1702        BA    5.18
1703        LG    0.35    0.35    3.50    0.29    0.00
1704        UI      99      99      99      99      99      99      99      99      99      99
1705        UI      99      99      99     195     324     324     324     340     378     378
1706        UI     378     435     453     453     477     482     484     527     527     540
1707        UI     553     555     581     581     606     613     633     648     668     687
1708        UI     713     731     749     755     781     797     839     885     923     985
1709        UI    1023    1157    1171    1124    1273    1333    1320    1251    1193    1133
1710        UI    1089    1051    1017     985     947     925     905     872     855     839
1711        UI     812     802     781     767     755     719     708     671     667     634
1712        UI     630     604     596     581     567     559     515     515     497     482
1713        UI     482     459     453     453     390     378     378     350     283     283
1714        UI     283     283     221     174     174     174     174     174     174     174
1715        UI     163     162     162     162     162     162     162     162     121      99
1716        UI      99      99      99      99      99      99      99      99      99      99
1717        UI      99      93      30      30      30      30      30      30      30      30
1718        UI      30      30      30      30      30      30      30      30      30      30
1719        UI      30      30      30      30      30      30      30      30      30      30
1720        UI      30      30      30      30      30      30      30      30      30      30
1721        UI      30      30      30      30      30      30       0       0       0       0
1722        UI       0       0       0       0       0       0       0       0       0       0
            *

1723        KK  BC116L
1724        KM        Bring Back Flow Split Diverted Hydrograph DC116L
1725        DR  DC116L
            *

1726        KK  116120
1727        KM        Channel Route From C116L To C120
1728        KM        Interpolated X-SECT. Between 2LL1 and 2LL2
1729        RS      86    FLOW      -1
1730        RC   0.055   0.051   0.060   59400   0.011
1731        RX  3949.7  4059.0  4146.0  4167.0  4221.0  4231.0  4378.0  4533.2
1732        RY    99.6    94.6    94.4    93.0    92.9    95.0    94.0    99.6
1733        RL                    1.79    92.9
            *

1734        KK    C120
1735        KM        Combine C120R(R119-120 + 2KK) + 2LL + R116L-120
1736        HC       3   30.06
            *

1737        KK  120121
1738        KM        Channel Route From C120 To C121
1739        KM        Representative Of X-SECT. 2FF3
1740        RS       8    FLOW      -1
1741        RC   0.050   0.051   0.050    9000   0.008
1742        RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1743        RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1744        RL                    1.20    91.8
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1745        KK     2MM
1746        KM        SUB-BASIN 2MM
1747        BA    0.91
1748        LG    0.35    0.35    3.32    0.86    0.00
1749        UI      57      57      57      57     168     205     240     271     298     32:
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```
1750        UI     345     377     414     445     510     626     698     726     625     560
1751        UI     509     471     440     396     361     334     302     275     249     207
1752        UI     163     116     100      97      93      93      61      57      57      57
1753        UI      27      17      17      17      17      17      17      17      17      17
1754        UI      17      17      17       0       0       0       0       0       0       0
1755        UI       0       0       0       0       0       0       0       0       0       0
            *

1756        KK    C121
1757        KM        Combine R120-121 + 2MM
1758        HC       2
            *

1759        KK  121123
1760        KM        Channel Route From C121 To C123
1761        KM        Representative Of X-SECT. 2FF3
1762        RS      11    FLOW      -1
1763        RC   0.050   0.051   0.050   10000   0.007
1764        RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1765        RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1766        RL                    0.75    91.8
            *

1767        KK     2FF
1768        KM        SUB-BASIN 2FF
1769        BA    5.51
1770        LG    0.35    0.35    3.82    0.35    0.00
1771        UI     102     102     102     102     102     102     102     102     102     102
1772        UI     102     102     102     131     337     337     337     337     387     393
1773        UI     393     415     471     471     479     502     502     522     548     548
1774        UI     571     575     586     604     605     637     637     665     674     701
1775        UI     714     745     760     781     786     813     827     873     916     952
1776        UI    1025    1058    1164    1253    1129    1310    1383    1387    1317    1254
1777        UI    1199    1153    1113    1072    1031    1005     981     943     924     907
1778        UI     875     863     842     824     813     789     782     737     730     693
1779        UI     690     655     655     623     620     601     589     578     536     536
1780        UI     517     502     502     480     471     471     416     393     393     384
1781        UI     295     295     295     295     265     181     181     181     181     181
1782        UI     181     181     176     168     168     168     168     168     168     168
1783        UI     168     104     102     102     102     102     102     102     102     102
1784        UI     102     102     102     102      96      31      31      31      31      31
1785        UI      31      31      31      31      31      31      31      31      31      31
1786        UI      31      31      31      31      31      31      31      31      31      31
1787        UI      31      31      31      31      31      31      31      31      31      31
1788        UI      31      31      31      31      31      31      31      31      31      31
1789        UI       0       0       0       0       0       0       0       0       0       0
1790        UI       0       0       0       0       0       0       0       0       0       0
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1791        KK    C123
1792        KM        Combine R121-123 + 2FF
1793        HC       2
            *

1794        KK  123140
1795        KM        Channel Route From C123 To C140
1796        KM        Representative Of X-SECT. 2FF3
1797        RS       4    FLOW      -1
1798        RC   0.050   0.051   0.050    3800   0.006
1799        RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1800        RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1801        RL                    0.80    91.8
            *

1802        KK     2NN
1803        KM        SUB-BASIN 2NN At C124
1804        BA    9.61
1805        LG    0.35    0.35    3.50    0.29    0.00
1806        UI     199     199     199     199     199     199     199     199     199     199
1807        UI     199     199     427     652     652     652     728     761     761     828
1808        UI     913     913     955     971     987    1062    1062    1105    1114    1148
1809        UI    1171    1201    1234    1268    1304    1350    1384    1453    1478    1522
1810        UI    1546    1574    1678    1748    1837    1985    2059    2362    2303    2356
1811        UI    2615    2686    2585    2443    2323    2220    2131    2053    1985    190
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1812        UI    1850    1803    1756    1696    1664    1631    1578    1556    1522    1453
1813        UI    1427    1344    1332    1268    1256    1201    1194    1141    1141    1043
1814        UI    1038    1001     971     971     913     913     870     761     761     756
1815        UI     571     571     571     571     422     351     351     351     351     351
1816        UI     351     336     326     326     326     326     326     326     325     199
1817        UI     199     199     199     199     199     199     199     199     199     199
1818        UI     199     128      61      61      61      61      61      61      61      61
1819        UI      61      61      61      61      61      61      61      61      61      61
1820        UI      61      61      61      61      61      61      61      61      61      61
1821        UI      61      61      61      61      61      61      61      61      61      61
1822        UI      61      61       0       0       0       0       0       0       0       0
1823        UI       0       0       0       0       0       0       0       0       0       0
            *

1824        KK     200
1825        KM         SUB-BASIN 200 At C124
1826        BA    0.85
1827        LG    0.35    0.35    3.50    0.29    0.00
1828        UI      52      52      52      52     145     185     215     247     269     291
1829        UI     313     337     373     402     447     525     628     689     600     532
1830        UI     482     445     415     383     344     318     290     263     245     210
1831        UI     168     140      92      92      87      85      78      52      52      52
1832        UI      52      16      16      16      16      16      16      16      16      16
1833        UI      16      16      16      16       0       0       0       0       0       0
1834        UI       0       0       0       0       0       0       0       0       0       0
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1835        KK    C124
1836        KM         Combine 2NN + 200
1837        HC       2
            *

1838        KK  124125
1839        KM         Channel Route From C124 To C125
1840        KM         Representative Of X-SECT. 2KK1
1841        RS      18    FLOW      -1
1842        RC   0.050   0.055   0.050   14600   0.008
1843        RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1844        RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1845        RL                    0.93    91.0
            *

1846        KK     2PP
1847        KM         SUB-BASIN 2PP
1848        BA    1.78
1849        LG    0.35    0.35    3.61    0.31    0.00
1850        UI      92      92      92      92      96     303     328     368     427     455
1851        UI     497     525     556     594     645     695     739     831     969    1102
1852        UI    1229    1113     994     905     837     783     740     690     636     586
1853        UI     549     507     466     438     394     343     265     226     163     163
1854        UI     156     151     151     120      92      92      92      92      57      28
1855        UI      28      28      28      28      28      28      28      28      28      28
1856        UI      28      28      28      28       0       0       0       0       0       0
1857        UI       0       0       0       0       0       0       0       0       0       0
            *

1858        KK    C125
1859        KM         Combine R124-125 + 2PP
1860        HC       2
            *

1861        KK  125126
1862        KM         Channel Route From C125 To C126
1863        KM         Representative Of X-SECT. 2FF3
1864        RS      18    FLOW      -1
1865        RC   0.050   0.051   0.050   14800   0.007
1866        RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1867        RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1868        RL                    1.24    91.8
            *

1869        KK     2QQ
1870        KM         SUB-BASIN 2QQ
1871        BA    1.67
```

```
1872          LG    0.35     0.35     3.48     0.80     0.00
1873          UI      87       87       87       87       90      284      308      345      401      427
1874          UI     466      492      522      557      605      652      693      779      909     1033
1875          UI    1153     1045      933      849      785      734      694      648      597      550
1876          UI     515      476      437      411      370      322      249      212      153      153
1877          UI     147      142      142      112       87       87       87       87       53       27
1878          UI      27       27       27       27       27       27       27       27       27       27
                                                HEC-1 INPUT                                                PAGE 44

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1879          UI      27       27       27       27        0        0        0        0        0        0
1880          UI       0        0        0        0        0        0        0        0        0        0
              *

1881          KK    C126
1882          KM        Combine R125-126 + 2QQ
1883          HC       2
              *

1884          KK  126140
1885          KM        Channel Route From C126 To C140
1886          KM        Representative Of X-SECT. 2UU1
1887          RS      15    FLOW      -1
1888          RC   0.050   0.038    0.050     9200    0.007
1889          RX  3516.0  4516.0   5083.0   5094.0   5148.0   5160.0   5298.0   5480.4
1890          RY    99.7    94.7     93.9     91.6     92.1     93.4     94.0     99.7
1891          RL                     0.85     91.6
              *

1892          KK    C140
1893          KM        Combine R123-140 + R126-140
1894          HC       2
              *

1895          KK  140127
1896          KM        Channel Route From C140 To C127
1897          KM        Representative Of X-SECT. 2UU1
1898          RS       8    FLOW      -1
1899          RC   0.050   0.038    0.050     6800    0.006
1900          RX  3516.0  4516.0   5083.0   5094.0   5148.0   5160.0   5298.0   5480.4
1901          RY    99.7    94.7     93.9     91.6     92.1     93.4     94.0     99.7
1902          RL                     0.93     91.6
              *

1903          KK     2RR
1904          KM        SUB-BASIN 2RR
1905          BA    0.93
1906          LG    0.35     0.35     4.15     0.54     0.00
1907          UI      41       41       41       41       41       58      135      144      158      186
1908          UI     197      210      224      235      247      262      279      299      316      336
1909          UI     372      421      484      535      535      479      437      404      377      357
1910          UI     337      322      302      280      262      247      234      215      202      192
1911          UI     172      156      118      117       73       73       73       69       68       68
1912          UI      63       41       41       41       41       41       31       13       13       13
1913          UI      13       13       13       13       13       13       13       13       13       13
1914          UI      13       13       13       13       13        0        0        0        0        0
1915          UI       0        0        0        0        0        0        0        0        0        0
              *

1916          KK     2YY
1917          KM        SUB-BASIN 2YY
1918          BA    1.12
1919          LG    0.35     0.35     3.36     0.90     0.00
1920          UI      47       47       47       47       47       47      131      153      176      188
1921          UI     214      227      242      255      266      280      295      313      335      353
                                                HEC-1 INPUT                                                PAGE 45

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1922          UI     370      408      454      536      547      627      579      524      483      452
1923          UI     422      402      381      364      344      321      301      285      271      250
1924          UI     235      224      214      182      166      134      127       82       82       82
1925          UI      79       76       76       76       51       47       47       47       47       47
1926          UI      26       14       14       14       14       14       14       14       14       14
1927          UI      14       14       14       14       14       14       14       14       14       14
1928          UI       0        0        0        0        0        0        0        0        0        0
1929          UI       0        0        0        0        0        0        0        0        0        (
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                *

1930            KK   C127L
1931            KM        Combine R140-127 + 2RR + 2YY
1932            HC       3
                *

1933            KK    C127
1934            KM        Combine C127L(R140-127 + 2RR + 2YY) + C127R(R113-127 + 2DD)
1935            HC       2
                *

1936            KK  127131
1937            KM        Channel Route From C127 To C131
1938            KM        Representative Of X-SECT. 2UU1
1939            KO                                      21
1940            RS       6    FLOW      -1
1941            RC   0.050   0.038   0.050    4800   0.004
1942            RX  3516.0  4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1943            RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
1944            RL                    0.77    91.6
                *

1945            KK  BDC78L
1946            KM        Bring Back Flow Split Diverted Hydrograph DC78L
1947            DR   DC78L
                *

1948            KK  78L128
1949            KM        Channel Route From C78L To C128
1950            KM        Representative Of X-SECT. 2TT1
1951            RS      20    FLOW      -1
1952            RC   0.060   0.039   0.060   10000   0.009
1953            RX  3066.0  4066.0  4102.0  4112.0  4150.0  4158.0  4208.0  4253.0
1954            RY    93.8    88.8    91.3    89.0    89.6    90.9    89.4    94.8
1955            RL                    2.09    88.8
                *

1956            KK     2SS
1957            KM        SUB-BASIN 2SS
1958            BA    3.83
1959            LG    0.29    0.35    3.34    0.84    5.00
1960            UI     129     129     129     129     129     129     129     227     424     424
1961            UI     494     494     593     606     631     676     701     723     759     788
1962            UI     821     861     908     961     993    1035    1122    1231    1329    1549
1963            UI    1565    1745    1631    1509    1393    1315    1247    1179    1128    1083
1964            UI    1042    1006     958     903     858     820     781     748     708     673
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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1965            UI     631     613     593     514     494     395     371     352     228     228
1966            UI     228     228     215     212     212     212     201     129     129     129
1967            UI     129     129     129     129      87      40      40      40      40      40
1968            UI      40      40      40      40      40      40      40      40      40      40
1969            UI      40      40      40      40      40      40      40      40      40       0
1970            UI       0       0       0       0       0       0       0       0       0       0
1971            UI       0       0       0       0       0       0       0       0       0       0
                *

1972            KK    C128
1973            KM        Combine R78L-128 + 2SS
1974            KM        Area: BDC78L=4.77sm, 2SS=3.83sm
1975            HC       2    8.60
                *

1976            KK  128129
1977            KM       Channel Route From C128 To C129
1978            KM       X-SECT. 2TT1
1979            RS      25    FLOW      -1
1980            RC   0.060   0.039   0.060   14200   0.010
1981            RX  4066.0  5066.0  5102.0  5112.0  5150.0  5158.0  5208.0  5253.0
1982            RY    93.8    88.8    91.3    89.0    89.6    90.9    89.4    94.8
1983            RL                    1.53    88.8
                *

1984            KK     2TT
1985            KM        SUB-BASIN 2TT
```

```
1986        BA    4.60
1987        LG    0.30     0.35     3.57     0.72     6.00
1988        UI     201      201      201      201      201      246      661      694      771      888
1989        UI     953     1009     1085     1135     1193     1262     1343     1440     1523     1600
1990        UI    1770     1992     2334     2453     2679     2419     2195     2027     1888     1775
1991        UI    1682     1605     1516     1407     1317     1241     1176     1088     1016      965
1992        UI     920      771      675      578      480      356      356      353      330      330
1993        UI     330      264      201      201      201      201      201      116       62       62
1994        UI      62       62       62       62       62       62       62       62       62       62
1995        UI      62       62       62       62       62       62        0        0        0        0
1996        UI       0        0        0        0        0        0        0        0        0        0
            *

1997        KK    C129
1998        KM       Combine R128-129 + 2TT
1999        HC       2
            *

2000        KK  129130
2001        KM       Channel Route From C129 To C130
2002        KM       X-SECT. 2UU2
2003        RS      12    FLOW      -1
2004        RC   0.050   0.055   0.050    9600   0.009
2005        RX  4225.0  5225.0  5375.0  5409.0  5464.0  5494.0  5794.0  5990.4
2006        RY    98.9    93.9    94.2    90.9    90.0    93.9    95.7    98.9
2007        RL                    1.48    90.0
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2008        KK  BDC80L
2009        KM        Bring Back Flow Split Diverted Hydrograph DC80L
2010        DR   DC80L
            *

2011        KK  80L130
2012        KM        Channel Route From C80L To C130
2013        KM        X-SECT. 2UU2
2014        RS      12    FLOW      -1
2015        RC   0.050   0.055   0.050   12000   0.009
2016        RX  3662.5  4225.0  4375.0  4409.0  4464.0  4494.0  4794.0  4990.4
2017        RY    98.9    93.9    94.2    90.9    90.0    93.9    95.7    98.9
2018        RL                    1.79    90.0
            *

2019        KK    C130
2020        KM        Combine R80L-130 + 2SS + 2TT
2021        KM        Area: DC80L=77.13sm, 2SS + 2TT 8.43sm
2022        HC       2   85.56
            *

2023        KK  130131
2024        KM       Channel Route From C130 To C131
2025        KM       X-SECT. 2UU1
2026        KO                                    21
2027        RS      32    FLOW      -1
2028        RC   0.050   0.038   0.050   27400   0.007
2029        RX  4516.0  5516.0  6083.0  6094.0  6148.0  6160.0  6298.0  6480.4
2030        RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
2031        RL                    0.94    91.6
            *

2032        KK    C131
2033        KM        Combine R127-131 + R130-131
2034        HC       2
            *

2035        KK  131132
2036        KM       Channel Route From C131 To C132
2037        KM       Interpolated X-SECT. Between 6P1 and 2UU1
2038        RS       6    FLOW      -1
2039        RC   0.050   0.055   0.050    4400   0.004
2040        RX  3432.0  5432.0  5783.0  5849.0  5909.0  6027.0  6271.0  7648.0
2041        RY    98.3    92.3    91.9    90.4    90.8    92.4    93.4    98.3
2042        RL                    0.70    90.4
            *
```

```
2043        KK     2UU
2044        KM        SUB-BASIN 2UU
2045        BA    8.10
2046        LG    0.35    0.35    3.81    0.65    0.00
2047        UI     168     168     168     168     168     168     168     168     168     168
2048        UI     168     168     392     553     553     553     627     645     645     718
2049        UI     774     774     817     824     849     900     900     944     944     982
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2050        UI     993    1029    1046    1087    1106    1159    1174    1249    1263    1291
2051        UI    1323    1350    1434    1513    1595    1691    1760    2117    1862    2091
2052        UI    2257    2278    2148    2038    1936    1851    1778    1714    1659    1609
2053        UI    1549    1507    1472    1434    1391    1367    1335    1301    1279    1210
2054        UI    1180    1139    1102    1076    1039    1019     989     968     930     880
2055        UI     877     824     824     798     774     774     669     645     645     552
2056        UI     484     484     484     436     298     298     298     298     298     298
2057        UI     293     277     277     277     277     277     277     277     203     168
2058        UI     168     168     168     168     168     168     168     168     168     168
2059        UI     138      52      52      52      52      52      52      52      52      52
2060        UI      52      52      52      52      52      52      52      52      52      52
2061        UI      52      52      52      52      52      52      52      52      52      52
2062        UI      52      52      52      52      52      52      52      52      52      52
2063        UI      52       0       0       0       0       0       0       0       0       0
2064        UI       0       0       0       0       0       0       0       0       0       0
            *

2065        KK  BDC82L
2066        KM        Recall Flow Split Diverted Hydrograph DC82L
2067        DR   DC82L
            *

2068        KK    C132
2069        KM       Combine R131-132 + 2UU + C82L at Interstate 8
2070        HC       3  330.40
            *
            * DC132R modified by Premier Engineering Corp. 8/15/00 to reflect hydraulic
            * analysis
            *

2071        KK  DC132R
2072        KM         Main flow at C132 is in the right channel (C132R) and passes
2073        KM         under I-8.  Diverted flow (DQ record) goes into the left channel
2074        KM         (C132L) west along the south side of I-8.
2075        DT  DC132L
            * DI   0.0  3550.0  5850.0  8750.0 12850.0  18450.  24000.  25400.  33600.
            * DQ   0.0     0.0   300.0  1000.0  2500.0  5400.0  8700.0  9600.0 15000.0
2076        DI       0    1100    3550    8750   18450   24274   25400
2077        DQ       0       0      89    1988    8362   13156   14118
            *

2078        KK  132133
2079        KM       Channel Route From C132 To C133 At The Gila Bend Canal
2080        KM        Representative Of X-SECT. 6P1
2081        RS       6    FLOW      -1
2082        RC   0.050   0.072   0.050    5000   0.006
2083        RX  3969.8  5348.0  5483.0  5603.0  5669.0  5894.0  6244.0  7544.0
2084        RY    95.8    89.8    89.8    89.1    89.4    91.3    92.7    95.8
2085        RL                    0.81    89.1
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2086        KK   C133I
2087        KM       Combine R132-133 + C135I(R82-135 + 2VV)
2088        HC       2  334.14
            *

2089        KK    PND3
2090        KM        Reservoir Route at POND3 (C133 + C135) At The Gila Bend Canal
2091        RS       1    ELEV   731.3
2092        SV     0.0    26.0    38.0    54.0    81.0   127.0   226.0
2093        SE   731.3     740     741     742     743     744     748
2094        SQ     0.0  2000.0  5035.0  8275.0 11092.0 14799.0 17002.0 18353.0 19926.0 20541.(
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```
2095        SQ   21317 25570.0
2096        SE   731.3   735.2   738.2   740.4   742.3   744.5   745.5   746.0   746.3   746.4
2097        SE   746.5   746.9
2098        RL                   0.67   731.3
            *

2099        KK   PND3N
2100        KM         Main flow at C133 north in main channel.
2101        KM         Diverted flow (DQ record) goes over the levee to the west into
2102        KM         sub-basin 7A.
2103        DT  DPND3W
2104        DI     0.0 17502.0 18353.0 18824.0 19305.0 19926.0 20541.0 21317.0 25570.0
2105        DQ     0.0     0.0   100.0   200.0   300.0   400.0   495.0   640.0  1400.0
            *

2106        KK   D133O
2107        KM         Main flow at C133O is in the left channel (R133O-141)
2108        KM         Diverted flow (DQ record) goes into the right channel (R135O-141)
2109        KM            Split reservoir route hydrograph downstream of GBC To simulate
2110        KM            outflow from C133 and C135.  The diverted hydrograph is the
2111        KM            outflow from the 30" CMP culverts at C135 plus flow diverted from
2112        KM            Sand Tank Wash into Bender Wash downstream of the Gila Bend Canal
2113        KM            by the Southern Pacific Railroad.
2114        DT   D135O
2115        DI     0.0     100     350     900    1500    1800    2350    3550    5050    6600
2116        DI    8600   11500   19200   24100   27600
2117        DQ       0       0       0       0       0       0      50     350     750    1250
2118        DQ    1900    2500    3200    3300    3600
            *

2119        KK  133141
2120        KM        Channel Route From C133O To C141
2121        KM        Sand Tank Wash HEC-2 Section 3.470
2122        RS       6    FLOW      -1
2123        RC   0.050   0.030   0.050    3700   0.003
2124        RX  7646.2  9932.3  9948.6  9965.5 10027.8 10034.0 10046.7 11681.8
2125        RY   730.0   724.1   722.7   719.4   719.5   723.2   725.2   730.0
2126        RL                   0.76   719.4
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2127        KK  BD135O
2128        KM       Bring Back diverted hydrograph D135O
2129        DR   D135O
            *

2130        KK  135141
2131        KM       Channel Route From C135O To C141
2132        KM       Bender Wash HEC-2 Section 0.224
2133        RS       5    FLOW      -1
2134        RC   0.035   0.030   0.035    3400   0.004
2135        RX  8926.2  9926.2  9971.9  9995.2 10000.0 10018.9 10041.8 11401.8
2136        RY   728.6   723.6   722.9   717.5   717.1   721.6   721.8   728.6
2137        RL                   0.60   717.1
            *

2138        KK    C141
2139        KM       Combine C133I + 2VV
2140        KM       Area: 330.40 + 3.74 = 334.14 sm
2141        HC       2  334.14
            *

2142        KK  141149
2143        KM        Channel Route From C141 To C149
2144        KM        Sand Tank Wash HEC-2 Section 2.147
2145        RS       6    FLOW      -1
2146        RC   0.060   0.030   0.050    6500   0.006
2147        RX  8945.8  9945.8  9953.5  9980.0 10000.0 10078.2 10116.8 11396.8
2148        RY   699.3   694.3   692.2   686.5   686.2   692.9   692.9   699.3
2149        RL                   0.61   686.2
            *

2150        KK     2WW
2151        KM        SUB-BASIN 2WW at C136I
2152        BA    5.82
```

```
2153        LG    0.34     0.35     3.49     0.78     1.00
2154        UI     144      144      144      144      144      144      144      144      144      144
2155        UI     333      473      473      505      552      552      627      663      680      705
2156        UI     724      771      783      808      828      850      882      897      947      972
2157        UI    1004     1066     1088     1112     1143     1216     1290     1384     1471     1663
2158        UI    1669     1763     1937     1912     1790     1686     1597     1520     1453     1395
2159        UI    1343     1298     1257     1221     1184     1148     1121     1091     1036      990
2160        UI     963      921      893      872      835      825      753      751      705      705
2161        UI     666      663      591      552      552      424      414      414      366      255
2162        UI     255      255      255      255      247      237      237      237      237      237
2163        UI     231      144      144      144      144      144      144      144      144      144
2164        UI     144       81       44       44       44       44       44       44       44       44
2165        UI      44       44       44       44       44       44       44       44       44       44
2166        UI      44       44       44       44       44       44       44       44       44       44
2167        UI      44       44       44       44       44        0        0        0        0        0
2168        UI       0        0        0        0        0        0        0        0        0        0
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2169        KK   C1360
2170        KM        Reservoir Route at C136 At The Gila Bend Canal
2171        RS       1    ELEV     731
2172        SV     0.0      0.0     0.24     0.81     1.72     2.95     8.30     23.7     48.5     82.9
2173        SV   130.0    196.0    280.0    380.0    480.0    580.0    680.0
2174        SE     731      732      733      734      735      736      737      738      739      740
2175        SE     741      742      743      744      745      746      747
2176        SQ     0.0     30.0     70.0    140.0    220.0    295.0    360.0    415.0    460.0    505.0
2177        SQ   550.0    585.0    620.0    650.0    680.0    710.0    740.0
2178        RL                     0.56    731.0
            *

2179        KK  136149
2180        KM        Channel Route From C136 To C149
2181        KM        X-SECT. 2XX1 From 200-Scale Mapping
2182        RS      20    FLOW      -1
2183        RC   0.040    0.045    0.040     9500    0.005
2184        RX  8505.0   9330.0   9450.0   9520.0   9760.0   9920.0  10120.0  10905.7
2185        RY   717.0    712.0    713.5    712.0    709.7    710.7    712.0    717.0
2186        RL                     6.68    709.7
            *

2187        KK    C149
2188        KM       Combine R141-149 + R1360-149
2189        HC       2
            *

2190        KK  149137
2191        KM       Channel Route From C149 To C137
2192        KM       Sand Tank Wash HEC-2 Section 1.60$
2193        RS       6    FLOW      -1
2194        RC   0.060    0.030    0.040     5400    0.005
2195        RX  8890.5   9890.5   9917.5   9993.1  10000.0  10018.7  10040.3  11220.3
2196        RY   680.2    675.2    671.4    670.0    670.0    672.0    674.3    680.2
2197        RL                     0.50    670.0
            *

2198        KK     2XX
2199        KM        SUB-BASIN 2XX
2200        BA    2.17
2201        LG    0.33     0.34     3.86     0.62     5.00
2202        UI      96       96       96       96       96      134      316      337      369      433
2203        UI     460      489      523      547      576      610      650      698      736      783
2204        UI     867      982     1129     1248     1247     1117     1020      942      880      832
2205        UI     787      751      705      654      610      577      546      502      470      447
2206        UI     400      364      276      274      170      170      170      161      158      158
2207        UI     147       96       96       96       96       96       72       29       29       29
2208        UI      29       29       29       29       29       29       29       29       29       29
2209        UI      29       29       29       29       29        0        0        0        0        0
2210        UI       0        0        0        0        0        0        0        0        0        0
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
2211          KK    C137
2212          KM        Combine R149-137 + 2XX
2213          HC       2
              *
              *    ****************************************************
              *    *                        END                       *
              *    * BENDER AND SAND TANK WASHES (Major Basins 1 & 2) *
              *    *                                                  *
              *    ****************************************************
              *
              *
              *    ************************************
              *    *                START               *
              *    * SCOTT AVENUE WASH (Major Basin 7) *
              *    *                                   *
              *    ************************************
              *

2214          KK     7AC
2215          KM   BASIN 7AC
2216          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2217          KM    L=       4.2  Lca=       1.9    S=   37.8  Kn= .050  LAG=  80.2
2218          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2219          BA    1.20
2220          LG     .35      .35     2.89      .98        0
2221          UI     50.      50.      50.      50.      50.      50.     148.     166.     193.     208.
2222          UI    232.     247.     264.     278.     290.     305.     322.     342.     367.     385.
2223          UI    408.     448.     506.     588.     617.     672.     609.     555.     513.     477.
2224          UI    452.     426.     407.     390.     363.     338.     319.     302.     287.     263.
2225          UI    248.     237.     219.     193.     158.     145.     112.      89.      89.      88.
2226          UI     83.      83.      83.      71.      50.      50.      50.      50.      50.      43.
2227          UI     15.      15.      15.      15.      15.      15.      15.      15.      15.      15.
2228          UI     15.      15.      15.      15.      15.      15.      15.      15.      15.       0.
2229          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
2230          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

2231          KK  7AC150
2232          KM   CHANNEL ROUTE 7AC TO CP AT I-8
2233          RS      12    FLOW      -1
2234          RC    .049    .050     .043    8644   .0051
2235          RX       0       1      201     207     227     233     433     434
2236          RY     100      99       99      96      96      99      99     100
2237          RL      40
              *

2238          KK     7AB
2239          KM   BASIN 7AB
2240          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2241          KM    L=       2.4  Lca=       .8    S=   27.1  Kn= .050  LAG=  48.0
2242          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2243          BA     .57
2244          LG     .35      .35     3.03      .89        0
2245          UI     40.      40.      40.      69.     136.     161.     189.     208.     228.     247.
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2246          UI    273.     303.     336.     404.     490.     515.     438.     386.     350.     322.
2247          UI    294.     262.     238.     215.     193.     170.     134.     105.      71.      70.
2248          UI     66.      66.      42.      40.      40.      34.      12.      12.      12.      12.
2249          UI     12.      12.      12.      12.      12.      12.      12.       0.       0.       0.
2250          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

2251          KK    C7AB
2252          KM   COMBINE R7AC AND 7AB AT I-8
2253          KO                                      21
2254          HC       2
              *

2255          KK  BC132L
2256          KM        Recall Flow Split Diverted Hydrograph DC132L
2257          DR  DC132L
              *

2258          KK    C150
2259          KM        Combine C7A and DC132I
```

```
2260          HC       2  332.17
              *

2261          KK  DC150R
2262          KM        Main flow is through I-8 via culverts and Scott Ave. (C150R).
2263          KM        Diverted flow (DQ record) goes west along the south side of
2264          KM        I-8  (C150L)
2265          DT  DC150L
2266          DI       0    2850    4800    7450   11800   18625   26500
2267          DQ       0       0    1600    4000    8000   14500   22000
              *

2268          KK  150142
2269          KM        Channel Route flow through culverts and Scott Ave. (C150R)
2270          KM        from I-8 to CP142.
2271          KM        Representative of HEC-2 X-Sect. "Scott Ave Wash 4.911"
2272          RS       4    FLOW      -1
2273          RC   0.035   0.050   0.035  3680.0   0.004
2274          RX    9793  9952.7  9981.1 10000.0 10005.9 10013.1 10044.4 10201.9
2275          RY   749.0   748.9   744.7   742.3   742.7   745.5   745.0   749.9
2276          RL                    1.05   742.3
              *

2277          KK     7AA
2278          KM   BASIN 7AA
2279          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2280          KM    L=       1.0  Lca=       .5   S=    5.1  Kn= .050  LAG=  40.6
2281          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2282          BA     .64
2283          LG     .35      .35    2.79    1.06       0
2284          UI     53.      53.     53.    161.    207.    251.    283.    311.    346.    391.
2285          UI    441.     559.    668.    633.    536.    472.    427.    381.    336.    299.
2286          UI    264.     228.    174.    123.     94.     89.     87.     58.     53.     53.
2287          UI     26.      16.     16.     16.     16.     16.     16.     16.     16.     16.
2288          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
                                             HEC-1 INPUT                                          PAGE 54

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2289          UI      0.       0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2290          KK     7AA
2291          KM   COMBINE 150142 AND 7AA AT GBC
2292          HC       2  332.17
              *

2293          KK  BPND3W
2294          KM        Recall Flow Split Diverted Hydrograph DPND3W
2295          DR  DPND3W
              *

2296          KK   C142I
2297          KM    Combine 7A + DC133W
2298          HC       2  336.59
              *

2299          KK   C142O
2300          KM        Reservoir Route at C142O At The Gila Bend Canal
2301          RS       1    ELEV     732
2302          SV     0.0     0.0     0.0       1       2       4       8      14      24      34
2303          SV      44      54      59      64      69      74      79      84
2304          SE     732     733     734     735     736     737     738     739     740     741
2305          SE     742     743   743.5     744   744.5     745   745.5     746
2306          SQ       0      12      40      73     112     143     170     190     212     234
2307          SQ     256     278     289     345     569    1022    2502    7402
2308          RL                    0.84   732.0
              *

2309          KK  DC142R
2310          KM        Main flow is into Sub-basin 7D and reach 142139 (C142R)
2311          KM        Diverted flow (DQ record) flows over over the Gila Bend Canal west
2312          KM        of C142 into Sub-basin 7B and reach 142-18 (C150L)
2313          DT  DC142L
2314          DI     0.0  1146.0  1304.0  1545.0  1936.0  2502.0  3190.0  4072.0  5084.0  6243.0
2315          DI  7402.0
2316          DQ     0.0     0.0     7.0    57.0   206.0   422.0   707.0  1082.0  1531.0  2059.0
2317          DQ  2587.0
```

```
*
KK  142139
KM        Channel Route From C1420 To C139
KM        Scott Avenue Wash HEC-2 Section 3.292
RS      15    FLOW      -1
RC   0.035   0.070   0.035   12600   0.006
RX  8929.2  9929.2 10040.5 10055.8 10065.5 10084.8 10148.6 10407.5
RY   710.5   705.5   704.1   702.7   701.3   703.9   707.1   710.5
RL                    1.03   701.3
*
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK      7D
KM        SUB-BASIN 7D
BA    1.17
LG    0.30    0.33    3.34    0.88   15.00
UI      69      69      69      69     169     238     273     322     348     379
UI     402     436     471     519     556     640     776     862     882     764
UI     687     628     581     544     499     454     420     385     349     325
UI     282     229     197     122     122     118     114     114      74      69
UI      69      69      44      21      21      21      21      21      21      21
UI      21      21      21      21      21      21       0       0       0       0
UI       0       0       0       0       0       0       0       0       0       0
*

KK    C139
KM       Combine R1420-139 + 7D
HC       2
*

KK      7C
KM        SUB-BASIN 7C at C138
BA    0.60
LG    0.35    0.35    2.99    1.01    1.00
UI      53      53      64     180     222     262     296     328     373     420
UI     511     657     654     542     473     425     376     328     290     254
UI     211     152      94      92      87      67      53      53      28      16
UI      16      16      16      16      16      16      16       0       0       0
UI       0       0       0       0       0       0       0       0       0       0
*

KK  BC142L
KM        Recall Flow Split Diverted Hydrograph DC142L
DR  DC142L
*

KK  142-18
KM        Channel Route From C142L To C18
KM        Representative of Scott Avenue Wash HEC-2 Section 3.292
RS      22    FLOW      -1
RC   0.035   0.070   0.035   14800   0.006
RX  8929.2  9929.2 10040.5 10055.8 10065.5 10084.8 10148.6 10407.5
RY   710.5   705.5   704.1   702.7   701.3   703.9   707.1   710.5
RL                    1.66   701.3
*

KK      7B
KM        SUB-BASIN 7B at C18
BA    1.67
LG    0.35    0.27    3.53    0.75    7.00
UI      83      83      83      83      83     231     281     317     370     398
UI     429     457     481     511     551     594     631     677     768     900
UI     985    1104     997     894     817     758     711     669     635     581
UI     541     506     476     432     405     381     328     280     238     178
UI     146     146     139     136     136     108      83      83      83      83
UI      64      25      25      25      25      25      25      25      25      25
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

UI      25      25      25      25      25      25      25       0       0       0
UI       0       0       0       0       0       0       0       0       0       0
*
```

```
2372        KK     C18
2373        KM        Combine R142-18 + 7B
2374        HC       2  338.26
            *

2375        KK   NULL1
2376        KM   NULL COMBINE TO REDUCE NUMBER OF OPEN HYDROGRAPHS
2377        HC       4
            *
            * Move to C151 and route Sand Tank Wash overflow to Quilotosa Wash watershed
            * at C12
            *

2378        KK  BD150L
2379        KM        Recall Flow Split Diverted Hydrograph DC150L
2380        DR  DC150L
            *

2381        KK   SR151
2382        KM        Reservoir Route just east of CP151
2383        RS       1    ELEV     742
2384        SV     0.0       2       3      12      24      45      83     124     172     230
2385        SV     241     252     296     321     333     365     380     408     446     485
2386        SE     742     743     744     745     746     747     748     749     750     751
2387        SE   751.2   751.4     752   752.4   752.6     753   753.2   753.5     754   754.5
2388        SQ     0.0     700    1300    1900    2500    3200    3800    4400    5100    5700
2389        SQ    5800    6100    6800    7500    8000    9100   10000   12000   17600   25000
2390        RL                    1.16   742.0
            *
            *
            *    ************************************
            *    *                END                 *
            *    * SCOTT AVENUE WASH (Major Basin 7 *
            *    *                                   *
            *    ************************************
            *

2391        KK     3KC
2392        KM   BASIN 3KC
2393        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2394        KM    L=      8.5  Lca=      4.2   S=   36.9  Kn= .050  LAG= 140.0
2395        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2396        BA    3.45
2397        LG     .35     .35    3.63     .54     .00
2398        UI     83.     83.     83.     83.     83.     83.     83.     83.     83.     83.
2399        UI    134.    273.    273.    273.    318.    318.    331.    382.    382.    403.
2400        UI    406.    431.    444.    458.    465.    483.    489.    514.    522.    545.
2401        UI    564.    580.    616.    628.    640.    658.    699.    739.    790.    842.
2402        UI    927.    990.    982.   1101.   1119.   1048.    988.    936.    891.    853.
2403        UI    819.    789.    762.    734.    712.    693.    676.    658.    638.    616.
2404        UI    596.    561.    548.    530.    509.    502.    478.    473.    434.    432.
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2405        UI    406.    406.    385.    382.    349.    318.    318.    261.    239.    239.
2406        UI    239.    148.    147.    147.    147.    147.    147.    137.    136.    136.
2407        UI    136.    136.    136.    116.     83.     83.     83.     83.     83.     83.
2408        UI     83.     83.     83.     83.     45.     25.     25.     25.     25.     25.
2409        UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
2410        UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
2411        UI     25.     25.     25.     25.     25.     25.     25.     25.     25.      0.
2412        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2413        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

2414        KK     3KD
2415        KM   BASIN 3KD
2416        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2417        KM    L=      6.5  Lca=      2.4   S=   36.1  Kn= .050  LAG= 104.0
2418        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2419        BA    2.26
2420        LG     .35     .35    3.21     .78     .00
2421        UI     73.     73.     73.     73.     73.     73.     73.     78.    240.    240.
2422        UI    264.    280.    310.    337.    353.    363.    391.    404.    416.    431.
2423        UI    452.    471.    492.    518.    546.    564.    586.    633.    692.    749.
2424        UI    876.    857.    979.    956.    871.    816.    763.    721.    687.    656.
2425        UI    629.    605.    583.    564.    533.    505.    481.    461.    443.    422.
```

```
2426        UI    399.    382.    358.    349.    337.    299.    280.    239.    210.    210.
2427        UI    144.    129.    129.    129.    127.    120.    120.    120.    120.     99.
2428        UI     73.     73.     73.     73.     73.     73.     73.     49.     22.     22.
2429        UI     22.     22.     22.     22.     22.     22.     22.     22.     22.     22.
2430        UI     22.     22.     22.     22.     22.     22.     22.     22.     22.     22.
2431        UI     22.     22.     22.      0.      0.      0.      0.      0.      0.      0.
2432        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

2433        KK    C151
2434        KM   COMBINE 3KC AND 3KD AT RAILROAD TRACKS WITH SR151
2435        KO                                      21
2436        HC       3  337.88
            *

2437        KK  151-12
2438        KM   CHANNNEL ROUTE FROM CP151 TO CP 12
2439        RS       3    FLOW      -1
2440        RC    .044    .059    .039    2500   .0068
2441        RX       0       1     201     222     237     258     458     459
2442        RY     115      99      99      92      92      99      99     115
2443        RL       9
            *

2444        KK     3KB
2445        KM   BASIN 3KB
2446        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2447        KM    L=      3.9  Lca=      1.9   S=   34.3  Kn= .050  LAG=  78.9
2448        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2449        BA    2.33
2450        LG     .35     .35    4.30     .37     .00
2451        UI    100.    100.    100.    100.    100.    100.    316.    333.    382.    422.
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2452        UI    464.    487.    532.    555.    581.    611.    646.    688.    742.    773.
2453        UI    826.    930.   1040.   1172.   1315.   1283.   1154.   1058.    977.    918.
2454        UI    866.    825.    783.    741.    689.    646.    610.    579.    534.    501.
2455        UI    477.    456.    382.    339.    286.    248.    176.    176.    176.    165.
2456        UI    164.    164.    148.    100.    100.    100.    100.    100.     86.     31.
2457        UI     31.     31.     31.     31.     31.     31.     31.     31.     31.     31.
2458        UI     31.     31.     31.     31.     31.     31.     31.     31.      0.      0.
2459        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

2460        KK    C12I
2461        KM        Combine 3KB + R151-12
2462        HC       2  339.24
            *

2463        KK    C12O
2464        KM        Reservoir Route at C12 At The Gila Bend Canal
2465        RS       1    ELEV     730
2466        SV     0.0     5.0    12.0    22.0    36.0    52.0    72.0    99.0   132.0   171.0
2467        SV   216.0   266.0   294.5   323.0   355.5   388.0   437.5   487.0   536.5     600
2468        SE   730.0   731.0   732.0   733.0   734.0   735.0   736.0   737.0   738.0   739.0
2469        SE   740.0   741.0   741.5   742.0   742.5   743.0   743.5   744.0   744.5  745.25
2470        SQ     0.0     0.0    15.0    35.0    84.0   150.0   226.0   299.0   356.0   396.0
2471        SQ   439.0   482.0   503.8   637.8  1152.6  2529.6  5419.8  9836.1   15500   23000
2472        RL                    0.67   730.0
            *

2473        KK   DC12R
2474        KM         Main flow at C12 is in the right channel (C12R)
2475        KM         Diverted flow (DQ record) goes into the left channel (C12L)
2476        KM           C12R is outflow from the 2 sets of culverts plus weir flow over
2477        KM           the Gila Bend Canal north into R12-14.  The diverted flow is
2478        KM           channel routed to C11.
2479        DT   DC12L
2480        DI     0.0   637.8  1152.6  2529.6  5419.8  9836.1
2481        DQ     0.0     0.0    90.8   594.5  1836.5  3814.3
            *

2482        KK  12-14A
2483        KM       Channel Route From C12 To C14
2484        KM       Representative Of X-SECT. 3M2
2485        RS       4    FLOW      -1
```

```
2486        RC   0.035   0.033   0.035    2000   0.001
2487        RX  4010.0  5010.0  5055.0  5072.0  5087.0  5102.0  5147.0  5483.8
2488        RY   100.6    95.6    95.9    85.6    85.6    94.8    94.2   100.6
2489        RL                   9.78    85.6
            *

2490        KK  DC14AR
2491        KM        Main flow at C14A is in main channel and passes trhough I-8 culverts
2492        KM        Diverted flow (DQ record) goes into the left channel (C14L)
2493        KM        Runoff spilling out of the main channel at the I-8 culvert
2494        KM        spills to the west toward Concentration point C11B
2495        DT  DC14AL
2496        DI     0.0    1000    2000    2400    3085    3700    4890    5940    7070    8220
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2497        DI    9300   10360   11410
2498        DQ     0.0     0.0     0.0     100     500    1000    2000    3000    4000    5000
2499        DQ    6000    7000    8000

2500        KK  14A-14
2501        KM       Channel Route From C14A to C14
2502        KM       Representative Of X-SECT. 3M2
2503        RS       4    FLOW      -1
2504        RC   0.035   0.033   0.035    1200   0.001
2505        RX  4010.0  5010.0  5055.0  5072.0  5087.0  5102.0  5147.0  5483.8
2506        RY   100.6    95.6    95.9    85.6    85.6    94.8    94.2   100.6
2507        RL                   9.78    85.6

2508        KK  BDC12L
2509        KM        Recall Flow Split Diverted Hydrograph DC12L
2510        DR   DC12L
            *

2511        KK  12-11A
2512        KM        Route from SR-85 to mid point between SR-85 and Quilotosa Wash, parallel
2513        KM        to canal
2514        RS       1    FLOW      -1
2515        RC    .044    .034    .034    2850   .0015
2516        RX       0     0.1     180     260     350     365   419.9     420
2517        RY     755     744     742     741     740   739.5   742.5     755
            *

2518        KK  DC11AR
2519        KM        Main flow overtops the canal and is routed to SPRR
2520        KM        Diverted flow (DQ record) flows behind canal to Quilotosa Wash and
2521        KM        PND2D.
2522        DT  DC11AL
2523        DI       0     500    1000    1500    2000    3000    4000
2524        DQ       0     500     965    1160    1266    1401    1494
            *

2525        KK  11A11B
2526        KM        Channel Route From C11A to C11B
2527        KM        Route from midpoint between Qilotosa Wash and SR-85, north side of canal
2528        KM        to SPRR.
2529        RS       1    FLOW      -1
2530        RC    .044    .034    .044    2250    .007
2531        RX       0     650     930    1080    1110    1260    1600    1800
2532        RY     733     732     730     729     729     730     732     733
            *

2533        KK  DC14AL
2534        KM        Recall Flow Split Diverted Hydrograph DC14AL
2535        DR  DC14AL
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2536        KK  14A11B
2537        KM        Channel Route From DC14AL to CP11B
2538        KM        Route from Unnamed No. 2 at I-8 to SPRR
2539        RS       1    FLOW      -1
2540        RC     .04    .035     .04    2000   .0035
2541        RX       0     300     880    1280    1450    1470    1490    151(
```

```
2542        RY     736     734     732     730     728     730     732     740
            *

2543        KK    C11B
2544        KM        Combine local runoff from 14A11B with 11A11B
2545        KO                                      21
2546        HC       2
            *

2547        KK  11B-14
2548        KM        Channel Route From C11B to C14
2549        KM        Route flow east along I-8 frontage road through overpass to C14
2550        RS       1    FLOW      -1
2551        RC    .044    .034    .044    2400    .002
2552        RX     600   600.1     990    1000    1010    1025  1039.9    1040
2553        RY     750     743     741     729     729     741     743     750
            *

2554        KK     C14
2555        KM        Combine flow from 11B with routed flow from R14A-14
2556        KO                                      21
2557        HC       2  339.24
            *

2558        KK   DC14L
2559        KM        Remaining flow in diversion channel, diverted flows overland
2560        KM        to Quilotosa Wash at Watermelon  Road.
2561        KM        Divert all but 450 cfs.
2562        DT   DC14R
2563        DI       0     450     451    1000    2000    5000   10000   15000
2564        DQ       0       0       1     550    1550    4550    9550   14550
            *

2565        KK  R14-13
2566        KM        Channel Route remainder from C14 to C13
2567        KM       X-SECT. 3M2
2568        RS       6    FLOW      -1
2569        RC   0.035   0.033   0.035    6200   0.003
2570        RX  4010.0  5010.0  5055.0  5072.0  5087.0  5102.0  5147.0  5483.8
2571        RY   100.6    95.6    95.9    85.6    85.6    94.8    94.2   100.6
2572        RL                  10.00    85.6
            *
            * Move to Top of Major Basin 3
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2573        KK      3F
2574        KM       SUB-BASIN 3F at C1
2575        BA   12.14
2576        LG    0.22    0.35    3.99    0.54   12.00
2577        UI     303     303     303     303     303     303     303     303     303     303
2578        UI     672     870     870     885    1161    1161    1242    1393    1428    1741
2579        UI    1768    1833    1893    1934    2045    2105    2176    2246    2292    2342
2580        UI    2401    2483    2619    2794    2957    3145    3392    3585    3969    3506
2581        UI    3131    2487    2356    2257    2176    2048    1995    1934    1848    1826
2582        UI    1786    1768    1741    1692    1658    1606    1583    1533    1514    1473
2583        UI    1451    1423    1393    1369    1290    1290    1235    1222    1207    1161
2584        UI    1161    1095    1039    1039     988     941     941     914     800     800
2585        UI     800     784     741     741     741     739     696     696     696     696
2586        UI     662     633     633     633     633     552     497     497     497     497
2587        UI     497     464     387     387     387     387     387     387     387     376
2588        UI     332     332     332     332     332     332     332     332     332     257
2589        UI     232     232     232     232     232     232     232     232     232     232
2590        UI     232     232     211     148     148     148     148     148     148     148
2591        UI     148     148     148     148     148     148     148     148     148     148
2592        UI     148     148     148     139      58      58      58      58      58      58
2593        UI      58      58      58      58      58      58      58      58      58      58
2594        UI      58      58      58      58      58      58      58      58      58      58
2595        UI      58      58      58      58      58      58      58      58      58      58
2596        UI      58      58      58      58      58      58      58      58      58      58
2597        UI      58      58      58      58      58      58      58       0       0       0
2598        UI       0       0       0       0       0       0       0       0       0       0
            *

2599        KK    R1-3
```

```
2600          KM       Channel Route From C1 To C3
2601          KM       X-SECT. 3G1
2602          RS      22    FLOW      -1
2603          RC   0.060   0.049   0.070   13600   0.010
2604          RX  4012.0  5012.0  5054.0  5064.0  5121.0  5136.0  5242.0  7602.0
2605          RY    99.7    94.7    93.4    90.2    91.7    94.7    92.9    99.7
2606          RL                    0.65    90.2
              *

2607          KK      3E
2608          KM       SUB-BASIN 3E at C2
2609          BA    8.24
2610          LG    0.23    0.35    4.24    0.42    4.00
2611          UI     224     224     224     224     224     224     224     224     224     431
2612          UI     643     643     683     858     858     979    1029    1194    1286    1353
2613          UI    1386    1429    1507    1563    1618    1660    1711    1755    1805    1883
2614          UI    2020    2168    2302    2504    2656    2916    2504    2145    1810    1715
2615          UI    1609    1545    1492    1429    1371    1347    1319    1300    1286    1229
2616          UI    1214    1170    1150    1119    1096    1072    1051    1029     996     953
2617          UI     943     903     903     865     858     825     768     768     725     695
2618          UI     695     640     591     591     591     550     547     547     546     515
2619          UI     515     515     515     472     468     468     468     430     368     368
2620          UI     368     368     368     320     286     286     286     286     286     286
2621          UI     280     245     245     245     245     245     245     245     245     211
2622          UI     172     172     172     172     172     172     172     172     172     172
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2623          UI     172     167     109     109     109     109     109     109     109     109
2624          UI     109     109     109     109     109     109     109     109     109     109
2625          UI     109      67      43      43      43      43      43      43      43      43
2626          UI      43      43      43      43      43      43      43      43      43      43
2627          UI      43      43      43      43      43      43      43      43      43      43
2628          UI      43      43      43      43      43      43      43      43      43      43
2629          UI      43      43      43      43      43      43      43      43      43      43
2630          UI       0       0       0       0       0       0       0       0       0       0
2631          UI       0       0       0       0       0       0       0       0       0       0
              *

2632          KK    R2-3
2633          KM       Channel Route From C2 To C3
2634          KM       Representative Of X-SECT. 3G1
2635          RS      12    FLOW      -1
2636          RC   0.060   0.049   0.070    7200   0.010
2637          RX  4012.0  5012.0  5054.0  5064.0  5121.0  5136.0  5242.0  7602.0
2638          RY    99.7    94.7    93.4    90.2    91.7    94.7    92.9    99.7
2639          RL                    0.70    90.2
              *

2640          KK      3G
2641          KM       SUB-BASIN 3G
2642          BA    5.12
2643          LG    0.26    0.35    4.14    0.42    4.00
2644          UI     187     187     187     187     187     187     187     520     539     627
2645          UI     718     812     888    1077    1128    1180    1241    1314    1373    1420
2646          UI    1473    1531    1681    1831    2016    2210    2364    1965    1515    1408
2647          UI    1320    1247    1185    1134    1105    1082    1047    1012     979     939
2648          UI     915     895     862     827     798     761     751     718     696     643
2649          UI     628     582     582     497     495     484     458     458     447     431
2650          UI     431     417     392     392     392     309     308     308     308     260
2651          UI     239     239     239     239     233     205     205     205     205     205
2652          UI     205     160     144     144     144     144     144     144     144     144
2653          UI     116      92      92      92      92      92      92      92      92      92
2654          UI      92      92      92      92      85      36      36      36      36      36
2655          UI      36      36      36      36      36      36      36      36      36      36
2656          UI      36      36      36      36      36      36      36      36      36      36
2657          UI      36      36      36      36      36      36      36      36      36      36
2658          UI      36       0       0       0       0       0       0       0       0       0
2659          UI       0       0       0       0       0       0       0       0       0       0
              *

2660          KK      C3
2661          KM       Combine R1-3 + R2-3 + 3G
2662          HC       3
              *

2663          KK    R3-5
```

```
2664        KM       Channel Route From C3 To C5
2665        KM       X-SECT. 3H1
2666        RS       8    FLOW      -1
2667        RC   0.060   0.043   0.070   14000   0.011
2668        RX  4006.0  5006.0  5012.0  5030.0  5099.0  5114.0  5214.0  5440.5
2669        RY   101.6    96.6    94.9    89.5    91.2    94.3    92.5   101.6
                                         HEC-1 INPUT                                                    PAGE 63

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2670        RL                   1.75    89.5
            *

2671        KK      3H
2672        KM       SUB-BASIN 3H
2673        BA    6.78
2674        LG    0.26    0.35    4.03    0.39    3.00
2675        UI     148     148     148     148     148     148     148     148     148     148
2676        UI     148     202     426     426     426     438     568     568     569     682
2677        UI     682     757     852     870     897     919     947     980    1003    1056
2678        UI    1072    1100    1122    1139    1176    1200    1231    1311    1400    1456
2679        UI    1538    1649    1731    1861    1872    1640    1455    1218    1149    1114
2680        UI    1065    1024    1003     951     943     897     894     874     872     852
2681        UI     850     812     812     778     775     753     741     732     710     710
2682        UI     687     682     669     631     631     615     598     598     581     568
2683        UI     568     540     509     509     507     461     461     461     444     392
2684        UI     392     392     392     369     363     363     363     363     342     341
2685        UI     341     341     341     316     310     310     310     310     298     244
2686        UI     244     244     244     244     244     244     190     189     189     189
2687        UI     189     189     189     189     189     169     162     162     162     162
2688        UI     162     162     162     162     162     162     115     114     114     114
2689        UI     114     114     114     114     114     114     114     114     114     114
2690        UI     114      90      73      73      73      73      73      73      73      73
2691        UI      73      73      73      73      73      73      73      73      73      73
2692        UI      73      73      73      73      73      53      28      28      28      28
2693        UI      28      28      28      28      28      28      28      28      28      28
2694        UI      28      28      28      28      28      28      28      28      28      28
2695        UI      28      28      28      28      28      28      28      28      28      28
2696        UI      28      28      28      28      28      28      28      28      28      28
2697        UI      28      28      28      28      28      28      28      28      28      28
2698        UI      28      28      28      28      28      28      28       0       0       0
2699        UI       0       0       0       0       0       0       0       0       0       0
            *

2700        KK      C5
2701        KM       Combine R3-5 + 3H
2702        HC       2
            *

2703        KK    R5-7
2704        KM       Channel Route From C5 To C7
2705        KM       Representative Of X-SECT. 3D1
2706        RS      12    FLOW      -1
2707        RC   0.060   0.044   0.050   11200   0.010
2708        RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
2709        RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
2710        RL                   2.09    90.0
            *

2711        KK      3C
2712        KM       SUB-BASIN 3C at C4
2713        BA   11.27
2714        LG    0.28    0.35    3.98    0.37    1.00
2715        UI     281     281     281     281     281     281     281     281     281     281
2716        UI     624     808     808     822    1077    1077    1153    1293    1325    1616
                                         HEC-1 INPUT                                                    PAGE 64

LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2717        UI    1642    1701    1757    1796    1898    1954    2020    2085    2127    2174
2718        UI    2229    2305    2431    2594    2745    2919    3149    3328    3685    3255
2719        UI    2907    2309    2187    2096    2020    1901    1852    1796    1715    1695
2720        UI    1658    1642    1616    1571    1539    1491    1469    1424    1405    1368
2721        UI    1347    1321    1293    1270    1197    1197    1146    1134    1121    1077
2722        UI    1077    1017     965     965     917     874     874     848     743     743
2723        UI     743     728     688     688     688     686     646     646     646     646
2724        UI     614     588     588     588     588     512     462     462     462     462
2725        UI     462     431     359     359     359     359     359     359     359     34!
```

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2726        UI     308     308     308     308     308     308     308     308     308     239
2727        UI     216     215     215     215     215     215     215     215     215     215
2728        UI     215     216     196     138     138     138     138     138     138     138
2729        UI     138     138     138     138     138     138     138     138     138     138
2730        UI     138     138     138     129      54      54      54      54      54      54
2731        UI      54      54      54      54      54      54      54      54      54      54
2732        UI      54      54      54      54      54      54      54      54      54      54
2733        UI      54      54      54      54      54      54      54      54      54      54
2734        UI      54      54      54      54      54      54      54      54      54      54
2735        UI      54      54      54      54      54      54      54       0       0       0
2736        UI       0       0       0       0       0       0       0       0       0       0
            *

2737        KK    R4-7
2738        KM       Channel Route From C4 To C7
2739        KM       X-SECT. 3D1
2740        RS      15    FLOW      -1
2741        RC   0.060   0.044   0.050   14800   0.011
2742        RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
2743        RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
2744        RL                    3.32    90.0
            *

2745        KK      3D
2746        KM       SUB-BASIN 3D
2747        BA    6.51
2748        LG    0.33    0.35    3.61    0.31    0.00
2749        UI     196     196     196     196     196     196     196     196     381     643
2750        UI     643     729     750     834     900     940     958    1041    1064    1098
2751        UI    1143    1176    1217    1284    1337    1402    1465    1508    1560    1675
2752        UI    1820    1981    2248    2224    2544    2641    2451    2290    2139    2018
2753        UI    1920    1833    1757    1689    1629    1574    1525    1463    1390    1324
2754        UI    1255    1211    1174    1125    1056    1021     958     941     900     838
2755        UI     750     717     563     563     522     346     346     346     346     338
2756        UI     322     322     322     322     308     196     196     196     196     196
2757        UI     196     196     196     125      60      60      60      60      60      60
2758        UI      60      60      60      60      60      60      60      60      60      60
2759        UI      60      60      60      60      60      60      60      60      60      60
2760        UI      60       0       0       0       0       0       0       0       0       0
2761        UI       0       0       0       0       0       0       0       0       0       0
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2762        KK      C7
2763        KM       Combine R5-7 + R4-7 + 3D
2764        HC       3
            *

2765        KK   R7-90
2766        KM       Channel Route From C7 To C90
2767        KM       Representative Of X-SECT. 3D1
2768        RS       8    FLOW      -1
2769        RC   0.060   0.044   0.050    9200   0.011
2770        RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
2771        RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
2772        RL                    1.73    90.0
            *

2773        KK      3A
2774        KM       SUB-BASIN 3A at C6
2775        BA   11.19
2776        LG    0.24    0.35    4.20    0.46    4.00
2777        UI     230     230     230     230     230     230     230     230     230     230
2778        UI     230     230     414     660     660     660     672     881     881     881
2779        UI    1017    1057    1067    1321    1321    1380    1390    1450    1468    1537
2780        UI    1554    1646    1662    1704    1733    1761    1814    1840    1887    1996
2781        UI    2088    2203    2297    2463    2593    2714    2938    2852    2532    2271
2782        UI    1887    1796    1752    1651    1619    1554    1513    1468    1429    1390
2783        UI    1375    1355    1345    1321    1314    1258    1258    1211    1201    1179
2784        UI    1149    1149    1106    1101    1089    1057    1057    1015     978     978
2785        UI     948     927     927     905     881     881     863     789     789     789
2786        UI     749     714     714     714     663     607     607     607     607     575
2787        UI     562     562     562     562     542     528     528     528     528     523
2788        UI     480     480     480     480     480     469     377     377     377     377
2789        UI     377     377     377     339     294     294     294     294     294     294
```

```
2790    UI     294     294     294     268     252     252     252     252     252     252
2791    UI     252     252     252     252     242     176     176     176     176     176
2792    UI     176     176     176     176     176     176     176     176     176     176
2793    UI     176     129     112     112     112     112     112     112     112     112
2794    UI     112     112     112     112     112     112     112     112     112     112
2795    UI     112     112     112     112     112     112     110      44      44      44
2796    UI      44      44      44      44      44      44      44      44      44      44
2797    UI      44      44      44      44      44      44      44      44      44      44
2798    UI      44      44      44      44      44      44      44      44      44      44
2799    UI      44      44      44      44      44      44      44      44      44      44
2800    UI      44      44      44      44      44      44      44      44      44      44
2801    UI      44      44      44      44      44      44      44      44      44      44
2802    UI      44      44       0       0       0       0       0       0       0       0
2803    UI       0       0       0       0       0       0       0       0       0       0
        *

2804    KK   R6-90
2805    KM       Channel Route From C6 To C90
2806    KM       X-SECT. 3B1
2807    RS      44    FLOW      -1
2808    RC   0.050   0.049   0.060   34000   0.014
2809    RX  4129.0  5129.0  5153.0  5159.0  5184.0  5193.0  5355.0  7275.0
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2810        RY   101.0    96.0    94.7    91.0    90.8    93.8    91.4   101.0
2811        RL                    0.79    90.8
            *

2812        KK     C90
2813        KM       Combine R7-90 + R6-90
2814        HC       2
            *

2815        KK   R90-8
2816        KM       Channel Route From C90 To C8
2817        KM       Representative Of X-SECT. 3I1
2818        RS       6    FLOW      -1
2819        RC   0.050   0.059   0.050    7200   0.009
2820        RX  5069.1  5261.0  5330.0  5365.0  5392.0  5402.0  5996.0  6122.0
2821        RY    96.7    91.7    94.1    91.0    90.7    94.0    94.2    98.5
2822        RL                    0.64    90.7
            *

2823        KK      3B
2824        KM       SUB-BASIN 3B
2825        BA    6.42
2826        LG    0.35    0.35    3.50    0.29    0.00
2827        UI     198     198     198     198     198     198     198     198     490     652
2828        UI     662     760     760     900     918     970    1006    1061    1104    1132
2829        UI    1170    1228    1274    1328    1392    1471    1520    1567    1671    1806
2830        UI    1986    2219    2294    2535    2681    2486    2321    2161    2039    1938
2831        UI    1850    1771    1701    1639    1583    1533    1456    1382    1321    1267
2832        UI    1202    1165    1126    1037    1001     970     922     910     760     760
2833        UI     602     570     570     367     351     351     351     346     326     326
2834        UI     326     326     311     198     198     198     198     198     198     198
2835        UI     198      94      61      61      61      61      61      61      61      61
2836        UI      61      61      61      61      61      61      61      61      61      61
2837        UI      61      61      61      61      61      61      61      61       0       0
2838        UI       0       0       0       0       0       0       0       0       0       0
            *

2839        KK      C8
2840        KM       Combine R90-8 + 3B
2841        HC       2
            *

2842        KK    R8-9
2843        KM       Channel Route From C8 To C9
2844        KM       X-SECT. 3I1
2845        RS      45    FLOW      -1
2846        RC   0.050   0.059   0.050   42000   0.009
2847        RX  5069.1  5261.0  5330.0  5365.0  5392.0  5402.0  5996.0  6122.0
2848        RY    96.7    91.7    94.1    91.0    90.7    94.0    94.2    98.5
2849        RL                    0.64    90.7
            *
```

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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2850          KK      3I
2851          KM       SUB-BASIN 3I
2852          BA    5.10
2853          LG    0.35    0.35    3.50    0.30    0.00
2854          UI     124     124     124     124     124     124     124     124     124     124
2855          UI     220     406     406     413     474     474     504     568     568     605
2856          UI     605     651     661     688     693     726     734     768     786     812
2857          UI     851     876     917     942     961     986    1052    1123    1204    1270
2858          UI    1463    1406    1531    1667    1636    1533    1446    1371    1306    1250
2859          UI    1200    1157    1119    1084    1052    1016     992     969     947     892
2860          UI     865     836     795     781     748     731     710     673     646     623
2861          UI     605     591     568     563     474     474     441     355     355     355
2862          UI     278     219     219     219     219     219     210     203     203     203
2863          UI     203     203     199     124     124     124     124     124     124     124
2864          UI     124     124     124      89      38      38      38      38      38      38
2865          UI      38      38      38      38      38      38      38      38      38      38
2866          UI      38      38      38      38      38      38      38      38      38      38
2867          UI      38      38      38      38      38      38      38      38       0       0
2868          UI       0       0       0       0       0       0       0       0       0       0
              *

2869          KK      C9
2870          KM       Combine R8-9 + 3I
2871          HC       2
              *

2872          KK   R9-10
2873          KM       Channel Route From C9 To C10
2874          KM       Revised Interpolation of X-SECTS. 3J1 and 3J2.
2875          RS      53    FLOW      -1
2876          RC   0.050   0.050   0.060   47000   0.007
2877          RX  4940.4  5089.0  5172.0  5191.0  5236.0  5252.0  5309.0  5642.1
2878          RY    99.9    93.9    93.9    89.1    88.9    94.1    93.6    99.9
2879          RL                    1.73    88.9
              *

2880          KK      3J
2881          KM       SUB-BASIN 3J
2882          BA   11.25
2883          LG    0.35    0.35    3.82    0.36    0.00
2884          UI     189     189     189     189     189     189     189     189     189     189
2885          UI     189     189     189     189     189     478     622     622     622     622
2886          UI     726     726     726     726     871     871     871     908     927     927
2887          UI     973    1013    1013    1046    1062    1062    1113    1117    1137    1177
2888          UI    1177    1236    1245    1285    1320    1348    1405    1418    1452    1465
2889          UI    1502    1539    1613    1682    1742    1874    1923    1980    2361    2190
2890          UI    2166    2429    2562    2562    2448    2344    2254    2178    2074    2018
2891          UI    1969    1894    1847    1845    1742    1720    1675    1638    1613    1567
2892          UI    1556    1506    1502    1452    1452    1361    1361    1292    1281    1238
2893          UI    1210    1197    1146    1146    1108    1089    1089     990     990     986
2894          UI     927     927     927     875     871     871     784     726     726     726
2895          UI     617     544     544     544     544     489     335     335     335     335
2896          UI     335     335     335     335     321     311     311     311     311     311
2897          UI     311     311     311     279     189     189     189     189     189     189
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2898          UI     189     189     189     189     189     189     189     189     189      67
2899          UI      58      58      58      58      58      58      58      58      58      58
2900          UI      58      58      58      58      58      58      58      58      58      58
2901          UI      58      58      58      58      58      58      58      58      58      58
2902          UI      58      58      58      58      58      58      58      58      58      58
2903          UI      58      58      58      58      58      58      58      58      58       0
2904          UI       0       0       0       0       0       0       0       0       0       0
2905          UI       0       0       0       0       0       0       0       0       0       0
              *

2906          KK     C10
2907          KM       Combine R9-10 + 3J
2908          HC       2
              *

2909          KK  R10-11
```

```
2910        KM       Channel Route From C10 To C11
2911        KM       X-SECT. 3L1
2912        RS      24    FLOW      -1
2913        RC   0.600   0.053   0.060   13000   0.005
2914        RX  4829.0  4829.1  5108.0  5116.0  5124.0  5129.0  7368.9  7369.0
2915        RY     110    99.1    92.9    89.9    89.8    91.6    99.1     110
2916        RL                    0.36    89.8
            *

2917        KK      3L
2918        KM       SUB-BASIN 3L
2919        KM       This drainage basin was enlarged to include drainage area 3KA
2920        BA    3.34
2921        LG    0.36    0.31    3.82    0.33    3.00
2922        UI     130     130     130     130     130     130     245     428     455     500
2923        UI     564     607     638     688     718     747     782     822     869     925
2924        UI     980    1018    1088    1214    1336    1545    1643    1734    1578    1448
2925        UI    1337    1258    1183    1127    1077    1027     979     914     861     816
2926        UI     777     739     681     643     618     591     500     454     375     366
2927        UI     231     231     231     225     214     214     214     189     130     130
2928        UI     130     130     130     130      69      40      40      40      40      40
2929        UI      40      40      40      40      40      40      40      40      40      40
2930        UI      40      40      40      40      40       0       0       0       0       0
2931        UI       0       0       0       0       0       0       0       0       0       0
            *

2932        KK  BDC11A
2933        KM        Recall flow split diverted hydrograph DC11AL
2934        DR  DC11AL
            *

2935        KK  11A-11
2936        KM        Channel Route From C11A to C11
2937        KM        Route from midpoint to Quilotosa Wash, parallel to canal
2938        RS       1    FLOW      -1
2939        RC    .044    .034    .034    2850   .0015
2940        RX       0     0.1     180     260     350     365   419.9     420
2941        RY     755     744     742     741     740   739.5   742.5     755
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2942        KK    C11I
2943        KM       Combine R10-11 + 3L + remaining diverted flow from C12
2944        HC       3
            *

2945        KK    C11O
2946        KM        Storage Route at Quilotosa Wash and the Gila Bend Canal
2947        RS       1    ELEV     733
2948        SV     0.0     5.0    12.0    22.0    36.0    52.0      62      75
2949        SE   733.0   735.0   736.0   738.0   740.0   742.0     743     744
2950        SQ       0     390     726    2620    4440    6075    9000   14000
2951        RL                    8.75     734
            *

2952        KK  R11-17
2953        KM       Channel Route From C11 To C17
2954        KM       Representative Of X-SECT. 5C2
2955        RS       1    FLOW      -1
2956        RC   0.035   0.030   0.035    3000   0.009
2957        RX  4905.8  4905.9  5204.0  5222.0  5292.0  5309.0  6228.9  6229.0
2958        RY     110   101.5    97.0    90.9    90.6    96.7   101.5     110
2959        RL                    8.69    90.6
            *
            * Move to Top of Major Basin 4
            *

2960        KK      4A
2961        KM       SUB-BASIN 4A at C26
2962        BA   11.75
2963        LG    0.23    0.35    4.26    0.43    4.00
2964        UI     235     235     235     235     235     235     235     235     235     235
2965        UI     235     235     288     677     677     677     677     821     903     903
2966        UI     953    1083    1083    1213    1354    1371    1425    1434    1504    1513
2967        UI    1593    1612    1693    1714    1747    1786    1805    1867    1892    193
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2968        UI    2052    2141    2257    2354    2513    2647    2766    2966    2999    2641
2969        UI    2441    1934    1873    1805    1716    1693    1593    1584    1504    1498
2970        UI    1425    1425    1391    1389    1362    1354    1320    1290    1279    1231
2971        UI    1231    1193    1177    1171    1128    1128    1108    1083    1083    1031
2972        UI    1003    1003     970     950     950     930     903     903     896     808
2973        UI     808     808     784     732     732     732     713     623     623     623
2974        UI     623     608     576     576     576     576     575     542     542     542
2975        UI     542     542     520     492     492     492     492     492     463     387
2976        UI     387     387     387     387     387     387     349     301     301     301
2977        UI     301     301     301     301     301     301     285     258     258     258
2978        UI     258     258     258     258     258     258     258     258     211     181
2979        UI     181     181     181     181     181     181     181     181     181     181
2980        UI     181     181     181     181     181     128     115     115     115     115
2981        UI     115     115     115     115     115     115     115     115     115     115
2982        UI     115     115     115     115     115     115     115     115     115     115
2983        UI     115      82      45      45      45      45      45      45      45      45
2984        UI      45      45      45      45      45      45      45      45      45      45
2985        UI      45      45      45      45      45      45      45      45      45      45
2986        UI      45      45      45      45      45      45      45      45      45      45
2987        UI      45      45      45      45      45      45      45      45      45      45
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2988        UI      45      45      45      45      45      45      45      45      45      45
2989        UI      45      45      45      45      45      45      45      45       0       0
2990        UI       0       0       0       0       0       0       0       0       0       0
            *

2991        KK  R26-27
2992        KM       Channel Route From C26 To C27
2993        KM       X-SECT. 4B1
2994        RS      11    FLOW      -1
2995        RC   0.060   0.051   0.060   17800   0.010
2996        RX  4600.0  5100.0  5175.0  5180.0  5264.0  5336.0  5386.0  6626.0
2997        RY   100.6    95.6    94.5    90.3    89.6    94.1    94.4   100.6
2998        RL                   5.67    89.6
            *

2999        KK      4B
3000        KM       SUB-BASIN 4B
3001        BA    6.14
3002        LG    0.30    0.35    3.87    0.38    0.00
3003        UI     205     205     205     205     205     205     205     325     673     673
3004        UI     773     785     923     953    1002    1059    1104    1148    1195    1238
3005        UI    1289    1349    1427    1513    1564    1617    1733    1909    2082    2432
3006        UI    2365    2727    2680    2440    2280    2125    2009    1912    1826    1749
3007        UI    1678    1619    1562    1471    1385    1319    1264    1216    1175    1070
3008        UI    1033    1002     944     899     785     736     588     588     463     362
3009        UI     362     362     358     336     336     336     336     275     205     205
3010        UI     205     205     205     205     205     102      63      63      63      63
3011        UI      63      63      63      63      63      63      63      63      63      63
3012        UI      63      63      63      63      63      63      63      63      63      63
3013        UI       0       0       0       0       0       0       0       0       0       0
3014        UI       0       0       0       0       0       0       0       0       0       0
            *

3015        KK     C27
3016        KM       Combine R26-27 + 4B
3017        HC       2
            *

3018        KK  R27-28
3019        KM       Channel Route From C27 To C28
3020        KM       X-SECT. 4C1
3021        RS      45    FLOW      -1
3022        RC   0.060   0.043   0.060   24800   0.006
3023        RX  4054.0  5054.0  5066.0  5076.0  5133.0  5151.0  5214.0  6054.0
3024        RY   101.2    96.2    95.8    92.8    93.3    95.5    97.0   101.2
3025        RL                   1.56    92.8
            *

3026        KK      4C
3027        KM       SUB-BASIN 4C
3028        BA   12.33
3029        LG    0.31    0.35    3.77    0.38    0.00
3030        UI     264     264     264     264     264     264     264     264     264     264
3031        UI     264     264     847     869     869     912    1014    1014    1046    121(
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3032          UI    1216    1259    1294    1304    1414    1414    1472    1483    1536    1559
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3033          UI    1614    1644    1710    1738    1830    1861    1962    1996    2027    2094
3034          UI    2166    2258    2433    2585    2706    2989    3174    3053    3455    3577
3035          UI    3458    3261    3094    2951    2827    2720    2626    2534    2442    2376
3036          UI    2318    2252    2186    2145    2097    2038    1992    1901    1833    1789
3037          UI    1707    1689    1606    1600    1525    1520    1402    1382    1333    1294
3038          UI    1287    1216    1216    1120    1014    1014     928     760     760     760
3039          UI     717     468     468     468     468     468     468     456     434     434
3040          UI     434     434     434     434     431     264     264     264     264     264
3041          UI     264     264     264     264     264     264     264      84      81      81
3042          UI      81      81      81      81      81      81      81      81      81      81
3043          UI      81      81      81      81      81      81      81      81      81      81
3044          UI      81      81      81      81      81      81      81      81      81      81
3045          UI      81      81      81      81      81      81       0       0       0       0
3046          UI       0       0       0       0       0       0       0       0       0       0
              *

3047          KK     C28
3048          KM       Combine R27-28 + 4C
3049          HC       2
              *

3050          KK  R28-29
3051          KM       Channel Route From C28 To C29
3052          KM       Representative Of X-SECT. 4C1
3053          RS       6    FLOW      -1
3054          RC   0.060   0.043   0.060    7000   0.022
3055          RX  4054.0  5054.0  5066.0  5076.0  5133.0  5151.0  5214.0  6054.0
3056          RY   101.2    96.2    95.8    92.8    93.3    95.5    97.0   101.2
3057          RL                   2.17    92.8
              *

3058          KK      4E
3059          KM       SUB-BASIN 4E at C20
3060          BA    4.88
3061          LG    0.25    0.35    4.11    0.48    7.00
3062          UI     124     124     124     124     124     124     124     124     124     124
3063          UI     330     358     358     401     477     477     546     573     647     716
3064          UI     744     757     795     819     842     895     912     931     954     984
3065          UI    1010    1055    1125    1204    1268    1382    1461    1605    1480    1311
3066          UI    1034     973     930     895     842     818     795     757     749     734
3067          UI     724     716     689     682     653     651     623     622     597     596
3068          UI     576     573     545     530     522     502     502     483     477     471
3069          UI     427     427     420     387     387     387     333     329     329     327
3070          UI     305     305     305     305     287     286     286     286     272     260
3071          UI     260     260     260     220     204     204     204     204     204     179
3072          UI     159     159     159     159     159     159     159     145     136     136
3073          UI     136     136     136     136     136     136     120      95      95      95
3074          UI      95      95      95      95      95      95      95      95      95      89
3075          UI      61      61      61      61      61      61      61      61      61      61
3076          UI      61      61      61      61      61      61      61      61      61      61
3077          UI      42      24      24      24      24      24      24      24      24      24
3078          UI      24      24      24      24      24      24      24      24      24      24
3079          UI      24      24      24      24      24      24      24      24      24      24
3080          UI      24      24      24      24      24      24      24      24      24      24
3081          UI      24      24      24      24      24      24      24      24      24      24
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3082          UI      24      24      24       0       0       0       0       0       0       0
3083          UI       0       0       0       0       0       0       0       0       0       0
              *

3084          KK  R20-21
3085          KM       Channel Route From C20 To C21
3086          KM       Representative Of X-SECT. 4G1
3087          RS       8    FLOW      -1
3088          RC   0.070   0.049   0.060   15400   0.013
3089          RX  4015.0  5015.0  5070.0  5080.0  5110.0  5119.0  5149.0  6249.0
3090          RY   101.7    96.7    93.9    90.6    91.0    95.0    96.2   101.7
3091          RL                   2.58    90.6
              *
```

```
3092        KK      4F
3093        KM        SUB-BASIN 4F
3094        BA    6.16
3095        LG    0.27     0.35     4.14     0.49    10.00
3096        UI     216      216      216      216      216      216      216      475      621      638
3097        UI     828      855      994     1133     1261     1312     1380     1454     1537     1593
3098        UI    1646     1705     1773     1942     2109     2304     2534     2753     2353     1833
3099        UI    1656     1553     1461     1387     1325     1289     1265     1241     1183     1147
3100        UI    1116     1080     1045     1025      994      946      920      875      867      828
3101        UI     812      742      739      671      671      604      571      571      533      529
3102        UI     529      501      497      497      466      452      452      436      355      355
3103        UI     355      355      301      276      276      276      276      276      240      237
3104        UI     237      237      237      237      222      166      166      166      166      166
3105        UI     166      166      166      166      130      106      106      106      106      106
3106        UI     106      106      106      106      106      106      106      106      106       70
3107        UI      41       41       41       41       41       41       41       41       41       41
3108        UI      41       41       41       41       41       41       41       41       41       41
3109        UI      41       41       41       41       41       41       41       41       41       41
3110        UI      41       41       41       41       41       41       41        0        0        0
3111        UI       0        0        0        0        0        0        0        0        0        0
            *

3112        KK     C21
3113        KM       Combine R20-21 + 4F
3114        HC       2
            *

3115        KK  R21-23
3116        KM       Channel Route From C21 To C23
3117        KM       X-SECT. 4G1
3118        RS      11    FLOW      -1
3119        RC   0.070   0.049   0.060    8000   0.010
3120        RX  4015.0  5015.0  5070.0  5080.0  5110.0  5119.0  5149.0  6249.0
3121        RY   101.7    96.7    93.9    90.6    91.0    95.0    96.2   101.7
3122        RL                   0.84    90.6
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3123        KK      4D
3124        KM       SUB-BASIN 4D at C22
3125        BA    4.57
3126        LG    0.25     0.35     4.24     0.40     0.00
3127        UI     105      105      105      105      105      105      105      105      105      105
3128        UI     105      265      303      303      303      395      404      404      484      485
3129        UI     553      606      626      638      665      674      713      729      757      777
3130        UI     790      808      831      848      870      932      994     1037     1105     1182
3131        UI    1244     1364     1264     1126      933      845      808      763      743      713
3132        UI     686      673      640      637      622      619      606      599      577      572
3133        UI     551      550      527      527      509      505      495      485      483      449
3134        UI     449      439      425      425      412      404      404      374      362      362
3135        UI     346      328      328      328      286      279      279      279      266      258
3136        UI     258      258      257      242      242      242      242      238      220      220
3137        UI     220      220      220      181      173      173      173      173      173      173
3138        UI     135      135      135      135      135      135      135      135      130      115
3139        UI     115      115      115      115      115      115      115      115      114       81
3140        UI      81       81       81       81       81       81       81       81       81       81
3141        UI      81       81       81       68       52       52       52       52       52       52
3142        UI      52       52       52       52       52       52       52       52       52       52
3143        UI      52       52       52       52       52       52       34       20       20       20
3144        UI      20       20       20       20       20       20       20       20       20       20
3145        UI      20       20       20       20       20       20       20       20       20       20
3146        UI      20       20       20       20       20       20       20       20       20       20
3147        UI      20       20       20       20       20       20       20       20       20       20
3148        UI      20       20       20       20       20       20       20       20       20       20
3149        UI      20       20       20       20        0        0        0        0        0        0
3150        UI       0        0        0        0        0        0        0        0        0        0
            *

3151        KK  R22-23
3152        KM       Channel Route From C22 To C23
3153        KM       X-SECT. 4G2
3154        RS      13    FLOW      -1
3155        RC   0.050   0.050   0.050   14200   0.011
3156        RX  4015.0  5015.0  5030.0  5048.0  5084.0  5096.0  5201.0  7381.0
3157        RY   103.6    98.6    97.7    89.5    88.0    92.3    92.7   103.(
```

```
3158          RL                    1.45    88.0
              *

3159          KK      4G
3160          KM       SUB-BASIN 4G
3161          BA    7.70
3162          LG    0.27    0.35    4.08    0.44    0.00
3163          UI     229     229     229     229     229     229     229     229     374     660
3164          UI     660     731     879     891    1055    1103    1319    1366    1407    1466
3165          UI    1542    1611    1670    1715    1765    1820    1885    2023    2202    2339
3166          UI    2565    2730    2944    2506    2027    1801    1700    1617    1547    1466
3167          UI    1412    1379    1353    1326    1301    1256    1216    1197    1147    1132
3168          UI    1099    1077    1055    1006     977     947     926     905     879     862
3169          UI     788     788     738     713     713     620     607     607     580     561
3170          UI     561     559     528     528     528     514     480     480     480     465
3171          UI     377     377     377     377     377     304     293     293     293     293
3172          UI     293     289     251     251     251     251     251     251     251     237
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3173          UI     176     176     176     176     176     176     176     176     176     176
3174          UI     176     120     112     112     112     112     112     112     112     112
3175          UI     112     112     112     112     112     112     112     112     100      44
3176          UI      44      44      44      44      44      44      44      44      44      44
3177          UI      44      44      44      44      44      44      44      44      44      44
3178          UI      44      44      44      44      44      44      44      44      44      44
3179          UI      44      44      44      44      44      44      44      44      44      44
3180          UI      44      44      44      44       0       0       0       0       0       0
3181          UI       0       0       0       0       0       0       0       0       0       0
              *

3182          KK     C23
3183          KM       Combine R21-23 + R22-23 + 4G
3184          HC       3
              *

3185          KK  R23-29
3186          KM       Channel Route From C23 To C29
3187          KM       X-SECT. 4J1
3188          RS      41    FLOW      -1
3189          RC   0.060   0.040   0.070   38800   0.009
3190          RX  4010.0  5010.0  5106.0  5118.0  5187.0  5202.0  5499.0  6039.0
3191          RY    99.0    94.0    93.8    90.0    90.0    95.3    96.3    99.0
3192          RL                    2.34    90.0
              *

3193          KK      4J
3194          KM       SUB-BASIN 4J
3195          BA    6.09
3196          LG    0.33    0.35    3.61    0.30    0.00
3197          UI     163     163     163     163     163     163     163     163     163     289
3198          UI     535     535     570     624     624     734     749     786     796     856
3199          UI     870     913     926     960     993    1017    1069    1109    1151    1207
3200          UI    1245    1276    1334    1421    1532    1650    1843    1895    2002    2200
3201          UI    2134    1992    1857    1760    1675    1601    1536    1478    1427    1381
3202          UI    1337    1294    1260    1213    1162    1101    1059    1031     985     957
3203          UI     936     860     848     796     793     749     749     628     624     554
3204          UI     468     468     452     288     288     288     288     288     275     267
3205          UI     267     267     267     267     189     163     163     163     163     163
3206          UI     163     163     163     153      50      50      50      50      50      50
3207          UI      50      50      50      50      50      50      50      50      50      50
3208          UI      50      50      50      50      50      50      50      50      50      50
3209          UI      50      50      50      50      50       0       0       0       0       0
3210          UI       0       0       0       0       0       0       0       0       0       0
              *

3211          KK     C29
3212          KM       Combine R28-29 + R23-29 + 4J
3213          HC       3
              *
                                          HEC-1 INPUT                                          PAGE 75

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3214          KK  R29-31
3215          KM       Channel Route From C29 To C31
```

```
3216        KM       X-SECT. 4K1
3217        RS      12    FLOW      -1
3218        RC   0.070   0.031   0.060   18000   0.008
3219        RX  4949.3  5180.0  5280.0  5286.0  5380.0  5386.0  5449.0  5604.7
3220        RY    95.8    90.8    88.7    87.0    86.6    89.1    89.7    95.8
3221        RL                    3.03    86.6
            *

3222        KK      4K
3223        KM       SUB-BASIN 4K
3224        BA    3.91
3225        LG    0.35    0.35    3.50    0.28    0.00
3226        UI     115     115     115     115     115     115     115     115     184     379
3227        UI     379     417     443     471     531     545     565     598     618     648
3228        UI     662     681     716     741     769     805     855     879     905     953
3229        UI    1025    1115    1192    1401    1345    1536    1527    1420    1313    1239
3230        UI    1175    1120    1070    1027     988     954     923     895     855     814
3231        UI     779     738     712     691     664     621     602     565     557     531
3232        UI     500     443     435     332     332     328     204     204     204     204
3233        UI     203     190     190     190     190     190     132     115     115     115
3234        UI     115     115     115     115     113      35      35      35      35      35
3235        UI      35      35      35      35      35      35      35      35      35      35
3236        UI      35      35      35      35      35      35      35      35      35      35
3237        UI      35      35      35       0       0       0       0       0       0       0
3238        UI       0       0       0       0       0       0       0       0       0       0
            *

3239        KK     C31
3240        KM       Combine R29-31 + 4K
3241        HC       2
            *

3242        KK  R31-32
3243        KM       Channel Route From C31 To C32
3244        KM       Representative Of X-SECT. 4K1
3245        RS      12    FLOW      -1
3246        RC   0.070   0.031   0.060   20600   0.010
3247        RX  4949.3  5180.0  5280.0  5286.0  5380.0  5386.0  5449.0  5604.7
3248        RY    95.8    90.8    88.7    87.0    86.6    89.1    89.7    95.8
3249        RL                    3.21    86.6
            *

3250        KK      4H
3251        KM       SUB-BASIN 4H at C24
3252        BA    6.11
3253        LG    0.24    0.40    6.29    0.16   12.00
3254        UI     179     179     179     179     179     179     179     179     240     514
3255        UI     514     534     686     686     798     823    1008    1048    1083    1137
3256        UI    1179    1227    1286    1327    1363    1403    1447    1523    1646    1756
3257        UI    1904    2056    2262    2156    1831    1465    1371    1295    1235    1186
3258        UI    1143    1084    1068    1054    1029    1004     980     940     927     894
3259        UI     878     857     837     823     781     762     737     722     706     686
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3260        UI     677     614     614     582     556     556     496     473     473     459
3261        UI     438     438     438     417     411     411     411     376     374     374
3262        UI     374     315     294     294     294     294     270     229     229     229
3263        UI     229     229     229     213     196     196     196     196     196     196
3264        UI     196     171     137     137     137     137     137     137     137     137
3265        UI     137     137     137      92      88      88      88      88      88      88
3266        UI      88      88      88      88      88      88      88      88      88      88
3267        UI      88      40      34      34      34      34      34      34      34      34
3268        UI      34      34      34      34      34      34      34      34      34      34
3269        UI      34      34      34      34      34      34      34      34      34      34
3270        UI      34      34      34      34      34      34      34      34      34      34
3271        UI      34      34      34      34      34      34      34       0       0       0
3272        UI       0       0       0       0       0       0       0       0       0       0
            *

3273        KK  R24-25
3274        KM       Channel Route From C24 To C25
3275        KM       Representative Of X-SECT. 6B1
3276        RS      59    FLOW      -1
3277        RC   0.070   0.045   0.060   20000   0.001
3278        RX  4662.5  5037.5  5075.0  5088.0  5133.0  5146.0  5196.0  5566.0
3279        RY   101.0    96.0    95.5    91.5    90.0    96.8    97.3   101.(
```

```
3280          RL                    0.73    90.0
              *

3281          KK      4I
3282          KM       SUB-BASIN 4I
3283          BA   15.52
3284          LG    0.29     0.35     4.14     0.40     4.00
3285          UI     405      405      405      405      405      405      405      405      405      489
3286          UI    1165     1165     1165     1425     1553     1581     1863     1863     2301     2356
3287          UI    2452     2532     2594     2740     2839     2930     3005     3092     3167     3251
3288          UI    3360     3586     3882     4047     4450     4713     5138     4925     4313     3445
3289          UI    3180     3033     2911     2740     2658     2588     2453     2429     2389     2348
3290          UI    2329     2223     2203     2117     2093     2025     2001     1941     1924     1863
3291          UI    1854     1725     1725     1657     1635     1610     1553     1553     1437     1391
3292          UI    1391     1281     1259     1259     1136     1071     1071     1071      998      991
3293          UI     991      991      939      932      932      932      883      847      847      847
3294          UI     847      695      665      665      665      665      665      544      518      518
3295          UI     518      518      518      518      512      444      444      444      444      444
3296          UI     444      444      444      437      311      311      311      311      311      311
3297          UI     311      311      311      311      311      311      294      198      198      198
3298          UI     198      198      198      198      198      198      198      198      198      198
3299          UI     198      198      198      198      198      198      198       85       78       78
3300          UI      78       78       78       78       78       78       78       78       78       78
3301          UI      78       78       78       78       78       78       78       78       78       78
3302          UI      78       78       78       78       78       78       78       78       78       78
3303          UI      78       78       78       78       78       78       78       78       78       78
3304          UI      78       78       78       78       78       78       78       78        0        0
3305          UI       0        0        0        0        0        0        0        0        0        0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3306          KK     C25
3307          KM       Combine R24-25 + 4I
3308          HC       2
              *

3309          KK  R25-30
3310          KM       Channel Route From C25 To C30
3311          KM       X-SECT. 4L2
3312          RS      35    FLOW      -1
3313          RC   0.050   0.047   0.050   34000   0.012
3314          RX  4033.0  5033.0  5069.0  5084.0  5129.0  5138.0  5168.0  5426.8
3315          RY   100.6    95.6    94.8    91.7    91.0    93.2    96.0   100.6
3316          RL                    1.68    91.0
              *

3317          KK      6A
3318          KM       SUB-BASIN 6A at C39
3319          BA    9.04
3320          LG    0.26     0.25     8.60     0.07    10.00
3321          UI     247      247      247      247      247      247      247      247      247      512
3322          UI     711      711      780      949      949     1106     1138     1360     1433     1498
3323          UI    1546     1591     1674     1748     1802     1844     1897     1956     2012     2121
3324          UI    2280     2424     2609     2806     3017     3141     2693     2205     1959     1860
3325          UI    1779     1674     1618     1570     1498     1476     1459     1424     1400     1355
3326          UI    1317     1294     1248     1237     1190     1186     1141     1138     1062     1054
3327          UI    1016      999      981      949      949      860      849      838      769      769
3328          UI     756      654      654      654      628      605      605      605      580      569
3329          UI     569      569      539      517      517      517      509      407      407      407
3330          UI     407      407      376      316      316      316      316      316      316      316
3331          UI     273      271      271      271      271      271      271      271      243      190
3332          UI     190      190      190      190      190      190      190      190      190      190
3333          UI     186      121      121      121      121      121      121      121      121      121
3334          UI     121      121      121      121      121      121      121      121      121      121
3335          UI      64       47       47       47       47       47       47       47       47       47
3336          UI      47       47       47       47       47       47       47       47       47       47
3337          UI      47       47       47       47       47       47       47       47       47       47
3338          UI      47       47       47       47       47       47       47       47       47       47
3339          UI      47       47       47       47       47       47       47       47       47        0
3340          UI       0        0        0        0        0        0        0        0        0        0
3341          UI       0        0        0        0        0        0        0        0        0        0
              *

3342          KK  R39-40
3343          KM       Channel Route From C39 To C40
```

```
3344          KM       X-SECT. 6B1
3345          RS      10     FLOW      -1
3346          RC   0.070    0.045   0.060   11400   0.009
3347          RX  4662.5   5037.5  5075.0  5088.0  5133.0  5146.0  5196.0  5566.0
3348          RY   101.0     96.0    95.5    91.5    90.0    96.8    97.3   101.0
3349          RL                    1.10    90.0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3350          KK      6B
3351          KM       SUB-BASIN 6B
3352          BA   10.95
3353          LG    0.26     0.28    8.28    0.08    9.00
3354          UI     354      354     354     354     354     354     355     372    1019    1019
3355          UI    1105     1359    1406    1631    1810    2044    2146    2233    2330    2444
3356          UI    2564     2641    2726    2820    2936    3190    3453    3740    4082    4543
3357          UI    4062     3346    2818    2643    2498    2377    2265    2157    2113    2078
3358          UI    2038     1956    1906    1853    1783    1752    1699    1657    1631    1525
3359          UI    1509     1430    1428    1359    1359    1224    1217    1145    1102    1092
3360          UI     937      937     934     867     867     867     826     815     815     792
3361          UI     741      741     741     661     582     582     582     582     498     453
3362          UI     453      453     453     453     426     388     388     388     388     388
3363          UI     388      373     272     272     272     272     272     272     272     272
3364          UI     272      272     200     173     173     173     173     173     173     173
3365          UI     173      173     173     173     173     173     173     173     127      68
3366          UI      68       68      68      68      68      68      68      68      68      68
3367          UI      68       68      68      68      68      68      68      68      68      68
3368          UI      68       68      68      68      68      68      68      68      68      68
3369          UI      68       68      68      68      68      68      68      68      68      68
3370          UI       0        0       0       0       0       0       0       0       0       0
3371          UI       0        0       0       0       0       0       0       0       0       0
              *

3372          KK     C40
3373          KM       Combine R39-40 + 6B
3374          HC       2
              *

3375          KK   DC40R
3376          KM         Main flow at C40 is in the Right channel (C40R)
3377          KM         Diverted flow (DQ record) goes into the left channel (C40L)
3378          DT   DC40L
3379          DI       0       15      60     110     345     900    1660    3500    6800   15300
3380          DQ     0.0      0.0     0.0    15.0   125.0   350.0   760.0  1400.0  2600.0  3700.0
              *

3381          KK  40R-30
3382          KM       Channel route right flow split at C40 from C40 To C30
3383          KM       X-SECT. 4L1
3384          RS      32     FLOW      -1
3385          RC   0.050    0.051   0.050   26600   0.009
3386          RX  4015.0   5015.0  5159.0  5204.0  5261.0  5266.0  5283.0  6383.0
3387          RY    99.1     94.1    93.5    90.0    90.0    92.3    93.6    99.1
3388          RL                    0.93    90.0
              *

3389          KK      4L
3390          KM       SUB-BASIN 4L
3391          BA    9.49
3392          LG    0.32     0.35    3.77    0.34    3.00
3393          UI     212      212     212     212     212     212     212     212     212     212
3394          UI     212      416     695     695     695     800     811     811     954     973
3395          UI     996     1036    1036    1132    1132    1178    1187    1234    1248    1302
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3396          UI    1315     1386    1406    1475    1524    1570    1620    1648    1678    1802
3397          UI    1894     2010    2137    2266    2625    2374    2742    2863    2779    2615
3398          UI    2476     2357    2254    2165    2086    2017    1947    1881    1833    1789
3399          UI    1738     1691    1659    1622    1539    1502    1431    1391    1352    1303
3400          UI    1281     1231    1217    1132    1106    1067    1036    1024     973     973
3401          UI     865      811     811     680     608     608     608     463     374     374
3402          UI     374      374     374     372     348     348     348     348     348     348
3403          UI     343      212     212     212     212     212     212     212     212     211
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3404        UI     212     212     145      65      65      65      65      65      65      65
3405        UI      65      65      65      65      65      65      65      65      65      65
3406        UI      65      65      65      65      65      65      65      65      65      65
3407        UI      65      65      65      65      65      65      65      65      65      65
3408        UI       0       0       0       0       0       0       0       0       0       0
3409        UI       0       0       0       0       0       0       0       0       0       0
            *

3410        KK     C30
3411        KM       Combine R25-30 + R40-30 + 4L
3412        HC       3
            *

3413        KK  R30-32
3414        KM       Channel Route From C30 To C32
3415        KM       Representative Of X-SECT. 4L2
3416        RS      18    FLOW      -1
3417        RC   0.050   0.047   0.050   20600   0.009
3418        RX  4033.0  5033.0  5069.0  5084.0  5129.0  5138.0  5168.0  5426.8
3419        RY   100.6    95.6    94.8    91.7    91.0    93.2    96.0   100.6
3420        RL                   0.90    91.0
            *

3421        KK      4M
3422        KM       SUB-BASIN 4M
3423        BA    3.42
3424        LG    0.35    0.35    3.50    0.27    0.00
3425        UI     124     124     124     124     124     124     124     370     407     454
3426        UI     475     554     580     606     653     678     703     731     770     808
3427        UI     853     906     943     978    1065    1175    1275    1480    1546    1661
3428        UI    1533    1398    1309    1221    1159    1103    1048    1006     969     921
3429        UI     865     818     778     744     712     654     625     603     570     520
3430        UI     475     396     356     331     219     219     219     217     203     203
3431        UI     203     203     139     124     124     124     124     124     124      65
3432        UI      38      38      38      38      38      38      38      38      38      38
3433        UI      38      38      38      38      38      38      38      38      38      38
3434        UI      38      38       0       0       0       0       0       0       0       0
3435        UI       0       0       0       0       0       0       0       0       0       0
            *

3436        KK     C32
3437        KM       Combine R31-32 + R30-32 + 4M
3438        HC       3
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3439        KK   DC32R
3440        KM         Main flow at C32 is in the right channel (C32R)
3441        KM         Diverted flow (00 record) goes into the left channel (C32L)
3442        DT   DC32L
3443        DI       0     105     615    1875    4250    7900   12700   15000
3444        DQ       0    30.0   275.0   775.0  1500.0  3100.0  4500.0  5300.0
            *

3445        KK  R32-33
3446        KM       Channel Route From C32 To C33
3447        KM       Interpolated XSECT. between 4N1 and 4N2
3448        RS      45    FLOW      -1
3449        RC   0.040   0.041   0.040   48400   0.007
3450        RX  4350.0  5350.0  5421.0  5430.0  5479.0  5500.0  5583.0  5867.7
3451        RY    99.8    94.8    93.6    90.4    90.5    94.0    95.4    99.8
3452        RL                   1.21    90.4
            *

3453        KK      4N
3454        KM       SUB-BASIN 4N
3455        BA    7.61
3456        LG    0.35    0.35    3.50    0.27    0.00
3457        UI     143     143     143     143     143     143     143     143     143     143
3458        UI     143     143     143     234     470     470     470     478     549     549
3459        UI     549     606     658     658     681     700     700     748     766     772
3460        UI     803     803     833     844     862     890     899     941     946     998
3461        UI    1006    1062    1072    1097    1116    1135    1199    1234    1317    1392
3462        UI    1450    1496    1819    1595    1736    1890    1937    1878    1784    1704
3463        UI    1635    1568    1505    1459    1419    1372    1330    1303    1266    123
```

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3464        UI    1214    1176    1158    1135    1108    1097    1034    1028     968     968
3465        UI     915     915     874     866     842     823     809     748     748     721
3466        UI     700     700     669     658     658     574     549     549     522     412
3467        UI     412     412     412     345     253     253     253     253     253     253
3468        UI     253     241     235     235     235     235     235     235     235     207
3469        UI     143     143     143     143     143     143     143     143     143     143
3470        UI     143     143     143      85      44      44      44      44      44      44
3471        UI      44      44      44      44      44      44      44      44      44      44
3472        UI      44      44      44      44      44      44      44      44      44      44
3473        UI      44      44      44      44      44      44      44      44      44      44
3474        UI      44      44      44      44      44      44      44      44       0       0
3475        UI       0       0       0       0       0       0       0       0       0       0
            *

3476        KK     C33
3477        KM       Combine R32-33 + 4N
3478        HC       2
            *

3479        KK  R33-34
3480        KM       Channel Route From C33 To C34
3481        KM       Representative Of X-SECT. 5B1
3482        RS      27    FLOW      -1
3483        RC   0.060   0.048   0.060   19200   0.006
3484        RX  3447.0  5090.0  5240.0  5247.0  5289.0  5299.0  5377.0  5647.0
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3485        RY    98.4    92.3    91.3    89.2    89.7    91.1    95.0    98.4
3486        RL                    0.76    89.2
            *

3487        KK      4O
3488        KM       SUB-BASIN 4O
3489        BA    5.50
3490        LG    0.35    0.35    3.66    0.31    0.00
3491        UI     134     134     134     134     134     134     134     134     134     134
3492        UI     263     441     441     456     514     514     560     617     623     657
3493        UI     657     716     718     753     757     791     805     834     864     882
3494        UI     935     965     998    1029    1053    1092    1153    1235    1337    1397
3495        UI    1665    1493    1741    1816    1745    1636    1537    1462    1397    1339
3496        UI    1286    1238    1197    1161    1129    1100    1064    1038    1006     964
3497        UI     915     892     857     828     812     775     767     701     699     657
3498        UI     657     622     617     557     514     514     408     386     386     364
3499        UI     237     237     237     237     237     235     220     220     220     220
3500        UI     220     220     158     134     134     134     134     134     134     134
3501        UI     134     134     121      41      41      41      41      41      41      41
3502        UI      41      41      41      41      41      41      41      41      41      41
3503        UI      41      41      41      41      41      41      41      41      41      41
3504        UI      41      41      41      41      41      41      41       0       0       0
3505        UI       0       0       0       0       0       0       0       0       0       0
            *

3506        KK    C34I
3507        KM       Combine R33-34 + 4O
3508        HC       2
            *

3509        KK    C34O
3510        KM        Reservoir Route at C34 at The Gila Bend Canal  (no obvious outfall)
3511        KM           Route all flow from C34,     (Unnamed Wash No 6)
3512        RS       1    ELEV     736
3513        SV     0.0     6.7    44.8   148.0   166.6   185.2   203.8   222.4   241.0   259.6
3514        SV   278.2   296.8   315.4   334.0
3515        SE   736.0   738.0   740.0   742.0   742.2   742.4   742.6   742.8   743.0   743.2
3516        SE   743.4   743.6   743.8   744.0
3517        SQ       0     750    3000    6785    8180   10250   12765   16215   20000   24000
3518        SQ   28000   32000   36000   40000
3519        RL                     8.5     737
            *

3520        KK   DC34L
3521        KM         Main flow at C34 follows canal to Sauceda Wash at C36.
3522        KM         Diverted flow (DQ record) overtops canal.
3523        DT   DC34R
3524        DI       0     750    2500    4300    4900    6785    8180   10250   12900
3525        DQ       0       0       0       0     600    2485    3880    5950    860(
```

```
*
*   Return to Drainage Area 5
*
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3526        KK  BDC32L
3527        KM       Recall flow split diverted hydrograph C32L
3528        DR   DC32L
            *

3529        KK  32L-35
3530        KM       Channel Route From left C32 flow split from C32 To C35
3531        KM       Interpolated XSECT. between 5A1 and 5A2
3532        RS      49    FLOW      -1
3533        RC   0.050   0.054   0.050   45000   0.007
3534        RX  4777.8  5125.0  5259.0  5274.0  5297.0  5313.0  5406.0  5787.3
3535        RY   100.1    95.1    92.7    90.4    90.1    93.6    95.8   100.1
3536        RL                   1.15    90.1
            *

3537        KK      5A
3538        KM       SUB-BASIN 5A
3539        BA    9.29
3540        LG    0.35    0.35    3.50    0.27    0.00
3541        UI     180     180     180     180     180     180     180     180     180     180
3542        UI     180     180     180     451     591     591     591     650     689     689
3543        UI     706     827     827     839     880     880     920     962     962    1008
3544        UI    1008    1041    1060    1081    1117    1131    1181    1194    1253    1275
3545        UI    1334    1355    1378    1413    1431    1531    1591    1659    1798    1855
3546        UI    2056    2172    2022    2313    2432    2412    2285    2176    2067    1985
3547        UI    1913    1851    1797    1723    1680    1643    1590    1551    1526    1477
3548        UI    1453    1426    1388    1374    1292    1277    1216    1201    1148    1140
3549        UI    1088    1088    1037    1034     976     940     936     880     880     862
3550        UI     827     827     767     689     689     689     525     517     517     517
3551        UI     455     318     318     318     318     318     318     318     301     295
3552        UI     295     295     295     295     295     295     220     180     180     180
3553        UI     180     180     180     180     180     180     180     180     180     141
3554        UI      55      55      55      55      55      55      55      55      55      55
3555        UI      55      55      55      55      55      55      55      55      55      55
3556        UI      55      55      55      55      55      55      55      55      55      55
3557        UI      55      55      55      55      55      55      55      55      55      55
3558        UI      55      55      55       0       0       0       0       0       0       0
3559        UI       0       0       0       0       0       0       0       0       0       0
            *

3560        KK     C35
3561        KM       Combine R32L-35 + 5A
3562        HC       2  127.35
            *

3563        KK  R35-36
3564        KM       Channel Route From C35 To C36
3565        KM       X-SECT. 5B1
3566        RS      25    FLOW      -1
3567        RC   0.060   0.048   0.060   24600   0.006
3568        RX  4974.6  5090.0  5240.0  5247.0  5289.0  5299.0  5377.0  5842.0
3569        RY    97.3    92.3    91.3    89.2    89.7    91.1    95.0    97.4
3570        RL                   1.82    89.2
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3571        KK      5B
3572        KM       SUB-BASIN 5B
3573        BA    4.88
3574        LG    0.35    0.35    3.82    0.36    0.00
3575        UI     144     144     144     144     144     144     144     144     230     474
3576        UI     474     521     552     588     663     681     705     747     771     809
3577        UI     827     850     894     924     960    1005    1067    1098    1130    1190
3578        UI    1279    1392    1487    1749    1679    1917    1906    1772    1639    1547
3579        UI    1467    1397    1336    1282    1233    1190    1152    1117    1067    1016
3580        UI     973     921     888     862     829     775     752     705     695     663
3581        UI     624     552     543     414     414     409     255     255     255     25
```

```
3582    UI     253     237     237     237     237     237     165     144     144     144
3583    UI     144     144     144     144     141      44      44      44      44      44
3584    UI      44      44      44      44      44      44      44      44      44      44
3585    UI      44      44      44      44      44      44      44      44      44      44
3586    UI      44      44      44       0       0       0       0       0       0       0
3587    UI       0       0       0       0       0       0       0       0       0       0
        *

3588    KK     C36
3589    KM       Combine R35-36 + 5B
3590    KO                                      21
3591    HC       2  132.23
        *

3592    KK    C36I
3593    KM    Combine C36 + DC34L
3594    HC       2  263.40
        *

3595    KK    C36O
3596    KM        Reservoir Route at C36 At The Gila Bend Canal  (Sauceda Wash)
3597    KM           Route all flow from C11, C36, and overflow from C12
3598    RS       1    ELEV     726
3599    SV       0       0       0     4.7    18.0    48.7   115.1   227.8   243.7   259.6
3600    SV   275.5   291.4   307.3   323.2   339.1   355.0   370.9   386.8     404
3601    SE     728     730     732     734     736     738     740     742   742.2   742.4
3602    SE   742.6   742.8     743   743.2   743.4   743.6   743.8     744   744.2
3603    SQ       0      70    1330    2165    3500    5135    7026    7600    7665    7725
3604    SQ    7780    7840    7900    7955    8385   10165   11665   14570   17000
3605    RL                     8.5     728
        *

3606    KK  R36-37
3607    KM       Channel Route From C36 To C37
3608    KM       X-SECT. 5C2
3609    RS       2    FLOW      -1
3610    RC   0.035   0.030   0.035    2200   0.005
3611    RX  4905.8  4905.9  5204.0  5222.0  5292.0  5309.0  6228.9  6229.0
3612    RY     105   101.5    97.0    90.9    90.6    96.7   101.5     105
3613    RL                    8.54    90.6
        *
```



```
LINE    ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3614    KK   DC37R
3615    KM        Main flow at C37 follows railraod to Unnamed Wash No 6 (C370).
3616    KM        Diverted flow (DQ record) passes through railroad and highway at
3617    KM        Sauceda Wash.
3618    DT   DC37L
3619    DI       0    3000    3500    4100    5750    7500    8250    9330   10910
3620    DQ       0    3000    3500    4000    4250    4500    4750    4830    4910
        *

3621    KK  DC37AR
3622    KM        Main flow at C37A flows along R/R to Unnamed No 6
3623    KM        Diverted flow (DQ record) overtops R/R and Highway, overland flow to
3624    KM        Quilotosa Wash at C16
3625    DT  DC37AL
3626    DI       0     500    1000    2000    3000    3245    4000    5000
3627    DQ       0     495     990    1980    2970    3213    3960    4950
        *

3628    KK  37A-17
3629    KM       Channel Route From C37 to C17
3630    KM       X-SECT. 3M1
3631    RS      16    FLOW      -1
3632    RC    .038    .038    .038    3150   .0013
3633    RX       0       5      10      47     125     500     750    1150
3634    RY  726.39     726   725.5     724     724     726     728     732
        *

3635    KK  BDC34R
3636    KM       Recall flow split diverted hydrograph C34R
3637    DR   DC34R
        *
```

```
3638          KK  R34-17
3639          KM       Channel Route From C34 To C17
3640          KM       X-SECT. 3M1
3641          RS      16    FLOW      -1
3642          RC     .04    .035     .04    3100   .0065
3643          RX       0     240     345     350     360     365     650     920
3644          RY     732     728   726.5   725.6   725.6   726.5     728     732
3645          RL      25                   726.5
              *

3646          KK     C17
3647          KM     combine R11-17 + R34-17 + 37A-17
3648          KM     Combine before passing through multiple conveyance structures
3649          KM     for Quilotosa and Quilotosa West at R/R and Highway
3650          KO                                      21
3651          HC       3
              *
              *   ROUTE FLOW THROUGH RR & HIGHWAY
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3652          KK  R17-13
3653          KM       Channel Route From C17 To C13
3654          KM       X-SECT. 3M1
3655          RS      16    FLOW      -1
3656          RC     .04    .035     .04    1700    .003
3657          RX       0     0.1      40      50      80      90   129.9     130
3658          RY     750     716     715     712     712     715     716     750
3659          RL      15                     711
              *

3660          KK     C13
3661          KM    Combine R14-13 + R17-13
3662          HC       2  350.76
              *

3663          KK  13-13A
3664          KM       Channel Route From C13 To C13A
3665          KM       X-SECT. 3M1
3666          RS      16    FLOW      -1
3667          RC   0.030   0.035   0.030    4300   0.004
3668          RX  4925.4  4925.5  5139.0  5147.0  5192.0  5202.0  6237.9  6238.0
3669          RY     110    99.1    94.9    89.6    89.7    95.1    99.1     110
3670          RL                    9.61    89.6
              *

3671          KK  DC37AL
3672          KM       Recall flow split diverted hydrograph DC37AL
3673          DR  DC37AL
              *

3674          KK  37L13A
3675          KM        Channel Route From C37AL to C13A
3676          RS      16    FLOW      -1
3677          RC     .04    .035     .04    6500   .0045
3678          RX       0     200     300     400     500     650     800    1100
3679          RY     712     710     709     708     708     709     710     712
              *

3680          KK    C13A
3681          KM       Combine R13-13A + 37L13A
3682          HC       2  350.76
              *

3683          KK  13A-16
3684          KM       Channel Route From C13A To C16
3685          KM       X-SECT. 3M1
3686          RS      16    FLOW      -1
3687          RC   0.030   0.035   0.030    7500   0.004
3688          RX  4925.4  4925.5  5139.0  5147.0  5192.0  5202.0  6237.9  6238.0
3689          RY     110    99.1    94.9    89.6    89.7    95.1    99.1     110
3690          RL                    9.61    89.6
              *
```

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3691          KK      3M
3692          KM       SUB-BASIN 3M, reduced by 0.25 sq. miles to account for basin 3MA(8/28/00)
3693          BA    3.64
3694          LG    0.44    0.10    3.94    0.55    2.00
3695          UI     179     179     179     179     179     345     590     658     721     827
3696          UI     878     950     999    1050    1109    1188    1277    1357    1431    1588
3697          UI    1802    2089    2291    2335    2082    1894    1751    1627    1538    1453
3698          UI    1390    1277    1189    1117    1055     976     906     858     803     688
3699          UI     567     516     366     317     317     304     295     295     273     179
3700          UI     179     179     179     179     106      55      55      55      55      55
3701          UI      55      55      55      55      55      55      55      55      55      55
3702          UI      55      55       0       0       0       0       0       0       0       0
3703          UI       0       0       0       0       0       0       0       0       0       0
              *

3704          KK   DC14R
3705          KM       Recall flow split diverted hydrograph DC14R
3706          DR   DC14R
              *

3707          KK  R14-16
3708          KM       Channel Route From C14 to C16
3709          RS      12    FLOW      -1
3710          RC   0.030   0.035   0.030   13300   .0045
3711          RX    1000    1200    1450    1490    1510    1550    1800    1950
3712          RY     100      95      90      87      87      90      95     100
3713          RL                      9      87
              *

3714          KK     C16
3715          KM       Combine R13A-16 + 3M
3716          HC       3  354.40
              *
              *   Return to Drainage Area 5 at Sauceda Wash and I-8
              *

3717          KK  BDC37L
3718          KM       Recall flow split diverted hydrograph C37L
3719          DR   DC37L
              *

3720          KK  R37-38
3721          KM       Channel Route From C37 To C38
3722          KM       X-SECT. 5C1
3723          RS      10    FLOW      -1
3724          RC   0.030   0.036   0.030   13200   0.005
3725          RX  4925.4  5103.0  5139.0  5148.0  5208.0  5219.0  5255.0  6255.0
3726          RY    99.1    94.1    94.9    88.9    89.1    95.1    94.1    99.1
3727          RL                    2.24    38.9
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3728          KK      5C
3729          KM       SUB-BASIN 5C
3730          BA    2.41
3731          LG    0.45    0.09    3.54    0.72    1.00
3732          UI     105     105     105     105     105     129     346     364     404     465
3733          UI     500     529     568     595     625     661     704     754     798     838
3734          UI     928    1044    1223    1285    1403    1267    1150    1062     989     930
3735          UI     881     841     794     737     690     650     616     570     532     506
3736          UI     482     404     354     303     251     186     186     185     173     173
3737          UI     173     138     105     105     105     105     105      61      32      32
3738          UI      32      32      32      32      32      32      32      32      32      32
3739          UI      32      32      32      32      32      32       0       0       0       0
3740          UI       0       0       0       0       0       0       0       0       0       0
              *

3741          KK     C38
3742          KM       Combine R37-38 + 5C
3743          KO                                     21
3744          HC       2  242.09
              *
```

```
*     Top of Drainage Area 6N
*

KK      6N
KM       SUB-BASIN 6N at C53
BA    7.84
LG    0.35    0.35    3.71    0.32    0.00
UI     208     208     208     208     208             208     208     208     333
UI     683     683     717     797     797     918     956     995    1017    1079
UI    1112    1157    1172    1226    1255    1292    1357    1399    1449    1542
UI    1578    1617    1672    1777    1912    2078    2214    2533    2441    2761
UI    2776    2590    2432    2297    2180    2076    1991    1912    1842    1781
UI    1726    1677    1632    1591    1494    1435    1388    1328    1279    1252
UI    1195    1151    1086    1049    1017     983     956     887     797     797
UI     618     598     598     481     368     368     368     368     368     341
UI     341     341     341     341     331     208     208     208     208     208
UI     208     208     208     208     158      64      64      64      64      64
UI      64      64      64      64      64      64      64      64      64      64
UI      64      64      64      64      64      64      64      64      64      64
UI      64      64      64      64      64      64       0       0       0       0
UI       0       0       0       0       0       0       0       0       0       0
*

KK    C53O
KM        Reservoir Route at C53 at The Gila Bend Canal  (Unnamed Wash No 1)
KM           Route all flow from C53      (drainage Area 6N)
RS       1    ELEV     728
SV     0.0     0.0     0.8     4.0    14.1    38.7    87.8   170.5   226.4   232.7
SV   239.0   245.3   251.6   257.9   264.1   270.4
SE     727     728     730     732     734     736     738     740     741   741.1
SE   741.2   741.3   741.4   741.5   741.6   741.7
SQ     0.0      29      90     164     225     272     322     375     520     633
SQ    1000    1433    1910    2495    3080    3795
RL                      10     728
*
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  R53-56
KM       Channel Route From C53 To C56
KM       X-SECT. 6Q2
RS       3    FLOW      -1
RC   0.035   0.037   0.035    3200   0.005
RX  4850.0  5100.0  5200.0  5213.5  5231.5  5245.0  5345.0  5595.0
RY   101.5    96.5    94.5    90.0    90.0    94.5    96.5   101.5
RL                    9.91    90.0
*

KK  R56-59
KM       Channel Route From C56 To C59
KM       X-SECT. 6Q1
RS      20    FLOW      -1
RC   0.030   0.036   0.030   14800   0.004
RX  4871.9  5066.0  5149.0  5174.0  5191.0  5217.0  5242.0  6282.0
RY   100.0    95.0    94.3    88.2    88.4    94.8    94.8   100.0
RL                   10.00    88.2
*

KK      6Q
KM       SUB-BASIN 6Q
BA    2.86
LG    0.47    0.05    3.64    0.68    1.00
UI     117     117     117     117     117     117     309     386     437     465
UI     540     568     602     638     666     698     736     780     833     884
UI     919     994    1118    1260    1377    1554    1514    1366    1254    1162
UI    1096    1030     981     939     893     830     779     736     699     661
UI     613     575     549     506     450     367     338     266     208     208
UI     208     193     193     193     180     117     117     117     117     117
UI     117      46      36      36      36      36      36      36      36      36
UI      36      36      36      36      36      36      36      36      36      36
UI      36       0       0       0       0       0       0       0       0       0
UI       0       0       0       0       0       0       0       0       0       0
*

KK     C59
KM       Combine R56-59 + 6Q
```

```
3806        KO                                  21
3807        HC       2
            *
            * Move to Top of Major Basin 6
            *

3808        KK  BDC40L
3809        KM       Recall stored hydrograph from C40 diversion left channel
3810        DR   DC40L
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3811        KK  40L-41
3812        KM       Channel route left diversion from C40 To C41
3813        KM       X-SECT. 6C1
3814        RS      18    FLOW      -1
3815        RC   0.050   0.044   0.050   18000   0.009
3816        RX  4808.0  5048.0  5099.0  5110.0  5131.0  5136.0  5166.0  5346.0
3817        RY   101.0    96.0    95.9    91.4    91.2    95.2    96.6   101.0
3818        RL                   0.73    91.2
            *

3819        KK      6C
3820        KM       SUB-BASIN 6C
3821        BA    8.83
3822        LG    0.28    0.35    4.03    0.37    0.00
3823        UI     297     297     297     297     297     297     297     483     855     855
3824        UI    1045    1140    1292    1368    1709    1769    1839    1922    2020    2137
3825        UI    2206    2277    2355    2455    2674    2899    3152    3456    3827    3295
3826        UI    2664    2323    2175    2053    1952    1866    1796    1753    1720    1674
3827        UI    1626    1554    1516    1484    1425    1400    1368    1290    1266    1202
3828        UI    1196    1140    1132    1021    1021     940     924     873     786     786
3829        UI     759     727     727     713     684     684     684     622     622     622
3830        UI     577     488     488     488     488     416     380     380     380     380
3831        UI     380     344     326     326     326     326     326     326     260     228
3832        UI     228     228     228     228     228     228     228     228     173     145
3833        UI     145     145     145     145     145     145     145     145     145     145
3834        UI     145     145     145     145      57      57      57      57      57      57
3835        UI      57      57      57      57      57      57      57      57      57      57
3836        UI      57      57      57      57      57      57      57      57      57      57
3837        UI      57      57      57      57      57      57      57      57      57      57
3838        UI      57      57      57      57       0       0       0       0       0       0
3839        UI       0       0       0       0       0       0       0       0       0       0
            *

3840        KK     C41
3841        KM       Combine R40L-41 + 6C
3842        HC       2   28.82
            *

3843        KK  R41-43
3844        KM       Channel Route From C41 To C43
3845        KM       Representative Of X-SECT. 6F2
3846        RS      32    FLOW      -1
3847        RC   0.050   0.051   0.050   29600   0.009
3848        RX  4066.0  5066.0  5240.0  5250.0  5300.0  5318.0  5418.0  5718.0
3849        RY    96.0    91.0    89.9    85.1    86.6    89.6    94.5    96.0
3850        RL                   1.77    85.1
            *

3851        KK      6D
3852        KM       SUB-BASIN 6D
3853        BA    9.98
3854        LG    0.30    0.30    8.05    0.09    5.00
3855        UI     242     242     242     242     242     242     242     242     242     242
3856        UI     431     794     794     808     927     927     986    1112    1112    1183
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3857        UI    1183    1274    1293    1346    1356    1421    1435    1503    1538    1589
3858        UI    1665    1713    1794    1843    1881    1930    2059    2198    2356    2485
3859        UI    2863    2752    2996    3263    3201    3000    2829    2682    2555    2445
3860        UI    2349    2264    2189    2122    2059    1989    1941    1897    1853    1746
3861        UI    1692    1635    1557    1528    1463    1431    1390    1316    1264    122(
```

```
3862        UI    1183    1157    1112    1102     927     927     864     695     695     695
3863        UI     544     428     428     428     428     428     411     397     397     397
3864        UI     397     397     389     242     242     242     242     242     242     242
3865        UI     242     242     242     175      74      74      74      74      74      74
3866        UI      74      74      74      74      74      74      74      74      74      74
3867        UI      74      74      74      74      74      74      74      74      74      74
3868        UI      74      74      74      74      74      74      74      74       0       0
3869        UI       0       0       0       0       0       0       0       0       0       0
            *

3870        KK      6E
3871        KM       SUB-BASIN 6E at C42
3872        BA    7.12
3873        LG    0.24    0.25    8.20    0.04   10.00
3874        UI     155     155     155     155     155     155     155     155     155     155
3875        UI     155     188     445     445     445     445     590     593     593     698
3876        UI     711     765     889     900     936     950     988    1012    1046    1089
3877        UI    1112    1147    1163    1186    1220    1242    1270    1359    1432    1503
3878        UI    1566    1698    1780    1879    2044    1759    1617    1276    1225    1186
3879        UI    1113    1090    1046    1013     988     951     936     918     912     895
3880        UI     889     861     847     828     808     800     773     773     746     741
3881        UI     730     711     711     670     659     659     624     624     622     593
3882        UI     593     593     534     531     531     506     481     481     481     433
3883        UI     409     409     409     404     378     378     378     378     371     356
3884        UI     356     356     356     351     323     323     323     323     323     291
3885        UI     254     254     254     254     254     254     241     198     198     198
3886        UI     198     198     198     198     198     198     171     169     169     169
3887        UI     169     169     169     169     169     169     165     119     119     119
3888        UI     119     119     119     119     119     119     119     119     119     119
3889        UI     119     119      94      76      76      76      76      76      76      76
3890        UI      76      76      76      76      76      76      76      76      76      76
3891        UI      76      76      76      76      76      76      62      30      30      30
3892        UI      30      30      30      30      30      30      30      30      30      30
3893        UI      30      30      30      30      30      30      30      30      30      30
3894        UI      30      30      30      30      30      30      30      30      30      30
3895        UI      30      30      30      30      30      30      30      30      30      30
3896        UI      30      30      30      30      30      30      30      30      30      30
3897        UI      30      30      30      30      30      30      30      30       0       0
3898        UI       0       0       0       0       0       0       0       0       0       0
            *

3899        KK  R42-43
3900        KM       Channel Route From C42 To C43
3901        KM       Representative Of X-SECT. 6F2
3902        RS      13    FLOW      -1
3903        RC   0.050   0.051   0.050   13000   0.008
3904        RX  4066.0  5066.0  5240.0  5250.0  5300.0  5318.0  5418.0  5718.0
3905        RY    96.0    91.0    89.9    85.1    86.6    89.6    94.5    96.0
3906        RL                    1.95    85.1
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3907        KK     C43
3908        KM       Combine R41-43 + 6D + R42-43
3909        HC       3
            *

3910        KK  R43-44
3911        KM       Channel Route From C43 To C44
3912        KM       Interpolated XSECT. between 6F1 and 6F2
3913        RS      32    FLOW      -1
3914        RC   0.055   0.051   0.050   31000   0.007
3915        RX  4797.5  5135.0  5239.0  5250.0  5286.0  5301.0  5372.0  5812.0
3916        RY    96.9    91.9    91.2    86.9    87.4    92.0    94.7    96.9
3917        RL                    0.98    86.9
            *

3918        KK      6F
3919        KM       SUB-BASIN 6F
3920        BA    5.05
3921        LG    0.32    0.35    3.82    0.32    4.00
3922        UI     113     113     113     113     113     113     113     113     113     113
3923        UI     113     222     370     370     370     425     432     432     508     518
3924        UI     530     551     551     602     602     627     632     657     664     693
3925        UI     700     738     748     785     811     835     862     877     893     95
```

```
3926        UI    1008    1070    1137    1206    1397    1263    1459    1523    1479    1392
3927        UI    1318    1254    1199    1152    1110    1073    1036    1001     975     952
3928        UI     925     900     883     863     819     799     762     740     719     693
3929        UI     682     655     647     602     589     568     551     545     518     518
3930        UI     460     432     432     362     324     324     324     246     199     199
3931        UI     199     199     199     198     185     185     185     185     185     185
3932        UI     183     113     113     113     113     113     113     113     113     113
3933        UI     113     113      77      35      35      35      35      35      35      35
3934        UI      35      35      35      35      35      35      35      35      35      35
3935        UI      35      35      35      35      35      35      35      35      35      35
3936        UI      35      35      35      35      35      35      35      35      35      35
3937        UI       0       0       0       0       0       0       0       0       0       0
3938        UI       0       0       0       0       0       0       0       0       0       0
            *

3939        KK     C44
3940        KM       Combine R43-44 + 6F
3941        HC       2
            *

3942        KK  R44-69
3943        KM       Channel Route From C44 To C69
3944        KM       X-SECT. 6J1
3945        RS      10    FLOW      -1
3946        RC   0.050   0.069   0.050    8000   0.005
3947        RX  4867.1  5144.0  5192.0  5217.0  5237.0  5285.0  5395.0  6575.0
3948        RY    99.4    94.4    94.1    89.5    89.6    91.6    93.5    99.4
3949        RL                    0.89    89.5
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3950        KK      6H
3951        KM       SUB-BASIN 6H
3952        BA    4.97
3953        LG    0.32    0.35    3.87    0.34    5.00
3954        UI     120     120     120     120     120     120     120     120     120     120
3955        UI     192     393     393     393     458     458     477     550     550     580
3956        UI     585     622     639     660     671     696     705     740     752     785
3957        UI     813     835     887     904     922     948    1006    1065    1139    1213
3958        UI    1335    1425    1415    1585    1612    1510    1423    1348    1284    1228
3959        UI    1179    1136    1098    1057    1025     998     973     948     920     888
3960        UI     859     809     790     764     734     723     688     681     625     623
3961        UI     585     585     555     550     502     458     458     376     344     344
3962        UI     344     213     211     211     211     211     211     198     196     196
3963        UI     196     196     196     167     120     120     120     120     120     120
3964        UI     120     120     120     120      65      37      37      37      37      37
3965        UI      37      37      37      37      37      37      37      37      37      37
3966        UI      37      37      37      37      37      37      37      37      37      37
3967        UI      37      37      37      37      37      37      37      37      37       0
3968        UI       0       0       0       0       0       0       0       0       0       0
3969        UI       0       0       0       0       0       0       0       0       0       0
            *

3970        KK      6I
3971        KM       SUB-BASIN 6I
3972        BA    6.97
3973        LG    0.31    0.35    4.08    0.38    7.00
3974        UI     206     206     206     206     206     206     206     206     328     676
3975        UI     676     744     789     840     947     972    1007    1067    1101    1155
3976        UI    1181    1214    1277    1320    1371    1435    1525    1568    1614    1699
3977        UI    1827    1988    2124    2498    2398    2738    2722    2530    2340    2209
3978        UI    2095    1996    1908    1831    1762    1700    1645    1595    1524    1451
3979        UI    1389    1315    1269    1232    1184    1107    1073    1007     992     947
3980        UI     891     789     775     592     592     585     364     364     364     364
3981        UI     362     338     338     338     338     338     236     206     206     206
3982        UI     206     206     206     206     201      63      63      63      63      63
3983        UI      63      63      63      63      63      63      63      63      63      63
3984        UI      63      63      63      63      63      63      63      63      63      63
3985        UI      63      63      63       0       0       0       0       0       0       0
3986        UI       0       0       0       0       0       0       0       0       0       0
            *

3987        KK     C46
3988        KM       Combine 6H + 6I
3989        HC       2
```

```
            *
3990        KK  R46-69
3991        KM       Channel Route From C46 To C69
3992        KM       Representative Of X-SECT. 6K1
3993        RS      13    FLOW      -1
3994        RC   0.060   0.047   0.050    7200   0.004
3995        RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
3996        RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
3997        RL                   0.55    90.9
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3998        KK     C69
3999        KM       Combine R44-69 + R46-69
4000        HC       2
            *

4001        KK  R69-47
4002        KM       Channel Route From C69 To C47
4003        KM       Representative Of X-SECT. 6K1
4004        RS       8    FLOW      -1
4005        RC   0.060   0.047   0.050    4800   0.003
4006        RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
4007        RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
4008        RL                   0.49    90.9
            *

4009        KK      6J
4010        KM       SUB-BASIN 6J
4011        BA    4.47
4012        LG    0.33    0.35    3.87    0.36    4.00
4013        UI     148     148     148     148     148     148     148     208     485     485
4014        UI     549     566     652     681     722     753     789     828     853     883
4015        UI     918     970    1019    1075    1119    1156    1227    1331    1468    1663
4016        UI    1693    1931    1968    1821    1671    1572    1480    1399    1336    1280
4017        UI    1230    1185    1144    1085    1025     976     934     893     853     808
4018        UI     770     722     703     679     595     566     467     424     424     265
4019        UI     261     261     261     251     242     242     242     242     167     148
4020        UI     148     148     148     148     148     148      48      45      45      45
4021        UI      45      45      45      45      45      45      45      45      45      45
4022        UI      45      45      45      45      45      45      45      45      45      45
4023        UI      45       0       0       0       0       0       0       0       0       0
4024        UI       0       0       0       0       0       0       0       0       0       0
            *

4025        KK     C47
4026        KM       Combine R69-47 + 6J
4027        HC       2
            *

4028        KK   DC47R
4029        KM         Main flow at C47 is in the right channel (C47R)
4030        KM         Diverted flow (DQ record) goes into the left channel (C47L)
4031        DT   DC47L
4032        DI       0     100     500    1000    2000    4000    8000   16000   32000
4033        DQ       0      50     250     500    1000    2000    4000    8000   16000
            *

4034        KK  47R-48
4035        KM       Channel Route From C47R To C48
4036        KM       X-SECT. 6K1
4037        RS      15    FLOW      -1
4038        RC   0.060   0.047   0.050    9600   0.005
4039        RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
4040        RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
4041        RL                   0.55    90.9
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


4042        KK      6K
4043        KM       SUB-BASIN 6K
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```
4044          BA    5.95
4045          LG    0.35     0.35     3.50     0.28     0.00
4046          UI     157      157      157      157      157      157      157      157      157      223
4047          UI     514      514      531      600      600      677      720      743      766      802
4048          UI     837      864      878      919      936      973     1010     1040     1091     1145
4049          UI    1179     1207     1241     1327     1417     1529     1617     1918     1751     2043
4050          UI    2117     1995     1863     1759     1669     1590     1522     1461     1408     1361
4051          UI    1318     1280     1241     1205     1155     1109     1059     1013      987      947
4052          UI     918      900      825      816      766      764      720      720      611      600
4053          UI     548      450      450      450      289      277      277      277      277      269
4054          UI     257      257      257      257      257      216      157      157      157      157
4055          UI     157      157      157      157      157       92       48       48       48       48
4056          UI      48       48       48       48       48       48       48       48       48       48
4057          UI      48       48       48       48       48       48       48       48       48       48
4058          UI      48       48       48       48       48       48       48        0        0        0
4059          UI       0        0        0        0        0        0        0        0        0        0
              *

4060          KK     C48
4061          KM       Combine R47R-48 + 6K
4062          KO                                      21
4063          HC       2
              *

4064          KK   DC48R
4065          KM         Main flow at C48 is in the right channel (C48R)
4066          KM         Diverted flow (DQ record) goes into the left channel (C48L)
4067          DT   DC48L
4068          DI       0      100      500     1000     2000     4000     8000    16000    32000
4069          DQ       0       50      250      500     1000     2000     4000     8000    16000
              *

4070          KK  48R-50
4071          KM       Channel Route From C48R To C50
4072          KM       Representative Of X-SECT. 6L2
4073          RS      24     FLOW       -1
4074          RC   0.050    0.070    0.050    10600    0.005
4075          RX  4213.0   5213.0   5570.0   5595.0   5707.0   5761.0   5887.0   6887.0
4076          RY    99.5     94.5     94.5     92.8     91.3     93.4     94.5     99.5
4077          RL                      2.06     91.3
              *

4078          KK      6G
4079          KM       SUB-BASIN 6G at C45
4080          BA    6.37
4081          LG    0.35     0.35     3.50     0.27     0.00
4082          UI     129      129      129      129      129      129      129      129      129      129
4083          UI     129      129      210      425      425      425      453      495      495      503
4084          UI     594      594      606      632      632      674      691      702      725      727
4085          UI     762      762      799      803      843      849      897      906      959      971
4086          UI     991     1015     1034     1101     1155     1213     1292     1349     1576     1473
4087          UI    1555     1709     1768     1679     1589     1512     1446     1389     1340     1292
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4088          UI    1243     1209     1180     1143     1111     1090     1061     1035     1021      991
4089          UI     963      929      892      874      835      825      790      782      755      743
4090          UI     710      675      673      632      632      615      594      594      526      495
4091          UI     495      450      371      371      371      371      237      229      229      229
4092          UI     229      229      229      216      212      212      212      212      212      212
4093          UI     212      129      129      129      129      129      129      129      129      129
4094          UI     129      129      129      105       40       40       40       40       40       40
4095          UI      40       40       40       40       40       40       40       40       40       40
4096          UI      40       40       40       40       40       40       40       40       40       40
4097          UI      40       40       40       40       40       40       40       40       40       40
4098          UI      40       40       40       40       40        0        0        0        0        0
4099          UI       0        0        0        0        0        0        0        0        0        0
              *

4100          KK  R45-50
4101          KM       Channel Route From C45 To C50
4102          KM       Interpolated XSECT. between 6L1 and 6L2
4103          RS      48     FLOW       -1
4104          RC   0.050    0.062     0.05    22600    0.005
4105          RX  4257.0   5257.0   5479.0   5501.0   5573.0   5604.0   5717.0   6557.0
4106          RY    98.6     93.6     94.5     91.3     90.7     93.5     94.4     98.6
4107          RL                      1.54     90.7
```

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*

KK      6L
KM       SUB-BASIN 6L
BA    6.34
LG    0.35    0.35    3.50    0.27    0.00
UI     140     140     140     140     140     140     140     140     140     140
UI     140     226     458     458     458     512     535     535     603     642
UI     645     683     683     727     746     764     783     799     823     841
UI     867     894     917     958     976    1035    1052    1070    1105    1145
UI    1198    1284    1375    1436    1630    1627    1665    1848    1888    1795
UI    1692    1604    1530    1465    1409    1359    1316    1278    1234    1198
UI    1171    1146    1107    1088    1070    1004     983     944     912     891
UI     855     844     809     802     744     729     704     683     676     642
UI     642     577     535     535     462     401     401     401     330     247
UI     247     247     247     247     247     232     229     229     229     229
UI     229     229     167     140     140     140     140     140     140     140
UI     140     140     140     140      46      43      43      43      43      43
UI      43      43      43      43      43      43      43      43      43      43
UI      43      43      43      43      43      43      43      43      43      43
UI      43      43      43      43      43      43      43      43      43      43
UI      43      43       0       0       0       0       0       0       0       0
UI       0       0       0       0       0       0       0       0       0       0
*

KK     C50
KM       Combine R48R-50 + R45-50 + 6L
KO                                      21
HC       3
*
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

KK  R50-52
KM       Channel Route From C50 To C52
KM       X-SECT. 602
KO                                      21
RS      25    FLOW      -1
RC   0.050   0.050   0.050   13400   0.005
RX  4255.0  5255.0  5450.0  5603.0  5891.0  6002.0  6302.0  6437.0
RY    98.9    93.9    93.2    92.6    93.9    94.4    96.0    99.2
RL                    4.71    92.6
*

KK  BDC47L
KM       Recall diverted hydrograph C47L
DR   DC47L
*

KK  47L-49
KM       Channel Route From C47L To C49
KM       Representative Of X-SECT. 6K1
RS      30    FLOW      -1
RC   0.060   0.047   0.050   19400   0.005
RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
RL                    0.56    90.9
*

KK  BDC48L
KM       Recall diverted hydrograph C48L
DR   DC48L
*

KK  48L-49
KM       Channel Route From C48L To C49
KM       Representative Of X-SECT. 6L2
RS      24    FLOW      -1
RC   0.050   0.070   0.050   10600   0.005
RX  4213.0  5213.0  5570.0  5595.0  5707.0  5761.0  5887.0  6887.0
RY    99.5    94.5    94.5    92.8    91.3    93.4    94.5    99.5
RL                    2.06    91.3
*

KK      6M
KM       SUB-BASIN 6M
```

```
4166          BA    3.86
4167          LG    0.34     0.35     3.55     0.29     1.00
4168          UI     137      137      137      137      137      137      137      361      449      487
4169          UI     524      587      630      669      702      738      767      802      834      873
4170          UI     918      972     1026     1062     1122     1222     1353     1553     1582     1808
4171          UI    1799     1634     1518     1409     1333     1264     1200     1150     1105     1064
4172          UI    1008      948      898      856      820      787      720      691      668      629
4173          UI     581      524      451      393      389      242      242      242      242      226
4174          UI     225      225      225      183      137      137      137      137      137      137
4175          UI     118       42       42       42       42       42       42       42       42       42
4176          UI      42       42       42       42       42       42       42       42       42       42
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4177          UI      42       42       42       42        0        0        0        0        0        0
4178          UI       0        0        0        0        0        0        0        0        0        0
              *

4179          KK     C49
4180          KM       Combine R47L-49 + R48L-49 + 6M
4181          HC       3   77.19
              *

4182          KK  R49-51
4183          KM       Channel Route From C49 To C51
4184          KM       X-SECT. 601
4185          RS      22    FLOW      -1
4186          RC   0.050   0.069   0.050   15000   0.005
4187          RX  4013.0  5013.0  5076.0  5093.0  5100.0  5112.0  5229.0  5849.0
4188          RY    95.0    90.0    88.8    84.9    84.9    89.7    91.9    95.0
4189          RL                    0.65    84.9
              *

4190          KK      60
4191          KM       SUB-BASIN 60
4192          BA    8.13
4193          LG    0.37     0.30     3.66     0.31     0.00
4194          UI     288      288      288      288      288      288      288      760      947     1026
4195          UI    1105     1237     1327     1410     1479     1554     1616     1688     1757     1838
4196          UI    1934     2048     2161     2238     2363     2573     2849     3271     3332     3808
4197          UI    3789     3442     3198     2968     2808     2662     2527     2421     2327     2241
4198          UI    2123     1996     1891     1803     1727     1657     1517     1455     1406     1325
4199          UI    1224     1105      950      828      820      510      510      510      510      477
4200          UI     473      473      473      385      288      288      288      288      288      288
4201          UI     250       88       88       88       88       88       88       88       88       88
4202          UI      88       88       88       88       88       88       88       88       88       88
4203          UI      88       88       88       88        0        0        0        0        0        0
4204          UI       0        0        0        0        0        0        0        0        0        0
              *

4205          KK    C51I
4206          KM       Combine R49-51 + 60
4207          HC       2
              *

4208          KK   CPND1
4209          KM       Combine R50-52 + C51I
4210          HC       2   98.03
              *

4211          KK    PND1
4212          KM        Reservoir Route at PND1 (C51 + C52) At The Gila Bend Canal
4213          RS       1    ELEV   727.5
4214          SV     0.0      0.0      1.0      3.0      7.0     12.0     22.0     41.0     74.0    129.0
4215          SV   226.0    369.0    561.0    662.0    801.0    921.0   1041.0
4216          SE   727.5    728.0    729.0    730.0    731.0    732.0    733.0    734.0    735.0    736.0
4217          SE   737.0    738.0    739.0    739.5    740.0    740.5    741.0
4218          SQ     0.0     10.0     30.0     75.0    135.0    233.0    287.0    377.0    400.0    442.0
4219          SQ   479.0    515.0    546.0    582.0   2834.6  11355.1  27511.5
                                          HEC-1 INPUT                                                          PAGE 98

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4220          RL                    0.47    727.5
              *

4221          KK    C51O
```

```
4222        KM        Main flow at C510 is in the left channel (R51-54)
4223        KM        Diverted flow (DQ record) goes into the right channel (R52-55).
4224        KM           Split reservoir route hydrograph downstream of GBC to simulate
4225        KM           outflow from C51 and C52.
4226        DT    C520
4227        DI      0.0    135.0    233.0    287.0    377.0    400.0    442.0    479.0    515.0    546.0
4228        DI    582.0   2834.6  11355.1  27511.5
4229        DQ      0.0      0.0      8.0     12.0     27.0     40.0     47.0     54.0     60.0     66.0
4230        DQ     87.0    192.0   1698.3   6480.3
            *

4231        KK  R51-54
4232        KM       Channel Route From C51 To C54
4233        KM       Representative Of X-SECT. 6P2
4234        RS       1    FLOW      -1
4235        RC   0.035   0.034   0.035    1800   0.004
4236        RX  4799.4  5078.0  5091.0  5121.0  5136.0  5166.0  5177.0  5548.3
4237        RY    98.9    93.9    88.7    87.2    87.6    88.5    92.3    98.9
4238        RL                    1.82    87.2
            *

4239        KK  R54-57
4240        KM       Channel Route From C54 To C57
4241        KM       X-SECT. 6P2
4242        RS       6    FLOW      -1
4243        RC   0.035   0.034   0.035    7600   0.004
4244        RX  4799.4  5078.0  5091.0  5121.0  5136.0  5166.0  5177.0  5548.3
4245        RY    98.9    93.9    88.7    87.2    87.6    88.5    92.3    98.9
4246        RL                    1.96    87.2
            *

4247        KK   BC520
4248        KM       Recall diverted hydrograph C520
4249        DR    C520
            *

4250        KK  R52-55
4251        KM       Channel Route From C52 To C55
4252        KM       Representative Of X-SECT. 6P4
4253        RS       1    FLOW      -1
4254        RC   0.035   0.034   0.035    2400   0.004
4255        RX  4033.0  5033.0  5042.0  5062.0  5072.0  5082.0  5097.0  5277.0
4256        RY    98.9    93.9    90.2    88.6    88.6    89.8    98.0    98.9
4257        RL                    4.07    88.6
            *
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4258        KK  R55-57
4259        KM       Channel Route From C55 To C57
4260        KM       X-SECT. 6P4
4261        RS       4    FLOW      -1
4262        RC   0.035   0.034   0.035    6600   0.005
4263        RX  4033.0  5033.0  5042.0  5062.0  5072.0  5082.0  5097.0  5277.0
4264        RY    98.9    93.9    90.2    88.6    88.6    89.8    98.0    98.9
4265        RL                    4.16    88.6
            *

4266        KK     C57
4267        KM       Combine R54-57 + R55-57
4268        HC       2   98.03
            *

4269        KK  R57-58
4270        KM       Channel Route From C57 To C58
4271        KM       X-SECT. 6P3
4272        RS      13    FLOW      -1
4273        RC   0.060   0.065   0.050   10400   0.004
4274        RX  4795.5  5240.0  5318.0  5333.0  5357.0  5382.0  5532.0  5982.0
4275        RY    99.2    94.2    94.0    92.0    92.0    93.7    93.9    99.3
4276        RL                    0.79    92.0
            *

4277        KK      6P
4278        KM       SUB-BASIN 6P
4279        BA    5.21
```

```
4280          LG    0.42    0.13    4.07    0.50    2.00
4281          UI     177     177     177     177     177     177     177     343     582     592
4282          UI     679     696     815     840     867     941     971    1001    1045    1094
4283          UI    1142    1199    1266    1331    1376    1450    1574    1731    1941    2060
4284          UI    2289    2368    2189    2005    1884    1766    1673    1596    1528    1466
4285          UI    1412    1362    1280    1208    1149    1099    1056    1019     928     895
4286          UI     867     816     770     679     619     509     509     370     313     313
4287          UI     313     304     291     291     291     291     200     177     177     177
4288          UI     177     177     177     151      54      54      54      54      54      54
4289          UI      54      54      54      54      54      54      54      54      54      54
4290          UI      54      54      54      54      54      54      54      54       0       0
4291          UI       0       0       0       0       0       0       0       0       0       0
              *

4292          KK     C58
4293          KM       Combine R57-58 + 6P
4294          HC       2
              *
4295          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

 70          1B
              V
              V
 82       R61-62
              .
              .
 90           .          1C
              .           .
              .           .
104           .           .          1A
              .           .           .
              .           .           .
 25         C62.......................
              V
              V
128       R62-64
              .
              .
136           .          1D
              .           V
              .           V
147           .      R63-64
              .           .
              .           .
155         C64............
              V
              V
158       R64-65
              .
              .
166           .          1E
              .           .
              .           .
181           .           .          1F
              .           .           .
              .           .           .
204         C65.......................
              V
              V
207       R65-67
              .
              .
215           .          1J
              .           V
              .           V
227           .      R66-67
              .           .
              .           .
2[illegible]  .           .          1I
              .           .           .
              .           .           .
250         C67.......................
```

```
                V
                V
253       R67-71
                .
                .
 61             .          1G
                .           V
                .           V
282             .      R70-71
                .           .
                .           .
290             .           .          1H
                .           .           .
                .           .           .
313             .        C71R............
                .           .
                .           .
316             .           .          1K
                .           .           V
                .           .           V
331             .           .      R68-71
                .           .           .
                .           .           .
339             .           .           .          1L
                .           .           .           .
                .           .           .           .
356             .           .        C71L............
                .           .           .
                .           .           .
359          C71........................
                V
                V
362       R71-73
                .
                .
370             .          1M
                .           V
                .           V
385             .      R72-73
                .           .
                .           .
393             .           .          1N
                .           .           .
                .           .           .
407          C73........................
                V
                V
410       R73-74
                .
                .
418             .          1P
                .           .
                .           .
435             .           .          1O
                .           .           .
                .           .           .
461          C74........................
                V
                V
464       R74-77
                .
                .
472             .          1U
                .           .
                .           .
489         C77R............
                .
                .
492             .          1Q
                .           V
                .           V
510             .      R75-76
                .           .
                .           .
51              .           .          1R
                .           .           .
                .           .           .
536             .         C76............
```

```
                .          V
                .          V
539             .     R76-77
                .          .
                .          .
 47             .          .          1T
                .          .           .
                .          .           .
567             .      C77L.............
                .          .
                .          .
570           C77............
                V
                V
573        R77-79
                .
                .
581             .         1W
                .          .
                .          .
592        C79RUP............
                .
                .
595             .         1S
                .          .
                .          .
621             .          .-------->   DC78L
618             .      DC78R
                .          V
                .          V
624             .     78R-79
                .          .
                .          .
632             .          .          1V
                .          .           .
                .          .           .
645             .     C79LUP............
                .          .
                .          .
 18           C79............
                .
                .
654             .-------->   DC79L
651         DC79R
                V
                V
657        79R-81
                .
                .
667             .          .<--------   DC79L
665             .     BDC79L
                .          V
                .          V
668             .     79L-80
                .          .
                .          .
679             .          .-------->   DC80L
676             .      DC80R
                .          V
                .          V
682             .     80R-81
                .          .
                .          .
690             .          .          1X
                .          .           .
                .          .           .
705           C81........................
                .
                .
712             .-------->   DC81L
709         DC81R
                V
                V
           81R-82
                .
                .
725             .          .<--------   DC81L
723             .     BDC81L
```

```
              .          V
              .          V
726           .     81L-82
              .          .
              .          .
              .          .        1Y
              .          .         .
              .          .         .
752         C82.......................
              .
              .
760           .-------->  DC82L
756       DC82R
              V
              V
763      82-135
              .
              .
771           .        2VV
              .          .
              .          .
786       C135I............
              .
              .
790           .         2D
              .          V
              .          V
805           .     R87-89
              .          .
              .          .
813           .          .        2F
              .          .         V
              .          .         V
826           .          .    R88-89
              .          .         .
              .          .         .
834           .        C89............
              .          V
              .          V
              .     R89-91
              .          .
              .          .
845           .          .        2E
              .          .         .
              .          .         .
854           .          .         .        2G
              .          .         .         .
              .          .         .         .
864           .        C91........................
              .          V
              .          V
867           .     R91-92
              .          .
              .          .
875           .          .        2I
              .          .         .
              .          .         .
887           .          .         .        2H
              .          .         .         .
              .          .         .         .
897           .        C92........................
              .          V
              .          V
900           .     R92-95
              .          .
              .          .
908           .          .        2K
              .          .         V
              .          .         V
928           .          .    R93-94
              .          .         .
              .          .         .
              .          .         .        2L
              .          .         .         .
              .          .         .         .
953           .          .       C94............
              .          .         V
              .          .         V
```

```
956                R94-95
964                          2M
                                 2J
989          C95.....................................
               V
               V
992        R95-96
1000                2A
                     V
                     V
1016               R83-84
1027                      .------->   DC84R
1024             DC84L
                     V
                     V
1030               84L-85
1038                         2B
1051                C85............
                     V
                     V
1054               R85-96
1064                         .<-------   DC84R
                       BDC84R
                            V
                            V
1065               84R-86
1073                                 2N
1084                         C86............
                            V
                            V
1088               R86-96
1096                                 2C
1113                                          2O
1129         C96.............................................
               V
               V
1132       R96-97
1140                2P
1156         C97............
               V
               V
1159       97-100
11                  2Q
                     V
                     V
1186               R98-99
```

```
1194                                  2R
                                       .
                                       .
                                 C99.....
                                   V
                                   V
1209                           99-100
                                   .
                                   .
1217                                  2S
                                       .
                                       .
1227                 C100.....
                        V
                        V
1230                100101
                        .
                        .
1238                          2T
                               .
                               .
1263                 C101.....
                        V
                        V
1266                101102
                        .
                        .
1273                          2U
                               .
                               .
1284                 C102.....
                        V
                        V
1287                102103
                        .
                        .
                              2V
                               .
                               .
1319                 C103.....
                        V
                        V
1322                103107
                        .
                        .
1330                          2W
                               V
                               V
1351                       104105
                               .
                               .
1359                                  2X
                                       .
                                       .
1387                         C105.....
                                   V
                                   V
1390                       105107
                                   .
                                   .
1398                                  2Y
                                       .
                                       .
1418                 C107.....
                        .
                        .
1421                         2BB
                               V
                               V
1435                       108111
                               .
                               .
                                      2Z
                                       V
                                       V
1466                                 110111
```

```
1474                                                  2AA
                                                       .
                                                       .
                        C111.......................
                          V
                          V
1491                  111113
                          .
                          .
1499                      .                2CC
                          .                  .
                          .                  .
1517            C113.......................
                  V
                  V
1520          113127
                  .
                  .
1528                2DD
                    .
                    .
1539          C127R............
                  .
                  .
1543                2GG
                    V
                    V
1559                114115
                    .
                    .
1567                .                2HH
                    .                  .
                    .                  .
1581                C115............
                    V
                    V
                    115116
                    .
                    .
1592                .                2II
                    .                  .
                    .                  .
1611                C116............
                    .
                    .
1617                .-------->  DC116L
1614                DC116R
                    V
                    V
1620                116119
                    .
                    .
1628                .                2EE
                    .                  V
                    .                  V
1646                .              118119
                    .                  .
                    .                  .
1654                .                  .                2JJ
                    .                  .                  .
                    .                  .                  .
1665                C119.......................
                    V
                    V
1668                119120
                    .
                    .
1676                .                2KK
                    .                  .
                    .                  .
                    C120R............
                    .
                    .
1700                .                2LL
                    .                  .
                    .                  .
```

```
1725                                                  .<-------  DC116L
1723                                            BC116L
                                                     V
                                                     V
1726                                            116120
                                                     .
                                                     .
173                       C120.......................
                             V
                             V
1737                      120121
                             .
                             .
1745                                   2MM
                                        .
                                        .
1756                      C121............
                             V
                             V
1759                      121123
                             .
                             .
1767                                   2FF
                                        .
                                        .
1791                      C123............
                             V
                             V
1794                      123140
                             .
                             .
1802                                   2NN
                                        .
                                        .
1824                                                  2OO
                                                       .
                                                       .
1835                                  C124............
                                         V
                                         V
18                                   124125
                                        .
                                        .
1846                                                  2PP
                                                       .
                                                       .
1858                                  C125............
                                         V
                                         V
1861                                 125126
                                        .
                                        .
1869                                                  2QQ
                                                       .
                                                       .
1881                                  C126............
                                         V
                                         V
1884                                 126140
                                        .
                                        .
1892                      C140............
                             V
                             V
1895                      140127
                             .
                             .
1903                                   2RR
                                        .
                                        .
1916                                                  2YY
                                                       .
                                                       .
                          C127L......................
                             .
                             .
1933                  C127............
                         V
```

```
                 .          V
1936             .     127131
                 .          .
                 .          .
1947             .          .          .<-------   DC78L
                 .          .     BDC78L
                 .          .          V
                 .          .          V
1948             .          .     78L128
                 .          .          .
                 .          .          .
1956             .          .          .         2SS
                 .          .          .           .
                 .          .          .           .
1972             .          .       C128............
                 .          .          V
                 .          .          V
1976             .          .     128129
                 .          .          .
                 .          .          .
1984             .          .          .         2TT
                 .          .          .           .
                 .          .          .           .
1997             .          .       C129............
                 .          .          V
                 .          .          V
2000             .          .     129130
                 .          .          .
                 .          .          .
2010             .          .          .           .<-------   DC80L
2008             .          .          .      BDC80L
                 .          .          .           V
                 .          .          .           V
2011             .          .          .      80L130
                 .          .          .           .
                 .          .          .           .
2019             .          .       C130............
                 .          .          V
                 .          .          V
                 .          .     130131
                 .          .          .
                 .          .          .
2032             .       C131............
                 .          V
                 .          V
2035             .     131132
                 .          .
                 .          .
2043             .          .        2UU
                 .          .          .
                 .          .          .
2067             .          .          .           .<-------   DC82L
2065             .          .          .      BDC82L
                 .          .          .           .
                 .          .          .           .
2068             .       C132.......................
                 .          .
                 .          .
2075             .          .-------> DC132L
2071             .     DC132R
                 .          V
                 .          V
2078             .     132133
                 .          .
                 .          .
2086          C133I............
                 V
                 V
2089          PND3
                 .
                 .
2103             .-------> DPND3W
   9          PND3N
                 .
                 .
2114             .------->   D135O
2106          D133O
                 V
```

```
                V
2119        133141
                .
                .
2129            .           .<-------   D135O
                .       BD135O
                .           V
                .           V
2130            .       135141
                .           .
                .           .
2138          C141............
                V
                V
2142        141149
                .
                .
2150            .         2WW
                .           V
                .           V
2169            .       C136O
                .           V
                .           V
2179            .       136149
                .           .
                .           .
2187          C149............
                V
                V
2190        149137
                .
                .
2198            .         2XX
                .           .
                .           .
2211          C137............
                .
                .
  1             .         7AC
                .           V
                .           V
2231            .       7AC150
                .           .
                .           .
2238            .           .         7AB
                .           .           .
                .           .           .
2251            .        C7AB............
                .           .
                .           .
2257            .           .           .<-------  DC132L
2255            .           .      BC132L
                .           .           .
                .           .           .
2258            .        C150............
                .           .
                .           .
2265            .           .-------->  DC150L
2261            .       DC150R
                .           V
                .           V
2268            .       150142
                .           .
                .           .
2277            .           .         7AA
                .           .           .
                .           .           .
2290            .         7AA............
                .           .
                .           .
2295            .           .           .<-------  DPND3W
2293            .           .      BPND3W
                .           .           .
                .           .           .
22              .       C142I............
                .           V
                .           V
2299            .       C142O
```

```
                .           .
                .           .
2313            .           .-------> DC142L
2309            .      DC142R
                .           V
                .           V
2[illegible]    .      142139
                .           .
                .           .
2326            .           .          7D
                .           .           .
                .           .           .
2337            .        C139............
                .           .
                .           .
2340            .           .          7C
                .           .           .
                .           .           .
2351            .           .           .           .<-------  DC142L
2349            .           .           .      BC142L
                .           .           .           V
                .           .           .           V
2352            .           .           .      142-18
                .           .           .           .
                .           .           .           .
2360            .           .           .           .          7B
                .           .           .           .           .
                .           .           .           .           .
2372            .           .           .         C18............
                .           .           .           .
                .           .           .           .
2375       NULL1.................................
                .
                .
2380            .           .<-------  DC150L
2378            .      BD150L
                .           V
                .           V
[illegible]1    .       SR151
                .           .
                .           .
239[illegible]  .           .         3KC
                .           .           .
                .           .           .
2414            .           .           .         3KD
                .           .           .           .
                .           .           .           .
2433            .        C151........................
                .           V
                .           V
2437            .      151-12
                .           .
                .           .
2444            .           .         3KB
                .           .           .
                .           .           .
2460            .        C12I............
                .           V
                .           V
2463            .        C12O
                .           .
                .           .
2479            .           .------->   DC12L
2473            .       DC12R
                .           V
                .           V
2482            .      12-14A
                .           .
                .           .
2495            .           .-------> DC14AL
2490            .      DC14AR
                .           V
                .           V
[illegible]     .      14A-14
                .           .
                .           .
2510            .           .           .<-------   DC12L
2508            .           .      BDC12I
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                 .           .           V
                 .           .           V
2511             .           .      12-11A
                 .           .           .
                 .           .           .
                 .           .           .-------> DC11AL
2[illegible]     .           .      DC11AR
                 .           .           V
                 .           .           V
2525             .           .      11A11B
                 .           .           .
                 .           .           .
2535             .           .           .           .<-------  DC14AL
2533             .           .           .      DC14AL
                 .           .           .           V
                 .           .           .           V
2536             .           .           .      14A11B
                 .           .           .           .
                 .           .           .           .
2543             .           .        C11B............
                 .           .           V
                 .           .           V
2547             .           .      11B-14
                 .           .           .
                 .           .           .
2554             .         C14............
                 .           .
                 .           .
2562             .           .------->   DC14R
2558             .       DC14L
                 .           V
                 .           V
2565             .      R14-13
                 .           .
                 .           .
2573             .           .          3F
                 .           .           V
                 .           .           V
[illegible]9     .           .        R1-3
                 .           .           .
                 .           .           .
2607             .           .           .          3E
                 .           .           .           V
                 .           .           .           V
2632             .           .           .        R2-3
                 .           .           .           .
                 .           .           .           .
2640             .           .           .           .          3G
                 .           .           .           .           .
                 .           .           .           .           .
2660             .           .          C3........................
                 .           .           V
                 .           .           V
2663             .           .        R3-5
                 .           .           .
                 .           .           .
2671             .           .           .          3H
                 .           .           .           .
                 .           .           .           .
2700             .           .          C5............
                 .           .           V
                 .           .           V
2703             .           .        R5-7
                 .           .           .
                 .           .           .
2711             .           .           .          3C
                 .           .           .           V
                 .           .           .           V
2737             .           .           .        R4-7
                 .           .           .           .
                 .           .           .           .
2745             .           .           .           .          3D
                 .           .           .           .           .
                 .           .           .           .           .
27[illegible]    .           .          C7........................
                 .           .           V
                 .           .           V
2765             .           .      R7-90
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2773                    3A
                         V
                         V
                     R6-90
                         .
                         .
2812              C90............
                   V
                   V
2815            R90-8
                   .
                   .
2823                    3B
                         .
                         .
2839               C8............
                   V
                   V
2842             R8-9
                   .
                   .
2850                    3I
                         .
                         .
2869               C9............
                   V
                   V
2872            R9-10
                   .
                   .
2880                    3J
                         .
                         .
2906              C10............
                   V
                   V
   9            R10-11
                   .
                   .
2917                    3L
                         .
                         .
2934                     .<-------  DC11AL
2932                     .      BDC11A
                         .           V
                         .           V
2935                     .      11A-11
                         .           .
                         .           .
2942            C11I......................
                   V
                   V
2945             C11O
                   V
                   V
2952            R11-17
                   .
                   .
2960                    4A
                         V
                         V
2991                 R26-27
                         .
                         .
2999                     .          4B
                         .           .
                         .           .
3015                   C27............
                         V
                         V
   8                 R27-28
                         .
                         .
3026                     .          4C
                         .           .
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3047          C28............
                V
                V
3050        R28-29
                .
                .
3[illegible]            4E
                         V
                         V
3084                R20-21
                         .
                         .
3092                                  4F
                                      .
                                      .
3112                    C21............
                         V
                         V
3115                R21-23
                         .
                         .
3123                                  4D
                                       V
                                       V
3151                                R22-23
                                      .
                                      .
3159                                                      4G
                                                           .
                                                           .
3182                    C23........................
                         V
                         V
3185                R23-29
                         .
                         .
3193                                  4J
                                      .
                                      .
              C29........................
                V
                V
3214        R29-31
                .
                .
3222                     4K
                         .
                         .
3239          C31............
                V
                V
3242        R31-32
                .
                .
3250                     4H
                         V
                         V
3273                R24-25
                         .
                         .
3281                                  4I
                                      .
                                      .
3306                    C25............
                         V
                         V
3309                R25-30
                         .
                         .
3317                                  6A
                                       V
                                       V
                                    R39-40
                                      .
                                      .
3350                                                      6B
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3372                                                  C40............
                                                        .
                                                        .
3378                                                    .-------->   DC40L
3375                                              DC40R
                                                        V
                                                        V
3381                                             40R-30
                                                        .
                                                        .
3389                                                    .          4L
                                                        .          .
                                                        .          .
3410                                        C30........................
                                                  V
                                                  V
3413                                        R30-32
                                                  .
                                                  .
3421                                                    .          4M
                                                        .          .
                                                        .          .
3436                                   C32........................
                                          .
                                          .
3442                                      .-------->   DC32L
3439                                DC32R
                                          V
                                          V
3445                                R32-33
                                          .
                                          .
3453                                      .          4N
                                          .          .
                                          .          .
3476                                   C33............
                                          V
                                          V
3479                                R33-34
                                          .
                                          .
3487                                      .          4O
                                          .          .
                                          .          .
3506                                   C34I...........
                                          V
                                          V
3509                                   C34O
                                          .
                                          .
3523                                      .-------->   DC34R
3520                                DC34L
                                          .
                                          .
3528                                      .          .<-------   DC32L
3526                                      .     BDC32L
                                          .          V
                                          .          V
3529                                      .     32L-35
                                          .          .
                                          .          .
3537                                      .          .          5A
                                          .          .          .
                                          .          .          .
3560                                      .        C35...........
                                          .          V
                                          .          V
3563                                      .     R35-36
                                          .          .
                                          .          .
3571                                      .          .          5B
                                          .          .          .
                                          .          .          .
                                          .        C36...........
                                          .          .
                                          .          .
3592                                   C36I...........
                                          V
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                                  V
3595                            C36O
                                  V
                                  V
3606                          R36-37
                                  .
                                  .
361                               .-------> DC37L
3614                          DC37R
                                  .
                                  .
3625                              .-------> DC37AL
3621                          DC37AR
                                  V
                                  V
3628                          37A-17
                                  .
                                  .
3637                              .                .<-------  DC34R
3635                              .          BDC34R
                                  .               V
                                  .               V
3638                              .          R34-17
                                  .               .
                                  .               .
3646                        C17.......................
                              V
                              V
3652                      R17-13
                              .
                              .
3660                  C13............
                        V
                        V
3663                13-13A
                        .
                        .
3673                    .<-------  DC37AL
3671                  DC37AL
                              V
                              V
367                   37L13A
                              .
                              .
3680                  C13A............
                        V
                        V
3683                13A-16
                        .
                        .
3691                    .       3M
                              .
                              .
3706                          .           .<-------  DC14R
3704                          .       DC14R
                              .           V
                              .           V
3707                          .      R14-16
                              .           .
                              .           .
3714                  C16........................
                        .
                        .
3719                    .<-------  DC37L
3717                  BDC37L
                              V
                              V
3720                  R37-38
                              .
                              .
3728                          .         5C
                              .          .
                              .          .
                            C38............
                              .
                              .
3745                          .         6N
                              .          V
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                                V
3763                          C53O
                                V
                                V
3774                        R53-56
                                V
                                V
3781                        R56-59
                                .
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3790                                  6Q
                                      .
                                      .
3804                          C59............
                                .
                                .
3810                                  .<-------   DC40L
3808                            BDC40L
                                      V
                                      V
3811                            40L-41
                                      .
                                      .
3819                                  .          6C
                                      .           .
                                      .           .
3840                                C41............
                                      V
                                      V
3843                            R41-43
                                      .
                                      .
3851                                  .          6D
                                      .           .
                                      .           .
3870                                  .           .          6E
                                      .           .           V
                                      .           .           V
3[illegible]2                         .           .      R42-43
                                      .           .           .
                                      .           .           .
3907                                C43.......................
                                      V
                                      V
3910                            R43-44
                                      .
                                      .
3918                                  .          6F
                                      .           .
                                      .           .
3939                                C44............
                                      V
                                      V
3942                            R44-69
                                      .
                                      .
3950                                  .          6H
                                      .           .
                                      .           .
3970                                  .           .          6I
                                      .           .           .
                                      .           .           .
3987                                  .         C46............
                                      .           V
                                      .           V
3990                                  .       R46-69
                                      .           .
                                      .           .
3998                                C69............
                                      V
                                      V
4001                            R69-47
                                      .
                                      .
40[illegible]                         .          6J
                                      .           .
                                      .           .
4025                                C47............
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                    .
4031                .-------->   DC47L
4028             DC47R
                    V
                    V
4[illegible]     47R-48
                    .
                    .
4042                .          6K
                    .           .
                    .           .
4060              C48............
                    .
                    .
4067                .-------->   DC48L
4064             DC48R
                    V
                    V
4070             48R-50
                    .
                    .
4078                .          6G
                    .           V
                    .           V
4100                .      R45-50
                    .           .
                    .           .
4108                .           .          6L
                    .           .           .
                    .           .           .
4129              C50........................
                    V
                    V
4133             R50-52
                    .
                    .
4144                .           .<-------   DC47L
                    .      BDC47L
                    .           V
                    .           V
4145                .      47L-49
                    .           .
                    .           .
4155                .           .           .<-------   DC48L
4153                .           .      BDC48L
                    .           .           V
                    .           .           V
4156                .           .      48L-49
                    .           .           .
                    .           .           .
4164                .           .           .          6M
                    .           .           .           .
                    .           .           .           .
4179                .        C49........................
                    .           V
                    .           V
4182                .      R49-51
                    .           .
                    .           .
4190                .           .          6O
                    .           .           .
                    .           .           .
4205                .        C51I............
                    .           .
                    .           .
4208             CPND1............
                    V
                    V
4211              PND1
                    .
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                    .-------->    C52O
                  C51O
                    V
                    V
4231             R51-54
                    V
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                 .         .         .         .         V
4239             .         .         .         .    R54-57
                 .         .         .         .         .
                 .         .         .         .         .
4[illegible]9    .         .         .         .         .          .<-------    C520
                 .         .         .         .         .      BC520
                 .         .         .         .         .          V
                 .         .         .         .         .          V
4250             .         .         .         .         .      R52-55
                 .         .         .         .         .          V
                 .         .         .         .         .          V
4258             .         .         .         .         .      R55-57
                 .         .         .         .         .          .
                 .         .         .         .         .          .
4266             .         .         .         .       C57............
                 .         .         .         .         V
                 .         .         .         .         V
4269             .         .         .         .    R57-58
                 .         .         .         .         .
                 .         .         .         .         .
4277             .         .         .         .         .         6P
                 .         .         .         .         .          .
                 .         .         .         .         .          .
4292             .         .         .         .       C58............
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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****************************************
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*                                      *                                                    *
*   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF
ENGINEERS      *
*              MAY   1991              *                                                    *    HYDROLOGIC ENGINEERING
CENTER     *
*            VERSION 4.0.1E            *                                                    *          609 SECOND
STREET          *
*     Lahey F77L-EM/32 version 5.01    *                                                    *       DAVIS, CALIFORNIA
95616        *
*      Dodson & Associates, Inc.       *                                                    *           (916) 551-1748
*  RUN DATE  03/16/01  TIME  07:03:01  *                                                    *
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```

FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
GILA BEND AREA DRAINAGE MASTER PLAN

EAST SIDE
Bender and Sand Tank Washes (Major Basins 1, 2, and 7)
Basin 7A broken down into three subbasins for floodplain delineation work by EEC and Premier (6/14/00)
Quilotosa and Sauceda Washes (Major Basins 3, 4, 5, and 6)
Basin 3K broken down into three subbasins, 3KB, 3KC, and 3KD for floodplain d work by EEC and Premier (6/14/00)

WEST SIDE work by EEC and Premier (Aug/Sept 2000)
New Subbasin 3KA was added to existing Subbasin 3L.
Single common storage pond removed from Burgess-Niple (PND2) and replaced wit individual storage ponds at the intersections of Unnamed No. 1, Sauceda, Un No. 6 and Quilotosa Washes with the GBC. (ponds at C53I, C36I, C34I and C11
Existing Diversion at SR-85 and GBC modified by changes in hydrology to the e which led to increased flow in DC12L. This caused side weir flow over the modeled by HEC-2, the new diversion is at CP11A. The remaining flow contin to PND2D at Quilotosa wash. The diverted flow is routed (11A11B) to CP11B.
D/S of CP12 a new concentration point was added at CP14A, a new channel route added (R12-14A), and a diversion (DC14AL) takes place at Unnamed No. 2 and to limited conveyance through culverts, flow is diverted to CP11B. D/S of modifed channel route (R14A-14) conveys remaining flow in Unnamed No. 2 to
At CP11B routed flows 11A11B and 14B11A is combined together.
Overtopping analysis of the Railroad and I-8 frontage road indicate that the will flow through the overpass from CP11B back towards CP14.
New Diversion between Unnamed No. 6 and Sauceda Wash based on rating curve de using HEC-RAS iterations of weir flow over canal and channel conveyance bel

canal.

A new diversion at the Railroad and Sauceda diverts flow back toward Unnamed DC37R. Then HEC-2 side weir is used to identify flow split over the canal. this divert DC37AR reduces flow to CP99, with diverted flow DC37AL overtopp and I-8 highway. This diverted flow is routed (37L-16) and joins flow in Q Wash at CP16.

A new diversion on Hacker Wash just north of Pima Road. This diverts the maj the flow from Hacker Wash overland where it rejoins Quilotosa Wash at Water Road. The remaining flow stays in the diversion channel along I-8 and join Quilotosa Wash on the north side of I-8.

100-Year 24-Hour Duration Storm

04/06/92 Input Filenames from Burgess & Niple 1992 study: B&ST24.H1 and S
09/18/00 Modified Filename: GB083100.DAT

Green & AMPT Loss Rate Method
S-Graph Unit Hydrograph
Normal Depth Routing

```
50 IO        OUTPUT CONTROL VARIABLES
                IPRNT          5  PRINT CONTROL
                IPLOT          0  PLOT CONTROL
                QSCAL         0.  HYDROGRAPH PLOT SCALE

   IT        HYDROGRAPH TIME DATA
                 NMIN          3  MINUTES IN COMPUTATION INTERVAL
                IDATE     13MAR92  STARTING DATE
                ITIME       1200  STARTING TIME
                   NQ        600  NUMBER OF HYDROGRAPH ORDINATES
              NDDATE     14MAR92  ENDING DATE
              NDTIME       1757  ENDING TIME
              ICENT          19  CENTURY MARK

          COMPUTATION INTERVAL    0.05 HOURS
               TOTAL TIME BASE   29.95 HOURS

      ENGLISH UNITS
           DRAINAGE AREA          SQUARE MILES
           PRECIPITATION DEPTH    INCHES
           LENGTH, ELEVATION      FEET
           FLOW                   CUBIC FEET PER SECOND
           STORAGE VOLUME         ACRE-FEET
           SURFACE AREA           ACRES
           TEMPERATURE            DEGREES FAHRENHEIT

52 JD        INDEX STORM NO. 1
                STRM        4.53  PRECIPITATION DEPTH
                TRDA        0.01  TRANSPOSITION DRAINAGE AREA

53 PI          PRECIPITATION PATTERN
```

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0(

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

63 JD INDEX STORM NO. 2

STRM 4.44 PRECIPITATION DEPTH

TRDA 5.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0 01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

64 JD INDEX STORM NO. 3

STRM 4.30 PRECIPITATION DEPTH

TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

65 JD INDEX STORM NO. 4

STRM 4.00 PRECIPITATION DEPTH

TRDA 50.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

66 JD INDEX STORM NO. 5

STRM 3.90 PRECIPITATION DEPTH

TRDA 80.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

JD INDEX STORM NO. 6

STRM 3.85 PRECIPITATION DEPTH

TRDA 100.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

68 JD INDEX STORM NO. 7

STRM 3.71 PRECIPITATION DEPTH

TRDA 200.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

69 JD INDEX STORM NO. 8

STRM 3.53 PRECIPITATION DEPTH

TRDA 500.00 TRANSPOSITION DRAINAGE AREA

PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
                0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


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          *            *
786 KK    *     C135I  *
          *            *
          **************

788 KO          OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       0.050  TIME INTERVAL IN HOURS

      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


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          *            *
1539 KK   *     C127R  *
          *            *
          **************

1541 KO         OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE
                     IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                      IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT       0.050  TIME INTERVAL IN HOURS

      WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


*  *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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          *            *
1936 KK   *    127131  *
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          *            *
          **************

939 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.050  TIME INTERVAL IN HOURS


** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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          *            *
023 KK    *    130131  *
          *            *
          **************

026 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.050  TIME INTERVAL IN HOURS


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          *            *
251 KK    *      C7AB  *
          *            *
          **************

253 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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          *            *
433 KK    *      C151  *
          *            *
          **************

    KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
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                ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
               TIMINT      0.050  TIME INTERVAL IN HOURS


** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              *            *
543 KK        *     C11B   *
              *            *
              **************

545 KO            OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              *            *
2554 KK       *      C14   *
              *            *
              **************

2556              OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS

        WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              *            *
3588 KK       *      C36   *
              *            *
              **************

3590 KO           OUTPUT CONTROL VARIABLES
                     IPRNT          5  PRINT CONTROL
                     IPLOT          0  PLOT CONTROL
                     QSCAL         0.  HYDROGRAPH PLOT SCALE
                     IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                      IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                     ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                     ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                    TIMINT      0.050  TIME INTERVAL IN HOURS


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              **************
              *            *
      KK      *      C17   *
              *            *
              **************

650 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.050  TIME INTERVAL IN HOURS


** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
741 KK        *      C38   *
              *            *
              **************

743 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.050  TIME INTERVAL IN HOURS


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              *            *
3804 KK       *      C59   *
              *            *
              **************

3806 KO         OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              *            *
406[illegible]  *      C48   *
              *            *
              **************
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062 KO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.050  TIME INTERVAL IN HOURS


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          *            *
129 KK    *       C50  *
          *            *
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.131 KO         OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.050  TIME INTERVAL IN HOURS


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          *            *
1133 KK   *    R50-52  *
          *            *
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1136 KO         OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE
                      IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                       IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                      ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                      ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                     TIMINT       0.050  TIME INTERVAL IN HOURS
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	IME OF TAGE MAX
HYDROGRAPH AT	1B	1288.	12.80	271.	69.	55.	2.10		
ROUTED TO	R61-62	1249.	13.05	268.	67.	54.	2.10		
HYDROGRAPH AT	1C	2254.	13.10	561.	140.	112.	3.83		
HYDROGRAPH AT	1A	925.	13.00	314.	89.	72.	2.1(		

3 COMBINED AT	C62	4265.	13.05	1101.	286.	230.	8.03
ROUTED TO	R62-64	4024.	13.45	1090.	282.	226.	8.03
HYDROGRAPH AT	1D	452.	12.20	100.	28.	22.	0.34
ROUTED TO	R63-64	307.	13.65	65.	16.	13.	0.34
2 COMBINED AT	C64	4215.	13.50	1149.	296.	238.	8.37
ROUTED TO	R64-65	4081.	13.75	1141.	293.	235.	8.37
HYDROGRAPH AT	1E	1911.	13.25	521.	130.	104.	3.91
HYDROGRAPH AT	1F	1892.	13.20	710.	210.	169.	5.55
3 COMBINED AT	C65	6348.	13.50	2197.	588.	472.	17.83
ROUTED TO	R65-67	6207.	13.85	2166.	571.	458.	17.83
HYDROGRAPH AT	1J	731.	12.30	182.	50.	40.	0.62
ROUTED TO	R66-67	114.	14.05	12.	3.	2.	0.62
HYDROGRAPH AT	1I	1980.	13.25	540.	135.	108.	4.11
3 COMBINED AT	C67	7228.	13.75	2611.	683.	547.	22.56
ROUTED TO	R67-71	7178.	13.85	2599.	677.	543.	22.56
HYDROGRAPH AT	1G	1421.	13.05	517.	159.	128.	3.78
ROUTED TO	R70-71	1210.	14.05	468.	133.	107.	3.78
HYDROGRAPH AT	1H	2052.	13.25	788.	234.	188.	6.77
2 COMBINED AT	C71R	2304.	13.95	1189.	350.	282.	10.55
HYDROGRAPH AT	1K	998.	12.60	315.	87.	70.	1.08
ROUTED TO	R68-71	860.	13.55	280.	72.	57.	1.08
HYDROGRAPH AT	1L	2362.	13.50	744.	189.	152.	4.69
2 COMBINED AT	C71L	3177.	13.50	1003.	258.	207.	5.77
3 COMBINED AT	C71	11330.	13.70	4426.	1188.	953.	38.88
ROUTED TO	R71-73	11118.	14.05	4386.	1172.	939.	38.88
HYDROGRAPH AT	1M	2018.	12.60	638.	177.	142.	2.19

ROUTED TO	R72-73	1616.	14.25	564.	145.	117.	2.19
HYDROGRAPH AT	1N	1407.	13.05	337.	84.	68.	2.75
3 COMBINED AT	C73	12652.	14.10	5095.	1356.	1087.	43.82
ROUTED TO	R73-74	12187.	14.80	4972.	1313.	1052.	43.82
HYDROGRAPH AT	1P	1747.	13.50	537.	134.	108.	4.56
HYDROGRAPH AT	1O	1567.	13.55	641.	188.	151.	5.23
3 COMBINED AT	C74	13013.	14.75	5744.	1553.	1246.	53.61
ROUTED TO	R74-77	11875.	16.00	5337.	1405.	1126.	53.61
HYDROGRAPH AT	1U	878.	13.60	283.	71.	57.	3.19
2 COMBINED AT	C77R	11875.	16.00	5432.	1452.	1164.	56.80
HYDROGRAPH AT	1Q	2511.	13.75	895.	232.	186.	5.30
ROUTED TO	R75-76	2456.	13.90	882.	227.	182.	5.30
HYDROGRAPH AT	1R	1499.	12.80	443.	125.	100.	2.90
2 COMBINED AT	C76	2982.	13.85	1282.	341.	274.	8.20
ROUTED TO	R76-77	2430.	15.55	1059.	268.	215.	8.20
HYDROGRAPH AT	1T	1412.	14.00	555.	150.	121.	4.67
2 COMBINED AT	C77L	2860.	15.40	1430.	398.	319.	12.87
2 COMBINED AT	C77	13685.	15.95	6500.	1762.	1412.	69.67
ROUTED TO	R77-79	13443.	16.30	6442.	1736.	1391.	69.67
HYDROGRAPH AT	1W	337.	12.55	62.	17.	13.	0.53
2 COMBINED AT	C79RUP	13441.	16.30	6444.	1748.	1401.	70.20
HYDROGRAPH AT	1S	1499.	13.30	563.	161.	129.	4.77
DIVERSION TO	DC78L	576.	13.30	197.	52.	41.	4.77
HYDROGRAPH AT	DC78R	923.	13.30	366.	109.	88.	4.77
ROUTED TO	78R-79	562.	14.00	145.	36.	29.	4.77
HYDROGRAPH AT	1V	1126.	12.95	266.	71.	57.	2.1(

2 COMBINED AT	C79LUP	1089.	12.95	395.	103.	83.	6.93
2 COMBINED AT	C79	13438.	16.30	6558.	1821.	1459.	77.13
DIVERSION TO	DC79L	6761.	16.30	3679.	1074.	861.	77.13
HYDROGRAPH AT	DC79R	6578.	16.30	2830.	733.	588.	77.13
ROUTED TO	79R-81	6309.	16.95	2746.	707.	566.	77.13
HYDROGRAPH AT	BDC79L	6761.	16.30	3679.	1074.	861.	77.13
ROUTED TO	79L-80	6684.	16.50	3646.	1057.	847.	77.13
DIVERSION TO	DC80L	6547.	16.50	3606.	1047.	839.	77.13
HYDROGRAPH AT	DC80R	138.	16.50	40.	10.	8.	77.13
ROUTED TO	80R-81	11.	17.80	1.	0.	0.	77.13
HYDROGRAPH AT	1X	1364.	12.90	301.	75.	60.	2.62
3 COMBINED AT	C81	6308.	16.95	2760.	765.	613.	79.75
DIVERSION TO	DC81L	4373.	16.95	2122.	596.	478.	79.75
HYDROGRAPH AT	DC81R	1908.	16.95	625.	165.	132.	79.75
ROUTED TO	81R-82	1673.	18.80	582.	153.	122.	79.75
HYDROGRAPH AT	BDC81L	4373.	16.95	2122.	596.	478.	79.75
ROUTED TO	81L-82	3970.	18.50	1952.	539.	432.	79.75
HYDROGRAPH AT	1Y	2100.	13.35	597.	149.	120.	5.32
3 COMBINED AT	C82	5530.	18.65	2511.	799.	640.	85.07
DIVERSION TO	DC82L	3390.	18.65	1391.	420.	337.	85.07
HYDROGRAPH AT	DC82R	2154.	18.80	1120.	379.	303.	85.07
ROUTED TO	82-135	2062.	19.05	1080.	361.	289.	85.07
HYDROGRAPH AT	2VV	1493.	13.20	408.	107.	86.	3.74
2 COMBINED AT	C135I	2062.	19.05	1084.	440.	353.	88.81
HYDROGRAPH AT	2D	1600.	12.60	510.	141.	113.	1.75
ROUTED TO	R87-89	1504.	13.05	500.	137.	110.	1.75

HYDROGRAPH AT	2F	798.	12.40	220.	61.	49.	0.75
ROUTED TO	R88-89	779.	12.60	217.	59.	47.	0.75
2 COMBINED AT	C89	2071.	12.95	714.	195.	156.	2.50
ROUTED TO	R89-91	2003.	13.30	704.	191.	153.	2.50
HYDROGRAPH AT	2E	1246.	12.35	181.	46.	37.	1.00
HYDROGRAPH AT	2G	1248.	12.50	218.	56.	45.	1.13
3 COMBINED AT	C91	2919.	12.55	1097.	292.	234.	4.63
ROUTED TO	R91-92	2840.	12.80	1090.	290.	232.	4.63
HYDROGRAPH AT	2I	1054.	12.30	256.	70.	56.	0.87
HYDROGRAPH AT	2H	1551.	12.50	253.	64.	51.	1.59
3 COMBINED AT	C92	4892.	12.60	1551.	413.	332.	7.09
ROUTED TO	R92-95	4767.	12.80	1544.	411.	330.	7.09
HYDROGRAPH AT	2K	1596.	12.95	625.	177.	142.	2.19
ROUTED TO	R93-94	1555.	13.20	617.	173.	139.	2.19
HYDROGRAPH AT	2L	762.	12.70	240.	63.	50.	0.94
2 COMBINED AT	C94	2115.	13.15	854.	235.	189.	3.13
ROUTED TO	R94-95	2062.	13.30	833.	221.	177.	3.13
HYDROGRAPH AT	2M	1626.	12.30	210.	53.	42.	1.40
HYDROGRAPH AT	2J	1022.	12.65	338.	94.	75.	1.16
4 COMBINED AT	C95	7459.	12.80	2781.	740.	593.	12.78
ROUTED TO	R95-96	7024.	13.50	2743.	730.	585.	12.78
HYDROGRAPH AT	2A	2857.	13.35	899.	232.	186.	4.33
ROUTED TO	R83-84	2755.	13.70	887.	227.	182.	4.33
DIVERSION TO	DC84R	129.	13.70	25.	6.	5.	4.33
HYDROGRAPH AT	DC84L	2625.	13.70	861.	221.	177.	4.33
ROUTED TO	84L-85	2481.	14.20	837.	214.	171.	4.3[illegible]

HYDROGRAPH AT	2B	2263.	12.95	514.	131.	105.	3.31
2 COMBINED AT	C85	2720.	14.15	1298.	334.	268.	7.64
ROUTED TO	R85-96	2548.	14.95	1263.	323.	259.	7.64
HYDROGRAPH AT	BDC84R	129.	13.70	25.	6.	5.	4.33
ROUTED TO	84R-86	81.	14.60	13.	3.	3.	4.33
HYDROGRAPH AT	2N	1872.	12.65	342.	87.	70.	2.20
2 COMBINED AT	C86	1830.	12.65	347.	88.	71.	6.53
ROUTED TO	R86-96	1568.	13.60	334.	83.	67.	6.53
HYDROGRAPH AT	2C	1950.	12.70	672.	187.	150.	2.32
HYDROGRAPH AT	2O	2985.	12.65	978.	271.	218.	3.37
5 COMBINED AT	C96	12315.	13.50	5392.	1457.	1169.	32.64
ROUTED TO	R96-97	11514.	14.25	5175.	1379.	1105.	32.64
HYDROGRAPH AT	2P	2330.	12.65	616.	165.	133.	3.51
2 COMBINED AT	C97	11891.	14.25	5619.	1513.	1213.	36.15
ROUTED TO	97-100	11570.	14.60	5571.	1490.	1194.	36.15
HYDROGRAPH AT	2Q	1660.	12.85	498.	136.	109.	2.93
ROUTED TO	R98-99	1313.	13.25	313.	78.	63.	2.93
HYDROGRAPH AT	2R	1343.	12.80	293.	78.	62.	2.67
2 COMBINED AT	C99	2243.	13.05	597.	154.	123.	5.60
ROUTED TO	99-100	2039.	13.40	501.	125.	100.	5.60
HYDROGRAPH AT	2S	1143.	12.50	192.	50.	40.	1.82
3 COMBINED AT	C100	11974.	14.55	6011.	1611.	1291.	43.57
ROUTED TO	100101	11801.	14.75	5976.	1598.	1281.	43.57
HYDROGRAPH AT	2T	2329.	13.50	952.	267.	214.	4.90
2 COMBINED AT	C101	12686.	14.75	6726.	1815.	1455.	48.47
ROUTED TO	101102	12367.	15.10	6628.	1777.	1424.	48.47

HYDROGRAPH AT						
2U	727.	12.65	139.	37.	29.	1.38
2 COMBINED AT						
C102	12365.	15.10	6678.	1804.	1446.	49.85
ROUTED TO						
102103	12182.	15.30	6625.	1787.	1432.	49.85
HYDROGRAPH AT						
2V	3205.	13.40	1231.	345.	277.	7.57
2 COMBINED AT						
C103	12871.	15.30	7502.	2067.	1657.	57.42
ROUTED TO						
103107	12258.	16.40	7297.	2030.	1627.	57.42
HYDROGRAPH AT						
2W	3882.	13.10	1461.	390.	313.	6.29
ROUTED TO						
104105	3173.	14.10	1124.	282.	226.	6.29
HYDROGRAPH AT						
2X	4574.	13.75	2066.	584.	469.	10.31
2 COMBINED AT						
C105	7037.	13.95	3030.	827.	664.	16.60
ROUTED TO						
105107	6071.	16.15	2945.	804.	645.	16.60
HYDROGRAPH AT						
2Y	4610.	14.00	1760.	455.	365.	13.40
3 COMBINED AT						
C107	17469.	16.35	10352.	3054.	2448.	87.42
HYDROGRAPH AT						
2BB	2154.	12.50	532.	138.	111.	2.40
ROUTED TO						
108111	1920.	13.25	513.	129.	103.	2.40
HYDROGRAPH AT						
2Z	2733.	13.25	1029.	275.	221.	5.10
ROUTED TO						
110111	2297.	14.30	888.	230.	184.	5.10
HYDROGRAPH AT						
2AA	2471.	13.05	605.	154.	123.	3.73
3 COMBINED AT						
C111	3957.	13.20	1822.	483.	387.	11.23
ROUTED TO						
111113	3240.	14.95	1637.	443.	355.	11.23
HYDROGRAPH AT						
2CC	1600.	13.75	548.	138.	110.	4.38
3 COMBINED AT						
C113	19580.	16.30	11731.	3484.	2793.	103.03
ROUTED TO						
113127	19236.	16.70	11630.	3454.	2768.	103.03
HYDROGRAPH AT						
2DD	384.	12.60	66.	17.	13.	0.54
2 COMBINED AT						
C127R	19236.	16.70	11630.	3466.	2777.	103.57
HYDROGRAPH AT						
2GG	3979.	13.50	1305.	336.	269.	6.69

ROUTED TO	114115	3585.	14.35	1229.	311.	249.	6.69
HYDROGRAPH AT	2HH	4129.	13.10	1063.	273.	219.	6.76
2 COMBINED AT	C115	4400.	14.00	2161.	556.	446.	13.45
ROUTED TO	115116	4293.	14.50	2113.	544.	436.	13.45
HYDROGRAPH AT	2II	1509.	12.95	530.	140.	113.	2.22
2 COMBINED AT	C116	4850.	13.75	2553.	668.	535.	15.67
DIVERSION TO	DC116L	1656.	13.75	866.	232.	186.	15.67
HYDROGRAPH AT	DC116R	3194.	13.75	1687.	436.	349.	15.67
ROUTED TO	116119	3109.	14.55	1649.	426.	341.	15.67
HYDROGRAPH AT	2EE	3050.	12.85	1041.	275.	220.	4.13
ROUTED TO	118119	2947.	13.15	1031.	271.	218.	4.13
HYDROGRAPH AT	2JJ	817.	12.55	139.	35.	28.	0.89
3 COMBINED AT	C119	4308.	14.30	2618.	697.	558.	20.69
ROUTED TO	119120	3950.	16.55	2420.	652.	523.	20.69
HYDROGRAPH AT	2KK	1686.	13.95	635.	161.	129.	4.19
2 COMBINED AT	C120R	4048.	16.50	2572.	788.	631.	24.88
HYDROGRAPH AT	2LL	1701.	14.55	764.	198.	159.	5.18
HYDROGRAPH AT	BC116L	1656.	13.75	866.	232.	186.	15.67
ROUTED TO	116120	1160.	18.10	565.	142.	114.	15.67
3 COMBINED AT	C120	4526.	16.35	3421.	1087.	871.	30.06
ROUTED TO	120121	4416.	16.80	3348.	1061.	850.	30.06
HYDROGRAPH AT	2MM	495.	12.60	86.	22.	17.	0.91
2 COMBINED AT	C121	4416.	16.80	3348.	1078.	864.	30.97
ROUTED TO	121123	4322.	17.35	3286.	1057.	847.	30.97
HYDROGRAPH AT	2FF	1641.	14.60	745.	194.	156.	5.51
2 COMBINED AT	C123	4460.	17.35	3590.	1212.	971.	36.4[illegible]

ROUTED TO	123140	4429.	17.55	3565.	1203.	964.	36.48
HYDROGRAPH AT	2NN	3248.	14.35	1376.	353.	283.	9.61
HYDROGRAPH AT	2OO	731.	12.65	132.	33.	26.	0.85
2 COMBINED AT	C124	3248.	14.30	1492.	382.	306.	10.46
ROUTED TO	124125	2984.	15.25	1444.	372.	298.	10.46
HYDROGRAPH AT	2PP	1312.	12.80	268.	67.	54.	1.78
2 COMBINED AT	C125	2984.	15.25	1628.	435.	348.	12.24
ROUTED TO	125126	2711.	16.20	1510.	407.	326.	12.24
HYDROGRAPH AT	2QQ	813.	12.80	164.	41.	33.	1.67
2 COMBINED AT	C126	2711.	16.20	1519.	444.	356.	13.91
ROUTED TO	126140	2569.	16.95	1478.	430.	345.	13.91
2 COMBINED AT	C140	6497.	17.20	4790.	1562.	1252.	50.39
ROUTED TO	140127	6405.	17.60	4727.	1542.	1236.	50.39
HYDROGRAPH AT	2RR	483.	12.95	110.	28.	22.	0.93
HYDROGRAPH AT	2YY	424.	13.05	101.	25.	20.	1.12
3 COMBINED AT	C127L	6405.	17.60	4729.	1583.	1269.	52.44
2 COMBINED AT	C127	22611.	16.75	15254.	4758.	3813.	156.01
ROUTED TO	127131	22489.	17.05	15189.	4735.	3794.	156.01
HYDROGRAPH AT	BDC78L	576.	13.30	197.	52.	41.	4.77
ROUTED TO	78L128	414.	14.35	140.	35.	28.	4.77
HYDROGRAPH AT	2SS	1402.	13.35	417.	111.	89.	3.83
2 COMBINED AT	C128	1328.	13.35	517.	139.	111.	8.60
ROUTED TO	128129	1079.	14.60	428.	110.	88.	8.60
HYDROGRAPH AT	2TT	2248.	13.00	549.	147.	118.	4.60
2 COMBINED AT	C129	2061.	13.00	878.	239.	192.	13.20
ROUTED TO	129130	1868.	13.65	851.	228.	183.	13.2(

HYDROGRAPH AT	BDC80L	6547.	16.50	3606.	1047.	839.	77.13
ROUTED TO	80L130	6343.	17.15	3531.	1018.	816.	77.13
2 COMBINED AT	C130	6599.	17.10	3996.	1192.	955.	85.56
ROUTED TO	130131	6162.	18.70	3778.	1129.	905.	85.56
2 COMBINED AT	C131	23787.	17.25	17810.	5557.	4453.	241.57
ROUTED TO	131132	23668.	17.55	17713.	5523.	4426.	241.57
HYDROGRAPH AT	2UU	1967.	14.30	821.	210.	169.	8.10
HYDROGRAPH AT	BDC82L	3390.	18.65	1391.	420.	337.	85.07
3 COMBINED AT	C132	24265.	18.45	18364.	5823.	4666.	330.40
DIVERSION TO	DC132L	13168.	18.45	8667.	2306.	1848.	330.40
HYDROGRAPH AT	DC132R	11097.	18.45	9697.	3517.	2818.	330.40
ROUTED TO	132133	11011.	18.75	9614.	3471.	2782.	330.40
2 COMBINED AT	C133I	12603.	18.90	10519.	3837.	3076.	334.14
ROUTED TO	PND3	12528.	19.15	10516.	3835.	3073.	334.14
DIVERSION TO	DPND3W	0.	0.05	0.	0.	0.	334.14
HYDROGRAPH AT	PND3N	12528.	19.15	10516.	3835.	3073.	334.14
DIVERSION TO	D135O	2593.	19.15	2252.	694.	556.	334.14
HYDROGRAPH AT	D133O	9935.	19.15	8264.	3141.	2517.	334.14
ROUTED TO	133141	9898.	19.45	8238.	3129.	2508.	334.14
HYDROGRAPH AT	BD135O	2593.	19.15	2252.	694.	556.	334.14
ROUTED TO	135141	2588.	19.40	2246.	693.	555.	334.14
2 COMBINED AT	C141	12486.	19.45	10482.	3822.	3063.	334.14
ROUTED TO	141149	12456.	19.75	10464.	3812.	3055.	334.14
HYDROGRAPH AT	2WW	1574.	13.90	577.	148.	119.	5.82
ROUTED TO	C136O	542.	15.35	490.	147.	118.	5.82
ROUTED TO	136149	291.	16.35	249.	69.	55.	5.82

2 COMBINED AT	C149	12456.	19.75	10531.	3847.	3083.	339.96
ROUTED TO	149137	12420.	20.05	10502.	3832.	3071.	339.96
HYDROGRAPH AT	2XX	1131.	12.95	270.	71.	57.	2.17
2 COMBINED AT	C137	12421.	20.05	10503.	3877.	3108.	342.13
HYDROGRAPH AT	7AC	450.	13.05	107.	27.	21.	1.20
ROUTED TO	7AC150	288.	14.45	82.	20.	16.	1.20
HYDROGRAPH AT	7AB	342.	12.50	55.	14.	11.	0.57
2 COMBINED AT	C7AB	379.	12.85	136.	34.	27.	1.77
HYDROGRAPH AT	BC132L	13168.	18.45	8667.	2306.	1848.	330.40
2 COMBINED AT	C150	13156.	18.45	8658.	2320.	1859.	332.17
DIVERSION TO	DC150L	9291.	18.45	5182.	1295.	1038.	332.17
HYDROGRAPH AT	DC150R	3865.	18.45	3477.	1024.	821.	332.17
ROUTED TO	150142	3854.	18.65	3463.	1021.	818.	332.17
HYDROGRAPH AT	7AA	381.	12.40	54.	13.	11.	0.64
2 COMBINED AT	7AA	3854.	18.65	3463.	1028.	823.	332.17
HYDROGRAPH AT	BPND3W	0.	0.05	0.	0.	0.	334.14
2 COMBINED AT	C142I	3854.	18.65	3463.	1028.	823.	336.59
ROUTED TO	C142O	3847.	18.65	3453.	1024.	821.	336.59
DIVERSION TO	DC142L	986.	18.65	820.	209.	168.	336.59
HYDROGRAPH AT	DC142R	2861.	18.65	2633.	815.	653.	336.59
ROUTED TO	142139	2820.	19.30	2573.	800.	641.	336.59
HYDROGRAPH AT	7D	732.	12.65	155.	45.	36.	1.17
2 COMBINED AT	C139	2826.	19.30	2580.	830.	666.	337.76
HYDROGRAPH AT	7C	387.	12.35	53.	13.	11.	0.60
HYDROGRAPH AT	BC142L	986.	18.65	820.	209.	168.	336.59
ROUTED TO	142-18	946.	19.65	768.	200.	160.	336.59

HYDROGRAPH AT	7B	944.	12.85	211.	57.	46.	1.67
2 COMBINED AT	C18	950.	19.65	772.	238.	191.	338.26
4 COMBINED AT	NULL1	15498.	20.00	13037.	4577.	3669.	1018.75
HYDROGRAPH AT	BD150L	9291.	18.45	5182.	1295.	1038.	332.17
ROUTED TO	SR151	9020.	18.70	5159.	1290.	1033.	332.17
HYDROGRAPH AT	3KC	1110.	13.95	413.	105.	84.	3.45
HYDROGRAPH AT	3KD	790.	13.40	232.	58.	46.	2.26
3 COMBINED AT	C151	8988.	18.70	5180.	1387.	1112.	337.88
ROUTED TO	151-12	8966.	18.75	5168.	1383.	1108.	337.88
HYDROGRAPH AT	3KB	1348.	13.00	317.	79.	64.	2.33
2 COMBINED AT	C12I	8960.	18.75	5166.	1437.	1152.	339.24
ROUTED TO	C12O	8872.	18.90	4873.	1392.	1115.	339.24
DIVERSION TO	DC12L	3383.	18.90	1665.	416.	333.	339.24
HYDROGRAPH AT	DC12R	5490.	18.90	3208.	975.	782.	339.24
ROUTED TO	12-14A	5403.	19.05	3168.	959.	768.	339.24
DIVERSION TO	DC14AL	2484.	19.05	964.	241.	193.	339.24
HYDROGRAPH AT	DC14AR	2919.	19.10	2203.	718.	575.	339.24
ROUTED TO	14A-14	2895.	19.20	2186.	709.	568.	339.24
HYDROGRAPH AT	BDC12L	3383.	18.90	1665.	416.	333.	339.24
ROUTED TO	12-11A	3340.	19.05	1659.	416.	333.	339.24
DIVERSION TO	DC11AL	1431.	19.05	946.	238.	191.	339.24
HYDROGRAPH AT	DC11AR	1910.	19.05	713.	178.	143.	339.24
ROUTED TO	11A11B	1891.	19.15	712.	178.	143.	339.24
HYDROGRAPH AT	DC14AL	2484.	19.05	964.	241.	193.	339.24
ROUTED TO	14A11B	2456.	19.20	964.	241.	193.	339.24
2 COMBINED AT	C11B	4346.	19.20	1676.	419.	336.	339.24

ROUTED TO	11B-14	4244.	19.35	1676.	419.	336.	339.24
2 COMBINED AT	C14	7135.	19.35	3861.	1129.	904.	339.24
DIVERSION TO	DC14R	6685.	19.35	3411.	854.	684.	339.24
HYDROGRAPH AT	DC14L	450.	16.75	450.	274.	220.	339.24
ROUTED TO	R14-13	419.	17.40	419.	250.	200.	339.24
HYDROGRAPH AT	3F	3798.	13.55	1575.	466.	376.	12.14
ROUTED TO	R1-3	3374.	14.65	1550.	456.	367.	12.14
HYDROGRAPH AT	3E	2834.	13.40	1064.	290.	233.	8.24
ROUTED TO	R2-3	2610.	14.05	1053.	286.	229.	8.24
HYDROGRAPH AT	3G	2297.	12.95	706.	186.	149.	5.12
3 COMBINED AT	C3	5468.	14.45	3040.	864.	694.	25.50
ROUTED TO	R3-5	5370.	14.85	2979.	839.	672.	25.50
HYDROGRAPH AT	3H	2039.	13.85	862.	243.	195.	6.78
2 COMBINED AT	C5	6235.	14.70	3685.	1042.	836.	32.28
ROUTED TO	R5-7	6028.	15.35	3586.	997.	799.	32.28
HYDROGRAPH AT	3C	3632.	13.55	1408.	378.	303.	11.27
ROUTED TO	R4-7	3159.	14.35	1278.	335.	268.	11.27
HYDROGRAPH AT	3D	3044.	13.50	960.	240.	192.	6.51
3 COMBINED AT	C7	9053.	14.40	5304.	1469.	1177.	50.06
ROUTED TO	R7-90	8758.	14.80	5223.	1436.	1151.	50.06
HYDROGRAPH AT	3A	2925.	14.00	1289.	373.	300.	11.19
ROUTED TO	R6-90	2319.	16.10	1142.	330.	264.	11.19
2 COMBINED AT	C90	8875.	15.95	5943.	1697.	1360.	61.25
ROUTED TO	R90-8	8790.	16.25	5884.	1685.	1350.	61.25
HYDROGRAPH AT	3B	3140.	13.50	969.	242.	194.	6.42
2 COMBINED AT	C8	8915.	14.95	6333.	1873.	1501.	67.67

ROUTED TO	R8-9	8522.	16.65	5961.	1786.	1431.	67.67
HYDROGRAPH AT	3I	2046.	13.95	765.	194.	155.	5.10
2 COMBINED AT	C9	8614.	16.65	5961.	1934.	1550.	72.77
ROUTED TO	R9-10	7974.	18.90	5590.	1787.	1432.	72.77
HYDROGRAPH AT	3J	2882.	14.90	1397.	371.	298.	11.25
2 COMBINED AT	C10	8079.	18.90	5590.	2085.	1670.	84.02
ROUTED TO	R10-11	7849.	20.15	5497.	2030.	1627.	84.02
HYDROGRAPH AT	3L	1979.	13.15	514.	132.	106.	3.34
HYDROGRAPH AT	BDC11A	1431.	19.05	946.	238.	191.	339.24
ROUTED TO	11A-11	1424.	19.30	939.	238.	191.	339.24
3 COMBINED AT	C11I	9237.	20.10	6181.	2422.	1941.	87.36
ROUTED TO	C11O	9173.	20.15	6124.	2380.	1907.	87.36
ROUTED TO	R11-17	9095.	20.25	6072.	2341.	1876.	87.36
HYDROGRAPH AT	4A	3079.	14.05	1371.	399.	321.	11.75
ROUTED TO	R26-27	2608.	14.60	1136.	300.	241.	11.75
HYDROGRAPH AT	4B	2913.	13.35	836.	209.	168.	6.14
2 COMBINED AT	C27	3404.	13.55	1784.	483.	387.	17.89
ROUTED TO	R27-28	3144.	16.00	1675.	450.	361.	17.89
HYDROGRAPH AT	4C	3830.	14.20	1565.	400.	320.	12.33
2 COMBINED AT	C28	5031.	14.30	2955.	805.	645.	30.22
ROUTED TO	R28-29	4918.	14.60	2923.	792.	635.	30.22
HYDROGRAPH AT	4E	1631.	13.50	648.	183.	147.	4.88
ROUTED TO	R20-21	1495.	14.00	613.	163.	131.	4.88
HYDROGRAPH AT	4F	2626.	13.00	867.	242.	194.	6.16
2 COMBINED AT	C21	3159.	13.15	1388.	386.	310.	11.04
ROUTED TO	R21-23	3000.	13.75	1379.	381.	306.	11.04

HYDROGRAPH AT 4D	1400.	13.75	566.	153.	123.	4.57
ROUTED TO R22-23	1269.	14.45	546.	147.	118.	4.57
HYDROGRAPH AT 4G	2724.	13.25	938.	242.	194.	7.70
3 COMBINED AT C23	5670.	13.50	2633.	716.	574.	23.31
ROUTED TO R23-29	4973.	15.60	2374.	619.	496.	23.31
HYDROGRAPH AT 4J	2619.	13.75	907.	228.	183.	6.09
3 COMBINED AT C29	9294.	15.30	5581.	1511.	1210.	59.62
ROUTED TO R29-31	9013.	15.90	5384.	1435.	1150.	59.62
HYDROGRAPH AT 4K	1893.	13.55	607.	152.	122.	3.91
2 COMBINED AT C31	9099.	15.75	5753.	1552.	1244.	63.53
ROUTED TO R31-32	8791.	16.30	5518.	1464.	1173.	63.53
HYDROGRAPH AT 4H	2851.	13.30	1073.	303.	244.	6.11
ROUTED TO R24-25	2302.	16.30	1039.	290.	232.	6.11
HYDROGRAPH AT 4I	5001.	13.50	1926.	528.	424.	15.52
2 COMBINED AT C25	4918.	13.50	2765.	782.	629.	21.63
ROUTED TO R25-30	4252.	15.20	2648.	729.	584.	21.63
HYDROGRAPH AT 6A	4582.	13.40	1878.	523.	420.	9.04
ROUTED TO R39-40	4337.	13.95	1860.	515.	413.	9.04
HYDROGRAPH AT 6B	6008.	13.15	2185.	593.	476.	10.95
2 COMBINED AT C40	8551.	13.25	3847.	1060.	852.	19.99
DIVERSION TO DC40L	2827.	13.25	1454.	387.	310.	19.99
HYDROGRAPH AT DC40R	5724.	13.25	2392.	673.	542.	19.99
ROUTED TO 40R-30	5142.	15.00	2310.	630.	505.	19.99
HYDROGRAPH AT 4L	3312.	14.15	1339.	350.	281.	9.49
3 COMBINED AT C30	10427.	15.05	5648.	1579.	1266.	51.11
ROUTED TO R30-32	10062.	16.00	5581.	1550.	1242.	51.11

HYDROGRAPH AT	4M	1975.	13.25	537.	134.	108.	3.42
3 COMBINED AT	C32	17710.	16.00	10523.	2912.	2333.	118.06
DIVERSION TO	DC32L	6242.	16.00	3797.	1064.	853.	118.06
HYDROGRAPH AT	DC32R	11467.	16.00	6726.	1848.	1481.	118.06
ROUTED TO	R32-33	10878.	18.05	6443.	1748.	1401.	118.06
HYDROGRAPH AT	4N	2459.	14.60	1114.	290.	232.	7.61
2 COMBINED AT	C33	10987.	18.00	6730.	1973.	1581.	125.67
ROUTED TO	R33-34	10687.	19.25	6584.	1929.	1546.	125.67
HYDROGRAPH AT	4O	2173.	13.95	807.	204.	164.	5.50
2 COMBINED AT	C34I	10686.	19.25	6600.	2088.	1674.	131.17
ROUTED TO	C34O	10318.	19.40	6320.	1993.	1597.	131.17
DIVERSION TO	DC34R	6018.	19.40	2305.	576.	462.	131.17
HYDROGRAPH AT	DC34L	4300.	18.30	4016.	1417.	1135.	131.17
HYDROGRAPH AT	BDC32L	6242.	16.00	3797.	1064.	853.	118.06
ROUTED TO	32L-35	5891.	18.25	3616.	1004.	805.	118.06
HYDROGRAPH AT	5A	3034.	14.50	1348.	349.	280.	9.29
2 COMBINED AT	C35	5995.	18.15	3831.	1284.	1029.	127.35
ROUTED TO	R35-36	5685.	19.55	3659.	1205.	966.	127.35
HYDROGRAPH AT	5B	2156.	13.55	686.	172.	137.	4.88
2 COMBINED AT	C36	5685.	19.55	3663.	1337.	1072.	132.23
2 COMBINED AT	C36I	9638.	19.55	7341.	2608.	2090.	263.40
ROUTED TO	C36O	8713.	20.30	7129.	2573.	2062.	263.40
ROUTED TO	R36-37	8654.	20.45	7083.	2545.	2039.	263.40
DIVERSION TO	DC37L	4755.	20.65	4467.	1887.	1512.	263.40
HYDROGRAPH AT	DC37R	3910.	20.40	2617.	658.	528.	263.40
DIVERSION TO	DC37AL	3871.	20.40	2591.	652.	522.	263.4(

HYDROGRAPH AT	DC37AR	39.	20.40	26.	7.	5.	263.40
ROUTED TO	37A-17	37.	21.30	26.	7.	5.	263.40
HYDROGRAPH AT	BDC34R	6018.	19.40	2305.	576.	462.	131.17
ROUTED TO	R34-17	5990.	19.50	2287.	572.	458.	131.17
3 COMBINED AT	C17	12005.	20.30	7034.	2458.	1970.	350.76
ROUTED TO	R17-13	11994.	20.30	7019.	2445.	1959.	350.76
2 COMBINED AT	C13	12413.	20.30	7436.	2695.	2159.	350.76
ROUTED TO	13-13A	12186.	20.50	7281.	2624.	2103.	350.76
HYDROGRAPH AT	DC37AL	3871.	20.40	2591.	652.	522.	263.40
ROUTED TO	37L13A	3855.	20.80	2582.	652.	522.	263.40
2 COMBINED AT	C13A	15540.	20.55	9726.	3250.	2604.	350.76
ROUTED TO	13A-16	15032.	20.90	9395.	3114.	2496.	350.76
HYDROGRAPH AT	3M	2520.	12.90	568.	145.	116.	3.64
HYDROGRAPH AT	DC14R	6685.	19.35	3411.	854.	684.	339.24
ROUTED TO	R14-16	6180.	19.80	3104.	777.	622.	339.24
3 COMBINED AT	C16	19565.	20.80	12204.	3978.	3188.	354.40
HYDROGRAPH AT	BDC37L	4755.	20.65	4467.	1887.	1512.	263.40
ROUTED TO	R37-38	4669.	21.25	4388.	1842.	1476.	263.40
HYDROGRAPH AT	5C	1381.	12.95	321.	81.	65.	2.41
2 COMBINED AT	C38	4683.	21.20	4396.	1910.	1531.	242.09
HYDROGRAPH AT	6N	3207.	13.75	1111.	279.	224.	7.84
ROUTED TO	C53O	2188.	14.25	621.	221.	177.	7.84
ROUTED TO	R53-56	2079.	14.45	599.	209.	168.	7.84
ROUTED TO	R56-59	1811.	15.15	498.	158.	127.	7.84
HYDROGRAPH AT	6Q	1647.	13.05	402.	101.	81.	2.86
2 COMBINED AT	C59	1813.	15.20	823.	252.	202.	10.7(

HYDROGRAPH AT	BDC40L	2827.	13.25	1454.	387.	310.	19.99
ROUTED TO	40L-41	2760.	14.20	1437.	381.	305.	19.99
HYDROGRAPH AT	6C	3628.	13.05	1153.	294.	236.	8.83
2 COMBINED AT	C41	4392.	13.15	2433.	644.	516.	28.82
ROUTED TO	R41-43	4081.	15.35	2308.	611.	490.	28.82
HYDROGRAPH AT	6D	4768.	13.95	1887.	495.	397.	9.98
HYDROGRAPH AT	6E	3344.	13.85	1627.	476.	383.	7.12
ROUTED TO	R42-43	3076.	14.60	1589.	458.	367.	7.12
3 COMBINED AT	C43	9550.	14.60	5219.	1445.	1159.	45.92
ROUTED TO	R43-44	9125.	16.10	5111.	1406.	1127.	45.92
HYDROGRAPH AT	6F	1888.	14.15	768.	203.	163.	5.05
2 COMBINED AT	C44	9435.	16.00	5540.	1567.	1256.	50.97
ROUTED TO	R44-69	9328.	16.45	5483.	1549.	1242.	50.97
HYDROGRAPH AT	6H	1957.	13.95	754.	199.	160.	4.97
HYDROGRAPH AT	6I	3085.	13.55	1022.	273.	219.	6.97
2 COMBINED AT	C46	4442.	13.75	1692.	450.	361.	11.94
ROUTED TO	R46-69	4249.	14.35	1667.	443.	356.	11.94
2 COMBINED AT	C69	10194.	16.30	6634.	1916.	1537.	62.91
ROUTED TO	R69-47	10104.	16.65	6586.	1905.	1527.	62.91
HYDROGRAPH AT	6J	2227.	13.35	664.	172.	138.	4.47
2 COMBINED AT	C47	10104.	16.65	6692.	2036.	1633.	67.38
DIVERSION TO	DC47L	5052.	16.65	3346.	1018.	816.	67.38
HYDROGRAPH AT	DC47R	5052.	16.65	3346.	1018.	816.	67.38
ROUTED TO	47R-48	4941.	17.45	3287.	1001.	802.	67.38
HYDROGRAPH AT	6K	2579.	13.75	906.	228.	183.	5.95
2 COMBINED AT	C48	4966.	17.45	3459.	1185.	949.	73.3[illegible]

DIVERSION TO	DC48L	2483.	17.45	1729.	592.	475.	73.33
HYDROGRAPH AT	DC48R	2483.	17.45	1729.	592.	475.	73.33
ROUTED TO	48R-50	2314.	18.65	1621.	542.	435.	73.33
HYDROGRAPH AT	6G	2222.	14.40	955.	246.	197.	6.37
ROUTED TO	R45-50	1800.	16.80	839.	216.	173.	6.37
HYDROGRAPH AT	6L	2374.	14.15	960.	245.	196.	6.34
3 COMBINED AT	C50	3136.	17.20	2691.	914.	733.	86.04
ROUTED TO	R50-52	2359.	18.35	1961.	603.	483.	86.04
HYDROGRAPH AT	BDC47L	5052.	16.65	3346.	1018.	816.	67.38
ROUTED TO	47L-49	4831.	18.25	3223.	983.	788.	67.38
HYDROGRAPH AT	BDC48L	2483.	17.45	1729.	592.	475.	73.33
ROUTED TO	48L-49	2314.	18.65	1621.	542.	435.	73.33
HYDROGRAPH AT	6M	2160.	13.25	600.	151.	121.	3.86
3 COMBINED AT	C49	7036.	18.40	4777.	1636.	1311.	77.19
ROUTED TO	R49-51	6891.	19.50	4714.	1611.	1291.	77.19
HYDROGRAPH AT	6O	4355.	13.25	1200.	300.	240.	8.13
2 COMBINED AT	C51I	6891.	19.50	4714.	1865.	1495.	85.32
2 COMBINED AT	CPND1	8696.	19.40	6211.	2418.	1938.	98.03
ROUTED TO	PND1	8630.	19.55	6169.	2102.	1685.	98.03
DIVERSION TO	C52O	1217.	19.55	782.	245.	196.	98.03
HYDROGRAPH AT	C51O	7414.	19.55	5388.	1857.	1488.	98.03
ROUTED TO	R51-54	7401.	19.65	5380.	1850.	1483.	98.03
ROUTED TO	R54-57	7346.	19.90	5344.	1821.	1460.	98.03
HYDROGRAPH AT	BC52O	1217.	19.55	782.	245.	196.	98.03
ROUTED TO	R52-55	1207.	19.65	773.	240.	192.	98.03
ROUTED TO	R55-57	1181.	19.80	749.	226.	181.	98.03

HEC-1

File : NoCanal.OH1

Model without Gila Bend Canal in Place

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*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                                                    *    U.S. ARMY CORPS OF
E. ENTERS      *
 *              MAY   1991               *                                                    *    HYDROLOGIC ENGINEERING
CENT      *
 *            VERSION 4.0.1E             *                                                    *          609 SECOND
STREET          *
 *     Lahey F77L-EM/32 version 5.01     *                                                    *       DAVIS, CALIFORNIA
95616        *
 *       Dodson & Associates, Inc.       *                                                    *           (916) 551-1748
*
 *  RUN DATE  03/16/01  TIME  07:25:37   *                                                    *
*
 *****************************************
*****************************************
```

```
X     X  XXXXXXX   XXXXX          X
X     X  X        X     X        XX
X     X  X        X               X
XXXXXXX  XXXX     X       XXXXX   X
X     X  X        X               X
X     X  X        X     X         X
X     X  XXXXXXX   XXXXX         XXX
```

THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT
STRUCTURE.

THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77
VERSION

NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL LOSS RATE:GREEN AND AMPT INFILTRATION
KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1 HEC-1 INPUT PAGE 1

```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

  1           ID   FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
  2           ID   GILA BEND AREA DRAINAGE MASTER PLAN
  3           ID
  4           ID   EAST SIDE
  5           ID   Bender and Sand Tank Washes (Major Basins 1, 2, and 7)
  6           ID   Basin 7A broken down into three subbasins for floodplain delineation work by
  7           ID   EEC and Premier (6/14/00)
  8           ID   Quilotosa and Sauceda Washes (Major Basins 3, 4, 5, and 6)
  9           ID   Basin 3K broken down into three subbasins, 3KB, 3KC, and 3KD for floodplain d
 10           ID   work by EEC and Premier (6/14/00)
 11           ID
 12           ID   WEST SIDE     work by EEC and Premier (Aug/Sept 2000)
 13           ID   New Subbasin 3KA was added to existing Subbasin 3L.
 14           ID   Removed the Storage Routes to reflect the absence of the Gila Bend Canal, wit
 15           ID     the exception of the pond at C11 which was reduced to only include the borr
 16           ID   Removed Diversions at C12, C11A, and C34.
 17           ID   D/S of CP12 a new concentration point was added at CP14A, a new channel route
 18           ID     added (R12-14A), and a diversion (DC14AL) takes place at Unnamed No. 2 and
 19           ID     to limited conveyance through culverts, flow is diverted to CP11B.  D/S of
 20           ID     modifed channel route (R14A-14) conveys remaining flow in Unnamed No. 2 to
 21           ID   At CP11B routed flow 14B11A is routed back to C14.  Overtopping analysis of t
 22           ID     Railroad and I-8 frontage road indicate that the runoff will flow through t
 23           ID     overpass from CP11B back towards CP14.
 24           ID   New Diversion between Unnamed No. 6 and Sauceda Wash based on rating curve de
 25           ID     using HEC-RAS iterations of weir flow over canal and channel conveyance beh
 26           ID     canal.
 27           ID   A new diversion at the Railroad and Sauceda diverts flow back toward Unnamed
 28           ID     DC37R.  Then HEC-2 side weir is used to identify flow split over the canal.
 29           ID     this divert DC37AR reduces flow to CP99, with diverted flow DC37AL overtopp
```

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30          ID     and I-8 highway.  This diverted flow is routed (37L-13A) and joins flow in
31          ID     Wash at CP13A.
32          ID   Add a new divert at Hacker Wash just north of Pima Road.  The remaining flow
33          ID     in the diversion channel to join Quilotosa Wash at CP13, while the diverted
34          ID     sheet flow overland following the Original Hacker Wash alignment.
35          ID
36          ID   100-Year 24-Hour Duration Storm
37          ID
38          ID   04/06/92    Input Filenames from Burgess & Niple 1992 study:  B&ST24.H1 and S
39          ID   09/18/00    Modified Filename:  NoCanal.DAT
40          ID
41          ID        Green & AMPT Loss Rate Method
42          ID        S-Graph Unit Hydrograph
43          ID        Normal Depth Routing
            *
            *DIAGRAM
            *
44          IT       3 13MAR92    1200      600
45          IO       5
46          IN      15
            *
47          JD    4.53    0.01
48          PC   0.000   0.002   0.005   0.008   0.011   0.014   0.017   0.020   0.023   0.026
49          PC   0.029   0.032   0.035   0.038   0.041   0.044   0.048   0.052   0.056   0.060
50          PC   0.064   0.068   0.072   0.076   0.080   0.085   0.090   0.095   0.100   0.105
51          PC   0.110   0.115   0.120   0.126   0.133   0.140   0.147   0.155   0.163   0.173
```



```
LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

52          PC   0.181   0.191   0.203   0.218   0.236   0.257   0.283   0.487   0.663   0.707
53          PC   0.735   0.758   0.776   0.791   0.804   0.815   0.825   0.834   0.842   0.849
54          PC   0.856   0.863   0.869   0.875   0.881   0.887   0.893   0.898   0.903   0.908
55          PC   0.913   0.918   0.922   0.926   0.930   0.934   0.938   0.942   0.946   0.950
56          PC   0.953   0.956   0.959   0.962   0.965   0.968   0.971   0.974   0.977   0.980
57          PC   0.983   0.986   0.989   0.992   0.995   0.998   1.000
58          JD    4.44     5.0
59          JD    4.30    10.0
60          JD    4.00    50.0
61          JD    3.90    80.0
62          JD    3.85   100.0
63          JD    3.71   200.0
64          JD    3.53   500.0
            *
            *    ************************************
            *    *                START               *
            *    * START BENDER WASH (Major Basin 1) *
            *    *                                   *
            *    ************************************
            *

65          KK      1B
66          KM        SUB-BASIN 1B At C61
67          BA    2.10
68          LG    0.33    0.35    4.29    0.47    2.00
69          UI     106     106     106     106     106     314     364     405     482     512
70          UI     555     587     621     664     712     769     819     886    1016    1208
71          UI    1302    1382    1222    1104    1014     944     884     836     783     720
72          UI     665     626     579     533     502     457     403     303     277     187
73          UI     187     182     173     173     160     106     106     106     106     101
74          UI      32      32      32      32      32      32      32      32      32      32
75          UI      32      32      32      32      32      32       0       0       0       0
76          UI       0       0       0       0       0       0       0       0       0       0
            *

77          KK  R61-62
78          KM        Channel Route From C61 To C62
79          KM        Representative Of X-SECT. 1E1
80          RS       5    FLOW      -1
81          RC   0.060   0.046   0.060    3600   0.006
82          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
83          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
84          RL                    1.20    90.0
            *

85          KK      1C
86          KM        SUB-BASIN 1C
87          BA    3.83
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 88          LG    0.35    0.35    3.66    0.33    0.00
 89          UI     154     154     154     154     154     154     350     504     555     588
 90          UI     697     730     766     821     861     899     943     994    1054    1127
 91          UI    1180    1245    1365    1530    1791    1819    2071    1907    1728    1600
 92          UI    1497    1405    1333    1273    1214    1155    1077    1012     958     912
 93          UI     862     801     751     719     669     588     495     441     375     272
 94          UI     272     272     257     252     252     252     170     154     154     154
1                                          HEC-1 INPUT                                          PAGE  3

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 95          UI     154     154     112      47      47      47      47      47      47      47
 96          UI      47      47      47      47      47      47      47      47      47      47
 97          UI      47      47      47       0       0       0       0       0       0       0
 98          UI       0       0       0       0       0       0       0       0       0       0
             *

 99          KK      1A
100          KM        SUB-BASIN 1A
101          BA    2.10
102          LG    0.21    0.35    4.05    0.51   13.00
103          UI      73      73      73      73      73      73      73     150     210     210
104          UI     278     281     335     371     422     441     463     486     513     534
105          UI     552     571     592     635     701     758     832     933     826     668
106          UI     572     534     503     478     456     439     430     420     407     394
107          UI     381     367     359     349     338     331     310     303     294     285
108          UI     279     260     250     239     227     223     193     193     189     178
109          UI     178     176     168     168     168     152     152     152     138     120
110          UI     120     120     120      95      93      93      93      93      92      80
111          UI      80      80      80      80      80      72      56      56      56      56
112          UI      56      56      56      56      56      43      36      36      36      36
113          UI      36      36      36      36      36      36      36      36      36      36
114          UI      27      14      14      14      14      14      14      14      14      14
115          UI      14      14      14      14      14      14      14      14      14      14
116          UI      14      14      14      14      14      14      14      14      14      14
117          UI      14      14      14      14      14      14      14      14      14       0
118          UI       0       0       0       0       0       0       0       0       0       0
119          UI       0       0       0       0       0       0       0       0       0       0
             *

120          KK     C62
121          KM        Combine R61-62 + 1C + 1A
122          HC       3
             *

123          KK  R62-64
124          KM        Channel Route From C62 To C64
125          KM        X-SECT. 1E1
126          RS       8    FLOW      -1
127          RC   0.060   0.046   0.060    4800   0.006
128          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
129          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
130          RL                    1.38    90.0
             *

131          KK      1D
132          KM        SUB-BASIN 1D At C63
133          BA    0.34
134          LG    0.25    0.20    9.40    0.02   10.00
135          UI      34      34      59     113     159     206     237     263     314     401
136          UI     295     229     203     188     171     158     142     131     113      98
137          UI      86      81      76      70      56      51      43      41      37      37
138          UI      26      26      26      21      16      16      16      16      14       6
139          UI       6       6       6       6       6       6       6       6       6       6
140          UI       6       6       0       0       0       0       0       0       0       0
141          UI       0       0       0       0       0       0       0       0       0       0
             *
1                                          HEC-1 INPUT                                          PAGE  4

LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

142          KK  R63-64
143          KM        Channel Route From C63 To C64
144          KM        Representative Of X-SECT. 1L1
145          RS      29    FLOW      -1
146          RC   0.070   0.058   0.070   33400   0.019
147          RX  3914.5  4027.0  4038.0  4057.0  4070.0  4076.0  4103.0  5283.(
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148          RY   102.5    97.5    94.6    91.1    91.0    93.3    96.6   102.5
149          RL                    2.93    91.0
             *

150          KK     C64
151          KM        Combine R62-64 + R63-64
152          HC       2
             *

153          KK  R64-65
154          KM        Channel Route From C64 To C65
155          KM        Representative Of X-SECT. 1E1
156          RS       5    FLOW      -1
157          RC   0.060   0.046   0.060    2800   0.006
158          RX  3228.6  4300.0  4330.0  4347.0  4380.0  4393.0  4423.0  5423.0
159          RY    99.6    94.6    94.1    90.0    90.6    94.0    94.6    99.6
160          RL                    1.61    90.0
             *

161          KK      1E
162          KM        SUB-BASIN 1E
163          BA    3.91
164          LG    0.35    0.35    4.03    0.40    0.00
165          UI     139     139     139     139     139     139     139     366     455     493
166          UI     531     595     638     678     711     747     777     812     845     884
167          UI     930     985    1039    1076    1136    1237    1370    1573    1602    1831
168          UI    1822    1656    1538    1427    1351    1280    1215    1164    1119    1078
169          UI    1021     960     910     867     831     797     730     700     676     637
170          UI     589     531     457     398     394     245     245     245     245     229
171          UI     228     228     228     185     139     139     139     139     139     139
172          UI     120      42      42      42      42      42      42      42      42      42
173          UI      42      42      42      42      42      42      42      42      42      42
174          UI      42      42      42      42       0       0       0       0       0       0
175          UI       0       0       0       0       0       0       0       0       0       0
             *

176          KK      1F
177          KM        SUB-BASIN 1F
178          BA    5.55
179          LG    0.26    0.35    3.44    0.80   14.00
180          UI     170     170     170     170     170     170     170     170     350     488
181          UI     488     592     651     708     781     899     984    1028    1070    1112
182          UI    1162    1221    1260    1297    1337    1381    1468    1593    1687    1881
183          UI    2004    2189    1875    1535    1339    1261    1197    1144    1085    1042
184          UI    1018    1002     978     955     930     891     876     849     827     814
185          UI     785     779     724     721     685     685     652     651     599     583
186          UI     566     528     528     480     449     449     435     416     416     416
187          UI     392     391     391     380     355     355     355     335     279     279
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

188          UI     279     279     271     217     217     217     217     217     217     201
189          UI     186     186     186     186     186     186     186     140     130     130
190          UI     130     130     130     130     130     130     130     130      91      83
191          UI      83      83      83      83      83      83      83      83      83      83
192          UI      83      83      83      83      83      53      33      33      33      33
193          UI      33      33      33      33      33      33      33      33      33      33
194          UI      33      33      33      33      33      33      33      33      33      33
195          UI      33      33      33      33      33      33      33      33      33      33
196          UI      33      33      33      33      33      33      33      33      33       0
197          UI       0       0       0       0       0       0       0       0       0       0
198          UI       0       0       0       0       0       0       0       0       0       0
             *

199          KK     C65
200          KM        Combine R64-65 + 1E + 1F
201          HC       3
             *

202          KK  R65-67
203          KM        Channel Route From C65 To C67
204          KM        X-SECT. 1I1
205          RS       6    FLOW      -1
206          RC   0.060   0.038   0.060    6600   0.008
207          RX  3800.0  4300.0  4351.0  4375.0  4458.0  4468.0  4618.0  5068.2
208          RY    99.9    94.9    94.6    91.2    90.7    93.5    95.1    99.9
209          RL                    1.80    90.7
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                *

 210            KK      1J
 211            KM        SUB-BASIN 1J At C66
 212            BA    0.62
 213            LG    0.26    0.20    9.40    0.02    9.00
 214            UI      50      50      50     122     174     229     295     328     366     396
 215            UI     465     575     528     374     326     297     281     260     243     227
 216            UI     207     194     175     157     136     126     120     114     105      97
 217            UI      82      75      64      64      56      54      54      40      38      38
 218            UI      38      28      24      24      24      24      24      23      10      10
 219            UI      10      10      10      10      10      10      10      10      10      10
 220            UI      10      10      10      10       0       0       0       0       0       0
 221            UI       0       0       0       0       0       0       0       0       0       0
                *

 222            KK  R66-67
 223            KM        Channel Route From C66 To C67
 224            KM        X-SECT. 1I1
 225            RS      35    FLOW      -1
 226            RC   0.060   0.038   0.060   33600   0.016
 227            RX  3800.0  4300.0  4351.0  4375.0  4458.0  4468.0  4618.0  5068.2
 228            RY    99.9    94.9    94.6    91.2    90.7    93.5    95.1    99.9
 229            RL                    8.29    90.7
                *
1                                        HEC-1 INPUT                                                    PAGE  6

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 230            KK      1I
 231            KM        SUB-BASIN 1I
 232            BA    4.11
 233            LG    0.35    0.35    4.14    0.41    0.00
 234            UI     146     146     146     146     146     146     146     384     479     518
 235            UI     558     625     671     713     748     785     817     854     888     929
 236            UI     978    1035    1093    1131    1194    1301    1440    1654    1684    1925
 237            UI    1915    1740    1617    1500    1420    1345    1277    1224    1176    1133
 238            UI    1073    1009     956     911     873     838     767     736     711     670
 239            UI     619     558     480     419     414     258     258     258     258     241
 240            UI     239     239     239     195     146     146     146     146     146     146
 241            UI     126      45      45      45      45      45      45      45      45      45
 242            UI      45      45      45      45      45      45      45      45      45      45
 243            UI      45      45      45      45       0       0       0       0       0       0
 244            UI       0       0       0       0       0       0       0       0       0       0
                *

 245            KK     C67
 246            KM        Combine R66-67 + 1I
 247            HC       3
                *

 248            KK  R67-71
 249            KM        Channel Route From C67 To C71
 250            KM        Representative Of X-SECT. 1I1
 251            RS       2    FLOW      -1
 252            RC   0.060   0.038   0.060    2200   0.006
 253            RX  3800.0  4300.0  4351.0  4375.0  4458.0  4468.0  4618.0  5068.2
 254            RY    99.9    94.9    94.6    91.2    90.7    93.5    95.1    99.9
 255            RL                    1.74    90.7
                *

 256            KK      1G
 257            KM        SUB-BASIN 1G At C70
 258            BA    3.78
 259            LG    0.27    0.35    2.86    1.02   21.00
 260            UI     131     131     131     131     131     131     131     270     377     377
 261            UI     500     507     604     667     759     794     834     874     923     961
 262            UI     993    1028    1066    1143    1261    1365    1498    1679    1487    1202
 263            UI    1030     962     906     860     820     791     774     756     732     710
 264            UI     686     661     646     629     609     595     559     546     529     514
 265            UI     503     469     450     430     408     402     347     347     340     321
 266            UI     321     316     302     302     302     274     274     274     248     216
 267            UI     216     216     216     171     168     168     168     168     165     144
 268            UI     144     144     144     144     144     130     101     101     101     101
 269            UI     101     101     101     101     101      78      64      64      64      64
 270            UI      64      64      64      64      64      64      64      64      64      64
 271            UI      48      25      25      25      25      25      25      25      25      2!
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 272          UI      25      25      25      25      25      25      25      25      25      25
 273          UI      25      25      25      25      25      25      25      25      25      25
 274          UI      25      25      25      25      25      25      25      25      25       0
 275          UI       0       0       0       0       0       0       0       0       0       0
 276          UI       0       0       0       0       0       0       0       0       0       0
              *
1                                          HEC-1 INPUT                                          PAGE  7

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 277          KK  R70-71
 278          KM        Channel Route From C70 To C71
 279          KM        X-SECT. 1H1
 280          RS      20    FLOW      -1
 281          RC   0.060   0.038   0.080   20400   0.013
 282          RX  3919.1  4208.0  4286.0  4291.0  4321.0  4326.0  4336.0  4346.0
 283          RY    96.6    91.6    92.0    90.8    90.6    92.0    95.0    98.0
 284          RL                    1.59    90.6
              *

 285          KK      1H
 286          KM        SUB-BASIN 1H
 287          BA    6.77
 288          LG    0.29    0.35    3.51    0.87   13.00
 289          UI     200     200     200     200     200     200     200     200     297     575
 290          UI     575     617     766     766     911     929    1150    1181    1215    1277
 291          UI    1331    1388    1446    1485    1533    1580    1630    1733    1876    1984
 292          UI    2195    2346    2602    2246    1902    1603    1512    1437    1353    1299
 293          UI    1255    1210    1182    1167    1150    1101    1080    1045    1017    1000
 294          UI     963     956     920     909     852     847     807     807     769     766
 295          UI     714     686     679     621     621     594     529     529     529     490
 296          UI     489     489     477     460     460     460     434     418     418     418
 297          UI     379     328     328     328     328     320     255     255     255     255
 298          UI     255     255     245     219     219     219     219     219     219     219
 299          UI     199     153     153     153     153     153     153     153     153     153
 300          UI     153     153     103      98      98      98      98      98      98      98
 301          UI      98      98      98      98      98      98      98      98      98      95
 302          UI      38      38      38      38      38      38      38      38      38      38
 303          UI      38      38      38      38      38      38      38      38      38      38
 304          UI      38      38      38      38      38      38      38      38      38      38
 305          UI      38      38      38      38      38      38      38      38      38      38
 306          UI      38      38      38      38      38       0       0       0       0       0
 307          UI       0       0       0       0       0       0       0       0       0       0
              *

 308          KK    C71R
 309          KM        Combine R70-71 + 1H
 310          HC       2
              *

 311          KK      1K
 312          KM        SUB-BASIN 1K At C68
 313          BA    1.08
 314          LG    0.25    0.20    9.40    0.02   10.00
 315          UI      58      58      58      58      76     166     193     231     277     338
 316          UI     360     388     420     441     466     524     595     691     669     479
 317          UI     424     384     358     343     331     313     298     285     273     261
 318          UI     244     233     222     206     194     179     161     153     143     141
 319          UI     134     133     123     121     108      95      95      83      74      74
 320          UI      74      66      63      63      63      57      44      44      44      44
 321          UI      44      43      28      28      28      28      28      28      28      28
 322          UI      28      25      11      11      11      11      11      11      11      11
 323          UI      11      11      11      11      11      11      11      11      11      11
 324          UI      11      11      11      11      11      11      11       0       0       0
1                                          HEC-1 INPUT                                          PAGE  8

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 325          UI       0       0       0       0       0       0       0       0       0       0
              *

 326          KK  R68-71
 327          KM        Channel Route From C68 To C71
 328          KM        X-SECT. 1L1
 329          RS      20    FLOW      -1
 330          RC   0.070   0.058   0.070   29400   0.017
 331          RX  3914.5  4027.0  4038.0  4057.0  4070.0  4076.0  4103.0  5283.(
```

```
332          RY   102.5    97.5    94.6    91.1    91.0    93.3    96.6   102.5
333          RL                    2.19    91.0
             *

334          KK      1L
335          KM        SUB-BASIN 1L
336          BA    4.69
337          LG    0.33    0.39    5.67    0.20    2.00
338          UI     144     144     144     144     144     144     144     144     329     472
339          UI     472     550     550     638     660     701     718     768     793     812
340          UI     847     880     912     949    1001    1058    1092    1125    1188    1281
341          UI    1398    1499    1738    1729    1935    1865    1709    1604    1511    1425
342          UI    1359    1301    1250    1204    1162    1125    1083    1027     971     926
343          UI     893     864     825     777     749     702     689     660     608     550
344          UI     512     413     413     358     254     254     254     254     243     236
345          UI     236     236     236     195     144     144     144     144     144     144
346          UI     144     142      44      44      44      44      44      44      44      44
347          UI      44      44      44      44      44      44      44      44      44      44
348          UI      44      44      44      44      44      44      44      44      44       0
349          UI       0       0       0       0       0       0       0       0       0       0
350          UI       0       0       0       0       0       0       0       0       0       0
             *

351          KK    C71L
352          KM        Combine R68-71 + 1L
353          HC       2
             *

354          KK     C71
355          KM        Combine R67-71 + C71R(R70-71 + 1H) + C71L(R68-71 + 1L)
356          HC       3
             *

357          KK  R71-73
358          KM        Channel Route From C71 To C73
359          KM        Representative Of X-SECT. 1P1
360          RS       6    FLOW      -1
361          RC   0.060   0.050   0.060    7000   0.008
362          RX  3668.7  4142.0  4202.0  4208.0  4253.0  4276.0  4405.0  5131.9
363          RY    99.5    94.5    94.0    91.5    91.5    94.3    94.1    99.5
364          RL                    1.10    91.5
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

365          KK      1M
366          KM        SUB-BASIN 1M At C72
367          BA    2.19
368          LG    0.25    0.20    9.40    0.02   10.00
369          UI     117     117     117     117     154     336     391     469     563     685
370          UI     730     786     852     894     945    1062    1208    1402    1357     971
371          UI     860     779     727     695     672     635     605     578     554     529
372          UI     496     472     451     418     392     364     326     309     290     286
373          UI     271     269     250     245     220     192     192     169     150     150
374          UI     150     133     128     128     128     115      90      90      90      90
375          UI      90      88      57      57      57      57      57      57      57      57
376          UI      57      51      22      22      22      22      22      22      22      22
377          UI      22      22      22      22      22      22      22      22      22      22
378          UI      22      22      22      22      22      22      22       0       0       0
379          UI       0       0       0       0       0       0       0       0       0       0
             *

380          KK  R72-73
381          KM        Channel Route From C72 To C73
382          KM        X-SECT. 1N1
383          RS      32    FLOW      -1
384          RC   0.060   0.048   0.060   28600   0.017
385          RX  3760.9  4093.0  4156.0  4162.0  4207.0  4237.0  4366.0  5786.0
386          RY   101.5    96.5    93.4    91.7    92.3    94.4    94.4   101.5
387          RL                    1.99    91.7
             *

388          KK      1N
389          KM        SUB-BASIN 1N
390          BA    2.75
391          LG    0.35    0.35    4.18    0.49    0.0(
```

```
392          UI     114     114     114     114     114     114     321     376     432     463
393          UI     526     557     594     626     654     687     724     769     823     867
394          UI     907    1001    1116    1316    1342    1539    1421    1286    1186    1109
395          UI    1037     987     936     895     845     787     739     699     664     615
396          UI     577     551     526     446     407     329     312     202     202     202
397          UI     193     188     188     188     126     114     114     114     114     114
398          UI      65      35      35      35      35      35      35      35      35      35
399          UI      35      35      35      35      35      35      35      35      35      35
400          UI       0       0       0       0       0       0       0       0       0       0
401          UI       0       0       0       0       0       0       0       0       0       0
             *

402          KK     C73
403          KM        Combine R71-73 + RR72-73 + 1N
404          HC       3
             *

405          KK  R73-74
406          KM        Channel Route From C73 To C74
407          KM        X-SECT. 1P1
408          RS      13    FLOW      -1
409          RC   0.060   0.050   0.060   13400   0.007
410          RX  3668.7  4142.0  4202.0  4208.0  4253.0  4276.0  4405.0  5131.9
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

411          RY    99.5    94.5    94.0    91.5    91.5    94.3    94.1    99.5
412          RL                    1.43    91.5
             *

413          KK      1P
414          KM        SUB-BASIN 1P
415          BA    4.56
416          LG    0.35    0.35    4.07    0.54    0.00
417          UI     140     140     140     140     140     140     140     140     320     459
418          UI     459     535     535     621     642     682     698     747     771     790
419          UI     823     856     886     922     973    1028    1061    1094    1155    1245
420          UI    1360    1457    1690    1681    1882    1813    1661    1559    1470    1385
421          UI    1322    1265    1215    1170    1130    1094    1053     999     944     901
422          UI     868     840     803     755     728     683     670     642     591     535
423          UI     498     401     401     348     247     247     247     247     237     229
424          UI     229     229     229     189     140     140     140     140     140     140
425          UI     140     138      43      43      43      43      43      43      43      43
426          UI      43      43      43      43      43      43      43      43      43      43
427          UI      43      43      43      43      43      43      43      43      43       0
428          UI       0       0       0       0       0       0       0       0       0       0
429          UI       0       0       0       0       0       0       0       0       0       0
             *

430          KK      1O
431          KM        SUB-BASIN 1O
432          BA    5.23
433          LG    0.28    0.35    3.67    0.69   10.00
434          UI     132     132     132     132     132     132     132     132     132     132
435          UI     332     381     381     413     508     508     568     609     667     761
436          UI     786     801     842     862     896     941     964     983    1015    1039
437          UI    1065    1102    1173    1269    1321    1442    1532    1654    1652    1435
438          UI    1189    1057    1010     952     914     888     846     821     801     783
439          UI     778     761     748     725     708     692     675     662     648     634
440          UI     624     609     601     564     564     541     534     527     508     508
441          UI     476     455     455     427     412     412     390     350     350     350
442          UI     337     324     324     324     318     305     305     305     305     280
443          UI     277     277     277     276     218     218     218     218     218     218
444          UI     179     169     169     169     169     169     169     169     149     145
445          UI     145     145     145     145     145     145     145     123     102     102
446          UI     102     102     102     102     102     102     102     102     102     102
447          UI      94      65      65      65      65      65      65      65      65      65
448          UI      65      65      65      65      65      65      65      65      65      65
449          UI      65      50      25      25      25      25      25      25      25      25
450          UI      25      25      25      25      25      25      25      25      25      25
451          UI      25      25      25      25      25      25      25      25      25      25
452          UI      25      25      25      25      25      25      25      25      25      25
453          UI      25      25      25      25      25      25      25      25      25      25
454          UI      25      25      25      25       0       0       0       0       0       0
455          UI       0       0       0       0       0       0       0       0       0       0
             *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 456          KK     C74
 457          KM        Combine R73-74 + 1P + 1O
 458          HC       3
              *

 459          KK  R74-77
 460          KM        Channel Route From C74 To C77
 461          KM        X-SECT. 1U1
 462          RS      25    FLOW      -1
 463          RC   0.050   0.039   0.050   29800   0.011
 464          RX  3469.0  4354.0  4597.0  4609.0  4776.0  4785.0  4875.0  5931.0
 465          RY    98.3    93.3    93.1    90.9    89.3    92.7    92.6    98.3
 466          RL                    2.81    89.3
              *

 467          KK      1U
 468          KM        SUB-BASIN 1U
 469          BA    3.19
 470          LG    0.35    0.35    3.21    0.93    0.00
 471          UI      92      92      92      92      92      92      92      92      98     302
 472          UI     302     317     352     352     419     423     449     457     491     503
 473          UI     515     539     553     571     601     624     652     683     704     726
 474          UI     770     827     899     953    1123    1084    1226    1211    1127    1045
 475          UI     987     937     893     855     821     790     763     739     717     692
 476          UI     659     621     597     577     556     533     516     480     463     449
 477          UI     430     422     369     352     315     264     264     234     162     162
 478          UI     162     162     160     151     151     151     151     151     106      92
 479          UI      92      92      92      92      92      92      92      41      28      28
 480          UI      28      28      28      28      28      28      28      28      28      28
 481          UI      28      28      28      28      28      28      28      28      28      28
 482          UI      28      28      28      28      28      28       0       0       0       0
 483          UI       0       0       0       0       0       0       0       0       0       0
              *

 484          KK    C77R
 485          KM        Combine R74-77 + 1U
 486          HC       2
              *

 487          KK      1Q
 488          KM        SUB-BASIN 1Q At C75
 489          BA    5.30
 490          LG    0.31    0.38    6.96    0.15    4.00
 491          UI     142     142     142     142     142     142     142     142     142     252
 492          UI     465     465     496     543     543     638     651     684     693     745
 493          UI     758     794     806     835     864     885     931     965    1002    1051
 494          UI    1083    1111    1161    1237    1333    1436    1604    1649    1742    1914
 495          UI    1857    1734    1616    1532    1458    1393    1337    1286    1242    1202
 496          UI    1163    1126    1097    1055    1012     958     922     897     857     833
 497          UI     814     748     738     693     690     651     651     546     543     482
 498          UI     407     407     393     251     251     251     251     251     239     233
 499          UI     233     233     233     233     165     142     142     142     142     142
 500          UI     142     142     142     133      43      43      43      43      43      43
 501          UI      43      43      43      43      43      43      43      43      43      43
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 502          UI      43      43      43      43      43      43      43      43      43      43
 503          UI      43      43      43      43      43       0       0       0       0       0
 504          UI       0       0       0       0       0       0       0       0       0       0
              *

 505          KK  R75-76
 506          KM        Channel Route From C75 To C76
 507          KM        Representative Of X-SECT. 1T1
 508          RS       3    FLOW      -1
 509          RC   0.060   0.052   0.060    3200   0.013
 510          RX  3928.3  4099.0  4162.0  4170.0  4210.0  4234.0  4259.0  4564.4
 511          RY    99.1    94.1    94.2    93.0    92.7    94.6    93.4    99.1
 512          RL                    1.51    92.7
              *

 513          KK      1R
```

```
514          KM        SUB-BASIN 1R
515          BA    2.90
516          LG    0.25     0.35     4.18     0.47    13.00
517          UI     122      122      122      122      122      122      320      351      437      480
518          UI     561      674      729      768      815      870      911      948      989     1083
519          UI    1196     1349     1517     1399     1075      926      860      806      761      730
520          UI     712      690      661      637      610      589      572      553      520      499
521          UI     486      468      436      419      385      379      329      323      309      299
522          UI     297      281      281      271      255      255      230      201      201      201
523          UI     168      156      156      156      156      135      134      134      134      134
524          UI     120       94       94       94       94       94       94       94       82       60
525          UI      60       60       60       60       60       60       60       60       60       60
526          UI      60       31       23       23       23       23       23       23       23       23
527          UI      23       23       23       23       23       23       23       23       23       23
528          UI      23       23       23       23       23       23       23       23       23       23
529          UI      23       23       23        0        0        0        0        0        0        0
530          UI       0        0        0        0        0        0        0        0        0        0
             *

531          KK     C76
532          KM        Combine R75-76 + 1R
533          HC       2
             *

534          KK  R76-77
535          KM        Channel Route From C76 To C77
536          KM        X-SECT. 1T1
537          RS      34    FLOW      -1
538          RC   0.060    0.052    0.060    34600    0.011
539          RX  3928.3   4099.0   4162.0   4170.0   4210.0   4234.0   4259.0   4564.4
540          RY    99.1     94.1     94.2     93.0     92.7     94.6     93.4     99.1
541          RL                     2.11     92.7
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

542          KK      1T
543          KM        SUB-BASIN 1T
544          BA    4.67
545          LG    0.32     0.35     3.68     0.69     6.00
546          UI     111      111      111      111      111      111      111      111      111      111
547          UI     139      364      364      364      412      424      424      506      509      529
548          UI     542      560      592      602      621      634      653      672      688      720
549          UI     734      772      800      825      849      869      899      946     1019     1094
550          UI    1146     1344     1238     1393     1498     1463     1373     1296     1230     1173
551          UI    1123     1080     1042     1008      978      943      917      896      876      849
552          UI     814      790      749      727      707      677      669      637      629      579
553          UI     577      542      542      515      509      471      424      424      359      318
554          UI     318      318      217      196      196      196      196      196      186      182
555          UI     182      182      182      182      178      111      111      111      111      111
556          UI     111      111      111      111      111       98       34       34       34       34
557          UI      34       34       34       34       34       34       34       34       34       34
558          UI      34       34       34       34       34       34       34       34       34       34
559          UI      34       34       34       34       34       34       34       34       34       34
560          UI      34        0        0        0        0        0        0        0        0        0
561          UI       0        0        0        0        0        0        0        0        0        0
             *

562          KK    C77L
563          KM        Combine R76-77 + 1T
564          HC       2
             *

565          KK     C77
566          KM        Combine C77R(R74-77 + 1U) + C77L(R76-77 + 1T)
567          HC       2
             *

568          KK  R77-79
569          KM        Channel Route From C77 To C79
570          KM        X-SECT. 1W1
571          RS       6    FLOW      -1
572          RC   0.050    0.034    0.070     8400    0.008
573          RX  3116.0   4116.0   4199.0   4210.0   4307.0   4318.0   4372.0   4427.0
574          RY    96.6     91.6     91.0     88.9     88.3     91.1     93.9     98.9
575          RL                     1.53     88.3
```

```
                *

 576            KK      1W
 577            KM        SUB-BASIN 1W
 578            BA    0.53
 579            LG    0.29    0.35    3.44    0.81    7.00
 580            UI      34      34      34      35     113     128     152     168     187     199
 581            UI     216     237     260     286     338     407     454     396     348     315
 582            UI     289     269     243     221     203     183     166     149     122      99
 583            UI      64      61      58      56      51      34      34      34      29      11
 584            UI      11      11      11      11      11      11      11      11      11      11
 585            UI      11       0       0       0       0       0       0       0       0       0
 586            UI       0       0       0       0       0       0       0       0       0       0
                *
1                                        HEC-1 INPUT                                          PAGE 14

LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


 587            KK  C79RUP
 588            KM        Combine R77-79 + 1W
 589            HC       2
                *

 590            KK      1S
 591            KM        SUB-BASIN 1S At C78
 592            BA    4.77
 593            LG    0.25    0.35    3.52    0.78    9.00
 594            UI     138     138     138     138     138     138     138     138     166     398
 595            UI     398     400     531     531     604     637     758     805     838     873
 596            UI     903     939     995    1021    1048    1078    1111    1158    1248    1344
 597            UI    1439    1562    1680    1750    1496    1195    1082    1024     976     936
 598            UI     885     855     835     817     803     792     758     742     724     699
 599            UI     692     663     660     637     627     590     586     559     559     533
 600            UI     531     498     475     475     430     430     421     366     366     366
 601            UI     345     339     339     336     318     318     318     310     289     289
 602            UI     289     288     227     227     227     227     227     196     177     177
 603            UI     177     177     177     177     160     152     152     152     152     152
 604            UI     152     152     127     106     106     106     106     106     106     106
 605            UI     106     106     106     106      70      68      68      68      68      68
 606            UI      68      68      68      68      68      68      68      68      68      68
 607            UI      68      68      36      27      27      27      27      27      27      27
 608            UI      27      27      27      27      27      27      27      27      27      27
 609            UI      27      27      27      27      27      27      27      27      27      27
 610            UI      27      27      27      27      27      27      27      27      27      27
 611            UI      27      27      27      27      27      27      27      27       0       0
 612            UI       0       0       0       0       0       0       0       0       0       0
                *

 613            KK   DC78R
 614            KM         Main flow at C78 is in the right channel (DC78R)
 615            KM         Diverted flow (DQ record) goes into the left channel (DC78L)
 616            DT   DC78L
 617            DI     0.0    25.0   270.0  1115.0  3200.0  7100.0 11900.0 18200.0
 618            DQ     0.0     0.0    90.0   390.0  1400.0  3700.0  6900.0 11000.0
                *

 619            KK  78R-79
 620            KM        Channel Route From C78 To C79
 621            KM        Representative Of X-SECT. 1W1
 622            RS      13    FLOW      -1
 623            RC   0.050   0.034   0.070   18200   0.009
 624            RX  3116.0  4116.0  4199.0  4210.0  4307.0  4318.0  4372.0  4427.0
 625            RY    96.6    91.6    91.0    88.9    88.3    91.1    93.9    98.9
 626            RL                    8.51    88.3
                *

 627            KK      1V
 628            KM        SUB-BASIN S1V
 629            BA    2.16
 630            LG    0.29    0.35    3.73    0.67    6.00
 631            UI      98      98      98      98      98     172     323     355     386     452
 632            UI     478     513     543     570     601     638     686     737     769     845
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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

 633            UI     953    1131    1177    1311    1183    1069     984     918     858     81(
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```
634          UI     772     728     675     630     592     559     513     481     456     404
635          UI     362     283     263     174     174     174     162     161     161     129
636          UI      98      98      98      98      98      41      30      30      30      30
637          UI      30      30      30      30      30      30      30      30      30      30
638          UI      30      30      30       0       0       0       0       0       0       0
639          UI       0       0       0       0       0       0       0       0       0       0
             *

640          KK  C79LUP
641          KM        Combine R78R-79 + 1V
642          HC       2
             *

643          KK     C79
644          KM        Combine C79RUP(R77-79 + 1W) + C79LUP(R78R-79 + 1V)
645          HC       2
             *

646          KK   DC79R
647          KM         Main flow at C79 is in the right channel (DC79R)
648          KM         Diverted flow (DQ record) goes into the left channel (DC79L)
649          DT   DC79L
650          DI     0.0   110.0   400.0   500.0  1700.0  5000.0 10300.0 19700.0
651          DQ     0.0   110.0   400.0   485.0  1300.0  3100.0  5500.0  9400.0
             *

652          KK  79R-81
653          KM        Channel Route From C79R To C81
654          KM        X-SECT. 1X1
655          RS      12    FLOW      -1
656          RC   0.050   0.040   0.060   17000   0.010
657          RX  3762.5  4075.0  4162.0  4172.0  4223.0  4239.0  4260.0  4480.8
658          RY   100.6    95.6    94.8    91.9    92.0    93.9    92.7   100.6
659          RL                   1.76    91.9
             *

660          KK  BDC79L
661          KM        Bring Back Flow Split Diverted Hydrograph DC79L
662          DR   DC79L
             *

663          KK  79L-80
664          KM        Channel Route From C79L To C80
665          KM        Representative Of X-SECT. 1X1
666          RS       4    FLOW      -1
667          RC   0.050   0.040   0.060    5200   0.009
668          RX  3762.5  4075.0  4162.0  4172.0  4223.0  4239.0  4260.0  4480.8
669          RY   100.6    95.6    94.8    91.9    92.0    93.9    92.7   100.6
670          RL                   1.93    91.9
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

671          KK   DC80R
672          KM         Main flow at C80 is in the right channel (C80R)
673          KM         Diverted flow (DQ record) goes into the left channel (C80L)
674          DT   DC80L
675          DI     0.0   170.0  1300.0  2500.0  4950.0  5275.0 11240.0
676          DQ     0.0   170.0  1300.0  2500.0  4900.0  5200.0 10900.0
             *

677          KK  80R-81
678          KM        Channel Route From C80R To C81
679          KM        Representative Of X-SECT. 1X1
680          RS      25    FLOW      -1
681          RC   0.050   0.040   0.060   12600   0.009
682          RX  3762.5  4075.0  4162.0  4172.0  4223.0  4239.0  4260.0  4480.8
683          RY   100.6    95.6    94.8    91.9    92.0    93.9    92.7   100.6
684          RL                   7.87    91.9
             *

685          KK      1X
686          KM        Basin 1X
687          KM    Lag Used =  66.0 minutes
688          KM    The Phoenix Valley S-Graph was used for this basin.
689          BA    2.62
```

```
690          LG    0.35    0.35    3.94    0.58    0.00
691          UI     121     121     121     121     121     232     397     443     485     557
692          UI     591     640     673     707     747     800     860     914     964    1069
693          UI    1214    1407    1543    1573    1402    1276    1180    1096    1036     979
694          UI     936     860     801     752     711     657     611     578     541     463
695          UI     382     347     246     214     214     205     199     199     184     121
696          UI     121     121     121     121      71      37      37      37      37      37
697          UI      37      37      37      37      37      37      37      37      37      37
698          UI      37      37       0       0       0       0       0       0       0       0
699          UI       0       0       0       0       0       0       0       0       0       0
             *

700          KK     C81
701          KM        Combine R79R-81 + R80R-81 + 1X
702          KM        Area: 77.13sm, 1X=2.62sm
703          HC       3   79.75
             *

704          KK   DC81R
705          KM         Main flow at C81 is in the right channel (C81R)
706          KM         Diverted flow (DQ record) goes into the left channel (C81L)
707          DT   DC81L
708          DI     0.0     50.0    110.0    655.0  3060.0  9600.0 16600.0
709          DQ     0.0     50.0     95.0    580.0  2600.0  6200.0  9600.0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

710          KK  81R-82
711          KM        Channel Route From C81R To C82
712          KM        X-SECT. 1Y2
713          RS      37    FLOW      -1
714          RC   0.050   0.041   0.050   23400   0.008
715          RX  3316.7  4150.0  4322.0  4328.0  4344.0  4349.0  4458.0  5043.8
716          RY    99.8    94.8    94.7    92.2    92.0    93.8    93.0    99.8
717          RL                    0.95    92.0
             *

718          KK  BDC81L
719          KM        Bring Back Flow Split Diverted Hydrograph DC81L
720          DR   DC81L
             *

721          KK  81L-82
722          KM        Channel Route From C81L To C82
723          KM        X-SECT. 1Y1
724          RS      32    FLOW      -1
725          RC   0.050   0.036   0.060   24000   0.008
726          RX  3804.0  4294.0  4315.0  4325.0  4362.0  4370.0  4412.0  5892.0
727          RY   101.2    96.2    96.3    93.6    93.4    95.2    93.8   101.2
728          RL                    1.26    93.4
             *

729          KK      1Y
730          KM        Basin 1Y
731          KM    Lag Used =  91.0 minutes
732          KM    The Phoenix Valley S-Graph was used for this basin.
733          BA    5.32
734          LG    0.35    0.35    3.91    0.60    0.00
735          UI     179     179     179     179     179     179     179     316     589     589
736          UI     687     687     824     841     877     939     974    1005    1055    1094
737          UI    1141    1196    1262    1335    1380    1438    1558    1710    1845    2152
738          UI    2173    2423    2266    2096    1935    1826    1732    1637    1567    1504
739          UI    1448    1397    1330    1255    1192    1138    1084    1039     983     934
740          UI     877     852     824     714     687     549     515     489     317     317
741          UI     317     317     299     294     294     294     279     179     179     179
742          UI     179     179     179     179     121      55      55      55      55      55
743          UI      55      55      55      55      55      55      55      55      55      55
744          UI      55      55      55      55      55      55      55      55      55       0
745          UI       0       0       0       0       0       0       0       0       0       0
746          UI       0       0       0       0       0       0       0       0       0       0
             *

747          KK     C82
748          KM        Combine R81R-82 + R81L-82 + 1Y At Interstate 8
749          KM        Area: 79.75sm, 1Y=5.32sm
```

```
750          HC       3   85.07
             *
             * DC82R modified by Premier Engineering Corp. 8/15/00 to reflect results of
             * hydraulic analysis
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

751          KK   DC82R
752          KM         Main flow at CP82 is in the right channel (C82R) and passes under I-8.
753          KM         Diverted flow (DQ record) goes into the left channel (C82L) and runs
754          KM         west along the south side of I-8 to C132 at Sand Tank Wash.
755          DT   DC82L
             * DI   0.0    4465    5508    6900
             * DQ   0.0     0.0     500    1350
756          DI       0    2100    3000    4000    5000    5530    6000
757          DQ       0     887    1536    2380    3278    3298    4171
             *

758          KK  82-135
759          KM        Channel Route From C82 To C135I
760          KM        Bender Wash HEC-2 Section 1.172
761          RS       6    FLOW      -1
762          RC   0.030   0.035   0.030    7000   0.006
763          RX  9361.4 10095.4 10469.3 10482.5 10645.3 10695.3 10747.9 10999.7
764          RY   757.5   752.5   751.5   748.5   751.1   751.6   752.2   757.5
765          RL                    2.63   748.5
             *

766          KK     2VV
767          KM        SUB-BASIN 2VV
768          BA    3.74
769          LG    0.34    0.34    3.49    0.79    4.00
770          UI     138     138     138     138     138     138     146     455     455     523
771          UI     539     637     659     686     740     770     800     834     874     922
772          UI     978    1036    1074    1137    1242    1388    1622    1608    1853    1767
773          UI    1615    1486    1396    1309    1245    1189    1134    1089    1039     974
774          UI     919     873     834     796     733     699     673     637     574     530
775          UI     429     398     346     245     245     245     238     227     227     227
776          UI     214     138     138     138     138     138     138     122      42      42
777          UI      42      42      42      42      42      42      42      42      42      42
778          UI      42      42      42      42      42      42      42      42      42      42
779          UI       0       0       0       0       0       0       0       0       0       0
780          UI       0       0       0       0       0       0       0       0       0       0
             *

781          KK   C135I
782          KM        Combine R82-135 + 2VV At The Gila Bend Canal
783          KO                                      21
784          HC       2
             *
             *
             *    ******************************************************
             *    *                        END                         *
             *    * BENDER WASH (Major Basin 1) At The Gila Bend Canal *
             *    *                                                    *
             *    ******************************************************
             *
             *
             *    ***********************************
             *    *              START              *
             *    * SAND TANK WASH (Major Basin 2) *
             *    *                                 *
             *    ***********************************
             *
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

785          KK      2D
786          KM        SUB-BASIN 2D At C87
787          BA    1.75
788          LG    0.25    0.20    9.40    0.02   10.00
789          UI      92      92      92      92     108     265     299     360     428     53!
```

```
790          UI     569     609     661     695     735     805     917    1056    1130     841
791          UI     691     636     585     552     536     512     486     464     444     426
792          UI     399     379     364     348     316     295     281     243     239     225
793          UI     222     212     209     192     192     161     151     151     125     118
794          UI     118     118     102     101     101     101      87      71      71      71
795          UI      71      71      69      45      45      45      45      45      45      45
796          UI      45      45      44      18      18      18      18      18      18      18
797          UI      18      18      18      18      18      18      18      18      18      18
798          UI      18      18      18      18      18      18      18      18       0       0
799          UI       0       0       0       0       0       0       0       0       0       0
             *

800          KK  R87-89
801          KM        Channel Route From C87 To C89
802          KM        Representative Of X-SECT. 2H1
803          RS       8    FLOW      -1
804          RC   0.050   0.047   0.050    7000   0.013
805          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
806          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
807          RL                    0.89    86.0
             *

808          KK      2F
809          KM        SUB-BASIN 2F At C88
810          BA    0.75
811          LG    0.25    0.20    9.40    0.02   10.00
812          UI      51      51      51      66     145     186     226     295     319     353
813          UI     381     409     473     561     605     424     359     324     302     288
814          UI     270     255     240     226     210     198     183     167     153     134
815          UI     126     122     116     111     106      91      83      77      65      65
816          UI      61      55      55      55      41      39      39      39      39      27
817          UI      25      25      25      25      25      25      25      10      10      10
818          UI      10      10      10      10      10      10      10      10      10      10
819          UI      10      10      10      10      10      10      10       0       0       0
820          UI       0       0       0       0       0       0       0       0       0       0
             *

821          KK  R88-89
822          KM        Channel Route From C88 To C89
823          KM        Representative Of X-SECT. 2H1
824          RS       4    FLOW      -1
825          RC   0.050   0.047   0.050    3200   0.033
826          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
827          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
828          RL                    1.27    86.0
             *
```



```
LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

829          KK      C89
830          KM        Combine R87-89 + R88-89
831          HC       2
             *

832          KK  R89-91
833          KM        Channel Route From C89 To C91
834          KM        X-SECT.
835          RS       6    FLOW      -1
836          RC   0.050   0.047   0.050    6000   0.018
837          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
838          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
839          RL                    0.89    86.0
             *

840          KK      2E
841          KM        SUB-BASIN 2E
842          BA    1.00
843          LG    0.32    0.36    7.32    0.12    3.00
844          UI      91      91     125     314     388     459     515     574     659     747
845          UI     965    1152    1043     881     775     694     604     533     460     398
846          UI     299     202     161     150     134      91      91      64      28      28
847          UI      28      28      28      28      28      28       0       0       0       0
848          UI       0       0       0       0       0       0       0       0       0       0
             *

849          KK      2G
```

```
850          KM        SUB-BASIN 2G
851          BA    1.13
852          LG    0.31     0.33     7.78     0.10     4.00
853          UI      81       81       81      154      279      333      386      431      466      511
854          UI     567      623      710      890     1021      988      846      751      685      632
855          UI     564      506      461      409      378      306      233      161      143      135
856          UI     133      103       81       81       81       27       25       25       25       25
857          UI      25       25       25       25       25       25        0        0        0        0
858          UI       0        0        0        0        0        0        0        0        0        0
             *

859          KK     C91
860          KM        Combine R89-91 + 2E + 2G
861          HC       3
             *

862          KK  R91-92
863          KM        Channel Route From C91 To C92
864          KM        Representative Of X-SECT. 2H1
865          RS       4    FLOW      -1
866          RC   0.050    0.047    0.050     4400    0.014
867          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
868          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
869          RL                     0.50     86.0
             *
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

870          KK      2I
871          KM        SUB-BASIN 2I
872          BA    0.87
873          LG    0.25     0.20     9.40     0.02    10.00
874          UI      73       73       73      201      275      371      449      505      558      621
875          UI     764      875      600      500      447      421      389      360      337      306
876          UI     286      256      229      195      182      173      165      153      129      120
877          UI      97       94       87       80       80       64       56       56       56       43
878          UI      36       36       36       36       36       27       14       14       14       14
879          UI      14       14       14       14       14       14       14       14       14       14
880          UI      14        0        0        0        0        0        0        0        0        0
881          UI       0        0        0        0        0        0        0        0        0        0
             *

882          KK      2H
883          KM        SUB-BASIN 2H
884          BA    1.59
885          LG    0.33     0.40     6.60     0.18     2.00
886          UI     114      114      114      217      393      468      543      606      656      718
887          UI     798      877      999     1252     1437     1390     1190     1057      964      889
888          UI     793      712      649      576      531      431      327      226      202      190
889          UI     187      145      114      114      114       37       35       35       35       35
890          UI      35       35       35       35       35       35        0        0        0        0
891          UI       0        0        0        0        0        0        0        0        0        0
             *

892          KK     C92
893          KM        Combine R91-92 + 2I + 2H
894          HC       3
             *

895          KK  R92-95
896          KM        Channel Route From C92 To C95
897          KM        Representative Of X-SECT. 2H1
898          RS       4    FLOW      -1
899          RC   0.050    0.047    0.050     4200    0.011
900          RX  3061.0   4061.0   4109.0   4116.0   4144.0   4147.0   4166.0   4187.0
901          RY    92.2     87.2     87.8     86.5     86.0     87.5     96.5     97.5
902          RL                     0.45     86.0
             *

903          KK      2K
904          KM        SUB-BASIN 2K
905          BA    2.19
906          LG    0.25     0.20     9.40     0.02    10.00
907          UI      81       81       81       81       81       81       85      233      233      279
908          UI     311      359      397      467      490      515      542      575      597      618
909          UI     643      677      743      801      904      991      981      775      641      59(
```

```
910          UI     560     529     503     486     475     466     444     429     416     405
911          UI     388     380     372     345     338     327     316     311     284     278
912          UI     257     252     231     214     214     200     198     198     186     186
913          UI     186     169     169     169     144     133     133     133     120     104
914          UI     104     104     104     104      89      89      89      89      89      89
915          UI      72      62      62      62      62      62      62      62      62      51
```



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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

916          UI      40      40      40      40      40      40      40      40      40      40
917          UI      40      40      40      33      16      16      16      16      16      16
918          UI      16      16      16      16      16      16      16      16      16      16
919          UI      16      16      16      16      16      16      16      16      16      16
920          UI      16      16      16      16      16      16      16      16      16      16
921          UI       0       0       0       0       0       0       0       0       0       0
922          UI       0       0       0       0       0       0       0       0       0       0
             *

923          KK  R93-94
924          KM        Channel Route From C93 To C94
925          KM        Representative Of X-SECT. 2H1
926          RS       5    FLOW      -1
927          RC   0.050   0.047   0.050    4800   0.023
928          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
929          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
930          RL                    0.99    86.0
             *

931          KK      2L
932          KM        SUB-BASIN 2L
933          BA    0.94
934          LG    0.28    0.25    8.20    0.04    7.00
935          UI      44      44      44      44      44      84     126     150     173     202
936          UI     249     266     284     304     322     337     354     387     432     495
937          UI     553     458     349     321     294     276     263     256     247     235
938          UI     225     217     209     202     187     180     174     169     153     147
939          UI     137     126     116     113     108     107     101     101      94      92
940          UI      90      72      72      72      60      56      56      56      53      48
941          UI      48      48      48      42      34      34      34      34      34      34
942          UI      31      22      22      22      22      22      22      22      22      22
943          UI      22      22       9       8       8       8       8       8       8       8
944          UI       8       8       8       8       8       8       8       8       8       8
945          UI       8       8       8       8       8       8       8       8       8       8
946          UI       0       0       0       0       0       0       0       0       0       0
947          UI       0       0       0       0       0       0       0       0       0       0
             *

948          KK     C94
949          KM        Combine R93-94 + 2L
950          HC       2
             *

951          KK  R94-95
952          KM        Channel Route From C94 To C95
953          KM        X-SECT. 2M1
954          RS       3    FLOW      -1
955          RC   0.060   0.048   0.060    5800   0.020
956          RX  3030.0  4030.0  4067.0  4081.0  4127.0  4163.0  4308.0  5708.0
957          RY   100.7    95.7    93.6    89.6    89.6    92.1    93.7   100.7
958          RL                    2.27    89.6
             *
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LINE         ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

959          KK      2M
960          KM        SUB-BASIN 2M
961          BA    1.40
962          LG    0.34    0.38    5.05    0.26    1.00
963          UI     139     139     263     501     644     742     832     960    1097    1398
964          UI    1751    1586    1320    1157    1019     878     761     659     510     349
965          UI     245     230     204     139     139      75      43      43      43      43
966          UI      43      43      43       0       0       0       0       0       0       0
967          UI       0       0       0       0       0       0       0       0       0       0
             *
```

```
 968          KK      2J
 969          KM        SUB-BASIN 2J
 970          BA    1.16
 971          LG    0.25     0.20     9.40     0.02    10.00
 972          UI      57       57       57       57       57      142      165      219      247      296
 973          UI     340      361      389      418      436      461      504      568      653      715
 974          UI     560      447      405      376      353      340      329      312      298      286
 975          UI     275      264      247      236      228      220      197      188      179      157
 976          UI     152      142      141      135      132      127      120      120       96       94
 977          UI      94       78       73       73       73       66       63       63       63       63
 978          UI      45       44       44       44       44       44       42       28       28       28
 979          UI      28       28       28       28       28       28       28       20       11       11
 980          UI      11       11       11       11       11       11       11       11       11       11
 981          UI      11       11       11       11       11       11       11       11       11       11
 982          UI      11       11       11       11        0        0        0        0        0        0
 983          UI       0        0        0        0        0        0        0        0        0        0
              *

 984          KK     C95
 985          KM        Combine R92-95 + R94-95 + 2M + 2J
 986          HC       4
              *

 987          KK  R95-96
 988          KM        Channel Route From C95 To C96
 989          KM        Representative Of X-SECT. 2O1
 990          RS      13    FLOW      -1
 991          RC   0.070   0.043   0.060   11600   0.012
 992          RX  3030.0  4030.0  4372.0  4385.0  4427.0  4437.0  4543.0  4563.0
 993          RY    91.9    86.9    89.9    86.7    86.8    88.5    95.0   100.0
 994          RL                    0.21    86.7
              *

 995          KK      2A
 996          KM        SUB-BASIN 2A At C83
 997          BA    4.33
 998          LG    0.30     0.30     8.05     0.08     5.00
 999          UI     144      144      144      144      144      144      144      229      474      474
1000          UI     545      553      651      672      706      747      778      810      842      873
1001          UI     909      951     1006     1067     1103     1140     1222     1346     1469     1715
1002          UI    1668     1923     1890     1721     1608     1499     1417     1348     1288     1234
1003          UI    1183     1142     1101     1037      977      930      891      858      829      755
1004          UI     729      706      666      634      553      519      415      415      326      255
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1005          UI     255      255      252      237      237      237      237      194      144      144
1006          UI     144      144      144      144      144       72       44       44       44       44
1007          UI      44       44       44       44       44       44       44       44       44       44
1008          UI      44       44       44       44       44       44       44       44       44       44
1009          UI       0        0        0        0        0        0        0        0        0        0
1010          UI       0        0        0        0        0        0        0        0        0        0
              *

1011          KK  R83-84
1012          KM        Channel Route From C83 To C84
1013          KM        Representative Of X-SECT. 2H1
1014          RS       6    FLOW      -1
1015          RC   0.050   0.047   0.050    8200   0.033
1016          RX  3061.0  4061.0  4109.0  4116.0  4144.0  4147.0  4166.0  4187.0
1017          RY    92.2    87.2    87.8    86.5    86.0    87.5    96.5    97.5
1018          RL                    0.86    86.0
              *

1019          KK   DC84L
1020          KM         Main flow at C84 is in the left channel (DC84L)
1021          KM         Diverted flow (DQ record) goes into the right channel (DC84R)
1022          DT   DC84R
1023          DI     0.0   200.0  1000.0  1110.0  3590.0  7400.0 12900.0 18100.0
1024          DQ     0.0     0.0     0.0    10.0   190.0  1000.0  2900.0  4600.0
              *

1025          KK  84L-85
1026          KM        Channel Route From C84L To C85
1027          KM        X-SECT. 2B1
1028          RS      10    FLOW      -1
1029          RC   0.060   0.039   0.080    8800   0.02(
```

```
1030          RX  3022.0  4022.0  4622.0  4629.0  4656.0  4661.0  4761.0  4779.0
1031          RY    98.9    93.9    94.4    93.4    93.2    94.1    93.7    99.5
1032          RL                    0.52    93.2
              *

1033          KK      2B
1034          KM        SUB-BASIN 2B
1035          BA    3.31
1036          LG    0.33    0.40    6.29    0.20    2.00
1037          UI     153     153     153     153     153     293     502     560     613     703
1038          UI     747     808     850     893     943    1011    1087    1154    1217    1351
1039          UI    1534    1777    1949    1987    1771    1612    1490    1384    1309    1236
1040          UI    1182    1086    1012     950     898     830     771     730     683     585
1041          UI     482     439     311     270     270     259     251     251     232     153
1042          UI     153     153     153     153      90      47      47      47      47      47
1043          UI      47      47      47      47      47      47      47      47      47      47
1044          UI      47      47       0       0       0       0       0       0       0       0
1045          UI       0       0       0       0       0       0       0       0       0       0
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1046          KK     C85
1047          KM        Combine R84L-85 + 2B
1048          HC       2
              *

1049          KK  R85-96
1050          KM        Channel Route From C85 To C96
1051          KM        Representative Of X-SECT. 2P1
1052          RS      16    FLOW      -1
1053          RC   0.060   0.044   0.070   10800   0.015
1054          RX  3050.0  4050.0  4850.0  4859.0  5014.0  5026.0  5251.0  5271.0
1055          RY    99.2    94.2    94.4    92.8    92.0    94.8    97.0   100.0
1056          RL                    0.71    92.0
              *

1057          KK  BDC84R
1058          KM        Bring Back Diverted Flow DC84R
1059          DR   DC84R
              *

1060          KK  84R-86
1061          KM        Channel Route From C84R To C86
1062          KM        Representative Of X-SECT. 2O1
1063          RS      17    FLOW      -1
1064          RC   0.070   0.043   0.060    7200   0.022
1065          RX  3030.0  4030.0  4372.0  4385.0  4427.0  4437.0  4543.0  4563.0
1066          RY    91.9    86.9    89.9    86.7    86.8    88.5    95.0   100.0
1067          RL                    2.24    86.7
              *

1068          KK      2N
1069          KM        SUB-BASIN 2N
1070          BA    2.20
1071          LG    0.33    0.40    6.29    0.20    2.00
1072          UI     135     135     135     135     376     479     558     639     697     753
1073          UI     810     873     965    1040    1158    1359    1626    1783    1554    1377
1074          UI    1248    1151    1073     990     890     824     752     681     633     543
1075          UI     434     361     238     238     225     221     202     135     135     135
1076          UI     134      41      41      41      41      41      41      41      41      41
1077          UI      41      41      41      41       0       0       0       0       0       0
1078          UI       0       0       0       0       0       0       0       0       0       0
              *

1079          KK     C86
1080          KM        Combine R84R-86 + 2N
1081          KM        Area: DC84R=4.33sm, 2N=2.20sm
1082          HC       2    6.53
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1083          KK  R86-96
```

```
1084          KM        Channel Route From C86 To C96
1085          KM        X-SECT. 2O1
1086          RS      18    FLOW      -1
1087          RC   0.070   0.043   0.060   12200   0.015
1088          RX  3030.0  4030.0  4372.0  4385.0  4427.0  4437.0  4543.0  4563.0
1089          RY    91.9    86.9    89.9    86.7    86.8    88.5    95.0   100.0
1090          RL                    0.34    86.7
              *

1091          KK      2C
1092          KM        SUB-BASIN 2C
1093          BA    2.32
1094          LG    0.25    0.20    9.40    0.02   10.00
1095          UI     107     107     107     107     107     188     308     354     410     492
1096          UI     588     641     680     732     779     811     853     915    1031    1161
1097          UI    1324    1213     903     798     739     690     648     630     612     583
1098          UI     559     535     515     498     473     451     432     414     395     367
1099          UI     342     333     286     283     266     262     254     246     244     224
1100          UI     224     204     176     176     176     137     137     137     137     124
1101          UI     117     117     117     117      99      82      82      82      82      82
1102          UI      82      76      52      52      52      52      52      52      52      52
1103          UI      52      52      52      28      21      21      21      21      21      21
1104          UI      21      21      21      21      21      21      21      21      21      21
1105          UI      21      21      21      21      21      21      21      21      21      21
1106          UI      21      21       0       0       0       0       0       0       0       0
1107          UI       0       0       0       0       0       0       0       0       0       0
              *

1108          KK      2O
1109          KM        SUB-BASIN 2O
1110          BA    3.37
1111          LG    0.25    0.20    9.40    0.02   10.00
1112          UI     169     169     169     169     169     443     499     649     745     900
1113          UI    1011    1080    1168    1241    1305    1371    1542    1737    1978    2049
1114          UI    1509    1267    1169    1082    1018     989     951     904     863     828
1115          UI     796     759     716     683     653     613     579     526     496     448
1116          UI     433     414     406     390     386     354     354     305     278     278
1117          UI     246     216     216     216     201     185     185     185     185     140
1118          UI     130     130     130     130     130     124      83      83      83      83
1119          UI      83      83      83      83      83      83      52      32      32      32
1120          UI      32      32      32      32      32      32      32      32      32      32
1121          UI      32      32      32      32      32      32      32      32      32      32
1122          UI      32      32      32       0       0       0       0       0       0       0
1123          UI       0       0       0       0       0       0       0       0       0       0
              *

1124          KK     C96
1125          KM        Combine R95-96 + R85-96 + R86-96 + 2C + 2O
1126          HC       5
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1127          KK  R96-97
1128          KM        Channel Route From C96 To C97
1129          KM        X-SECT. 2P1
1130          RS      15    FLOW      -1
1131          RC   0.060   0.044   0.070   16600   0.014
1132          RX  3050.0  4050.0  4850.0  4859.0  5014.0  5026.0  5251.0  5271.0
1133          RY    99.2    94.2    94.4    92.8    92.0    94.8    97.0   100.0
1134          RL                    1.58    92.0
              *

1135          KK      2P
1136          KM        SUB-BASIN 2P
1137          BA    3.51
1138          LG    0.28    0.39    5.98    0.18    9.00
1139          UI     169     169     169     169     169     369     485     609     695     815
1140          UI     984    1043    1113    1195    1264    1320    1408    1579    1781    2036
1141          UI    1979    1465    1261    1166    1085    1018     990     957     911     871
1142          UI     836     806     777     723     693     669     647     583     559     525
1143          UI     473     446     425     413     402     388     385     353     353     313
1144          UI     277     277     261     216     216     216     214     185     185     185
1145          UI     185     176     129     129     129     129     129     129     122      83
1146          UI      83      83      83      83      83      83      83      83      83      73
1147          UI      32      32      32      32      32      32      32      32      32      3:
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1148          UI      32      32      32      32      32      32      32      32      32      32
1149          UI      32      32      32      32      32      32      32       0       0       0
1150          UI       0       0       0       0       0       0       0       0       0       0
              *

1151          KK     C97
1152          KM        Combine R96-97 + 2P
1153          HC       2
              *

1154          KK  97-100
1155          KM        Channel Route From C97 To C100
1156          KM        Interpolated X-SECT. Between 2U1 and 2P1
1157          RS       6    FLOW      -1
1158          RC   0.060   0.046   0.065    6200   0.012
1159          RX  3033.0  4033.0  4458.0  4471.0  4586.0  4610.0  4741.0  6001.0
1160          RY   101.0    96.0    95.4    91.4    90.9    93.7    94.7   101.0
1161          RL                    1.63    90.9
              *

1162          KK      2Q
1163          KM        SUB-BASIN 2Q At C98
1164          BA    2.93
1165          LG    0.22    0.35    3.71    0.30   10.00
1166          UI     117     117     117     117     117     117     241     338     374     450
1167          UI     508     573     680     713     752     799     850     881     916     954
1168          UI    1046    1150    1287    1429    1406    1091     917     850     792     749
1169          UI     711     693     677     651     626     604     586     563     546     527
1170          UI     500     479     469     450     425     403     378     365     333     310
1171          UI     307     287     287     278     270     270     252     246     246     212
1172          UI     193     193     193     162     150     150     150     150     135     129
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1173          UI     129     129     129     129      98      90      90      90      90      90
1174          UI      90      90      77      57      57      57      57      57      57      57
1175          UI      57      57      57      57      57      49      23      23      23      23
1176          UI      23      23      23      23      23      23      23      23      23      23
1177          UI      23      23      23      23      23      23      23      23      23      23
1178          UI      23      23      23      23      23      23      23      23      23       0
1179          UI       0       0       0       0       0       0       0       0       0       0
1180          UI       0       0       0       0       0       0       0       0       0       0
              *

1181          KK  R98-99
1182          KM        Channel Route From C98 To C99
1183          KM        Interpolated X-SECT. Between 2U1 and 2P1
1184          RS       8    FLOW      -1
1185          RC   0.060   0.046   0.065   12400   0.015
1186          RX  3033.0  4033.0  4458.0  4471.0  4586.0  4610.0  4741.0  6001.0
1187          RY   101.0    96.0    95.4    91.4    90.9    93.7    94.7   101.0
1188          RL                    8.16    90.9
              *

1189          KK      2R
1190          KM        SUB-BASIN 2R
1191          BA    2.67
1192          LG    0.30    0.35    3.36    0.83    5.00
1193          UI     134     134     134     134     134     399     463     514     613     650
1194          UI     705     747     790     845     905     978    1041    1127    1292    1536
1195          UI    1655    1757    1554    1404    1289    1200    1124    1063     995     916
1196          UI     846     796     736     678     638     581     512     386     352     237
1197          UI     237     232     220     220     203     134     134     134     134     128
1198          UI      41      41      41      41      41      41      41      41      41      41
1199          UI      41      41      41      41      41      41       0       0       0       0
1200          UI       0       0       0       0       0       0       0       0       0       0
              *

1201          KK     C99
1202          KM        Combine R98-99 + 2R
1203          HC       2
              *

1204          KK  99-100
1205          KM        Channel Route From C99 To C100
1206          KM        Interpolated X-SECT. Between 2U1 and 2P1
1207          RS       6    FLOW      -1
```

```
1208          RC   0.060   0.046   0.065    9800   0.012
1209          RX  3033.0  4033.0  4458.0  4471.0  4586.0  4610.0  4741.0  6001.0
1210          RY   101.0    96.0    95.4    91.4    90.9    93.7    94.7   101.0
1211          RL                    4.99    90.9
              *

1212          KK      2S
1213          KM        SUB-BASIN 2S
1214          BA    1.82
1215          LG    0.32    0.35    3.35    0.85    4.00
1216          UI     128     128     128     221     433     513     604     665     729     788
1217          UI     870     967    1072    1290    1566    1644    1399    1232    1119    1027
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1218          UI     937     838     760     685     615     542     428     335     226     224
1219          UI     210     210     136     128     128     108      39      39      39      39
1220          UI      39      39      39      39      39      39      39       0       0       0
1221          UI       0       0       0       0       0       0       0       0       0       0
              *

1222          KK    C100
1223          KM        Combine R97-100 + R99-100 + 2S
1224          HC       3
              *

1225          KK  100101
1226          KM        Channel Route From C100 To C101
1227          KM        Representative Of X-SECT. 2U1
1228          RS       4    FLOW      -1
1229          RC   0.060   0.047   0.060    4600   0.011
1230          RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1231          RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1232          RL                    1.28    89.7
              *

1233          KK      2T
1234          KM        SUB-BASIN 2T
1235          BA    4.90
1236          LG    0.27    0.33    7.78    0.09    9.00
1237          UI     128     128     128     128     128     128     128     128     128     154
1238          UI     368     368     368     450     490     499     588     588     727     744
1239          UI     774     799     819     865     896     925     949     976    1000    1026
1240          UI    1061    1132    1226    1278    1405    1488    1622    1555    1362    1088
1241          UI    1004     957     919     865     839     817     775     767     754     741
1242          UI     735     702     695     669     661     639     632     613     607     588
1243          UI     585     545     545     523     516     508     490     490     454     439
1244          UI     439     404     398     397     359     338     338     338     315     313
1245          UI     313     313     297     294     294     294     279     267     267     267
1246          UI     267     219     210     210     210     210     210     172     163     163
1247          UI     163     163     163     163     162     140     140     140     140     140
1248          UI     140     140     140     138      98      98      98      98      98      98
1249          UI      98      98      98      98      98      98      93      63      63      63
1250          UI      63      63      63      63      63      63      63      63      63      63
1251          UI      63      63      63      63      63      63      63      27      25      25
1252          UI      25      25      25      25      25      25      25      25      25      25
1253          UI      25      25      25      25      25      25      25      25      25      25
1254          UI      25      25      25      25      25      25      25      25      25      25
1255          UI      25      25      25      25      25      25      25      25      25      25
1256          UI      25      25      25      25      25      25      25      25       0       0
1257          UI       0       0       0       0       0       0       0       0       0       0
              *

1258          KK    C101
1259          KM        Combine R100-101 + 2T
1260          HC       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1261          KK  101102
1262          KM        X-SECT. 2U1
1263          RS       6    FLOW      -1
1264          RC   0.060   0.047   0.060    7600   0.011
1265          RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.(
```

```
1266          RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1267          RL                    2.15    89.7
              *

1268          KK      2U
1269          KM        SUB-BASIN 2U
1270          BA    1.38
1271          LG    0.32    0.35    3.32    0.91    4.00
1272          UI      82      82      82      82     199     281     322     380     411     447
1273          UI     474     514     556     612     656     755     915    1017    1040     901
1274          UI     810     740     685     641     589     535     495     454     412     384
1275          UI     333     271     233     144     144     139     134     134      87      82
1276          UI      82      82      52      25      25      25      25      25      25      25
1277          UI      25      25      25      25      25      25       0       0       0       0
1278          UI       0       0       0       0       0       0       0       0       0       0
              *

1279          KK    C102
1280          KM        Combine R101-102 + 2U
1281          HC       2
              *

1282          KK  102103
1283          KM        Channel Route From C102 To C103
1284          KM        Representative Of X-SECT. 2U1
1285          RS       5    FLOW      -1
1286          RC   0.060   0.047   0.060    5400   0.010
1287          RX  3015.0  4015.0  4066.0  4083.0  4158.0  4194.0  4230.0  6290.0
1288          RY   102.7    97.7    96.3    90.0    89.7    92.6    92.4   102.7
1289          RL                    1.24    89.7
              *

1290          KK      2V
1291          KM        SUB-BASIN 2V
1292          BA    7.57
1293          LG    0.27    0.39    5.67    0.19    9.00
1294          UI     209     209     209     209     209     209     209     209     209     462
1295          UI     601     601     679     801     801     954     961    1182    1220    1264
1296          UI    1317    1357    1413    1493    1531    1568    1608    1657    1713    1822
1297          UI    1963    2069    2255    2421    2646    2529    2209    1719    1618    1538
1298          UI    1472    1413    1339    1301    1264    1234    1221    1201    1160    1143
1299          UI    1092    1081    1045    1029    1001     985     961     934     890     881
1300          UI     843     843     807     801     766     717     717     670     649     649
1301          UI     583     552     552     546     511     511     511     501     481     481
1302          UI     481     469     437     437     437     437     363     343     343     343
1303          UI     343     336     267     267     267     267     267     267     267     237
1304          UI     229     229     229     229     229     229     229     213     160     160
1305          UI     160     160     160     160     160     160     160     160     160     158
1306          UI     102     102     102     102     102     102     102     102     102     102
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1307          UI     102     102     102     102     102     102     102     102     102      45
1308          UI      40      40      40      40      40      40      40      40      40      40
1309          UI      40      40      40      40      40      40      40      40      40      40
1310          UI      40      40      40      40      40      40      40      40      40      40
1311          UI      40      40      40      40      40      40      40      40      40      40
1312          UI      40      40      40      40      40      40      40       0       0       0
1313          UI       0       0       0       0       0       0       0       0       0       0
              *

1314          KK    C103
1315          KM        Combine R102-103 + 2V
1316          HC       2
              *

1317          KK  103107
1318          KM        Channel Route From C103 To C107
1319          KM        X-SECT. 2Y1
1320          RS      22    FLOW      -1
1321          RC   0.050   0.050   0.050   24200   0.009
1322          RX  3841.4  4219.0  4294.0  4322.0  4337.0  4347.0  4485.0  5305.0
1323          RY    97.7    92.7    93.7    91.2    91.6    93.6    93.6    97.7
1324          RL                    0.55    91.2
              *

1325          KK      2W
```

```
1326        KM        SUB-BASIN 2W At C104
1327        BA    6.29
1328        LG    0.28     0.25     8.40     0.05     7.00
1329        UI     210      210      210      210      210      210      210      311      603      603
1330        UI     716      804      891      965     1172     1238     1286     1341     1418     1496
1331        UI    1546     1595     1649     1709     1832     2015     2171     2373     2641     2483
1332        UI    2021     1674     1566     1478     1404     1340     1271     1246     1225     1204
1333        UI    1148     1116     1089     1048     1022     1005      965      944      893      871
1334        UI     846      823      804      759      720      701      652      652      575      554
1335        UI     554      519      513      513      492      482      482      468      438      438
1336        UI     438      380      344      344      344      344      275      268      268      268
1337        UI     268      268      235      230      230      230      230      230      230      176
1338        UI     161      161      161      161      161      161      161      161      161      121
1339        UI     103      103      103      103      103      103      103      103      103      103
1340        UI     103      103      103      103      103       49       40       40       40       40
1341        UI      40       40       40       40       40       40       40       40       40       40
1342        UI      40       40       40       40       40       40       40       40       40       40
1343        UI      40       40       40       40       40       40       40       40       40       40
1344        UI      40       40       40       40       40        0        0        0        0        0
1345        UI       0        0        0        0        0        0        0        0        0        0
            *

1346        KK  104105
1347        KM        Channel Route From C104 To C105
1348        KM        X-SECT. 2X1
1349        RS      20     FLOW       -1
1350        RC   0.060    0.034    0.060    30400    0.015
1351        RX  3933.3   4100.0   4156.0   4173.0   4331.0   4336.0   4389.0   4579.9
1352        RY    98.0     93.0     93.2     92.3     92.4     93.4     93.8     98.0
1353        RL                     2.38     92.3
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1354        KK      2X
1355        KM        SUB-BASIN 2X
1356        BA   10.31
1357        LG    0.29     0.25     8.60     0.06     6.00
1358        UI     235      235      235      235      235      235      235      235      235      235
1359        UI     235      522      674      674      674      833      899      899     1033     1079
1360        UI    1154     1349     1370     1420     1454     1499     1556     1587     1684     1708
1361        UI    1740     1791     1822     1860     1924     2012     2126     2259     2345     2564
1362        UI    2690     2839     3088     2650     2396     1927     1833     1771     1686     1620
1363        UI    1587     1499     1482     1420     1407     1383     1369     1349     1320     1284
1364        UI    1263     1226     1215     1173     1173     1127     1124     1099     1079     1071
1365        UI     999      999      976      946      946      917      899      899      837      805
1366        UI     805      778      729      729      729      652      620      620      620      601
1367        UI     574      574      574      574      547      539      539      539      539      498
1368        UI     490      490      490      490      447      385      385      385      385      385
1369        UI     385      342      300      300      300      300      300      300      300      300
1370        UI     273      257      257      257      257      257      257      257      257      257
1371        UI     236      180      180      180      180      180      180      180      180      180
1372        UI     180      180      180      180      180      149      115      115      115      115
1373        UI     115      115      115      115      115      115      115      115      115      115
1374        UI     115      115      115      115      115      115      115      115       95       45
1375        UI      45       45       45       45       45       45       45       45       45       45
1376        UI      45       45       45       45       45       45       45       45       45       45
1377        UI      45       45       45       45       45       45       45       45       45       45
1378        UI      45       45       45       45       45       45       45       45       45       45
1379        UI      45       45       45       45       45       45       45       45       45       45
1380        UI      45       45       45       45       45       45       45        0        0        0
1381        UI       0        0        0        0        0        0        0        0        0        0
            *

1382        KK    C105
1383        KM        Combine R104-105 + 2X
1384        HC       2
            *

1385        KK  105107
1386        KM        Channel Route From C105 To C107
1387        KM        X-SECT. 2Y2
1388        RS      44     FLOW       -1
1389        RC   0.050    0.051    0.050    36800    0.009
1390        RX  3063.0   4063.0   4156.0   4162.0   4177.0   4184.0   4229.0   4914.7
1391        RY    99.7     94.7     93.2     90.9     90.5     92.8     94.9     99.7
```

```
1392          RL                    0.59     90.5
              *

1393          KK      2Y
1394          KM        SUB-BASIN 2Y
1395          BA   13.40
1396          LG    0.33     0.35     4.03     0.36     2.00
1397          UI     318      318      318      318      318      318      318      318      318      318
1398          UI     400     1044     1044     1044     1183     1218     1218     1452     1462     1517
1399          UI    1555     1608     1699     1727     1782     1818     1874     1929     1975     2065
1400          UI    2105     2214     2297     2366     2436     2494     2579     2715     2923     3140
1401          UI    3288     3857     3553     3996     4299     4199     3939     3718     3529     3365
1                                             HEC-1 INPUT                                                    PAGE 33

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1402          UI    3223     3098     2989     2892     2806     2707     2632     2570     2514     2436
1403          UI    2337     2265     2149     2087     2030     1942     1921     1827     1805     1661
1404          UI    1656     1555     1555     1478     1462     1350     1218     1218     1030      913
1405          UI     913      913      622      562      562      562      562      562      535      522
1406          UI     522      522      522      522      512      318      318      318      318      318
1407          UI     318      318      318      318      318      282       97       97       97       97
1408          UI      97       97       97       97       97       97       97       97       97       97
1409          UI      97       97       97       97       97       97       97       97       97       97
1410          UI      97       97       97       97       97       97       97       97       97       97
1411          UI      97        0        0        0        0        0        0        0        0        0
1412          UI       0        0        0        0        0        0        0        0        0        0
              *

1413          KK    C107
1414          KM        Combine R103-107 + R105-107 + 2Y
1415          HC       3
              *
              * No Route Performed From C107 To C113.  Reach length is too short.
              *

1416          KK     2BB
1417          KM        SUB-BASIN 2BB At C108
1418          BA    2.40
1419          LG    0.29     0.25     8.60     0.07     6.00
1420          UI     144      144      144      144      335      444      563      690      848      909
1421          UI    1000     1072     1136     1252     1455     1712     1650     1147     1022      937
1422          UI     866      838      794      746      710      678      637      597      568      532
1423          UI     490      448      400      379      353      346      332      317      302      274
1424          UI     237      237      194      184      184      172      158      158      158      133
1425          UI     111      111      111      111      111       73       71       71       71       71
1426          UI      71       71       71       64       28       28       28       28       28       28
1427          UI      28       28       28       28       28       28       28       28       28       28
1428          UI      28       28       28       28       28       28        0        0        0        0
1429          UI       0        0        0        0        0        0        0        0        0        0
              *

1430          KK  108111
1431          KM        Channel Route From C108 To C111
1432          KM        X-SECT. 2AA1
1433          RS      16     FLOW       -1
1434          RC   0.050    0.065    0.050    12200    0.009
1435          RX  3711.2   4055.0   4145.0   4157.0   4183.0   4234.0   4309.0   4504.7
1436          RY    99.4     94.4     94.2     91.5     91.4     94.4     93.4     99.4
1437          RL                     1.02     91.4
              *

1438          KK      2Z
1439          KM        SUB-BASIN 2Z At 110
1440          BA    5.10
1441          LG    0.30     0.28     8.28     0.08     5.00
1442          UI     153      153      153      153      153      153      153      153      272      441
1443          UI     441      503      588      610      705      762      882      920      949      983
1444          UI    1037     1089     1123     1154     1189     1226     1278     1382     1490     1602
1445          UI    1737     1900     1889     1618     1259     1177     1112     1059     1014      977
1446          UI     928      913      900      882      853      835      801      785      767      742
                                              HEC-1 INPUT                                                    PAGE 34

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1447          UI     735      706      700      653      650      619      619      589      588      544
1448          UI     526      516      477      477      444      405      405      399      375      375
1449          UI     375      360      353      353      353      322      321      321      321      26:
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1450          UI     252     252     252     252     217     196     196     196     196     196
1451          UI     196     171     168     168     168     168     168     168     165     118
1452          UI     118     118     118     118     118     118     118     118     118     118
1453          UI      81      75      75      75      75      75      75      75      75      75
1454          UI      75      75      75      75      75      75      75      60      29      29
1455          UI      29      29      29      29      29      29      29      29      29      29
1456          UI      29      29      29      29      29      29      29      29      29      29
1457          UI      29      29      29      29      29      29      29      29      29      29
1458          UI      29      29      29      29      29      29      29      29      29      29
1459          UI      29      29       0       0       0       0       0       0       0       0
1460          UI       0       0       0       0       0       0       0       0       0       0
              *

1461          KK  110111
1462          KM        Channel Route From C110 To C111
1463          KM        X-SECT. 2AA2
1464          RS      20    FLOW      -1
1465          RC   0.050   0.045   0.050   21000   0.011
1466          RX  3827.9  4081.0  4184.0  4193.0  4236.0  4246.0  4321.0  4648.5
1467          RY   100.0    95.0    94.9    93.9    93.8    94.9    94.1   100.0
1468          RL                   1.67    93.8
              *

1469          KK     2AA
1470          KM        SUB-BASIN 2AA
1471          BA    3.73
1472          LG    0.33    0.39    5.98    0.18    2.00
1473          UI     157     157     157     157     157     157     468     516     602     650
1474          UI     725     768     826     867     907     952    1006    1070    1146    1204
1475          UI    1276    1403    1587    1837    1949    2086    1886    1718    1592    1480
1476          UI    1401    1322    1264    1212    1119    1048     988     937     886     819
1477          UI     768     733     669     602     475     451     329     278     278     273
1478          UI     258     258     258     207     157     157     157     157     157     116
1479          UI      48      48      48      48      48      48      48      48      48      48
1480          UI      48      48      48      48      48      48      48      48      48       0
1481          UI       0       0       0       0       0       0       0       0       0       0
1482          UI       0       0       0       0       0       0       0       0       0       0
              *

1483          KK    C111
1484          KM        Combine R108-111 + R110-111 + 2AA
1485          HC       3
              *

1486          KK  111113
1487          KM        Channel Route From C111 To C113
1488          KM        Representative Of X-SECT. 2CC2
1489          RS      40    FLOW      -1
1490          RC   0.050   0.046   0.050   33200   0.008
1491          RX  3896.5  4069.0  4210.0  4220.0  4245.0  4250.0  4300.0  4538.5
1492          RY    97.9    92.9    93.4    91.9    91.5    93.3    93.4    97.9
1493          RL                   1.12    91.5
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1494          KK     2CC
1495          KM        SUB-BASIN 2CC
1496          BA    4.38
1497          LG    0.35    0.35    4.30    0.45    0.00
1498          UI     117     117     117     117     117     117     117     117     117     208
1499          UI     385     385     410     449     449     528     538     565     573     616
1500          UI     626     657     666     690     714     731     769     798     828     868
1501          UI     895     918     959    1022    1102    1186    1326    1363    1440    1582
1502          UI    1535    1433    1336    1266    1205    1151    1105    1063    1026     993
1503          UI     961     931     906     872     836     792     762     741     708     688
1504          UI     673     619     610     573     570     538     538     452     449     398
1505          UI     336     336     325     207     207     207     207     207     198     192
1506          UI     192     192     192     192     136     117     117     117     117     117
1507          UI     117     117     117     110      36      36      36      36      36      36
1508          UI      36      36      36      36      36      36      36      36      36      36
1509          UI      36      36      36      36      36      36      36      36      36      36
1510          UI      36      36      36      36      36       0       0       0       0       0
1511          UI       0       0       0       0       0       0       0       0       0       0
              *
```

```
1512          KK    C113
1513          KM        Combine C107 + R111-113 + 2CC
1514          HC       3
              *

1515          KK  113127
1516          KM        Channel Route From C113 To C127
1517          KM        Representative Of X-SECT. 2UU1
1518          RS       6    FLOW      -1
1519          RC   0.050   0.038   0.050    8200   0.006
1520          RX  3516.0  4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1521          RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
1522          RL                    0.80    91.6
              *

1523          KK     2DD
1524          KM     SUB-BASIN 2DD
1525          BA    0.54
1526          LG    0.35    0.35    4.18    0.50    0.00
1527          UI      34      34      34      34     108     126     148     165     184     197
1528          UI     212     232     256     277     322     388     448     416     362     326
1529          UI     298     277     255     229     211     192     173     161     137     107
1530          UI      86      61      61      56      56      44      34      34      34      22
1531          UI      11      11      11      11      11      11      11      11      11      11
1532          UI      11      11       0       0       0       0       0       0       0       0
1533          UI       0       0       0       0       0       0       0       0       0       0
              *

1534          KK   C127R
1535          KM        Combine R113-127 + 2DD
1536          KO                                     21
1537          HC       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1538          KK     2GG
1539          KM        SUB-BASIN 2GG At C114
1540          BA    6.69
1541          LG    0.31    0.30    8.05    0.09    4.00
1542          UI     207     207     207     207     207     207     207     207     511     679
1543          UI     690     792     792     938     957    1011    1048    1105    1150    1180
1544          UI    1219    1280    1327    1384    1451    1533    1584    1633    1741    1882
1545          UI    2070    2313    2390    2641    2794    2591    2418    2252    2125    2020
1546          UI    1927    1845    1773    1708    1650    1597    1517    1441    1376    1320
1547          UI    1253    1214    1174    1080    1043    1011     961     949     792     792
1548          UI     627     594     594     383     366     366     366     360     339     339
1549          UI     339     339     324     207     207     207     207     207     207     207
1550          UI     207      98      63      63      63      63      63      63      63      63
1551          UI      63      63      63      63      63      63      63      63      63      63
1552          UI      63      63      63      63      63      63      63      63       0       0
1553          UI       0       0       0       0       0       0       0       0       0       0
              *

1554          KK  114115
1555          KM        Channel Route From C114 To C115
1556          KM        Representative Of X-SECT. 3B1
1557          RS      17    FLOW      -1
1558          RC   0.050   0.049   0.060   14000   0.013
1559          RX  3484.0  4129.0  4153.0  4159.0  4184.0  4193.0  4355.0  6275.0
1560          RY   101.0    96.0    94.7    91.0    90.8    93.8    91.4   101.0
1561          RL                    1.37    90.8
              *

1562          KK     2HH
1563          KM        SUB-BASIN 2HH
1564          BA    6.76
1565          LG    0.32    0.38    5.05    0.22    3.00
1566          UI     268     268     268     268     268     268     564     880     953    1026
1567          UI    1191    1262    1317    1432    1490    1554    1628    1714    1816    1938
1568          UI    2034    2121    2331    2585    2972    3131    3558    3442    3119    2865
1569          UI    2666    2510    2375    2253    2158    2072    1941    1814    1711    1622
1570          UI    1547    1431    1353    1295    1232    1072    1006     770     770     529
1571          UI     474     474     469     440     440     440     412     268     268     268
1572          UI     268     268     268     148      82      82      82      82      82      82
1573          UI      82      82      82      82      82      82      82      82      82      8
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1574          UI      82      82      82      82       0       0       0       0       0       0
1575          UI       0       0       0       0       0       0       0       0       0       0
              *

1576          KK    C115
1577          KM        Combine R114-115 + 2HH
1578          HC       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1579          KK  115116
1580          KM        Channel Route From C115 To C116
1581          KM        Representative Of X-SECT. 3B1
1582          RS      10    FLOW      -1
1583          RC   0.050   0.049   0.060    9600   0.015
1584          RX  3484.0  4129.0  4153.0  4159.0  4184.0  4193.0  4355.0  6275.0
1585          RY   101.0    96.0    94.7    91.0    90.8    93.8    91.4   101.0
1586          RL                    0.79    90.8
              *

1587          KK     2II
1588          KM        SUB-BASIN 2II
1589          BA    2.22
1590          LG    0.28    0.25    8.40    0.05    7.00
1591          UI      83      83      83      83      83      83      99     239     239     294
1592          UI     318     376     420     483     504     531     561     596     618     640
1593          UI     666     706     776     850     941    1061     931     738     643     599
1594          UI     562     531     505     493     483     469     452     434     419     408
1595          UI     398     382     368     354     338     332     318     306     285     276
1596          UI     258     253     220     220     211     203     203     195     191     191
1597          UI     179     174     174     159     136     136     136     130     106     106
1598          UI     106     106     106      94      91      91      91      91      91      77
1599          UI      64      64      64      64      64      64      64      64      52      41
1600          UI      41      41      41      41      41      41      41      41      41      41
1601          UI      41      41      31      16      16      16      16      16      16      16
1602          UI      16      16      16      16      16      16      16      16      16      16
1603          UI      16      16      16      16      16      16      16      16      16      16
1604          UI      16      16      16      16      16      16      16      16       0       0
1605          UI       0       0       0       0       0       0       0       0       0       0
              *

1606          KK    C116
1607          KM        Combine R115-116 + 2II
1608          HC       2
              *

1609          KK  DC116R
1610          KM         Main flow at C116 is in the right channel (DC116R)
1611          KM         Diverted flow (DQ record) goes into the left channel (DC116L)
1612          DT  DC116L
1613          DI     0.0    15.0    75.0   490.0  1450.0  3300.0  5950.0  8900.0 11400.0
1614          DQ     0.0    15.0    35.0   175.0   490.0  1100.0  2050.0  3200.0  4000.0
              *

1615          KK  116119
1616          KM        Channel Route From C116R To C119
1617          KM        Representative Of X-SECT. 2KK1
1618          RS      17    FLOW      -1
1619          RC   0.050   0.055   0.050   14200   0.014
1620          RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1621          RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1622          RL                    0.97    91.0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1623          KK     2EE
1624          KM        SUB-BASIN 2EE At C118
1625          BA    4.13
1626          LG    0.28    0.25    8.20    0.04    7.00
1627          UI     170     170     170     170     170     170     396     488     573     650
1628          UI     765     881     997    1049    1109    1181    1242    1290    1349    1433
1629          UI    1584    1757    1959    2137    1773    1359    1256    1171    1100    104(
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1630          UI    1008     984     949     911     879     848     814     792     765     722
1631          UI     692     676     650     610     582     540     527     469     448     436
1632          UI     415     415     395     390     388     355     355     351     279     279
1633          UI     279     265     217     217     217     217     207     186     186     186
1634          UI     186     186     154     130     130     130     130     130     130     130
1635          UI     113      83      83      83      83      83      83      83      83      83
1636          UI      83      83      83      57      33      33      33      33      33      33
1637          UI      33      33      33      33      33      33      33      33      33      33
1638          UI      33      33      33      33      33      33      33      33      33      33
1639          UI      33      33      33      33      33      33       0       0       0       0
1640          UI       0       0       0       0       0       0       0       0       0       0
              *

1641          KK  118119
1642          KM        Channel Route From C118 To C119
1643          KM        Representative Of X-SECT. 2KK1
1644          RS       6    FLOW      -1
1645          RC   0.050   0.055   0.050    5400   0.013
1646          RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1647          RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1648          RL                    0.97    91.0
              *

1649          KK     2JJ
1650          KM        SUB-BASIN 2JJ
1651          BA    0.89
1652          LG    0.35    0.35    3.50    0.28    0.00
1653          UI      59      59      59      71     193     222     265     294     322     346
1654          UI     376     417     453     509     624     722     754     646     573     521
1655          UI     481     444     398     364     331     297     275     231     177     137
1656          UI     104     102      97      97      63      59      59      59      19      18
1657          UI      18      18      18      18      18      18      18      18      18      18
1658          UI       0       0       0       0       0       0       0       0       0       0
1659          UI       0       0       0       0       0       0       0       0       0       0
              *

1660          KK    C119
1661          KM        Combine R116R-119 + R118-119 + 2JJ
1662          HC       3
              *

1663          KK  119120
1664          KM        Channel Route From C119 To C120
1665          KM        X-SECT. 2KK1
1666          RS      45    FLOW      -1
1667          RC   0.050   0.055   0.050   43600   0.011
1668          RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1669          RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1670          RL                    0.91    91.0
              *

1671          KK     2KK
1672          KM        SUB-BASIN 2KK
1673          BA    4.19
1674          LG    0.35    0.35    3.55    0.29    0.00
1675          UI     101     101     101     101     101     101     101     101     101     101
1676          UI     162     331     331     331     386     386     402     464     464     489
1677          UI     493     524     539     557     565     587     594     624     634     662
1678          UI     685     704     748     762     778     799     849     898     960    1023
1679          UI    1125    1202    1193    1337    1359    1273    1199    1137    1083    1035
1680          UI     994     958     926     891     864     841     821     799     775     748
1681          UI     724     682     666     644     619     610     580     574     527     525
1682          UI     493     493     468     464     423     386     386     317     290     290
1683          UI     290     180     178     178     178     178     178     167     166     166
1684          UI     166     166     166     140     101     101     101     101     101     101
1685          UI     101     101     101     101      55      31      31      31      31      31
1686          UI      31      31      31      31      31      31      31      31      31      31
1687          UI      31      31      31      31      31      31      31      31      31      31
1688          UI      31      31      31      31      31      31      31      31      31       0
1689          UI       0       0       0       0       0       0       0       0       0       0
1690          UI       0       0       0       0       0       0       0       0       0       0
              *

1691          KK   C120R
```

```
1692          KM        Combine R119-120 + 2KK
1693          KM        Area: 2GG-2II=15.67, 2KK=4.19, 2JJ=0.89, 2EE=4.13
1694          HC       2
              *

1695          KK     2LL
1696          KM        SUB-BASIN 2LL
1697          BA    5.18
1698          LG    0.35    0.35    3.50    0.29    0.00
1699          UI      99      99      99      99      99      99      99      99      99      99
1700          UI      99      99      99     195     324     324     324     340     378     378
1701          UI     378     435     453     453     477     482     484     527     527     540
1702          UI     553     555     581     581     606     613     633     648     668     687
1703          UI     713     731     749     755     781     797     839     885     923     985
1704          UI    1023    1157    1171    1124    1273    1333    1320    1251    1193    1133
1705          UI    1089    1051    1017     985     947     925     905     872     855     839
1706          UI     812     802     781     767     755     719     708     671     667     634
1707          UI     630     604     596     581     567     559     515     515     497     482
1708          UI     482     459     453     453     390     378     378     350     283     283
1709          UI     283     283     221     174     174     174     174     174     174     174
1710          UI     163     162     162     162     162     162     162     162     121      99
1711          UI      99      99      99      99      99      99      99      99      99      99
1712          UI      99      93      30      30      30      30      30      30      30      30
1713          UI      30      30      30      30      30      30      30      30      30      30
1714          UI      30      30      30      30      30      30      30      30      30      30
1715          UI      30      30      30      30      30      30      30      30      30      30
1716          UI      30      30      30      30      30      30       0       0       0       0
1717          UI       0       0       0       0       0       0       0       0       0       0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1718          KK  BC116L
1719          KM        Bring Back Flow Split Diverted Hydrograph DC116L
1720          DR  DC116L
              *

1721          KK  116120
1722          KM        Channel Route From C116L To C120
1723          KM        Interpolated X-SECT. Between 2LL1 and 2LL2
1724          RS      86    FLOW      -1
1725          RC   0.055   0.051   0.060   59400   0.011
1726          RX  3949.7  4059.0  4146.0  4167.0  4221.0  4231.0  4378.0  4533.2
1727          RY    99.6    94.6    94.4    93.0    92.9    95.0    94.0    99.6
1728          RL                    1.79    92.9
              *

1729          KK    C120
1730          KM        Combine C120R(R119-120 + 2KK) + 2LL + R116L-120
1731          HC       3   30.06
              *

1732          KK  120121
1733          KM        Channel Route From C120 To C121
1734          KM        Representative Of X-SECT. 2FF3
1735          RS       8    FLOW      -1
1736          RC   0.050   0.051   0.050    9000   0.008
1737          RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1738          RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1739          RL                    1.20    91.8
              *

1740          KK     2MM
1741          KM        SUB-BASIN 2MM
1742          BA    0.91
1743          LG    0.35    0.35    3.32    0.86    0.00
1744          UI      57      57      57      57     168     205     240     271     298     323
1745          UI     345     377     414     445     510     626     698     726     625     560
1746          UI     509     471     440     396     361     334     302     275     249     207
1747          UI     163     116     100      97      93      93      61      57      57      57
1748          UI      27      17      17      17      17      17      17      17      17      17
1749          UI      17      17      17       0       0       0       0       0       0       0
1750          UI       0       0       0       0       0       0       0       0       0       0
              *

1751          KK    C121
```

```
1752          KM        Combine R120-121 + 2MM
1753          HC       2
              *

1754          KK  121123
1755          KM        Channel Route From C121 To C123
1756          KM        Representative Of X-SECT. 2FF3
1757          RS      11    FLOW      -1
1758          RC   0.050   0.051   0.050   10000   0.007
1759          RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1760          RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1761          RL                    0.75    91.8
              *

1762          KK     2FF
1763          KM        SUB-BASIN 2FF
1764          BA    5.51
1765          LG    0.35    0.35    3.82    0.35    0.00
1766          UI     102     102     102     102     102     102     102     102     102     102
1767          UI     102     102     102     131     337     337     337     337     387     393
1768          UI     393     415     471     471     479     502     502     522     548     548
1769          UI     571     575     586     604     605     637     637     665     674     701
1770          UI     714     745     760     781     786     813     827     873     916     952
1771          UI    1025    1058    1164    1253    1129    1310    1383    1387    1317    1254
1772          UI    1199    1153    1113    1072    1031    1005     981     943     924     907
1773          UI     875     863     842     824     813     789     782     737     730     693
1774          UI     690     655     655     623     620     601     589     578     536     536
1775          UI     517     502     502     480     471     471     416     393     393     384
1776          UI     295     295     295     295     265     181     181     181     181     181
1777          UI     181     181     176     168     168     168     168     168     168     168
1778          UI     168     104     102     102     102     102     102     102     102     102
1779          UI     102     102     102     102      96      31      31      31      31      31
1780          UI      31      31      31      31      31      31      31      31      31      31
1781          UI      31      31      31      31      31      31      31      31      31      31
1782          UI      31      31      31      31      31      31      31      31      31      31
1783          UI      31      31      31      31      31      31      31      31      31      31
1784          UI       0       0       0       0       0       0       0       0       0       0
1785          UI       0       0       0       0       0       0       0       0       0       0
              *

1786          KK    C123
1787          KM        Combine R121-123 + 2FF
1788          HC       2
              *

1789          KK  123140
1790          KM        Channel Route From C123 To C140
1791          KM        Representative Of X-SECT. 2FF3
1792          RS       4    FLOW      -1
1793          RC   0.050   0.051   0.050    3800   0.006
1794          RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1795          RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1796          RL                    0.80    91.8
              *

1797          KK     2NN
1798          KM        SUB-BASIN 2NN At C124
1799          BA    9.61
1800          LG    0.35    0.35    3.50    0.29    0.00
1801          UI     199     199     199     199     199     199     199     199     199     199
1802          UI     199     199     427     652     652     652     728     761     761     828
1803          UI     913     913     955     971     987    1062    1062    1105    1114    1148
1804          UI    1171    1201    1234    1268    1304    1350    1384    1453    1478    1522
1805          UI    1546    1574    1678    1748    1837    1985    2059    2362    2303    2356
1806          UI    2615    2686    2585    2443    2323    2220    2131    2053    1985    1903
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1807          UI    1850    1803    1756    1696    1664    1631    1578    1556    1522    1453
1808          UI    1427    1344    1332    1268    1256    1201    1194    1141    1141    1043
1809          UI    1038    1001     971     971     913     913     870     761     761     756
1810          UI     571     571     571     571     422     351     351     351     351     351
1811          UI     351     336     326     326     326     326     326     326     325     19
```

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1812          UI     199     199     199     199     199     199     199     199     199     199
1813          UI     199     128      61      61      61      61      61      61      61      61
1814          UI      61      61      61      61      61      61      61      61      61      61
1815          UI      61      61      61      61      61      61      61      61      61      61
1816          UI      61      61      61      61      61      61      61      61      61      61
1817          UI      61      61       0       0       0       0       0       0       0       0
1818          UI       0       0       0       0       0       0       0       0       0       0
              *

1819          KK     200
1820          KM        SUB-BASIN 200 At C124
1821          BA    0.85
1822          LG    0.35    0.35    3.50    0.29    0.00
1823          UI      52      52      52      52     145     185     215     247     269     291
1824          UI     313     337     373     402     447     525     628     689     600     532
1825          UI     482     445     415     383     344     318     290     263     245     210
1826          UI     168     140      92      92      87      85      78      52      52      52
1827          UI      52      16      16      16      16      16      16      16      16      16
1828          UI      16      16      16      16       0       0       0       0       0       0
1829          UI       0       0       0       0       0       0       0       0       0       0
              *

1830          KK    C124
1831          KM        Combine 2NN + 200
1832          HC       2
              *

1833          KK  124125
1834          KM        Channel Route From C124 To C125
1835          KM        Representative Of X-SECT. 2KK1
1836          RS      18    FLOW      -1
1837          RC   0.050   0.055   0.050   14600   0.008
1838          RX  3854.0  4219.0  4339.0  4352.0  4384.0  4402.0  4465.0  4966.8
1839          RY    97.7    92.7    95.0    91.0    92.1    94.0    94.7    97.7
1840          RL                    0.93    91.0
              *

1841          KK     2PP
1842          KM        SUB-BASIN 2PP
1843          BA    1.78
1844          LG    0.35    0.35    3.61    0.31    0.00
1845          UI      92      92      92      92      96     303     328     368     427     455
1846          UI     497     525     556     594     645     695     739     831     969    1102
1847          UI    1229    1113     994     905     837     783     740     690     636     586
1848          UI     549     507     466     438     394     343     265     226     163     163
1849          UI     156     151     151     120      92      92      92      92      57      28
1850          UI      28      28      28      28      28      28      28      28      28      28
1851          UI      28      28      28      28       0       0       0       0       0       0
1852          UI       0       0       0       0       0       0       0       0       0       0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1853          KK    C125
1854          KM        Combine R124-125 + 2PP
1855          HC       2
              *

1856          KK  125126
1857          KM        Channel Route From C125 To C126
1858          KM        Representative Of X-SECT. 2FF3
1859          RS      18    FLOW      -1
1860          RC   0.050   0.051   0.050   14800   0.007
1861          RX  3689.3  4225.0  4325.0  4337.0  4357.0  4367.0  4391.0  4830.6
1862          RY    98.1    93.1    94.2    91.9    91.8    94.4    92.8    98.1
1863          RL                    1.24    91.8
              *

1864          KK     2QQ
1865          KM        SUB-BASIN 2QQ
1866          BA    1.67
1867          LG    0.35    0.35    3.48    0.80    0.00
1868          UI      87      87      87      87      90     284     308     345     401     427
1869          UI     466     492     522     557     605     652     693     779     909    1033
1870          UI    1153    1045     933     849     785     734     694     648     597     550
1871          UI     515     476     437     411     370     322     249     212     153     153
```

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1872          UI     147     142     142     112      87      87      87      87      53      27
1873          UI      27      27      27      27      27      27      27      27      27      27
1874          UI      27      27      27      27       0       0       0       0       0       0
1875          UI       0       0       0       0       0       0       0       0       0       0
              *

1876          KK    C126
1877          KM        Combine R125-126 + 2QQ
1878          HC       2
              *

1879          KK  126140
1880          KM        Channel Route From C126 To C140
1881          KM        Representative Of X-SECT. 2UU1
1882          RS      15    FLOW      -1
1883          RC   0.050   0.038   0.050    9200   0.007
1884          RX  3516.0  4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1885          RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
1886          RL                    0.85    91.6
              *

1887          KK    C140
1888          KM        Combine R123-140 + R126-140
1889          HC       2
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

1890          KK  140127
1891          KM        Channel Route From C140 To C127
1892          KM        Representative Of X-SECT. 2UU1
1893          RS       8    FLOW      -1
1894          RC   0.050   0.038   0.050    6800   0.006
1895          RX  3516.0  4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1896          RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
1897          RL                    0.93    91.6
              *

1898          KK     2RR
1899          KM        SUB-BASIN 2RR
1900          BA    0.93
1901          LG    0.35    0.35    4.15    0.54    0.00
1902          UI      41      41      41      41      41      58     135     144     158     186
1903          UI     197     210     224     235     247     262     279     299     316     336
1904          UI     372     421     484     535     535     479     437     404     377     357
1905          UI     337     322     302     280     262     247     234     215     202     192
1906          UI     172     156     118     117      73      73      73      69      68      68
1907          UI      63      41      41      41      41      41      31      13      13      13
1908          UI      13      13      13      13      13      13      13      13      13      13
1909          UI      13      13      13      13      13       0       0       0       0       0
1910          UI       0       0       0       0       0       0       0       0       0       0
              *

1911          KK     2YY
1912          KM        SUB-BASIN 2YY
1913          BA    1.12
1914          LG    0.35    0.35    3.36    0.90    0.00
1915          UI      47      47      47      47      47      47     131     153     176     188
1916          UI     214     227     242     255     266     280     295     313     335     353
1917          UI     370     408     454     536     547     627     579     524     483     452
1918          UI     422     402     381     364     344     321     301     285     271     250
1919          UI     235     224     214     182     166     134     127      82      82      82
1920          UI      79      76      76      76      51      47      47      47      47      47
1921          UI      26      14      14      14      14      14      14      14      14      14
1922          UI      14      14      14      14      14      14      14      14      14      14
1923          UI       0       0       0       0       0       0       0       0       0       0
1924          UI       0       0       0       0       0       0       0       0       0       0
              *

1925          KK   C127L
1926          KM        Combine R140-127 + 2RR + 2YY
1927          HC       3
              *

1928          KK    C127
1929          KM        Combine C127L(R140-127 + 2RR + 2YY) + C127R(R113-127 + 2DD)
```

```
1930          HC       2
              *
                                        HEC-1 INPUT                                                          PAGE 45

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1931          KK  127131
1932          KM        Channel Route From C127 To C131
1933          KM        Representative Of X-SECT. 2UU1
1934          KO                                        21
1935          RS       6    FLOW      -1
1936          RC   0.050   0.038   0.050    4800   0.004
1937          RX  3516.0  4516.0  5083.0  5094.0  5148.0  5160.0  5298.0  5480.4
1938          RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
1939          RL                    0.77    91.6
              *

1940          KK  BDC78L
1941          KM        Bring Back Flow Split Diverted Hydrograph DC78L
1942          DR   DC78L
              *

1943          KK  78L128
1944          KM        Channel Route From C78L To C128
1945          KM        Representative Of X-SECT. 2TT1
1946          RS      20    FLOW      -1
1947          RC   0.060   0.039   0.060   10000   0.009
1948          RX  3066.0  4066.0  4102.0  4112.0  4150.0  4158.0  4208.0  4253.0
1949          RY    93.8    88.8    91.3    89.0    89.6    90.9    89.4    94.8
1950          RL                    2.09    88.8
              *

1951          KK     2SS
1952          KM        SUB-BASIN 2SS
1953          BA    3.83
1954          LG    0.29    0.35    3.34    0.84    5.00
1955          UI     129     129     129     129     129     129     129     227     424     424
1956          UI     494     494     593     606     631     676     701     723     759     788
1957          UI     821     861     908     961     993    1035    1122    1231    1329    1549
1958          UI    1565    1745    1631    1509    1393    1315    1247    1179    1128    1083
1959          UI    1042    1006     958     903     858     820     781     748     708     673
1960          UI     631     613     593     514     494     395     371     352     228     228
1961          UI     228     228     215     212     212     212     201     129     129     129
1962          UI     129     129     129     129      87      40      40      40      40      40
1963          UI      40      40      40      40      40      40      40      40      40      40
1964          UI      40      40      40      40      40      40      40      40      40       0
1965          UI       0       0       0       0       0       0       0       0       0       0
1966          UI       0       0       0       0       0       0       0       0       0       0
              *

1967          KK    C128
1968          KM        Combine R78L-128 + 2SS
1969          KM        Area: BDC78L=4.77sm, 2SS=3.83sm
1970          HC       2    8.60
              *
1                                       HEC-1 INPUT                                                          PAGE 46

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


1971          KK  128129
1972          KM       Channel Route From C128 To C129
1973          KM       X-SECT. 2TT1
1974          RS      25    FLOW      -1
1975          RC   0.060   0.039   0.060   14200   0.010
1976          RX  4066.0  5066.0  5102.0  5112.0  5150.0  5158.0  5208.0  5253.0
1977          RY    93.8    88.8    91.3    89.0    89.6    90.9    89.4    94.8
1978          RL                    1.53    88.8
              *

1979          KK     2TT
1980          KM        SUB-BASIN 2TT
1981          BA    4.60
1982          LG    0.30    0.35    3.57    0.72    6.00
1983          UI     201     201     201     201     201     246     661     694     771     888
1984          UI     953    1009    1085    1135    1193    1262    1343    1440    1523    1600
1985          UI    1770    1992    2334    2453    2679    2419    2195    2027    1888    177!
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1986          UI    1682    1605    1516    1407    1317    1241    1176    1088    1016     965
1987          UI     920     771     675     578     480     356     356     353     330     330
1988          UI     330     264     201     201     201     201     201     116      62      62
1989          UI      62      62      62      62      62      62      62      62      62      62
1990          UI      62      62      62      62      62      62       0       0       0       0
1991          UI       0       0       0       0       0       0       0       0       0       0
              *

1992          KK    C129
1993          KM       Combine R128-129 + 2TT
1994          HC       2
              *

1995          KK  129130
1996          KM       Channel Route From C129 To C130
1997          KM       X-SECT. 2UU2
1998          RS      12    FLOW      -1
1999          RC   0.050   0.055   0.050    9600   0.009
2000          RX  4225.0  5225.0  5375.0  5409.0  5464.0  5494.0  5794.0  5990.4
2001          RY    98.9    93.9    94.2    90.9    90.0    93.9    95.7    98.9
2002          RL                    1.48    90.0
              *

2003          KK  BDC80L
2004          KM        Bring Back Flow Split Diverted Hydrograph DC80L
2005          DR   DC80L
              *

2006          KK  80L130
2007          KM        Channel Route From C80L To C130
2008          KM        X-SECT. 2UU2
2009          RS      12    FLOW      -1
2010          RC   0.050   0.055   0.050   12000   0.009
2011          RX  3662.5  4225.0  4375.0  4409.0  4464.0  4494.0  4794.0  4990.4
2012          RY    98.9    93.9    94.2    90.9    90.0    93.9    95.7    98.9
2013          RL                    1.79    90.0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2014          KK    C130
2015          KM        Combine R80L-130 + 2SS + 2TT
2016          KM        Area: DC80L=77.13sm, 2SS + 2TT 8.43sm
2017          HC       2   85.56
              *

2018          KK  130131
2019          KM       Channel Route From C130 To C131
2020          KM       X-SECT. 2UU1
2021          KO                                    21
2022          RS      32    FLOW      -1
2023          RC   0.050   0.038   0.050   27400   0.007
2024          RX  4516.0  5516.0  6083.0  6094.0  6148.0  6160.0  6298.0  6480.4
2025          RY    99.7    94.7    93.9    91.6    92.1    93.4    94.0    99.7
2026          RL                    0.94    91.6
              *

2027          KK    C131
2028          KM        Combine R127-131 + R130-131
2029          HC       2
              *

2030          KK  131132
2031          KM       Channel Route From C131 To C132
2032          KM       Interpolated X-SECT. Between 6P1 and 2UU1
2033          RS       6    FLOW      -1
2034          RC   0.050   0.055   0.050    4400   0.004
2035          RX  3432.0  5432.0  5783.0  5849.0  5909.0  6027.0  6271.0  7648.0
2036          RY    98.3    92.3    91.9    90.4    90.8    92.4    93.4    98.3
2037          RL                    0.70    90.4
              *

2038          KK     2UU
2039          KM        SUB-BASIN 2UU
2040          BA    8.10
2041          LG    0.35    0.35    3.81    0.65    0.0C
```

```
2042        UI     168     168     168     168     168     168     168     168     168     168
2043        UI     168     168     392     553     553     553     627     645     645     718
2044        UI     774     774     817     824     849     900     900     944     944     982
2045        UI     993    1029    1046    1087    1106    1159    1174    1249    1263    1291
2046        UI    1323    1350    1434    1513    1595    1691    1760    2117    1862    2091
2047        UI    2257    2278    2148    2038    1936    1851    1778    1714    1659    1609
2048        UI    1549    1507    1472    1434    1391    1367    1335    1301    1279    1210
2049        UI    1180    1139    1102    1076    1039    1019     989     968     930     880
2050        UI     877     824     824     798     774     774     669     645     645     552
2051        UI     484     484     484     436     298     298     298     298     298     298
2052        UI     293     277     277     277     277     277     277     277     203     168
2053        UI     168     168     168     168     168     168     168     168     168     168
2054        UI     138      52      52      52      52      52      52      52      52      52
2055        UI      52      52      52      52      52      52      52      52      52      52
2056        UI      52      52      52      52      52      52      52      52      52      52
2057        UI      52      52      52      52      52      52      52      52      52      52
2058        UI      52       0       0       0       0       0       0       0       0       0
2059        UI       0       0       0       0       0       0       0       0       0       0
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2060        KK  BDC82L
2061        KM        Recall Flow Split Diverted Hydrograph DC82L
2062        DR   DC82L
            *

2063        KK    C132
2064        KM       Combine R131-132 + 2UU + C82L at Interstate 8
2065        HC       3  330.40
            *
            * DC132R modified by Premier Engineering Corp. 8/15/00 to reflect hydraulic
            * analysis
            *

2066        KK  DC132R
2067        KM         Main flow at C132 is in the right channel (C132R) and passes
2068        KM         under I-8.  Diverted flow (DQ record) goes into the left channel
2069        KM         (C132L) west along the south side of I-8.
2070        DT  DC132L
            * DI   0.0  3550.0  5850.0  8750.0 12850.0  18450.  24000.  25400.  33600.
            * DQ   0.0     0.0   300.0  1000.0  2500.0  5400.0  8700.0  9600.0 15000.0
2071        DI       0    1100    3550    8750   18450   24274   25400
2072        DQ       0       0      89    1988    8362   13156   14118
            *

2073        KK  132133
2074        KM       Channel Route From C132 To C133 At The Gila Bend Canal
2075        KM        Representative Of X-SECT. 6P1
2076        RS       6    FLOW      -1
2077        RC   0.050   0.072   0.050    5000   0.006
2078        RX  3969.8  5348.0  5483.0  5603.0  5669.0  5894.0  6244.0  7544.0
2079        RY    95.8    89.8    89.8    89.1    89.4    91.3    92.7    95.8
2080        RL                    0.81    89.1
            *

2081        KK   C133I
2082        KM       Combine R132-133 + C135I(R82-135 + 2VV)
2083        HC       2  334.14
            *

2084        KK    PND3
2085        KM        Reservoir Route at POND3 (C133 + C135) At The Gila Bend Canal
2086        RS       1    ELEV   731.3
2087        SV     0.0    26.0    38.0    54.0    81.0   127.0   226.0
2088        SE   731.3     740     741     742     743     744     748
2089        SQ     0.0  2000.0  5035.0  8275.0 11092.0 14799.0 17002.0 18353.0 19926.0 20541.0
2090        SQ   21317 25570.0
2091        SE   731.3   735.2   738.2   740.4   742.3   744.5   745.5   746.0   746.3   746.4
2092        SE   746.5   746.9
2093        RL                    0.67   731.3
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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```
2094        KK   PND3N
2095        KM         Main flow at C133 north in main channel.
2096        KM         Diverted flow (DQ record) goes over the levee to the west into
2097        KM         sub-basin 7A.
2098        DT  DPND3W
2099        DI     0.0 17502.0 18353.0 18824.0 19305.0 19926.0 20541.0 21317.0 25570.0
2100        DQ     0.0     0.0   100.0   200.0   300.0   400.0   495.0   640.0  1400.0
            *

2101        KK   D133O
2102        KM         Main flow at C133O is in the left channel (R133O-141)
2103        KM         Diverted flow (DQ record) goes into the right channel (R135O-141)
2104        KM            Split reservoir route hydrograph downstream of GBC To simulate
2105        KM            outflow from C133 and C135.  The diverted hydrograph is the
2106        KM            outflow from the 30" CMP culverts at C135 plus flow diverted from
2107        KM            Sand Tank Wash into Bender Wash downstream of the Gila Bend Canal
2108        KM            by the Southern Pacific Railroad.
2109        DT   D135O
2110        DI     0.0     100     350     900    1500    1800    2350    3550    5050    6600
2111        DI    8600   11500   19200   24100   27600
2112        DQ       0       0       0       0       0       0      50     350     750    1250
2113        DQ    1900    2500    3200    3300    3600
            *

2114        KK  133141
2115        KM        Channel Route From C133O To C141
2116        KM        Sand Tank Wash HEC-2 Section 3.470
2117        RS       6    FLOW      -1
2118        RC   0.050   0.030   0.050    3700   0.003
2119        RX  7646.2  9932.3  9948.6  9965.5 10027.8 10034.0 10046.7 11681.8
2120        RY   730.0   724.1   722.7   719.4   719.5   723.2   725.2   730.0
2121        RL                    0.76   719.4
            *

2122        KK  BD135O
2123        KM       Bring Back diverted hydrograph D135O
2124        DR   D135O
            *

2125        KK  135141
2126        KM       Channel Route From C135O To C141
2127        KM       Bender Wash HEC-2 Section 0.224
2128        RS       5    FLOW      -1
2129        RC   0.035   0.030   0.035    3400   0.004
2130        RX  8926.2  9926.2  9971.9  9995.2 10000.0 10018.9 10041.8 11401.8
2131        RY   728.6   723.6   722.9   717.5   717.1   721.6   721.8   728.6
2132        RL                    0.60   717.1
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2133        KK    C141
2134        KM       Combine C133I + 2VV
2135        KM       Area: 330.40 + 3.74 = 334.14 sm
2136        HC       2  334.14
            *

2137        KK  141149
2138        KM        Channel Route From C141 To C149
2139        KM        Sand Tank Wash HEC-2 Section 2.147
2140        RS       6    FLOW      -1
2141        RC   0.060   0.030   0.050    6500   0.006
2142        RX  8945.8  9945.8  9953.5  9980.0 10000.0 10078.2 10116.8 11396.8
2143        RY   699.3   694.3   692.2   686.5   686.2   692.9   692.9   699.3
2144        RL                    0.61   686.2
            *

2145        KK     2WW
2146        KM        SUB-BASIN 2WW at C136I
2147        BA    5.82
2148        LG    0.34    0.35    3.49    0.78    1.00
2149        UI     144     144     144     144     144     144     144     144     144     144
2150        UI     333     473     473     505     552     552     627     663     680     705
2151        UI     724     771     783     808     828     850     882     897     947     972
2152        UI    1004    1066    1088    1112    1143    1216    1290    1384    1471    166:
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2153          UI    1669    1763    1937    1912    1790    1686    1597    1520    1453    1395
2154          UI    1343    1298    1257    1221    1184    1148    1121    1091    1036     990
2155          UI     963     921     893     872     835     825     753     751     705     705
2156          UI     666     663     591     552     552     424     414     414     366     255
2157          UI     255     255     255     255     247     237     237     237     237     237
2158          UI     231     144     144     144     144     144     144     144     144     144
2159          UI     144      81      44      44      44      44      44      44      44      44
2160          UI      44      44      44      44      44      44      44      44      44      44
2161          UI      44      44      44      44      44      44      44      44      44      44
2162          UI      44      44      44      44      44       0       0       0       0       0
2163          UI       0       0       0       0       0       0       0       0       0       0
              *

2164          KK   C136O
2165          KM        Reservoir Route at C136 At The Gila Bend Canal
2166          RS       1    ELEV     731
2167          SV     0.0     0.0    0.24    0.81    1.72    2.95    8.30    23.7    48.5    82.9
2168          SV   130.0   196.0   280.0   380.0   480.0   580.0   680.0
2169          SE     731     732     733     734     735     736     737     738     739     740
2170          SE     741     742     743     744     745     746     747
2171          SQ     0.0    30.0    70.0   140.0   220.0   295.0   360.0   415.0   460.0   505.0
2172          SQ   550.0   585.0   620.0   650.0   680.0   710.0   740.0
2173          RL                    0.56   731.0
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2174          KK  136149
2175          KM        Channel Route From C136 To C149
2176          KM        X-SECT. 2XX1 From 200-Scale Mapping
2177          RS      20    FLOW      -1
2178          RC   0.040   0.045   0.040    9500   0.005
2179          RX  8505.0  9330.0  9450.0  9520.0  9760.0  9920.0 10120.0 10905.7
2180          RY   717.0   712.0   713.5   712.0   709.7   710.7   712.0   717.0
2181          RL                   6.68   709.7
              *

2182          KK    C149
2183          KM       Combine R141-149 + R136O-149
2184          HC       2
              *

2185          KK  149137
2186          KM       Channel Route From C149 To C137
2187          KM       Sand Tank Wash HEC-2 Section 1.608
2188          RS       6    FLOW      -1
2189          RC   0.060   0.030   0.040    5400   0.005
2190          RX  8890.5  9890.5  9917.5  9993.1 10000.0 10018.7 10040.3 11220.3
2191          RY   680.2   675.2   671.4   670.0   670.0   672.0   674.3   680.2
2192          RL                   0.50   670.0
              *

2193          KK     2XX
2194          KM        SUB-BASIN 2XX
2195          BA    2.17
2196          LG    0.33    0.34    3.86    0.62    5.00
2197          UI      96      96      96      96      96     134     316     337     369     433
2198          UI     460     489     523     547     576     610     650     698     736     783
2199          UI     867     982    1129    1248    1247    1117    1020     942     880     832
2200          UI     787     751     705     654     610     577     546     502     470     447
2201          UI     400     364     276     274     170     170     170     161     158     158
2202          UI     147      96      96      96      96      96      72      29      29      29
2203          UI      29      29      29      29      29      29      29      29      29      29
2204          UI      29      29      29      29      29       0       0       0       0       0
2205          UI       0       0       0       0       0       0       0       0       0       0
              *

2206          KK    C137
2207          KM       Combine R149-137 + 2XX
2208          HC       2
              *
              *    ***************************************************
              *    *                      END                        *
              *    * BENDER AND SAND TANK WASHES (Major Basins 1 & 2) *
              *    *                                                 *
              *    ***************************************************
```

```
*
*
*    ************************************
*    *                START               *
*    * SCOTT AVENUE WASH (Major Basin 7) *
*    *                                   *
*    ************************************
*
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2209          KK     7AC
2210          KM   BASIN 7AC
2211          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2212          KM    L=       4.2  Lca=       1.9   S=   37.8  Kn= .050  LAG=  80.2
2213          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2214          BA    1.20
2215          LG     .35      .35     2.89      .98       0
2216          UI     50.      50.      50.      50.      50.      50.     148.     166.     193.     208.
2217          UI    232.     247.     264.     278.     290.     305.     322.     342.     367.     385.
2218          UI    408.     448.     506.     588.     617.     672.     609.     555.     513.     477.
2219          UI    452.     426.     407.     390.     363.     338.     319.     302.     287.     263.
2220          UI    248.     237.     219.     193.     158.     145.     112.      89.      89.      88.
2221          UI     83.      83.      83.      71.      50.      50.      50.      50.      50.      43.
2222          UI     15.      15.      15.      15.      15.      15.      15.      15.      15.      15.
2223          UI     15.      15.      15.      15.      15.      15.      15.      15.      15.       0.
2224          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
2225          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

2226          KK  7AC150
2227          KM   CHANNEL ROUTE 7AC TO CP AT I-8
2228          RS      12    FLOW      -1
2229          RC    .049    .050    .043    8644   .0051
2230          RX       0       1     201     207     227     233     433     434
2231          RY     100      99      99      96      96      99      99     100
2232          RL      40
              *

2233          KK     7AB
2234          KM   BASIN 7AB
2235          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2236          KM    L=       2.4  Lca=       .8   S=   27.1  Kn= .050  LAG=  48.0
2237          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2238          BA     .57
2239          LG     .35      .35     3.03      .89       0
2240          UI     40.      40.      40.      69.     136.     161.     189.     208.     228.     247.
2241          UI    273.     303.     336.     404.     490.     515.     438.     386.     350.     322.
2242          UI    294.     262.     238.     215.     193.     170.     134.     105.      71.      70.
2243          UI     66.      66.      42.      40.      40.      34.      12.      12.      12.      12.
2244          UI     12.      12.      12.      12.      12.      12.      12.       0.       0.       0.
2245          UI      0.       0.       0.       0.       0.       0.       0.       0.       0.       0.
              *

2246          KK    C7AB
2247          KM   COMBINE R7AC AND 7AB AT I-8
2248          KO                                     21
2249          HC       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2250          KK  BC132L
2251          KM        Recall Flow Split Diverted Hydrograph DC132L
2252          DR  DC132L
              *

2253          KK    C150
2254          KM        Combine C7A and DC132L
2255          HC       2  332.17
              *

2256          KK  DC150R
2257          KM        Main flow is through I-8 via culverts and Scott Ave. (C150R).
```

```
2258        KM        Diverted flow (DQ record) goes west along the south side of
2259        KM        I-8  (C150L)
2260        DT  DC150L
2261        DI       0    2850    4800    7450   11800   18625   26500
2262        DQ       0       0    1600    4000    8000   14500   22000
            *

2263        KK  150142
2264        KM        Channel Route flow through culverts and Scott Ave. (C150R)
2265        KM        from I-8 to CP142.
2266        KM        Representative of HEC-2 X-Sect. "Scott Ave Wash 4.911"
2267        RS       4    FLOW      -1
2268        RC   0.035   0.050   0.035  3680.0   0.004
2269        RX    9793  9952.7  9981.1 10000.0 10005.9 10013.1 10044.4 10201.9
2270        RY   749.0   748.9   744.7   742.3   742.7   745.5   745.0   749.9
2271        RL                    1.05   742.3
            *

2272        KK     7AA
2273        KM   BASIN 7AA
2274        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2275        KM    L=      1.0  Lca=       .5   S=    5.1  Kn= .050  LAG=  40.6
2276        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2277        BA     .64
2278        LG     .35     .35    2.79    1.06       0
2279        UI     53.     53.     53.    161.    207.    251.    283.    311.    346.    391.
2280        UI    441.    559.    668.    633.    536.    472.    427.    381.    336.    299.
2281        UI    264.    228.    174.    123.     94.     89.     87.     58.     53.     53.
2282        UI     26.     16.     16.     16.     16.     16.     16.     16.     16.     16.
2283        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
2284        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

2285        KK     7AA
2286        KM   COMBINE 150142 AND 7AA AT GBC
2287        HC       2  332.17
            *
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2288        KK  BPND3W
2289        KM        Recall Flow Split Diverted Hydrograph DPND3W
2290        DR  DPND3W
            *

2291        KK   C142I
2292        KM    Combine 7A + DC133W
2293        HC       2  336.59
            *

2294        KK   C142O
2295        KM        Reservoir Route at C142O At The Gila Bend Canal
2296        RS       1    ELEV     732
2297        SV     0.0     0.0     0.0       1       2       4       8      14      24      34
2298        SV      44      54      59      64      69      74      79      84
2299        SE     732     733     734     735     736     737     738     739     740     741
2300        SE     742     743   743.5     744   744.5     745   745.5     746
2301        SQ       0      12      40      73     112     143     170     190     212     234
2302        SQ     256     278     289     345     569    1022    2502    7402
2303        RL                    0.84   732.0
            *

2304        KK  DC142R
2305        KM        Main flow is into Sub-basin 7D and reach 142139 (C142R)
2306        KM        Diverted flow (DQ record) flows over over the Gila Bend Canal west
2307        KM        of C142 into Sub-basin 7B and reach 142-18 (C150L)
2308        DT  DC142L
2309        DI     0.0  1146.0  1304.0  1545.0  1936.0  2502.0  3190.0  4072.0  5084.0  6243.0
2310        DI  7402.0
2311        DQ     0.0     0.0     7.0    57.0   206.0   422.0   707.0  1082.0  1531.0  2059.0
2312        DQ  2587.0
            *

2313        KK  142139
2314        KM        Channel Route From C142O To C139
2315        KM        Scott Avenue Wash HEC-2 Section 3.292
```

```
2316          RS      15    FLOW      -1
2317          RC   0.035   0.070   0.035   12600   0.006
2318          RX  8929.2  9929.2 10040.5 10055.8 10065.5 10084.8 10148.6 10407.5
2319          RY   710.5   705.5   704.1   702.7   701.3   703.9   707.1   710.5
2320          RL                   1.03   701.3
              *

2321          KK      7D
2322          KM        SUB-BASIN 7D
2323          BA    1.17
2324          LG    0.30    0.33    3.34    0.88   15.00
2325          UI      69      69      69      69     169     238     273     322     348     379
2326          UI     402     436     471     519     556     640     776     862     882     764
2327          UI     687     628     581     544     499     454     420     385     349     325
2328          UI     282     229     197     122     122     118     114     114      74      69
2329          UI      69      69      44      21      21      21      21      21      21      21
2330          UI      21      21      21      21      21      21       0       0       0       0
2331          UI       0       0       0       0       0       0       0       0       0       0
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2332          KK    C139
2333          KM       Combine R142O-139 + 7D
2334          HC       2
              *

2335          KK      7C
2336          KM        SUB-BASIN 7C at C138
2337          BA    0.60
2338          LG    0.35    0.35    2.99    1.01    1.00
2339          UI      53      53      64     180     222     262     296     328     373     420
2340          UI     511     657     654     542     473     425     376     328     290     254
2341          UI     211     152      94      92      87      67      53      53      28      16
2342          UI      16      16      16      16      16      16      16       0       0       0
2343          UI       0       0       0       0       0       0       0       0       0       0
              *

2344          KK  BC142L
2345          KM        Recall Flow Split Diverted Hydrograph DC142L
2346          DR  DC142L
              *

2347          KK  142-18
2348          KM        Channel Route From C142L To C18
2349          KM        Representative of Scott Avenue Wash HEC-2 Section 3.292
2350          RS      22    FLOW      -1
2351          RC   0.035   0.070   0.035   14800   0.006
2352          RX  8929.2  9929.2 10040.5 10055.8 10065.5 10084.8 10148.6 10407.5
2353          RY   710.5   705.5   704.1   702.7   701.3   703.9   707.1   710.5
2354          RL                   1.66   701.3
              *

2355          KK      7B
2356          KM        SUB-BASIN 7B at C18
2357          BA    1.67
2358          LG    0.35    0.27    3.53    0.75    7.00
2359          UI      83      83      83      83      83     231     281     317     370     398
2360          UI     429     457     481     511     551     594     631     677     768     900
2361          UI     985    1104     997     894     817     758     711     669     635     581
2362          UI     541     506     476     432     405     381     328     280     238     178
2363          UI     146     146     139     136     136     108      83      83      83      83
2364          UI      64      25      25      25      25      25      25      25      25      25
2365          UI      25      25      25      25      25      25      25       0       0       0
2366          UI       0       0       0       0       0       0       0       0       0       0
              *

2367          KK     C18
2368          KM        Combine R142-18 + 7B
2369          HC       2  338.26
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
2370        KK   NULL1
2371        KM   NULL COMBINE TO REDUCE NUMBER OF OPEN HYDROGRAPHS
2372        HC       4
            *
            * Move to C151 and route Sand Tank Wash overflow to Quilotosa Wash watershed
            * at C12
            *

2373        KK  BD150L
2374        KM        Recall Flow Split Diverted Hydrograph DC150L
2375        DR  DC150L
            *

2376        KK   SR151
2377        KM        Reservoir Route just east of CP151
2378        RS       1    ELEV     742
2379        SV     0.0       2       3      12      24      45      83     124     172     230
2380        SV     241     252     296     321     333     365     380     408     446     485
2381        SE     742     743     744     745     746     747     748     749     750     751
2382        SE   751.2   751.4     752   752.4   752.6     753   753.2   753.5     754   754.5
2383        SQ     0.0     700    1300    1900    2500    3200    3800    4400    5100    5700
2384        SQ    5800    6100    6800    7500    8000    9100   10000   12000   17600   25000
2385        RL                    1.16   742.0
            *
            *
            *    ************************************
            *    *                END                 *
            *    * SCOTT AVENUE WASH (Major Basin 7 *
            *    *                                   *
            *    ************************************
            *

2386        KK     3KC
2387        KM   BASIN 3KC
2388        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2389        KM    L=      8.5  Lca=      4.2   S=   36.9  Kn= .050  LAG= 140.0
2390        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2391        BA    3.45
2392        LG     .35     .35    3.63     .54     .00
2393        UI     83.     83.     83.     83.     83.     83.     83.     83.     83.     83.
2394        UI    134.    273.    273.    273.    318.    318.    331.    382.    382.    403.
2395        UI    406.    431.    444.    458.    465.    483.    489.    514.    522.    545.
2396        UI    564.    580.    616.    628.    640.    658.    699.    739.    790.    842.
2397        UI    927.    990.    982.   1101.   1119.   1048.    988.    936.    891.    853.
2398        UI    819.    789.    762.    734.    712.    693.    676.    658.    638.    616.
2399        UI    596.    561.    548.    530.    509.    502.    478.    473.    434.    432.
2400        UI    406.    406.    385.    382.    349.    318.    318.    261.    239.    239.
2401        UI    239.    148.    147.    147.    147.    147.    147.    137.    136.    136.
2402        UI    136.    136.    136.    116.     83.     83.     83.     83.     83.     83.
2403        UI     83.     83.     83.     83.     45.     25.     25.     25.     25.     25.
2404        UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
2405        UI     25.     25.     25.     25.     25.     25.     25.     25.     25.     25.
2406        UI     25.     25.     25.     25.     25.     25.     25.     25.     25.      0.
2407        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2408        UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
            *

2409        KK     3KD
2410        KM   BASIN 3KD
2411        KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2412        KM    L=      6.5  Lca=      2.4   S=   36.1  Kn= .050  LAG= 104.0
2413        KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2414        BA    2.26
2415        LG     .35     .35    3.21     .78     .00
2416        UI     73.     73.     73.     73.     73.     73.     73.     78.    240.    240.
2417        UI    264.    280.    310.    337.    353.    363.    391.    404.    416.    431.
2418        UI    452.    471.    492.    518.    546.    564.    586.    633.    692.    749.
2419        UI    876.    857.    979.    956.    871.    816.    763.    721.    687.    656.
2420        UI    629.    605.    583.    564.    533.    505.    481.    461.    443.    422.
2421        UI    399.    382.    358.    349.    337.    299.    280.    239.    210.    210.
2422        UI    144.    129.    129.    129.    127.    120.    120.    120.    120.     99.
2423        UI     73.     73.     73.     73.     73.     73.     73.     49.     22.     22.
2424        UI     22.     22.     22.     22.     22.     22.     22.     22.     22.     22.
2425        UI     22.     22.     22.     22.     22.     22.     22.     22.     22.     22.
```

```
2426          UI     22.     22.     22.      0.      0.      0.      0.      0.      0.      0.
2427          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *

2428          KK    C151
2429          KM   COMBINE 3KC AND 3KD AT RAILROAD TRACKS WITH SR151
2430          HC       3  337.88
              *

2431          KK  151-12
2432          KM   CHANNNEL ROUTE FROM CP151 TO CP 12
2433          RS       3    FLOW      -1
2434          RC    .044    .059    .039    2500   .0068
2435          RX       0       1     201     222     237     258     458     459
2436          RY     115      99      99      92      92      99      99     115
2437          RL       9
              *

2438          KK     3KB
2439          KM   BASIN 3KB
2440          KM    THE FOLLOWING PARAMETERS WERE PROVIDED FOR THIS BASIN
2441          KM    L=      3.9  Lca=      1.9   S=   34.3  Kn= .050  LAG=  78.9
2442          KM    PHOENIX VALLEY S-GRAPH WAS USED FOR THIS BASIN
2443          BA    2.33
2444          LG     .35     .35    4.30     .37     .00
2445          UI    100.    100.    100.    100.    100.    100.    316.    333.    382.    422.
2446          UI    464.    487.    532.    555.    581.    611.    646.    688.    742.    773.
2447          UI    826.    930.   1040.   1172.   1315.   1283.   1154.   1058.    977.    918.
2448          UI    866.    825.    783.    741.    689.    646.    610.    579.    534.    501.
2449          UI    477.    456.    382.    339.    286.    248.    176.    176.    176.    165.
2450          UI    164.    164.    148.    100.    100.    100.    100.    100.     86.     31.
2451          UI     31.     31.     31.     31.     31.     31.     31.     31.     31.     31.
2452          UI     31.     31.     31.     31.     31.     31.     31.     31.      0.      0.
2453          UI      0.      0.      0.      0.      0.      0.      0.      0.      0.      0.
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2454          KK     C12
2455          KM        Combine 3KB + R151-12
2456          HC       2  339.24
              *

2457          KK  12-14A
2458          KM       Channel Route From C12 To C14
2459          KM       Representative Of X-SECT. 3M2
2460          RS       4    FLOW      -1
2461          RC   0.035   0.033   0.035    2000   0.001
2462          RX  4010.0    4011  5055.0  5072.0  5087.0  5102.0    5483  5483.8
2463          RY     110   100.6    95.9    85.6    85.6    94.8   100.6     110
2464          RL                    9.78    85.6
              *

2465          KK  DC14AR
2466          KM         Main flow at C14A is in main channel and passes trhough I-8 culverts
2467          KM         Diverted flow (DQ record) goes into the left channel (C14L)
2468          KM         Runoff spilling out of the main channel at the I-8 culvert
2469          KM         spills to the west toward Concentration point C11B
2470          DT  DC14AL
2471          DI     0.0    1000    2000    2400    3085    3700    4890    5940    7070    8220
2472          DI    9300   10360   11410
2473          DQ     0.0     0.0     0.0     100     500    1000    2000    3000    4000    5000
2474          DQ    6000    7000    8000
              *

2475          KK  14A-14
2476          KM       Channel Route From C14A to C14
2477          KM       Representative Of X-SECT. 3M2
2478          RS       4    FLOW      -1
2479          RC   0.035   0.033   0.035    1200   0.001
2480          RX  4010.0    4011  5055.0  5072.0  5087.0  5102.0    5482  5483.8
2481          RY     110   100.6    95.9    85.6    85.6    94.8   100.6     110
2482          RL                    9.78    85.6
              *

2483          KK  DC14AL
```

```
2484        KM        Recall Flow Split Diverted Hydrograph DC14AL
2485        DR  DC14AL
            *

2486        KK  14A11B
2487        KM        Channel Route From DC14AL to CP11B
2488        KM        Route from Unnamed No. 2 at I-8 to SPRR
2489        RS       1    FLOW      -1
2490        RC     .04    .035     .04    2000   .0035
2491        RX       0       1     880    1280    1450    1470    1509    1510
2492        RY     740     736     732     730     728     730     734     740
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2493        KK  11B-14
2494        KM        Channel Route From C11B to C14
2495        KM        Route flow east along I-8 frontage road through overpass to C14
2496        RS       1    FLOW      -1
2497        RC    .044    .034    .044    2400    .002
2498        RX     600   600.1     990    1000    1010    1025  1039.9    1040
2499        RY     750     743     741     729     729     741     743     750
            *

2500        KK     C14
2501        KM        Combine flow from 11B with routed flow from R14A-14
2502        HC       2  339.24
            *

2503        KK   DC14L
2504        KM        Divert flow into old Hacker wash alignment.  Remainder flow stays
2505        KM        in diversion channel and joins Quilotosa Wash at CP13.
2506        KM        Diverted flows overland to join Quilotosa Wash at CP16 (Watermelon Road)
2507        DT   DC14R
2508        DI       0     450     451    1000    1500    2000    4000    8000   16000
2509        DQ       0       0       1     550    1050    1550    3550    7550   15550
            *

2510        KK  R14-13
2511        KM       Channel Route From C14 To C13
2512        KM       X-SECT. 3M2
2513        RS       6    FLOW      -1
2514        RC   0.035   0.033   0.035    6200   0.003
2515        RX  4010.0  5010.0  5055.0  5072.0  5087.0  5102.0  5147.0  5483.8
2516        RY   100.6    95.6    95.9    85.6    85.6    94.8    94.2   100.6
2517        RL                   10.00    85.6
            *
            * Move to Top of Major Basin 3
            *

2518        KK      3F
2519        KM       SUB-BASIN 3F at C1
2520        BA   12.14
2521        LG    0.22    0.35    3.99    0.54   12.00
2522        UI     303     303     303     303     303     303     303     303     303     303
2523        UI     672     870     870     885    1161    1161    1242    1393    1428    1741
2524        UI    1768    1833    1893    1934    2045    2105    2176    2246    2292    2342
2525        UI    2401    2483    2619    2794    2957    3145    3392    3585    3969    3506
2526        UI    3131    2487    2356    2257    2176    2048    1995    1934    1848    1826
2527        UI    1786    1768    1741    1692    1658    1606    1583    1533    1514    1473
2528        UI    1451    1423    1393    1369    1290    1290    1235    1222    1207    1161
2529        UI    1161    1095    1039    1039     988     941     941     914     800     800
2530        UI     800     784     741     741     741     739     696     696     696     696
2531        UI     662     633     633     633     633     552     497     497     497     497
2532        UI     497     464     387     387     387     387     387     387     387     376
2533        UI     332     332     332     332     332     332     332     332     332     257
2534        UI     232     232     232     232     232     232     232     232     232     232
2535        UI     232     232     211     148     148     148     148     148     148     148
2536        UI     148     148     148     148     148     148     148     148     148     148
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2537        UI     148     148     148     139      58      58      58      58      58      58
2538        UI      58      58      58      58      58      58      58      58      58      58
2539        UI      58      58      58      58      58      58      58      58      58      5
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2540          UI      58      58      58      58      58      58      58      58      58      58
2541          UI      58      58      58      58      58      58      58      58      58      58
2542          UI      58      58      58      58      58      58      58       0       0       0
2543          UI       0       0       0       0       0       0       0       0       0       0
              *

2544          KK    R1-3
2545          KM       Channel Route From C1 To C3
2546          KM       X-SECT. 3G1
2547          RS      22    FLOW      -1
2548          RC   0.060   0.049   0.070   13600   0.010
2549          RX  4012.0  5012.0  5054.0  5064.0  5121.0  5136.0  5242.0  7602.0
2550          RY    99.7    94.7    93.4    90.2    91.7    94.7    92.9    99.7
2551          RL                    0.65    90.2
              *

2552          KK      3E
2553          KM       SUB-BASIN 3E at C2
2554          BA    8.24
2555          LG    0.23    0.35    4.24    0.42    4.00
2556          UI     224     224     224     224     224     224     224     224     224     431
2557          UI     643     643     683     858     858     979    1029    1194    1286    1353
2558          UI    1386    1429    1507    1563    1618    1660    1711    1755    1805    1883
2559          UI    2020    2168    2302    2504    2656    2916    2504    2145    1810    1715
2560          UI    1609    1545    1492    1429    1371    1347    1319    1300    1286    1229
2561          UI    1214    1170    1150    1119    1096    1072    1051    1029     996     953
2562          UI     943     903     903     865     858     825     768     768     725     695
2563          UI     695     640     591     591     591     550     547     547     546     515
2564          UI     515     515     515     472     468     468     468     430     368     368
2565          UI     368     368     368     320     286     286     286     286     286     286
2566          UI     280     245     245     245     245     245     245     245     245     211
2567          UI     172     172     172     172     172     172     172     172     172     172
2568          UI     172     167     109     109     109     109     109     109     109     109
2569          UI     109     109     109     109     109     109     109     109     109     109
2570          UI     109      67      43      43      43      43      43      43      43      43
2571          UI      43      43      43      43      43      43      43      43      43      43
2572          UI      43      43      43      43      43      43      43      43      43      43
2573          UI      43      43      43      43      43      43      43      43      43      43
2574          UI      43      43      43      43      43      43      43      43      43      43
2575          UI       0       0       0       0       0       0       0       0       0       0
2576          UI       0       0       0       0       0       0       0       0       0       0
              *

2577          KK    R2-3
2578          KM       Channel Route From C2 To C3
2579          KM       Representative Of X-SECT. 3G1
2580          RS      12    FLOW      -1
2581          RC   0.060   0.049   0.070    7200   0.010
2582          RX  4012.0  5012.0  5054.0  5064.0  5121.0  5136.0  5242.0  7602.0
2583          RY    99.7    94.7    93.4    90.2    91.7    94.7    92.9    99.7
2584          RL                    0.70    90.2
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2585          KK      3G
2586          KM       SUB-BASIN 3G
2587          BA    5.12
2588          LG    0.26    0.35    4.14    0.42    4.00
2589          UI     187     187     187     187     187     187     187     520     539     627
2590          UI     718     812     888    1077    1128    1180    1241    1314    1373    1420
2591          UI    1473    1531    1681    1831    2016    2210    2364    1965    1515    1408
2592          UI    1320    1247    1185    1134    1105    1082    1047    1012     979     939
2593          UI     915     895     862     827     798     761     751     718     696     643
2594          UI     628     582     582     497     495     484     458     458     447     431
2595          UI     431     417     392     392     392     309     308     308     308     260
2596          UI     239     239     239     239     233     205     205     205     205     205
2597          UI     205     160     144     144     144     144     144     144     144     144
2598          UI     116      92      92      92      92      92      92      92      92      92
2599          UI      92      92      92      92      85      36      36      36      36      36
2600          UI      36      36      36      36      36      36      36      36      36      36
2601          UI      36      36      36      36      36      36      36      36      36      36
2602          UI      36      36      36      36      36      36      36      36      36      36
2603          UI      36       0       0       0       0       0       0       0       0       0
2604          UI       0       0       0       0       0       0       0       0       0       0
              *
```

```
2605        KK      C3
2606        KM       Combine R1-3 + R2-3 + 3G
2607        HC       3
            *

2608        KK    R3-5
2609        KM       Channel Route From C3 To C5
2610        KM       X-SECT. 3H1
2611        RS       8    FLOW      -1
2612        RC   0.060   0.043   0.070   14000   0.011
2613        RX  4006.0  5006.0  5012.0  5030.0  5099.0  5114.0  5214.0  5440.5
2614        RY   101.6    96.6    94.9    89.5    91.2    94.3    92.5   101.6
2615        RL                   1.75    89.5
            *

2616        KK      3H
2617        KM       SUB-BASIN 3H
2618        BA    6.78
2619        LG    0.26    0.35    4.03    0.39    3.00
2620        UI     148     148     148     148     148     148     148     148     148     148
2621        UI     148     202     426     426     426     438     568     568     569     682
2622        UI     682     757     852     870     897     919     947     980    1003    1056
2623        UI    1072    1100    1122    1139    1176    1200    1231    1311    1400    1456
2624        UI    1538    1649    1731    1861    1872    1640    1455    1218    1149    1114
2625        UI    1065    1024    1003     951     943     897     894     874     872     852
2626        UI     850     812     812     778     775     753     741     732     710     710
2627        UI     687     682     669     631     631     615     598     598     581     568
2628        UI     568     540     509     509     507     461     461     461     444     392
2629        UI     392     392     392     369     363     363     363     363     342     341
2630        UI     341     341     341     316     310     310     310     310     298     244
2631        UI     244     244     244     244     244     244     190     189     189     189
2632        UI     189     189     189     189     189     169     162     162     162     162
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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2633        UI     162     162     162     162     162     162     115     114     114     114
2634        UI     114     114     114     114     114     114     114     114     114     114
2635        UI     114      90      73      73      73      73      73      73      73      73
2636        UI      73      73      73      73      73      73      73      73      73      73
2637        UI      73      73      73      73      73      53      28      28      28      28
2638        UI      28      28      28      28      28      28      28      28      28      28
2639        UI      28      28      28      28      28      28      28      28      28      28
2640        UI      28      28      28      28      28      28      28      28      28      28
2641        UI      28      28      28      28      28      28      28      28      28      28
2642        UI      28      28      28      28      28      28      28      28      28      28
2643        UI      28      28      28      28      28      28      28       0       0       0
2644        UI       0       0       0       0       0       0       0       0       0       0
            *

2645        KK      C5
2646        KM       Combine R3-5 + 3H
2647        HC       2
            *

2648        KK    R5-7
2649        KM       Channel Route From C5 To C7
2650        KM       Representative Of X-SECT. 3D1
2651        RS      12    FLOW      -1
2652        RC   0.060   0.044   0.050   11200   0.010
2653        RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
2654        RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
2655        RL                   2.09    90.0
            *

2656        KK      3C
2657        KM       SUB-BASIN 3C at C4
2658        BA   11.27
2659        LG    0.28    0.35    3.98    0.37    1.00
2660        UI     281     281     281     281     281     281     281     281     281     281
2661        UI     624     808     808     822    1077    1077    1153    1293    1325    1616
2662        UI    1642    1701    1757    1796    1898    1954    2020    2085    2127    2174
2663        UI    2229    2305    2431    2594    2745    2919    3149    3328    3685    3255
2664        UI    2907    2309    2187    2096    2020    1901    1852    1796    1715    1695
2665        UI    1658    1642    1616    1571    1539    1491    1469    1424    1405    1368
2666        UI    1347    1321    1293    1270    1197    1197    1146    1134    1121    1077
2667        UI    1077    1017     965     965     917     874     874     848     743     74:
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2668        UI     743     728     688     688     688     686     646     646     646     646
2669        UI     614     588     588     588     588     512     462     462     462     462
2670        UI     462     431     359     359     359     359     359     359     359     349
2671        UI     308     308     308     308     308     308     308     308     308     239
2672        UI     216     215     215     215     215     215     215     215     215     215
2673        UI     215     216     196     138     138     138     138     138     138     138
2674        UI     138     138     138     138     138     138     138     138     138     138
2675        UI     138     138     138     129      54      54      54      54      54      54
2676        UI      54      54      54      54      54      54      54      54      54      54
2677        UI      54      54      54      54      54      54      54      54      54      54
2678        UI      54      54      54      54      54      54      54      54      54      54
2679        UI      54      54      54      54      54      54      54      54      54      54
2680        UI      54      54      54      54      54      54      54       0       0       0
2681        UI       0       0       0       0       0       0       0       0       0       0
            *
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2682        KK    R4-7
2683        KM       Channel Route From C4 To C7
2684        KM       X-SECT. 3D1
2685        RS      15    FLOW      -1
2686        RC   0.060   0.044   0.050   14800   0.011
2687        RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
2688        RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
2689        RL                    3.32    90.0
            *

2690        KK      3D
2691        KM       SUB-BASIN 3D
2692        BA    6.51
2693        LG    0.33    0.35    3.61    0.31    0.00
2694        UI     196     196     196     196     196     196     196     196     381     643
2695        UI     643     729     750     834     900     940     958    1041    1064    1098
2696        UI    1143    1176    1217    1284    1337    1402    1465    1508    1560    1675
2697        UI    1820    1981    2248    2224    2544    2641    2451    2290    2139    2018
2698        UI    1920    1833    1757    1689    1629    1574    1525    1463    1390    1324
2699        UI    1255    1211    1174    1125    1056    1021     958     941     900     838
2700        UI     750     717     563     563     522     346     346     346     346     338
2701        UI     322     322     322     322     308     196     196     196     196     196
2702        UI     196     196     196     125      60      60      60      60      60      60
2703        UI      60      60      60      60      60      60      60      60      60      60
2704        UI      60      60      60      60      60      60      60      60      60      60
2705        UI      60       0       0       0       0       0       0       0       0       0
2706        UI       0       0       0       0       0       0       0       0       0       0
            *

2707        KK      C7
2708        KM       Combine R5-7 + R4-7 + 3D
2709        HC       3
            *

2710        KK   R7-90
2711        KM       Channel Route From C7 To C90
2712        KM       Representative Of X-SECT. 3D1
2713        RS       8    FLOW      -1
2714        RC   0.060   0.044   0.050    9200   0.011
2715        RX  4066.0  5066.0  5129.0  5159.0  5291.0  5296.0  5371.0  6331.0
2716        RY    98.1    93.1    94.7    91.2    90.0    92.8    93.3    98.1
2717        RL                    1.73    90.0
            *

2718        KK      3A
2719        KM       SUB-BASIN 3A at C6
2720        BA   11.19
2721        LG    0.24    0.35    4.20    0.46    4.00
2722        UI     230     230     230     230     230     230     230     230     230     230
2723        UI     230     230     414     660     660     660     672     881     881     881
2724        UI    1017    1057    1067    1321    1321    1380    1390    1450    1468    1537
2725        UI    1554    1646    1662    1704    1733    1761    1814    1840    1887    1996
2726        UI    2088    2203    2297    2463    2593    2714    2938    2852    2532    2271
2727        UI    1887    1796    1752    1651    1619    1554    1513    1468    1429    1390
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
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2728        UI    1375    1355    1345    1321    1314    1258    1258    1211    1201    1179
2729        UI    1149    1149    1106    1101    1089    1057    1057    1015     978     978
2730        UI     948     927     927     905     881     881     863     789     789     789
2731        UI     749     714     714     714     663     607     607     607     607     575
2732        UI     562     562     562     562     542     528     528     528     528     523
2733        UI     480     480     480     480     480     469     377     377     377     377
2734        UI     377     377     377     339     294     294     294     294     294     294
2735        UI     294     294     294     268     252     252     252     252     252     252
2736        UI     252     252     252     252     242     176     176     176     176     176
2737        UI     176     176     176     176     176     176     176     176     176     176
2738        UI     176     129     112     112     112     112     112     112     112     112
2739        UI     112     112     112     112     112     112     112     112     112     112
2740        UI     112     112     112     112     112     112     110      44      44      44
2741        UI      44      44      44      44      44      44      44      44      44      44
2742        UI      44      44      44      44      44      44      44      44      44      44
2743        UI      44      44      44      44      44      44      44      44      44      44
2744        UI      44      44      44      44      44      44      44      44      44      44
2745        UI      44      44      44      44      44      44      44      44      44      44
2746        UI      44      44      44      44      44      44      44      44      44      44
2747        UI      44      44       0       0       0       0       0       0       0       0
2748        UI       0       0       0       0       0       0       0       0       0       0
            *

2749        KK   R6-90
2750        KM       Channel Route From C6 To C90
2751        KM       X-SECT. 3B1
2752        RS      44    FLOW      -1
2753        RC   0.050   0.049   0.060   34000   0.014
2754        RX  4129.0  5129.0  5153.0  5159.0  5184.0  5193.0  5355.0  7275.0
2755        RY   101.0    96.0    94.7    91.0    90.8    93.8    91.4   101.0
2756        RL                   0.79    90.8
            *

2757        KK     C90
2758        KM       Combine R7-90 + R6-90
2759        HC       2
            *

2760        KK   R90-8
2761        KM       Channel Route From C90 To C8
2762        KM       Representative Of X-SECT. 3I1
2763        RS       6    FLOW      -1
2764        RC   0.050   0.059   0.050    7200   0.009
2765        RX  5069.1  5261.0  5330.0  5365.0  5392.0  5402.0  5996.0  6122.0
2766        RY    96.7    91.7    94.1    91.0    90.7    94.0    94.2    98.5
2767        RL                   0.64    90.7
            *

2768        KK      3B
2769        KM       SUB-BASIN 3B
2770        BA    6.42
2771        LG    0.35    0.35    3.50    0.29    0.00
2772        UI     198     198     198     198     198     198     198     198     490     652
2773        UI     662     760     760     900     918     970    1006    1061    1104    1132
2774        UI    1170    1228    1274    1328    1392    1471    1520    1567    1671    1806
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2775        UI    1986    2219    2294    2535    2681    2486    2321    2161    2039    1938
2776        UI    1850    1771    1701    1639    1583    1533    1456    1382    1321    1267
2777        UI    1202    1165    1126    1037    1001     970     922     910     760     760
2778        UI     602     570     570     367     351     351     351     346     326     326
2779        UI     326     326     311     198     198     198     198     198     198     198
2780        UI     198      94      61      61      61      61      61      61      61      61
2781        UI      61      61      61      61      61      61      61      61      61      61
2782        UI      61      61      61      61      61      61      61      61       0       0
2783        UI       0       0       0       0       0       0       0       0       0       0
            *

2784        KK      C8
2785        KM       Combine R90-8 + 3B
2786        HC       2
            *

2787        KK    R8-9
2788        KM       Channel Route From C8 To C9
2789        KM       X-SECT. 3I1
```

```
2790          RS      45    FLOW      -1
2791          RC   0.050   0.059   0.050   42000   0.009
2792          RX  5069.1  5261.0  5330.0  5365.0  5392.0  5402.0  5996.0  6122.0
2793          RY    96.7    91.7    94.1    91.0    90.7    94.0    94.2    98.5
2794          RL                    0.64    90.7
              *

2795          KK      3I
2796          KM       SUB-BASIN 3I
2797          BA    5.10
2798          LG    0.35    0.35    3.50    0.30    0.00
2799          UI     124     124     124     124     124     124     124     124     124     124
2800          UI     220     406     406     413     474     474     504     568     568     605
2801          UI     605     651     661     688     693     726     734     768     786     812
2802          UI     851     876     917     942     961     986    1052    1123    1204    1270
2803          UI    1463    1406    1531    1667    1636    1533    1446    1371    1306    1250
2804          UI    1200    1157    1119    1084    1052    1016     992     969     947     892
2805          UI     865     836     795     781     748     731     710     673     646     623
2806          UI     605     591     568     563     474     474     441     355     355     355
2807          UI     278     219     219     219     219     219     210     203     203     203
2808          UI     203     203     199     124     124     124     124     124     124     124
2809          UI     124     124     124      89      38      38      38      38      38      38
2810          UI      38      38      38      38      38      38      38      38      38      38
2811          UI      38      38      38      38      38      38      38      38      38      38
2812          UI      38      38      38      38      38      38      38      38       0       0
2813          UI       0       0       0       0       0       0       0       0       0       0
              *

2814          KK      C9
2815          KM       Combine R8-9 + 3I
2816          HC       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2817          KK   R9-10
2818          KM       Channel Route From C9 To C10
2819          KM       Revised Interpolation of X-SECTS. 3J1 and 3J2.
2820          RS      53    FLOW      -1
2821          RC   0.050   0.050   0.060   47000   0.007
2822          RX  4940.4  5089.0  5172.0  5191.0  5236.0  5252.0  5309.0  5642.1
2823          RY    99.9    93.9    93.9    89.1    88.9    94.1    93.6    99.9
2824          RL                    1.73    88.9
              *

2825          KK      3J
2826          KM       SUB-BASIN 3J
2827          BA   11.25
2828          LG    0.35    0.35    3.82    0.36    0.00
2829          UI     189     189     189     189     189     189     189     189     189     189
2830          UI     189     189     189     189     189     478     622     622     622     622
2831          UI     726     726     726     726     871     871     871     908     927     927
2832          UI     973    1013    1013    1046    1062    1062    1113    1117    1137    1177
2833          UI    1177    1236    1245    1285    1320    1348    1405    1418    1452    1465
2834          UI    1502    1539    1613    1682    1742    1874    1923    1980    2361    2190
2835          UI    2166    2429    2562    2562    2448    2344    2254    2178    2074    2018
2836          UI    1969    1894    1847    1815    1742    1720    1675    1638    1613    1567
2837          UI    1556    1506    1502    1452    1452    1361    1361    1292    1281    1238
2838          UI    1210    1197    1146    1146    1108    1089    1089     990     990     986
2839          UI     927     927     927     875     871     871     784     726     726     726
2840          UI     617     544     544     544     544     489     335     335     335     335
2841          UI     335     335     335     335     321     311     311     311     311     311
2842          UI     311     311     311     279     189     189     189     189     189     189
2843          UI     189     189     189     189     189     189     189     189     189      67
2844          UI      58      58      58      58      58      58      58      58      58      58
2845          UI      58      58      58      58      58      58      58      58      58      58
2846          UI      58      58      58      58      58      58      58      58      58      58
2847          UI      58      58      58      58      58      58      58      58      58      58
2848          UI      58      58      58      58      58      58      58      58      58       0
2849          UI       0       0       0       0       0       0       0       0       0       0
2850          UI       0       0       0       0       0       0       0       0       0       0
              *

2851          KK     C10
2852          KM       Combine R9-10 + 3J
2853          HC       2
```

```
                *
2854            KK  R10-11
2855            KM       Channel Route From C10 To C11
2856            KM       X-SECT. 3L1
2857            RS      24    FLOW      -1
2858            RC   0.600   0.053   0.060   13000   0.005
2859            RX  4829.0  4829.1  5108.0  5116.0  5124.0  5129.0  7368.9  7369.0
2860            RY     110    99.1    92.9    89.9    89.8    91.6    99.1     110
2861            RL                    0.36    89.8
                *
```



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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2862            KK      3L
2863            KM       SUB-BASIN 3L
2864            KM       This drainage basin was enlarged to include drainage area 3KA
2865            BA    3.34
2866            LG    0.36    0.31    3.82    0.33    3.00
2867            UI     130     130     130     130     130     130     245     428     455     500
2868            UI     564     607     638     688     718     747     782     822     869     925
2869            UI     980    1018    1088    1214    1336    1545    1643    1734    1578    1448
2870            UI    1337    1258    1183    1127    1077    1027     979     914     861     816
2871            UI     777     739     681     643     618     591     500     454     375     366
2872            UI     231     231     231     225     214     214     214     189     130     130
2873            UI     130     130     130     130      69      40      40      40      40      40
2874            UI      40      40      40      40      40      40      40      40      40      40
2875            UI      40      40      40      40      40       0       0       0       0       0
2876            UI       0       0       0       0       0       0       0       0       0       0
                *

2877            KK    C11I
2878            KM       Combine R10-11 + 3L
2879            HC       2
                *

2880            KK    C11O
2881            KM        Storage Route at Quilotosa Wash and the Gila Bend Canal
2882            KM        Revised to only include the borrow pit
2883            RS       1    ELEV     733
2884            SV     0.0     5.0    12.0    22.0    36.0    36.0    36.0    36.0
2885            SE   733.0   735.0   736.0   738.0   740.0     742     743     744
2886            SQ       0     390     726    2620    4440    6075    9000   14000
2887            RL                    8.75     734
                *

2888            KK  R11-17
2889            KM       Channel Route From C11 To C17
2890            KM       Representative Of X-SECT. 5C2
2891            RS       1    FLOW      -1
2892            RC   0.035   0.030   0.035    3000   0.009
2893            RX  4905.8  4905.9  5204.0  5222.0  5292.0  5309.0  6228.9  6229.0
2894            RY     110   101.5    97.0    90.9    90.6    96.7   101.5     110
2895            RL                    8.69    90.6
                *
                * Move to Top of Major Basin 4
                *

2896            KK      4A
2897            KM       SUB-BASIN 4A at C26
2898            BA   11.75
2899            LG    0.23    0.35    4.26    0.43    4.00
2900            UI     235     235     235     235     235     235     235     235     235     235
2901            UI     235     235     288     677     677     677     677     821     903     903
2902            UI     953    1083    1083    1213    1354    1371    1425    1434    1504    1513
2903            UI    1593    1612    1693    1714    1747    1786    1805    1867    1892    1934
2904            UI    2052    2141    2257    2354    2513    2647    2766    2966    2999    2641
2905            UI    2441    1934    1873    1805    1716    1693    1593    1584    1504    1498
```



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LINE            ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2906            UI    1425    1425    1391    1389    1362    1354    1320    1290    1279    1231
2907            UI    1231    1193    1177    1171    1128    1128    1108    1083    1083    1031
2908            UI    1003    1003     970     950     950     930     903     903     896     808
2909            UI     808     808     784     732     732     732     713     623     623     62:
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2910          UI     623     608     576     576     576     576     575     542     542     542
2911          UI     542     542     520     492     492     492     492     492     463     387
2912          UI     387     387     387     387     387     387     349     301     301     301
2913          UI     301     301     301     301     301     301     285     258     258     258
2914          UI     258     258     258     258     258     258     258     258     211     181
2915          UI     181     181     181     181     181     181     181     181     181     181
2916          UI     181     181     181     181     181     128     115     115     115     115
2917          UI     115     115     115     115     115     115     115     115     115     115
2918          UI     115     115     115     115     115     115     115     115     115     115
2919          UI     115      82      45      45      45      45      45      45      45      45
2920          UI      45      45      45      45      45      45      45      45      45      45
2921          UI      45      45      45      45      45      45      45      45      45      45
2922          UI      45      45      45      45      45      45      45      45      45      45
2923          UI      45      45      45      45      45      45      45      45      45      45
2924          UI      45      45      45      45      45      45      45      45      45      45
2925          UI      45      45      45      45      45      45      45      45       0       0
2926          UI       0       0       0       0       0       0       0       0       0       0
              *

2927          KK  R26-27
2928          KM       Channel Route From C26 To C27
2929          KM       X-SECT. 4B1
2930          RS      11    FLOW      -1
2931          RC   0.060   0.051   0.060   17800   0.010
2932          RX  4600.0  5100.0  5175.0  5180.0  5264.0  5336.0  5386.0  6626.0
2933          RY   100.6    95.6    94.5    90.3    89.6    94.1    94.4   100.6
2934          RL                   5.67    89.6
              *

2935          KK      4B
2936          KM       SUB-BASIN 4B
2937          BA    6.14
2938          LG    0.30    0.35    3.87    0.38    0.00
2939          UI     205     205     205     205     205     205     205     325     673     673
2940          UI     773     785     923     953    1002    1059    1104    1148    1195    1238
2941          UI    1289    1349    1427    1513    1564    1617    1733    1909    2082    2432
2942          UI    2365    2727    2680    2440    2280    2125    2009    1912    1826    1749
2943          UI    1678    1619    1562    1471    1385    1319    1264    1216    1175    1070
2944          UI    1033    1002     944     899     785     736     588     588     463     362
2945          UI     362     362     358     336     336     336     336     275     205     205
2946          UI     205     205     205     205     205     102      63      63      63      63
2947          UI      63      63      63      63      63      63      63      63      63      63
2948          UI      63      63      63      63      63      63      63      63      63      63
2949          UI       0       0       0       0       0       0       0       0       0       0
2950          UI       0       0       0       0       0       0       0       0       0       0
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2951          KK     C27
2952          KM       Combine R26-27 + 4B
2953          HC       2
              *

2954          KK  R27-28
2955          KM       Channel Route From C27 To C28
2956          KM       X-SECT. 4C1
2957          RS      45    FLOW      -1
2958          RC   0.060   0.043   0.060   24800   0.006
2959          RX  4054.0  5054.0  5066.0  5076.0  5133.0  5151.0  5214.0  6054.0
2960          RY   101.2    96.2    95.8    92.8    93.3    95.5    97.0   101.2
2961          RL                   1.56    92.8
              *

2962          KK      4C
2963          KM       SUB-BASIN 4C
2964          BA   12.33
2965          LG    0.31    0.35    3.77    0.38    0.00
2966          UI     264     264     264     264     264     264     264     264     264     264
2967          UI     264     264     847     869     869     912    1014    1014    1046    1216
2968          UI    1216    1259    1294    1304    1414    1414    1472    1483    1536    1559
2969          UI    1614    1644    1710    1738    1830    1861    1962    1996    2027    2094
2970          UI    2166    2258    2433    2585    2706    2989    3174    3053    3455    3577
2971          UI    3458    3261    3094    2951    2827    2720    2626    2534    2442    2376
2972          UI    2318    2252    2186    2145    2097    2038    1992    1901    1833    1789
2973          UI    1707    1689    1606    1600    1525    1520    1402    1382    1333    129
```

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2974          UI    1287    1216    1216    1120    1014    1014     928     760     760     760
2975          UI     717     468     468     468     468     468     468     456     434     434
2976          UI     434     434     434     434     431     264     264     264     264     264
2977          UI     264     264     264     264     264     264     264      84      81      81
2978          UI      81      81      81      81      81      81      81      81      81      81
2979          UI      81      81      81      81      81      81      81      81      81      81
2980          UI      81      81      81      81      81      81      81      81      81      81
2981          UI      81      81      81      81      81      81       0       0       0       0
2982          UI       0       0       0       0       0       0       0       0       0       0
              *

2983          KK     C28
2984          KM       Combine R27-28 + 4C
2985          HC       2
              *

2986          KK  R28-29
2987          KM       Channel Route From C28 To C29
2988          KM       Representative Of X-SECT. 4C1
2989          RS       6    FLOW      -1
2990          RC   0.060   0.043   0.060    7000   0.022
2991          RX  4054.0  5054.0  5066.0  5076.0  5133.0  5151.0  5214.0  6054.0
2992          RY   101.2    96.2    95.8    92.8    93.3    95.5    97.0   101.2
2993          RL                    2.17    92.8
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

2994          KK      4E
2995          KM       SUB-BASIN 4E at C20
2996          BA    4.88
2997          LG    0.25    0.35    4.11    0.48    7.00
2998          UI     124     124     124     124     124     124     124     124     124     124
2999          UI     330     358     358     401     477     477     546     573     647     716
3000          UI     744     757     795     819     842     895     912     931     954     984
3001          UI    1010    1055    1125    1204    1268    1382    1461    1605    1480    1311
3002          UI    1034     973     930     895     842     818     795     757     749     734
3003          UI     724     716     689     682     653     651     623     622     597     596
3004          UI     576     573     545     530     522     502     502     483     477     471
3005          UI     427     427     420     387     387     387     333     329     329     327
3006          UI     305     305     305     305     287     286     286     286     272     260
3007          UI     260     260     260     220     204     204     204     204     204     179
3008          UI     159     159     159     159     159     159     159     145     136     136
3009          UI     136     136     136     136     136     136     120      95      95      95
3010          UI      95      95      95      95      95      95      95      95      95      89
3011          UI      61      61      61      61      61      61      61      61      61      61
3012          UI      61      61      61      61      61      61      61      61      61      61
3013          UI      42      24      24      24      24      24      24      24      24      24
3014          UI      24      24      24      24      24      24      24      24      24      24
3015          UI      24      24      24      24      24      24      24      24      24      24
3016          UI      24      24      24      24      24      24      24      24      24      24
3017          UI      24      24      24      24      24      24      24      24      24      24
3018          UI      24      24      24       0       0       0       0       0       0       0
3019          UI       0       0       0       0       0       0       0       0       0       0
              *

3020          KK  R20-21
3021          KM       Channel Route From C20 To C21
3022          KM       Representative Of X-SECT. 4G1
3023          RS       8    FLOW      -1
3024          RC   0.070   0.049   0.060   15400   0.013
3025          RX  4015.0  5015.0  5070.0  5080.0  5110.0  5119.0  5149.0  6249.0
3026          RY   101.7    96.7    93.9    90.6    91.0    95.0    96.2   101.7
3027          RL                    2.58    90.6
              *

3028          KK      4F
3029          KM       SUB-BASIN 4F
3030          BA    6.16
3031          LG    0.27    0.35    4.14    0.49   10.00
3032          UI     216     216     216     216     216     216     216     475     621     638
3033          UI     828     855     994    1133    1261    1312    1380    1454    1537    1593
3034          UI    1646    1705    1773    1942    2109    2304    2534    2753    2353    1833
3035          UI    1656    1553    1461    1387    1325    1289    1265    1241    1183    1147
3036          UI    1116    1080    1045    1025     994     946     920     875     867     828
3037          UI     812     742     739     671     671     604     571     571     533     52
```

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3038          UI     529     501     497     497     466     452     452     436     355     355
3039          UI     355     355     301     276     276     276     276     276     240     237
3040          UI     237     237     237     237     222     166     166     166     166     166
3041          UI     166     166     166     166     130     106     106     106     106     106
3042          UI     106     106     106     106     106     106     106     106     106      70
3043          UI      41      41      41      41      41      41      41      41      41      41
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3044          UI      41      41      41      41      41      41      41      41      41      41
3045          UI      41      41      41      41      41      41      41      41      41      41
3046          UI      41      41      41      41      41      41      41       0       0       0
3047          UI       0       0       0       0       0       0       0       0       0       0
              *

3048          KK     C21
3049          KM       Combine R20-21 + 4F
3050          HC       2
              *

3051          KK  R21-23
3052          KM       Channel Route From C21 To C23
3053          KM       X-SECT. 4G1
3054          RS      11    FLOW      -1
3055          RC   0.070   0.049   0.060    8000   0.010
3056          RX  4015.0  5015.0  5070.0  5080.0  5110.0  5119.0  5149.0  6249.0
3057          RY   101.7    96.7    93.9    90.6    91.0    95.0    96.2   101.7
3058          RL                    0.84    90.6
              *

3059          KK      4D
3060          KM       SUB-BASIN 4D at C22
3061          BA    4.57
3062          LG    0.25    0.35    4.24    0.40    0.00
3063          UI     105     105     105     105     105     105     105     105     105     105
3064          UI     105     265     303     303     303     395     404     404     484     485
3065          UI     553     606     626     638     665     674     713     729     757     777
3066          UI     790     808     831     848     870     932     994    1037    1105    1182
3067          UI    1244    1364    1264    1126     933     845     808     763     743     713
3068          UI     686     673     640     637     622     619     606     599     577     572
3069          UI     551     550     527     527     509     505     495     485     483     449
3070          UI     449     439     425     425     412     404     404     374     362     362
3071          UI     346     328     328     328     286     279     279     279     266     258
3072          UI     258     258     257     242     242     242     242     238     220     220
3073          UI     220     220     220     181     173     173     173     173     173     173
3074          UI     135     135     135     135     135     135     135     135     130     115
3075          UI     115     115     115     115     115     115     115     115     114      81
3076          UI      81      81      81      81      81      81      81      81      81      81
3077          UI      81      81      81      68      52      52      52      52      52      52
3078          UI      52      52      52      52      52      52      52      52      52      52
3079          UI      52      52      52      52      52      52      34      20      20      20
3080          UI      20      20      20      20      20      20      20      20      20      20
3081          UI      20      20      20      20      20      20      20      20      20      20
3082          UI      20      20      20      20      20      20      20      20      20      20
3083          UI      20      20      20      20      20      20      20      20      20      20
3084          UI      20      20      20      20      20      20      20      20      20      20
3085          UI      20      20      20      20       0       0       0       0       0       0
3086          UI       0       0       0       0       0       0       0       0       0       0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3087          KK  R22-23
3088          KM       Channel Route From C22 To C23
3089          KM       X-SECT. 4G2
3090          RS      13    FLOW      -1
3091          RC   0.050   0.050   0.050   14200   0.011
3092          RX  4015.0  5015.0  5030.0  5048.0  5084.0  5096.0  5201.0  7381.0
3093          RY   103.6    98.6    97.7    89.5    88.0    92.3    92.7   103.6
3094          RL                    1.45    88.0
              *

3095          KK      4G
3096          KM       SUB-BASIN 4G
3097          BA    7.70
```

```
3098          LG    0.27    0.35    4.08    0.44    0.00
3099          UI     229     229     229     229     229     229     229     229     374     660
3100          UI     660     731     879     891    1055    1103    1319    1366    1407    1466
3101          UI    1542    1611    1670    1715    1765    1820    1885    2023    2202    2339
3102          UI    2565    2730    2944    2506    2027    1801    1700    1617    1547    1466
3103          UI    1412    1379    1353    1326    1301    1256    1216    1197    1147    1132
3104          UI    1099    1077    1055    1006     977     947     926     905     879     862
3105          UI     788     788     738     713     713     620     607     607     580     561
3106          UI     561     559     528     528     528     514     480     480     480     465
3107          UI     377     377     377     377     377     304     293     293     293     293
3108          UI     293     289     251     251     251     251     251     251     251     237
3109          UI     176     176     176     176     176     176     176     176     176     176
3110          UI     176     120     112     112     112     112     112     112     112     112
3111          UI     112     112     112     112     112     112     112     112     100      44
3112          UI      44      44      44      44      44      44      44      44      44      44
3113          UI      44      44      44      44      44      44      44      44      44      44
3114          UI      44      44      44      44      44      44      44      44      44      44
3115          UI      44      44      44      44      44      44      44      44      44      44
3116          UI      44      44      44      44       0       0       0       0       0       0
3117          UI       0       0       0       0       0       0       0       0       0       0
              *

3118          KK     C23
3119          KM       Combine R21-23 + R22-23 + 4G
3120          HC       3
              *

3121          KK  R23-29
3122          KM       Channel Route From C23 To C29
3123          KM       X-SECT. 4J1
3124          RS      41    FLOW      -1
3125          RC   0.060   0.040   0.070   38800   0.009
3126          RX  4010.0  5010.0  5106.0  5118.0  5187.0  5202.0  5499.0  6039.0
3127          RY    99.0    94.0    93.8    90.0    90.0    95.3    96.3    99.0
3128          RL                    2.34    90.0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3129          KK      4J
3130          KM       SUB-BASIN 4J
3131          BA    6.09
3132          LG    0.33    0.35    3.61    0.30    0.00
3133          UI     163     163     163     163     163     163     163     163     163     289
3134          UI     535     535     570     624     624     734     749     786     796     856
3135          UI     870     913     926     960     993    1017    1069    1109    1151    1207
3136          UI    1245    1276    1334    1421    1532    1650    1843    1895    2002    2200
3137          UI    2134    1992    1857    1760    1675    1601    1536    1478    1427    1381
3138          UI    1337    1294    1260    1213    1162    1101    1059    1031     985     957
3139          UI     936     860     848     796     793     749     749     628     624     554
3140          UI     468     468     452     288     288     288     288     288     275     267
3141          UI     267     267     267     267     189     163     163     163     163     163
3142          UI     163     163     163     153      50      50      50      50      50      50
3143          UI      50      50      50      50      50      50      50      50      50      50
3144          UI      50      50      50      50      50      50      50      50      50      50
3145          UI      50      50      50      50      50       0       0       0       0       0
3146          UI       0       0       0       0       0       0       0       0       0       0
              *

3147          KK     C29
3148          KM       Combine R28-29 + R23-29 + 4J
3149          yK  O                                  21
3150          HC       3
              *

3151          KK  R29-31
3152          KM       Channel Route From C29 To C31
3153          KM       X-SECT. 4K1
3154          RS      12    FLOW      -1
3155          RC   0.070   0.031   0.060   18000   0.008
3156          RX  4949.3  5180.0  5280.0  5286.0  5380.0  5386.0  5449.0  5604.7
3157          RY    95.8    90.8    88.7    87.0    86.6    89.1    89.7    95.8
3158          RL                    3.03    86.6
              *

3159          KK      4K
```

```
3160          KM       SUB-BASIN 4K
3161          BA    3.91
3162          LG    0.35     0.35     3.50     0.28     0.00
3163          UI     115      115      115      115      115      115      115      115      184      379
3164          UI     379      417      443      471      531      545      565      598      618      648
3165          UI     662      681      716      741      769      805      855      879      905      953
3166          UI    1025     1115     1192     1401     1345     1536     1527     1420     1313     1239
3167          UI    1175     1120     1070     1027      988      954      923      895      855      814
3168          UI     779      738      712      691      664      621      602      565      557      531
3169          UI     500      443      435      332      332      328      204      204      204      204
3170          UI     203      190      190      190      190      190      132      115      115      115
3171          UI     115      115      115      115      113       35       35       35       35       35
3172          UI      35       35       35       35       35       35       35       35       35       35
3173          UI      35       35       35       35       35       35       35       35       35       35
3174          UI      35       35       35        0        0        0        0        0        0        0
3175          UI       0        0        0        0        0        0        0        0        0        0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3176          KK     C31
3177          KM       Combine R29-31 + 4K
3178          HC       2
              *

3179          KK  R31-32
3180          KM       Channel Route From C31 To C32
3181          KM       Representative Of X-SECT. 4K1
3182          RS      12    FLOW      -1
3183          RC   0.070   0.031   0.060   20600   0.010
3184          RX  4949.3  5180.0  5280.0  5286.0  5380.0  5386.0  5449.0  5604.7
3185          RY    95.8    90.8    88.7    87.0    86.6    89.1    89.7    95.8
3186          RL                    3.21    86.6
              *

3187          KK      4H
3188          KM       SUB-BASIN 4H at C24
3189          BA    6.11
3190          LG    0.24     0.40     6.29     0.16    12.00
3191          UI     179      179      179      179      179      179      179      179      240      514
3192          UI     514      534      686      686      798      823     1008     1048     1083     1137
3193          UI    1179     1227     1286     1327     1363     1403     1447     1523     1646     1756
3194          UI    1904     2056     2262     2156     1831     1465     1371     1295     1235     1186
3195          UI    1143     1084     1068     1054     1029     1004      980      940      927      894
3196          UI     878      857      837      823      781      762      737      722      706      686
3197          UI     677      614      614      582      556      556      496      473      473      459
3198          UI     438      438      438      417      411      411      411      376      374      374
3199          UI     374      315      294      294      294      294      270      229      229      229
3200          UI     229      229      229      213      196      196      196      196      196      196
3201          UI     196      171      137      137      137      137      137      137      137      137
3202          UI     137      137      137       92       88       88       88       88       88       88
3203          UI      88       88       88       88       88       88       88       88       88       88
3204          UI      88       40       34       34       34       34       34       34       34       34
3205          UI      34       34       34       34       34       34       34       34       34       34
3206          UI      34       34       34       34       34       34       34       34       34       34
3207          UI      34       34       34       34       34       34       34       34       34       34
3208          UI      34       34       34       34       34       34       34        0        0        0
3209          UI       0        0        0        0        0        0        0        0        0        0
              *

3210          KK  R24-25
3211          KM       Channel Route From C24 To C25
3212          KM       Representative Of X-SECT. 6B1
3213          RS      59    FLOW      -1
3214          RC   0.070   0.045   0.060   20000   0.001
3215          RX  4662.5  5037.5  5075.0  5088.0  5133.0  5146.0  5196.0  5566.0
3216          RY   101.0    96.0    95.5    91.5    90.0    96.8    97.3   101.0
3217          RL                    0.73    90.0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3218          KK      4I
3219          KM       SUB-BASIN 4I
```

```
3220          BA   15.52
3221          LG    0.29     0.35     4.14     0.40     4.00
3222          UI     405      405      405      405      405      405      405      405      405      489
3223          UI    1165     1165     1165     1425     1553     1581     1863     1863     2301     2356
3224          UI    2452     2532     2594     2740     2839     2930     3005     3092     3167     3251
3225          UI    3360     3586     3882     4047     4450     4713     5138     4925     4313     3445
3226          UI    3180     3033     2911     2740     2658     2588     2453     2429     2389     2348
3227          UI    2329     2223     2203     2117     2093     2025     2001     1941     1924     1863
3228          UI    1854     1725     1725     1657     1635     1610     1553     1553     1437     1391
3229          UI    1391     1281     1259     1259     1136     1071     1071     1071      998      991
3230          UI     991      991      939      932      932      932      883      847      847      847
3231          UI     847      695      665      665      665      665      665      544      518      518
3232          UI     518      518      518      518      512      444      444      444      444      444
3233          UI     444      444      444      437      311      311      311      311      311      311
3234          UI     311      311      311      311      311      311      294      198      198      198
3235          UI     198      198      198      198      198      198      198      198      198      198
3236          UI     198      198      198      198      198      198      198       85       78       78
3237          UI      78       78       78       78       78       78       78       78       78       78
3238          UI      78       78       78       78       78       78       78       78       78       78
3239          UI      78       78       78       78       78       78       78       78       78       78
3240          UI      78       78       78       78       78       78       78       78       78       78
3241          UI      78       78       78       78       78       78       78       78        0        0
3242          UI       0        0        0        0        0        0        0        0        0        0
              *

3243          KK     C25
3244          KM       Combine R24-25 + 4I
3245          HC       2
              *

3246          KK  R25-30
3247          KM       Channel Route From C25 To C30
3248          KM       X-SECT. 4L2
3249          RS      35    FLOW      -1
3250          RC   0.050   0.047   0.050   34000   0.012
3251          RX  4033.0  5033.0  5069.0  5084.0  5129.0  5138.0  5168.0  5426.8
3252          RY   100.6    95.6    94.8    91.7    91.0    93.2    96.0   100.6
3253          RL                    1.68    91.0
              *

3254          KK      6A
3255          KM       SUB-BASIN 6A at C39
3256          BA    9.04
3257          LG    0.26     0.25     8.60     0.07    10.00
3258          UI     247      247      247      247      247      247      247      247      247      512
3259          UI     711      711      780      949      949     1106     1138     1360     1433     1498
3260          UI    1546     1591     1674     1748     1802     1844     1897     1956     2012     2121
3261          UI    2280     2424     2609     2806     3017     3141     2693     2205     1959     1860
3262          UI    1779     1674     1618     1570     1498     1476     1459     1424     1400     1355
3263          UI    1317     1294     1248     1237     1190     1186     1141     1138     1062     1054
3264          UI    1016      999      981      949      949      860      849      838      769      769
3265          UI     756      654      654      654      628      605      605      605      580      569
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3266          UI     569      569      539      517      517      517      509      407      407      407
3267          UI     407      407      376      316      316      316      316      316      316      316
3268          UI     273      271      271      271      271      271      271      271      243      190
3269          UI     190      190      190      190      190      190      190      190      190      190
3270          UI     186      121      121      121      121      121      121      121      121      121
3271          UI     121      121      121      121      121      121      121      121      121      121
3272          UI      64       47       47       47       47       47       47       47       47       47
3273          UI      47       47       47       47       47       47       47       47       47       47
3274          UI      47       47       47       47       47       47       47       47       47       47
3275          UI      47       47       47       47       47       47       47       47       47       47
3276          UI      47       47       47       47       47       47       47       47       47        0
3277          UI       0        0        0        0        0        0        0        0        0        0
3278          UI       0        0        0        0        0        0        0        0        0        0
              *

3279          KK  R39-40
3280          KM       Channel Route From C39 To C40
3281          KM       X-SECT. 6B1
3282          RS      10    FLOW      -1
3283          RC   0.070   0.045   0.060   11400   0.009
3284          RX  4662.5  5037.5  5075.0  5088.0  5133.0  5146.0  5196.0  5566.0
3285          RY   101.0    96.0    95.5    91.5    90.0    96.8    97.3   101.(
```

```
3286          RL                    1.10    90.0
              *

3287          KK      6B
3288          KM        SUB-BASIN 6B
3289          BA   10.95
3290          LG    0.26     0.28     8.28     0.08     9.00
3291          UI     354      354      354      354      354      354      355      372     1019     1019
3292          UI    1105     1359     1406     1631     1810     2044     2146     2233     2330     2444
3293          UI    2564     2641     2726     2820     2936     3190     3453     3740     4082     4543
3294          UI    4062     3346     2818     2643     2498     2377     2265     2157     2113     2078
3295          UI    2038     1956     1906     1853     1783     1752     1699     1657     1631     1525
3296          UI    1509     1430     1428     1359     1359     1224     1217     1145     1102     1092
3297          UI     937      937      934      867      867      867      826      815      815      792
3298          UI     741      741      741      661      582      582      582      582      498      453
3299          UI     453      453      453      453      426      388      388      388      388      388
3300          UI     388      373      272      272      272      272      272      272      272      272
3301          UI     272      272      200      173      173      173      173      173      173      173
3302          UI     173      173      173      173      173      173      173      173      127       68
3303          UI      68       68       68       68       68       68       68       68       68       68
3304          UI      68       68       68       68       68       68       68       68       68       68
3305          UI      68       68       68       68       68       68       68       68       68       68
3306          UI      68       68       68       68       68       68       68       68       68       68
3307          UI       0        0        0        0        0        0        0        0        0        0
3308          UI       0        0        0        0        0        0        0        0        0        0
              *

3309          KK     C40
3310          KM       Combine R39-40 + 6B
3311          HC       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3312          KK   DC40R
3313          KM         Main flow at C40 is in the Right channel (C40R)
3314          KM         Diverted flow (DQ record) goes into the left channel (C40L)
3315          DT   DC40L
3316          DI       0       15       60      110      345      900     1660     3500     6800    15300
3317          DQ     0.0      0.0      0.0     15.0    125.0    350.0    760.0   1400.0   2600.0   3700.0
              *

3318          KK  40R-30
3319          KM       Channel route right flow split at C40 from C40 To C30
3320          KM       X-SECT. 4L1
3321          RS      32     FLOW       -1
3322          RC   0.050    0.051    0.050    26600    0.009
3323          RX  4015.0   5015.0   5159.0   5204.0   5261.0   5266.0   5283.0   6383.0
3324          RY    99.1     94.1     93.5     90.0     90.0     92.3     93.6     99.1
3325          RL                     0.93     90.0
              *

3326          KK      4L
3327          KM       SUB-BASIN 4L
3328          BA    9.49
3329          LG    0.32     0.35     3.77     0.34     3.00
3330          UI     212      212      212      212      212      212      212      212      212      212
3331          UI     212      416      695      695      695      800      811      811      954      973
3332          UI     996     1036     1036     1132     1132     1178     1187     1234     1248     1302
3333          UI    1315     1386     1406     1475     1524     1570     1620     1648     1678     1802
3334          UI    1894     2010     2137     2266     2625     2374     2742     2863     2779     2615
3335          UI    2476     2357     2254     2165     2086     2017     1947     1881     1833     1789
3336          UI    1738     1691     1659     1622     1539     1502     1431     1391     1352     1303
3337          UI    1281     1231     1217     1132     1106     1067     1036     1024      973      973
3338          UI     865      811      811      680      608      608      608      463      374      374
3339          UI     374      374      374      372      348      348      348      348      348      348
3340          UI     343      212      212      212      212      212      212      212      212      212
3341          UI     212      212      145       65       65       65       65       65       65       65
3342          UI      65       65       65       65       65       65       65       65       65       65
3343          UI      65       65       65       65       65       65       65       65       65       65
3344          UI      65       65       65       65       65       65       65       65       65       65
3345          UI       0        0        0        0        0        0        0        0        0        0
3346          UI       0        0        0        0        0        0        0        0        0        0
              *

3347          KK     C30
```

```
3348          KM       Combine R25-30 + R40-30 + 4L
3349          HC       3
              *

3350          KK  R30-32
3351          KM       Channel Route From C30 To C32
3352          KM       Representative Of X-SECT. 4L2
3353          RS      18    FLOW      -1
3354          RC   0.050   0.047   0.050   20600   0.009
3355          RX  4033.0  5033.0  5069.0  5084.0  5129.0  5138.0  5168.0  5426.8
3356          RY   100.6    95.6    94.8    91.7    91.0    93.2    96.0   100.6
3357          RL                    0.90    91.0
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3358          KK      4M
3359          KM       SUB-BASIN 4M
3360          BA    3.42
3361          LG    0.35    0.35    3.50    0.27    0.00
3362          UI     124     124     124     124     124     124     124     370     407     454
3363          UI     475     554     580     606     653     678     703     731     770     808
3364          UI     853     906     943     978    1065    1175    1275    1480    1546    1661
3365          UI    1533    1398    1309    1221    1159    1103    1048    1006     969     921
3366          UI     865     818     778     744     712     654     625     603     570     520
3367          UI     475     396     356     331     219     219     219     217     203     203
3368          UI     203     203     139     124     124     124     124     124     124      65
3369          UI      38      38      38      38      38      38      38      38      38      38
3370          UI      38      38      38      38      38      38      38      38      38      38
3371          UI      38      38       0       0       0       0       0       0       0       0
3372          UI       0       0       0       0       0       0       0       0       0       0
              *

3373          KK     C32
3374          KM       Combine R31-32 + R30-32 + 4M
3375          HC       3
              *

3376          KK   DC32R
3377          KM         Main flow at C32 is in the right channel (C32R)
3378          KM         Diverted flow (DQ record) goes into the left channel (C32L)
3379          DT   DC32L
3380          DI       0     105     615    1875    4250    7900   12700   15000
3381          DQ       0    30.0   275.0   775.0  1500.0  3100.0  4500.0  5300.0
              *

3382          KK  R32-33
3383          KM       Channel Route From C32 To C33
3384          KM       Interpolated XSECT. between 4N1 and 4N2
3385          RS      45    FLOW      -1
3386          RC   0.040   0.041   0.040   48400   0.007
3387          RX  4350.0  5350.0  5421.0  5430.0  5479.0  5500.0  5583.0  5867.7
3388          RY    99.8    94.8    93.6    90.4    90.5    94.0    95.4    99.8
3389          RL                    1.21    90.4
              *

3390          KK      4N
3391          KM       SUB-BASIN 4N
3392          BA    7.61
3393          LG    0.35    0.35    3.50    0.27    0.00
3394          UI     143     143     143     143     143     143     143     143     143     143
3395          UI     143     143     143     234     470     470     470     478     549     549
3396          UI     549     606     658     658     681     700     700     748     766     772
3397          UI     803     803     833     844     862     890     899     941     946     998
3398          UI    1006    1062    1072    1097    1116    1135    1199    1234    1317    1392
3399          UI    1450    1496    1819    1595    1736    1890    1937    1878    1784    1704
3400          UI    1635    1568    1505    1459    1419    1372    1330    1303    1266    1232
3401          UI    1214    1176    1158    1135    1108    1097    1034    1028     968     968
3402          UI     915     915     874     866     842     823     809     748     748     721
3403          UI     700     700     669     658     658     574     549     549     522     412
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3404          UI     412     412     412     345     253     253     253     253     253     253
3405          UI     253     241     235     235     235     235     235     235     235     207
```

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3406          UI     143     143     143     143     143     143     143     143     143     143
3407          UI     143     143     143      85      44      44      44      44      44      44
3408          UI      44      44      44      44      44      44      44      44      44      44
3409          UI      44      44      44      44      44      44      44      44      44      44
3410          UI      44      44      44      44      44      44      44      44      44      44
3411          UI      44      44      44      44      44      44      44      44       0       0
3412          UI       0       0       0       0       0       0       0       0       0       0
              *

3413          KK     C33
3414          KM       Combine R32-33 + 4N
3415          HC       2
              *

3416          KK  R33-34
3417          KM       Channel Route From C33 To C34
3418          KM       Representative Of X-SECT. 5B1
3419          RS      27    FLOW      -1
3420          RC   0.060   0.048   0.060   19200   0.006
3421          RX  3447.0  5090.0  5240.0  5247.0  5289.0  5299.0  5377.0  5647.0
3422          RY    98.4    92.3    91.3    89.2    89.7    91.1    95.0    98.4
3423          RL                    0.76    89.2
              *

3424          KK      4O
3425          KM       SUB-BASIN 4O
3426          BA    5.50
3427          LG    0.35    0.35    3.66    0.31    0.00
3428          UI     134     134     134     134     134     134     134     134     134     134
3429          UI     263     441     441     456     514     514     560     617     623     657
3430          UI     657     716     718     753     757     791     805     834     864     882
3431          UI     935     965     998    1029    1053    1092    1153    1235    1337    1397
3432          UI    1665    1493    1741    1816    1745    1636    1537    1462    1397    1339
3433          UI    1286    1238    1197    1161    1129    1100    1064    1038    1006     964
3434          UI     915     892     857     828     812     775     767     701     699     657
3435          UI     657     622     617     557     514     514     408     386     386     364
3436          UI     237     237     237     237     237     235     220     220     220     220
3437          UI     220     220     158     134     134     134     134     134     134     134
3438          UI     134     134     121      41      41      41      41      41      41      41
3439          UI      41      41      41      41      41      41      41      41      41      41
3440          UI      41      41      41      41      41      41      41      41      41      41
3441          UI      41      41      41      41      41      41      41       0       0       0
3442          UI       0       0       0       0       0       0       0       0       0       0
              *

3443          KK    C34
3444          KM       Combine R33-34 + 4O
3445          HC       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3446          KK  R34-17
3447          KM       Channel Route From C34 To C17
3448          KM       X-SECT. 3M1
3449          RS      16    FLOW      -1
3450          RC     .04    .035     .04    3100   .0065
3451          RX       0     240     345     350     360     365     650     920
3452          RY     732     728   726.5   725.6   725.6   726.5     728     732
3453          RL      25
              *
              *   Return to Drainage Area 5
              *

3454          KK  BDC32L
3455          KM       Recall flow split diverted hydrograph C32L
3456          DR   DC32L
              *

3457          KK  32L-35
3458          KM       Channel Route From left C32 flow split from C32 To C35
3459          KM       Interpolated XSECT. between 5A1 and 5A2
3460          RS      49    FLOW      -1
3461          RC   0.050   0.054   0.050   45000   0.007
3462          RX  4777.8  5125.0  5259.0  5274.0  5297.0  5313.0  5406.0  5787.3
3463          RY   100.1    95.1    92.7    90.4    90.1    93.6    95.8   100.1
```

```
3464          RL                    1.15    90.1
              *

3465          KK      5A
3466          KM       SUB-BASIN 5A
3467          BA    9.29
3468          LG    0.35    0.35    3.50    0.27    0.00
3469          UI     180     180     180     180     180     180     180     180     180     180
3470          UI     180     180     180     451     591     591     591     650     689     689
3471          UI     706     827     827     839     880     880     920     962     962    1008
3472          UI    1008    1041    1060    1081    1117    1131    1181    1194    1253    1275
3473          UI    1334    1355    1378    1413    1431    1531    1591    1659    1798    1855
3474          UI    2056    2172    2022    2313    2432    2412    2285    2176    2067    1985
3475          UI    1913    1851    1797    1723    1680    1643    1590    1551    1526    1477
3476          UI    1453    1426    1388    1374    1292    1277    1216    1201    1148    1140
3477          UI    1088    1088    1037    1034     976     940     936     880     880     862
3478          UI     827     827     767     689     689     689     525     517     517     517
3479          UI     455     318     318     318     318     318     318     318     301     295
3480          UI     295     295     295     295     295     295     220     180     180     180
3481          UI     180     180     180     180     180     180     180     180     180     141
3482          UI      55      55      55      55      55      55      55      55      55      55
3483          UI      55      55      55      55      55      55      55      55      55      55
3484          UI      55      55      55      55      55      55      55      55      55      55
3485          UI      55      55      55      55      55      55      55      55      55      55
3486          UI      55      55      55       0       0       0       0       0       0       0
3487          UI       0       0       0       0       0       0       0       0       0       0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3488          KK     C35
3489          KM       Combine R32L-35 + 5A
3490          HC       2  127.35
              *

3491          KK  R35-36
3492          KM       Channel Route From C35 To C36
3493          KM       X-SECT. 5B1
3494          RS      25    FLOW      -1
3495          RC   0.060   0.048   0.060   24600   0.006
3496          RX  4974.6  5090.0  5240.0  5247.0  5289.0  5299.0  5377.0  5842.0
3497          RY    97.3    92.3    91.3    89.2    89.7    91.1    95.0    97.4
3498          RL                    1.82    89.2
              *

3499          KK      5B
3500          KM       SUB-BASIN 5B
3501          BA    4.88
3502          LG    0.35    0.35    3.82    0.36    0.00
3503          UI     144     144     144     144     144     144     144     144     230     474
3504          UI     474     521     552     588     663     681     705     747     771     809
3505          UI     827     850     894     924     960    1005    1067    1098    1130    1190
3506          UI    1279    1392    1487    1749    1679    1917    1906    1772    1639    1547
3507          UI    1467    1397    1336    1282    1233    1190    1152    1117    1067    1016
3508          UI     973     921     888     862     829     775     752     705     695     663
3509          UI     624     552     543     414     414     409     255     255     255     255
3510          UI     253     237     237     237     237     237     165     144     144     144
3511          UI     144     144     144     144     141      44      44      44      44      44
3512          UI      44      44      44      44      44      44      44      44      44      44
3513          UI      44      44      44      44      44      44      44      44      44      44
3514          UI      44      44      44       0       0       0       0       0       0       0
3515          UI       0       0       0       0       0       0       0       0       0       0
              *

3516          KK     C36
3517          KM       Combine R35-36 + 5B
3518          KO                                    21
3519          HC       2  132.23
              *

3520          KK  R36-37
3521          KM       Channel Route From C36 To C37
3522          KM       X-SECT. 5C2
3523          RS       2    FLOW      -1
3524          RC   0.035   0.030   0.035    2200   0.005
3525          RX  4905.8  4905.9  5204.0  5222.0  5292.0  5309.0  6228.9  6229.(
```

```
3526          RY     105   101.5    97.0    90.9    90.6    96.7   101.5     105
3527          RL                    8.54    90.6
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3528          KK   DC37R
3529          KM         Main flow at C37 follows railraod to Unnamed Wash No 6 (C370).
3530          KM         Diverted flow (DQ record) passes through railroad and highway at
3531          KM         Sauceda Wash.
3532          DT   DC37L
3533          DI       0    3000    3500    4100    5750    7500    8250    9330   10910
3534          DQ       0    3000    3500    4000    4250    4500    4750    4830    4910
              *

3535          KK  DC37AR
3536          KM         Main flow at C37R flows along R/R to Unnamed No 6
3537          KM         Diverted flow (DQ record) overtops R/R and Highway, overland flow to
3538          KM         Quilotosa Wash at C16
3539          DT  DC37AL
3540          DI       0     500    1000    2000    3000    3245    4000    5000
3541          DQ       0     495     990    1980    2970    3213    3960    4950
              *

3542          KK  37A-17
3543          KM       Channel Route From C37 to C17
3544          KM       X-SECT. 3M1
3545          RS      16    FLOW      -1
3546          RC    .038    .038    .038    3150   .0013
3547          RX       0       5      10      47     125     500     750    1150
3548          RY  726.39     726   725.5     724     724     726     728     732
              *

3549          KK     C17
3550          KM     combine R11-17 + R34-17 + 37A-17
3551          KM     Combine before passing through multiple conveyance structures
3552          KM     for Quilotosa and Quilotosa West at R/R and Highway
3553          KO                                     21
3554          HC       3
              *

3555          KK  R17-13
3556          KM       Channel Route From C17 To C13
3557          KM       X-SECT. 3M1
3558          RS      16    FLOW      -1
3559          RC     .04    .035     .04    1700    .003
3560          RX       0     0.1      40      50      80      90   129.9     130
3561          RY     750     716     715     712     712     715     716     750
3562          RL      15                     711
              *

3563          KK     C13
3564          KM    Combine R14-13 + R17-13
3565          HC       2  350.76
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3566          KK  13-13A
3567          KM       Channel Route From C13 To C13A
3568          KM       X-SECT. 3M1
3569          RS      16    FLOW      -1
3570          RC   0.030   0.035   0.030    4300   0.004
3571          RX  4925.4  4925.5  5139.0  5147.0  5192.0  5202.0  6237.9  6238.0
3572          RY     110    99.1    94.9    89.6    89.7    95.1    99.1     110
3573          RL                    9.61    89.6
              *

3574          KK  DC37AL
3575          KM       Recall flow split diverted hydrograph DC37AL
3576          DR  DC37AL
              *

3577          KK  37L13A
```

```
3578          KM        Channel Route From C37AL to C13A
3579          RS      16     FLOW      -1
3580          RC     .04     .035     .04     6500    .0045
3581          RX       0      200     300      400      500      650      800     1100
3582          RY     712      710     709      708      708      709      710      712
              *

3583          KK    C13A
3584          KM       Combine R13-13A + 37L13A
3585          HC       2  350.76
              *

3586          KK  13A-16
3587          KM       Channel Route From C13A To C16
3588          KM       X-SECT. 3M1
3589          RS      16     FLOW      -1
3590          RC   0.030    0.035   0.030     7500   0.004
3591          RX  4925.4   4925.5  5139.0   5147.0  5192.0  5202.0  6237.9  6238.0
3592          RY     110     99.1    94.9     89.6    89.7    95.1    99.1     110
3593          RL                     9.61     89.6
              *

3594          KK      3M
3595          KM       SUB-BASIN 3M, reduced by 0.25 sq. miles to account for basin 3MA(8/28/00)
3596          BA    3.64
3597          LG    0.44     0.10     3.94     0.55     2.00
3598          UI     179      179      179      179      179      345      590      658      721      827
3599          UI     878      950      999     1050     1109     1188     1277     1357     1431     1588
3600          UI    1802     2089     2291     2335     2082     1894     1751     1627     1538     1453
3601          UI    1390     1277     1189     1117     1055      976      906      858      803      688
3602          UI     567      516      366      317      317      304      295      295      273      179
3603          UI     179      179      179      179      106       55       55       55       55       55
3604          UI      55       55       55       55       55       55       55       55       55       55
3605          UI      55       55        0        0        0        0        0        0        0        0
3606          UI       0        0        0        0        0        0        0        0        0        0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3607          KK   DC14R
3608          KM       Recall flow split diverted hydrograph DC14R
3609          DR   DC14R
              *

3610          KK  R14-16
3611          KM       Channel Route From C14 to C16
3612          RS      12     FLOW      -1
3613          RC   0.030    0.035   0.030    13300   .0045
3614          RX    1000     1200    1450     1490    1510     1550     1800     1950
3615          RY     100       95      90       87      87       90       95      100
3616          RL                      9       87
              *

3617          KK     C16
3618          KM       Combine R13A-16 + 3M
3619          HC       3  354.40
              *
              *   Return to Drainage Area 5 at Sauceda Wash and I-8
              *

3620          KK  BDC37L
3621          KM       Recall flow split diverted hydrograph C37L
3622          DR   DC37L
              *

3623          KK  R37-38
3624          KM       Channel Route From C37 To C38
3625          KM       X-SECT. 5C1
3626          RS      10     FLOW      -1
3627          RC   0.030    0.036   0.030    13200   0.005
3628          RX  4925.4   5103.0  5139.0   5148.0  5208.0  5219.0  5255.0  6255.0
3629          RY    99.1     94.1    94.9     88.9    89.1    95.1    94.1    99.1
3630          RL                    2.24     88.9
              *

3631          KK      5C
```

```
3632          KM       SUB-BASIN 5C
3633          BA    2.41
3634          LG    0.45     0.09     3.54     0.72     1.00
3635          UI     105      105      105      105      105      129      346      364      404      465
3636          UI     500      529      568      595      625      661      704      754      798      838
3637          UI     928     1044     1223     1285     1403     1267     1150     1062      989      930
3638          UI     881      841      794      737      690      650      616      570      532      506
3639          UI     482      404      354      303      251      186      186      185      173      173
3640          UI     173      138      105      105      105      105      105       61       32       32
3641          UI      32       32       32       32       32       32       32       32       32       32
3642          UI      32       32       32       32       32       32        0        0        0        0
3643          UI       0        0        0        0        0        0        0        0        0        0
              *
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


3644          KK     C38
3645          KM       Combine R37-38 + 5C
3646          KO                                       21
3647          HC       2  242.09
              *
              *     Top of Drainage Area 6N
              *

3648          KK      6N
3649          KM       SUB-BASIN 6N at C53
3650          BA    7.84
3651          LG    0.35     0.35     3.71     0.32     0.00
3652          UI     208      208      208      208      208              208      208      208      333
3653          UI     683      683      717      797      797      918      956      995     1017     1079
3654          UI    1112     1157     1172     1226     1255     1292     1357     1399     1449     1542
3655          UI    1578     1617     1672     1777     1912     2078     2214     2533     2441     2761
3656          UI    2776     2590     2432     2297     2180     2076     1991     1912     1842     1781
3657          UI    1726     1677     1632     1591     1494     1435     1388     1328     1279     1252
3658          UI    1195     1151     1086     1049     1017      983      956      887      797      797
3659          UI     618      598      598      481      368      368      368      368      368      341
3660          UI     341      341      341      341      331      208      208      208      208      208
3661          UI     208      208      208      208      158       64       64       64       64       64
3662          UI      64       64       64       64       64       64       64       64       64       64
3663          UI      64       64       64       64       64       64       64       64       64       64
3664          UI      64       64       64       64       64       64        0        0        0        0
3665          UI       0        0        0        0        0        0        0        0        0        0
              *

3666          KK  R53-56
3667          KM       Channel Route From C53 To C56
3668          KM       X-SECT. 6Q2
3669          RS       3    FLOW      -1
3670          RC   0.035   0.037   0.035    3200   0.005
3671          RX  4850.0  5100.0  5200.0  5213.5  5231.5  5245.0  5345.0  5595.0
3672          RY   101.5    96.5    94.5    90.0    90.0    94.5    96.5   101.5
3673          RL                    9.91    90.0
              *

3674          KK  R56-59
3675          KM       Channel Route From C56 To C59
3676          KM       X-SECT. 6Q1
3677          RS      20    FLOW      -1
3678          RC   0.030   0.036   0.030   14800   0.004
3679          RX  4871.9  5066.0  5149.0  5174.0  5191.0  5217.0  5242.0  6282.0
3680          RY   100.0    95.0    94.3    88.2    88.4    94.8    94.8   100.0
3681          RL                   10.00    88.2
              *

3682          KK      6Q
3683          KM       SUB-BASIN 6Q
3684          BA    2.86
3685          LG    0.47     0.05     3.64     0.68     1.00
3686          UI     117      117      117      117      117      117      309      386      437      465
3687          UI     540      568      602      638      666      698      736      780      833      884
1                                          HEC-1 INPUT                                                    PAGE 86

LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3688          UI     919      994     1118     1260     1377     1554     1514     1366     1254     1162
3689          UI    1096     1030      981      939      893      830      779      736      699      661
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3690          UI     613     575     549     506     450     367     338     266     208     208
3691          UI     208     193     193     193     180     117     117     117     117     117
3692          UI     117      46      36      36      36      36      36      36      36      36
3693          UI      36      36      36      36      36      36      36      36      36      36
3694          UI      36       0       0       0       0       0       0       0       0       0
3695          UI       0       0       0       0       0       0       0       0       0       0
              *

3696          KK     C59
3697          KM       Combine R56-59 + 6Q
3698          KO                                      21
3699          HC       2
              *
              * Move to Top of Major Basin 6
              *

3700          KK  BDC40L
3701          KM       Recall stored hydrograph from C40 diversion left channel
3702          DR   DC40L
              *

3703          KK  40L-41
3704          KM       Channel route left diversion from C40 To C41
3705          KM       X-SECT. 6C1
3706          RS      18    FLOW      -1
3707          RC   0.050   0.044   0.050   18000   0.009
3708          RX  4808.0  5048.0  5099.0  5110.0  5131.0  5136.0  5166.0  5346.0
3709          RY   101.0    96.0    95.9    91.4    91.2    95.2    96.6   101.0
3710          RL                    0.73    91.2
              *

3711          KK      6C
3712          KM       SUB-BASIN 6C
3713          BA    8.83
3714          LG    0.28    0.35    4.03    0.37    0.00
3715          UI     297     297     297     297     297     297     297     483     855     855
3716          UI    1045    1140    1292    1368    1709    1769    1839    1922    2020    2137
3717          UI    2206    2277    2355    2455    2674    2899    3152    3456    3827    3295
3718          UI    2664    2323    2175    2053    1952    1866    1796    1753    1720    1674
3719          UI    1626    1554    1516    1484    1425    1400    1368    1290    1266    1202
3720          UI    1196    1140    1132    1021    1021     940     924     873     786     786
3721          UI     759     727     727     713     684     684     684     622     622     622
3722          UI     577     488     488     488     488     416     380     380     380     380
3723          UI     380     344     326     326     326     326     326     326     260     228
3724          UI     228     228     228     228     228     228     228     228     173     145
3725          UI     145     145     145     145     145     145     145     145     145     145
3726          UI     145     145     145     145      57      57      57      57      57      57
3727          UI      57      57      57      57      57      57      57      57      57      57
3728          UI      57      57      57      57      57      57      57      57      57      57
3729          UI      57      57      57      57      57      57      57      57      57      57
3730          UI      57      57      57      57       0       0       0       0       0       0
3731          UI       0       0       0       0       0       0       0       0       0       0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3732          KK     C41
3733          KM       Combine R40L-41 + 6C
3734          HC       2   28.82
              *

3735          KK  R41-43
3736          KM       Channel Route From C41 To C43
3737          KM       Representative Of X-SECT. 6F2
3738          RS      32    FLOW      -1
3739          RC   0.050   0.051   0.050   29600   0.009
3740          RX  4066.0  5066.0  5240.0  5250.0  5300.0  5318.0  5418.0  5718.0
3741          RY    96.0    91.0    89.9    85.1    86.6    89.6    94.5    96.0
3742          RL                    1.77    85.1
              *

3743          KK      6D
3744          KM       SUB-BASIN 6D
3745          BA    9.98
3746          LG    0.30    0.30    8.05    0.09    5.00
3747          UI     242     242     242     242     242     242     242     242     242     24
```

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3748        UI     431     794     794     808     927     927     986    1112    1112    1183
3749        UI    1183    1274    1293    1346    1356    1421    1435    1503    1538    1589
3750        UI    1665    1713    1794    1843    1881    1930    2059    2198    2356    2485
3751        UI    2863    2752    2996    3263    3201    3000    2829    2682    2555    2445
3752        UI    2349    2264    2189    2122    2059    1989    1941    1897    1853    1746
3753        UI    1692    1635    1557    1528    1463    1431    1390    1316    1264    1220
3754        UI    1183    1157    1112    1102     927     927     864     695     695     695
3755        UI     544     428     428     428     428     428     411     397     397     397
3756        UI     397     397     389     242     242     242     242     242     242     242
3757        UI     242     242     242     175      74      74      74      74      74      74
3758        UI      74      74      74      74      74      74      74      74      74      74
3759        UI      74      74      74      74      74      74      74      74      74      74
3760        UI      74      74      74      74      74      74      74      74       0       0
3761        UI       0       0       0       0       0       0       0       0       0       0
            *

3762        KK      6E
3763        KM       SUB-BASIN 6E at C42
3764        BA    7.12
3765        LG    0.24    0.25    8.20    0.04   10.00
3766        UI     155     155     155     155     155     155     155     155     155     155
3767        UI     155     188     445     445     445     445     590     593     593     698
3768        UI     711     765     889     900     936     950     988    1012    1046    1089
3769        UI    1112    1147    1163    1186    1220    1242    1270    1359    1432    1503
3770        UI    1566    1698    1780    1879    2044    1759    1617    1276    1225    1186
3771        UI    1113    1090    1046    1013     988     951     936     918     912     895
3772        UI     889     861     847     828     808     800     773     773     746     741
3773        UI     730     711     711     670     659     659     624     624     622     593
3774        UI     593     593     534     531     531     506     481     481     481     433
3775        UI     409     409     409     404     378     378     378     378     371     356
3776        UI     356     356     356     351     323     323     323     323     323     291
3777        UI     254     254     254     254     254     254     241     198     198     198
3778        UI     198     198     198     198     198     198     171     169     169     169
3779        UI     169     169     169     169     169     169     165     119     119     119
```



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LINE        ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3780        UI     119     119     119     119     119     119     119     119     119     119
3781        UI     119     119      94      76      76      76      76      76      76      76
3782        UI      76      76      76      76      76      76      76      76      76      76
3783        UI      76      76      76      76      76      76      62      30      30      30
3784        UI      30      30      30      30      30      30      30      30      30      30
3785        UI      30      30      30      30      30      30      30      30      30      30
3786        UI      30      30      30      30      30      30      30      30      30      30
3787        UI      30      30      30      30      30      30      30      30      30      30
3788        UI      30      30      30      30      30      30      30      30      30      30
3789        UI      30      30      30      30      30      30      30      30       0       0
3790        UI       0       0       0       0       0       0       0       0       0       0
            *

3791        KK  R42-43
3792        KM       Channel Route From C42 To C43
3793        KM       Representative Of X-SECT. 6F2
3794        RS      13    FLOW      -1
3795        RC   0.050   0.051   0.050   13000   0.008
3796        RX  4066.0  5066.0  5240.0  5250.0  5300.0  5318.0  5418.0  5718.0
3797        RY    96.0    91.0    89.9    85.1    86.6    89.6    94.5    96.0
3798        RL                    1.95    85.1
            *

3799        KK     C43
3800        KM       Combine R41-43 + 6D + R42-43
3801        HC       3
            *

3802        KK  R43-44
3803        KM       Channel Route From C43 To C44
3804        KM       Interpolated XSECT. between 6F1 and 6F2
3805        RS      32    FLOW      -1
3806        RC   0.055   0.051   0.050   31000   0.007
3807        RX  4797.5  5135.0  5239.0  5250.0  5286.0  5301.0  5372.0  5812.0
3808        RY    96.9    91.9    91.2    86.9    87.4    92.0    94.7    96.9
3809        RL                    0.98    86.9
            *

3810        KK      6F
3811        KM       SUB-BASIN 6F
```

```
3812          BA    5.05
3813          LG    0.32     0.35     3.82     0.32     4.00
3814          UI     113      113      113      113      113      113      113      113      113      113
3815          UI     113      222      370      370      370      425      432      432      508      518
3816          UI     530      551      551      602      602      627      632      657      664      693
3817          UI     700      738      748      785      811      835      862      877      893      959
3818          UI    1008     1070     1137     1206     1397     1263     1459     1523     1479     1392
3819          UI    1318     1254     1199     1152     1110     1073     1036     1001      975      952
3820          UI     925      900      883      863      819      799      762      740      719      693
3821          UI     682      655      647      602      589      568      551      545      518      518
3822          UI     460      432      432      362      324      324      324      246      199      199
3823          UI     199      199      199      198      185      185      185      185      185      185
3824          UI     183      113      113      113      113      113      113      113      113      113
3825          UI     113      113       77       35       35       35       35       35       35       35
3826          UI      35       35       35       35       35       35       35       35       35       35
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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3827          UI      35       35       35       35       35       35       35       35       35       35
3828          UI      35       35       35       35       35       35       35       35       35       35
3829          UI       0        0        0        0        0        0        0        0        0        0
3830          UI       0        0        0        0        0        0        0        0        0        0
              *

3831          KK     C44
3832          KM       Combine R43-44 + 6F
3833          HC       2
              *

3834          KK  R44-69
3835          KM       Channel Route From C44 To C69
3836          KM       X-SECT. 6J1
3837          RS      10    FLOW      -1
3838          RC   0.050   0.069   0.050    8000   0.005
3839          RX  4867.1  5144.0  5192.0  5217.0  5237.0  5285.0  5395.0  6575.0
3840          RY    99.4    94.4    94.1    89.5    89.6    91.6    93.5    99.4
3841          RL                    0.89    89.5
              *

3842          KK      6H
3843          KM       SUB-BASIN 6H
3844          BA    4.97
3845          LG    0.32     0.35     3.87     0.34     5.00
3846          UI     120      120      120      120      120      120      120      120      120      120
3847          UI     192      393      393      393      458      458      477      550      550      580
3848          UI     585      622      639      660      671      696      705      740      752      785
3849          UI     813      835      887      904      922      948     1006     1065     1139     1213
3850          UI    1335     1425     1415     1585     1612     1510     1423     1348     1284     1228
3851          UI    1179     1136     1098     1057     1025      998      973      948      920      888
3852          UI     859      809      790      764      734      723      688      681      625      623
3853          UI     585      585      555      550      502      458      458      376      344      344
3854          UI     344      213      211      211      211      211      211      198      196      196
3855          UI     196      196      196      167      120      120      120      120      120      120
3856          UI     120      120      120      120       65       37       37       37       37       37
3857          UI      37       37       37       37       37       37       37       37       37       37
3858          UI      37       37       37       37       37       37       37       37       37       37
3859          UI      37       37       37       37       37       37       37       37       37        0
3860          UI       0        0        0        0        0        0        0        0        0        0
3861          UI       0        0        0        0        0        0        0        0        0        0
              *

3862          KK      6I
3863          KM       SUB-BASIN 6I
3864          BA    6.97
3865          LG    0.31     0.35     4.08     0.38     7.00
3866          UI     206      206      206      206      206      206      206      206      328      676
3867          UI     676      744      789      840      947      972     1007     1067     1101     1155
3868          UI    1181     1214     1277     1320     1371     1435     1525     1568     1614     1699
3869          UI    1827     1988     2124     2498     2398     2738     2722     2530     2340     2209
3870          UI    2095     1996     1908     1831     1762     1700     1645     1595     1524     1451
3871          UI    1389     1315     1269     1232     1184     1107     1073     1007      992      947
3872          UI     891      789      775      592      592      585      364      364      364      364
3873          UI     362      338      338      338      338      338      236      206      206      206
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10
```

```
3874          UI     206     206     206     206     201      63      63      63      63      63
3875          UI      63      63      63      63      63      63      63      63      63      63
3876          UI      63      63      63      63      63      63      63      63      63      63
3877          UI      63      63      63       0       0       0       0       0       0       0
3878          UI       0       0       0       0       0       0       0       0       0       0
              *

3879          KK     C46
3880          KM       Combine 6H + 6I
3881          HC       2
              *

3882          KK  R46-69
3883          KM       Channel Route From C46 To C69
3884          KM       Representative Of X-SECT. 6K1
3885          RS      13    FLOW      -1
3886          RC   0.060   0.047   0.050    7200   0.004
3887          RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
3888          RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
3889          RL                    0.55    90.9
              *

3890          KK     C69
3891          KM       Combine R44-69 + R46-69
3892          HC       2
              *

3893          KK  R69-47
3894          KM       Channel Route From C69 To C47
3895          KM       Representative Of X-SECT. 6K1
3896          RS       8    FLOW      -1
3897          RC   0.060   0.047   0.050    4800   0.003
3898          RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
3899          RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
3900          RL                    0.49    90.9
              *

3901          KK      6J
3902          KM       SUB-BASIN 6J
3903          BA    4.47
3904          LG    0.33    0.35    3.87    0.36    4.00
3905          UI     148     148     148     148     148     148     148     208     485     485
3906          UI     549     566     652     681     722     753     789     828     853     883
3907          UI     918     970    1019    1075    1119    1156    1227    1331    1468    1663
3908          UI    1693    1931    1968    1821    1671    1572    1480    1399    1336    1280
3909          UI    1230    1185    1144    1085    1025     976     934     893     853     808
3910          UI     770     722     703     679     595     566     467     424     424     265
3911          UI     261     261     261     251     242     242     242     242     167     148
3912          UI     148     148     148     148     148     148      48      45      45      45
3913          UI      45      45      45      45      45      45      45      45      45      45
3914          UI      45      45      45      45      45      45      45      45      45      45
3915          UI      45       0       0       0       0       0       0       0       0       0
3916          UI       0       0       0       0       0       0       0       0       0       0
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3917          KK     C47
3918          KM       Combine R69-47 + 6J
3919          HC       2
              *

3920          KK   DC47R
3921          KM         Main flow at C47 is in the right channel (C47R)
3922          KM         Diverted flow (DQ record) goes into the left channel (C47L)
3923          DT   DC47L
3924          DI       0     100     500    1000    2000    4000    8000   16000   32000
3925          DQ       0      50     250     500    1000    2000    4000    8000   16000
              *

3926          KK  47R-48
3927          KM       Channel Route From C47R To C48
3928          KM       X-SECT. 6K1
3929          RS      15    FLOW      -1
3930          RC   0.060   0.047   0.050    9600   0.005
3931          RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
```

```
3932          RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
3933          RL                    0.55    90.9
              *

3934          KK      6K
3935          KM       SUB-BASIN 6K
3936          BA    5.95
3937          LG    0.35    0.35    3.50    0.28    0.00
3938          UI     157     157     157     157     157     157     157     157     157     223
3939          UI     514     514     531     600     600     677     720     743     766     802
3940          UI     837     864     878     919     936     973    1010    1040    1091    1145
3941          UI    1179    1207    1241    1327    1417    1529    1617    1918    1751    2043
3942          UI    2117    1995    1863    1759    1669    1590    1522    1461    1408    1361
3943          UI    1318    1280    1241    1205    1155    1109    1059    1013     987     947
3944          UI     918     900     825     816     766     764     720     720     611     600
3945          UI     548     450     450     450     289     277     277     277     277     269
3946          UI     257     257     257     257     257     216     157     157     157     157
3947          UI     157     157     157     157     157      92      48      48      48      48
3948          UI      48      48      48      48      48      48      48      48      48      48
3949          UI      48      48      48      48      48      48      48      48      48      48
3950          UI      48      48      48      48      48      48      48       0       0       0
3951          UI       0       0       0       0       0       0       0       0       0       0
              *

3952          KK     C48
3953          KM       Combine R47R-48 + 6K
3954          KO                                     21
3955          HC       2
              *
```



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LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

3956          KK   DC48R
3957          KM         Main flow at C48 is in the right channel (C48R)
3958          KM         Diverted flow (DQ record) goes into the left channel (C48L)
3959          DT   DC48L
3960          DI       0     100     500    1000    2000    4000    8000   16000   32000
3961          DQ       0      50     250     500    1000    2000    4000    8000   16000
              *

3962          KK  48R-50
3963          KM       Channel Route From C48R To C50
3964          KM       Representative Of X-SECT. 6L2
3965          RS      24    FLOW      -1
3966          RC   0.050   0.070   0.050   10600   0.005
3967          RX  4213.0  5213.0  5570.0  5595.0  5707.0  5761.0  5887.0  6887.0
3968          RY    99.5    94.5    94.5    92.8    91.3    93.4    94.5    99.5
3969          RL                    2.06    91.3
              *

3970          KK      6G
3971          KM       SUB-BASIN 6G at C45
3972          BA    6.37
3973          LG    0.35    0.35    3.50    0.27    0.00
3974          UI     129     129     129     129     129     129     129     129     129     129
3975          UI     129     129     210     425     425     425     453     495     495     503
3976          UI     594     594     606     632     632     674     691     702     725     727
3977          UI     762     762     799     803     843     849     897     906     959     971
3978          UI     991    1015    1034    1101    1155    1213    1292    1349    1576    1473
3979          UI    1555    1709    1748    1679    1589    1512    1446    1389    1340    1292
3980          UI    1243    1209    1180    1143    1111    1090    1061    1035    1021     991
3981          UI     963     929     892     874     835     825     790     782     755     743
3982          UI     710     675     673     632     632     615     594     594     526     495
3983          UI     495     450     371     371     371     371     237     229     229     229
3984          UI     229     229     229     216     212     212     212     212     212     212
3985          UI     212     129     129     129     129     129     129     129     129     129
3986          UI     129     129     129     105      40      40      40      40      40      40
3987          UI      40      40      40      40      40      40      40      40      40      40
3988          UI      40      40      40      40      40      40      40      40      40      40
3989          UI      40      40      40      40      40      40      40      40      40      40
3990          UI      40      40      40      40      40       0       0       0       0       0
3991          UI       0       0       0       0       0       0       0       0       0       0
              *

3992          KK  R45-50
3993          KM       Channel Route From C45 To C5(
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```
3994          KM       Interpolated XSECT. between 6L1 and 6L2
3995          RS      48    FLOW      -1
3996          RC   0.050   0.062    0.05   22600   0.005
3997          RX  4257.0  5257.0  5479.0  5501.0  5573.0  5604.0  5717.0  6557.0
3998          RY    98.6    93.6    94.5    91.3    90.7    93.5    94.4    98.6
3999          RL                    1.54    90.7
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4000          KK      6L
4001          KM       SUB-BASIN 6L
4002          BA    6.34
4003          LG    0.35    0.35    3.50    0.27    0.00
4004          UI     140     140     140     140     140     140     140     140     140     140
4005          UI     140     226     458     458     458     512     535     535     603     642
4006          UI     645     683     683     727     746     764     783     799     823     841
4007          UI     867     894     917     958     976    1035    1052    1070    1105    1145
4008          UI    1198    1284    1375    1436    1630    1627    1665    1848    1888    1795
4009          UI    1692    1604    1530    1465    1409    1359    1316    1278    1234    1198
4010          UI    1171    1146    1107    1088    1070    1004     983     944     912     891
4011          UI     855     844     809     802     744     729     704     683     676     642
4012          UI     642     577     535     535     462     401     401     401     330     247
4013          UI     247     247     247     247     247     232     229     229     229     229
4014          UI     229     229     167     140     140     140     140     140     140     140
4015          UI     140     140     140     140      46      43      43      43      43      43
4016          UI      43      43      43      43      43      43      43      43      43      43
4017          UI      43      43      43      43      43      43      43      43      43      43
4018          UI      43      43      43      43      43      43      43      43      43      43
4019          UI      43      43       0       0       0       0       0       0       0       0
4020          UI       0       0       0       0       0       0       0       0       0       0
              *

4021          KK     C50
4022          KM       Combine R48R-50 + R45-50 + 6L
4023          KO                                     21
4024          HC       3
              *

4025          KK  R50-52
4026          KM       Channel Route From C50 To C52
4027          KM       X-SECT. 602
4028          KO                                     21
4029          RS      25    FLOW      -1
4030          RC   0.050   0.050   0.050   13400   0.005
4031          RX  4255.0  5255.0  5450.0  5603.0  5891.0  6002.0  6302.0  6437.0
4032          RY    98.9    93.9    93.2    92.6    93.9    94.4    96.0    99.2
4033          RL                    4.71    92.6
              *

4034          KK  BDC47L
4035          KM       Recall diverted hydrograph C47L
4036          DR   DC47L
              *

4037          KK  47L-49
4038          KM       Channel Route From C47L To C49
4039          KM       Representative Of X-SECT. 6K1
4040          RS      30    FLOW      -1
4041          RC   0.060   0.047   0.050   19400   0.005
4042          RX  4300.0  5300.0  5963.0  5972.0  5994.0  6012.0  6357.0  7008.4
4043          RY   100.1    95.1    93.1    91.2    90.9    94.1    92.5   100.1
4044          RL                    0.56    90.9
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4045          KK  BDC48L
4046          KM       Recall diverted hydrograph C48L
4047          DR   DC48L
              *

4048          KK  48L-49
4049          KM       Channel Route From C48L To C49
```

```
4050          KM       Representative Of X-SECT. 6L2
4051          RS      24    FLOW      -1
4052          RC   0.050   0.070   0.050   10600   0.005
4053          RX  4213.0  5213.0  5570.0  5595.0  5707.0  5761.0  5887.0  6887.0
4054          RY    99.5    94.5    94.5    92.8    91.3    93.4    94.5    99.5
4055          RL                    2.06    91.3
              *

4056          KK      6M
4057          KM       SUB-BASIN 6M
4058          BA    3.86
4059          LG    0.34    0.35    3.55    0.29    1.00
4060          UI     137     137     137     137     137     137     137     361     449     487
4061          UI     524     587     630     669     702     738     767     802     834     873
4062          UI     918     972    1026    1062    1122    1222    1353    1553    1582    1808
4063          UI    1799    1634    1518    1409    1333    1264    1200    1150    1105    1064
4064          UI    1008     948     898     856     820     787     720     691     668     629
4065          UI     581     524     451     393     389     242     242     242     242     226
4066          UI     225     225     225     183     137     137     137     137     137     137
4067          UI     118      42      42      42      42      42      42      42      42      42
4068          UI      42      42      42      42      42      42      42      42      42      42
4069          UI      42      42      42      42       0       0       0       0       0       0
4070          UI       0       0       0       0       0       0       0       0       0       0
              *

4071          KK     C49
4072          KM       Combine R47L-49 + R48L-49 + 6M
4073          HC       3   77.19
              *

4074          KK  R49-51
4075          KM       Channel Route From C49 To C51
4076          KM       X-SECT. 6O1
4077          RS      22    FLOW      -1
4078          RC   0.050   0.069   0.050   15000   0.005
4079          RX  4013.0  5013.0  5076.0  5093.0  5100.0  5112.0  5229.0  5849.0
4080          RY    95.0    90.0    88.8    84.9    84.9    89.7    91.9    95.0
4081          RL                    0.65    84.9
              *

4082          KK      6O
4083          KM       SUB-BASIN 6O
4084          BA    8.13
4085          LG    0.37    0.30    3.66    0.31    0.00
4086          UI     288     288     288     288     288     288     288     760     947    1026
4087          UI    1105    1237    1327    1410    1479    1554    1616    1688    1757    1838
4088          UI    1934    2048    2161    2238    2363    2573    2849    3271    3332    3808
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4089          UI    3789    3442    3198    2968    2808    2662    2527    2421    2327    2241
4090          UI    2123    1996    1891    1803    1727    1657    1517    1455    1406    1325
4091          UI    1224    1105     950     828     820     510     510     510     510     477
4092          UI     473     473     473     385     288     288     288     288     288     288
4093          UI     250      88      88      88      88      88      88      88      88      88
4094          UI      88      88      88      88      88      88      88      88      88      88
4095          UI      88      88      88      88       0       0       0       0       0       0
4096          UI       0       0       0       0       0       0       0       0       0       0
              *

4097          KK    C51I
4098          KM       Combine R49-51 + 6O
4099          HC       2
              *

4100          KK   CPND1
4101          KM       Combine R50-52 + C51I
4102          HC       2   98.03
              *

4103          KK    PND1
4104          KM        Reservoir Route at PND1 (C51 + C52) At The Gila Bend Canal
4105          RS       1    ELEV   727.5
4106          SV     0.0     0.0     1.0     3.0     7.0    12.0    22.0    41.0    74.0   129.0
4107          SV   226.0   369.0   561.0   662.0   801.0   921.0  1041.0
4108          SE   727.5   728.0   729.0   730.0   731.0   732.0   733.0   734.0   735.0   736.0
4109          SE   737.0   738.0   739.0   739.5   740.0   740.5   741.(
```

```
4110          SQ     0.0    10.0    30.0    75.0   135.0   233.0   287.0   377.0   400.0   442.0
4111          SQ   479.0   515.0   546.0   582.0  2834.6 11355.1 27511.5
4112          RL                    0.47   727.5
              *

4113          KK    C510
4114          KM         Main flow at C510 is in the left channel (R51-54)
4115          KM         Diverted flow (DQ record) goes into the right channel (R52-55).
4116          KM            Split reservoir route hydrograph downstream of GBC to simulate
4117          KM            outflow from C51 and C52.
4118          DT    C520
4119          DI     0.0   135.0   233.0   287.0   377.0   400.0   442.0   479.0   515.0   546.0
4120          DI   582.0  2834.6 11355.1 27511.5
4121          DQ     0.0     0.0     8.0    12.0    27.0    40.0    47.0    54.0    60.0    66.0
4122          DQ    87.0   192.0  1698.3  6480.3
              *

4123          KK  R51-54
4124          KM       Channel Route From C51 To C54
4125          KM       Representative Of X-SECT. 6P2
4126          RS       1    FLOW      -1
4127          RC   0.035   0.034   0.035    1800   0.004
4128          RX  4799.4  5078.0  5091.0  5121.0  5136.0  5166.0  5177.0  5548.3
4129          RY    98.9    93.9    88.7    87.2    87.6    88.5    92.3    98.9
4130          RL                    1.82    87.2
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4131          KK  R54-57
4132          KM       Channel Route From C54 To C57
4133          KM       X-SECT. 6P2
4134          RS       6    FLOW      -1
4135          RC   0.035   0.034   0.035    7600   0.004
4136          RX  4799.4  5078.0  5091.0  5121.0  5136.0  5166.0  5177.0  5548.3
4137          RY    98.9    93.9    88.7    87.2    87.6    88.5    92.3    98.9
4138          RL                    1.96    87.2
              *

4139          KK   BC520
4140          KM       Recall diverted hydrograph C520
4141          DR    C520
              *

4142          KK  R52-55
4143          KM       Channel Route From C52 To C55
4144          KM       Representative Of X-SECT. 6P4
4145          RS       1    FLOW      -1
4146          RC   0.035   0.034   0.035    2400   0.004
4147          RX  4033.0  5033.0  5042.0  5062.0  5072.0  5082.0  5097.0  5277.0
4148          RY    98.9    93.9    90.2    88.6    88.6    89.8    98.0    98.9
4149          RL                    4.07    88.6
              *

4150          KK  R55-57
4151          KM       Channel Route From C55 To C57
4152          KM       X-SECT. 6P4
4153          RS       4    FLOW      -1
4154          RC   0.035   0.034   0.035    6600   0.005
4155          RX  4033.0  5033.0  5042.0  5062.0  5072.0  5082.0  5097.0  5277.0
4156          RY    98.9    93.9    90.2    88.6    88.6    89.8    98.0    98.9
4157          RL                    4.16    88.6
              *

4158          KK     C57
4159          KM       Combine R54-57 + R55-57
4160          HC       2   98.03
              *

4161          KK  R57-58
4162          KM       Channel Route From C57 To C58
4163          KM       X-SECT. 6P3
4164          RS      13    FLOW      -1
4165          RC   0.060   0.065   0.050   10400   0.004
4166          RX  4795.5  5240.0  5318.0  5333.0  5357.0  5382.0  5532.0  5982.0
4167          RY    99.2    94.2    94.0    92.0    92.0    93.7    93.9    99.:
```

```
4168          RL                    0.79    92.0
              *
```



```
LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10

4169          KK      6P
4170          KM        SUB-BASIN 6P
4171          BA    5.21
4172          LG    0.42    0.13    4.07    0.50    2.00
4173          UI     177     177     177     177     177     177     177     343     582     592
4174          UI     679     696     815     840     867     941     971    1001    1045    1094
4175          UI    1142    1199    1266    1331    1376    1450    1574    1731    1941    2060
4176          UI    2289    2368    2189    2005    1884    1766    1673    1596    1528    1466
4177          UI    1412    1362    1280    1208    1149    1099    1056    1019     928     895
4178          UI     867     816     770     679     619     509     509     370     313     313
4179          UI     313     304     291     291     291     291     200     177     177     177
4180          UI     177     177     177     151      54      54      54      54      54      54
4181          UI      54      54      54      54      54      54      54      54      54      54
4182          UI      54      54      54      54      54      54      54      54       0       0
4183          UI       0       0       0       0       0       0       0       0       0       0
              *

4184          KK     C58
4185          KM       Combine R57-58 + 6P
4186          HC       2
              *
4187          ZZ
```

SCHEMATIC DIAGRAM OF STREAM NETWORK

```
INPUT
 LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

 NO.       (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

  65          1B
               V
               V
        R61-62
               .
               .
  85           .          1C
               .           .
               .           .
  99           .           .          1A
               .           .           .
               .           .           .
 120        C62.......................
               V
               V
 123    R62-64
               .
               .
 131           .          1D
               .           V
               .           V
 142           .      R63-64
               .           .
               .           .
 150        C64............
               V
               V
 153    R64-65
               .
               .
 161           .          1E
               .           .
               .           .
 176           .           .          1F
               .           .           .
               .           .           .
 199        C65.......................
               V
               V
 202    R65-67
               .
               .
```

```
210          .          1J
             .           V
             .           V
322          .      R66-67
             .           .
             .           .
             .           .          1I
             .           .           .
             .           .           .
245        C67.......................
             V
             V
248     R67-71
             .
             .
256          .          1G
             .           V
             .           V
277          .      R70-71
             .           .
             .           .
285          .           .          1H
             .           .           .
             .           .           .
308          .        C71R............
             .           .
             .           .
311          .           .          1K
             .           .           V
             .           .           V
326          .           .      R68-71
             .           .           .
             .           .           .
334          .           .           .          1L
             .           .           .           .
             .           .           .           .
351          .           .        C71L............
             .           .           .
             .           .           .
        C71.......................
             V
             V
357     R71-73
             .
             .
365          .          1M
             .           V
             .           V
380          .      R72-73
             .           .
             .           .
388          .           .          1N
             .           .           .
             .           .           .
402        C73.......................
             V
             V
405     R73-74
             .
             .
413          .          1P
             .           .
             .           .
430          .           .          1O
             .           .           .
             .           .           .
456        C74.......................
             V
             V
459     R74-77
             .
             .
467          .          1U
             .           .
             .           .
484        C77R............
             .
             .
```

```
487          .          1Q
             .           V
             .           V
05           .      R75-76
             .           .
             .           .
             .           .          1R
             .           .           .
             .           .           .
531          .         C76............
             .           V
             .           V
534          .      R76-77
             .           .
             .           .
542          .           .          1T
             .           .           .
             .           .           .
562          .        C77L............
             .           .
             .           .
565        C77............
             V
             V
568     R77-79
             .
             .
576          .          1W
             .           .
             .           .
587     C79RUP............
             .
             .
590          .          1S
             .           .
             .           .
616          .           .-------->   DC78L
13           .       DC78R
             .           V
             .           V
             .      78R-79
             .           .
             .           .
627          .           .          1V
             .           .           .
             .           .           .
640          .      C79LUP............
             .           .
             .           .
643        C79............
             .
             .
649          .-------->   DC79L
646       DC79R
             V
             V
652     79R-81
             .
             .
662          .           .<--------   DC79L
660          .      BDC79L
             .           V
             .           V
663          .      79L-80
             .           .
             .           .
674          .           .-------->   DC80L
671          .       DC80R
             .           V
             .           V
77           .      80R-81
             .           .
             .           .
             .           .          1X
             .           .           .
             .           .           .
700        C81........................
             .
```

```
                .
707             .-------->   DC81L
704         DC81R
                V
                V
710        81R-82
                .
                .
720             .            .<-------   DC81L
718             .       BDC81L
                .            V
                .            V
721             .       81L-82
                .            .
                .            .
729             .            .          1Y
                .            .           .
                .            .           .
747           C82.........................
                .
                .
755             .-------->   DC82L
751         DC82R
                V
                V
758        82-135
                .
                .
766             .         2VV
                .            .
                .            .
781         C135I............
                .
                .
785             .          2D
                .           V
                .           V
800             .       R87-89
                .            .
                .            .
                .            .          2F
                .            .           V
                .            .           V
821             .            .      R88-89
                .            .            .
                .            .            .
829             .         C89............
                .           V
                .           V
832             .       R89-91
                .            .
                .            .
840             .            .          2E
                .            .           .
                .            .           .
849             .            .           .          2G
                .            .           .           .
                .            .           .           .
859             .         C91.........................
                .           V
                .           V
862             .       R91-92
                .            .
                .            .
870             .            .          2I
                .            .           .
                .            .           .
882             .            .           .          2H
                .            .           .           .
                .            .           .           .
892             .         C92.........................
                .           V
                .           V
                .       R92-95
                .            .
                .            .
903             .            .          2K
                .            .           V
```

```
                 .           .           V
 923             .           .     R93-94
                 .           .           .
                 .           .           .
 31              .           .           .          2L
                 .           .           .           .
                 .           .           .           .
 9               .           .        C94............
                 .           .           V
                 .           .           V
 951             .           .     R94-95
                 .           .           .
                 .           .           .
 959             .           .           .          2M
                 .           .           .           .
                 .           .           .           .
 968             .           .           .           .          2J
                 .           .           .           .           .
                 .           .           .           .           .
 984             .        C95.................................
                 .           V
                 .           V
 987             .     R95-96
                 .           .
                 .           .
 995             .           .        2A
                 .           .           V
                 .           .           V
1011             .           .     R83-84
                 .           .           .
                 .           .           .
1022             .           .           .-------->   DC84R
1019             .           .      DC84L
                 .           .           V
                 .           .           V
1025             .           .     84L-85
                 .           .           .
                 .           .           .
 33              .           .           .          2B
                 .           .           .           .
                 .           .           .           .
1046             .           .        C85............
                 .           .           V
                 .           .           V
1049             .           .     R85-96
                 .           .           .
                 .           .           .
1059             .           .           .           .<-------   DC84R
1057             .           .           .     BDC84R
                 .           .           .           V
                 .           .           .           V
1060             .           .           .     84R-86
                 .           .           .           .
                 .           .           .           .
1068             .           .           .           .          2N
                 .           .           .           .           .
                 .           .           .           .           .
1079             .           .           .        C86............
                 .           .           .           V
                 .           .           .           V
1083             .           .           .     R86-96
                 .           .           .           .
                 .           .           .           .
1091             .           .           .           .          2C
                 .           .           .           .           .
                 .           .           .           .           .
1108             .           .           .           .           .          2O
                 .           .           .           .           .           .
                 .           .           .           .           .           .
1124             .        C96.............................................
                 .           V
                 .           V
1127             .     R96-97
                 .           .
                 .           .
1135             .           .        2P
                 .           .           .
                 .           .           .
```

```
1151   .      C97............
       .       V
       .       V
1154   .   97-100
       .       .
       .       .
11[illegible]  .       .        2Q
       .       .         V
       .       .         V
1181   .       .     R98-99
       .       .         .
       .       .         .
1189   .       .         .        2R
       .       .         .         .
       .       .         .         .
1201   .       .       C99............
       .       .         V
       .       .         V
1204   .       .     99-100
       .       .         .
       .       .         .
1212   .       .         .        2S
       .       .         .         .
       .       .         .         .
1222   .     C100......................
       .       V
       .       V
1225   .   100101
       .       .
       .       .
1233   .       .        2T
       .       .         .
       .       .         .
1258   .     C101............
       .       V
       .       V
1261   .   101102
       .       .
       .       .
1[illegible]   .       .        2U
       .       .         .
       .       .         .
1279   .     C102............
       .       V
       .       V
1282   .   102103
       .       .
       .       .
1290   .       .        2V
       .       .         .
       .       .         .
1314   .     C103............
       .       V
       .       V
1317   .   103107
       .       .
       .       .
1325   .       .        2W
       .       .         V
       .       .         V
1346   .       .     104105
       .       .         .
       .       .         .
1354   .       .         .        2X
       .       .         .         .
       .       .         .         .
1382   .       .       C105............
       .       .         V
       .       .         V
1385   .       .     105107
       .       .         .
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1393   .       .         .        2Y
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1413   .     C107......................
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1416          .           .        2BB
              .           .         V
              .           .         V
1430          .           .     108111
              .           .          .
              .           .          .
1[illegible]  .           .          .         2Z
              .           .          .          V
              .           .          .          V
1461          .           .          .     110111
              .           .          .          .
              .           .          .          .
1469          .           .          .          .        2AA
              .           .          .          .          .
              .           .          .          .          .
1483          .           .      C111.......................
              .           .         V
              .           .         V
1486          .           .     111113
              .           .          .
              .           .          .
1494          .           .          .        2CC
              .           .          .          .
              .           .          .          .
1512          .       C113.......................
              .          V
              .          V
1515          .     113127
              .           .
              .           .
1523          .           .        2DD
              .           .          .
              .           .          .
1534          .      C127R............
              .           .
              .           .
1538          .           .        2GG
              .           .         V
              .           .         V
1[illegible]  .           .     114115
              .           .          .
              .           .          .
1562          .           .          .        2HH
              .           .          .          .
              .           .          .          .
1576          .           .      C115............
              .           .         V
              .           .         V
1579          .           .     115116
              .           .          .
              .           .          .
1587          .           .          .        2II
              .           .          .          .
              .           .          .          .
1606          .           .      C116............
              .           .          .
              .           .          .
1612          .           .          .-------> DC116L
1609          .           .     DC116R
              .           .         V
              .           .         V
1615          .           .     116119
              .           .          .
              .           .          .
1623          .           .          .        2EE
              .           .          .          V
              .           .          .          V
1641          .           .          .     118119
              .           .          .          .
              .           .          .          .
1[illegible]649 .         .          .          .        2JJ
              .           .          .          .          .
              .           .          .          .          .
1[illegible]  .           .      C119........................
              .           .         V
              .           .         V
1663          .           .     119120
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1671                    2KK
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 1                 C120R............
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16                      2LL
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1720                     .          .<-------  DC116L
1718                     .     BC116L
                         .          V
                         .          V
1721                     .     116120
                         .          .
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1729                C120.......................
                       V
                       V
1732               120121
                         .
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1740                    2MM
                         .
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1751                C121............
                       V
                       V
1754               121123
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1762                    2FF
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1786                C123............
                       V
                       V
 89                123140
                         .
                         .
1797                    2NN
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1819                     .         2OO
                         .          .
                         .          .
1830                     .      C124............
                         .         V
                         .         V
1833                     .     124125
                         .          .
                         .          .
1841                     .          .         2PP
                         .          .          .
                         .          .          .
1853                     .      C125............
                         .         V
                         .         V
1856                     .     125126
                         .          .
                         .          .
1864                     .          .         2QQ
                         .          .          .
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1876                     .      C126............
                         .         V
                         .         V
1879                     .     126140
                         .          .
                         .          .
 37                 C140............
                       V
                       V
                   140127
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1898                    2RR
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1911            .           .           .           .         2YY
                .           .           .           .           .
                .           .           .           .           .
1925            .           .      C127L.......................
                .           .           .
                .           .           .
1928            .       C127............
                .           V
                .           V
1931            .      127131
                .           .
                .           .
1942            .           .           .<-------   DC78L
1940            .           .      BDC78L
                .           .           V
                .           .           V
1943            .           .      78L128
                .           .           .
                .           .           .
1951            .           .           .         2SS
                .           .           .           .
                .           .           .           .
1967            .           .       C128............
                .           .           V
                .           .           V
1971            .           .      128129
                .           .           .
                .           .           .
1979            .           .           .         2TT
                .           .           .           .
                .           .           .           .
1992            .           .       C129............
                .           .           V
                .           .           V
1995            .           .      129130
                .           .           .
                .           .           .
2[illegible]    .           .           .           .<-------   DC80L
2[illegible]    .           .           .      BDC80L
                .           .           .           V
                .           .           .           V
2006            .           .           .      80L130
                .           .           .           .
                .           .           .           .
2014            .           .       C130............
                .           .           V
                .           .           V
2018            .           .      130131
                .           .           .
                .           .           .
2027            .       C131............
                .           V
                .           V
2030            .      131132
                .           .
                .           .
2038            .           .        2UU
                .           .           .
                .           .           .
2062            .           .           .           .<-------   DC82L
2060            .           .           .      BDC82L
                .           .           .           .
                .           .           .           .
2063            .       C132........................
                .           .
                .           .
2070            .           .-------> DC132L
2066            .      DC132R
                .           V
                .           V
2073            .      132133
                .           .
                .           .
2081        C133I............
                V
                V
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2084        PND3
                .
                .
98              .-------> DPND3W
 94       PND3N
                .
                .
2100            .------->  D135O
2101       D133O
               V
               V
2114      133141
                .
                .
2124            .           .<-------   D135O
2122            .      BD135O
                .           V
                .           V
2125            .      135141
                .           .
                .           .
2133        C141............
               V
               V
2137      141149
                .
                .
2145            .         2WW
                .           V
                .           V
2164            .       C136O
                .           V
                .           V
2174            .      136149
                .           .
                .           .
2182        C149............
               V
               V
2[illegible]      149137
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                .
2193            .         2XX
                .           .
                .           .
2206        C137............
                .
                .
2209            .         7AC
                .           V
                .           V
2226            .      7AC150
                .           .
                .           .
2233            .           .         7AB
                .           .           .
                .           .           .
2246            .        C7AB............
                .           .
                .           .
2252            .           .           .<-------  DC132L
2250            .           .      BC132L
                .           .           .
                .           .           .
2253            .        C150............
                .           .
                .           .
2260            .           .-------> DC150L
2256            .      DC150R
                .           V
                .           V
  53            .      150142
                .           .
                .           .
2[illegible]    .           .         7AA
                .           .           .
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2285            .         7AA............
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2290            .           .<-------  DPND3W
88              .      BPND3W
                .           .
                .           .
2               .      C142I............
                .           V
                .           V
2294            .      C142O
                .           .
                .           .
2308            .           .------->  DC142L
2304            .      DC142R
                .           V
                .           V
2313            .      142139
                .           .
                .           .
2321            .           .          7D
                .           .           .
                .           .           .
2332            .       C139............
                .           .
                .           .
2335            .           .          7C
                .           .           .
                .           .           .
2346            .           .           .<-------  DC142L
2344            .           .      BC142L
                .           .           V
                .           .           V
2347            .           .      142-18
                .           .           .
                .           .           .
2355            .           .           .          7B
                .           .           .           .
                .           .           .           .
.67             .           .        C18............
                .           .           .
                .           .           .
2370       NULL1.................................
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2375            .           .<-------  DC150L
2373            .      BD150L
                .           V
                .           V
2376            .      SR151
                .           .
                .           .
2386            .           .         3KC
                .           .           .
                .           .           .
2409            .           .           .         3KD
                .           .           .           .
                .           .           .           .
2428            .       C151........................
                .           V
                .           V
2431            .      151-12
                .           .
                .           .
2438            .           .         3KB
                .           .           .
                .           .           .
2454            .        C12............
                .           V
                .           V
2457            .      12-14A
                .           .
                .           .
2470            .           .------->  DC14AL
2               .      DC14AR
                .           V
                .           V
2475            .      14A-14
                .           .
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                .           .
2485            .           .           .<-------  DC14AL
2483            .           .      DC14AL
                .           .           V
                .           .           V
2486            .           .      14A11B
                .           .           V
                .           .           V
2493            .           .      11B-14
                .           .           .
                .           .           .
2500            .         C14............
                .           .
                .           .
2507            .           .------->   DC14R
2503            .       DC14L
                .           V
                .           V
2510            .      R14-13
                .           .
                .           .
2518            .           .         3F
                .           .          V
                .           .          V
2544            .           .       R1-3
                .           .           .
                .           .           .
2552            .           .           .          3E
                .           .           .           V
                .           .           .           V
2577            .           .           .       R2-3
                .           .           .           .
                .           .           .           .
2585            .           .           .           .          3G
                .           .           .           .           .
                .           .           .           .           .
2605            .           .         C3........................
                .           .          V
                .           .          V
26              .           .       R3-5
                .           .           .
                .           .           .
2616            .           .           .          3H
                .           .           .           .
                .           .           .           .
2645            .           .         C5............
                .           .          V
                .           .          V
2648            .           .       R5-7
                .           .           .
                .           .           .
2656            .           .           .          3C
                .           .           .           V
                .           .           .           V
2682            .           .           .       R4-7
                .           .           .           .
                .           .           .           .
2690            .           .           .           .          3D
                .           .           .           .           .
                .           .           .           .           .
2707            .           .         C7........................
                .           .          V
                .           .          V
2710            .           .      R7-90
                .           .           .
                .           .           .
2718            .           .           .          3A
                .           .           .           V
                .           .           .           V
2749            .           .           .      R6-90
                .           .           .           .
                .           .           .           .
2757            .           .        C90............
                .           .          V
                .           .          V
2760            .           .      R90-8
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2768                                  3B
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2784                              C8............
                                   V
                                   V
2                               R8-9
                                   .
                                   .
2795                                  3I
                                       .
                                       .
2814                              C9............
                                   V
                                   V
2817                            R9-10
                                   .
                                   .
2825                                  3J
                                       .
                                       .
2851                             C10............
                                   V
                                   V
2854                           R10-11
                                   .
                                   .
2862                                  3L
                                       .
                                       .
2877                            C11I............
                                   V
                                   V
2880                            C11O
                                   V
                                   V
2888                           R11-17
                                   .
                                   .
2                                     4A
                                       V
                                       V
2927                                R26-27
                                       .
                                       .
2935                                                4B
                                                    .
                                                    .
2951                                  C27............
                                       V
                                       V
2954                                R27-28
                                       .
                                       .
2962                                                4C
                                                    .
                                                    .
2983                                  C28............
                                       V
                                       V
2986                                R28-29
                                       .
                                       .
2994                                                4E
                                                    V
                                                    V
3020                                            R20-21
                                                    .
                                                    .
3028                                                    4F
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3048                                            C21............
                                                    V
                                                    V
3051                                            R21-23
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3059                                                  4D
                                                       V
                                                       V
 87                                              R22-23
                                                       .
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3                                                      .          4G
                                                       .           .
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3118                                          C23......................
                                                 V
                                                 V
3121                                       R23-29
                                                 .
                                                 .
3129                                                  4J
                                                       .
                                                       .
3147                                       C29......................
                                                 V
                                                 V
3151                                    R29-31
                                                 .
                                                 .
3159                                             4K
                                                 .
                                                 .
3176                                       C31............
                                                 V
                                                 V
3179                                    R31-32
                                                 .
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3187                                             4H
                                                 V
                                                 V
3210                                       R24-25
                                                 .
                                                 .
3                                                      .          4I
                                                       .           .
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3243                                          C25............
                                                 V
                                                 V
3246                                       R25-30
                                                 .
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3254                                                  6A
                                                       V
                                                       V
3279                                            R39-40
                                                       .
                                                       .
3287                                                   .          6B
                                                       .           .
                                                       .           .
3309                                                  C40............
                                                       .
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3315                                                   .-------->   DC40L
3312                                             DC40R
                                                       V
                                                       V
3318                                            40R-30
                                                       .
                                                       .
3326                                                   .          4L
                                                       .           .
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 47                                           C30......................
                                                 V
                                                 V
3                                          R30-32
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3358                                                  4M
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3373                C32.......................
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 79                  .-------->   DC32L
3376            DC32R
                     V
                     V
3382            R32-33
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3390                 .          4N
                     .           .
                     .           .
3413                C33............
                     V
                     V
3416            R33-34
                     .
                     .
3424                 .          4O
                     .           .
                     .           .
3443              C34 ............
                     V
                     V
3446            R34-17
                     .
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3456                 .           .<-------   DC32L
3454                 .      BDC32L
                     .           V
                     .           V
3457                 .      32L-35
                     .           .
                     .           .
3465                 .           .          5A
                     .           .           .
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3                    .        C35............
                     .           V
                     .           V
3491                 .      R35-36
                     .           .
                     .           .
3499                 .           .          5B
                     .           .           .
                     .           .           .
3516                 .        C36............
                     .           V
                     .           V
3520                 .      R36-37
                     .           .
                     .           .
3532                 .           .-------->   DC37L
3528                 .       DC37R
                     .           .
                     .           .
3539                 .           .-------->  DC37AL
3535                 .      DC37AR
                     .           V
                     .           V
3542                 .      37A-17
                     .           .
                     .           .
3549                C17.......................
                     V
                     V
3555            R17-13
                     .
                     .
 53          C13............
              V
              V
3            13-13A
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              .
3576          .<-------  DC37AI
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3574                DC37AL
                         V
                         V
3577                37L13A
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3[illegible]      C13A............
                     V
                     V
3586            13A-16
                     .
                     .
3594                   3M
                         .
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3609                     .           .<-------   DC14R
3607                     .       DC14R
                         .           V
                         .           V
3610                     .      R14-16
                         .           .
                         .           .
3617              C16......................
                     .
                     .
3622                     .<-------   DC37L
3620                BDC37L
                         V
                         V
3623                R37-38
                         .
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3631                     .           5C
                         .           .
                         .           .
3644                   C38............
                         .
                         .
3648                     .           6N
                         .           V
                         .           V
3666                     .      R53-56
                         .           V
                         .           V
3674                     .      R56-59
                         .           .
                         .           .
3682                     .           .           6Q
                         .           .           .
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3696                     .         C59............
                         .           .
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3702                     .           .           .<-------   DC40L
3700                     .      BDC40L
                         .           V
                         .           V
3703                     .      40L-41
                         .           .
                         .           .
3711                     .           .           .          6C
                         .           .           .           .
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3732                     .           .         C41............
                         .           .           V
                         .           .           V
3735                     .      R41-43
                         .           .
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3743                     .           .           .          6D
                         .           .           .           .
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3762                     .           .           .           .          6E
                         .           .           .           .           V
                         .           .           .           .           V
3791                     .           .           .           .      R42-43
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3799                                  C43.......................
                                       V
                                       V
 02                                R43-44
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3                                      .          6F
                                       .           .
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3831                                   C44............
                                       V
                                       V
3834                              R44-69
                                       .
                                       .
3842                                   .          6H
                                       .           .
                                       .           .
3862                                   .           .          6I
                                       .           .           .
                                       .           .           .
3879                                   .         C46............
                                       .           V
                                       .           V
3882                                   .      R46-69
                                       .           .
                                       .           .
3890                                   C69............
                                       V
                                       V
3893                              R69-47
                                       .
                                       .
3901                                   .          6J
                                       .           .
                                       .           .
3917                                   C47............
                                       .
                                       .
3                                      .-------->   DC47L
3                                 DC47R
                                       V
                                       V
3926                              47R-48
                                       .
                                       .
3934                                   .          6K
                                       .           .
                                       .           .
3952                                   C48............
                                       .
                                       .
3959                                   .-------->   DC48L
3956                              DC48R
                                       V
                                       V
3962                              48R-50
                                       .
                                       .
3970                                   .          6G
                                       .           V
                                       .           V
3992                                   .      R45-50
                                       .           .
                                       .           .
4000                                   .           .          6L
                                       .           .           .
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4021                                   C50.......................
                                       V
                                       V
 25                               R50-52
                                       .
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4                                      .           .<-------   DC47L
4034                                   .      BDC47L
                                       .           V
                                       .           V
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4037                                                  47L-49
                                                        .
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47                                                      .          .<-------   DC48L
45                                                      .      BDC48L
                                                        .          V
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40                                                      .      48L-49
                                                        .          .
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4056                                                    .          .          6M
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4071                                                 C49.......................
                                                        V
                                                        V
4074                                                 R49-51
                                                        .
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4082                                                    .          60
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4097                                                 C51I............
                                                        .
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4100                                            CPND1............
                                                     V
                                                     V
4103                                             PND1
                                                     .
                                                     .
4118                                                 .------->    C520
4113                                             C51O
                                                     V
                                                     V
4123                                            R51-54
                                                     V
                                                     V
 31                                             R54-57
                                                     .
                                                     .
4141                                                 .          .<-------    C520
4139                                                 .      BC52O
                                                     .          V
                                                     .          V
4142                                                 .      R52-55
                                                     .          V
                                                     .          V
4150                                                 .      R55-57
                                                     .          .
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4158                                             C57............
                                                     V
                                                     V
4161                                            R57-58
                                                     .
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4169                                                 .          6P
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4184                                             C58............
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(***) RUNOFF ALSO COMPUTED AT THIS LOCATION

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1*****************************************
*****************************************
 *                                      *                                                    *
*
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)  *                                                    *    U.S. ARMY CORPS OF
ENGINEERS     *
 *              MAY   1991              *                                                    *    HYDROLOGIC ENGINEERING
C  ER     *
              VERSION 4.0.1E            *                                                    *          609 SECOND
STREET          *
 *          Lahey F77L-EM/32 version 5.01 *                                                 *       DAVIS, CALIFORNIA
956          *
 *       Dodson & Associates, Inc.      *                                                    *           (916) 551-1748
*
 *  RUN DATE  03/16/01  TIME  07:25:37  *                                                    *
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                    FLOOD CONTROL DISTRICT OF MARICOPA COUNTY
                    GILA BEND AREA DRAINAGE MASTER PLAN

                    EAST SIDE
                    Bender and Sand Tank Washes (Major Basins 1, 2, and 7)
                    Basin 7A broken down into three subbasins for floodplain delineation work by
                    EEC and Premier (6/14/00)
                    Quilotosa and Sauceda Washes (Major Basins 3, 4, 5, and 6)
                    Basin 3K broken down into three subbasins, 3KB, 3KC, and 3KD for floodplain d
                    work by EEC and Premier (6/14/00)

                    WEST SIDE     work by EEC and Premier (Aug/Sept 2000)
                    New Subbasin 3KA was added to existing Subbasin 3L.
                    Removed the Storage Routes to reflect the absence of the Gila Bend Canal, wit
                      the exception of the pond at C11 which was reduced to only include the borr
                    Removed Diversions at C12, C11A, and C34.
                    D/S of CP12 a new concentration point was added at CP14A, a new channel route
                      added (R12-14A), and a diversion (DC14AL) takes place at Unnamed No. 2 and
                      to limited conveyance through culverts, flow is diverted to CP11B.  D/S of
                      modifed channel route (R14A-14) conveys remaining flow in Unnamed No. 2 to
                    At CP11B routed flow 14B11A is routed back to C14.  Overtopping analysis of t
                      Railroad and I-8 frontage road indicate that the runoff will flow through t
                      overpass from CP11B back towards CP14.
                    New Diversion between Unnamed No. 6 and Sauceda Wash based on rating curve de
                      using HEC-RAS iterations of weir flow over canal and channel conveyance beh
                      canal.
                    A new diversion at the Railroad and Sauceda diverts flow back toward Unnamed
                      DC37R.  Then HEC-2 side weir is used to identify flow split over the canal.
                      this divert DC37AR reduces flow to CP99, with diverted flow DC37AL overtopp
                      and I-8 highway.  This diverted flow is routed (37L-13A) and joins flow in
                      Wash at CP13A.
                    Add a new divert at Hacker Wash just north of Pima Road.  The remaining flow
                      in the diversion channel to join Quilotosa Wash at CP13, while the diverted
                      sheet flow overland following the Original Hacker Wash alignment.

                    100-Year 24-Hour Duration Storm

                    04/06/92    Input Filenames from Burgess & Niple 1992 study:  B&ST24.H1 and S
                    09/18/00    Modified Filename:  NoCanal.DAT

                         Green & AMPT Loss Rate Method
                         S-Graph Unit Hydrograph
                         Normal Depth Routing

45 IO          OUTPUT CONTROL VARIABLES
                     IPRNT           5  PRINT CONTROL
                     IPLOT           0  PLOT CONTROL
                     QSCAL          0.  HYDROGRAPH PLOT SCALE

   IT          HYDROGRAPH TIME DATA
                      NMIN           3  MINUTES IN COMPUTATION INTERVAL
                     IDATE     13MAR92  STARTING DATE
                     ITIME        1200  STARTING TIME
                        NQ         600  NUMBER OF HYDROGRAPH ORDINATES
                    NDDATE     14MAR92  ENDING DATE
                    NDTIME        1757  ENDING TIME
                    ICENT           19  CENTURY MARK

              COMPUTATION INTERVAL    0.05 HOURS
                   TOTAL TIME BASE   29.95 HOURS

        ENGLISH UNITS
             DRAINAGE AREA          SQUARE MILES
             PRECIPITATION DEPTH    INCHES
             LENGTH, ELEVATION      FEET
             FLOW                   CUBIC FEET PER SECOND
             STORAGE VOLUME         ACRE-FEET
             SURFACE AREA           ACRES
             TEMPERATURE            DEGREES FAHRENHEIT
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47 JD INDEX STORM NO. 1

STRM 4.53 PRECIPITATION DEPTH

TRDA 0.01 TRANSPOSITION DRAINAGE AREA

8 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

58 JD INDEX STORM NO. 2

STRM 4.44 PRECIPITATION DEPTH

TRDA 5.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

59 JD INDEX STORM NO. 3

STRM 4.30 PRECIPITATION DEPTH

TRDA 10.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

D INDEX STORM NO. 4

STRM 4.00 PRECIPITATION DEPTH

TRDA 50.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

61 JD INDEX STORM NO. 5

STRM 3.90 PRECIPITATION DEPTH

TRDA 80.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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62 JD          INDEX STORM NO. 6
                     STRM        3.85  PRECIPITATION DEPTH
                     TRDA      100.00  TRANSPOSITION DRAINAGE AREA

 I               PRECIPITATION PATTERN
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

63 JD INDEX STORM NO. 7

STRM 3.71 PRECIPITATION DEPTH

TRDA 200.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

64 JD INDEX STORM NO. 8

STRM 3.53 PRECIPITATION DEPTH

TRDA 500.00 TRANSPOSITION DRAINAGE AREA

0 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

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              *            *
  781 KK      *     C135I  *
              *            *
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  783 KO            OUTPUT CONTROL VARIABLES
                          IPRNT           5  PRINT CONTROL
                          IPLOT           0  PLOT CONTROL
                          QSCAL          0.  HYDROGRAPH PLOT SCALE
                          IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                           IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                          ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                          ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                         TIMINT       0.050  TIME INTERVAL IN HOURS
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WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO
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              **************
              *            *
 1533 KK      *    C127R   *
              *            *
              **************

 1536 KO           OUTPUT CONTROL VARIABLES
                         IPRNT             5  PRINT CONTROL
                         IPLOT             0  PLOT CONTROL
                         QSCAL            0.  HYDROGRAPH PLOT SCALE
                         IPNCH             0  PUNCH COMPUTED HYDROGRAPH
                          IOUT            21  SAVE HYDROGRAPH ON THIS UNIT
                         ISAV1             1  FIRST ORDINATE PUNCHED OR SAVED
                         ISAV2           600  LAST ORDINATE PUNCHED OR SAVED
                        TIMINT         0.050  TIME INTERVAL IN HOURS

        WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              **************
              *            *
 1931 KK      *   127131   *
              *            *
              **************

 1934 KO           OUTPUT CONTROL VARIABLES
                         IPRNT             5  PRINT CONTROL
                         IPLOT             0  PLOT CONTROL
                         QSCAL            0.  HYDROGRAPH PLOT SCALE
                         IPNCH             0  PUNCH COMPUTED HYDROGRAPH
                          IOUT            21  SAVE HYDROGRAPH ON THIS UNIT
                         ISAV1             1  FIRST ORDINATE PUNCHED OR SAVED
                         ISAV2           600  LAST ORDINATE PUNCHED OR SAVED
                        TIMINT         0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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              *            *
 2018 KK      *   130131   *
              *            *
              **************

 2021 KO           OUTPUT CONTROL VARIABLES
                         IPRNT             5  PRINT CONTROL
                         IPLOT             0  PLOT CONTROL
                         QSCAL            0.  HYDROGRAPH PLOT SCALE
                         IPNCH             0  PUNCH COMPUTED HYDROGRAPH
                          IOUT            21  SAVE HYDROGRAPH ON THIS UNIT
                         ISAV1             1  FIRST ORDINATE PUNCHED OR SAVED
                         ISAV2           600  LAST ORDINATE PUNCHED OR SAVED
                        TIMINT         0.050  TIME INTERVAL IN HOURS


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              *            *
 2246 KK      *     C7AB   *
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            *            *
            **************

   8 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       0.050  TIME INTERVAL IN HOURS

        WARNING EXCESS AT PONDING LESS THAN ZERO FOR PERIOD. EXCESS SET TO ZERO

 *** HEC-1 ERROR 1 *** INVALID CARD IDENTIFICATION CODE OR CARD OUT OF SEQUENCE
     CARD NO. 3149     yK  O                                    21


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
*** *** ***


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            *            *
 3516 KK    *       C36  *
            *            *
            **************

 3518 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       0.050  TIME INTERVAL IN HOURS


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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            *            *
 3549 KK    *       C17  *
            *            *
            **************

 3553 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
                       IPLOT           0  PLOT CONTROL
                       QSCAL          0.  HYDROGRAPH PLOT SCALE
                       IPNCH           0  PUNCH COMPUTED HYDROGRAPH
                        IOUT          21  SAVE HYDROGRAPH ON THIS UNIT
                       ISAV1           1  FIRST ORDINATE PUNCHED OR SAVED
                       ISAV2         600  LAST ORDINATE PUNCHED OR SAVED
                      TIMINT       0.050  TIME INTERVAL IN HOURS


 *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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            **************
            *            *
 3644 KK    *       C38  *
            *            *
            **************

 3646 KO          OUTPUT CONTROL VARIABLES
                       IPRNT           5  PRINT CONTROL
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                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
*** *** ***

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            *            *
 3696 KK    *       C59  *
            *            *
            **************

 3698 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
*** *** ***

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            *            *
 39[illegible]K    *       C48  *
            *            *
            **************

 3954 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
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            **************
            *            *
 4021 KK    *       C50  *
            *            *
            **************

 4023 KO          OUTPUT CONTROL VARIABLES
                    IPRNT          5  PRINT CONTROL
                    IPLOT          0  PLOT CONTROL
                    QSCAL         0.  HYDROGRAPH PLOT SCALE
                    IPNCH          0  PUNCH COMPUTED HYDROGRAPH
                     IOUT         21  SAVE HYDROGRAPH ON THIS UNIT
                    ISAV1          1  FIRST ORDINATE PUNCHED OR SAVED
                    ISAV2        600  LAST ORDINATE PUNCHED OR SAVED
                   TIMINT      0.050  TIME INTERVAL IN HOURS
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                 **************
                 *            *
4025 KK          *    R50-52  *
                 *            *
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4028 KO OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	0	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE
IPNCH	0	PUNCH COMPUTED HYDROGRAPH
IOUT	21	SAVE HYDROGRAPH ON THIS UNIT
ISAV1	1	FIRST ORDINATE PUNCHED OR SAVED
ISAV2	600	LAST ORDINATE PUNCHED OR SAVED
TIMINT	0.050	TIME INTERVAL IN HOURS

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	1B	1288.	12.80	271.	69.	55.	2.10		
	ROUTED TO	R61-62	1249.	13.05	268.	67.	54.	2.10		
+	HYDROGRAPH AT	1C	2254.	13.10	561.	140.	112.	3.83		
+	HYDROGRAPH AT	1A	925.	13.00	314.	89.	72.	2.10		
+	3 COMBINED AT	C62	4265.	13.05	1101.	286.	230.	8.03		
+	ROUTED TO	R62-64	4024.	13.45	1090.	282.	226.	8.03		
+	HYDROGRAPH AT	1D	452.	12.20	100.	28.	22.	0.34		
+	ROUTED TO	R63-64	307.	13.65	65.	16.	13.	0.34		
+	2 COMBINED AT	C64	4215.	13.50	1149.	296.	238.	8.37		
+	ROUTED TO	R64-65	4081.	13.75	1141.	293.	235.	8.37		
+	HYDROGRAPH AT	1E	1911.	13.25	521.	130.	104.	3.91		
+	HYDROGRAPH AT	1F	1892.	13.20	710.	210.	169.	5.55		
	3 COMBINED AT	C65	6348.	13.50	2197.	588.	472.	17.83		
+	ROUTED TO	R65-67	6207.	13.85	2166.	571.	458.	17.83		
+	HYDROGRAPH AT	1J	731.	12.30	182.	50.	40.	0.62		

+	ROUTED TO	R66-67	114.	14.05	12.	3.	2.	0.62
+	HYDROGRAPH AT	1I	1980.	13.25	540.	135.	108.	4.11
+	3 COMBINED AT	C67	7228.	13.75	2611.	683.	547.	22.56
+	ROUTED TO	R67-71	7178.	13.85	2599.	677.	543.	22.56
+	HYDROGRAPH AT	1G	1421.	13.05	517.	159.	128.	3.78
+	ROUTED TO	R70-71	1210.	14.05	468.	133.	107.	3.78
+	HYDROGRAPH AT	1H	2052.	13.25	788.	234.	188.	6.77
+	2 COMBINED AT	C71R	2304.	13.95	1189.	350.	282.	10.55
+	HYDROGRAPH AT	1K	998.	12.60	315.	87.	70.	1.08
+	ROUTED TO	R68-71	860.	13.55	280.	72.	57.	1.08
+	HYDROGRAPH AT	1L	2362.	13.50	744.	189.	152.	4.69
+	2 COMBINED AT	C71L	3177.	13.50	1003.	258.	207.	5.77
.	3 COMBINED AT	C71	11330.	13.70	4426.	1188.	953.	38.88
+	ROUTED TO	R71-73	11118.	14.05	4386.	1172.	939.	38.88
+	HYDROGRAPH AT	1M	2018.	12.60	638.	177.	142.	2.19
+	ROUTED TO	R72-73	1616.	14.25	564.	145.	117.	2.19
+	HYDROGRAPH AT	1N	1407.	13.05	337.	84.	68.	2.75
+	3 COMBINED AT	C73	12652.	14.10	5095.	1356.	1087.	43.82
+	ROUTED TO	R73-74	12187.	14.80	4972.	1313.	1052.	43.82
+	HYDROGRAPH AT	1P	1747.	13.50	537.	134.	108.	4.56
+	HYDROGRAPH AT	1O	1567.	13.55	641.	188.	151.	5.23
+	3 COMBINED AT	C74	13013.	14.75	5744.	1553.	1246.	53.61
+	ROUTED TO	R74-77	11875.	16.00	5337.	1405.	1126.	53.61
.	HYDROGRAPH AT	1U	878.	13.60	283.	71.	57.	3.19
+	2 COMBINED AT	C77R	11875.	16.00	5432.	1452.	1164.	56.80
+	HYDROGRAPH AT	1Q	2511.	13.75	895.	232.	186.	5.30

	ROUTED TO						
+		R75-76	2456.	13.90	882.	227.	182.	5.30
	HYDROGRAPH AT						
+		1R	1499.	12.80	443.	125.	100.	2.90
	2 COMBINED AT						
+		C76	2982.	13.85	1282.	341.	274.	8.20
	ROUTED TO						
+		R76-77	2430.	15.55	1059.	268.	215.	8.20
	HYDROGRAPH AT						
+		1T	1412.	14.00	555.	150.	121.	4.67
	2 COMBINED AT						
+		C77L	2860.	15.40	1430.	398.	319.	12.87
	2 COMBINED AT						
+		C77	13685.	15.95	6500.	1762.	1412.	69.67
	ROUTED TO						
+		R77-79	13443.	16.30	6442.	1736.	1391.	69.67
	HYDROGRAPH AT						
+		1W	337.	12.55	62.	17.	13.	0.53
	2 COMBINED AT						
+		C79RUP	13441.	16.30	6444.	1748.	1401.	70.20
	HYDROGRAPH AT						
+		1S	1499.	13.30	563.	161.	129.	4.77
	DIVERSION TO						
+		DC78L	576.	13.30	197.	52.	41.	4.77
	HYDROGRAPH AT						
		DC78R	923.	13.30	366.	109.	88.	4.77
	ROUTED TO						
+		78R-79	562.	14.00	145.	36.	29.	4.77
	HYDROGRAPH AT						
+		1V	1126.	12.95	266.	71.	57.	2.16
	2 COMBINED AT						
+		C79LUP	1089.	12.95	395.	103.	83.	6.93
	2 COMBINED AT						
+		C79	13438.	16.30	6558.	1821.	1459.	77.13
	DIVERSION TO						
+		DC79L	6761.	16.30	3679.	1074.	861.	77.13
	HYDROGRAPH AT						
+		DC79R	6578.	16.30	2830.	733.	588.	77.13
	ROUTED TO						
+		79R-81	6309.	16.95	2746.	707.	566.	77.13
	HYDROGRAPH AT						
+		BDC79L	6761.	16.30	3679.	1074.	861.	77.13
	ROUTED TO						
+		79L-80	6684.	16.50	3646.	1057.	847.	77.13
	DIVERSION TO						
+		DC80L	6547.	16.50	3606.	1047.	839.	77.13
	HYDROGRAPH AT						
-		DC80R	138.	16.50	40.	10.	8.	77.13
	ROUTED TO						
+		80R-81	11.	17.80	1.	0.	0.	77.13
	HYDROGRAPH AT						
+		1X	1364.	12.90	301.	75.	60.	2.62

+	3 COMBINED AT	C81	6308.	16.95	2760.	765.	613.	79.75
+	DIVERSION TO	DC81L	4373.	16.95	2122.	596.	478.	79.75
+	HYDROGRAPH AT	DC81R	1908.	16.95	625.	165.	132.	79.75
+	ROUTED TO	81R-82	1673.	18.80	582.	153.	122.	79.75
+	HYDROGRAPH AT	BDC81L	4373.	16.95	2122.	596.	478.	79.75
+	ROUTED TO	81L-82	3970.	18.50	1952.	539.	432.	79.75
+	HYDROGRAPH AT	1Y	2100.	13.35	597.	149.	120.	5.32
+	3 COMBINED AT	C82	5530.	18.65	2511.	799.	640.	85.07
+	DIVERSION TO	DC82L	3362.	18.65	1388.	419.	336.	85.07
+	HYDROGRAPH AT	DC82R	2184.	18.80	1123.	380.	304.	85.07
+	ROUTED TO	82-135	2088.	19.05	1083.	362.	290.	85.07
+	HYDROGRAPH AT	2VV	1493.	13.20	408.	107.	86.	3.74
+	2 COMBINED AT	C135I	2088.	19.05	1087.	441.	354.	88.81
+	HYDROGRAPH AT	2D	1600.	12.60	510.	141.	113.	1.75
+	ROUTED TO	R87-89	1504.	13.05	500.	137.	110.	1.75
+	HYDROGRAPH AT	2F	798.	12.40	220.	61.	49.	0.75
+	ROUTED TO	R88-89	779.	12.60	217.	59.	47.	0.75
+	2 COMBINED AT	C89	2071.	12.95	714.	195.	156.	2.50
+	ROUTED TO	R89-91	2003.	13.30	704.	191.	153.	2.50
+	HYDROGRAPH AT	2E	1246.	12.35	181.	46.	37.	1.00
+	HYDROGRAPH AT	2G	1248.	12.50	218.	56.	45.	1.13
+	3 COMBINED AT	C91	2919.	12.55	1097.	292.	234.	4.63
+	ROUTED TO	R91-92	2840.	12.80	1090.	290.	232.	4.63
+	HYDROGRAPH AT	2I	1054.	12.30	256.	70.	56.	0.87
+	HYDROGRAPH AT	2H	1551.	12.50	253.	64.	51.	1.59
+	3 COMBINED AT	C92	4892.	12.60	1551.	413.	332.	7.09

+	ROUTED TO	R92-95	4767.	12.80	1544.	411.	330.	7.09
+	HYDROGRAPH AT	2K	1596.	12.95	625.	177.	142.	2.19
+	ROUTED TO	R93-94	1555.	13.20	617.	173.	139.	2.19
+	HYDROGRAPH AT	2L	762.	12.70	240.	63.	50.	0.94
+	2 COMBINED AT	C94	2115.	13.15	854.	235.	189.	3.13
+	ROUTED TO	R94-95	2062.	13.30	833.	221.	177.	3.13
+	HYDROGRAPH AT	2M	1626.	12.30	210.	53.	42.	1.40
+	HYDROGRAPH AT	2J	1022.	12.65	338.	94.	75.	1.16
+	4 COMBINED AT	C95	7459.	12.80	2781.	740.	593.	12.78
+	ROUTED TO	R95-96	7024.	13.50	2743.	730.	585.	12.78
+	HYDROGRAPH AT	2A	2857.	13.35	899.	232.	186.	4.33
+	ROUTED TO	R83-84	2755.	13.70	887.	227.	182.	4.33
+	DIVERSION TO	DC84R	129.	13.70	25.	6.	5.	4.33
+	HYDROGRAPH AT	DC84L	2625.	13.70	861.	221.	177.	4.33
+	ROUTED TO	84L-85	2481.	14.20	837.	214.	171.	4.33
+	HYDROGRAPH AT	2B	2263.	12.95	514.	131.	105.	3.31
+	2 COMBINED AT	C85	2720.	14.15	1298.	334.	268.	7.64
+	ROUTED TO	R85-96	2548.	14.95	1263.	323.	259.	7.64
+	HYDROGRAPH AT	BDC84R	129.	13.70	25.	6.	5.	4.33
+	ROUTED TO	84R-86	81.	14.60	13.	3.	3.	4.33
+	HYDROGRAPH AT	2N	1872.	12.65	342.	87.	70.	2.20
+	2 COMBINED AT	C86	1830.	12.65	347.	88.	71.	6.53
+	ROUTED TO	R86-96	1568.	13.60	334.	83.	67.	6.53
+	HYDROGRAPH AT	2C	1950.	12.70	672.	187.	150.	2.32
+	HYDROGRAPH AT	2O	2985.	12.65	978.	271.	218.	3.37
+	5 COMBINED AT	C96	12315.	13.50	5392.	1457.	1169.	32.64

+	ROUTED TO R96-97	11514.	14.25	5175.	1379.	1105.	32.64
+	HYDROGRAPH AT 2P	2330.	12.65	616.	165.	133.	3.51
+	2 COMBINED AT C97	11891.	14.25	5619.	1513.	1213.	36.15
+	ROUTED TO 97-100	11570.	14.60	5571.	1490.	1194.	36.15
+	HYDROGRAPH AT 2Q	1660.	12.85	498.	136.	109.	2.93
+	ROUTED TO R98-99	1313.	13.25	313.	78.	63.	2.93
+	HYDROGRAPH AT 2R	1343.	12.80	293.	78.	62.	2.67
+	2 COMBINED AT C99	2243.	13.05	597.	154.	123.	5.60
+	ROUTED TO 99-100	2039.	13.40	501.	125.	100.	5.60
+	HYDROGRAPH AT 2S	1143.	12.50	192.	50.	40.	1.82
+	3 COMBINED AT C100	11974.	14.55	6011.	1611.	1291.	43.57
+	ROUTED TO 100101	11801.	14.75	5976.	1598.	1281.	43.57
+	HYDROGRAPH AT 2T	2329.	13.50	952.	267.	214.	4.90
+	2 COMBINED AT C101	12686.	14.75	6726.	1815.	1455.	48.47
+	ROUTED TO 101102	12367.	15.10	6628.	1777.	1424.	48.47
+	HYDROGRAPH AT 2U	727.	12.65	139.	37.	29.	1.38
+	2 COMBINED AT C102	12365.	15.10	6678.	1804.	1446.	49.85
+	ROUTED TO 102103	12182.	15.30	6625.	1787.	1432.	49.85
+	HYDROGRAPH AT 2V	3205.	13.40	1231.	345.	277.	7.57
+	2 COMBINED AT C103	12871.	15.30	7502.	2067.	1657.	57.42
+	ROUTED TO 103107	12258.	16.40	7297.	2030.	1627.	57.42
+	HYDROGRAPH AT 2W	3882.	13.10	1461.	390.	313.	6.29
+	ROUTED TO 104105	3173.	14.10	1124.	282.	226.	6.29
+	HYDROGRAPH AT 2X	4574.	13.75	2066.	584.	469.	10.31
+	2 COMBINED AT C105	7037.	13.95	3030.	827.	664.	16.60
+	ROUTED TO 105107	6071.	16.15	2945.	804.	645.	16.60

+	HYDROGRAPH AT	2Y	4610.	14.00	1760.	455.	365.	13.40
+	3 COMBINED AT	C107	17469.	16.35	10352.	3054.	2448.	87.42
+	HYDROGRAPH AT	2BB	2154.	12.50	532.	138.	111.	2.40
+	ROUTED TO	108111	1920.	13.25	513.	129.	103.	2.40
+	HYDROGRAPH AT	2Z	2733.	13.25	1029.	275.	221.	5.10
+	ROUTED TO	110111	2297.	14.30	888.	230.	184.	5.10
+	HYDROGRAPH AT	2AA	2471.	13.05	605.	154.	123.	3.73
+	3 COMBINED AT	C111	3957.	13.20	1822.	483.	387.	11.23
+	ROUTED TO	111113	3240.	14.95	1637.	443.	355.	11.23
+	HYDROGRAPH AT	2CC	1600.	13.75	548.	138.	110.	4.38
+	3 COMBINED AT	C113	19580.	16.30	11731.	3484.	2793.	103.03
+	ROUTED TO	113127	19236.	16.70	11630.	3454.	2768.	103.03
+	HYDROGRAPH AT	2DD	384.	12.60	66.	17.	13.	0.54
+	2 COMBINED AT	C127R	19236.	16.70	11630.	3466.	2777.	103.57
+	HYDROGRAPH AT	2GG	3979.	13.50	1305.	336.	269.	6.69
+	ROUTED TO	114115	3585.	14.35	1229.	311.	249.	6.69
+	HYDROGRAPH AT	2HH	4129.	13.10	1063.	273.	219.	6.76
+	2 COMBINED AT	C115	4400.	14.00	2161.	556.	446.	13.45
+	ROUTED TO	115116	4293.	14.50	2113.	544.	436.	13.45
+	HYDROGRAPH AT	2II	1509.	12.95	530.	140.	113.	2.22
+	2 COMBINED AT	C116	4850.	13.75	2553.	668.	535.	15.67
+	DIVERSION TO	DC116L	1656.	13.75	866.	232.	186.	15.67
+	HYDROGRAPH AT	DC116R	3194.	13.75	1687.	436.	349.	15.67
+	ROUTED TO	116119	3109.	14.55	1649.	426.	341.	15.67
+	HYDROGRAPH AT	2EE	3050.	12.85	1041.	275.	220.	4.13
+	ROUTED TO	118119	2947.	13.15	1031.	271.	218.	4.13

HYDROGRAPH AT	2JJ	817.	12.55	139.	35.	28.	0.89
3 COMBINED AT	C119	4308.	14.30	2618.	697.	558.	20.69
ROUTED TO	119120	3950.	16.55	2420.	652.	523.	20.69
HYDROGRAPH AT	2KK	1686.	13.95	635.	161.	129.	4.19
2 COMBINED AT	C120R	4048.	16.50	2572.	788.	631.	24.88
HYDROGRAPH AT	2LL	1701.	14.55	764.	198.	159.	5.18
HYDROGRAPH AT	BC116L	1656.	13.75	866.	232.	186.	15.67
ROUTED TO	116120	1160.	18.10	565.	142.	114.	15.67
3 COMBINED AT	C120	4526.	16.35	3421.	1087.	871.	30.06
ROUTED TO	120121	4416.	16.80	3348.	1061.	850.	30.06
HYDROGRAPH AT	2MM	495.	12.60	86.	22.	17.	0.91
2 COMBINED AT	C121	4416.	16.80	3348.	1078.	864.	30.97
ROUTED TO	121123	4322.	17.35	3286.	1057.	847.	30.97
HYDROGRAPH AT	2FF	1641.	14.60	745.	194.	156.	5.51
2 COMBINED AT	C123	4460.	17.35	3590.	1212.	971.	36.48
ROUTED TO	123140	4429.	17.55	3565.	1203.	964.	36.48
HYDROGRAPH AT	2NN	3248.	14.35	1376.	353.	283.	9.61
HYDROGRAPH AT	2OO	731.	12.65	132.	33.	26.	0.85
2 COMBINED AT	C124	3248.	14.30	1492.	382.	306.	10.46
ROUTED TO	124125	2984.	15.25	1444.	372.	298.	10.46
HYDROGRAPH AT	2PP	1312.	12.80	268.	67.	54.	1.78
2 COMBINED AT	C125	2984.	15.25	1628.	435.	348.	12.24
ROUTED TO	125126	2711.	16.20	1510.	407.	326.	12.24
HYDROGRAPH AT	2QQ	813.	12.80	164.	41.	33.	1.67
2 COMBINED AT	C126	2711.	16.20	1519.	444.	356.	13.91
ROUTED TO	126140	2569.	16.95	1478.	430.	345.	13.91

2 COMBINED AT	C140	6497.	17.20	4790.	1562.	1252.	50.39
ROUTED TO	140127	6405.	17.60	4727.	1542.	1236.	50.39
HYDROGRAPH AT	2RR	483.	12.95	110.	28.	22.	0.93
HYDROGRAPH AT	2YY	424.	13.05	101.	25.	20.	1.12
3 COMBINED AT	C127L	6405.	17.60	4729.	1583.	1269.	52.44
2 COMBINED AT	C127	22611.	16.75	15254.	4758.	3813.	156.01
ROUTED TO	127131	22489.	17.05	15189.	4735.	3794.	156.01
HYDROGRAPH AT	BDC78L	576.	13.30	197.	52.	41.	4.77
ROUTED TO	78L128	414.	14.35	140.	35.	28.	4.77
HYDROGRAPH AT	2SS	1402.	13.35	417.	111.	89.	3.83
2 COMBINED AT	C128	1328.	13.35	517.	139.	111.	8.60
ROUTED TO	128129	1079.	14.60	428.	110.	88.	8.60
HYDROGRAPH AT	2TT	2248.	13.00	549.	147.	118.	4.60
2 COMBINED AT	C129	2061.	13.00	878.	239.	192.	13.20
ROUTED TO	129130	1868.	13.65	851.	228.	183.	13.20
HYDROGRAPH AT	BDC80L	6547.	16.50	3606.	1047.	839.	77.13
ROUTED TO	80L130	6343.	17.15	3531.	1018.	816.	77.13
2 COMBINED AT	C130	6599.	17.10	3996.	1192.	955.	85.56
ROUTED TO	130131	6162.	18.70	3778.	1129.	905.	85.56
2 COMBINED AT	C131	23787.	17.25	17810.	5557.	4453.	241.57
ROUTED TO	131132	23668.	17.55	17713.	5523.	4426.	241.57
HYDROGRAPH AT	2UU	1967.	14.30	821.	210.	169.	8.10
HYDROGRAPH AT	BDC82L	3362.	18.65	1388.	419.	336.	85.07
3 COMBINED AT	C132	24265.	18.45	18364.	5823.	4666.	330.40
DIVERSION TO	DC132L	13168.	18.45	8667.	2306.	1848.	330.40
HYDROGRAPH AT	DC132R	11097.	18.45	9697.	3517.	2818.	330.40

ROUTED TO	132133	11011.	18.75	9614.	3471.	2782.	330.40
2 COMBINED AT	C133I	12603.	18.90	10519.	3837.	3076.	334.14
ROUTED TO	PND3	12528.	19.15	10516.	3835.	3073.	334.14
DIVERSION TO	DPND3W	0.	0.05	0.	0.	0.	334.14
HYDROGRAPH AT	PND3N	12528.	19.15	10516.	3835.	3073.	334.14
DIVERSION TO	D135O	2593.	19.15	2252.	694.	556.	334.14
HYDROGRAPH AT	D133O	9935.	19.15	8264.	3141.	2517.	334.14
ROUTED TO	133141	9898.	19.45	8238.	3129.	2508.	334.14
HYDROGRAPH AT	BD135O	2593.	19.15	2252.	694.	556.	334.14
ROUTED TO	135141	2588.	19.40	2246.	693.	555.	334.14
2 COMBINED AT	C141	12486.	19.45	10482.	3822.	3063.	334.14
ROUTED TO	141149	12456.	19.75	10464.	3812.	3055.	334.14
HYDROGRAPH AT	2WW	1574.	13.90	577.	148.	119.	5.82
ROUTED TO	C136O	542.	15.35	490.	147.	118.	5.82
ROUTED TO	136149	291.	16.35	249.	69.	55.	5.82
2 COMBINED AT	C149	12456.	19.75	10531.	3847.	3083.	339.96
ROUTED TO	149137	12420.	20.05	10502.	3832.	3071.	339.96
HYDROGRAPH AT	2XX	1131.	12.95	270.	71.	57.	2.17
2 COMBINED AT	C137	12421.	20.05	10503.	3877.	3108.	342.13
HYDROGRAPH AT	7AC	450.	13.05	107.	27.	21.	1.20
ROUTED TO	7AC150	288.	14.45	82.	20.	16.	1.20
HYDROGRAPH AT	7AB	342.	12.50	55.	14.	11.	0.57
2 COMBINED AT	C7AB	379.	12.85	136.	34.	27.	1.77
HYDROGRAPH AT	BC132L	13168.	18.45	8667.	2306.	1848.	330.40
2 COMBINED AT	C150	13156.	18.45	8658.	2320.	1859.	332.17
DIVERSION TO	DC150L	9291.	18.45	5182.	1295.	1038.	332.17

HYDROGRAPH AT	DC150R	3865.	18.45	3477.	1024.	821.	332.17
ROUTED TO	150142	3854.	18.65	3463.	1021.	818.	332.17
HYDROGRAPH AT	7AA	381.	12.40	54.	13.	11.	0.64
2 COMBINED AT	7AA	3854.	18.65	3463.	1028.	823.	332.17
HYDROGRAPH AT	BPND3W	0.	0.05	0.	0.	0.	334.14
2 COMBINED AT	C142I	3854.	18.65	3463.	1028.	823.	336.59
ROUTED TO	C142O	3847.	18.65	3453.	1024.	821.	336.59
DIVERSION TO	DC142L	986.	18.65	820.	209.	168.	336.59
HYDROGRAPH AT	DC142R	2861.	18.65	2633.	815.	653.	336.59
ROUTED TO	142139	2820.	19.30	2573.	800.	641.	336.59
HYDROGRAPH AT	7D	732.	12.65	155.	45.	36.	1.17
2 COMBINED AT	C139	2826.	19.30	2580.	830.	666.	337.76
HYDROGRAPH AT	7C	387.	12.35	53.	13.	11.	0.60
HYDROGRAPH AT	BC142L	986.	18.65	820.	209.	168.	336.59
ROUTED TO	142-18	946.	19.65	768.	200.	160.	336.59
HYDROGRAPH AT	7B	944.	12.85	211.	57.	46.	1.67
2 COMBINED AT	C18	950.	19.65	772.	238.	191.	338.26
4 COMBINED AT	NULL1	15498.	20.00	13037.	4577.	3669.	1018.75
HYDROGRAPH AT	BD150L	9291.	18.45	5182.	1295.	1038.	332.17
ROUTED TO	SR151	9020.	18.70	5159.	1290.	1033.	332.17
HYDROGRAPH AT	3KC	1110.	13.95	413.	105.	84.	3.45
HYDROGRAPH AT	3KD	790.	13.40	232.	58.	46.	2.26
3 COMBINED AT	C151	8988.	18.70	5180.	1387.	1112.	337.88
ROUTED TO	151-12	8966.	18.75	5168.	1383.	1108.	337.88
HYDROGRAPH AT	3KB	1348.	13.00	317.	79.	64.	2.33
2 COMBINED AT	C12	8960.	18.75	5166.	1437.	1152.	339.24

ROUTED TO	12-14A	8819.	18.95	5105.	1420.	1138.	339.24
DIVERSION TO	DC14AL	5571.	18.90	2489.	622.	499.	339.24
HYDROGRAPH AT	DC14AR	3248.	19.00	2615.	798.	639.	339.24
ROUTED TO	14A-14	3224.	19.10	2597.	792.	634.	339.24
HYDROGRAPH AT	DC14AL	5571.	18.90	2489.	622.	499.	339.24
ROUTED TO	14A11B	5540.	19.00	2488.	622.	499.	339.24
ROUTED TO	11B-14	5480.	19.15	2487.	622.	499.	339.24
2 COMBINED AT	C14	8703.	19.15	5073.	1414.	1133.	339.24
DIVERSION TO	DC14R	8253.	19.15	4628.	1234.	989.	339.24
HYDROGRAPH AT	DC14L	450.	12.45	445.	180.	144.	339.24
ROUTED TO	R14-13	419.	13.25	414.	166.	133.	339.24
HYDROGRAPH AT	3F	3798.	13.55	1575.	466.	376.	12.14
ROUTED TO	R1-3	3374.	14.65	1550.	456.	367.	12.14
HYDROGRAPH AT	3E	2834.	13.40	1064.	290.	233.	8.24
ROUTED TO	R2-3	2610.	14.05	1053.	286.	229.	8.24
HYDROGRAPH AT	3G	2297.	12.95	706.	186.	149.	5.12
3 COMBINED AT	C3	5468.	14.45	3040.	864.	694.	25.50
ROUTED TO	R3-5	5370.	14.85	2979.	839.	672.	25.50
HYDROGRAPH AT	3H	2039.	13.85	862.	243.	195.	6.78
2 COMBINED AT	C5	6235.	14.70	3685.	1042.	836.	32.28
ROUTED TO	R5-7	6028.	15.35	3586.	997.	799.	32.28
HYDROGRAPH AT	3C	3632.	13.55	1408.	378.	303.	11.27
ROUTED TO	R4-7	3159.	14.35	1278.	335.	268.	11.27
HYDROGRAPH AT	3D	3044.	13.50	960.	240.	192.	6.51
3 COMBINED AT	C7	9053.	14.40	5304.	1469.	1177.	50.06
ROUTED TO	R7-90	8758.	14.80	5223.	1436.	1151.	50.06

HYDROGRAPH AT	3A	2925.	14.00	1289.	373.	300.	11.19
ROUTED TO	R6-90	2319.	16.10	1142.	330.	264.	11.19
2 COMBINED AT	C90	8875.	15.95	5943.	1697.	1360.	61.25
ROUTED TO	R90-8	8790.	16.25	5884.	1685.	1350.	61.25
HYDROGRAPH AT	3B	3140.	13.50	969.	242.	194.	6.42
2 COMBINED AT	C8	8915.	14.95	6333.	1873.	1501.	67.67
ROUTED TO	R8-9	8522.	16.65	5961.	1786.	1431.	67.67
HYDROGRAPH AT	3I	2046.	13.95	765.	194.	155.	5.10
2 COMBINED AT	C9	8614.	16.65	5961.	1934.	1550.	72.77
ROUTED TO	R9-10	7974.	18.90	5590.	1787.	1432.	72.77
HYDROGRAPH AT	3J	2882.	14.90	1397.	371.	298.	11.25
2 COMBINED AT	C10	8079.	18.90	5590.	2085.	1670.	84.02
ROUTED TO	R10-11	7849.	20.15	5497.	2030.	1627.	84.02
HYDROGRAPH AT	3L	1979.	13.15	514.	132.	106.	3.34
2 COMBINED AT	C11I	7849.	20.15	5498.	2136.	1712.	87.36
ROUTED TO	C11O	7779.	20.15	5431.	2089.	1674.	87.36
ROUTED TO	R11-17	7715.	20.25	5380.	2051.	1643.	87.36
HYDROGRAPH AT	4A	3079.	14.05	1371.	399.	321.	11.75
ROUTED TO	R26-27	2608.	14.60	1136.	300.	241.	11.75
HYDROGRAPH AT	4B	2913.	13.35	836.	209.	168.	6.14
2 COMBINED AT	C27	3404.	13.55	1784.	483.	387.	17.89
ROUTED TO	R27-28	3144.	16.00	1675.	450.	361.	17.89
HYDROGRAPH AT	4C	3830.	14.20	1565.	400.	320.	12.33
2 COMBINED AT	C28	5031.	14.30	2955.	805.	645.	30.22
ROUTED TO	R28-29	4918.	14.60	2923.	792.	635.	30.22
HYDROGRAPH AT	4E	1631.	13.50	648.	183.	147.	4.88

+	ROUTED TO R20-21	1495.	14.00	613.	163.	131.	4.88
+	HYDROGRAPH AT 4F	2626.	13.00	867.	242.	194.	6.16
+	2 COMBINED AT C21	3159.	13.15	1388.	386.	310.	11.04
+	ROUTED TO R21-23	3000.	13.75	1379.	381.	306.	11.04
+	HYDROGRAPH AT 4D	1400.	13.75	566.	153.	123.	4.57
+	ROUTED TO R22-23	1269.	14.45	546.	147.	118.	4.57
+	HYDROGRAPH AT 4G	2724.	13.25	938.	242.	194.	7.70
+	3 COMBINED AT C23	5670.	13.50	2633.	716.	574.	23.31
+	ROUTED TO R23-29	4973.	15.60	2374.	619.	496.	23.31
+	HYDROGRAPH AT 4J	2619.	13.75	907.	228.	183.	6.09
+	3 COMBINED AT C29	9294.	15.30	5581.	1511.	1210.	59.62
+	ROUTED TO R29-31	9013.	15.90	5384.	1435.	1150.	59.62
+	HYDROGRAPH AT 4K	1893.	13.55	607.	152.	122.	3.91
+	2 COMBINED AT C31	9099.	15.75	5753.	1552.	1244.	63.53
+	ROUTED TO R31-32	8791.	16.30	5518.	1464.	1173.	63.53
+	HYDROGRAPH AT 4H	2851.	13.30	1073.	303.	244.	6.11
+	ROUTED TO R24-25	2302.	16.30	1039.	290.	232.	6.11
+	HYDROGRAPH AT 4I	5001.	13.50	1926.	528.	424.	15.52
+	2 COMBINED AT C25	4918.	13.50	2765.	782.	629.	21.63
+	ROUTED TO R25-30	4252.	15.20	2648.	729.	584.	21.63
+	HYDROGRAPH AT 6A	4582.	13.40	1878.	523.	420.	9.04
+	ROUTED TO R39-40	4337.	13.95	1860.	515.	413.	9.04
+	HYDROGRAPH AT 6B	6008.	13.15	2185.	593.	476.	10.95
+	2 COMBINED AT C40	8551.	13.25	3847.	1060.	852.	19.99
	DIVERSION TO DC40L	2827.	13.25	1454.	387.	310.	19.99
+	HYDROGRAPH AT DC40R	5724.	13.25	2392.	673.	542.	19.99

ROUTED TO	40R-30	5142.	15.00	2310.	630.	505.	19.99
HYDROGRAPH AT	4L	3312.	14.15	1339.	350.	281.	9.49
3 COMBINED AT	C30	10427.	15.05	5648.	1579.	1266.	51.11
ROUTED TO	R30-32	10062.	16.00	5581.	1550.	1242.	51.11
HYDROGRAPH AT	4M	1975.	13.25	537.	134.	108.	3.42
3 COMBINED AT	C32	17710.	16.00	10523.	2912.	2333.	118.06
DIVERSION TO	DC32L	6242.	16.00	3797.	1064.	853.	118.06
HYDROGRAPH AT	DC32R	11467.	16.00	6726.	1848.	1481.	118.06
ROUTED TO	R32-33	10878.	18.05	6443.	1748.	1401.	118.06
HYDROGRAPH AT	4N	2459.	14.60	1114.	290.	232.	7.61
2 COMBINED AT	C33	10987.	18.00	6730.	1973.	1581.	125.67
ROUTED TO	R33-34	10687.	19.25	6584.	1929.	1546.	125.67
HYDROGRAPH AT	4O	2173.	13.95	807.	204.	164.	5.50
2 COMBINED AT	C34	10686.	19.25	6600.	2088.	1674.	131.17
ROUTED TO	R34-17	10621.	19.40	6547.	2060.	1651.	131.17
HYDROGRAPH AT	BDC32L	6242.	16.00	3797.	1064.	853.	118.06
ROUTED TO	32L-35	5891.	18.25	3616.	1004.	805.	118.06
HYDROGRAPH AT	5A	3034.	14.50	1348.	349.	280.	9.29
2 COMBINED AT	C35	5995.	18.15	3831.	1284.	1029.	127.35
ROUTED TO	R35-36	5685.	19.55	3659.	1205.	966.	127.35
HYDROGRAPH AT	5B	2156.	13.55	686.	172.	137.	4.88
2 COMBINED AT	C36	5685.	19.55	3663.	1337.	1072.	132.23
ROUTED TO	R36-37	5626.	19.60	3614.	1308.	1048.	132.23
DIVERSION TO	DC37L	4231.	19.60	3223.	1210.	970.	132.23
HYDROGRAPH AT	DC37R	1395.	19.60	392.	98.	78.	132.23
DIVERSION TO	DC37AL	1381.	19.60	388.	97.	78.	132.23

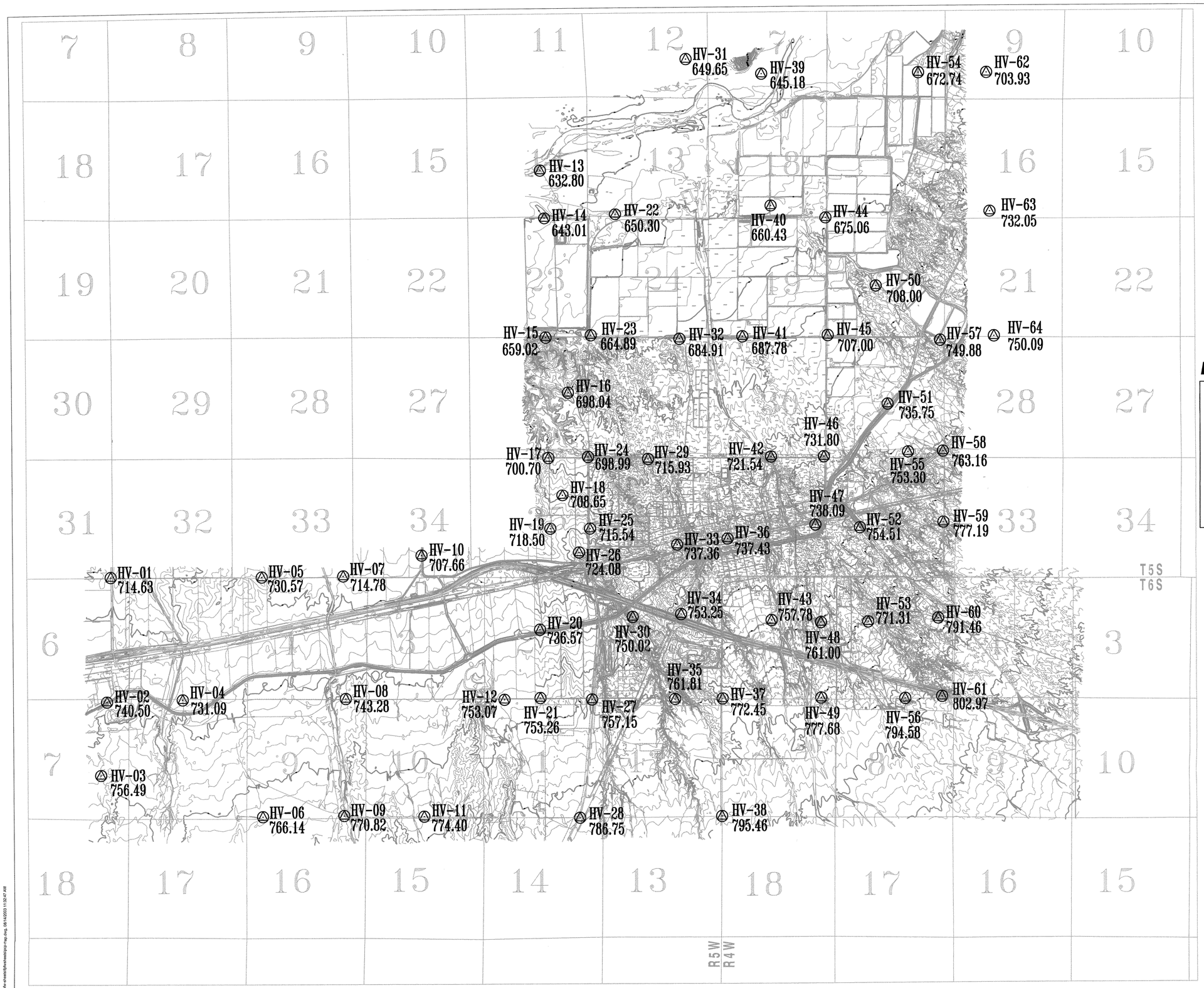
HYDROGRAPH AT						
DC37AR	14.	19.60	4.	1.	1.	132.23
ROUTED TO						
37A-17	13.	21.00	4.	1.	1.	132.23
3 COMBINED AT						
C17	15164.	20.25	9960.	3627.	2907.	350.76
ROUTED TO						
R17-13	15142.	20.30	9945.	3614.	2896.	350.76
2 COMBINED AT						
C13	15562.	20.30	10275.	3780.	3029.	350.76
ROUTED TO						
13-13A	15292.	20.45	10075.	3693.	2959.	350.76
HYDROGRAPH AT						
DC37AL	1381.	19.60	388.	97.	78.	132.23
ROUTED TO						
37L13A	1368.	20.05	388.	97.	78.	132.23
2 COMBINED AT						
C13A	16188.	20.40	10319.	3754.	3008.	350.76
ROUTED TO						
13A-16	15633.	20.75	9972.	3606.	2890.	350.76
HYDROGRAPH AT						
3M	2520.	12.90	568.	145.	116.	3.64
HYDROGRAPH AT						
DC14R	8253.	19.15	4628.	1234.	989.	339.24
ROUTED TO						
R14-16	7692.	19.60	4260.	1125.	901.	339.24
3 COMBINED AT						
C16	21245.	20.65	13930.	4816.	3859.	354.40
HYDROGRAPH AT						
BDC37L	4231.	19.60	3223.	1210.	970.	132.23
ROUTED TO						
R37-38	4157.	20.35	3167.	1174.	941.	132.23
HYDROGRAPH AT						
5C	1381.	12.95	321.	81.	65.	2.41
2 COMBINED AT						
C38	4157.	20.35	3175.	1238.	992.	242.09
HYDROGRAPH AT						
6N	3207.	13.75	1111.	279.	224.	7.84
ROUTED TO						
R53-56	3105.	13.90	1081.	272.	218.	7.84
ROUTED TO						
R56-59	2691.	14.80	955.	239.	191.	7.84
HYDROGRAPH AT						
6Q	1647.	13.05	402.	101.	81.	2.86
2 COMBINED AT						
C59	2735.	14.75	1307.	329.	264.	10.70
HYDROGRAPH AT						
BDC40L	2827.	13.25	1454.	387.	310.	19.99
ROUTED TO						
40L-41	2760.	14.20	1437.	381.	305.	19.99
HYDROGRAPH AT						
6C	3628.	13.05	1153.	294.	236.	8.83

2 COMBINED AT	C41	4392.	13.15	2433.	644.	516.	28.82
ROUTED TO	R41-43	4081.	15.35	2308.	611.	490.	28.82
HYDROGRAPH AT	6D	4768.	13.95	1887.	495.	397.	9.98
HYDROGRAPH AT	6E	3344.	13.85	1627.	476.	383.	7.12
ROUTED TO	R42-43	3076.	14.60	1589.	458.	367.	7.12
3 COMBINED AT	C43	9550.	14.60	5219.	1445.	1159.	45.92
ROUTED TO	R43-44	9125.	16.10	5111.	1406.	1127.	45.92
HYDROGRAPH AT	6F	1888.	14.15	768.	203.	163.	5.05
2 COMBINED AT	C44	9435.	16.00	5540.	1567.	1256.	50.97
ROUTED TO	R44-69	9328.	16.45	5483.	1549.	1242.	50.97
HYDROGRAPH AT	6H	1957.	13.95	754.	199.	160.	4.97
HYDROGRAPH AT	6I	3085.	13.55	1022.	273.	219.	6.97
2 COMBINED AT	C46	4442.	13.75	1692.	450.	361.	11.94
ROUTED TO	R46-69	4249.	14.35	1667.	443.	356.	11.94
2 COMBINED AT	C69	10194.	16.30	6634.	1916.	1537.	62.91
ROUTED TO	R69-47	10104.	16.65	6586.	1905.	1527.	62.91
HYDROGRAPH AT	6J	2227.	13.35	664.	172.	138.	4.47
2 COMBINED AT	C47	10104.	16.65	6692.	2036.	1633.	67.38
DIVERSION TO	DC47L	5052.	16.65	3346.	1018.	816.	67.38
HYDROGRAPH AT	DC47R	5052.	16.65	3346.	1018.	816.	67.38
ROUTED TO	47R-48	4941.	17.45	3287.	1001.	802.	67.38
HYDROGRAPH AT	6K	2579.	13.75	906.	228.	183.	5.95
2 COMBINED AT	C48	4966.	17.45	3459.	1185.	949.	73.33
DIVERSION TO	DC48L	2483.	17.45	1729.	592.	475.	73.33
HYDROGRAPH AT	DC48R	2483.	17.45	1729.	592.	475.	73.33
ROUTED TO	48R-50	2314.	18.65	1621.	542.	435.	73.33

HYDROGRAPH AT						
6G	2222.	14.40	955.	246.	197.	6.37
ROUTED TO						
R45-50	1800.	16.80	839.	216.	173.	6.37
HYDROGRAPH AT						
6L	2374.	14.15	960.	245.	196.	6.34
3 COMBINED AT						
C50	3136.	17.20	2691.	914.	733.	86.04
ROUTED TO						
R50-52	2359.	18.35	1961.	603.	483.	86.04
HYDROGRAPH AT						
BDC47L	5052.	16.65	3346.	1018.	816.	67.38
ROUTED TO						
47L-49	4831.	18.25	3223.	983.	788.	67.38
HYDROGRAPH AT						
BDC48L	2483.	17.45	1729.	592.	475.	73.33
ROUTED TO						
48L-49	2314.	18.65	1621.	542.	435.	73.33
HYDROGRAPH AT						
6M	2160.	13.25	600.	151.	121.	3.86
3 COMBINED AT						
C49	7036.	18.40	4777.	1636.	1311.	77.19
ROUTED TO						
R49-51	6891.	19.50	4714.	1611.	1291.	77.19
HYDROGRAPH AT						
6O	4355.	13.25	1200.	300.	240.	8.13
2 COMBINED AT						
C51I	6891.	19.50	4714.	1865.	1495.	85.32
2 COMBINED AT						
CPND1	8696.	19.40	6211.	2418.	1938.	98.03
ROUTED TO						
PND1	8630.	19.55	6169.	2102.	1685.	98.03
DIVERSION TO						
C52O	1217.	19.55	782.	245.	196.	98.03
HYDROGRAPH AT						
C51O	7414.	19.55	5388.	1857.	1488.	98.03
ROUTED TO						
R51-54	7401.	19.65	5380.	1850.	1483.	98.03
ROUTED TO						
R54-57	7346.	19.90	5344.	1821.	1460.	98.03
HYDROGRAPH AT						
BC52O	1217.	19.55	782.	245.	196.	98.03
ROUTED TO						
R52-55	1207.	19.65	773.	240.	192.	98.03
ROUTED TO						
R55-57	1181.	19.80	749.	226.	181.	98.03
2 COMBINED AT						
C57	8525.	19.90	6093.	2047.	1640.	98.03
ROUTED TO						
R57-58	8406.	20.55	6012.	1982.	1588.	98.03
HYDROGRAPH AT						
6P	2649.	13.30	761.	194.	155.	5.21

2 COMBINED AT

+ C58	8407.	20.55	6013.	2136.	1712.	103.24



FLOOD CONTROL DISTRICT of MARICOPA COUNTY

GILA BEND
Area Drainage Master Plan

PHOTO CONTROL POINTS

LEGEND

HV-60 791.46 — PHOTO CONTROL POINTS

Engineering and Environmental Consultants, Inc.
3003 N. Central Avenue, Suite 600
Phoenix, Arizona 85012-2905
TEL: (602)248-7702 FAX: (602)248-7851

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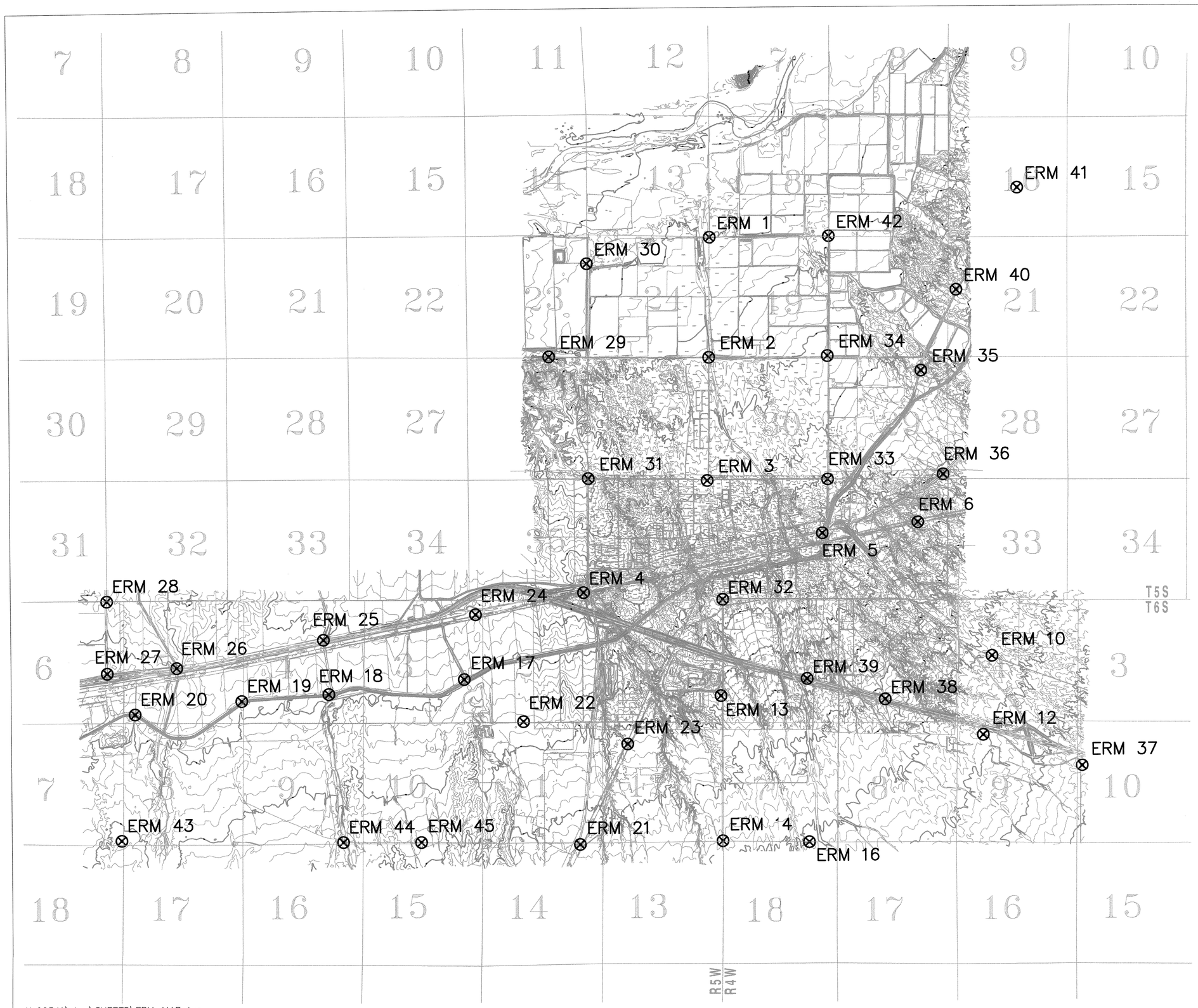

FLOOD CONTROL DISTRICT of MARICOPA COUNTY

GILA BEND
Area Drainage Master Plan

ELEVATION REFERENCE MARKS

LEGEND

ERM 31 — ELEVATION REFERENCE MARKS

eec
Engineering and Environmental Consultants, Inc.
3003 N. Central Avenue, Suite 600
Phoenix, Arizona 85012-2905
TEL: (602)248-7702 FAX: (602)248-7851

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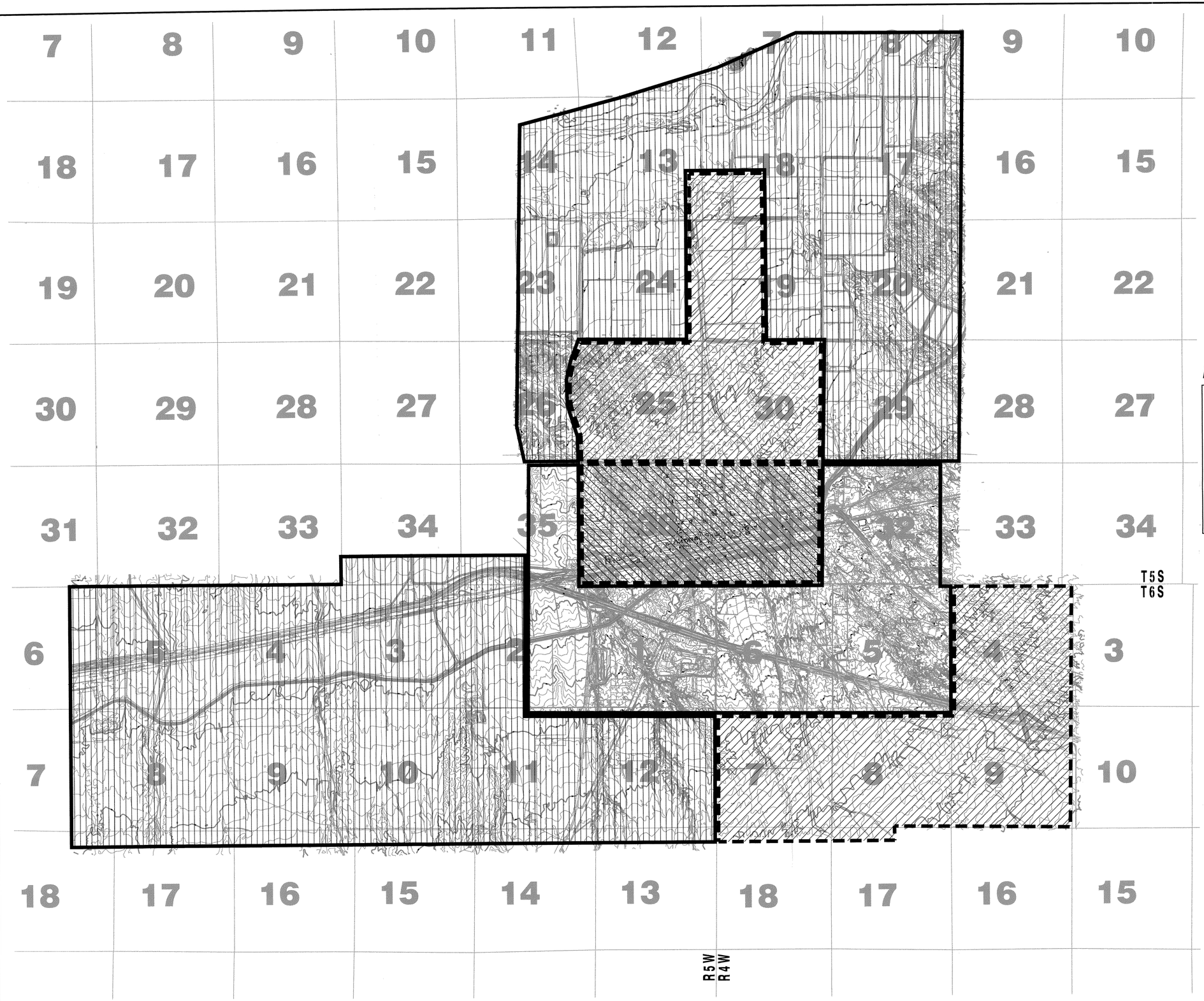

FLOOD CONTROL DISTRICT of MARICOPA COUNTY

GILA BEND
Area Drainage Master Plan

MAP OF AERIAL MAPPING LIMITS

LEGEND

- EXIST. 1"=400', 4' CONTOUR MAPPING
- NEW 1"=400', 4' CONTOUR MAPPING
- EXIST. 1"=200', 2' CONTOUR MAPPING
- NEW 1"=200', 2' CONTOUR MAPPING

N

0 1000 2000 4000 8000

eec
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3003 N. Central Avenue, Suite 600
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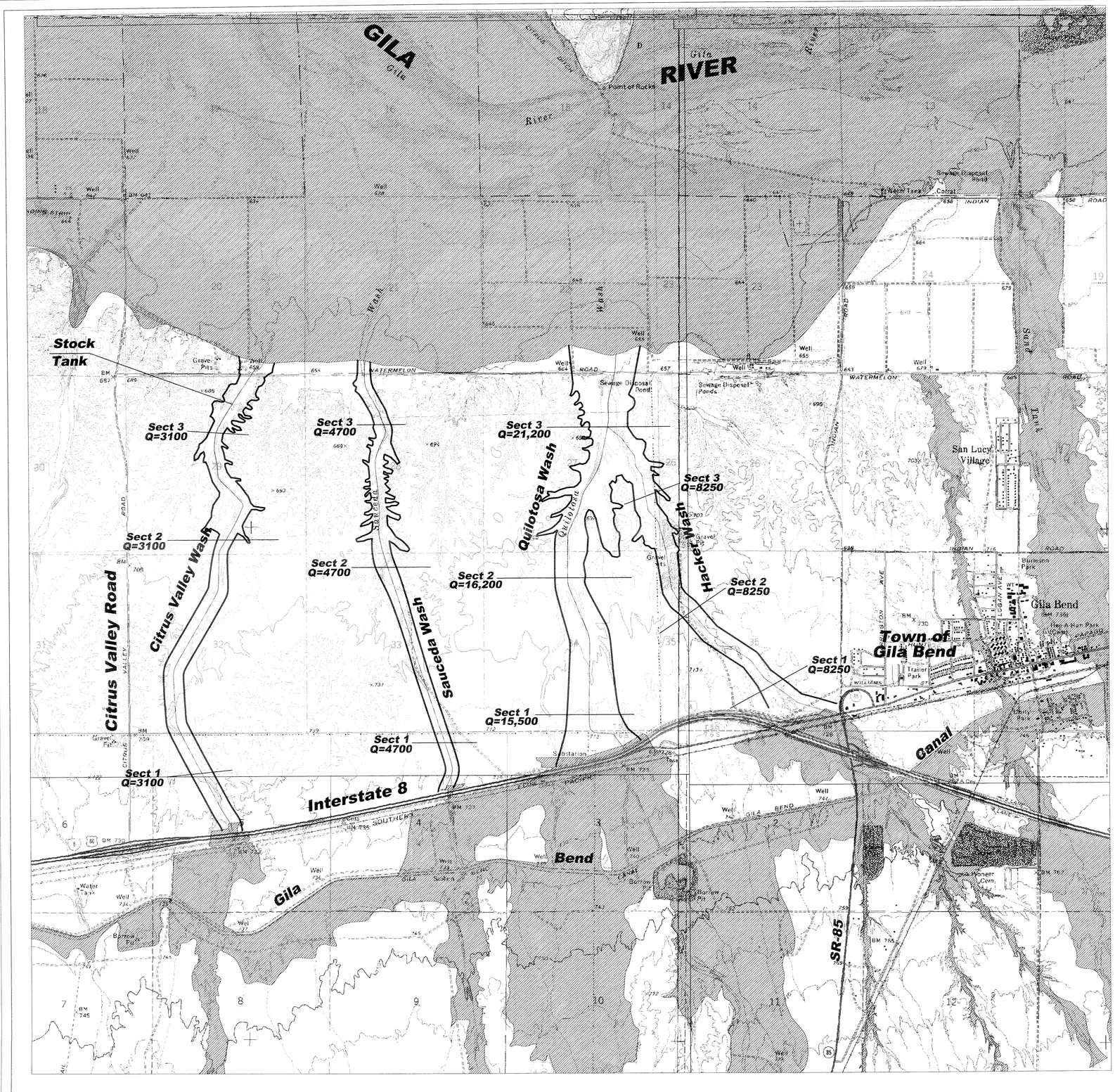


GILA BEND
Area Drainage Master Plan

APPROXIMATE DELINEATION OF

Citrus Valley Wash
Sauceda Wash
Quilotosa Wash
Hacker Wash

TOPOGRAPHIC BACKGROUND

Exhibit 1 of 2

LEGEND

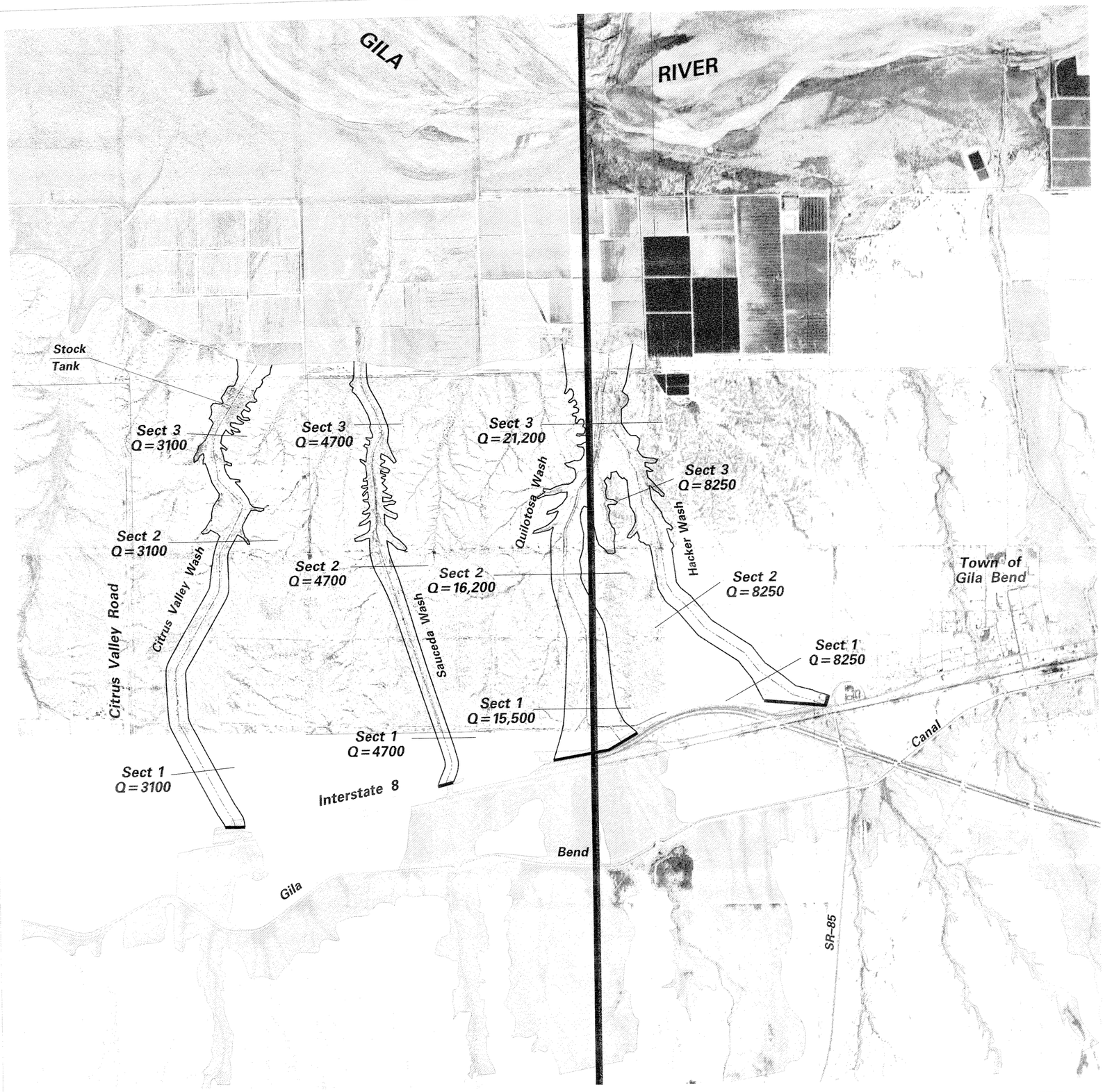
- FLOW LINE
- APPROXIMATE FLOODPLAIN BOUNDARY
- CROSS SECTION
- Sect 3 Q=3100 — CROSS SECTION I.D. AND Q
- EXISTING DEFINED 100-YEAR FLOODPLAIN LIMITS

8/15/03

N

0 750 1500 3000 6000

SCALE: 1" =1500'



GILA BEND
Area Drainage Master Plan

APPROXIMATE DELINEATION OF

Citrus Valley Wash
Sauceda Wash
Quilotosa Wash
Hacker Wash

PHOTO BACKGROUND
EXHIBIT 2 OF 2

LEGEND

	FLOW LINE
	APPROXIMATE FLOODPLAIN BOUNDARY
	CROSS SECTION
Sect 3 Q=3100	CROSS SECTION I.D. AND Q
	EXISTING DEFINED 100-YEAR FLOODPLAIN LIMITS

0 750 1500 3000 6000

SCALE: 1" = 1500'

8/15/03

Image is from the Gila Bend Area Floodplain Delineation Study Prepared By Burgess & Niple, Inc.

GILA BEND
HEC-1 SCHEMATIC
Revised With Gila Bend Canal

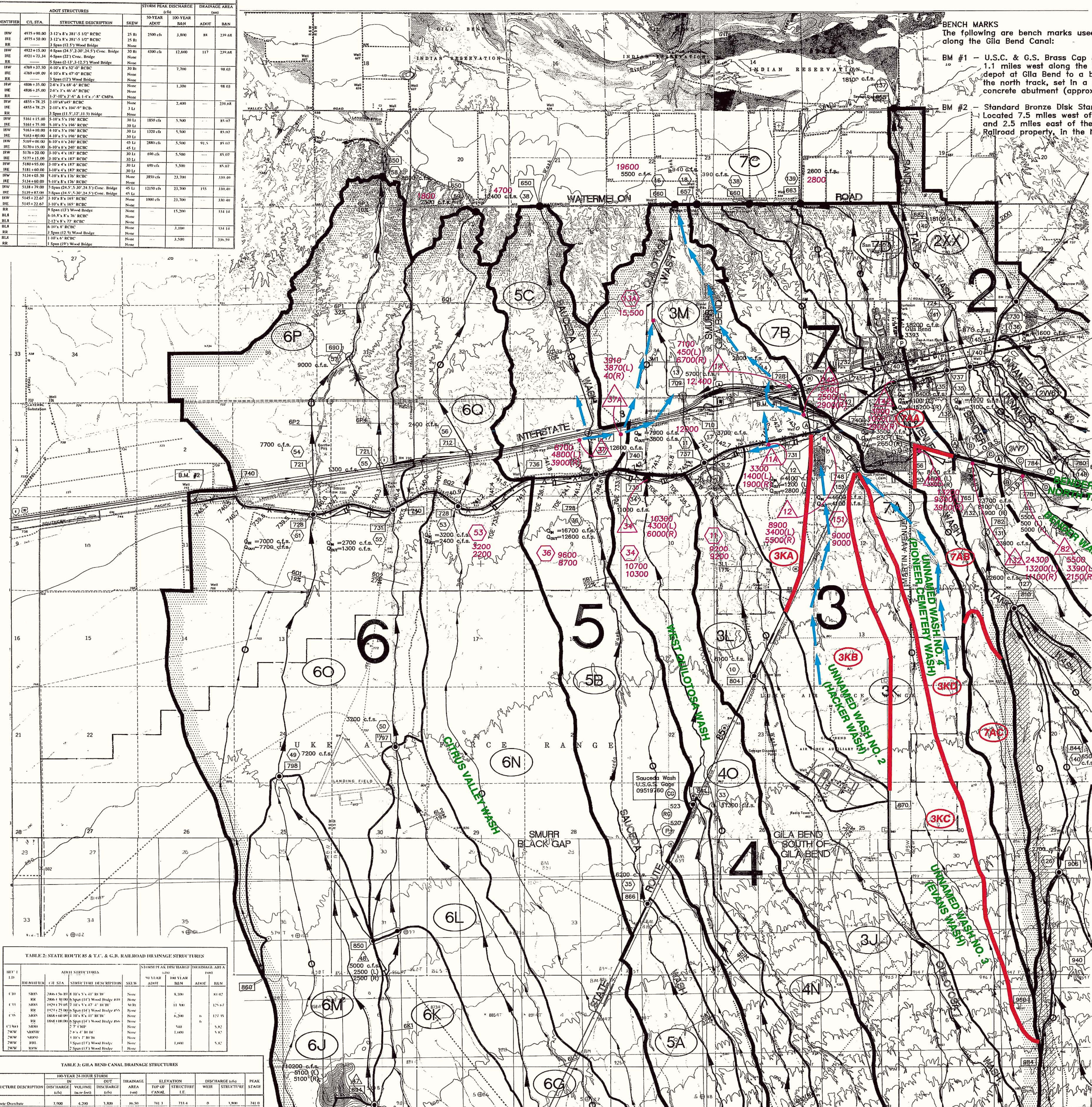
TABLE 1: INTERSTATE 8, BUSINESS LOOP 8 & S.P. RAILROAD DRAINAGE STRUCTURES

HEC-1 I.D.	ADOT STRUCTURES IDENTIFIER	C/L STA.	STRUCTURE DESCRIPTION	SKEW	STORM PEAK DISCHARGE (cfs) 50-YEAR ADOT	100-YEAR B&N	DRAINAGE AREA (sm) ADOT	B&N
C17 (C110)	I8W	4975+90.00	3-12'x 8'x 381'-5 1/2" RCBC	25 Rt	2500 cfs	3,800	88	239.68
	I8E	4975+50.00	3-12'x 8'x 381'-5 1/2" RCBC	25 Rt				
	RR	-------	3 Span (12.5') Wood Bridge	None				
C37 (C360)	I8W	4922+15.00	4-Span (24.5',2-30',24.5') Conc. Bridge	30 Rt	4300 cfs	12,600	117	239.68
	I8E	4921+73.34	4-Span (22') Conc. Bridge	None				
	RR	-------	5 Span (2-13',3-12.5') Wood Bridge	None				
C54 (C510)	I8W	4769+37.50	4-10'x 8'x 52'-0" RCBC	30 Rt	----	7,700	---	98.03
	I8E	4769+09.09	4-10'x 8'x 47'-0" RCBC	None				
	RR	-------	3 Span (12') Wood Bridge	None				
C55 (C520)	I8W	4806+35.00	2-6'x 3'x 68'-6" RCBC	None	----	1,300	----	98.03
	I8E	4806+35.00	2-6'x 3'x 46'-6" RCBC	None				
	RR	-------	1-3'-10"x 3'-6" & 1-4'x 3'-8" CMPA	None				
C56 (C530)	I8W	4855+78.25	2-10'x8'x45' RCBC	None	----	2,400	----	239.68
	I8E	4855+78.25	2-10'x 8'x 104'-9" RCBs	3 Lt				
	RR	-------	3 Span (11.5',12',11.5') Bridge	None				
C82A	I8W	5161+15.00	5-10'x 5'x 196' RCBC	30 Lt	1850 cfs	5,500	---	85.07
	I8E	5161+75.00	5-10'x 5'x 196' RCBC	30 Lt				
C82B	I8W	5163+10.00	4-10'x 5'x 196' RCBC	30 Lt	1320 cfs	5,500	---	85.07
	I8E	5163+80.00	4-10'x 5'x 196' RCBC	30 Lt				
C82C	I8W	5169+00.00	6-10'x 6'x 240' RCBC	45 Lt	2880 cfs	5,500	91.5	85.07
	I8E	5170+15.00	6-10'x 6'x 240' RCBC	45 Lt				
C82D	I8W	5176+20.00	3-10'x 4'x 187' RCBC	30 Lt	690 cfs	5,500	----	85.07
	I8E	5177+15.00	3-10'x 4'x 187' RCBC	30 Lt				
C82E	I8W	5180+95.00	3-10'x 4'x 187' RCBC	30 Lt	690 cfs	5,500	---	85.07
	I8E	5181+60.00	3-10'x 4'x 187' RCBC	30 Lt				
C132A	I8W	5134+05.50	5-10'x 8'x 176' RCBC	None	3850 cfs	23,700		330.40
	I8E	5134+60.00	5-10'x 8'x 176' RCBC	None				
C132B	I8W	5138+79.00	7-Span (24.5',5-30',24.5') Conc. Bridge	45 Lt	12150 cfs	23,700	155	330.40
	I8E	5139+87.00	7-Span (24.5',5-30',24.5') Conc. Bridge	45 Lt				
C132C	I8W	5145+22.67	3-10'x 8'x 165' RCBC	None	1000 cfs	23,700	---	330.40
	I8E	5145+22.67	3-10'x 8'x 165' RCBC	None				
C133D	RR	-------	9 Span (13') Wood Bridge	None	---	15,200		334.14
	BL8	-------	6-16.8'x 8'x 76' RCBC	None				
	BL8	-------	2-12'x 8'x 77' RCBC	None				
C135D	BL8	-------	6-10'x 8' RCBC	None	---	3,100	-	334.14
	RR	-------	3 Span (12.5) Wood Bridge	None				
C142D	BL8	-------	1-10'x 6' RCBC	None	---	3,500	--	336.59
	RR	-------	1 Span (19') Wood Bridge	None				

BENCH MARKS
The following are bench marks used for determining spot elevations along the Gila Bend Canal:

BM #1 – U.S.C. & G.S. Brass Cap #K-354, Elev. = 727.682
1.1 miles west along the Southern Pacific Railroad from the depot at Gila Bend to a bridge, 8' north of the north rail of the north track, set in a drill hole in the top of the northwest concrete abutment (approx. 5 inches lower than the track).

BM #2 – Standard Bronze Disk Stamped "SMURR 1960", Elev. = 747.157
Located 7.5 miles west of the U.S. Post Office in Gila Bend and 2.5 miles east of the Theba Overpass, on Southern Pacific Railroad property, in the NE 1/4 of Section 11, T.6S., R.5W.



SCALE 1" = 2000'

SHEET INDEX

SMURR	GILA BEND	BOSQUE	ESTRELLA	CONLEY WELL
SHEET 1	SHEET 2		SHEET 3	
BLACK GAP	SOUTH OF GILA BEND	BLUE PLATEAU	BIG HORN	LOST HORSE PEAK
MIDWAY SHEET 4	HAT MOUNTAIN	PLATT WELL SHEET 5	KAKA N.W. SHEET 6	
	HAT MOUNTAIN S.W. SHEET 7	TOM THUMB	MOIVAYI SHEET 8	

LEGEND
P.D. = PHOTO DATE FOR QUAD MAPPING
SM35 = SOIL MAP NO. 35; REFERENCE PRELIMINARY SOIL SURVEY OF GILA BEND-AJO AREA
PLATT WELL = 1:24,000 U.S.G.S. QUADRANGLE MAP
= SHEET DELINEATION FOR EXHIBITS "B" AND "C"
(Kaka S.W.) = 1:24,000 U.S.G.S. ORTHO PHOTO QUADRANGLE MAP

TABLE 2: STATE ROUTE 85 & T.C. & G.B. RAILROAD DRAINAGE STRUCTURES

HEC-1 I.D.	ADOT STRUCTURES IDENTIFIER	C/L STA.	STRUCTURE DESCRIPTION	SKEW	STORM PEAK DISCHARGE (cfs) 50-YEAR ADOT	100-YEAR B&N	DRAINAGE AREA (sm) ADOT	B&N
C10	SR85	2006+56.89	8-10'x 5'x 41' RCBC	None		8,100		81.02
	RR	2006+30.00	6 Span (14') Wood Bridge #40	None				
C33	SR85	1929+79.05	7-10'x 5'x 47'-4" RCBC	30 Rt		11,300		125.67
	RR	1929+25.00	6 Span (14') Wood Bridge #55	None				
C35	SR85	1868+60.09	4-10'x 8'x 41' RCBC	None		6,200	6	127.35
	RR	1868+00.00	6 Span (14') Wood Bridge #66	None			6	
C1360	SR80		2-7' CMP	None		540		5.82
2WW	SR85W		2-6'x 4' RCBC	None		1,600		5.82
2WW	SR85E		3-10'x 7' RCBC	None				
2WW	RRE		3 Span (13') Wood Bridge	None		1,600		5.82
2WW	RRW		2 Span (13') Wood Bridge	None				

TABLE 3: GILA BEND CANAL DRAINAGE STRUCTURES

HEC-1 I.D	STRUCTURE DESCRIPTION	100-YEAR 24-HOUR STORM IN DISCHARGE (cfs)	IN VOLUME (acre-feet)	OUT DISCHARGE (cfs)	DRAINAGE AREA (sm)	ELEVATION TOP OF CANAL	ELEVATION STRUCTURE I.E.	DISCHARGE (cfs) WEIR	DISCHARGE (cfs) STRUCTURE	PEAK STAGE
C11	Concrete Overchute	7,900	4,200	3,800	86.50	741.3	733.4	0	3,800	741.0
C12A	2-48" CMP's t/t 2-6'x 4' RCBC	4,100	1,400	4,050	139.24	741.4	731.0	2,220 (N)	415	743.3
C12B	1-48" CMP t/t 1-6'x 4' RCBC					741.4	732.0	1,250 (W)	165	
C36	Concrete Overchute	16,700	7,100	12,600	140.36	741.0	727.9	0	12,600	741.0
C51	3-4' CMP's t/t 3-6'x 3' RCBC	7,000	3,800	7,700	85.32	739.5	727.5	7,200	500	740.4
C52	1-36" CMP	2,700	1,400	1,300	86.04	739.9	731.0	1,210	90	740.4
C53	2-48" CMP's t/t 1-8'x 6' RCBC	3,200	560	2,400	7.84	740.0	727.7	2,000	400	741.0
C131	Concrete Overchute	18,400	9,600	18,300	334.14	745.5	731.3	180 (N) 130 (W)	18,200	746.1
C135	3-30" CMP's t/t 3-6'x 4' RCBC	4,900	1,700	103	85.07	745.5	735.2	------	100	746.1
C136	1-60", 1-54" & 1-48" CMP	1,600	290	550	1.45	745.5	731.0	------	550	741.9
C142	1-6'x 3' RCBC	3,500	1,600	3,500	136.59	743.6	731.9	830 (7B) 2,650 (7D)	350	745.6

NOTES 1. Weir flow is flow which overtops the Gila Bend Canal.
2. 't/t' stands for 'transition to'. Many of the structures transition from pipe culverts to concrete box culverts.

LEGEND

- 2 — MAJOR DRAINAGE BASIN NUMBER 2
- 3F — DRAINAGE SUB-BASIN NUMBER 3F
- MAJOR DRAINAGE BASIN BOUNDARY
- DRAINAGE SUB-BASIN BOUNDARY
- 12700 c.f.s. (73) — FLOW COMBINATION POINT AT NODE 73, PEAK DISCHARGE FROM THE 100-YR., 24-HR. STORM IS 12700 c.f.s.
- 18000 c.f.s. 6400 (L) 11700 (R) (32) — FLOW DIVERSION POINT AT NODE 32. TOTAL INTO CONCENTRATION POINT IS 18000 c.f.s., FLOW DIVERTED LEFT IS 6400 c.f.s., FLOW DIVERTED RIGHT IS 11700 c.f.s.
- (36) Q_{IN} =16700 c.f.s. Q_{OUT}=12600 c.f.s. — FLOW COMBINATION POINT AND RESERVOIR ROUTE OPERATION. PEAK DISCHARGE FROM THE 100-YR., 24-HR. STORM INTO THE RESERVOIR IS 16700 c.f.s. PEAK OUTFLOW IS 12600 c.f.s.
- MAJOR DRAINAGE BASIN CONCENTRATION POINT
- DRAINAGE SUB-BASIN CONCENTRATION POINT
- (A) — MULTIPLE CHANNELS AND/OR CONVEYANCE STRUCTURES AT SUB-BASIN CONCENTRATION POINT. REFER TO STRUCTURE TABLES FOR STRUCTURE "A" DATA
- ROUTING COMBINATION POINT OR MINOR SUB-BASIN CONCENTRATION POINT
- LAG TIME FLOW PATH AND/OR HYDROGRAPH ROUTING PATH
- SECONDARY LAG TIME FLOW PATH AND/OR SECONDARY HYDROGRAPH ROUTING CHANNEL IN VICINITY OF SPLIT FLOW
- RESERVOIR ROUTING SPLIT FLOW DIRECTION
- X 741.5 — SPOT ELEVATION ON TOP OF SOUTH CANAL LEVEE
- X TOE 733.9 — SPOT ELEVATION AT TOE OF SOUTH CANAL LEVEE
- 2039 — LAG TIME FLOW PATH AND REACH DELIMITER AT ELEVATION 2039
- LOW FLOW DRAINAGE PATTERN ALONG TOE OF SOUTH LEVEE OF GILA BEND CANAL
- 1L2 19% — LOCATION OF FIELD CROSS SECTION NUMBER 2 IN SUB-BASIN 1L AND 19% VEGETATIVE COVER DENSITY MEASURED BY FIELD TRANSECT. PHOTOGRAPHS TAKEN AT THIS LOCATION ARE ON FILE WITH BURGESS AND NIPLE, INC. AND THE F.C.D.M.C.
- POINT ON THE LAG TIME FLOW PATH OPPOSITE THE SUB-BASIN CENTROID
- L.O.D.S. — UPPER LIMIT OF DETAILED STUDY FOR HYDRAULIC ANALYSIS AND FLOODPLAIN DELINEATION
- BOUNDARY OF BARRY M. GOLDWATER MILITARY RESERVATION
- BOUNDARY OF F.C.D.M.C. SUPPLIED WATERSHED INFORMATION
- BOUNDARY OF BURGESS AND NIPLE HYDROLOGIC PARAMETERS DETERMINATION
- (CG) (RG) 523 (P) 520 — CG=U.S.G.S. CREST-STAGE FLOW GAGE. RG=RECORDING FLOW GAGE, F.C.D.M.C. GAGE NO. 523. P=F.C.D.M.C. PRECIPITATION GAGE NO. 520

LEGEND

7AA	REVISED SUBBASIN I.D.
(red line)	REVISED SUBBASIN BOUNDARIES
(blue arrows)	DIRECTION OF FLOW
5700	REVISED FLOW RATES (cfs)
(HACKER WASH)	PROPOSED WASH NAMES
12	DIVERSION OPERATION
151	CONCENTRATION POINT

Engineering and Environmental Consultants, Inc.
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Phoenix, Arizona 85012–2905
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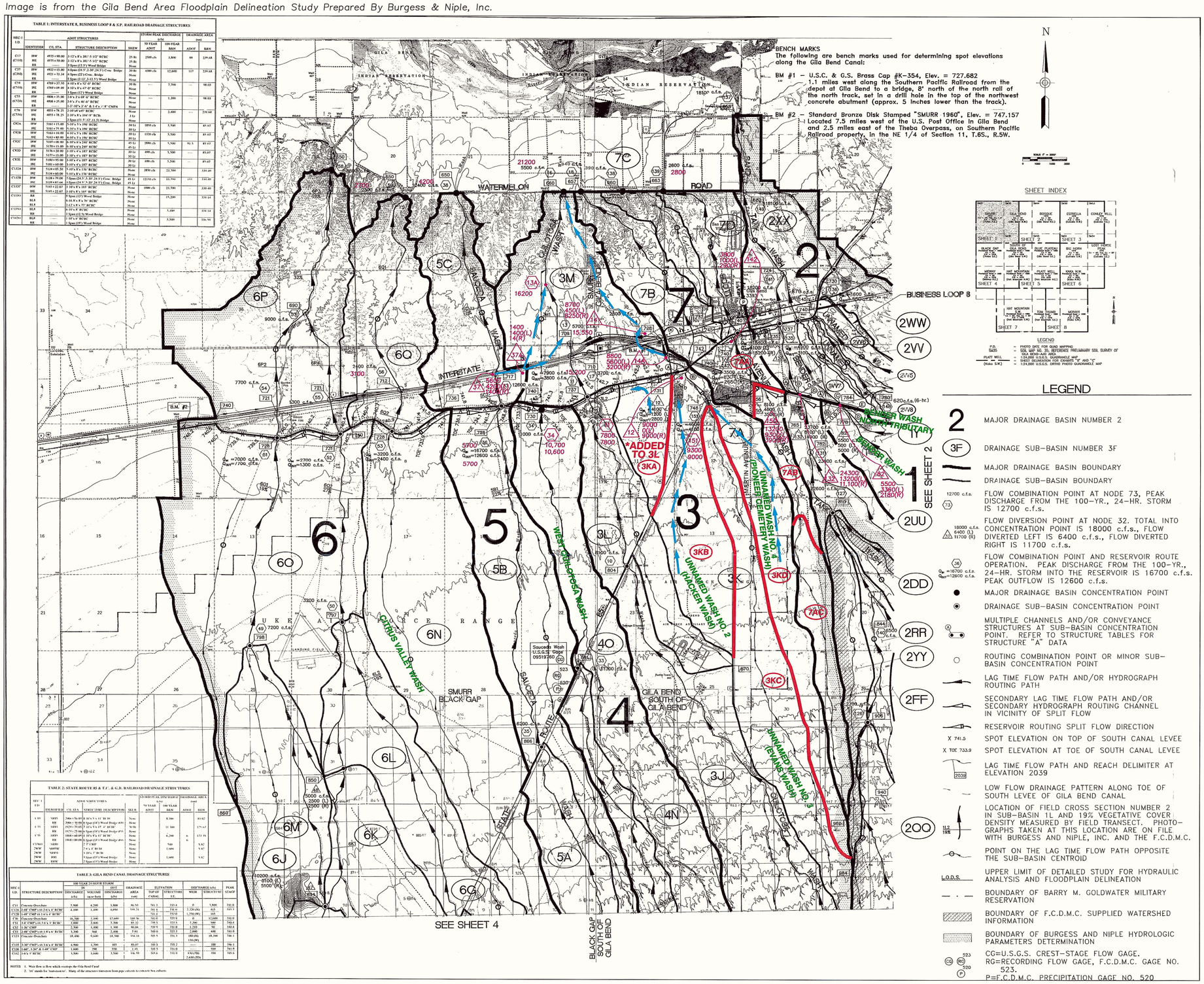
Image is from the Gila Bend Area Floodplain Delineation Study Prepared By Burgess & Niple, Inc.

FLOOD CONTROL DISTRICT of MARICOPA COUNTY

GILA BEND
HEC-1 SCHEMATIC
Revised Without Gila Bend Canal



LEGEND

7AA	REVISED SUBBASIN I.D.
	REVISED SUBBASIN BOUNDARIES
	DIRECTION OF FLOW
5700	REVISED FLOW RATES (cfs)
(HACKER WASH)	PROPOSED WASH NAMES
12	DIVERSION OPERATION
151	CONCENTRATION POINT

TABLE 1: INTERSTATE 8, BUSINESS LOOP 8 & S.P. RAILROAD DRAINAGE STRUCTURES

HEC-1 I.D.	ADOT STRUCTURES IDENTIFIER	CIL STA.	STRUCTURE DESCRIPTION	SKEW	STORM PEAK DISCHARGE (cfs) 50 YEAR ADOT	100-YEAR BAR	DRAINAGE AREA (mi²) ADOT	BAR
C17 (C11N)	HW HE RR	4975+90.00 4975+50.00	8-12'w 8'h 181'-5 1/2" RCBC 3-12'w 8'h 181'-5 1/2" RCBC 2-Span (12.5') Wood Bridge	25 Rt 25 Rt None	2500 c/s	1,800	88	239.68
C17 (C5N3)	HW HE RR	4922+15.00 4921+72.34	6-Span (20.5'-2.30'-24.5') Conc. Bridge 6-Span (22'-2' Conc. Bridge 2-Span (12.5') Wood Bridge	20 Rt None None	4300 c/s	12,600	117	239.68
C14 (C7AN)	HW HE RR	4769+37.50 4769+09.00	6-10'w 8'h 87'-0" RCBC 6-10'w 8'h 87'-0" RCBC 2-Span (12') Wood Bridge	40 Rt None	—	7,700	—	98.02
C9 (C7AN)	HW HE RR	4606+35.00 4606+35.00	2-6'w 3'h 48'-6" RCBC 2-6'w 3'h 48'-6" RCBC 3-3'-0"x 2'-6" & 1-4'x 1'-8" CMPA	None None None	—	1,300	—	98.02
C8 (C7AN)	HW HE RR	4855+78.25 4855+78.25	2-10'w8'h87'RCBC 2-10'w 8'h 104'-9" RCB. 2-Span (11.5'-17.5'-11.5') Bridge	None 1 Lt None	—	2,400	—	219.68
C9(A) (C9N)	HW HE	5164+15.00 5164+79.00	5-10'w 5'h 190' RCBC 5-10'w 5'h 190' RCBC	30 Lt 30 Lt	1850 c/s	5,500		85.67
C9(B) (C9N)	HW HE	5163+10.00 5163+80.00	6-10'w 5'h 190' RCBC 6-10'w 5'h 190' RCBC	20 Lt 20 Lt	1320 c/s	5,500		85.67
C9(C) (C9N)	HW HE	5105+00.00 5170+15.00	6-10'w 8'h 240' RCBC 6-10'w 8'h 240' RCBC	45 Lt 45 Lt	2000 c/s	5,500	91.5	85.67
C9(D) (C9N)	HW HE	5176+20.00 5177+15.00	2-10'w 8'h 187' RCBC 2-10'w 8'h 187' RCBC	20 Lt 20 Lt	690 c/s	5,500	—	85.67
C9(E) (C9N)	HW HE	5180+95.00 5181+60.00	2-10'w 8'h 187' RCBC 2-10'w 8'h 187' RCBC	20 Lt 20 Lt	690 c/s	5,500		85.67
C12(A) (C12N)	HW HE	5124+05.50 5124+60.00	5-10'w 8'h 176' RCBC 5-10'w 8'h 176' RCBC	None None	1850 c/s	22,700		230.00
C12(B) (C12N)	HW HE	5128+79.00 5129+87.00	7-Span (24.5'-3.20'-24.5') Conc. Bridge 7-Span (24.5'-3.20'-24.5') Conc. Bridge	45 Lt 45 Lt	15250 c/s	22,700	155	230.00
C12(C) (C12N)	HW HE	5145+22.67 5145+22.67	2-10'w 8'h 185' RCBC 2-10'w 8'h 185' RCBC	None None	1000 c/s	21,700		230.00
C13(N)	RR BLR	—— ——	7-Span (15') Wood Bridge 6-16.5'w 8'h 76' RCBC	None None		15,200		134.14
C13(S)	BLR RR	—— ——	3-12'w 8'h 77' RCBC 2-10'w 8' RCBC 7-Span (15') Wood Bridge	None None None		3,100		134.14
C14(N)	BLR RR	—— ——	2-10'w 8' RCBC 7-Span (15') Wood Bridge	None None	—	3,300		136.94

TABLE 2: STATE ROUTE 85 & T.A.' & G.H. RAILROAD DRAINAGE STRUCTURES

HEC-1 I.D.	ADOT STRUCTURES IDENTIFIER	CIL STA.	STRUCTURE DESCRIPTION	SKEW	50-YEAR PEAK DISCHARGE (cfs) 50 YEAR ADOT	100 YEAR BER	DRAINAGE AREA (mi²) ADOT	BER
1 101	NBNS	2446+56.00	4-10'w 8'h 111' 10' 30	None		8,100		83.02
	RR	2446+50.00	4-Span (14') Wood Bridge #101	None				
1 115	NBNS	1924+75.00	7-10'w 8'h 47' 8" 80'RC	None		11 500		179.12
	RR	1925+25.00	6-Span (14') Wood Bridge #75	None				
1 135	NBNS	1068+40.00	8-10'w 8'h 47' 80'RC	None		6,200	n	127.16
	RR	1068+00.00	8-Span (14') Wood Bridge #66	None			n	
1 Ver1	NBNS	———	2-6'w 4' 80 Ft	None		500		5.82
2WW	NBFW	———	7'w 4' 80 Ft	None		1,100		5.82
2WW	NBFE	———	8 10'x 7' 80 Ft	None				
2WW	RR	———	9-Span (15') Wood Bridge	None		1,600		5.82
2WW	BRW	———	2-Span (15') Wood Bridge	None				

TABLE 3: GILA BEND CANAL DRAINAGE STRUCTURES

HEC-1 I.D.	STRUCTURE DESCRIPTION	100 YEAR 24 HOUR STORM IN DISCHARGE (cfs)	VOLUME (acre-feet)	OUT DISCHARGE (cfs)	DRAINAGE AREA (mi²)	ELEVATION TOP OF CANAL	STRUCTURE I.E.	DISTHARGE (cfs) WEIR	STRUCTURE	PEAK STAGE
C11	Concrete Overchute	2,900	4,200	3,800	46.54	711.3	713.4	0	5,800	711.8
C12A	2-48" CMP w/o 2-6'w 6' RCBC	4,100	1,600	4,090	191.5	711.4	711.0	2,720 (Rt)	615	713.7
C12B	1-48" CMP w/ 1-6'w 6' RCBC					711.4	711.0	1,750 (W)	615	
C7a	Concrete Overchute	16,500	2,100	17,600	149.76	711.0	713.5	0	12,600	711.0
C1	3-8' CMP w/o 3-6'w 5' RCBC	2,000	3,900	5,300	95.13	710.5	713.4	0	900	710.8
C2	2-36" CMP	3,300	1,400	1,400	80.62	710.7	711.0	1,270	500	710.4
C3	2-48" CMP w/8-1'd'w 6' RCBC	3,300	600	3,300	7.16	710.0	713.2	2,600	600	710.8
C13A	Concrete Overchute	18,400	9,600	18,300	154.14	715.5	721.5	180 (Rt) 130 (W)	18,200	716.3
C15	3-30" CMP w/o 3-6'w 6' RCBC	4,900	1,500	103	49.07	715.3	721.2	—	100	716.1
C16A	3-60", 1-30" & 1-60" CMP	1,600	700	550	1.45	715.5	721.0	—	500	716.8
C16Z	3-6'w 5' RCBC	1,500	1,600	3,500	136.58	715.6	721.0	830 (TB) 2,650 (TS)	150	719.6

NOTES 1. Water flows in flow which overtops the Gila Bend Canal
2. 'W' stands for 'transition to'. Many of the structures transition from pipe culverts to concrete box culverts

eec
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